

On-line Appendix - not for publication

Appendix A Experimental Instructions

Note: this section reports the instructions for the BASELINE treatment. Instructions for the other treatments only differ in terms of the payoff matrix and the numbers reported in the examples.

Instructions

Welcome to this study on economic decision-making.

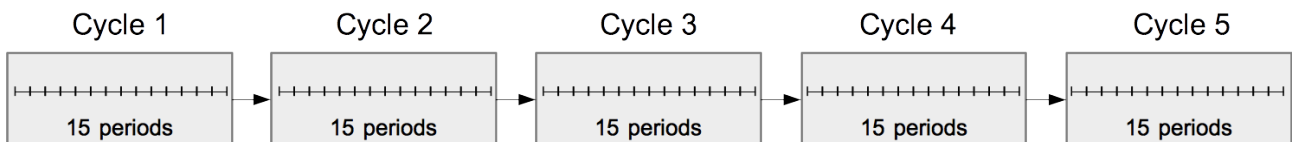
These instructions are a detailed description of the procedures we will follow. In this study, you will earn an amount of money, which depends on how well you understand these instructions, and on the choices you and the other participants will take.

During the experiment you are not allowed to communicate with the other participants. We also ask you to switch off your mobile phone now. If you have a question at any time, please raise your hand and remain seated: someone will come to your desk to answer it.

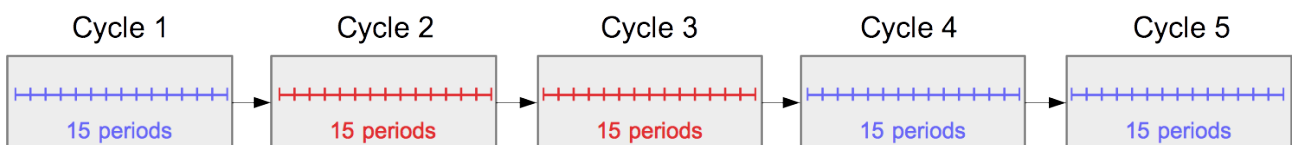
As we proceed with the instructions, you will be asked to answer ten questions designed to verify your understanding of the instructions. You will receive €0.50 for each question you answer correctly. So you can earn up to €5 if you answer all questions correctly.

Overview of the experiment

The study is divided into **5 cycles**. Each cycle will last exactly for **15 periods**.

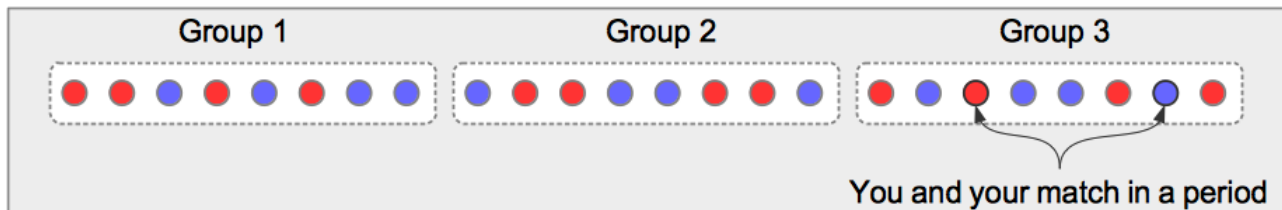


There are 24 participants. At the start of each **cycle**, a computer program will form **groups of 8** participants. In each group, 4 participants will be red, and 4 will be blue. In the first period of cycle 1 you will be randomly assigned a color, either red or blue. Then your color remains the **same for the whole cycle**. Afterwards, your color may change from cycle to cycle, but will always remain the same within a cycle. If in period 1 of Cycle 1 you are blue, then you will be blue in all periods of Cycle 1. At the beginning of Cycle 2, you will be assigned a new color, which may be either blue or red; then you will keep the same color in all periods of Cycle 2. And so forth and so on. So, for example, you could be blue in all periods of Cycle 1, red in all periods of Cycles 2 and 3, and blue again in all periods of Cycles 4 and 5.



In each period of the cycle you will be paired with someone **in your group** to interact with him or her. We will call this person your **“match”**. Your match is a **random person** from your group.

In each pair, one person will be red and the other blue. If you are red, your match will be blue and vice versa. Your match will always remain anonymous. Hence, you will not know if you repeatedly interact with the same participant.



Groups change in each cycle so that you cannot interact with anyone for more than one cycle.

Understanding check 1

Before we proceed, please answer the questions that will appear now on your screen. Remember that you earn €0.50 for each question you answer correctly.

How you earn points in a period

You will earn points that depend on your choices and the choices of your match. Points will be converted into euros at the end of the session in a manner that we explain later. Both you and your match will have to choose an integer number between 0 and 10. These choices determine your **profit** and the profit of your match, as displayed in the following table.

		Choice of blue										
		0	1	2	3	4	5	6	7	8	9	10
Your choice	0	5	14	21	28	35	42	49	55	62	69	76
	1	5	10	21	28	35	42	49	55	62	69	76
	2	7	7	14	28	35	42	49	55	62	69	76
	3	9	9	9	19	35	42	49	55	62	69	76
	4	11	11	11	11	23	42	49	55	62	69	76
	5	13	13	13	13	13	28	49	55	62	69	76
	6	15	15	15	15	15	15	32	55	62	69	76
	7	18	18	18	18	18	18	18	37	62	69	76
	8	20	20	20	20	20	20	20	20	41	69	76
	9	22	22	22	22	22	22	22	22	22	46	76
	10	24	24	24	24	24	24	24	24	24	24	50

In the table, the numbers in red represent the profits of the red person, and the numbers in blue represent the profits of the blue person. To read the profits corresponding to a specific pair of choices, you should

- find the row in the table that corresponds to the choice of the red person;
- move to the right until you find the cell where this row crosses the column corresponding to the choice of the blue person.

Consider the following **examples**. If you are red and you choose 6, while your blue match chooses 3

- your profit is 15;
- the profit of your blue match is 49.

If instead you are blue and you choose 8, while your red match chooses 4

- the profit of your red match is 62;
- your profit is 20.

Understanding check 2

Before we proceed, please answer the questions that will appear now on your screen. Remember that you earn €0.50 for each question you answer correctly.

Timeline of a period

Each period has the following timeline:

Step 1: You are **randomly paired** with another participant in your group.

In each period, half of the members of your group are red and the others blue.

Your match has always a color different than yours. Your match changes from period to period with a probability equal to 3 out of 4 (75%) because your match can be **any of the 4 members** of your group who have a color different than yours. You will never know whom you meet, and your match will not be able to identify you, either.

Step 2: You and your match **choose a number** between 0 and 10.

To make a choice, click on the row corresponding to your preferred option. The line of the table corresponding to your choice will be highlighted in yellow (see the figure below). To submit your choice, click the “Confirm” button.

You cannot observe the number chosen by your match before making your choice. Similarly, your match cannot observe the number you chose, before making his choice.

You can review results of **past periods of the cycle** in the two graphs in the right-hand part of the screen. The graph at the top displays your profits in the past periods, while the graph at the bottom represents your choices, and the choices of your match. At the top of the graphs, you can also read your accumulated profit in the current cycle.

Period 7, Cycle 1, 7s remaining

Your choice

Please select a line and confirm your choice.

Choice of blue

	0	1	2	3	4	5	6	7	8	9	10
0	5	14	21	28	35	42	49	55	62	69	76
1	5	10	21	28	35	42	49	55	62	69	76
2	7	21	14	28	35	42	49	55	62	69	76
3	9	28	28	19	35	42	49	55	62	69	76
4	11	35	35	11	23	42	49	55	62	69	76
5	13	42	42	13	28	42	49	55	62	69	76
6	15	49	49	15	32	49	55	62	69	76	76
7	18	55	55	18	37	55	62	69	76	76	76
8	20	62	62	20	41	62	69	76	76	76	76
9	22	69	69	22	46	69	76	76	76	76	76
10	24	76	76	24	50	76	76	76	76	76	76

Results from previous periods

Accumulated cycle profit: 264

Your profit

Choice

Step 3: You observe the outcome.

The outcome in your pair for the period will be displayed after you and your match make a choice. You will see your choice, the choice of your match and your profit in points (see the figure below).

Results from past periods will again be visible on the right of the screen.

Period 7, Cycle 1, 9s remaining

Results for this period

Your choice: 4.

Your opponent's choice: 5.

Your profit: 42.

Results from previous periods

Accumulated cycle profit: 306

Your profit

Choice

End of the cycle and beginning of a new cycle

Each cycle lasts for 15 periods. Then a new cycle begins, until the end of cycle 5.

At the beginning of each cycle:

- **new groups** of eight participants are formed, so that you will never interact with the same participant for more than one cycle;

- you will see your **color**;
- you will be asked to **guess the average number** that the other groups' members, who have a color different than yours, will choose in the **first period** of the cycle which is about to start.
 - If you are red, you will have to guess the average number chosen by the participants who are blue, and who do not belong to your group.
 - If you are blue, you will have to guess the average number chosen by the participants who are red, and who do not belong to your group.

Payments

At the end of today's study, **one** of the five cycles will be randomly selected to determine your payment. The accumulated profit you have earned in that Cycle will be converted into Euros: 1 point is worth 2 cents (€0.02).

A second cycle will be selected, **among the remaining four**, to reward your guess on the others' choices. Your earnings (in points) for this Cycle will depend on the **guess** you made on the other participants' choice, at the beginning of that Cycle. The closer is your guess to the actual value of the average number chosen by the other participants, the higher your earnings, as displayed in the following table.

Difference between your guess and the actual average	Your earnings in points
No difference (exact guess)	250
The difference is larger than 0 and at most 1	240
The difference is larger than 1 and at most 2	210
The difference is larger than 2 and at most 3	160
The difference is larger than 3 and at most 4	90
The difference is larger than 4	0

Final reminders

- The session is divided into **5 cycles**; each cycle has **15 periods**.
- In **each period**
 - you meet an anonymous match, who **changes** from period to period with 75% probability;
 - you must **choose** an integer number between 0 and 10;
 - you **earn points** depending on your choice and on the choice of your match, as displayed in the **profit table**.
- You **cannot** interact with anyone for more than one cycle.
- At the beginning of each cycle, you will be asked to **guess** the average number that the other groups' members, who have a color different than yours, will choose in the **first period** of the cycle which is about to start.
- At the **end of the study**,
 - one cycle will be randomly selected to determine your payment;
 - another cycle will be randomly selected to reward your guess on the others' choices.

Understanding check 3

Before we start, please answer the questions that will appear now on your screen. Remember that you earn €0.50 for each question you answer correctly.

Appendix B Post-experimental questionnaire

We kindly ask you to complete this questionnaire. The answers you give will not affect in any way your earnings. Some of these questions refer to personal information, which will help us in this study. Your identity will not be revealed under any circumstances in the presentation of the results.

Please answer carefully. Once an answer is given, you can no longer change it. Press OK to begin. Thank you.

1. Were the instructions you have received for today's activities clear?

(1) No, not at all (2) No, not so much (3) Yes, enough (4) Yes, very much

2. Gender (press the corresponding button)

(1) Male (2) Female

3. Age (please, give your answer using the slider below and press ok to confirm)

4. Education background

(1) Middle high school (2) High school (3) Bachelor degree (4) Master degree (5) Ph.D. or postgraduate degree (6) Other

5. Occupation

(1) Student (2) Self-employed worker (3) Employee (4) Retired (5) Jobless (6) Others

5.1 Field of studies (this question is accessed only if the subject gives answer (1) to question 5)

(1) Social sciences (2) Mathematical, Physical and Natural sciences (3) Engineering and Architecture (4) Medicine (5) Literature and Philosophy (6) Others

6. Have you attended courses in Economics?

(1) Yes (2) No

7. Have you attended courses in Statistics?

(1) Yes (2) No

8. Have you attended courses in Game Theory?

(1) Yes (2) No

9. Have you previously participated as a volunteer in other researches?

(choose one or more answers)

(1) Yes, in the field of economics

(2) Yes, in the field of psychology

(3) Yes, in the field of medicine or biology

(4) No

10. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

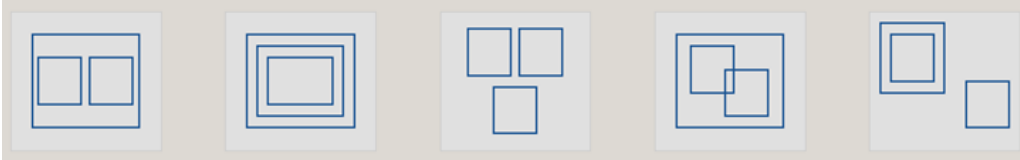
(1) Most people can be trusted (2) Can't be too careful (3) No idea

11. Are you generally a person who is fully prepared to take risks or do you try to avoid taking risk?

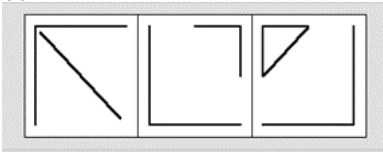
Please tick a box on the scale, where the value 1 means: "unwilling to take risks" and the value 10 means: "fully prepared to take risk"

12. In general, do you think it is important to help others, and take care of their well being? Please tick a box on the scale, where the value 1 means: “not important at all” and the value 10 means: “Maximally important”

13. Which of these diagrams represents the relationship between Orange-Citrus Fruit-Fruit? Please select an answer and click OK to confirm.



14. Select the element that completes the following series. Please select an answer and click OK to confirm.



15. A bat and a ball cost \$ 1.10 in total. The bat costs \$ 1.00 more than the ball. How much does the ball cost?

16. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

17. In a pond, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire pond, how long would it take for the patch to cover half of the pond?

Appendix C Balance check

Variable	(1)	(2)	(3)	(1)-(2)	(1)-(3)	(2)-(3)
	Restricted Mean/(SE)	Baseline Mean/(SE)	Asymmetric Mean/(SE)	Pairwise t-test P-value		
Female (d)	0.611 (0.046)	0.535 (0.048)	0.521 (0.046)	0.254	0.169	0.835
Age	24.243 (0.283)	24.319 (0.382)	24.146 (0.346)	0.872	0.828	0.736
Education	1.944 (0.067)	2.035 (0.083)	1.944 (0.067)	0.396	1.000	0.398
Has taken courses in:						
economics (d)	0.500 (0.042)	0.514 (0.042)	0.528 (0.042)	0.814	0.639	0.814
statistics (d)	0.444 (0.042)	0.417 (0.041)	0.444 (0.042)	0.635	1.000	0.635
game theory (d)	0.299 (0.038)	0.243 (0.036)	0.306 (0.039)	0.290	0.898	0.236
Importance of helping others	7.306 (0.133)	7.111 (0.140)	7.021 (0.150)	0.315	0.157	0.660
Attitudes towards risk	4.861 (0.160)	4.903 (0.167)	4.938 (0.172)	0.857	0.745	0.885
CRT	0.986 (0.072)	1.076 (0.083)	1.007 (0.086)	0.413	0.853	0.562
IQ	1.951 (0.135)	1.847 (0.130)	1.722 (0.137)	0.579	0.234	0.509

Table C.1: Balancing of individual characteristics across treatments.

Appendix D Additional figures

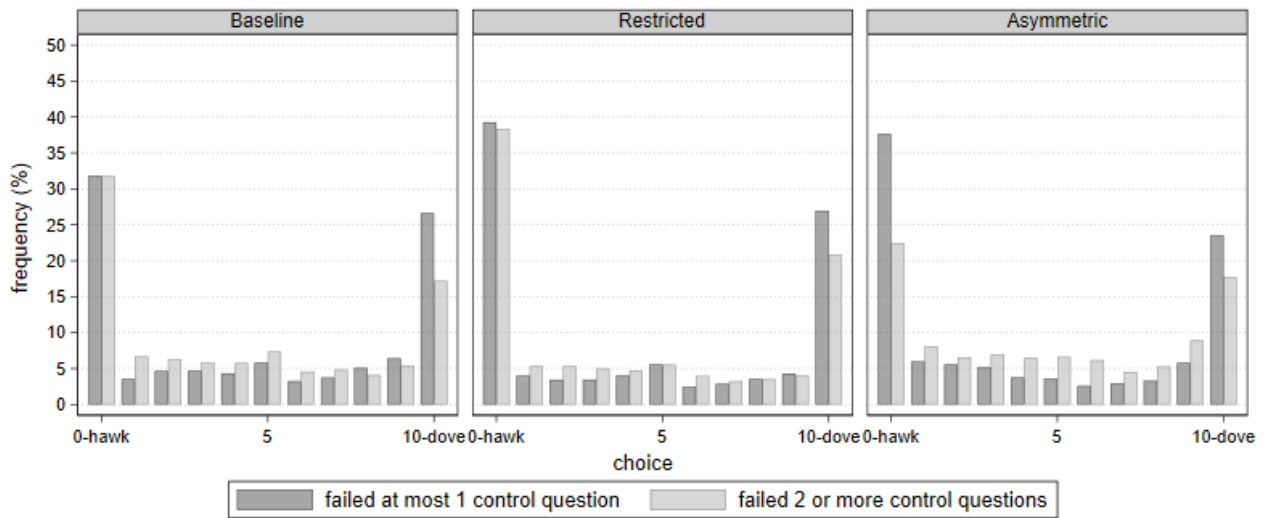


Figure D.1: Frequency distribution of choices, conditional on the number of mistakes in the control questions.

Appendix E Comparison between results from the 1st and 2nd wave

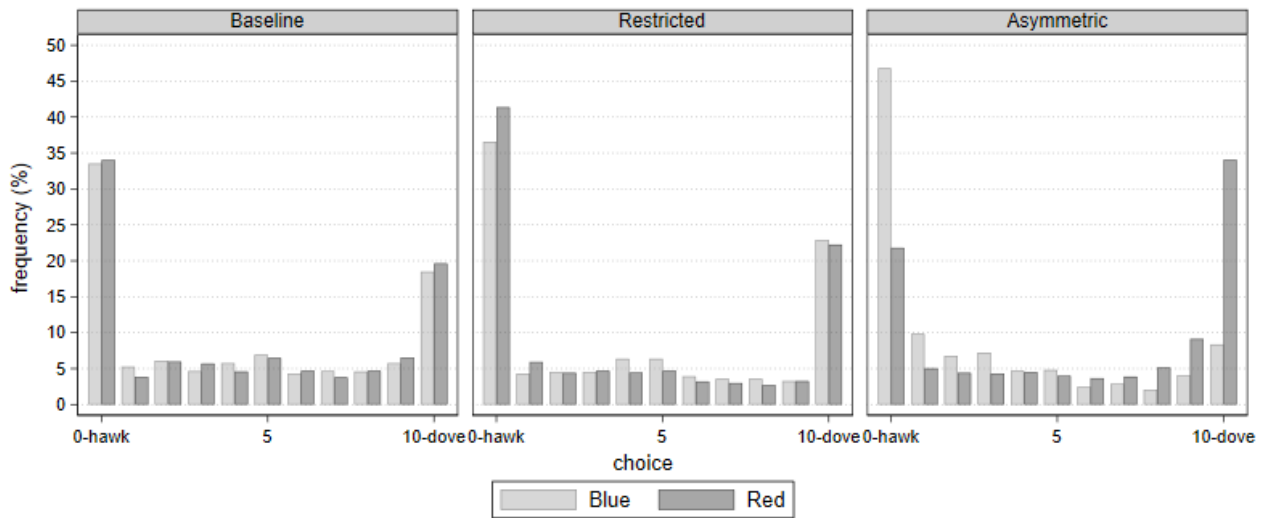


Figure E.1: Frequency distribution of choices, by role. Data collected in 2016.

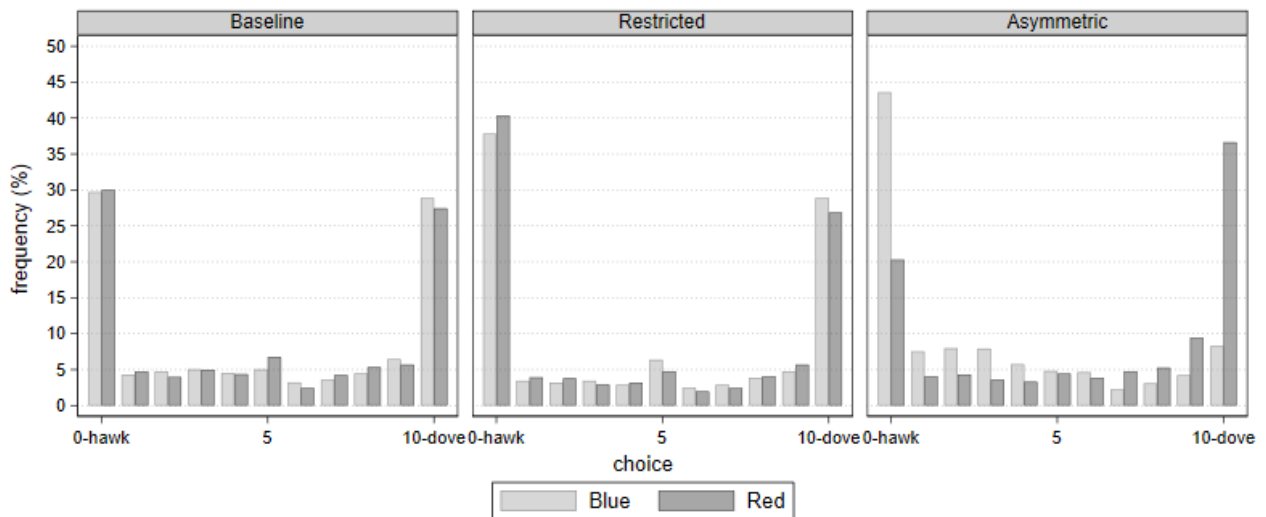


Figure E.2: Frequency distribution of choices, by role. Data collected in 2023.

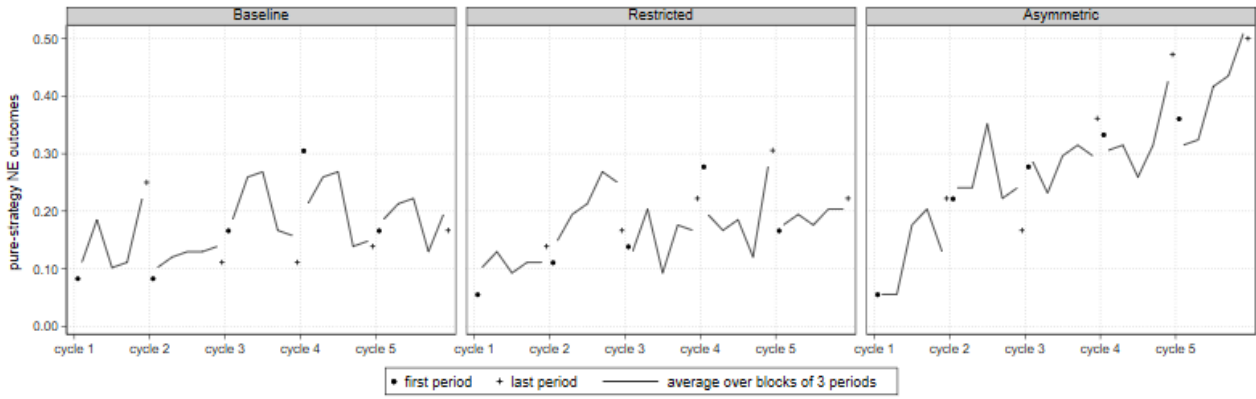


Figure E.3: Frequency of coordination on pure-strategy NE outcomes. Data collected in 2016.

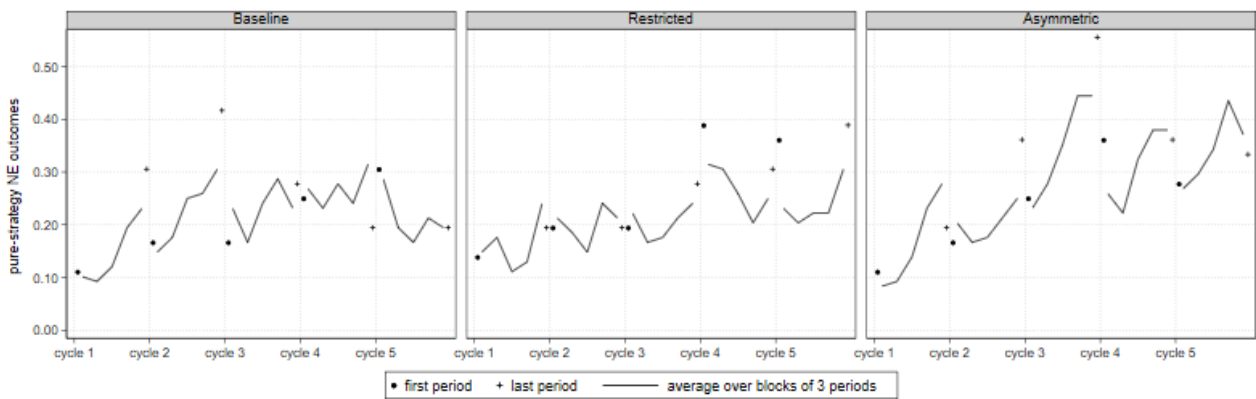


Figure E.4: Frequency of coordination on pure-strategy NE outcomes. Data collected in 2023.

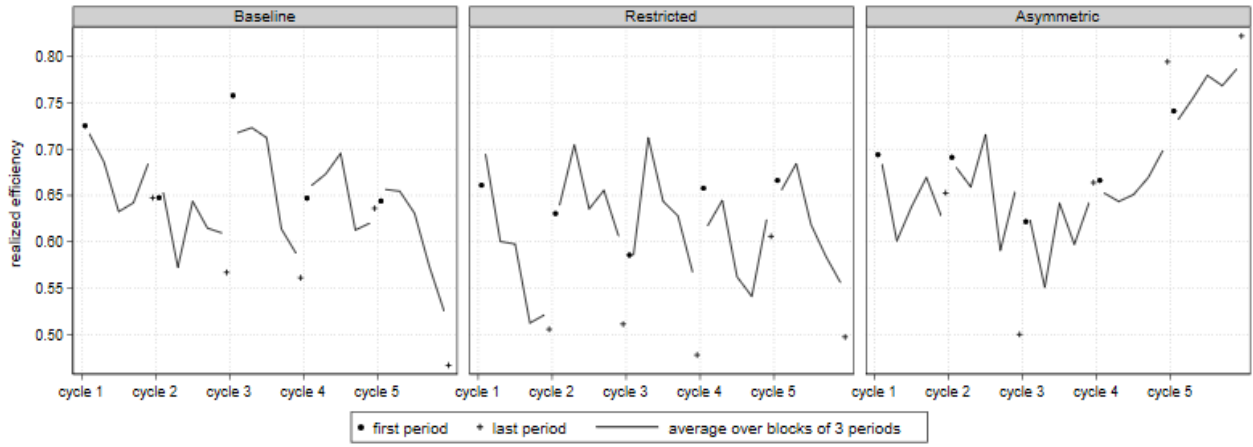


Figure E.5: Average realized efficiency. Data collected in 2016.

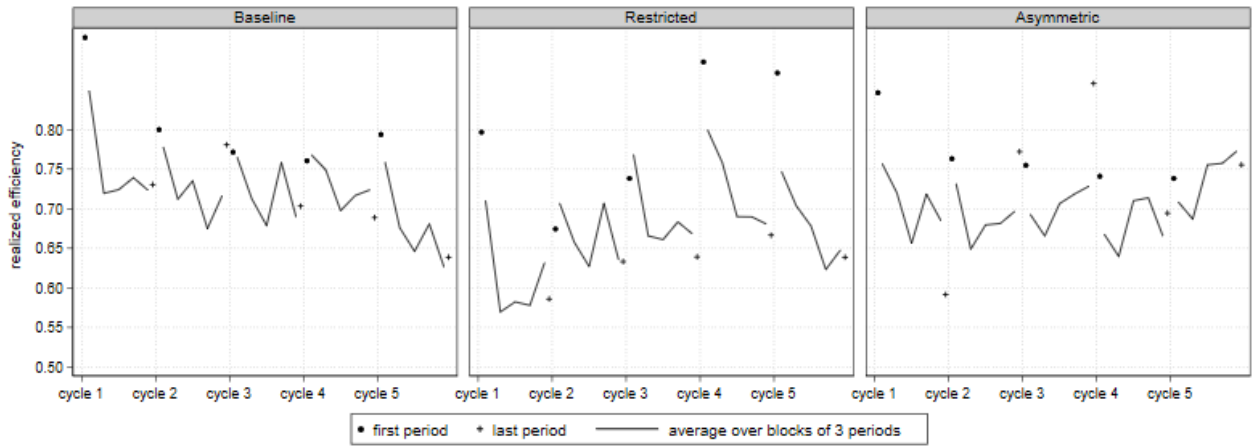


Figure E.6: Average realized efficiency. Data collected in 2023.

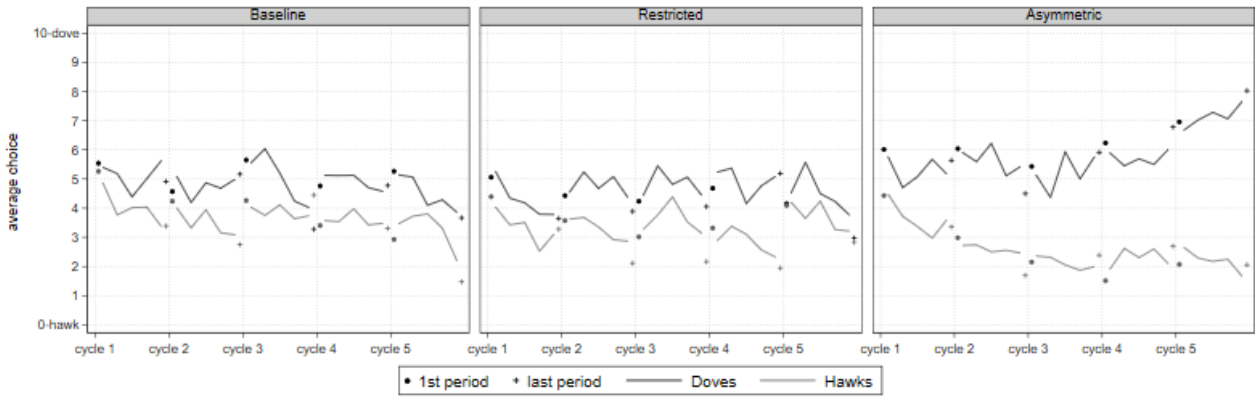


Figure E.7: Average choice played by the most (“H”) and by the least (“D”) hawkish group of each economy. Data collected in 2016.

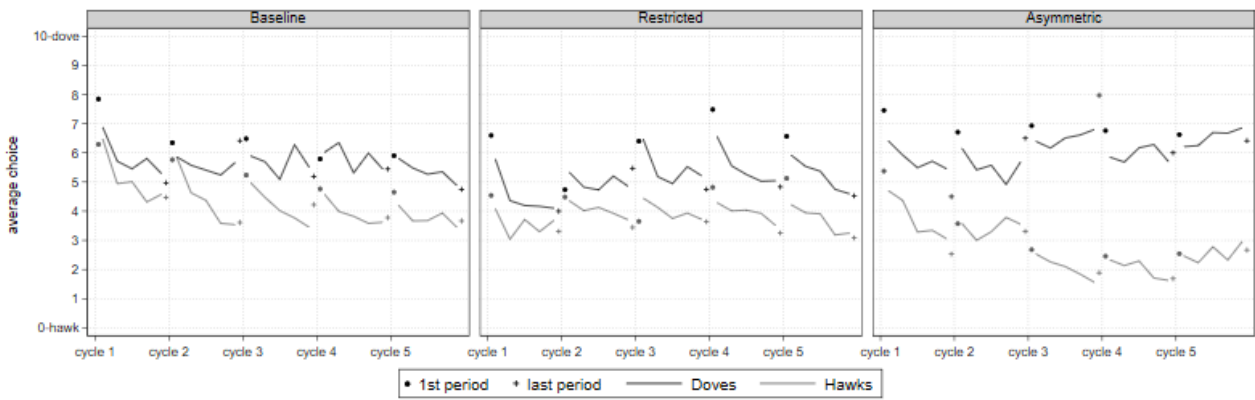


Figure E.8: Average choice played by the most (“H”) and by the least (“D”) hawkish group of each economy. Data collected in 2023.

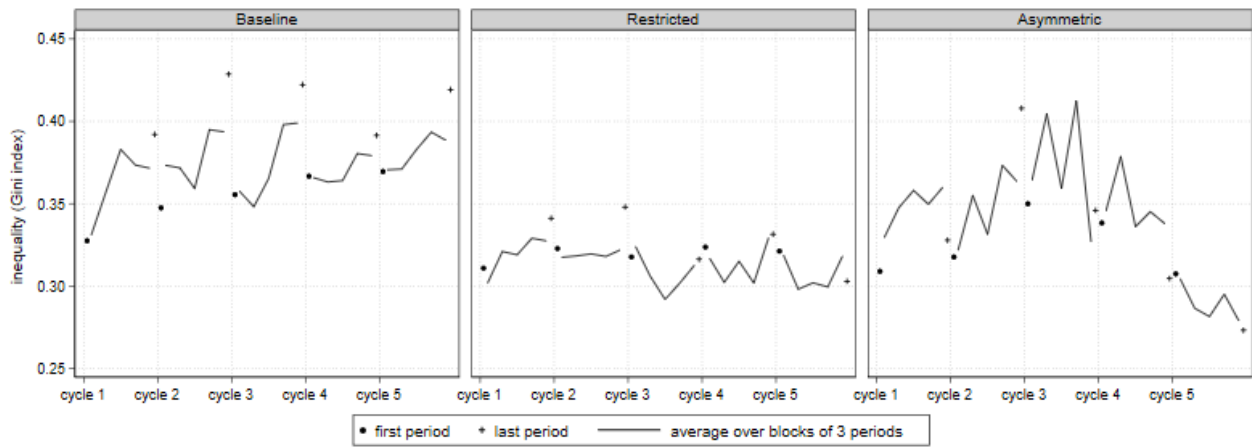


Figure E.9: Average Gini coefficient. Data collected in 2016.

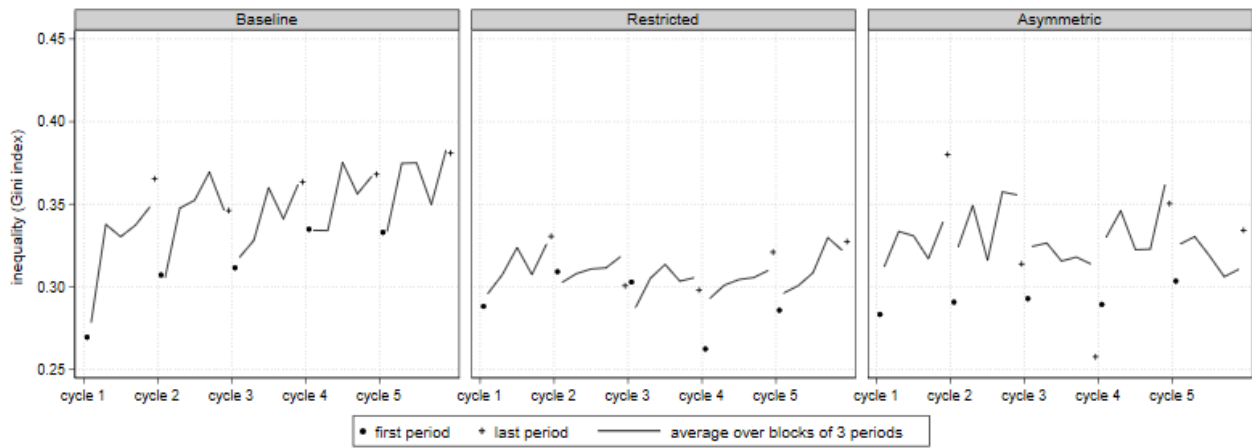


Figure E.10: Average Gini coefficient. Data collected in 2023.

E.1 Tables

	Model 1	Model 2	Model 3	Model 4
	Coordination on NE	Efficiency	Separation	Inequality
Period	-0.002 (0.003)	-0.007** (0.003)	-0.006 (0.037)	0.003** (0.001)
Cycle	0.017*** (0.002)	-0.010 (0.006)	0.024 (0.048)	0.003 (0.003)
Restricted	-0.035 (0.050)	-0.060 (0.037)	-0.047 (0.700)	-0.024** (0.008)
Restricted × Period	0.005 (0.003)	-0.000 (0.003)	0.020 (0.039)	-0.002* (0.001)
Restricted × Cycle	-0.105* (0.050)	-0.143*** (0.039)	-0.486 (0.907)	0.035 (0.030)
Asymmetric	0.009** (0.004)	0.008 (0.004)	0.063 (0.053)	-0.003 (0.002)
Asymmetric × Period	-0.003 (0.007)	0.011 (0.015)	-0.003 (0.080)	-0.006 (0.004)
Asymmetric × Cycle	0.045*** (0.009)	0.034** (0.013)	0.671*** (0.130)	-0.015 (0.008)
Constant	0.138** (0.045)	0.729*** (0.006)	1.191* (0.593)	0.343*** (0.003)
N	675	675	675	675
R-squared	0.297	0.116	0.356	0.275
<i>Predicted values for Period 15 of Cycle 5, and Wald tests on their differences.</i>				
Baseline	0.196	0.577	1.212	0.399
Restricted	0.223	0.568	1.445	0.310
Asymmetric	0.455	0.726	5.021	0.318
p-value Base. vs. Restr.	0.487	0.893	0.426	0.000
p-value Base. vs. Asym.	0.000	0.005	0.000	0.005

Notes: outcomes averaged at the session/period level. Standard errors clustered at the session level. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

Table E.1: Linear regressions on treatment effects. Data collected in 2016.

	Model 1	Model 2	Model 3	Model 4
	Coordination on NE	Efficiency	Separation	Inequality
Period	0.005** (0.002)	-0.006** (0.002)	0.061*** (0.012)	0.003*** (0.001)
Cycle	0.016* (0.008)	-0.014* (0.006)	0.236*** (0.048)	0.008** (0.003)
Restricted	0.012 (0.044)	-0.133** (0.050)	0.880* (0.422)	0.003 (0.015)
Restricted × Period	-0.004 (0.002)	-0.001 (0.003)	-0.098*** (0.014)	-0.002* (0.001)
Restricted × Cycle	-0.096 (0.065)	-0.129** (0.048)	1.057 (0.645)	0.037* (0.016)
Asymmetric	0.008 (0.005)	0.007* (0.003)	-0.018 (0.033)	-0.003*** (0.001)
Asymmetric × Period	0.005 (0.009)	0.033*** (0.009)	-0.064 (0.070)	-0.009** (0.004)
Asymmetric × Cycle	0.030** (0.010)	0.019** (0.007)	0.340** (0.109)	-0.010** (0.004)
Constant	0.125** (0.043)	0.808*** (0.033)	0.187 (0.393)	0.294*** (0.014)
N	675	675	675	675
R-squared	0.211	0.089	0.366	0.175
<i>Predicted values for Period 15 of Cycle 5, and Wald tests on their differences.</i>				
Baseline	0.287	0.653	2.290	0.386
Restricted	0.267	0.663	1.383	0.317
Asymmetric	0.460	0.720	4.772	0.327
p-value Base. vs. Restr.	0.613	0.897	0.104	0.010
p-value Base. vs. Asym.	0.017	0.310	0.003	0.021

Notes: outcomes averaged at the session/period level. Standard errors clustered at the session level. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

Table E.2: Linear regressions on treatment effects. Data collected in 2023.

	Red			Blue		
	< 10		10	< 10		10
Baseline						
expectation	5.7 (75.0%)	≈	7.0 (25.0%)	5.6 (86.1%)	≈	6.6 (13.9%)
<i>corr.</i>		<i>0.396**</i>			<i>0.421**</i>	
Restricted						
expectation	5.1 (77.8%)	≈	5.5 (22.2%)	5.2 (86.1%)	<***	9.8 (13.9%)
<i>corr.</i>		<i>0.291*</i>			<i>0.746***</i>	
Asymmetric						
expectation	4.5 (75.0%)	≈	5.4 (25.0%)	6.2 (88.9%)	≈	4.0 (11.1%)
<i>corr.</i>		<i>0.142</i>			<i>-0.262</i>	

Notes: The table reports the average expectation of participants in period 1 of cycle 1, conditional on their role. It compares the average expectation of the subjects who chose 10 with those who chose a lower number. In parentheses, it reports the fraction over the total number of subjects by role and treatment. Symbols <*** and <** indicate significance at the 1% and 5%, respectively, according to pairwise Mann-Whitney-Wilcoxon tests with a total of 36 observations, per role, per treatment. In italics, we report the correlation between actions and expectations in period 1, by role. Symbols *** and ** indicate significance at the 1% and 5% level, respectively.

Table E.3: Average expectations in period 1. Data collected in 2016.

	Red			Blue		
	< 10		10	< 10		10
Baseline						
expectation	5.8 (63.9%)	<***	7.8 (36.1%)	5.1 (61.1%)	<**	6.5 (38.9%)
<i>corr.</i>		<i>0.370**</i>			<i>0.281*</i>	
Restricted						
expectation	5.1 (69.4%)	<**	6.4 (30.6%)	5.6 (63.9%)	≈	6.6 (36.1%)
<i>corr.</i>		<i>0.266</i>			<i>0.371**</i>	
Asymmetric						
expectation	5.7 (66.7%)	≈	5.6 (33.3%)	6.5 (83.3%)	≈	7.2 (16.7%)
<i>corr.</i>		<i>-0.008</i>			<i>0.302*</i>	

Notes: The table reports the average expectation of participants in period 1 of cycle 1, conditional on their role. It compares the average expectation of the subjects who chose 10 with those who chose a lower number. In parentheses, it reports the fraction over the total number of subjects by role and treatment. Symbols <*** and <** indicate significance at the 1% and 5%, respectively, according to pairwise Mann-Whitney-Wilcoxon tests with a total of 36 observations, per role, per treatment. In italics, we report the correlation between actions and expectations in period 1, by role. Symbols *** and ** indicate significance at the 1% and 5% level, respectively.

Table E.4: Average expectations in period 1. Data collected in 2023.