

SUPPLEMENT TO “TIME HORIZON AND COOPERATION  
IN CONTINUOUS TIME”

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BY MARIA BIGONI, MARCO CASARI,  
ANDRZEJ SKRZYPACZ, AND GIANCARLO SPAGNOLO

APPENDIX B: ADDITIONAL TABLES AND FIGURES

TABLE B.I  
TREATMENTS AND SESSIONS

	Termination Rule	
	Deterministic	Stochastic
Short (20 s)	$N = 48$ Period endowment: 15 pts. Conversion rate: 50 pts. = 1€ – January 24, 2011 – February 4, 2011	$N = 48$ Period endowment: 15 pts. Conversion rate: 50 pts. = 1€ Average realized duration: 22.6 s – February 2, 2011 – February 4, 2011
Long (60 s)	$N = 48$ Period endowment: 50 pts. Conversion rate: 150 pts. = 1€ – October 21, 2010 – October 28, 2010	$N = 48$ Period endowment: 50 pts. Conversion rate: 150 pts. = 1€ Average realized duration: 68.3 s – October 22, 2010 – October 28, 2010
Variable	$N = 48$ Period endowment: 15 pts. Conversion rate: 50 pts. = 1€ Same realized durations as in short stochastic – April 4, 2012 – April 4, 2012	

TABLE B.II  
REGRESSIONS ON COOPERATION RATES<sup>a</sup>

<i>Dependent Variable: Cooperation Rate</i>	Model 1		Model 2	
	Coefficient	(s.e.)	Coefficient	(s.e.)
Short-Deterministic	-5.537**	(2.760)	-5.537**	(2.801)
Long-Stochastic	1.682	(2.577)	1.682	(3.565)
Short-Stochastic	-17.799***	(3.830)	-17.799***	(3.769)
<i>Demographics</i>				
Age	-0.140	(0.373)	-0.140	(0.247)
Male	3.201	(3.188)	3.201	(2.307)
Italian	3.916	(3.711)	3.916	(4.594)
Education	1.140	(1.346)	1.140	(1.656)
Missing education	16.066***	(4.516)	16.066***	(6.226)
Non-student	1.239	(5.807)	1.239	(5.252)
<i>Field of study</i>				
Medicine, sciences, engineering	6.416*	(3.663)	6.416	(4.363)
Humanities	5.966	(5.604)	5.966	(5.114)
Other	2.452	(5.298)	2.452	(5.509)
<i>Task comprehension</i>				
Wrong answers	-0.074	(0.354)	-0.074	(0.256)
Response time	-0.010	(0.013)	-0.010	(0.013)
<i>Academic background</i>				
Economics classes	-2.841	(3.639)	-2.841	(3.060)
Statistics classes	0.454	(2.406)	0.454	(2.791)
Game theory classes	2.759	(4.962)	2.759	(3.362)
<i>Questionnaire measures</i>				
Risk attitudes	-0.834	(0.922)	-0.834	(0.621)
Generalized trust	-2.206	(1.718)	-2.206	(2.711)
Missing trust	1.177	(3.514)	1.177	(3.282)
IQ quiz 1	-0.163	(3.498)	-0.163	(4.133)
IQ quiz 2	6.626***	(1.871)	6.626***	(2.226)
Constant	63.798***	(14.128)	63.798***	(10.193)
<i>N</i>		192		4416
<i>R</i> -squared		0.220		
<i>R</i> -squared overall				0.046
<i>R</i> -squared between				0.220
<i>R</i> -squared within				0.000

<sup>a</sup>Model 1 presents the full estimate of the regression in Table III, while Model 2 presents a panel regression with random effects at the subject level and standard errors robust for heteroscedasticity. The unit of observation is the fraction of time a subject spends cooperating within a supergame. Defaults: Long-Deterministic treatment, major in economics and business. The difference between coefficients for the Short-Stochastic and Short-Deterministic treatments is significant at any standard significance level ( $p$ -value < 0.001).

TABLE B.III  
 AVERAGE RATE OF MUTUAL COOPERATION PER SECOND<sup>a</sup>

Duration	Termination Rule		
	Deterministic	Stochastic	
Long	0.613 (0.791) √***	~	0.608 (0.769) √***
Short	0.557 (0.700)	>***	0.447 (0.283)

<sup>a</sup>The mean rate of mutual cooperation of a session is the average across all 23 supergames and all 12 groups in each supergame. Median rates of mutual cooperation are reported in parentheses. Significance levels are derived from the regression presented in Model 1 of Table B.IV.

TABLE B.IV  
 LINEAR REGRESSION ON RATES OF MUTUAL COOPERATION<sup>a</sup>

<i>Dependent Variable: Rate of Mutual Cooperation</i>				
	Model 1		Model 2	
	Coefficient	(s.e.)	Coefficient	(s.e.)
Short-Deterministic	-0.086***	(0.026)	-0.086***	(0.028)
Long-Stochastic	0.002	(0.024)	0.002	(0.036)
Short-Stochastic	-0.207***	(0.045)	-0.207***	(0.038)
<i>Demographics</i>				
Age	-0.002	(0.004)	-0.002	(0.003)
Male	0.033	(0.033)	0.033	(0.023)
Italian	0.042	(0.036)	0.042	(0.045)
Education	0.015	(0.014)	0.015	(0.017)
Missing education	0.185***	(0.041)	0.185***	(0.060)
Non-student	-0.001	(0.057)	-0.001	(0.054)
<i>Field of study</i>				
Medicine, sciences, engineering	0.049	(0.036)	0.049	(0.042)
Humanities	0.045	(0.057)	0.045	(0.049)
Other	0.021	(0.055)	0.021	(0.055)
<i>Task comprehension</i>				
Wrong answers	-0.001	(0.004)	-0.001	(0.003)
Response time	-0.000	(0.000)	-0.000	(0.000)
<i>Academic background</i>				
Economics classes	-0.017	(0.034)	-0.017	(0.030)
Statistics classes	-0.003	(0.024)	-0.003	(0.028)
Game theory classes	0.023	(0.051)	0.023	(0.033)
<i>Questionnaire measures</i>				
Risk attitudes	-0.009	(0.009)	-0.009	(0.006)
Generalized trust	-0.027	(0.020)	-0.027	(0.028)
Missing trust	0.010	(0.034)	0.010	(0.030)
IQ quiz 1	0.001	(0.035)	0.001	(0.040)
IQ quiz 2	0.069***	(0.019)	0.069***	(0.022)
Constant	0.619***	(0.154)	0.619***	(0.101)
<i>N</i>	192		4416	
<i>R-squared</i>	0.254			
<i>R-squared overall</i>			0.047	
<i>R-squared between</i>			0.254	
<i>R-squared within</i>			0.000	

<sup>a</sup>Model 1 presents results from a linear regression with bootstrapped standard errors. To take care of the potential correlation between observations coming from the same session, we take sessions as resampling clusters. The unit of observation is the average fraction of time a pair of subjects coordinate on cooperation within a supergame, across all supergames. Model 2 presents results from a panel regression with random effects at the subject level and standard errors robust for heteroscedasticity. The unit of observation is the fraction of a supergame duration in which both subjects in a pair cooperate. Defaults: Long-Deterministic treatment; major in economics and business.

TABLE B.V  
AVERAGE PROFITS PER SECOND<sup>a</sup>

Duration	Termination Rule		
	Deterministic	Stochastic	
Long	0.614 (0.792) √**	~	0.608 (0.793) √***
Short	0.570 (0.696)	>***	0.447 (0.455)

<sup>a</sup>The mean profit per second of a session is the average across all 23 supergames and all 24 subjects. Median profits are reported in parentheses. Significance levels are derived from the regression presented in Model 1 of Table B.VI.

TABLE B.VI  
 LINEAR REGRESSION ON AVERAGE PROFITS PER SECOND<sup>a</sup>

<i>Dependent Variable: Average Profit per Second</i>	Model 1		Model 2	
	Coefficient	(s.e.)	Coefficient	(s.e.)
Short-Deterministic	-0.060**	(0.026)	-0.060**	(0.025)
Long-Stochastic	0.013	(0.015)	0.013	(0.029)
Short-Stochastic	-0.189***	(0.041)	-0.189***	(0.030)
<i>Demographics</i>				
Age	-0.004*	(0.003)	-0.004*	(0.003)
Male	0.021	(0.023)	0.021	(0.019)
Italian	0.026	(0.032)	0.026	(0.035)
Education	0.012	(0.009)	0.012	(0.014)
Missing education	0.135***	(0.037)	0.135***	(0.048)
Non-student	0.007	(0.049)	0.007	(0.047)
<i>Field of study</i>				
Medicine, sciences, engineering	0.021	(0.027)	0.021	(0.030)
Humanities	0.009	(0.042)	0.009	(0.036)
Other	0.002	(0.048)	0.002	(0.043)
<i>Task comprehension</i>				
Wrong answers	-0.000	(0.003)	-0.000	(0.002)
Response time	-0.000	(0.000)	-0.000*	(0.000)
<i>Academic background</i>				
Economics classes	0.005	(0.019)	0.005	(0.022)
Statistics classes	-0.008	(0.021)	-0.008	(0.022)
Game theory classes	0.017	(0.038)	0.017	(0.026)
<i>Questionnaire measures</i>				
Risk attitudes	-0.006	(0.006)	-0.006	(0.005)
Generalized trust	-0.035**	(0.017)	-0.035	(0.023)
Missing trust	-0.011	(0.026)	-0.011	(0.031)
IQ quiz 1	0.013	(0.027)	0.013	(0.029)
IQ quiz 2	0.054***	(0.017)	0.054***	(0.018)
Constant	0.698***	(0.124)	0.698***	(0.088)
<i>N</i>		192		4416
<i>R-squared</i>		0.344		
<i>R-squared overall</i>				0.034
<i>R-squared between</i>				0.344
<i>R-squared within</i>				0.000

<sup>a</sup>Model 1 presents results from a linear regression with bootstrapped standard errors. To take care of the potential correlation between observations coming from the same session, we take sessions as resampling clusters. The unit of observation is the average profit per second, across all supergames. Model 2 presents results from a panel regression with random effects at the subject level and standard errors robust for heteroscedasticity. The unit of observation is a subject's profit per second, in a supergame. Defaults: Long-Deterministic treatment; major in economics and business.

TABLE B.VII  
 AVERAGE REACTION TIME ACROSS SUPERGAMES

Treatment	Supergames				Overall
	1-6	7-12	13-18	19-23	
Long-Deterministic	1.73 <i>N</i> = 236	1.38 <i>N</i> = 262	1.52 <i>N</i> = 244	1.44 <i>N</i> = 212	1.52 <i>N</i> = 954
Short-Deterministic	1.06 <i>N</i> = 164	1.08 <i>N</i> = 186	0.95 <i>N</i> = 224	0.90 <i>N</i> = 192	0.99 <i>N</i> = 766

TABLE B.VIII  
 PANEL REGRESSION ON SUBJECTS' STRATEGIES<sup>a</sup>

	Model 1		Model 2	
	Coefficient	(s.e.)	Coefficient	(s.e.)
<i>Dependent Variable: Subjects' Strategy (1 = Cooperator; 0 = Defector)</i>				
Short-Deterministic	-0.000	(0.315)	-0.419	(0.350)
Long-Stochastic	-0.072	(0.275)	-0.645**	(0.286)
Short-Stochastic	-0.383	(0.463)	-1.599***	(0.430)
$A_{i,C}^{t-1}$	3.043***	(0.262)		
$A_{i,D}^{t-1}$	-0.753**	(0.311)		
Conditional cooperation supergame 1	1.517***	(0.201)	1.515***	(0.157)
<i>Demographics</i>				
Age	0.006	(0.019)	-0.028**	(0.013)
Male	0.136	(0.248)	0.423***	(0.149)
Italian	0.304	(0.443)	0.425*	(0.249)
Education	0.280**	(0.115)	0.203**	(0.096)
Missing education	1.179**	(0.555)	1.620***	(0.297)
Non-student	-0.062	(0.441)	-0.110	(0.250)
<i>Field of study</i>				
Medicine, sciences, engineering	-0.045	(0.374)	0.372*	(0.214)
Humanities	0.587*	(0.302)	0.470	(0.286)
Other	0.292	(0.455)	0.065	(0.251)
<i>Task comprehension</i>				
Wrong answers	-0.024	(0.035)	-0.037***	(0.006)
Response time	0.000	(0.001)	0.001***	(0.000)
<i>Academic background</i>				
Economic classes	0.404*	(0.244)	0.240	(0.192)
Statistics classes	-0.006	(0.417)	-0.153	(0.201)
Game theory classes	-0.234	(0.165)	-0.199	(0.314)
<i>Questionnaire measures</i>				
Risk attitudes	-0.102*	(0.053)	-0.109***	(0.042)
Generalized trust	-0.331	(0.239)	-0.148	(0.221)
Missing trust	0.236	(0.252)	0.192	(0.198)
IQ quiz 1	0.236	(0.203)	0.498***	(0.162)
IQ quiz 2	0.699***	(0.190)	0.899***	(0.160)
Constant	-1.670*	(1.008)	0.332	(0.667)
<i>N</i>		4416		4416
Log likelihood		-1859.435		-2081.673

<sup>a</sup>Panel logit regression with random effects at the subject level and standard errors robust for heteroscedasticity. Defaults: Long-Deterministic treatment; major in economics and business. Standard errors are reported in parentheses. The unit of observation is a subject's strategy (1 = cooperator, 0 = defector) in a supergame. See footnote 12 for a list of controls of individual characteristics.



TABLE B.IX  
 LINEAR REGRESSION ON MEAN AND INITIAL COOPERATION RATES<sup>a</sup>

	Mean Cooperation Rate		Initial Cooperation Rate	
Short-Deterministic	11.574***	(2.359)	17.051***	(6.164)
Variable-Deterministic	6.966**	(3.094)	13.489**	(6.751)
<i>Demographics</i>				
Age	0.266	(0.453)	-0.192	(0.591)
Male	0.121	(3.091)	4.646***	(1.755)
Italian	6.637	(7.342)	8.536	(11.849)
Education	0.977	(1.325)	3.307	(2.304)
Missing education	16.371***	(4.432)	41.395***	(9.590)
Non-student	2.285	(6.308)	1.688	(9.312)
<i>Field of study</i>				
Medicine, sciences, engineering	2.537	(3.781)	5.486	(6.601)
Humanities	-1.831	(4.345)	-2.883	(8.032)
Other	-4.544	(5.749)	-4.458	(10.600)
<i>Task comprehension</i>				
Wrong answers	0.037	(0.569)	-0.205	(0.918)
Response time	-0.002	(0.023)	-0.006	(0.026)
<i>Academic background</i>				
Economics classes	-4.075	(2.707)	0.042	(4.312)
Statistics classes	3.470	(3.684)	-0.699	(5.364)
Game theory classes	0.037	(3.363)	-4.172	(4.542)
<i>Questionnaire measures</i>				
Risk attitudes	-0.715	(0.611)	-1.957***	(0.689)
Generalized trust	-0.599	(1.806)	-2.534	(3.338)
Missing trust	-1.432	(4.167)	-3.145	(9.401)
IQ quiz 1	-0.217	(2.929)	-3.332	(5.570)
IQ quiz 2	4.402*	(2.248)	5.801	(4.053)
Constant	39.488***	(13.287)	65.719***	(16.057)
<i>N</i>		144		144
<i>R</i> -squared		0.155		0.216

<sup>a</sup>Linear regressions with bootstrapped standard errors. To take care of the potential correlation between observations coming from the same session, we take sessions as resampling clusters. The unit of observation is the mean (initial) cooperation rate in a section in a supergame. Defaults: Short-Stochastic treatment; major in economics and business. Standard errors are reported in parentheses.

TABLE B.X  
 PANEL REGRESSION ON MEAN AND INITIAL COOPERATION RATES<sup>a</sup>

	Mean Cooperation Rate		Initial Cooperation Rate	
Short-Deterministic	11.574***	(3.624)	1.239***	(0.259)
Variable-Deterministic	6.966*	(4.067)	0.807***	(0.265)
<i>Demographics</i>				
Age	0.266	(0.628)	0.036	(0.023)
Male	0.121	(2.492)	0.421***	(0.120)
Italian	6.637	(7.561)	0.086	(0.370)
Education	0.977	(2.411)	0.045	(0.144)
Missing education	16.371***	(6.199)		
Non-student	2.285	(8.096)	0.671*	(0.361)
<i>Field of study</i>				
Medicine, sciences, engineering	2.537	(4.621)	0.391	(0.445)
Humanities	-1.831	(5.221)	0.080	(0.446)
Other	-4.544	(7.435)	0.065	(0.304)
<i>Task comprehension</i>				
Wrong answers	0.037	(0.419)	-0.006	(0.010)
Response time	-0.002	(0.020)	-0.001	(0.001)
<i>Academic background</i>				
Economics classes	-4.075	(3.693)	-0.206	(0.171)
Statistics classes	3.470	(3.405)	0.284*	(0.151)
Game theory classes	0.037	(3.362)	0.205	(0.331)
<i>Questionnaire measures</i>				
Risk attitudes	-0.715	(0.674)	-0.181***	(0.035)
Generalized trust	-0.599	(3.159)	0.005	(0.156)
Missing trust	-1.432	(3.949)	-0.972***	(0.218)
IQ quiz 1	-0.217	(3.729)	-0.115	(0.351)
IQ quiz 2	4.402*	(2.582)	0.467***	(0.150)
Constant	39.488**	(16.209)	0.355	(0.637)
<i>N</i>		3312		3312
<i>R</i> -squared overall		0.029		
<i>R</i> -squared between		0.155		
<i>R</i> -squared within		0.000		
Log likelihood				-1524.5

<sup>a</sup>Panel regression with random effects at the subject level and standard errors robust for heteroscedasticity. The unit of observation is a subject's cooperation rate/initial action in a supergame. Since initial cooperation is a binary variable, in the last column of this table, we present results from a panel logit regression with random effects at the subject level and standard errors robust for heteroscedasticity. Defaults: Short-Stochastic treatment; major in economics and business. Standard errors are reported in parentheses.

TABLE B.XI  
 LINEAR REGRESSION ON MEAN AND INITIAL COOPERATION RATES<sup>a</sup>

<i>Dependent Variable: Initial Cooperation</i>				
	Short Stochastic		Variable Deterministic	
Initial cooperation S1	0.498	(0.310)	1.360***	(0.209)
Duration <sub>t-1</sub>	0.011*	(0.006)	0.007	(0.006)
Duration <sup>2</sup> <sub>t-1</sub>	-0.000	(0.000)	-0.000	(0.000)
Initial cooperation <sup>j</sup> <sub>t-1</sub>	0.452***	(0.100)	0.204*	(0.120)
<i>Demographics</i>				
Age	0.083	(0.068)	-0.038	(0.039)
Male	0.100	(0.314)	0.321	(0.210)
Italian	0.451	(1.103)	-0.780	(0.824)
Education	-0.203	(0.311)	0.252	(0.161)
Missing education	5.219	(176.581)		
Non-student	-0.761	(0.761)	0.054	(0.391)
<i>Field of study</i>				
Medicine, sciences, engineering	0.123	(0.649)	-0.172	(0.281)
Humanities	-1.064*	(0.640)	0.126	(0.361)
Other	-0.368	(0.919)	0.156	(0.289)
<i>Task comprehension</i>				
Wrong answers	0.026	(0.026)	0.050	(0.041)
Response time	-0.000	(0.001)	-0.000	(0.002)
<i>Academic background</i>				
Economics classes	-0.421	(0.373)	-0.415	(0.312)
Statistics classes	-0.441	(0.301)	0.351	(0.324)
Game theory classes	-0.291	(0.373)	0.160	(0.262)
<i>Questionnaire measures</i>				
Risk attitudes	0.084	(0.093)	0.092*	(0.051)
Generalized trust	0.295	(0.322)	0.382*	(0.207)
Missing trust	0.804	(0.495)	1.274*	(0.671)
IQ quiz 1	-0.696	(0.509)	0.391	(0.386)
IQ quiz 2	0.233	(0.279)	0.740***	(0.204)
Constant	-1.548	(1.572)	-0.854	(1.466)
<i>N</i>		1056		1056
Log likelihood		-504.157		-455.317

<sup>a</sup>Correlated random effects probit models with the initial decision as the dependent variable. Standard errors are reported in parentheses. The regressors we used are initial decision of the partner in the previous match (Initial cooperation<sup>j</sup><sub>t-1</sub>), the duration of the previous supergame (Duration<sub>t-1</sub>), the duration squared (Duration<sup>2</sup><sub>t-1</sub>), and the initial decision in the first supergame (Initial cooperation S1). Default major: economics and business.

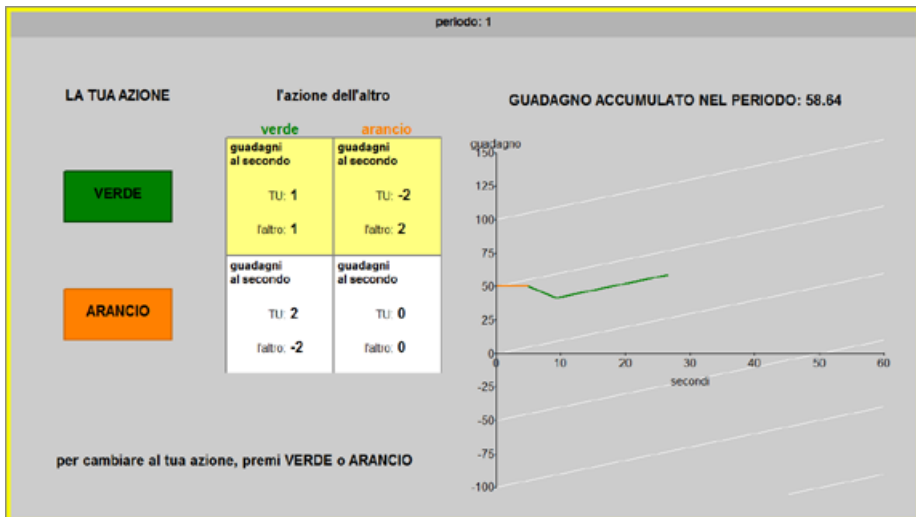
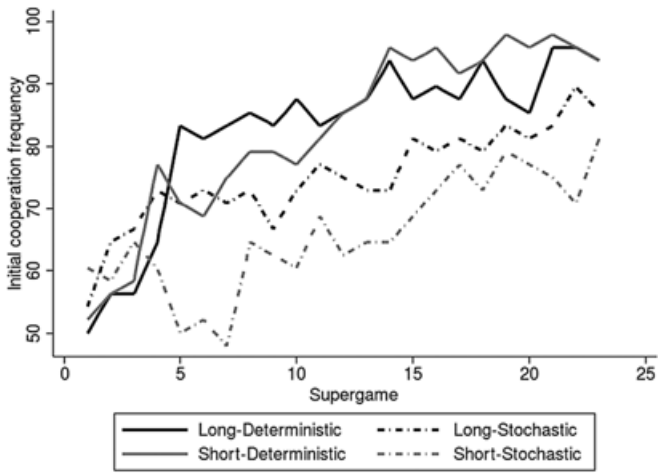
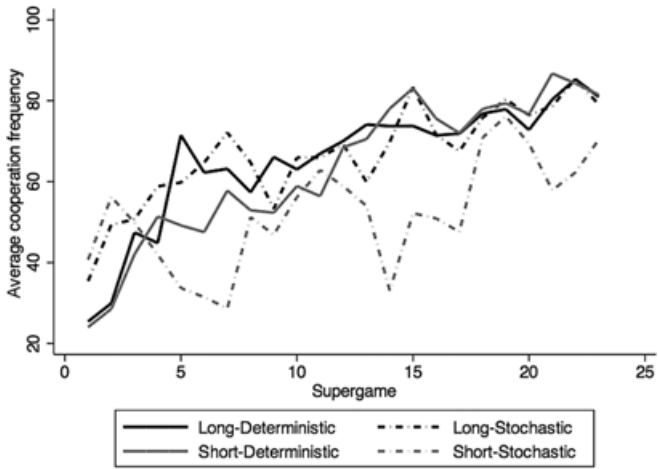


FIGURE B.1.—Screenshot of the stage game for the Long treatments. *Notes:* VERDE = green, ARANCIO = orange, l'azione dell'altro = your opponent's action, guadagno = earnings.



(a) Initial cooperation



(b) Average cooperation

FIGURE B.2.—Evolution of cooperation. *Notes:* The unit of observation is the fraction of time a subject spends cooperating in a supergame.

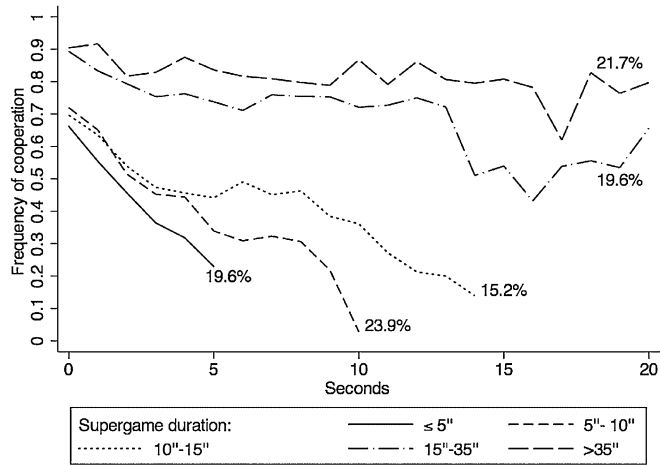


FIGURE B.3.—Time profile of the share of cooperative actions, in the Variable-Deterministic treatment. *Notes:* The percentage next to each line represents the fraction of supergames having the corresponding duration. The unit of observation is the share of cooperative actions in every second of a supergame.

### APPENDIX C: INSTRUCTIONS

[Instructions for the Long-Stochastic treatment, translated from Italian. The parts that are different in the Long-Deterministic treatment are reported in *italics*.]

Welcome! This is a study about how people make economic decisions. This study is funded by the University of Bologna and other institutions. If you pay attention, the instructions will help you to make your decisions and earn a reasonable amount of money. The earnings will be calculated in points and then converted into euros.

**For every 150 points you will receive 1€.**

In addition, you will receive 3€ for participation. Your earnings will be paid in cash at the end of today's session.

We ask that you turn off your phone now and do not communicate in any way with the people present in the room until the end of the study. If you have any questions, please raise your hand and we will assist you in private.

This study comprises **23 periods**. In each period, you will be paired with another person selected at random from those present in the room.

In every period you will be able to **repeatedly choose between a "GREEN" action and an "ORANGE" action**. The person matched with you will also be able to repeatedly choose between "green" and "orange" actions. As a consequence, there are four possible combinations: GREEN–green, ORANGE–

LA TUA AZIONE	l'azione dell'altro	
	verde	arancio
VERDE	guadagni al secondo TU: 1 l'altro: 1	guadagni al secondo TU: -2 l'altro: 2
ARANCIO	guadagni al secondo TU: 2 l'altro: -2	guadagni al secondo TU: 0 l'altro: 0

FIGURE C.1.—Earnings table.

orange, GREEN–orange, and ORANGE–green. For each combination of actions, there is a corresponding cell in Figure C.1.

In each cell you can see the gains or losses during the period according to your action and the action of the other. Your action will determine the table row, while the action of the person matched with you will determine the table column.

The earnings described in Figure C.1 represent earnings per second. For instance, suppose you choose GREEN and hold that choice over time: if the other chooses green and holds his choice in time, you earn 1 point per second and the other earns 1 point per second; if the other chooses orange and holds it, you lose 2 points per second and the other earns 2 points per second. And so on.

In each period, earnings depend on how much time you spend in each cell of Figure C.1. The more time you spend in a cell, the more your average earnings will approximate what is indicated in the cell. For instance, if you spend half of the period in the GREEN–green cell where you earn 1 and half of the period in the ORANGE–orange cell where you earn 0, your earnings will be 0.5 points per second. Are there any questions about how to read the table?

#### **Who is the other person matched with me?**

It could be anyone in this room. Your identity and hers will be kept confidential. Payments will also be made in private. There will be 23 periods. At the beginning of each period, pairs will be changed. People will be recombined so that **you will never meet the same person twice**.

**What should I do?** In every period you choose an initial action and then you can decide every instant whether to keep or change that action. The person matched with you can do the same. During a period, both you and the other will be able to change action as many times as you like. Time flows through very fast ticks (0.16 of a second each); in practice there are between six and seven ticks per second, so if you want, you can change the action six or seven times per second.

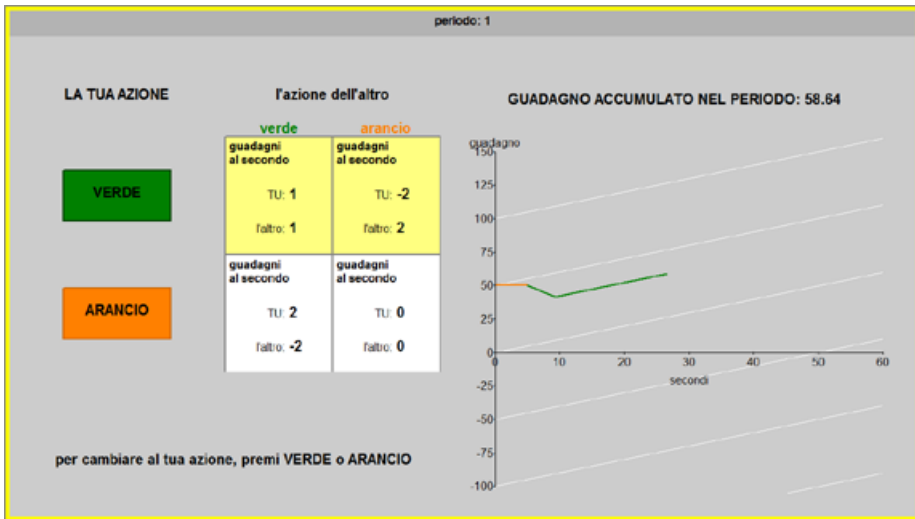


FIGURE C.2.—Earnings table.

### Earnings

During the period you will receive information in real time on your earnings. In the screen pictured in Figure C.2, your cumulated earnings will appear in a graph as a line that will form at every tick of 0.16 of a second. In each period, you will have an **initial endowment of 50 points** as cumulated earnings. **If, during the period, your earnings are zero, then the line will be flat. In case of losses, then the line will be declining. In the case of positive earnings, then the line will be increasing.** For instance, if you earn 1 point per second, there will be an increasing line that is parallel to the graph grid. If you earn 2 points per second, the line will be increasing, but steeper. Looking at the earnings graph will give you information on the current action of the other person matched with you. Are there any questions?

To understand how to read the screen, **we will do a trial period**, without consequences on your earnings. For simplicity, the trial period will last 60 seconds and the other will be played by a robot. The robot will start with an action and then, halfway through the period, will change action. Now please look at the screen and follow the exact guidelines you are given. To start, choose the initial action. Press the screen with your finger on the button that you will be told to choose (GREEN or ORANGE). The robot will also choose its initial action (green or orange). **Everyone please choose GREEN now** as the initial action. The selected action will be highlighted in yellow on the table. The period will begin when everybody has chosen their initial action and pressed “OK.” From this moment on, the time will begin to run. Then you will see that the graph line is green like your action. Now, please press your finger on the button “OK” to confirm. Does anyone need help? After 10 seconds, everyone please press the



button ORANGE. You will see that your action has changed because the line highlighted in yellow in the table will change and that indicates your current action. Moreover, the graph line will now be orange in color. After 30 seconds, everyone please press again the button GREEN. Now we ask you to guess what actions the robot chose. Are there any questions?

**We will do two more trial periods**, without consequences on your earnings. For simplicity, the trial period will last 60 seconds and the other will be played by a robot. The robot will start with an action and then, halfway through the period, will change action. Now look at your screen. Choose the initial action that you prefer. When everyone has completed, you'll see the time running. You are free to change the action at any time. At the end of the period, we will ask you to guess what actions the robot chose.

Now we will do the last trial period. Go ahead and choose the action you want. Are there any questions?

For simplicity, in the trial periods the other was a robot and the duration was 60 seconds. However, in the coming periods, the other will be a person in this room *while the duration of each period will be variable and determined randomly. Each period will stop without notice and for everybody at the same moment, and the period duration could vary from less than a second to several minutes.*

**How is a period duration established?**

*The period may stop at every tick of 0.16 of a second. This event depends on the result of a random draw. Imagine a box with 10,000 balls, of which 9973 black and 27 white. It is as if, after every tick, a ball was drawn. If the ball drawn is white, the period ends. If the ball is black, the period continues and the ball is placed back into the box. At the next tick, a new ball is drawn at random. You have to imagine very rapid draws, that is one every tick of 0.16 of a second. We calculated that as a result of this, the periods will have an average duration of 60 seconds. There may be some short periods and some long periods. Are there any questions about this?* [DETERMINISTIC: The length of each period will be 60 seconds.]

Very well, then we can start.

*Dept. of Economics, University of Bologna, Bologna, Italy; [maria.bigoni@unibo.it](mailto:maria.bigoni@unibo.it),*

*Dept. of Economics, University of Bologna, Bologna, Italy and IZA; [marco.casari@unibo.it](mailto:marco.casari@unibo.it),*

*Graduate School of Business, Stanford University, Stanford, CA 94305, U.S.A.; [skrz@stanford.edu](mailto:skrz@stanford.edu),*

*and*

*SITE–SSE, Stockholm, Sweden, University of Rome Tor Vergata, EIEF, and CEPR; [giancarlo.spagnolo@hhs.se](mailto:giancarlo.spagnolo@hhs.se).*

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