

It's Payback Time: New Insights on Cooperation in the Repeated Prisoners' Dilemma

@NikoletaGlyn



Why?

“Slow to anger and fast to forgive:
Cooperation in an uncertain world”

Drew Fudenberg, David G. Rand, Anna Dreber



	b/c=1.5 E=1/8	b/c=2 E=1/8	b/c=2.5 E=1/8	b/c=4 E=1/8	b/c=4 E=1/16	b/c=4 E=0
Sessions per treatment	3	2	3	4	3	3
Subjects per treatment	72	52	64	90	58	48
Average number of interactions	11	11.5	10.7	11.3	9.9	7.8
Average number of rounds per interaction	8.4	8.3	8.3	8.1	8.0	8.2

(original paper)

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(original paper)

count: 1

Finding A: Although not an equilibrium strategy, TFT is empirically widely used both with perfect and imperfect monitoring (p.734 and Table 3 in FRD).

Maximum Likelihood Estimation

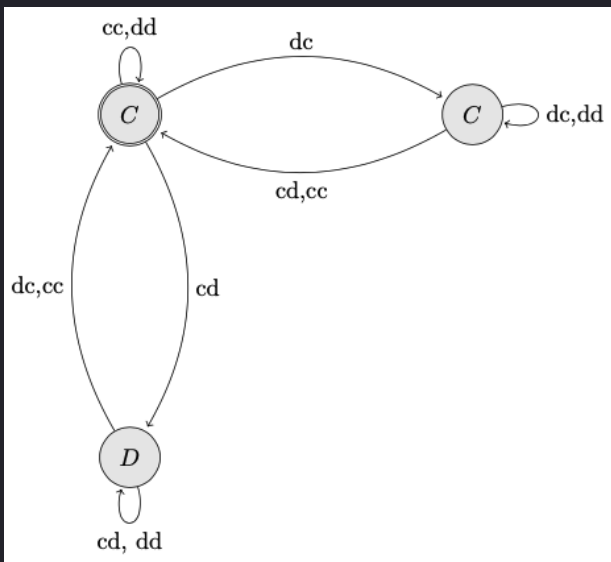
	b/c = 1.5	b/c = 2	b/c = 2.5	b/c = 4
ALLC	0.00 (0.00)	0.03 (0.03)	0.00 (0.02)	0.06* (0.03)
TFT	0.19*** (0.05)	0.06 (0.04)	0.09** (0.04)	0.07** (0.03)
TF2T	0.05 (0.03)	0.00 (0.00)	0.17** (0.06)	0.20*** (0.07)
TF3T	0.01 (0.01)	0.03 (0.03)	0.05 (0.05)	0.09** (0.04)
2TFT	0.06 (0.04)	0.07* (0.04)	0.02 (0.02)	0.03 (0.02)
2TF2T	0.00 (0.02)	0.11** (0.05)	0.11* (0.06)	0.12** (0.05)
Grim	0.14*** (0.04)	0.07 (0.05)	0.11** (0.04)	0.04* (0.02)
Grim2	0.06* (0.03)	0.18*** (0.06)	0.02 (0.03)	0.05* (0.03)
Grim3	0.06 (0.03)	0.28*** (0.08)	0.24*** (0.07)	0.11*** (0.04)
ALLD	0.29*** (0.06)	0.17*** (0.06)	0.14*** (0.04)	0.23*** (0.04)
D-TFT	0.14*** (0.05)	0.00 (0.00)	0.05* (0.03)	0.00 (0.00)
Gamma	0.46*** (0.02)	0.5*** (0.03)	0.49*** (0.03)	0.43*** (0.02)

Notes: All payoff specifications use error rate $E = 1/8$. Bootstrapped standard errors (shown in parentheses) used to calculate p-values.

Maximum Likelihood Estimation

	b/c = 1.5	b/c = 2	b/c = 2.5	b/c = 4
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Strategies	bc=1.5 $\varepsilon=1/8$	bc=2 $\varepsilon=1/8$	bc=2.5 $\varepsilon=1/8$	bc=4 $\varepsilon=1/8$	bc=4 $\varepsilon=1/16$	bc=4 $\varepsilon=0$
ALLC	0.00	0.03	0.00	0.06**	0.00	0.20
TFT	0.14***	0.00	0.04	0.00	0.00	0.00
TF2T	0.04	0.00	0.11	0.16**	0.21**	0.00
TF3T	0.01	0.03	0.03	0.09***	0.37*	0.00
2TFT	0.06*	0.07*	0.02	0.03	0.00	0.15**
2TF2T	0.01	0.10**	0.12**	0.09**	0.08	0.00
Grim	0.14***	0.07	0.11**	0.04	0.03	0.15**
Grim2	0.06*	0.20***	0.02	0.05***	0.09*	0.16
Grim3	0.05*	0.26***	0.23***	0.11	0.00	0.00
ALLD	0.29***	0.17***	0.14***	0.23***	0.05**	0.07**
D-TFT	0.13***	0.00	0.05	0.00	0.05**	0.09
Payback	0.08*	0.07	0.11***	0.15***	0.12**	0.17**
Gamma	0.46***	0.50***	0.49***	0.42***	0.44***	0.35***

Note: Estimates based only on the last four interactions in each session.

Nash Equilibrium

Finding B The data do not show the strong support for risk dominance of TFT as the key determinant of the level of cooperation in games with noise that was seen in studies of games without noise (p.733 in FRD).

Risk Dominance (?)

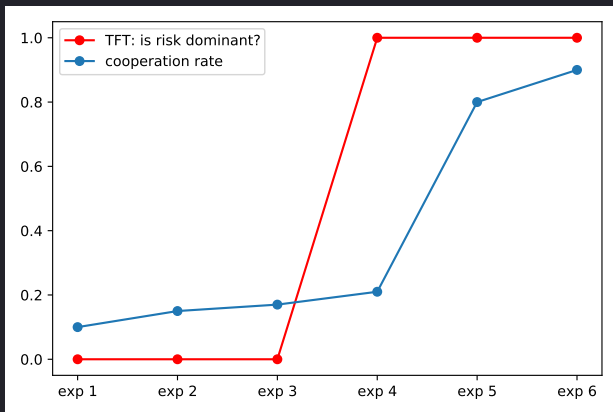
“On the Determinants of Cooperation in Infinitely Repeated Games”

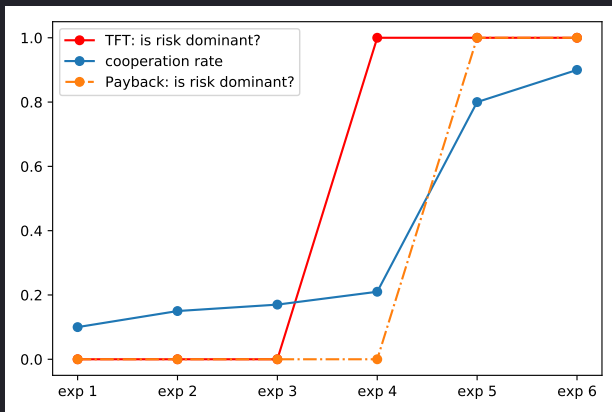
Pedro Dal Bó and Guillaume R. Fréchette

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count: 3





Conclusions