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Additional tables that support the draft

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Not for Publication

Supplementary Appendix for Kamei, 2017,

"Conditional Punishment in England"

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The method to classify subjects into the five conditional punishment types [which is the same method used in Kamei (2014)]:

- A "free-rider" is defined as a subject who does not punish a person, no matter how many punishment points the other two members impose on that person.
- A "pro-social (anti-social) conditional punisher" is defined as a subject whose Spearman's ρ between his or her conditional punishment points targeted at a non-cooperator and the remaining members' average punishment points targeted at the non-cooperator is significantly positive at the 5% level (i.e., two-sided p-value < .05) and whose conditional punishment decisions targeted at a cooperator are (are not) always 0.
- An "other pro-social punisher" is defined as a subject who conditionally punishes a non-cooperator but is not classified as a pro-social conditional punisher and whose conditional punishment decisions targeted at a cooperator are always 0.
- An "other anti-social punisher" is defined as a subject who conditionally punishes a cooperator but is not classified as an anti-social conditional punisher.

Pages 2 to 5 of this Appendix include additional tables that supplement the manuscript.

Table A.1: *Total Average Conditional Punishment Schedules for Each Target (A Cooperator or a Non-cooperator)*

This is a replication of the analyses included in Appendix Table B.2 of Kamei (2014), using the subjects in England.

(1) The total average conditional punishment schedules

Dependent Variable: / Independent Variable:	Subject *j*'s conditional punishment decisions to a target ∈ {0, 1, 2, 3, 4}			
	(1)	(2)	(3)	(4)
(a) $1_{\{\text{the target is a non-cooperator}\}}$	.99***	-.49*	.083***	-.87***
	(.080)	(.27)	(.092)	(.31)
(b) $1_{\{\text{the target is a cooperator}\}}$	.39***	-3.03***	.26***	-3.63***
	(.055)	(.42)	(.053)	(.46)
(c) Other members' average punishment points to the target × $1_{\{\text{the target is a non-cooperator}\}}$	----	----	.084***	.19**
			(.030)	(.085)
(d) Other members' average punishment points to the target × $1_{\{\text{the target is a cooperator}\}}$	----	----	.063***	.30***
			(.018)	(.082)
# of Observations	3,888	3,888	3,888	3,888
Log Pseudolikelihood	----	-4213.7	----	-4204.2
F	81.13	28.53	40.68	18.17
Prob > F	.0000	.0000	.0000	.0000
R-squared	.2959	----	.3007	----
Test Results				
F test for H_0: (a) = (b)				
F	56.50	49.86	32.17	40.82
p-value (two-sided)	.0000***	.0000***	.0000***	.0000***
F test for H_0: (c) = (d)				
F	----	----	0.48	1.11
p-value (two-sided)	----	----	.4886	.2931

Notes: Linear regressions with no constant terms and with robust standard errors clustered by subject ID in columns (1) and (3), and tobit regressions with no constant terms and with robust standard errors clustered by subject ID in columns (2) and (4). The numbers of left-(right-) censored observations are 2647(262) in columns (2) and (4).

$1_{\{\text{the target is a cooperator}\}}$ =1 if the target of punishment is a cooperator; = 0 otherwise.

$1_{\{\text{the target is a non-cooperator}\}}$ =1 if the target of punishment is a non-cooperator; = 0 otherwise.

*, **, and *** indicate significance at the 0.10 level, at the 0.05 level and at the 0.01 level, respectively.

(2) The average conditional punishment schedules by subjects' cooperativeness (a cooperator or a non-cooperator)

Dependent Variable: / Independent Variable:	Subject *j*'s conditional punishment decisions to a target ∈ {0, 1, 2, 3, 4}			
	(1)	(2)	(3)	(4)
(a) $1_{\{\text{the target is a non-cooperator and subject } j \text{ is a non-cooperator}\}}$	.69*** (.14)	-1.59*** (.57)	.36*** (.11)	-2.40*** (.59)
(b) $1_{\{\text{the target is a non-cooperator and subject } j \text{ is a cooperator}\}}$	1.10*** (.096)	-.14 (.28)	.98*** (.11)	-.39 (.33)
(c) $1_{\{\text{the target is a cooperator and subject } j \text{ is a non-cooperator}\}}$	.61*** (.13)	-1.91*** (.59)	.40*** (.12)	-2.50*** (.61)
(d) $1_{\{\text{the target is a cooperator and subject } j \text{ is a cooperator}\}}$	.31*** (.058)	-3.41*** (.47)	.21*** (.058)	-4.02*** (.53)
Other members' average punishment points to the target × variable (a)	----	----	.16*** (.057)	.41** (.19)
Other members' average punishment points to the target × variable (b)	----	----	.058 (.036)	.13 (.093)
Other members' average punishment points to the target × variable (c)	----	----	.10** (.042)	.30** (.13)
Other members' average punishment points to the target × variable (d)	----	----	.050** (.020)	.31*** (.10)
# of Observations	3,888	3,888	3,888	3,888
Log Pseudolikelihood	----	-4172.2	----	-4161.1
F	41.39	15.38	20.81	9.58
Prob > F	.0000	.0000	.0000	.0000
R-squared	.3084	----	.3142	----
Test Results				
F test for H_0: (a) = (b)				
F	6.01	5.92	----	----
p-value (two-sided)	.0150**	.0150**	----	----
F test for H_0: (c) = (d)				
F	4.23	5.34	----	----
p-value (two-sided)	.0409**	.0209**	----	----
F test for H_0: (a) = (c)				
F	.48	.56	----	----
p-value (two-sided)	.4872	.4529	----	----

F test for H_0: (a) = (c)				
F	65.09	54.93	----	----
p-value (two-sided)	.0000***	.0000***	----	----

Notes: Linear regressions with no constant terms and with robust standard errors clustered by subject ID in columns (1) and (3), and tobit regressions with no constant terms and with robust standard errors clustered by subject ID in columns (2) and (4). The numbers of left-(right-) censored observations are 2647(262) in columns (2) and (4). $1_{\{\text{the target is a non-cooperator and subject } j \text{ is a non-cooperator}\}}$ =1 if the target of punishment is a non-cooperator and *j* is a non-cooperator; = 0 otherwise. $1_{\{\text{the target is a non-cooperator and subject } j \text{ is a cooperator}\}}$ =1 if the target of punishment is a non-cooperator and *j* is a cooperator; = 0 otherwise. $1_{\{\text{the target is a cooperator and subject } j \text{ is a non-cooperator}\}}$ =1 if the target of punishment is a cooperator and *j* is a non-cooperator; = 0 otherwise. $1_{\{\text{the target is a cooperator and subject } j \text{ is a cooperator}\}}$ =1 if the target of punishment is a cooperator and *j* is a cooperator; = 0 otherwise.

*, **, and *** indicate significance at the 0.10 level, at the 0.05 level and at the 0.01 level, respectively.

Table A.2: *Unconditional Punishment Decisions by Conditional Punishment Types*

Dependent Variable: / Independent Variable:	Subject *j*'s unconditional punishment decisions to a target $i \in \{0, 1, 2, 3, 4\}$					
	(a) *i* is a non-cooperator			(b) *i* is a cooperator		
	All decisions	*j* is a cooperator	*j* is a non-cooperator	All decisions	*j* is a cooperator	*j* is a non-cooperator
	(a1)	(a2)	(a3)	(b1)	(b2)	(a4)
Pro-social conditional punisher dummy	1.09*** (.22)	1.11*** (.18)	1.00 (.91)	.14 (.10)	.17 (.12)	.00 (n.a.)
Anti-social conditional punisher dummy	1.21*** (.33)	1.59*** (.40)	.29 (.18)	.79*** (.22)	.71** (.28)	1.00** (.48)
Free-rider dummy	.064* (.037)	.06 (.044)	.071 (.072)	.00 (n.a.)	.00 (n.a.)	.00 (n.a.)
Other pro-social punisher dummy	1.64*** (.17)	1.69*** (.18)	.50 (.37)	.00 (n.a.)	.00 (n.a.)	.00 (n.a.)
Other anti-social punisher dummy	1.72*** (.22)	1.91*** (.23)	1.38*** (.44)	.94*** (.17)	.61*** (.20)	1.54*** (.34)
# of Observations	216	162	54	216	162	54
Adjusted R-squared	.5842	.6540	.4018	.3291	.2611	.5320

Notes: Linear regressions with no constant terms and standard errors clustered by group ID. The Pro-social conditional punisher dummy equals 1 if *j* is classified as a pro-social conditional punisher; and 0 otherwise. The Anti-social conditional punisher dummy equals 1 if *j* is classified as an anti-social conditional punisher; and 0 otherwise. The Free-rider dummy equals 1 if *j* is classified as a free-rider; and 0 otherwise. The Other pro-social punisher dummy equals 1 if *j* is classified as an other pro-social punisher; and 0 otherwise. The Other anti-social punisher dummy equals 1 if *j* is classified as an other anti-social punisher; and 0 otherwise.

*, **, and *** indicate significance at the 0.10 level, at the 0.05 level and at the 0.01 level, respectively.