

Competition and Well-being.

An experimental approach

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Introduction/Motivation

“Competition is all.”

The Economist, Dec. 6th 2003.

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- One dimension of the effect of competition → efficient allocation of resources
- Second dimension of the effect of competition → contribution to well-being
 - ‘Incomplete contract world’

Introduction/Motivation

“Welfare economics should be concerned not only with the efficient allocation of material goods, but also with designing institutions such that people are happy about the way they interact with others.

(...) Armed with well-founded psychological assumptions, economists can start to address the nonmaterial benefits and costs of the free market and other institutions”

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Matthew Rabin, AER, 1993, p. 1283.

- Second dimension of the effect of competition → psychological & behavioral consequences
 - Subjective well-being and experienced emotions
 - Social well-being - Social disposition towards others
- Interaction between competition, disposition towards others, subjective well-being

Introduction/Motivation

- Laboratory experiment as research method allows
 - controlling the institutional environments (competitive versus non-competitive)
 - measurement of disposition towards others under different institutions
 - measurement of psychological effects of different institutions
- Abstraction from ‘reality’ necessary

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Results - A Short Preview

The **presence of competition** does ...

- not increase efficiency
- not yield payoff gains for the short side of the market

For those on the **long side of the market** competition does have ...

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- adverse effects on their disposition towards others
- negative impact on their emotional state and subjective well-being

Interaction success in competitive environment ...

- is insufficient to explain subjective well-being and social orientation

People's **competitive position** itself ...

- influences their subjective well-being and social disposition towards others

Generally: **competition does not show up as a positive force.**

Experimental design and procedure

Implement (stylized) situation of incomplete contracting & repeated interaction between two fixed sides in a relationship

Experimental set-up:

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1. Value orientation test 1:
→ social well-being towards general other
2. Interaction phase:
→ finitely repeated incomplete contract game
→ measurement of well-being and emotions after interaction
3. Value orientation test 2:
→ social well-being towards interaction partner & stranger

Experimental design and procedure

The interaction phase

- The stage game - representation of incomplete contracting:

	<i>0</i>	<i>10</i>
<i>0</i>	160, 160	410, 40
<i>10</i>	40, 410	290, 290

Slide 7 **Two treatments** (in each the stage game is repeated for 30 rounds):

- No Competition Condition (NCC) - social dilemma game is played in fixed pairs
- Competition Condition (CC) - social dilemma game involves a trio of players; (*A*, *B*, *C*) with fixed roles (*A* chooses in each round with whom to interact; *B* or *C*); the player not chosen receives 90.
- Game theoretic predictions ... (standard, social preferences, reputation)

Experimental design and procedure

The value orientation (circle) test:

- In part 1 → randomly chosen anonymous other
- In part 3 → both interaction partners in CC
→ interaction partner and anonymous other in NCC

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- The circle ...
- Our particular interest:
 - How does the disposition towards others change?
 - How does it interact with experience in the interactive game?
 - How does it interact with well-being and emotions?

Experimental design and procedure

Measuring subjective well-being and emotions

Computerized questionnaire concerning global well-being and specific emotions

- Global measure of subjective well-being
 - Specific emotions → subjects rate themselves on a scale from 1 to 7 w.r.t. thirteen specific emotions (sadness, happiness, shame, pride, fear, envy, relief, anger, joy, guilt, irritation, surprise, contempt)
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Experimental design and procedure

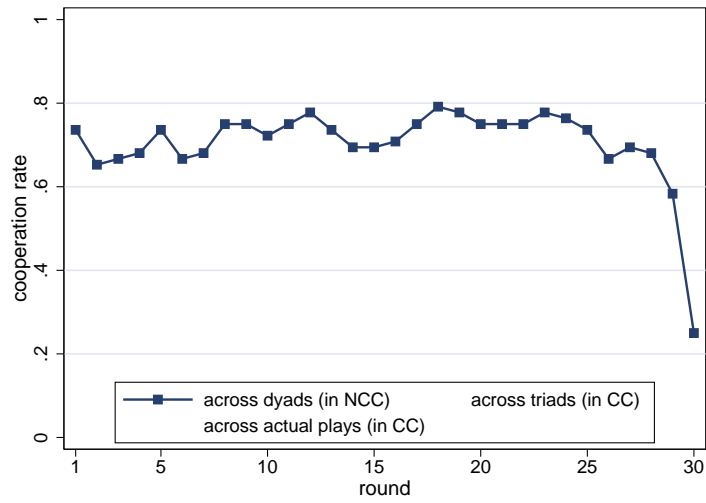
Some procedural details

- Computerized experiment at the CREED laboratory
 - In total 153 participants
 - CC → 81 subjects in 27 triads
 - NCC → 72 subjects in 36 dyads
 - Payment according to ‘performance’; average earnings € 23,- for 90 minutes per session
- Slide 10**

Experimental Results

- Interaction in the NCC and the CC - Result 1:

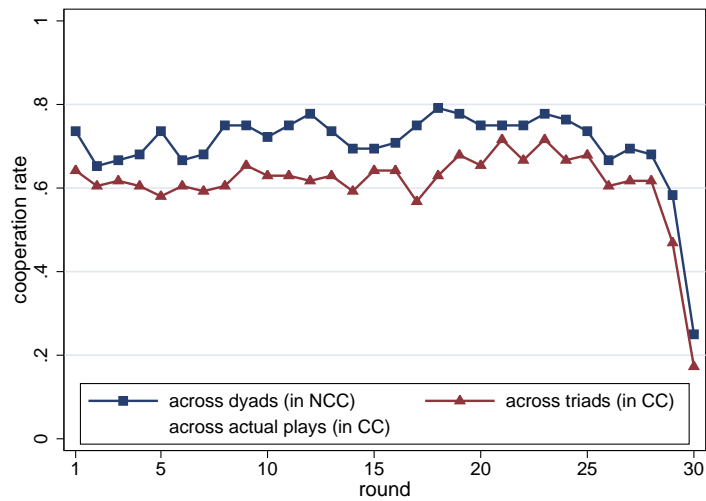
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Experimental Results

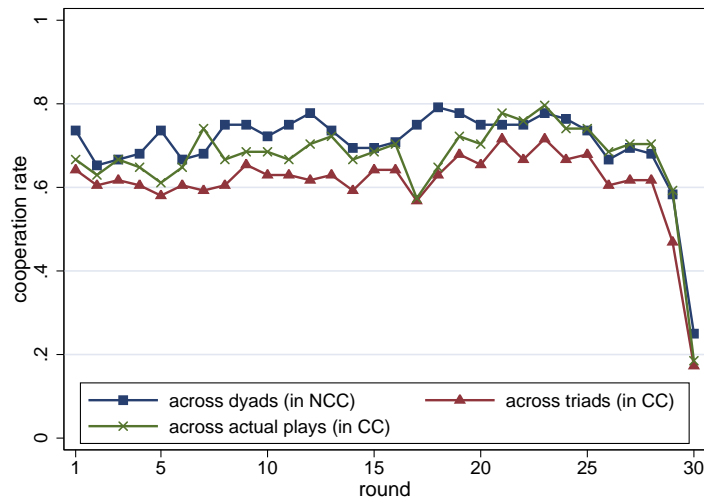
- Interaction in the NCC and the CC - Result 1:

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Experimental Results

- **Interaction in the NCC and the CC - Result 1: Efficiency**
 Competition does not increase efficiency.



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Experimental Results

- **Interaction in the NCC and the CC - Result 2: Earnings**
 Competition does not favor the short side.

1. A-players in CC do not earn significantly more than players in NCC.
 (mean for A in CC: 251.6; mean for pairs in NCC: 252.2; MW-test: $p = .2659$)
2. The standard deviation of earnings across rounds is significantly larger for of A-players in CC than for players in NCC.
 (st.dev.A in CC: 89.59; st.dev. for players in NCC: 65.43; MW-test: $p = .0079$)
3. Selected B/C-players in CC earn the same as players in NCC.
 (mean for B/C in CC: 238.7; mean for pairs in NCC: 252.2; MW-test: $p = .1960$)

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Regularity: From a material perspective competition does neither increase efficiency nor favor the short side of the market.

Experimental Results

- **Competition and social well-being - Result 3:**
Change in disposition towards others strongly depends on institution and role.

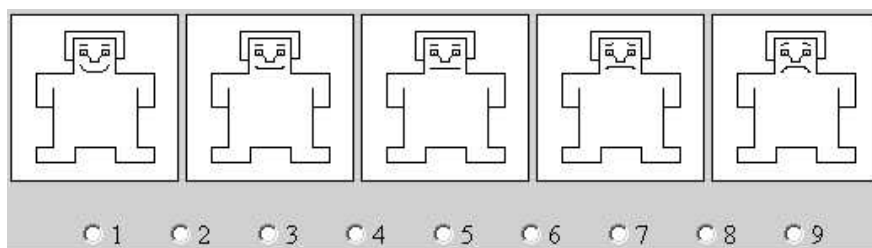
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	NCC	CC
initial angle	15.37	14.01
final angle towards partner	10.67	
final angle towards third party	9.68	
final angle of A towards m.o.		14.54
final angle of A towards l.o.		6.93
final angle of m.o. towards A		12.49
final angle of m.o. towards l.o.		12.59
final angle of l.o. towards A		-4.19
final angle of l.o. towards m.o.		5.95

Experimental Results

- **Competition and subjective well-being - Result 4:**
Our measure of global subjective well-being.

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	condition-role			NCC
	CC-A	CC-B/C m.o.	CC-B/C l.o.	
well-being	7.85	6.09	3.50	6.40

Note: measure equals 10-chosen number; all differences are significant except CC-B/C m.o. vs. NCC.

Subjective well-being is significantly influenced by the institution and the player position.

Experimental Results

- **Competition and emotions - Result 5:**

emotion	condition-role			
	CC-A	CC-B/C m.o.	CC-B/C l.o.	NCC
sad	1.93	2.70	4.07	2.06
happy	5.04	4.26	3.00	4.07
envy	1.85	3.15	3.67	2.43
joy	4.74	4.19	2.56	3.75

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The less often chosen players in CC are in the worst emotional state of all players. The A players in CC are in the best emotional state.

Regularity: Social and subjective well-being are strongly influenced by the institution and the players' role.

Experimental Results

- **Players' subjective well-being and interaction success in NCC:**

	coef.	st.err.
global well-being		
interaction success	.00099** (0.000)	.00019
sadness		
interaction success	-.00040** (0.001)	.00011
fear		
interaction success	.00001 (0.944)	.00009
envy		
interaction success	-.00041* (0.022)	.00017
guilt		
interaction success	.00020 (0.096)	.00012
surprise		
interaction success	-.00031 (0.113)	.00019
contempt		
interaction success	-.00049** (0.005)	.00017

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In NCC players' subjective well-being is strongly influenced by interaction success.

Experimental Results

- A-players' subjective well-being and interaction success in CC:

	with more often chosen B/C-player		with less often chosen B/C-player	
	coef.	st.err.	coef.	st.err.
global well-being				
interaction success	.00030 (.054)	.00015	-.00036 (0.181)	.00026
sadness				
interaction success	-.00031* (.041)	.00014	.00046 (.080)	.00025
fear				
interaction success	-.00007 (.510)	.00011	.00004 (.835)	.00020
guilt				
interaction success	-.00004 (.786)	.00015	.00035 (.134)	.00023
surprise				
interaction success	.00003 (.889)	.00021	-.00019 (.591)	.00035
contempt				
interaction success	-.00011 (.534)	.00018	.00005 (.883)	.00031

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In CC the A-players' subjective well-being is almost not influenced by interaction success.

Experimental Results

- B/C-players' subjective well-being and interaction success in CC:

	of more often chosen B/C-player		of less often chosen B/C-player	
	coef.	st.err.	coef.	st.err.
global well-being				
interaction success	.00063** (.001)	.00017	.00026 (.522)	.00039
sadness				
interaction success	-.00014 (.272)	.00012	-.00041 (.263)	.00035
fear				
interaction success	.00009 (.431)	.00011	-.00048 (.135)	.00031
guilt				
interaction success	.00007 (.524)	.00011	.00008 (.804)	.00034
surprise				
interaction success	-.00019 (.221)	.00015	-.00012 (.772)	.00041
contempt				
interaction success	-.00055** (.003)	.00017	-.00061 (.195)	.00046

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The more often chosen B/C-players' subjective well-being is significantly influenced by interaction success. The less often chosen B/C-players' well-being is independent of interaction success.

Experimental Results

- Subjective well-being and interaction success:

Regularity: Only the subjective well-being of players in NCC and more often chosen B/C-players in CC is influenced by interaction success.

A-players' and less often chosen B/C-players' are independent of interaction success.

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This clearly indicates that the institution and competitive position itself plays a crucial role in determining subjective well-being.

Experimental Results

- Social well-being, interaction success, and emotions in NCC:

dep. var.: final angle	A and B players towards each other (#a equations) and unrelated third player (#b equations)					
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
Initial angle	.4870** (.003)	.4601** (.000)	.3912* (.011)	.4470** (.000)	.3861* (.011)	.4470** (.000)
Total earnings over plays	.0549 (.320)		-.0132 (.818)			
Sadness			-1.767 (.451)	.3673 (.797)	-1.593 (.473)	.3673 (.797)
Fear			.3287 (.916)	-2.825 (.159)	.3875 (.901)	-2.825 (.159)
Guilt			4.665* (.042)	2.612 (.072)	4.569* (.043)	2.612 (.072)
Surprise			3.731* (.020)	.4270 (.678)	3.708* (.021)	.4270 (.678)
Contempt			-5.099** (.004)	-.9000 (.410)	-5.001** (.003)	-.9000 (.410)
Constant	-10.43 (.450)	2.602 (.264)	3.083 (.862)	2.654 (.604)	-.5740 (.942)	2.654 (.604)

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In NCC, the interaction partners social disposition towards each other is strongly influenced by their emotional state.

Experimental Results

- Social well-being, interaction success, and emotions of A-players in CC:

dep. var.: final angle	A player towards more often (#a equations) and less often (#b equations) chosen B/C player					
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
Initial angle	.4240*	.1817	.5089**	.3321**	.5094**	.2874*
	(.026)	(.206)	(.002)	(.004)	(.002)	(.012)
Total earnings over plays	-.0014	.0025	.0004	.0029		
	(.501)	(.313)	(.822)	(.163)		
Sadness			6.556*	1.510	6.281*	2.837
			(.019)	(.430)	(.013)	(.101)
Fear			-1.512	1.742	-1.338	.6375
			(.664)	(.461)	(.694)	(.784)
Guilt			3.619	-.8355	3.432	.4745
			(.177)	(.663)	(.179)	(.786)
Surprise			5.561**	3.454**	5.539**	3.291**
			(.002)	(.004)	(.003)	(.009)
Contempt			-.7881	3.662**	-.7459	3.368*
			(.691)	(.005)	(.707)	(.013)
Constant	17.58	1.318	-30.98	-25.76**	-27.76**	-23.31**
	(.213)	(.792)	(.068)	(.000)	(.003)	(.000)

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In CC, the A-players' social disposition towards their interaction partners is only influenced by their emotional state.

Experimental Results

- Social well-being, interaction success, and emotions of B/C-players in CC:

dep. var.: final angle	More often chosen B/C player towards A (#a equations) and less often (#b equations) chosen B/C player					
	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)
Initial angle	.2440	.5245**	.2041	.4719**	.2378	.4719**
	(.113)	(.000)	(.139)	(.000)	(.086)	(.000)
Total earnings over plays	.0036*		.0019			
	(.013)		(.227)			
sadness			-3.431	.7723	-3.679	.7723
			(.144)	(.680)	(.124)	(.680)
Fear			-.6024	-3.711*	-.0306	-3.711*
			(.802)	(.049)	(.990)	(.049)
Guilt			3.414	.6845	4.206	.6845
			(.153)	(.710)	(.074)	(.710)
Surprise			-3.643	-.9458	-3.841*	-.9458
			(.052)	(.528)	(.045)	(.528)
Contempt			-.3043	-.4085	-1.128	-.4085
			(.856)	(.739)	(.472)	(.739)
Constant	-12.11	2.718	15.83	12.74	27.11**	12.74
	(.186)	(.422)	(.240)	(.102)	(.006)	(.102)

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In CC, the more often chosen B/C-players' social disposition towards their interaction partner seems to be mainly influenced by interaction success.

Experimental Results

- **Social well-being, interaction success, and emotions of B/C-players in CC:**

dep. var.: final angle	Less often chosen B/C player towards A (#a equations) and more often (#b equations) chosen B/C player					
	(7a)	(7b)	(8a)	(8b)	(9a)	(9b)
Initial angle	.6751** (.000)	.1051 (.146)	.5045** (.000)	.1345 (.111)	.5021** (.000)	.1345 (.111)
Total earnings over plays	.0035 (.220)		.0009 (.697)			
Sadness			2.290 (.174)	-.8935 (.562)	2.245 (.183)	-.8935 (.562)
fear			-3.116 (.137)	-.6527 (.728)	-3.291 (.110)	-.6527 (.728)
Guilt			-.4333 (.786)	-.5286 (.713)	-.3155 (.841)	-.5286 (.713)
Surprise			-.9120 (.552)	-1.708 (.220)	-.8288 (.587)	-1.708 (.220)
Contempt			-3.939** (.009)	2.126 (.116)	-4.050** (.006)	2.126 (.116)
Constant	-15.14** (.005)	4.097 (.063)	6.219 (.459)	9.450 (.152)	7.904 (.274)	9.450 (.152)

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In CC, the less often chosen B/C-players' social disposition towards their interaction partner is strongly influenced by the negative emotion *contempt*.

Experimental Results

- **Social well-being, interaction success, and emotions:**

Regularity: Only the social well-being of more often chosen B/C-players in CC seems to be directly influenced by interaction success.

For all other player roles in both institutions the emotional state of the players determines their social disposition towards their interaction partners.

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This clearly indicates that the institution and competitive position itself plays a crucial role in determining social well-being.

Final remarks

- Competition matters.
But, in a different way than is typically assumed in economics.
 - Hidden costs related to lack of control and possibility of exclusion
 - Competition does not increase efficiency and has no positive material effects for the strong side in the interaction.
 - Competition affects the subjective well-being.
 - Competition affects the disposition towards others via the channel of emotions.
- Experience of competition effects behavior in future relationships.
- Socio-psychological and pure economic aspects strongly interact
Embeddedness of economic activity in social relations.
Evidence of the social and affective costs of competition as such.

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