

Warfare and Social Preferences in Children

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BEM, 2010 June 25

Motivation

- Preferences
 - Other-regarding
 - Process-regarding
 - Endogenous?
- Endogenous preferences
 - Selective extinction of genes/cultures (not tested here)
 - Social norms and preferences respond to circumstances
- War, inter-group conflict and evolution of social preferences (Bowles 2008, Choi and Bowles 2007)
 - Parochial altruism
 - Suppression of competition (equity norms, leveling practices)

Aim

- Does exposure to warfare lead to stronger application of norms that intensify other-regarding behavior and a sense of group identity?
 - no experimental evidence linking experience of conflict and development of social preferences
- Required setting and design
 - Post-conflict society where subjects vary with warfare experience
 - Experimental tasks which measure (1) prevalence and types of other-regarding motives and (2) size of ingroup bias

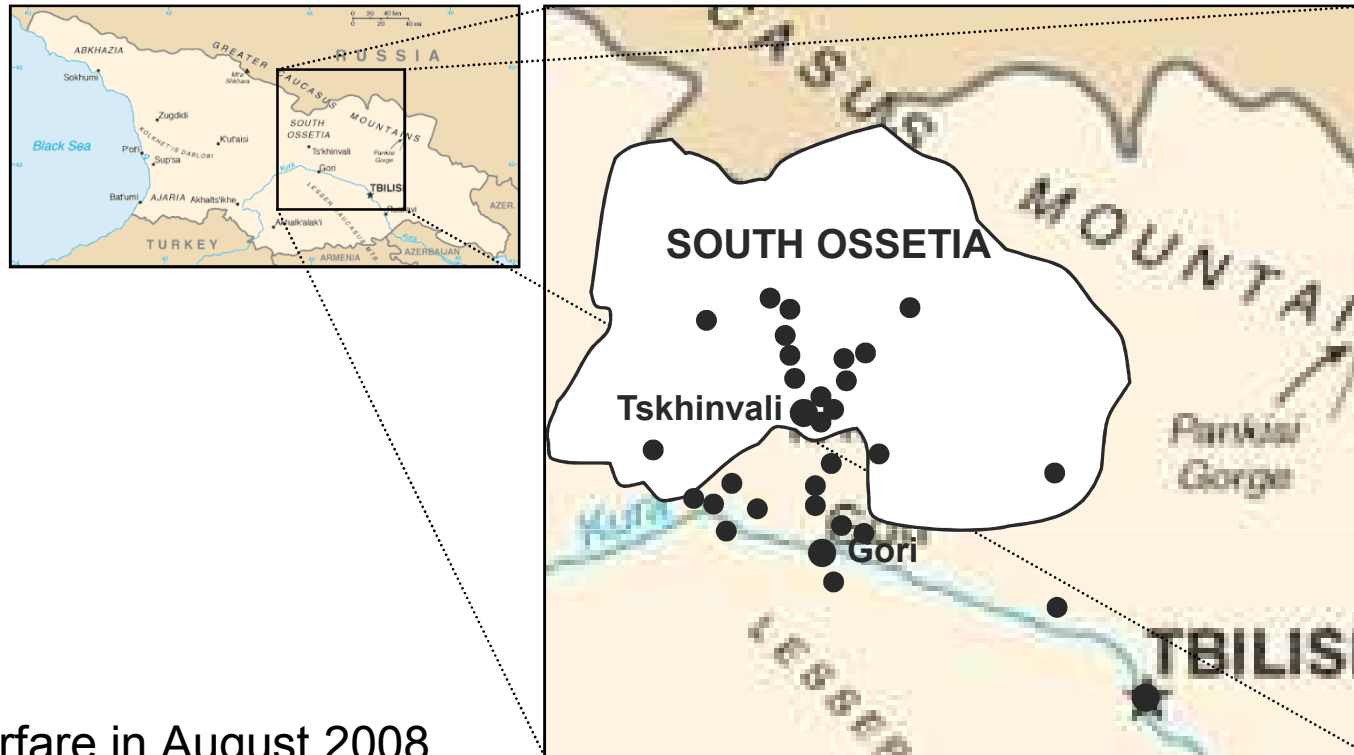
Literature review

- Experimental evidence from peaceful settings
 - Ingroup-favoritism/parochialism
 - Bernhard et al 2006; Goette et al 2006
 - Social norms evolve and respond to potential for cooperation
 - Henrich et al. 2001, 2010
 - Altruistic cooperation in PD-games increases if groups compete
 - Bornstein 2003
- Legacy of war
 - Physical and human capital (Davis and Weinstein 2002; Brakman, et al 2004, undervoet et al 2009, Miguel and Rolland 2006)
 - Institutions and social norms: least understood of all war impacts Blattman and Miguel (JEL, 2010)
 - war victimization increases later local collective action in SL (Bellows and Miguel 2006, 2009), greater political activism among Jewish holocaust survivors (Devora Carmil and Breznitz 1991) and Palestinian victims of bombardment (Punamaki et al 1997)

Literature review

- Developmental psychology
 - Socialization of children and internalization of norms (Eisenberg and Mussen 1989)
 - Other-regarding component of children's preferences develops strongly after 7 years (Camerer 2003), inequality aversion and parochialism co-evolves between 3-8 years (Fehr et al 2008)

Republic of Georgia



- Warfare in August 2008
 - Between Georgia and Russia supported by South-Ossetian separatist groups; timing of war largely unexpected
- Form of fighting
 - Largely based on aerial, artillery and tank fire strikes
 - Substantial human and material losses among civilians, more than 100 ths. Civilians forced to leave their homes (HRW 2009)
- 564 children, accessed via schools and kindergartens in Jan-Feb 2009

Experiments

- 4 binary choices in dictator games
 - Protocol developed for experiments with children and chimps (Fehr et al. 2008, Silk et al. 2005)
 - Prevalence of selfishness, inequality aversion, generosity, spitefulness

	Option 1		Option 2	
	Decision-maker's payoff	Partner's payoff	Decision-maker's payoff	Partner's payoff
Costly sharing game	2	0	1	1
Costless sharing game	1	0	1	1
Costly envy game	2	3	1	1
Costless envy game	1	2	1	1

- Treatment (across subjects)
 - Ingroup partner: an anonymous child from the same class
 - Outgroup partner: a child from an unknown class

Choice situation



- One-by-one explanation, one-shot and anonymous setting
- Randomization of order and spatial allocation of (1,1)
- Motivation: tokens to be exchanged for sweets and toys

Understanding the tasks

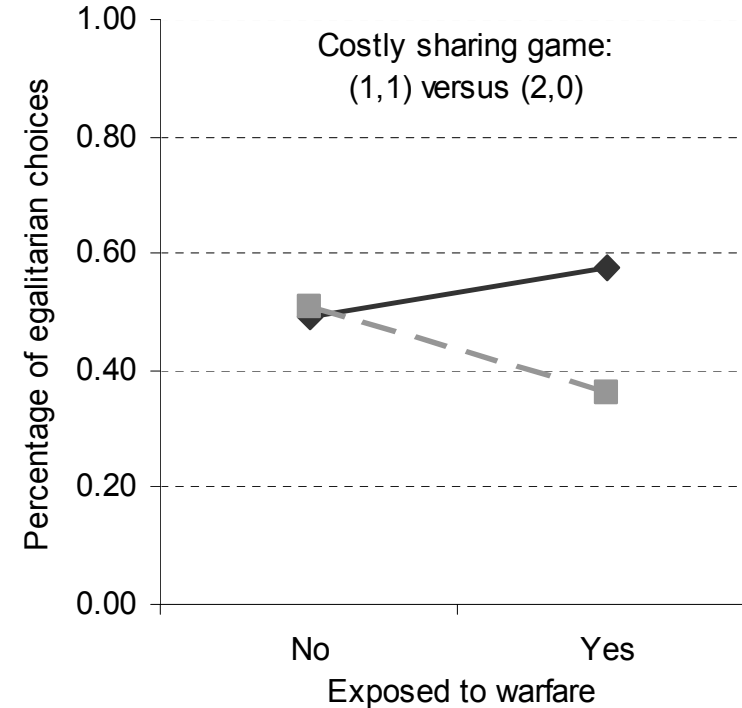
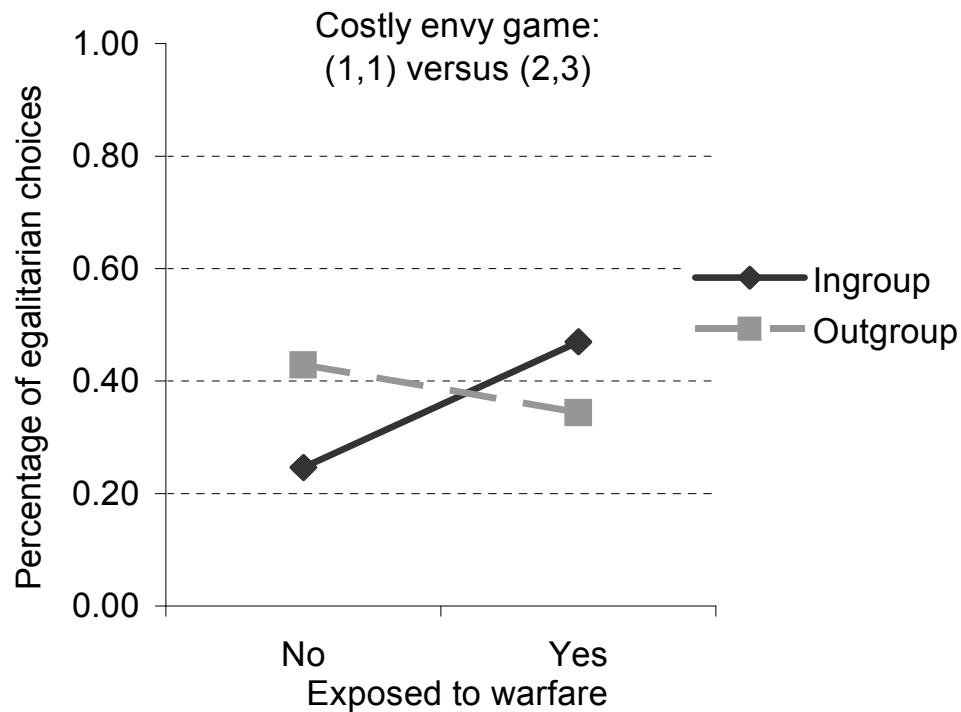
- Costly sharing game [(1,1) vs. (2,0)]
 - choice (1,1): “I prefer we both have”, “otherwise it wouldn't be polite, one has to share equally”, “I'll not make my classmates sorry”, “he/she needs too and I need too”, “friends, equal”, “classmate is not upset”, “equal”, “so that neither me nor he/she gets upset”
 - choice (2,0): “i want to buy something”, “i prefer more”, “i want to buy something”, “i would have more”, “i want more”, “because here is 2”, “that's good”
- Costless envy game [(1,1) vs. (1,2)]
 - Choice (1,1): “otherwise he or she would get more than me”, “it would be unfair”, “I want we both have same”, “equal”, “we'll have equally”, “in order I do not be upset”, “to be similar”, “i don't want him to have more”, “because if they get two, then I want two also”
- Costly envy game [(1,1) vs. (2,3)]
 - Choice (1,1): “otherwise they would get more than me”, “they will also get and they will not take over me”, “i don't want him to get more than me”, “to share equally”, “he likes that it is one”, “equal, I'm not greedy, if one of has more, it's not fair“, “we both get the same”, “This is more fair” “You know, sometimes people fight if one has more and other less. If all have equal, more probably they won't conflict.”

Summary statistics

	All	Warfare exposure		Treatment	
	Mean (SD)	Yes Mean (SD)	No Mean (SD)	Ingroup Mean (SD)	Outgroup Mean (SD)
<i>Panel A: Exposure to warfare</i>					
Heard fighting	0.54 (0.50)	0.80 (0.40)	0.00 (0.00)	0.50 (0.50)	0.58 (0.49)
Saw fighting	0.21 (0.41)	0.31 (0.46)	0.00 (0.00)	0.19 (0.40)	0.23 (0.42)
Saw an injured person	0.09 (0.29)	0.14 (0.34)	0.00 (0.00)	0.07 (0.26)	0.12 (0.32)
Saw soldier	0.42 (0.49)	0.63 (0.48)	0.00 (0.00)	0.40 (0.49)	0.44 (0.50)
Relative injured	0.07 (0.26)	0.11 (0.32)	0.00 (0.00)	0.05 (0.23)	0.10 (0.29)
Exposed to warfare	0.68 (0.47)	1.00 (0.00)	0.00 (0.00)	0.65 (0.48)	0.72 (0.45)
Displaced due to warfare	0.28 (0.45)	0.35 (0.48)	0.13 (0.33)	0.27 (0.44)	0.29 (0.46)
<i>Panel B: Child's characteristics</i>					
Female	0.48 (0.50)	0.47 (0.50)	0.52 (0.50)	0.49 (0.50)	0.47 (0.50)
Age (years)	7.72 (2.07)	7.83 (2.12)	7.49 (1.93)	7.76 (2.09)	7.69 (2.04)
Number of siblings	1.05 (0.60)	1.10 (0.59)	0.96 (0.60)	1.07 (0.58)	1.03 (0.61)
Number of brothers	0.56 (0.50)	0.57 (0.50)	0.52 (0.50)	0.57 (0.50)	0.54 (0.50)
Number of sisters	0.54 (0.50)	0.57 (0.50)	0.48 (0.50)	0.54 (0.50)	0.54 (0.50)
Height (cm)	130 (13.2)	131 (13.4)	130 (12.9)	131 (13.4)	130 (13.1)

Warfare and self-interest

(7-11yr-old children)



- Other-regarding motives intensify towards the ingroup members and weaken towards the outgroup members
- Ingroup-outgroup gap arises

Warfare and self-interest

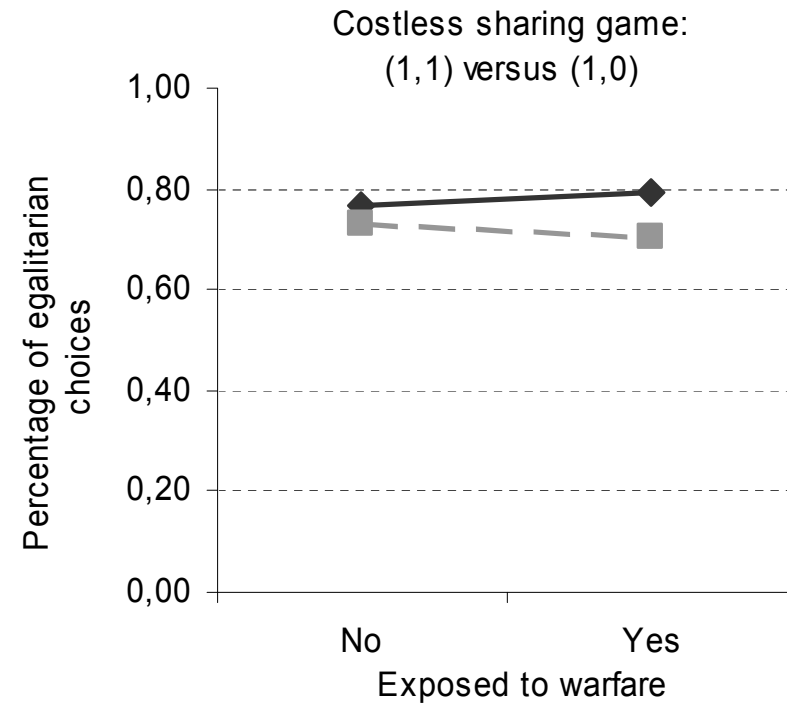
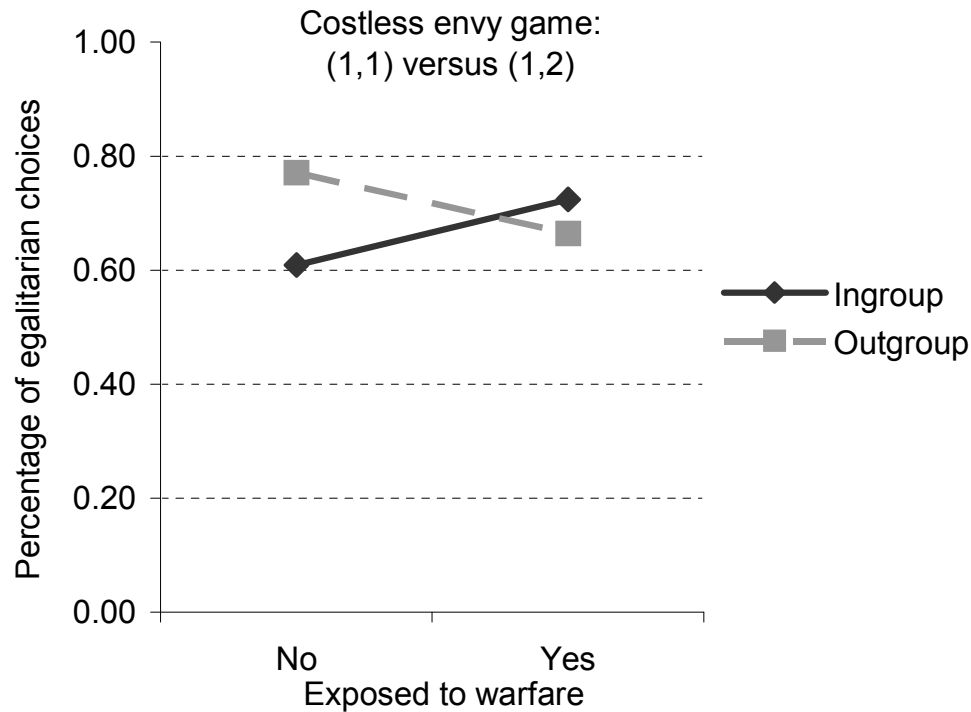
(7-11yr-old children)

Estimator	Probit				
Sample	Ingroup treatment (1)	Outgroup treatment (2)	Affected by war (3)	Non-affected by war (4)	All (5)
Panel A: Dep. variable	Costly envy game (1,1) vs. (2,3): Egalitarian choice=1				
Ingroup (1=yes)			0.142 (0.061)**	-0.197 (0.089)**	-0.209 (0.091)**
War experience (1=yes)	0.253 (0.068)***	-0.081 (0.083)			-0.082 (0.083)
War exp. * Ingroup					0.349 (0.107)***
Age	-0.046 (0.026)*	-0.055 (0.028)*	-0.053 (0.023)**	-0.043 (0.034)	-0.050 (0.019)***
Observations	203	174	259	118	377
Panel B: Dep. variable	Costly sharing game (1,1) vs. (2,0): Egalitarian choice=1				
Ingroup (1=yes)			0.206 (0.061)***	0.013 (0.096)	0.002 (0.094)
War experience (1=yes)	0.035 (0.077)	-0.155 (0.084)*			-0.159 (0.084)*
War exp. * Ingroup					0.203 (0.110)*
Age	0.071 (0.027)***	0.038 (0.028)	0.044 (0.024)*	0.088 (0.037)**	0.057 (0.020)***
Observations	203	174	259	118	377

Marginal effects, standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Warfare and costless choices

(7-11yr-old children)



- Weaker effects in costless games

Form of other-regarding preferences?

	Choice in				Observed frequency
	Costly sharing game	Costless sharing game	Costly envy game	Costless envy game	
	(1,1) vs.(2,0)	(1,1) vs.(1,0)	(1,1) vs.(2,3)	(1,1) vs.(1,2)	in %
Aheadness averse	(1,1)	(1,1)	any	any	0,36
Behindness averse	any	any	(1,1)	(1,1)	0,32
Inequality averse	(1,1)	(1,1)	(1,1)	(1,1)	0,11
Generous	(1,1)	(1,1)	(2,3)	(1,2)	0,10
Spiteful	(2,0)	(1,0)	(1,1)	(1,1)	0,06
Selfish	(2,0)	any	(2,3)	any	0,33

Warfare and a form of other-regarding preferences

(7-11yr-old children)

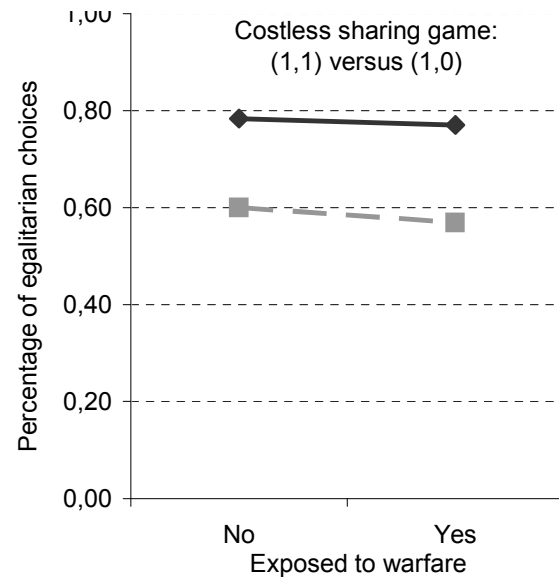
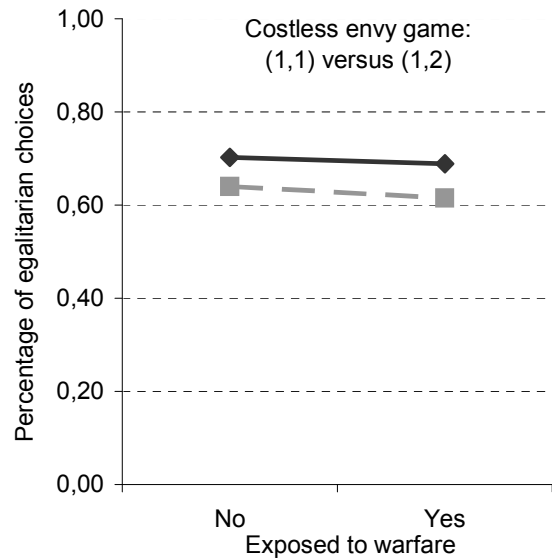
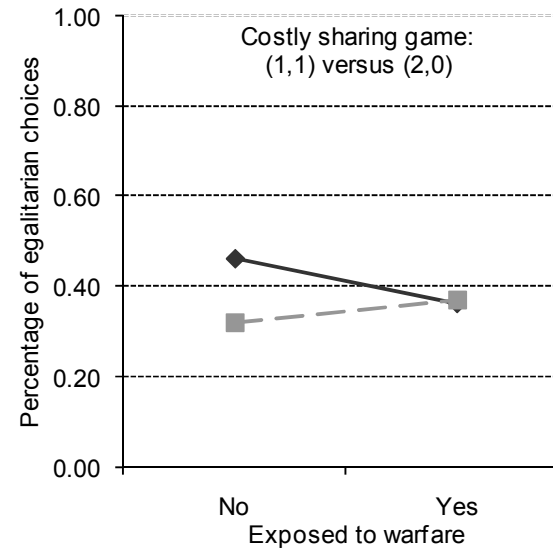
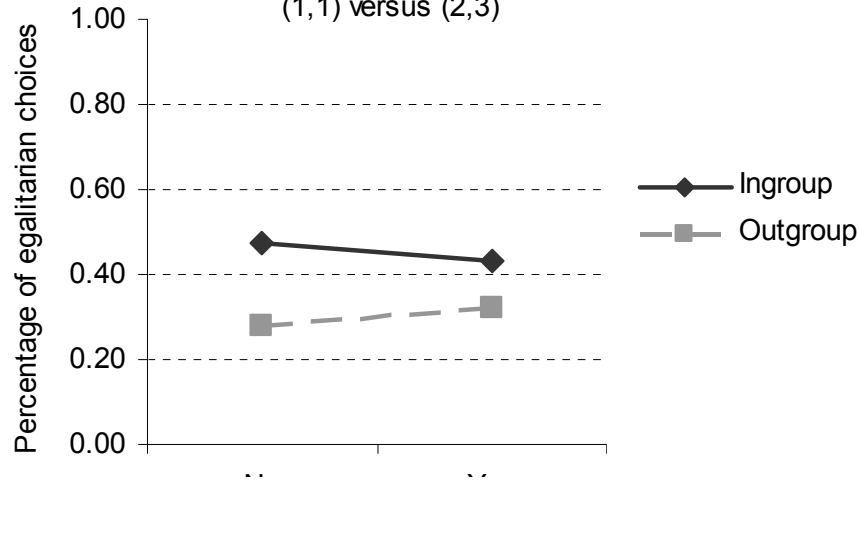
Estimator	Probit					Probit				
	Ingroup treatment	Outgroup treatment	Affected by war	Non-affected by war	All	Ingroup treatment	Outgroup treatment	Affected by war	Non-affected by war	All
Sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Dep. variable	Behindness averse					Generous				
Ingroup (1=yes)			0.152** (0.059)	-0.134 (0.084)	-0.149* (0.090)			0.002 (0.037)	0.106* (0.058)	0.108* (0.059)
War experience (1=yes)	0.236*** (0.065)	-0.042 (0.078)			-0.044 (0.081)	-0.086 (0.056)	0.032 (0.044)			0.037 (0.053)
War exp. * Ingroup					0.303*** (0.109)					-0.096 (0.060)
Panel B: Dep. variable	Aheadness averse					Spiteful				
Ingroup (1=yes)			0.171*** (0.060)	0.085 (0.091)	0.078 (0.092)			-0.008 (0.028)	-0.047 (0.041)	-0.056 (0.046)
War experience (1=yes)	0.034 (0.077)	-0.045 (0.080)			-0.049 (0.085)	0.028 (0.027)	-0.008 (0.040)			-0.008 (0.034)
War exp. * Ingroup					0.093 (0.113)					0.053 (0.062)
Panel C: Dep. variable	Inequality averse									
Ingroup (1=yes)			0.085* (0.044)	-0.056 (0.049)	-0.087 (0.072)					
War experience (1=yes)	0.143*** (0.042)	0.002 (0.051)			0.002 (0.054)					
War exp. * Ingroup					0.181* (0.101)					

standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

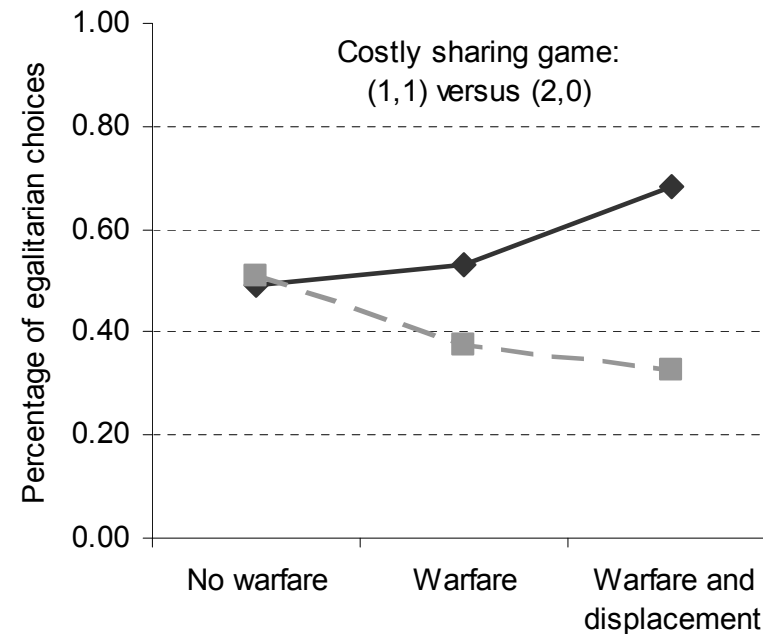
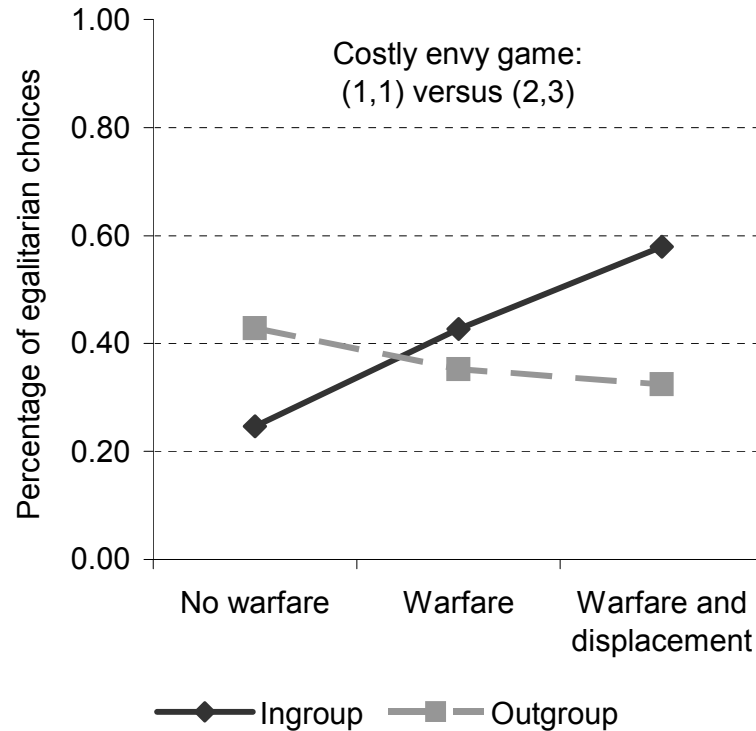
No effects of warfare among small children (3-6-yr-old)

Costly envy game:
(1,1) versus (2,3)



Warfare and/or displacement?

(7-11yr-old children)



- Simultaneous formation of egalitarian motives and ingroup-outgroup gap driven by warfare separately and further cemented by displacement

Warfare and/or displacement?

(7-11yr-old children)

Estimator	Probit					
Panel A: Dep. variable	Costly envy game (1,1) vs. (2,3): Egalitarian choice=1					
	Ingroup treatment	Outgroup treatment	Non-affected by war	Only war exposure	War+Displacement	All
Sample	(1)	(2)	(3)	(4)	(5)	(6)
Ingroup			-0.197 (0.087)**	0.087 (0.071)	0.251 (0.113)**	-0.209 (0.090)**
War	0.220 (0.080)***	-0.067 (0.084)				-0.068 (0.084)
War+Displaced	0.354 (0.095)***	-0.099 (0.097)				-0.098 (0.098)
War*ingroup						0.300 (0.115)***
(War+Displaced)*ingroup						0.446 (0.116)***
Age	-0.035 (0.025)	-0.050 (0.025)**	-0.034 (0.032)	-0.047 (0.025)*	-0.042 (0.041)	-0.042 (0.018)**
Observations	205	182	121	189	77	387
Panel A: Dep. variable	Costly sharing game (1,1) vs. (2,0): Egalitarian choice=1					
Ingroup			0.034 (0.094)	0.144 (0.072)**	0.337 (0.112)***	0.022 (0.093)
War	-0.013 (0.081)	-0.107 (0.085)				-0.113 (0.087)
War+Displaced	0.162 (0.096)*	-0.161 (0.096)*				-0.168 (0.104)
War*ingroup						0.111 (0.117)
(War+Displaced)*ingroup						0.324 (0.120)***
Age	0.061 (0.026)**	0.030 (0.025)	0.087 (0.035)**	0.001 (0.025)	0.115 (0.044)***	0.046 (0.018)**
Observations	205	182	121	189	77	387

standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Robustness checks

- Variation of social norms across regions
 - Exploiting within region differences in exposure (including 15 region dummies)
- Selective targeting
 - Quite unlikely given our subject pool and characteristics of the war
 - Controlling for children's characteristics: gender age, height, # of siblings
 - Restricting the sample to subjects from locations with less pre-war personal interaction with separatist groups (i.e. excluding children from South Ossetia)

Controlling for location fixed effects

Estimator	Probit				
Sample	Ingroup treatment	Outgroup treatment	Affected by war	Non-affected by war	All
Controlling for region fixed effects	yes	yes	yes	yes	yes
	(1)	(2)	(3)	(4)	(5)
Panel A: Dep. variable					
Costly envy game (1,1) vs. (2,3): Egalitarian choice=1					
Ingroup			0.161 (0.064)**	-0.199 (0.095)**	-0.209 (0.093)**
War experience (1=yes)	0.230 (0.075)***	-0.151 (0.096)			-0.134 (0.089)
War exp. * Ingroup					0.367 (0.108)***
Age	-0.059 (0.030)**	-0.098 (0.034)***	-0.086 (0.027)***	-0.045 (0.037)	-0.072 (0.022)***
Observations	202	167	256	111	373
Panel B: Dep. variable					
Costly sharing game (1,1) vs. (2,0): Egalitarian choice=1					
Ingroup			0.211 (0.063)***	0.073 (0.104)	0.028 (0.097)
War experience (1=yes)	0.007 (0.084)	-0.141 (0.096)			-0.158 (0.090)*
War exp. * Ingroup					0.187 (0.113)*
Age	0.079 (0.031)***	0.059 (0.034)*	0.048 (0.027)*	0.115 (0.042)***	0.071 (0.023)***
Observations	197	172	259	109	377

Marginal effects, standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Controlling for child's characteristics

Estimator	Probit				
Sample	Ingroup treatment	Outgroup treatment	Affected by war	Non-affected by war	All
Controlling for child's age, height, gender, # of siblings	yes	yes	yes	yes	yes
	(1)	(2)	(3)	(4)	(5)
Panel A: Dep. variable	Costly envy game (1,1) vs. (2,3): Egalitarian choice=1				
Ingroup (1=yes)			0.170** (0.067)	-0.142 (0.096)	-0.148 (0.097)
War experience (1=yes)	0.233*** (0.077)	-0.086 (0.089)			-0.081 (0.089)
War exp. * Ingroup					0.323*** (0.117)
Age	0.001 (0.041)	-0.066 (0.048)	-0.038 (0.037)	0.027 (0.061)	-0.025 (0.031)
Observations	166	153	215	104	319
Panel B: Dep. variable	Costly sharing game (1,1) vs. (2,0): Egalitarian choice=1				
Ingroup (1=yes)			0.192*** (0.068)	-0.015 (0.103)	-0.010 (0.100)
War experience (1=yes)	0.015 (0.085)	-0.173* (0.092)			-0.175** (0.089)
War exp. * Ingroup					0.200* (0.119)
Age	0.084* (0.043)	-0.027 (0.050)	0.032 (0.037)	0.061 (0.065)	0.040 (0.032)
Observations	166	153	215	104	319

Marginal effects, standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Restricting the sample: children from S.O. excluded

Estimator	Probit				
Sample	Ingroup treatment	Outgroup treatment	Affected by war	Non-affected by war	All
Children from South Ossetia not included					
	(1)	(2)	(3)	(4)	(5)
Panel A: Dep. variable	Costly envy game (1,1) vs. (2,3): Egalitarian choice=1				
Ingroup (1=yes)			0.134 (0.070)*	-0.204 (0.092)**	-0.213 (0.096)**
War experience (1=yes)	0.260 (0.074)***	-0.069 (0.089)			-0.070 (0.089)
War exp. * Ingroup					0.347 (0.115)***
Age	-0.044 (0.028)	-0.056 (0.031)*	-0.047 (0.026)*	-0.052 (0.035)	-0.049 (0.021)**
Observations	167	138	197	108	305
Panel B: Dep. variable	Costly sharing game (1,1) vs. (2,0): Egalitarian choice=1				
Ingroup (1=yes)			0.161 (0.070)**	0.068 (0.100)	0.051 (0.098)
War experience (1=yes)	-0.026 (0.082)	-0.131 (0.090)			-0.134 (0.091)
War exp. * Ingroup					0.112 (0.121)
Age	0.051 (0.029)*	0.038 (0.032)	0.024 (0.026)	0.093 (0.039)**	0.046 (0.022)**
Observations	167	138	197	108	305

Marginal effects, standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Concluding remarks

- In line with logic of current group selection models
- Adaptation of norms and socialization to circumstances
- Social norms that promote local level collective action not necessarily harmed by war
- Open questions
 - Temporary vs. long-term adaptation of social norms?
 - Survival pressures induced by identifiable hostile group or any type of survival pressures including those caused by bad luck (e.g. environmental crises)?