Sanctions and international interactions improve cooperation to prevent climate change

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Supplementary Information

S1 Supplementary analysis

S1.1: Socio-economic background of participant pools

768 individuals participated in our study, half of them Germans and half Russians. The experimental sessions were conducted from November 2016 to February 2017 at the laboratories of the Higher School of Economics, Moscow, of the Tomsk State University of Control Systems and Radioelectronics (in the Russian Federation), and at Bonn University and Kiel University (in Germany).

Moscow is the capital of the Russian Federation and is located in Central Russia, its population being about 12.5 million inhabitants in the city area plus about 7.5 million in the Moscow region, which is an urbanized area near the capital city. Tomsk is the administrative center of Tomsk oblast (region) located in the southwest of Siberia and has

about 580,000 inhabitants. Bonn was the capital of the Federal Republic of Germany from 1949 to 1990. It has about 330,000 inhabitants and is situated in the Federal State of North-Rhine Westphalia, located in West Germany. Kiel has a population of about 230,000 inhabitants and is the capital of the Federal State of Schleswig-Holstein, in Northern Germany.

Table S1 summarizes participants' distribution across the four locations. About three quarters of German participants studied in the region where they are born (75% in both Kiel and Bonn). About 50% of Moscow participants are born in the Moscow area or Central Russia, while in Tomsk nearly 90% of participants are born in the regions east of the Urals. While the sample is evenly balanced across the two Russian locations, due to logistical constraints the Bonn laboratory was not available on some dates, hence we run some extra sessions at the Kiel laboratory. Since we find no significant differences in behavior between participants in the two locations within each country (see Table S7-S8), we do not believe that results are affected by the uneven distribution of observations between the two German locations.

Laboratory	Frequency	Percentage
Bonn	168	21.88
Kiel	216	28.12
Moscow	192	25.00
Tomsk	192	25.00
Total	768	100.00

Table S1: Distribution of participants across locations
Notes: This table reports the absolute and relative frequencies (%) of participants per participating laboratory.

An anonymous post-experimental questionnaire provides us with further socio-demographic details of our participant pools (see Table S2). We do not report income data due to a high percentage of missing data and implausible data entries.

German participants are older than Russian participants, reflecting the fact that enrolment at university typically occurs two years earlier in Russia than Germany. The gender distribution was balanced in the two countries: 49% of participants are females in

Germany and 51% in Russia. Nearly all participants were not married. The language primarily spoken in families is German or Russian, respectively. Participation in academic exchange programs was comparable in both participant pools. In both countries around 40% of participants reported being Christians and about the same proportion reported being atheists. About one fifth of German participants studied Humanities and Social Sciences, Mathematics and Natural Sciences, or Economics and Management each, while the majority of Russian participants majored in Management and Economics.

VARIABLES (average or %)	German	Russian
Age (years)	23.28 (3.77)	20.43 (2.92)
Female (%)	49.25	50.75
Height (cm)	175.27 (9.84)	172.93 (9.67)
Marital status: married (%)	1.05	3.65
National language spoken at home (%)	95.54	96.35
Academic exchange (%)	12.50	16.15
Religious denomination (%)		
Christians (Germany: Catholics, Protestants; Russia: Orthodox)	44.53	40.36
Atheists/Agnostics	43.49	44.53
Other	11.98	15.20
Participant's degree (%)		
Humanities and Social Sciences	24.74	17.45
Mathematics and Natural Sciences	22.66	19.01
Economics and Management	20.57	52.86
Other	32.03	10.68

Table S2: Demographic characteristics of participants' pools
Note: The table reports the frequency observed for each characteristic in the German and Russian participant pool. Standard deviation for age and height in parentheses. Other religious denomination includes e.g. Buddhist and Muslim in both countries, Orthodox Christians in Germany, and Protestant and Catholic in Russia. Other Participant's degree include, e.g., medicine, law, psychology, theology.

90% of German participants' fathers are born in the territory of the Federal Republic of Germany (FRG) or the former German Democratic Republic (GDR), 5% in the EU, and 5% in other European countries (including Russia), in Turkey, other Asian countries, Africa, Australia, or the US. The distribution is similar for participants' mothers (FRG or GDR: 91%; EU: 5%, other European countries incl. Russia, in Turkey, Asia or Africa: 4%). Parents are from 29 different countries that partially overlap between fathers and mothers.

Nearly all fathers of Russian participants are born in the territory of the former USSR (99%), of whom at least 70% in the Russian Federation[1], and only 1% outside of the former USSR. The figures for mothers are nearly the same (former USSR: 99%; RF: at least 71%; outside of USSR: 1%). Parents are from 16 different countries with the parents' native countries mostly overlapping.

We classified participants' mothers' and fathers' highest level of education according to the following categories[1]: 1. Primary or lower education; 2. Secondary (lower or upper) education; 3. A-levels or post-secondary non-tertiary education; 4. Tertiary education (Bachelor, Master or Diploma degrees); 5. PhD or more than two diplomas or science degrees. Fig. S1 shows that the highest fraction of parents in the German participant pool has secondary education (39%), while the majority of Russian parents (56%) have an academic degree (Bachelor, Master or Diploma).

Russian parents' educational backgrounds regarding secondary and tertiary education are rather similar to the OECD data on educational attainment of 25 to 64 years old adults (21% vs. 24%, and 56% vs. 55%, respectively, see Fig. S1). This holds to some extent also for the German parents' academic education (32% vs. 27%). The fraction of German parents with secondary education is lower than the OECD data. In both countries, parents holding a PhD, or more than two diplomas or science degrees, are overrepresented compared to the OECD data.

[1] While 70% of Russians participants explicitly stated that their parents were born in Russia or the Russian Federation, 11.5% stated that their parents were born in the Soviet Union (USSR) without specifying whether their birthplace was located within the current boundaries of the Russian Federation or within one of the now independent states.

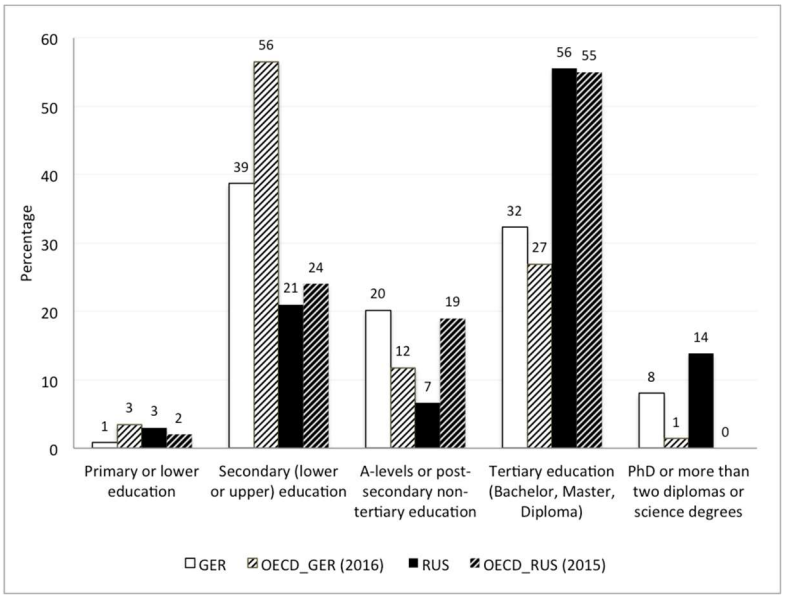


Fig. S1: **Parents' education and OECD data**[1] **on educational attainment of 25-64 year-old adults**. The figure reports the percentage distributions of German and Russian participants' mothers' and fathers' highest level of education (*N*=1,507). In addition, OECD data on educational attainment of 25-64 years old adults in 2016 are shown. Source: OECD data[1]: Indicator A1, Table A1.1: Educational attainment of 25-64 year-olds.

S1.2 Cultural variation in Russian and German populations

According to international surveys, Russian and German populations differ along many cultural traits. The Inglehart-Welzel world cultural map[2] ranks countries according to two scales (Fig. S2). The first scale contrasts Survival values - characterized by search for economic and physical security, a relatively ethnocentric outlook and low levels of trust and tolerance – and Self-expression values – in turn characterized by search for subjective well-being, self-expression, and quality of life. The second scale contrasts traditional values, which are centered around religion, deference to authority, traditional family values, and a nationalistic outlook, where secular-rational values have the opposite preferences to traditional values. Russia is a typical exponent of the "Orthodox Europe" group, scoring slightly below average in the Survival vs. Self-Expression Values scale and slightly above average in the Traditional vs. Secular Values scale. Conversely, Germany epitomizes the "Protestant Europe" group, ranking among the top in both scales. The difference between the two countries appears particularly large on the Survival vs. Self-Expression Values scale rather than on the other dimension.

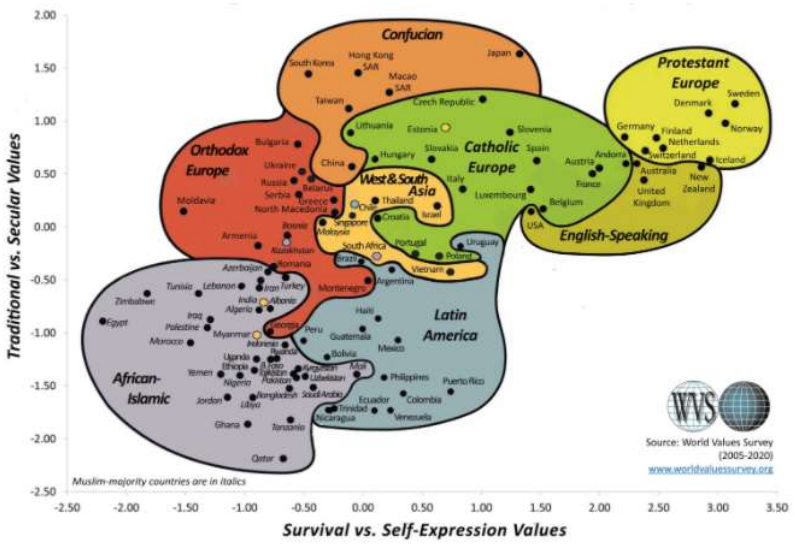


Fig. S2: Inglehart-Welzel cultural map.
Source: http://www.worldvaluessurvey.org/

According to the Hofstede's six-dimension model[3] Russia ranks at the top positions on power distance, namely, "*the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally*", while Germany is among the lower power distant countries (Fig. S3). If Germans attach high value to competition, achievement and success (labelled as "masculine" in the model), Russians score lower on this scale, as they attribute high value to caring for others and quality of life. While both countries score high in uncertainty avoidance, which spawns beliefs and institutions aiming to avoid uncertainty, Russia scores 30 points higher in this index. While German culture is classified as highly individualistic in the Hofstede's model, Russian culture is ranked as collectivistic. The only dimension in which the countries are similar is long-term orientation, which is highly valued in both countries.

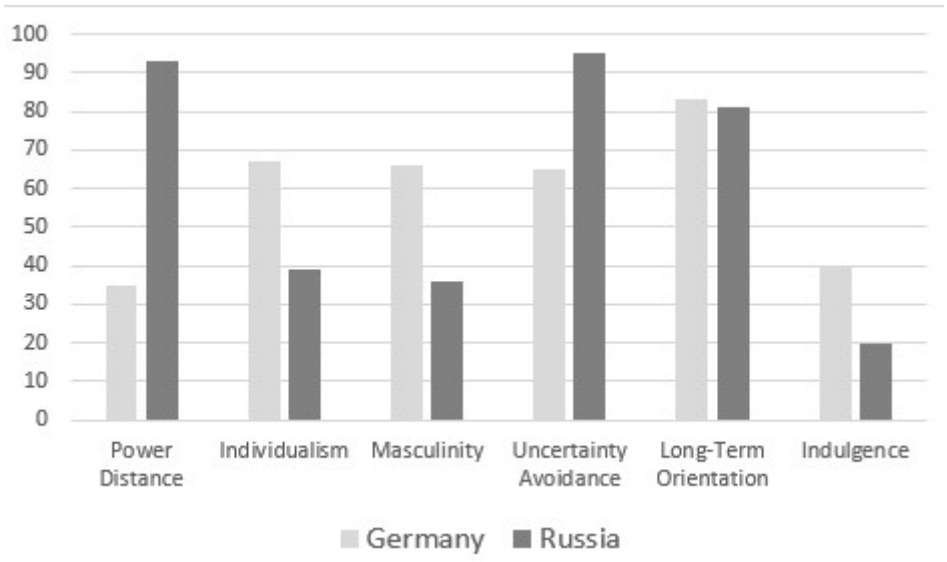


Fig. S3: Scores of Germany and Russia on Hofstede six-dimensions of national culture model.
Source https://www.hofstede-insights.com/product/compare-countries/

Finally, in a global survey of economic preferences[4], Russia and Germany appear relatively close in terms of risk taking, positive and negative reciprocity, altruism and trust, but very different on patience, Germans being more patient than Russians. Patience is also the category most strongly associated with economic prosperity.

Such differences in cultural traits are also reflected in our student sample. German and Russian participants held cultural beliefs on the acceptability of socially or morally relevant behaviors that were significantly different from each other for eight out of the ten dimensions being considered (Table S3). While participants from two German locations held significantly different beliefs only in one out of the ten dimensions considered, cultural differences were more extensive between Moscow and Tomsk, with seven significant differences out of ten. Finally, German participants were more worried that global warming represents a threat to them or their families than Russian participants.

145

City		Statistics	Benefits_Claim	Fare_Avoidance	Tax_Cheating	Bribe	Homosexuality	Prostitution
Bonn		Mean	1.71	2.50	1.54	1.66	4.79	3.29
		St. Dev.	0.89	1.02	0.76	0.92	0.71	1.15
Kiel		Mean	1.73	2.24	1.54	1.61	4.82	3.19
		St. Dev.	0.95	1.12	0.84	0.90	0.57	1.11
	Tests between German locations	Z-statistics	0.18	2.63**	0.55	0.66	-0.06	0.77
		p-value	*0.86*	*0.008*	*0.58*	*0.51*	*0.95*	*0.44*
Moscow		Mean	2.86	2.53	2.49	1.63	3.67	3.16
		St. Dev.	1.04	0.96	1.14	0.85	1.54	1.38
Tomsk		Mean	2.79	1.99	2.10	1.58	2.62	2.18
		St. Dev.	1.14	1.04	1.20	1.00	1.69	1.40
	Tests between Russian locations	Z-statistics	0.75	5.71***	3.694***	1.64	5.94***	6.784***
		p-value	*0.45*	*<0.0001*	*0.0002*	*0.1009*	*<0.0001*	*<0.0001*
	Tests between Germany and Russia	Z-statistics	-13.84***	1.22	-9.50***	0.71	15.37***	5.84***
		p-value	*<0.0001*	*0.22*	*<0.0001*	*0.4784*	*<0.0001*	*<0.0001*

146

City		Statistics	Divorce	Euthanasia	Suicide	Beat_Wife	Global_Warming_Threat
Bonn		Mean	4.50	3.46	3.04	1.08	0.53
		St. Dev.	0.82	1.26	1.29	0.32	0.50
Kiel		Mean	4.61	3.51	3.11	1.09	0.56
		St. Dev.	0.69	1.09	1.27	0.41	0.50
	Tests between German locations	Z-statistics	-1.31	-0.04	-0.57	0.22	-0.56
		p-value	*0.19*	*0.97*	*0.57*	*0.83*	*0.58*
Moscow		Mean	4.30	4.08	2.67	1.27	0.32
		St. Dev.	1.08	1.18	1.53	0.56	0.47
Tomsk		Mean	3.43	3.18	1.89	1.28	0.50
		St. Dev.	1.33	1.49	1.30	0.72	0.50
	Tests between Russian locations	Z-statistics	6.77***	5.98***	5.35***	1.01	-3.63***
		p-value	*<0.0001*	*<0.0001*	*<0.0001*	*0.3108*	*0.0003*
	Tests between Germany and Russia	Z-statistics	7.80***	-2.53*	8.15***	-5.18***	3.72***
		p-value	*<0.0001*	*0.0115*	*<0.0001*	*<0.0001*	*0.0002*

Table S3: Differences in cultural traits between locations. The table reports mean and standard deviation of answers to questions tapping into cultural traits, taken from the World Value Survey. The text of the questions is reported in Section S6: Question 23. Answers were given on a 1-5 scale where 1 means "Never justifiable" and 5 means "Always justifiable". The questions inquired about a participant's acceptance of claiming government benefits to which one is not entitled (Benefits_Claim), avoiding a fare on public transport (Fare_Avoidance), cheating on taxes if one has the chance (Tax_Cheating), someone accepting a bribe in the course of their duties (Bribe), homosexuality (Homosexuality), prostitution (Prostitution), abortion (Abortion), divorce (Divorce), euthanasia (Euthanasia), suicide (Suicide), and of a man beating his wife (Beat_wife). We also report means and standard deviation to Question 17, asking participants to state whether they think that global warming will pose a serious

threat to them or their family in their lifetime (Global_Warming_Threat). Answer to the last question were dichotomous (yes/no). We also report z-statistics and p-values of two-tailed Wilcoxon Mann-Whitney tests on the null hypothesis of equality of samples between the two locations within the same country, or between the two countries.

S1.3 Identification of Nash equilibria and cooperative solution

The Collective Risk Social Dilemma (CRSD) is an *n*-person game (in our experiment *n=6*) where each player *i* is initially endowed with an equal amount of money *w* and can contribute some amount c_i, with $0 \le c_i \le w$, to a collective account in order to avoid a loss to his or her private account. If all players' total contribution, denoted by $C \equiv \sum_{j=1}^{n} c_j$, exceeds a given threshold *T*, there will be no loss for any player's private account of size $w - c_i$. If, however, $C < T$, there will be a loss of *L*% to each player's private account. We denote by $P = min\left\{\frac{C}{T}; 1\right\}$ the probability of loss avoidance (PLA). In case of loss, only a share $s = 1 - L$ of the private account will survive. The final payoff will be $w - c_i$ with probability *P* and $s \cdot (w - c_i)$ with probability $1 - P$.

The stage game with no sanctioning

First, we rule out the possibility of sanctioning, and for simplicity we assess the interaction as if it was played over just one period, rather than over ten periods. Even if it is plausible that many individuals dynamically conditioned their behavior on the observation of what others did in the previous period, the basic insights over the strategic nature of the interaction can be better seen considering a one-shot reduced form game. The expected payoff for a *risk neutral* player[2] with purely selfish preferences is then given by:

$$EU_i(c_i, c_{-i}) = [w - c_i] \cdot \frac{\min\{\sum_{j \neq i} c_j + c_i, T\}}{T} + s \cdot [w - c_i] \frac{T - \min\{\sum_{j \neq i} c_j + c_i, T\}}{T} \quad (1)$$

where *E* is the expected value operator, and $c_{-i} = (c_1, ..., c_{i-1}, c_{i+1}, ..., c_n)$ is the strategy profile of the other players except *i*.

To determine the non-cooperative equilibrium with $0 \le C \le T$ (thus omitting the Min-Operator), we differentiate $EU_i(c_i, c_{-i})$ with respect to c_i to obtain:

[2] A risk neutral player is indifferent between a lottery with uncertain payoffs and its expected value.

184

$$\frac{\partial EU_i(c_i,c_{-i})}{\partial c_i} = (1-s)\frac{w-c_i}{T} - \frac{\sum_{j\neq i} c_j + c_i}{T} - s\frac{T-\sum_{j\neq i} c_j - c_i}{T}$$
185 $$= \frac{(1-s)\left(w-\sum_{j\neq i} c_j - 2c_i\right)}{T} - s \qquad (2)$$

186

187 This term is negative for all strategy profiles (c_i, c_{-i}) whenever $T > w(1-s)/s$, i.e. if the
188 threshold is sufficiently large.[3] Thus if

189 $$T \geq \frac{1-s}{s} w \qquad (3)$$

190 contributing nothing is the unique symmetric non-cooperative Nash equilibrium with
191 expected (= sure) payoff of $s \cdot w$ per player. On the other hand, if
192 $T \leq nw/(s/(1-s)+n+1)$ then in the symmetric non-cooperative solution players
193 contribute as much to avoid all risk. Finally, if $nw/(s/(1-s)+n+1) < T < (1-s)w/s$,
194 there is an interior unique symmetric equilibrium with positive contributions given by

195 $$c_i^N = \frac{w - \frac{s}{1-s}T}{(n+1)}, \quad i = 1,...,n \qquad (4)$$

196 It is interesting to note that both a higher threshold *T* and a higher survival rate *s* lead to
197 lower equilibrium contributions, while more initial wealth and thus also a higher value at
198 risk, increase contributions.

199 *Cooperative solution*

200 The cooperative solution maximizes the sum of individual expected payoffs:

201 $$E\sum_{i=1}^{n} U_i(c_1,...,c_n) = [nw-C]P + s[nw-C][1-P] \qquad (5)$$

202 where *E* again is the expected value operator, and $C = \sum_{i=1}^{n} c_i$ denote total contributions.
203 The first-order necessary condition for an interior solution is given by

[3] It is easy to see that the second-order condition for a maximum is satisfied.

$$\frac{1}{T}\left[nw(1-s)-sT-2C(1-s)\right]=0 \tag{6}$$

or solving for the total (group) contributions:

$$C^{*}=\frac{n\cdot w}{2}-\frac{sT}{2(1-s)} \tag{7}$$

An interior solution results if $C^{*}<T$. It is easy to see that this is equivalent to

$$T>\frac{nw(1-s)}{2-s} \tag{8}$$

while a corner solution $C^{*}=T$ by which the group eliminates all risk is optimal if

$$T\leq\frac{nw(1-s)}{2-s} \tag{9}$$

From (7) it is easy to see that $\partial C^{*}/\partial T<0$, $\partial C^{*}/\partial w>0$, and $\partial C^{*}/\partial s=-T/(2(s-1)^{2})<0$. Thus, both a higher threshold and a higher survival rate induce optimal contributions to fall, while higher wealth triggers more contributions since more is at risk.

Set of cooperative profiles:

Note that the optimal aggregate solution given by (7) in the interior case (i.e. positive contributions), and by $C^{*}=T$ in the corner case, can be generated by many different contribution profiles $\vec{c}^{\,*}=(c_1^{*},...,c_n^{*})$ with $\sum_{i=1}^{n}c_i^{*}=C^{*}$ and $\vec{c}^{\,*}$ satisfying the individual rationality constraint for each player, i.e. no player is worse off as in the non-cooperative equilibrium:

$$EU_i(c_i^{*},c_{-i}^{*})\geq EU_i(c_1^{N},...,c_n^{N}) \tag{10}$$

If (3) holds, i.e. no player wants to contribute in equilibrium, (10) is satisfied if

$$c_i^{*}\leq\overline{c}\equiv w\frac{(1-s)C^{*}}{s\cdot T+(1-s)C^{*}} \tag{11}$$

Thus, all strategy profiles $\vec{c}^{\,*}=(c_1^{*},...,c_n^{*})$ satisfying $\sum_{i=1}^{n}c_i^{*}=C^{*}$ and (11) are cooperative and individually rational outcomes.

Risk aversion

The above analysis was based on the hypothesis that players are risk neutral, i.e. indifferent between a lottery with uncertain payoffs and its expected value for sure. People who prefer the certain amount to a lottery whose expected payoff equals that amount are said to be risk averse, while people with opposite preferences are called risk seekers or risk lovers. Risk averse preferences can be introduced through a concave – rather than linear – objective function (or utility function) $U(x)$ with $U'(x) > 0$ and $U''(x) < 0$ (in the risk neutral case $U(x)$ being linear), defined over the space of money amounts x. In this case the objective function is:

$$EU(c_i, c_{-i}) = U(w - c_i) \cdot P + U([w - c_i]s) \cdot (1 - P) \tag{12}$$

Similar to the risk neutral case, one can show that contributing nothing is the only equilibrium if the threshold for avoiding any loss, *T*, is sufficiently high, and a unique interior symmetric equilibrium exists if *T* is sufficiently low. For a utility function of the form $U(x) = x^a$ with $0 < a < 1$ – referred to as constant relative risk aversion – equilibrium conditions are given by:

$$c_i^N = \frac{w - \dfrac{as^a}{1 - s^a} T}{(an + 1)}, \quad i = 1, ..., n \tag{13}$$

whereas the cooperative total contributions are determined by

$$C^* = \frac{nw}{(1 + a)} - \frac{as^a T}{(1 + a)(1 - s^a)} \tag{14}$$

Equilibrium contributions are non-decreasing in *a*, i.e., more risk aversion (a lower parameter *a*) leads to lower contributions for an interior equilibrium. This result, counter-intuitive at first glance, is due to the fact that contributing more only slightly increases the probability of loss avoidance, while it for sure decreases the amount that could be kept in case of a loss.

By contrast, for an interior cooperative solution with $C^* < T$, total contributions C^* are decreasing in *a*, which in turn means, they are increasing if payers get more risk averse.

The stage game with sanctioning

The above analysis can be extended to the case of sanctioning. In this case,

personal accounts are equal to: $\sum_{t=1}^{\tau}(w_t - c_{it} - d_{it} - e_{it})$, where d_{it} is the sum of tokens spent by individual *i* in period *t* to deduct tokens from other players, while e_{it} is the number of tokens deducted from the account of individual *i* in period *t* as a result of sanctions by other players. With respect to the NE, agents willing to maximize their expected payoffs will not punish others, because this is costly to them and, according to the NE, players should continue to contribute nothing even when being sanctioned. As for the CS, there is no need to sanction, because players already achieve the course of action that maximizes total payoffs. Therefore, both the NE and CS with sanctions coincide with the NE and CS without sanctions.

It is clear that the NE does not take into account other motivations that individuals may have, such as a desire to pursue the group interests, altruism, concerns for efficiency, and reciprocity. It is nonetheless customary in economics to use the NE as a benchmark theoretical solution to analyze the strategic outcomes if people are only concerned with the maximization of their individual payoffs.

S1.4 Analysis of anti-social sanctioning

We defined anti-social sanctioning (*AS*) as an *ego* punishing an *alter* having contributed no less than the group median. An alternative definition used in the literature identifies *AS* as an *ego* punishing an *alter* having contributed no less than *ego*[5-7]. Pro-social sanctioning (*PS*) is defined as the residual category of *AS*, i.e. sanctioning targeting either *alters* who are contributing less than the median in the first definition, or alters having contributed less than *ego* in the alternative definition. Results are qualitatively equivalent using either definition (analyses not reported, available upon request). Previous studies observed significantly higher levels of *AS* in Russia than in Germany[5,8]. Consistently with the analysis of cooperation, we considered each group as an independent observation. We constructed the mean of *AS* and *PS* for each group (or (sub)group of participants from the same nationality within a group) dividing the total number of tokens spent for either *AS* or *PS* in a (sub)group by the number of people making up a (sub)group, that is, six people for the national treatments and three people for the international treatments.

Fig. S9 reports average *AS* and *PS* across treatments and nationality. Russians spent on average 2.52 times as much as Germans for *AS* in national treatments. Average *AS* was 2.2 tokens in Russian national treatments (out of 100 tokens overall available individually for sanctioning over the 10 rounds), and 0.86 tokens in German national treatments. This

difference is at the margin of statistical significance (p=0.054, N=32). [4] Russians spent more for *PS* in national treatments, too, but the differences were smaller (p=0.33, N=32). The relatively modest amount spent in *AS* compared to other experiments is arguably caused by the possibility to identify who sanctioned others, a characteristic that has been proved to reduce sanctioning –especially *AS* – for fear of retaliation[6].

While the patterns of Germans and Russians' sanctioning involved in International B-treatments tended to be similar to what was observed in national treatments, some differences emerged in the International O-treatments. Germans increased the amount of *PS* in the International O-treatment (6.1 tokens) compared to the German national treatment (3.9 tokens) (p=0.044, N=32); Russians also increased their level of *PS* in the International O-treatment (8.4 tokens) compared to the Russian national treatment (5.8 tokens), and nearly halved the amount of *AS* in the International O-treatment (1.2 tokens) compared to the Russian national treatment (2.2 tokens), although these differences are not statistically significant (p=0.28 for *PS*; p=0.60 for *AS*, N=32). Overall, there were no statistically significant differences between Germans and Russians sub-groups in international treatments.

S1.5 Analysis of the impact of sanctions on contributions

We analyzed the capacity of sanctions to increase cooperation through an OLS estimator of an econometric model using as dependent variable the difference in Contribution to the collective fund between the current period and the previous period – i.e. $\Delta Contribution = Contribution_t - Contribution_{t-1}$. Even if the data have a panel structure, individual random effects are obliterated by the fact that the dependent variable is a difference of individual-level variables. $Sanction\_Loss_{t-1}$ is the key dependent variable in the analysis reported in Table S11. It is the number of tokens being deducted to a participant's personal account in the previous period because of sanctioning by other group members. $Sanction\_Loss_{t-1}$ can range from 0 to 55 tokens (Table S6). Fig. S7 reports the distribution of $Sanction\_Loss_{t-1}$ by treatment. The model in Table S11, column 1, includes fixed effects for treatments - RUS_NAT_S being the omitted category - and for periods. Given that treatments were randomly assigned to groups of participants,

[4] All tests being reported are two-tailed non-parametric Wilcoxon Mann-Whitney tests, unless otherwise stated.

one possibility is to cluster standard errors at the group level to obtain standard errors robust to heteroskedasticity[9]. Nevertheless, we follow the more conservative approach[10] suggesting to consider different levels of clustering – individual, group, and session level in our case – and then choose the level of clustering associated with the lowest average within-cluster standard deviation, which yields the highest possible standard error correction for heteroskedasticity. By construction, this approach minimizes the possibility of incurring in false-positive treatment effects, i.e. accepting that a treatment effect exists when this is not the case. In our case, the mean standard deviations for $\Delta Contribution$ at the individual level is 8.08, 9.03 at the group level, and 9.30 at the session level. We then opt for clustering standard errors at the individual level[11]. This model was reported in Table 2 and commented in the main paper.

The model in Table S11, column 2 adds demographic characteristics that are "exogenous" to the participant – namely, country of birth, age, gender, and parents' education. The latter variable is modelled as a pair of dummy variables identifying whether one or both parents have attained a university degree, neither parent holding higher education being the omitted category. The model of column 3 adds demographic variables that are, at least partly, the result of the participant's decisions. Such are the participant's university degree – grouped into Humanities and Social Sciences, Mathematics and Natural Sciences, Economics, other disciplines being the omitted category – height, marital status, participation in a university exchange program, religion – coded as atheist, Christian denomination in Germany (catholic and protestant), Christian denomination in Russia (orthodox), other denominations (Buddhists, Muslims, Orthodox in Germany, Protestant and Catholic in Russia), and an index of environmental action. Such index is the first principal component of four questions asking whether participants buy environmentally-friendly goods, save water, participate in ecological movements, and are active in recycling (see Section S6: Questions 19-22). It is worth noting that the coefficient for $Sanction\_Loss_{t-1}$ remains stable to the inclusion of such demographic factors. We also note that men increase cooperation significantly less than women for every token of sanctioning (p=0.007; Table S11, column 2) and this effect is absorbed by participant's height in the model of Table S11, column 3 (p=0.025). In models (4 – 6) we replicated the models in (1 – 3) adding the interaction terms between $Sanction\_Loss_{t-1}$ and the treatment dummies. The model in column 4 provides the coefficients reported in Table 2, columns 2–5, of the main paper, relative to the impact of

$Sanction\_Loss_{t-1}$ in each treatment. t-tests on the null hypothesis of equality between treatment coefficients from the same model are reported in Table 2, columns 3–5. The introduction of demographic variables in columns 5-6 of Table S11 leaves the key interaction coefficients approximately unchanged, showing the robustness of the results to demographic characteristics. It is also worth noting the negative sign of all Period coefficients, and the sizable and highly significant coefficients for Period 9 and 10 ($p<0.001$ for either variable in all models in Table S11), Period 2 being the omitted category. This is the consequence of a decreasing trend in contributions across periods, with a markedly pronounced drop in contributions in the last two periods of interaction (Fig. S5). Nevertheless, the disciplining power of sanctioning does not seem to vary over time. Adding an interaction term between $Sanction\_Loss_{t-1}$ and the variable *Period* indicating the period of interaction returns an insignificant effect ($p=0.41$; regression not reported).

Table S12 replicates the above analysis using $Sanction_{t-1}$ instead of $Sanction\_Loss_{t-1}$ as the key independent variable to study the impact of sanctioning on next period contributions. $Sanction_{t-1}$ is defined as follows:

$$Sanction_{t-1} = \begin{cases} 1 & if\ Sanction\_Loss_{t-1} > 0 \\ 0 & if\ Sanction\_Loss_{t-1} = 0 \end{cases} \qquad (15)$$

Comparing the results from the models of Table S11 and Table S12 enables us to study whether the size of sanctioning was relevant in addition to and beyond the mere fact of having been sanctioned. Although the variety of motivations behind sanctioning is large[12], sanctions typically transmit the information that others are dissatisfied with an individual's past behavior, particularly for failing to comply with injunctive norms as perceived by other individuals in the group. For this reason, sanctioning transmits relevant information to the sanctioned individual in addition to the size of the sanctions. On average across treatments, being sanctioned increased cooperation by 4.3 tokens in the next period, compared with not being sanctioned ($p<0.001$, Table S12, column 1). The impact is significantly different from 0 in all treatments ($p<0.001$ for all of them, Table S12, column 4), is largest in GER_NAT_S ($b= 4.89$) and smallest in RUS_NAT_S ($b= 3.97$). This result suggests that sanctions did not need to be large to urge individuals to cooperate more. This intuition is also supported by the observation that a dummy variable identifying received sanctions of just one token significantly increased

contribution in the next round (b= 1.81, p=0.003) in comparison with not being sanctioned, while a dummy variable identifying all sanctions larger than one token had a larger impact (b=5.04, p<0.001). The different impact of small and large sanctions on $\Delta Contribution$ is statistically significant (b=3.22, p<0.001), demonstrating that the size of sanctions also mattered in addition to receiving an almost "symbolic" sanction of one token. We do not find significant differences of $Sanction_{t-1}$ across treatments.[5] Demographic effects for $Sanction_{t-1}$ are similar to those observed for $Sanction\_Loss_{t-1}$. We conclude that sanctions spurred individuals to increase cooperation even when we do not consider the actual size of sanctions, suggesting that even small sanctions had a significant effect in increasing cooperation. Since we do not observe treatment differences in the way $Sanction_{t-1}$ affects $\Delta Contribution$, it was arguably the way sanctioned individuals reacted to relatively large sanctions that caused significant treatment differences in $Sanction\_Loss_{t-1}$.

S1.6 Analysis of sanctions

In Table S13 we report results of econometric analysis to explain determinants of the decisions to sanction. The dependent variable is the amount of sanction expenditure by a group member directed to another group member in each period. The dependent variable is discrete and ranges from 0 to 2 tokens. Given the discrete nature of the dependent variable, we applied an ordered logit regression with random effects at the level of each pair formed by a sanctioning agent and a sanctioned agent. The level at which average standard deviation is lowest is again the individual one, therefore we cluster standard errors at the individual level (see Section S1.5). The first specification only includes treatment and period dummies (Table S13, column 1). We note that the tendency to sanction others is significantly higher in Russian national interactions in comparison with German national interactions (b= -0.58; p= 0.05), while no significant differences emerge between other treatments. However, when we control for *Contribution_Other*, the amount of contribution by the recipient of the sanction (Table S13, column 2), the effect of GER_NAT_S loses significance and even switches sign (b=0.35; p= 0.31), while the effect for recipient's contribution is highly significant (b= -0.11, p<0.001). This suggests that

[5] p-values of pairwise tests on the null hypothesis that coefficients are equal to each other range from p=0.36 for the test involving GER_NAT_S to INT_B_S and p=0.91 for the test involving RUS_NAT_S and INT_B_S.

412 the higher sanctioning observed in RUS_NAT_S in comparison with GER_NAT_S is not
413 caused by higher intrinsic propensity by Russians to sanction others in comparison to
414 Germans, but rather by the fact that Russians are faced with low cooperators with higher
415 frequency, and thus react with higher sanctions. Overall, contributing one more token
416 increases the probability of not being sanctioned by 0.6%, decreases the probability of
417 being sanctioned by one token by 0.2% and the probability of being sanctioned by two
418 tokens by 0.4%. It is also worth noting that after controlling for the contribution of the
419 sanction recipient, the coefficients of dummies identifying International treatments turn
420 positive and significant ($p=0.003$ for INT_B_S, $p<0.001$ for INT_O_S). This result
421 denotes overall higher propensity to sanction in international than national treatments,
422 controlling for the level of sanction recipient's contribution.

423 These results hold when introducing demographic factors (Table S13, columns 3-4).
424 The only demographic factor that significantly predicts the propensity to sanction is gender,
425 with men not sanctioning with 3.6% lower probability than women, sanctioning one token
426 with 1.3% higher probability than women, and sanctioning two tokens with 2.2% higher
427 probability than women, all other factors being held constant. It is also worth noting that
428 the model not controlling for the contribution by the recipient of the sanction (Table S13,
429 column 1) yields a significant increase in sanctions in the last period of interaction
430 ($p=0.003$), but this variable loses significance when controlling for others' contribution
431 (Table S13, column 2-4).

432 S1.7 Analysis of contributions

433 We now look at determinants of contribution. We take as dependent variable the total
434 number of tokens contributed to the group account over the 10 periods of interaction
435 (*Total Contribution*). We fit an OLS estimator, with the set of covariates being the same
436 as that used for the model described in Table S11 – except for the exclusion of past
437 sanctions. Treatment fixed effects now include NS treatments, RUS_NAT_S being the
438 omitted category. We follow the approach described in Section S1.5 and apply clustering
439 of standard errors at the group level, because the average standard deviation of *Total*
440 *Contribution* is lower at this level (s.d.= 84.7) than at the session level (s.d.= 89.5).
441 The results are reported in Table S14. We commented the results concerning the
442 Environmental Action Index (defined in Section S1.5) in the main paper. Here we note that
443 among the demographic variables we included, only gender appears to be a significant

predictor of *Total Contribution*. We estimate that men contributed about 21 tokens less than women (over a total of possible contributions of 500 tokens over the ten periods) (p= 0.001), see Table S14, columns 1 to 3.

S1.8 Analysis of payoffs

It is *a priori* not clear whether average expected payoffs in S-treatments should be higher than in NS-treatments. On the one hand, sanctioning others is costly, and this cost will lower payoffs in S-treatments. On the other hand, sanctioning induces higher cooperation levels, which reduce the risk of the loss event to occur and thus raise earnings in S-treatments compared to NS-treatments. Average expected individual payoffs were significantly higher in NS-treatments (263.9 tokens) than in S-treatments (246.6 tokens) ($p<0.0001$; N=128). Sanction costs were on average 22.6 tokens per group – of which 7.1 tokens were the costs incurred by those who sanctioned and 15.5 tokens were the costs suffered by the players being sanctioned. Hence, the payoff difference between S- and NS-treatments is in line with the difference in sanctioning costs.

It has been demonstrated that the payoff difference between sanction and no-sanction treatments is sensitive to the length of the interactions. With a low number of interactions, payoffs tend to be higher in NS than S-treatments[13], while with longer interactions S-treatments outperforms NS-treatments. The reason is that it takes time for participants to realize that people are ready to sanction, thus sanctioning costs are reduced in the long run[14]. Since interactions were relatively few in our experiment, it could be the case that mean payoffs in the S-treatments would have been higher with longer interactions. Nonetheless, the apparent preference for insurance above the financially optimal level seems to entail that participants accepted to pay an extra cost for higher safety.

S1.9 Generalizability of results to nationally representative samples

Using university students' samples is subject to three types of biases. First of all, students who self-select into participation in experiments may have different behavior than students who do not self-select into participation. Secondly, university student populations may differ in their behavior from the general population. Thirdly, the same individual may behave differently in a laboratory situation than in real life. The experimental economics literature has extensively investigated the extent of such biases

with particular reference to pro-sociality. While the bias between university students who self-select into experimental studies and the full population of university students appear to be negligible or limited to only some domains[15], some differences in behavior may exist between student samples and representative samples of the population. In particular, many studies find that students' sample behave more selfishly[15-17] than representative samples, while some studies find no difference between university student samples and adult samples[18]. Such differences may be large. A nationally representative sample contributed 52% more than the student sample in a Dictator Game and returned 43% more in the Trust Game[16].

As for the third bias, while some produce evidence that the external validity of laboratory experiments – i.e. the extent to which pro-social behavior in the experiment is related with pro-social behavior in real life – is tenuous[19-20], and individuals tend to act more altruistically when being put "under the lenses" of the researcher than otherwise, others find no evidence for such an "observer effect"[15]. Most importantly, experiments permit tightly controlled variation in the main parameters of an interaction and thus enable causal inference, which would be in most cases impossible to be achieved in natural settings [21].

For the purpose of our study, and experimental studies in general, what really matters is not whether different samples have different baseline levels of cooperation, but whether the treatment effects are different in different samples. In this sense, it is reassuring that correlations across different variables have similar size in university students' samples and samples representative of the general population[15]. This finding suggests that experiment with sample students permit inference to real-life behavior and that treatment effects found in university student samples are similar to general population samples. In fact, less noise has been found in students' sample than in representative adult samples[15]. This fact, in conjunction with the observation that university students are less likely to incur in cognitive errors than adults, prompt some authors to conclude that students' sample may be more reliable than representative samples to test hypotheses over correlations between variables[15,22].

In order to further test the representativeness of our sample, we have conducted an econometric exercise to estimate the amount of bias that running our experiment with a student sample introduces in comparison to a general sample. We have constructed an – admittedly basic – econometric model, in which some variables from our post-experiment

questionnaire are used to predict behavior in the experiment. Such variables are gender, generalized trust in others, and the extent to which the participants see themselves as part of the local, national, and world community, as well as the construal of the self as an autonomous individual. These variables are potential predictors of cooperation. In particular generalized trust is normally positively associated with cooperation, while perceiving to be an autonomous individual is likely to be negatively related with cooperation. Moreover, the level of identification with local, national, and world communities can be considered as a predictor of cooperation in international interactions. This set of questions was also asked in the waves of the World Value Survey (WVS) conducted in 2011 in Russia and in 2013 in Germany with representative samples of the population[23]. Descriptive statistics for these variables in our sample and in the WVS are reported in Table S15. We have used this model to predict contribution in our student sample for different sets of treatments and different nationalities. We have then conducted an out-of-sample estimation to evaluate the cooperation levels by a representative sample from the WVS. We have then estimated treatment effects for the hypothetical WVS sample.

This analysis shows that sizable differences in trust and social identification exist between our student sample and national representative samples. In particular, the student sample is more trusting in general others than the WVS sample in Germany, while the opposite occurs in Russia. In Germany, students see themselves as autonomous individuals and part of the world of the community more often, and see themselves part of the local community and national community less often, than the national sample. In Russia, students seem themselves as autonomous individuals and part of the local community more often, and see themselves part of the national and world community less often, than the national sample. Sizable differences on these traits exist between the two countries, as Germans perceive themselves as autonomous individuals, and as members of the local and world communities more than what Russians do, while Russians perceive themselves as members of the national community more than Germans do.

In an econometric model including both countries and all treatments, Generalized Trust is the strongest predictor of cooperation (b=17.2, p=0.010, N=736), particularly so in the national treatments (b=34.84, p=0.002, N=377). In international treatments, identification with the world community has a positive, albeit insignificant, sign (b=4.35, p=0.30, N=359), while identification with the national community has a negative – and

insignificant – sign (b=-5.61, p=0.24, N=359). Seeing oneself as an autonomous individual is negatively associated with cooperation (b=-3.78, p=0.30, N=736). Our out-of-sample estimation predicts that a representative sample of the German population would be overall less cooperative than our student sample (Cohen's d=0.48), whereas a Russian representative sample would be substantially more cooperative than the student sample (d = 0.61). According to our estimates, representative samples would be more cooperative in international interactions than in national interactions both in Germany (d=0.21) and, particularly so, in Russia (d=2.02). According to this exercise, international cooperation would then be beneficial in comparison with national cooperation even with a nationally representative sample. According to this out-of-sample estimation, Russians would be more cooperative than Germans in international interactions (d=0.52).

S.2 Supplementary Tables

	National			Blind			Open		
	Germany	Russia	Total	Germany	Russia	Total	Germany	Russia	Total
Other lab is in same country	94.7	91.8	93.2	78.1	84.8	81.6	1.1	2.3	1.7
Other lab is either in Russia (for Germans) or Germany (for Russians)	0	0	0	0	3.3	1.7	90.9	86.5	88.7
Other lab is abroad but not in Russia / Germany	0	1.7	0.9	11.0	7.6	9.2	2.3	3.4	2.8
Do not know	5.3	6.6	5.9	11.0	4.4	7.5	5.7	7.9	6.8
Respondents	171	182	353	82	92	174	88	89	177

Table S4 | Distribution of beliefs over location of the other city. In National treatments it was specified in the instructions that participants from the other city with which they were interacting were from the same country as the participant's city of residence. In Blind treatments, it was only said that the other university was in "another city", without specifying the country. In the Open treatments, German and Russian participants were told that they were interacting with other participants from Russia and Germany, respectively. We note that the distribution of beliefs in B-treatments is considerably closer to that in the National treatments than in the O-treatments.

	Germany	Russia
Age	0.28	0.10
Height	0.33	0.20
Father Education	0.20	0.39
Mother Education	0.19	0.62
University Degree	0.45	0.17
Net Family Income	0.15	0.77
University_Exchange	0.62	0.47
Years of residence outside country	0.18	0.41
Married	0.99	0.99

Table S5 | Test of exogeneity of treatment. We report the p-values of Kruskall-Wallis tests of the null hypothesis of equality of samples across treatments for a set of demographic and social characteristics, university degree and family income, within either country. The null hypothesis is never rejected at conventional levels of significance ($p<0.10$) for any of the variable being considered, which demonstrates that the treatments were exogenous to such characteristics.

569

Total number of Tokens spent to reduce one group member's personal account by the other five group members	Number of Tokens deducted from this group member's personal account
0	0
1	1
2	3
3	6
4	10
5	15
6	21
7	28
8	36
9	45
10	55

570 **Table S6: Relationship between tokens spent on sanctions and tokens**
571 **deducted from the sanctioned participant's personal account.**
572

573

	Germany			Russia		
	z	p-value	N	z	p-value	N
GER_NAT_NS	-1.19	0.23	16			
GER_NAT_S	-0.26	0.80	16			
RUS_NAT_NS				-1.16	0.24	16
RUS_NAT_S				-1.13	0.25	16
INT_B_NS	-1.050	0.29	16	0.11	0.92	16
INT_B_S	-	-	-	0.63	0.53	16
INT_O_NS	-0.32	0.75	16	-1.79	0.074	16
INT_O_S	-1.89	0.059	16	1.16	0.25	16

574 **Table S7 | Analysis of within-country location differences: Contribution.**

575

	Germany			Russia		
	z	p-value	N	z	p-value	N
GER_NAT_S	1.79	0.074	16			
RUS_NAT_S				0.86	0.39	16
INT_B_S	-	-	-	-1.00	0.32	16
INT_O_S	0.53	0.60	16	0.89	0.37	16

576 **Table S8: | Analysis of within-country location differences: Sanction.**

577

			Round									
Country	Treatment		1	2	3	4	5	6	7	8	9	10
Germany	National Vs. International Blind - S	z-statistic	0.79	0.91	0.62	0.23	-0.53	-0.57	-0.28	-1.13	-0.98	-0.74
		P-value	*0.43*	*0.36*	*0.53*	*0.82*	*0.60*	*0.57*	*0.78*	*0.26*	*0.33*	*0.46*
	National Vs. International Open - S	z-statistic	1.23	1.93†	1.85†	1.13	1.28	0.64	-0.36	-1.04	-0.74	-0.038
		P-value	*0.22*	*0.054*	*0.065*	*0.26*	*0.20*	*0.52*	*0.72*	*0.30*	*0.46*	*0.97*
	National Vs. International Blind - NoS	z-statistic	-0.43	0.38	0.11	0.25	0.17	-0.21	-0.53	0.19	-0.49	-0.62
		P-value	*0.66*	*0.71*	*0.91*	*0.81*	*0.87*	*0.84*	*0.60*	*0.85*	*0.62*	*0.53*
	National Vs. International Open - NoS	z-statistic	-0.79	-0.06	-0.09	-0.85	0.75	-0.42	-0.89	0.09	-0.17	0.08
		P-value	*0.43*	*0.95*	*0.92*	*0.40*	*0.45*	*0.68*	*0.38*	*0.92*	*0.87*	*0.94*
Russia	National Vs. International Blind - S	z-statistic	-1.38	-1.38	-3.93***	-3.32***	-3.26**	-2.83**	-2.75**	-3.51***	-3.21**	-2.89**
		P-value	*0.17*	*0.17*	*0.0001*	*0.0009*	*0.0011*	*0.0047*	*0.0059*	*0.0004*	*0.0013*	*0.0039*
	National Vs. International Open - S	z-statistic	-0.74	-1.09	-2.45*	-1.68†	-2.38*	-2.64**	-2.30*	-2.34*	-3.22**	-3.00**
		P-value	*0.46*	*0.27*	*0.014*	*0.094*	*0.018*	*0.0083*	*0.021*	*0.019*	*0.0013*	*0.0027*
	National Vs. International Blind - NoS	z-statistic	-2.21*	-1.60	-1.30	-1.64	-1.40	-0.79	-1.73†	-2.13*	-1.92†	-1.21
		P-value	*0.027*	*0.11*	*0.19*	*0.10*	*0.16*	*0.43*	*0.083*	*0.033*	*0.054*	*0.23*
	National Vs. International Open - NoS	z-statistic	-0.11	-0.66	-1.23	-1.02	-0.96	-0.62	-2.87**	-2.53*	-1.30	-0.47
		P-value	0.91	0.51	0.22	0.31	0.34	0.53	0.0042	0.011	0.19	0.64

Table S9 |Analysis of differences in contribution levels between International and National treatments per period of interaction

The Table reports results of Wilcoxon Mann-Whitney (WMW) ranksum tests over the null hypothesis that contributions in International treatments come from the same distribution as contribution in within-country national treatments. Tests are broken down by participants' nationality. Blind and Open treatments for either German or Russian participants are compared with the corresponding national treatment with participants from the same nationality. Sanction (No-Sanction) treatments in international treatments are compared with Sanction (No-Sanction) treatments in national treatments. The Table reports the z-statistic of the WMW test

and the p-value of the test. A negative value of the z-statistic entails that the distribution of the national treatment tends to be more skewed towards the left – that is, observations tend to have lower value – than in the international treatment. *=p<0.001; **= p<0.01; *= p<0.05; †=p<0.1. The analysis is conducted at the group level, hence we have 32 observations for each test.

Country	Treatment	Statistics	Treatment	
			NS	S
Germany	National	Mean	65.1	86.2
		St. Dev.	(19.0)	(10.7)
		N	16	16
	International	Mean	65.6	84.8
		St. Dev.	(20.8)	(12.6)
		N	32	32
	Blind	Mean	65.0	86.6
		St. Dev.	(23.3)	(13.3)
		N	16	16
	Open	Mean	66.3	83.0
		St. Dev.	(18.8)	(12.1)
		N	16	16
Russia	National	Mean	50.9	64.1
		St. Dev.	(21.2)	(19.7)
		N	16	16
	International	Mean	64.2	84.1
		St. Dev.	(19.6)	(12.9)
		N	32	32
	Blind	Mean	65.6	86.8
		St. Dev.	(19.5)	(10.8)
		N	16	16
	Open	Mean	62.8	81.5
		St. Dev.	(20.3)	(14.5)
		N	16	16

587 **Table S10: Decomposition of impact of Sanctions and**
588 **Internationalization of interaction on cooperation**
589

DEPENDENT VARIABLE	$Contribution_t - Contribution_{t-1}$					
	(1)	(2)	(3)	(4)	(5)	(6)
INDEPENDENT VARIABLES						
$Sanction\_Loss_{t-1}$	0.42***	0.42***	0.42***	0.36***	0.31***	0.30***
	[0.10]	[0.09]	[0.08]	[0.07]	[0.09]	[0.08]
GER_NAT_S	0.56*	0.81*	0.79*	0.21	-0.01	0.00
	[0.28]	[0.38]	[0.38]	[0.30]	[0.46]	[0.46]
INT_B_S	0.91**	0.96**	1.03**	0.44	0.10	0.13
	[0.28]	[0.32]	[0.31]	[0.33]	[0.39]	[0.39]
INT_O_S	0.62*	0.72*	0.81*	0.76*	-0.26	-0.19
	[0.31]	[0.32]	[0.32]	[0.34]	[0.43]	[0.44]
GER_NAT_S × $Sanction\_Loss_{t-1}$				0.31**	0.28**	0.29**
				[0.11]	[0.10]	[0.10]
INT_B_S × $Sanction\_Loss_{t-1}$				0.36*	0.36*	0.38*
				[0.16]	[0.16]	[0.16]
INT_O_S × $Sanction\_Loss_{t-1}$				-0.07	-0.07	-0.04
				[0.17]	[0.16]	[0.16]
Country		0.38	0.41		0.29	0.38
		[0.35]	[0.39]		[0.31]	[0.36]
Age		-0.01	0.01		-0.01	0.00
		[0.03]	[0.03]		[0.03]	[0.03]
Gender (male =1)		-0.54**	0.04		-0.54**	0.04
		[0.20]	[0.31]		[0.21]	[0.31]
High education one parent		-0.21	-0.27		-0.29	-0.34
		[0.24]	[0.26]		[0.25]	[0.27]
High education both parents		-0.39	-0.26		-0.40	-0.27
		[0.27]	[0.27]		[0.25]	[0.26]
Degree: Humanities and Social Sciences			0.13			0.21
			[0.29]			[0.29]
Degree: Mathematics and Natural Sciences			-0.10			-0.04
			[0.28]			[0.29]
Degree: Economics			-0.47			-0.42
			[0.31]			[0.29]
Height			-0.04*			-0.04*
			[0.02]			[0.02]
Married			-1.01			-0.89
			[0.62]			[0.65]
Univ. exchange program			-0.32			-0.29
			[0.30]			[0.29]
Environmental action index			0.07			0.05
			[0.10]			[0.09]
Religion: Other			-0.50			-0.49
			[0.32]			[0.32]
Religion: Atheist			-0.11			-0.23
			[0.43]			[0.45]

Religion: Christian German (catholic and protestant)			-1.01* [0.49]			-0.80† [0.45]
Religion: Christian Russia (orthodox)			-0.46 [0.36]			-0.56 [0.36]
Period 3	-0.36 [0.73]	-0.22 [0.73]	-0.11 [0.74]	-0.31 [0.73]	-0.17 [0.73]	-0.05 [0.74]
Period 4	-1.67** [0.62]	-1.59* [0.62]	-1.59* [0.63]	-1.60** [0.61]	-1.52* [0.62]	-1.50* [0.63]
Period 5	-0.77 [0.59]	-0.73 [0.59]	-0.59 [0.60]	-0.65 [0.58]	-0.62 [0.58]	-0.48 [0.59]
Period 6	-1.13† [0.63]	-1.19† [0.63]	-1.20† [0.65]	-1.04† [0.63]	-1.11† [0.63]	-1.11† [0.64]
Period 7	-1.98** [0.64]	-1.84** [0.65]	-1.79** [0.67]	-1.88** [0.64]	-1.74** [0.65]	-1.69* [0.66]
Period 8	-1.03† [0.61]	-1.19† [0.61]	-1.16† [0.62]	-0.97 [0.61]	-1.13† [0.61]	-1.10† [0.62]
Period 9	-2.74*** [0.67]	-2.55*** [0.67]	-2.53*** [0.69]	-2.72*** [0.66]	-2.54*** [0.67]	-2.50*** [0.68]
Period 10	-6.47*** [0.77]	-6.48*** [0.78]	-6.40*** [0.80]	-6.41*** [0.77]	-6.43*** [0.79]	-6.35*** [0.80]
Constant	0.08 [0.52]	0.35 [0.91]	6.66* [2.89]	0.14 [0.50]	0.53 [0.93]	6.93* [2.83]
Observations	3,456	3,366	3,267	3,456	3,366	3,267
Number of participants	384	374	363	384	374	363
R^2_within	0.0887	0.0902	0.0893	0.105	0.107	0.106
R^2_between	0.0436	0.0512	0.0849	0.0417	0.0468	0.0826
R^2_overall	0.0748	0.0767	0.0786	0.0856	0.0875	0.0907
Number of clusters	384	374	363	384	374	363

Table S11 | Econometric analysis of the impact of sanction loss and demographic characteristics on cooperation change. We fit an OLS estimator to a model having as dependent variable the variation in Contribution between period t and t-1, for t=2,…,10. See Section S1.5 for variables' description and further details. Heteroskedasticity-robust standard errors clustered at the individual level are in brackets. *** p<0.001; ** p<0.01; * p<0.05; † p<0.10.

590

591

DEPENDENT VARIABLE	Cooperation(t) - Cooperation(t-1)					
	(1)	(2)	(3)	(4)	(5)	(6)
INDEPENDENT VARIABLES						
$Sanction_{t-1}$	4.30***	4.22***	4.29***	3.97***	3.79***	3.62***
	[0.38]	[0.38]	[0.40]	[0.73]	[0.72]	[0.72]
GER_NAT_S	0.82**	0.87*	0.91*	0.60	0.60	0.56
	[0.28]	[0.41]	[0.41]	[0.44]	[0.53]	[0.53]
INT_B_S	0.84**	0.81*	0.93**	0.86†	0.79†	0.76
	[0.30]	[0.34]	[0.33]	[0.44]	[0.47]	[0.48]
INT_O_S	0.73*	0.76*	0.87**	0.51	0.43	0.43
	[0.29]	[0.33]	[0.33]	[0.47]	[0.51]	[0.52]
GER_NAT_S × $Sanction_{t-1}$				0.92	0.93	1.14
				[1.13]	[1.11]	[1.13]
INT_B_S × $Sanction_{t-1}$				-0.12	-0.03	0.42
				[1.04]	[1.03]	[1.06]
INT_O_S × $Sanction_{t-1}$				0.68	0.94	1.27
				[1.04]	[1.04]	[1.06]
Country		0.12	0.21		0.09	0.20
		[0.33]	[0.39]		[0.33]	[0.39]
Age		-0.01	-0.00		-0.01	-0.00
		[0.03]	[0.03]		[0.03]	[0.03]
Gender (male =1)		-0.57**	0.13		-0.55**	0.15
		[0.21]	[0.34]		[0.21]	[0.34]
High education one parent		-0.25	-0.32		-0.24	-0.33
		[0.27]	[0.28]		[0.27]	[0.28]
High education both parents		-0.28	-0.16		-0.28	-0.17
		[0.27]	[0.27]		[0.27]	[0.27]
Degree: Humanities and Social Sciences			0.15			0.14
			[0.30]			[0.30]
Degree: Mathematics and Natural Sciences			-0.17			-0.20
			[0.30]			[0.31]
Degree: Economics			-0.46			-0.47
			[0.30]			[0.30]
Height			-0.04*			-0.04*
			[0.02]			[0.02]
Married			-0.93			-1.02
			[0.75]			[0.77]
Univ. exchange program			-0.17			-0.18
			[0.28]			[0.28]
Environmental action index			0.08			0.08
			[0.09]			[0.09]

Religion: Other			-0.43			-0.41
			[0.35]			[0.35]
Religion: Atheist			-0.13			-0.10
			[0.50]			[0.50]
Religion: Christian German (catholic and protestant)			-0.83†			-0.85†
			[0.49]			[0.50]
Religion: Christian Russia (orthodox)			-0.52			-0.53
			[0.39]			[0.38]
Period 3	-0.26	-0.12	-0.03	-0.24	-0.10	-0.01
	[0.73]	[0.73]	[0.75]	[0.73]	[0.73]	[0.74]
Period 4	-1.58**	-1.50*	-1.52*	-1.57**	-1.49*	-1.51*
	[0.61]	[0.61]	[0.62]	[0.61]	[0.61]	[0.62]
Period 5	-0.86	-0.78	-0.66	-0.85	-0.76	-0.63
	[0.59]	[0.59]	[0.60]	[0.59]	[0.59]	[0.60]
Period 6	-1.03	-1.07†	-1.11†	-1.02	-1.06†	-1.09†
	[0.63]	[0.63]	[0.64]	[0.63]	[0.63]	[0.64]
Period 7	-1.93**	-1.78**	-1.75**	-1.92**	-1.77**	-1.73**
	[0.64]	[0.65]	[0.67]	[0.64]	[0.65]	[0.67]
Period 8	-0.82	-0.96	-0.94	-0.81	-0.95	-0.93
	[0.62]	[0.61]	[0.63]	[0.61]	[0.61]	[0.63]
Period 9	-2.69***	-2.50***	-2.51***	-2.69***	-2.50***	-2.51***
	[0.66]	[0.67]	[0.68]	[0.67]	[0.67]	[0.69]
Period 10	-6.30***	-6.31***	-6.26***	-6.31***	-6.32***	-6.27***
	[0.76]	[0.78]	[0.80]	[0.76]	[0.78]	[0.80]
Constant	-0.69	-0.12	7.45*	-0.58	0.13	7.69*
	[0.52]	[0.96]	[3.02]	[0.58]	[1.02]	[3.03]
Observations	3,456	3,366	3,267	3,456	3,366	3,267
Number of participants	384	374	363	384	374	363
R^2_within	0.0926	0.0931	0.0922	0.0926	0.0932	0.0927
R^2_between	0.0430	0.0484	0.0872	0.0446	0.0498	0.0873
R^2_overall	0.0795	0.0804	0.0828	0.0799	0.0810	0.0834
Number of clusters	384	374	363	384	374	363

Table S12 | Econometric analysis of the impact of sanction and demographic characteristics on cooperation change. The models replicate the analysis of Table S11 replacing $\boldsymbol{Sanction\_Loss_{t-1}}$ with $\boldsymbol{Sanction_{t-1}}$. The latter is a dummy variable identifying whether a participant had been sanctioned in the previous period, regardless of the sanction amount. See Section S1.5 for description of model and variables. *** p<0.001, ** p<0.01, * p<0.05, † p<0.10.

592

DEPENDENT VARIABLE	Sanctions			
	(1)	(2)	(3)	(4)
INDEPENDENT VARIABLES				
GER_NAT_S	-0.58*	0.35	0.57	0.74
	[0.30]	[0.35]	[0.44]	[0.45]
INT_B_S	-0.05	1.00**	1.12**	1.24***
	[0.29]	[0.34]	[0.38]	[0.37]
INT_O_S	0.35	1.22***	1.36***	1.38***
	[0.26]	[0.33]	[0.36]	[0.37]
Contribution_other		-0.11***	-0.11***	-0.12***
		[0.01]	[0.01]	[0.01]
Country			0.26	0.01
			[0.30]	[0.40]
Age			0.03	0.001
			[0.03]	[0.03]
Gender (male =1)			0.67**	0.61†
			[0.21]	[0.32]
High education one parent			0.13	0.21
			[0.28]	[0.29]
High education both parents			0.35	0.36
			[0.28]	[0.30]
Degree: Humanities and Social Sciences				0.37
				[0.33]
Degree: Mathematics and Natural Sciences				0.09
				[0.35]
Degree: Economics				0.45
				[0.33]
Height				0.01
				[0.02]
Married				0.99
				[0.76]
Univ. exchange programm				0.56
				[0.38]
Environmental action index				0.01
				[0.10]
Religion: Other				-0.16
				[0.38]
Religion: Atheist				-0.23
				[0.52]
Religion: Christian German (catholic and protestant)				-0.07
				[0.47]
Religion: Christian Russian (orthodox)				0.03
				[0.44]
Period 2	0.04	0.34*	0.35*	0.37*
	[0.14]	[0.15]	[0.15]	[0.15]
Period 3	0.12	0.58***	0.58***	0.59***
	[0.15]	[0.17]	[0.17]	[0.17]
Period 4	-0.13	0.36*	0.35†	0.39*

	[0.16]	[0.18]	[0.18]	[0.18]
Period 5	-0.08	0.43*	0.42*	0.45*
	[0.16]	[0.18]	[0.18]	[0.18]
Period 6	-0.09	0.45*	0.45*	0.44*
	[0.17]	[0.19]	[0.19]	[0.19]
Period 7	-0.07	0.34†	0.33†	0.37*
	[0.16]	[0.18]	[0.19]	[0.19]
Period 8	-0.10	0.41*	0.40*	0.42*
	[0.16]	[0.19]	[0.19]	[0.19]
Period 9	-0.20	0.07	0.03	-0.06
	[0.19]	[0.22]	[0.22]	[0.22]
Period 10	0.55**	0.12	0.08	0.08
	[0.19]	[0.22]	[0.22]	[0.23]
Observations	19,200	19,200	18,700	18,150
Sanctioning opportunities per round	1,920	1,920	1,870	1,815
Number of clusters	384	384	374	363
Chi2	43.20	257.3	278.3	317.0

Table S13 | Econometric analysis of sanctioning in experiments. We fitted an ordered logistic regression with random effects at the individual level, having as dependent variable the number of tokens assigned to sanctioning each other group member in each round. Note that the dependent variable can be equal to 0, 1 or 2 tokens. The covariates are the same as those used in the models of Table S11, except for $\boldsymbol{Sanction\_Loss_{t-1}}$, and include the Contribution by the recipient of the sanction (*Contribution_other*) in Models 2-4. Heteroskedasticity-robust standard errors clustered at the individual level are in brackets. *** p<0.001, ** p<0.01, * p<0.05, † p<0.10.

593

594

595

DEPENDENT VARIABLE	Total Contribution					
	(1)	(2)	(3)	(4)	(5)	(6)
INDEPENDENT VARIABLES						
Environmental action index		3.11	3.26		4.84†	5.23†
		[2.31]	[2.44]		[2.77]	[2.98]
Country	0.54	2.86	-2.40	0.90	3.74	10.32
	[8.93]	[9.04]	[11.59]	[10.26]	[10.44]	[11.24]
Age	1.20	1.03	0.58	1.22	1.00	0.48
	[0.84]	[0.85]	[0.98]	[0.83]	[0.83]	[1.00]
Gender (male =1)	-21.37***	-20.64***	-21.11*	-3.05	-1.31	7.51
	[6.06]	[6.05]	[8.81]	[6.88]	[7.00]	[11.69]
High education one parent	5.09	5.27	5.64	-4.54	-3.78	-3.33
	[7.91]	[7.92]	[8.00]	[7.07]	[6.89]	[7.41]
High education both parents	-0.93	-0.70	-2.44	-2.37	-1.89	-3.10
	[7.75]	[7.69]	[7.85]	[9.55]	[9.25]	[9.41]
Degree: Humanities and Social Sciences			9.16			6.43
			[9.41]			[10.00]
Degree: Mathematics and Natural Sciences			4.58			5.28
			[8.85]			[8.39]
Degree: Economics			2.03			4.90
			[9.50]			[9.38]
Height			0.05			-0.55
			[0.50]			[0.63]
Married			15.63			23.40
			[27.07]			[23.09]
Univ. exchange program			5.59			-8.24
			[10.06]			[11.39]
Religion: Other			8.10			4.03
			[9.59]			[10.94]
Religion: Atheist			-0.58			11.19
			[9.99]			[12.80]
Religion: Christian German (catholic and protestant)			-1.33			0.49
			[13.04]			[13.64]
Religion: Christian Russia (orthodox)			8.75			-15.18
			[12.81]			[13.57]
RUS_NAT_NS	-45.76†	-44.41†	-44.89†			
	[24.35]	[24.48]	[25.51]			
GER_NAT_S	74.55***	75.36***	75.64***	73.58**	73.94**	75.11***
	[21.31]	[21.23]	[21.62]	[21.81]	[21.63]	[21.22]
GER_NAT_NS	-0.81	0.02	0.33			
	[24.23]	[24.13]	[24.91]			
INT_B_S	78.08***	78.81***	77.33***	77.41***	78.13***	79.31***
	[19.46]	[19.34]	[19.65]	[19.44]	[19.23]	[18.98]
INT_B_NS	2.56	3.33	2.07			
	[23.62]	[23.58]	[23.56]			
INT_O_S	63.34**	62.89**	61.33**	62.24**	61.73**	63.66**

	[19.39]	[19.26]	[19.25]	[19.54]	[19.22]	[18.65]
INT_O_NS	-1.39	-0.32	-0.14			
	[22.63]	[22.61]	[23.44]			
Constant	208.22***	209.45***	204.36*	202.79***	204.36***	298.73*
	[28.34]	[28.27]	[90.99]	[26.39]	[26.02]	[112.68]
Observations	746	744	729	374	372	363
R^2	0.22	0.22	0.23	0.20	0.21	0.22
Number of clusters	128	128	128	64	64	64

Table S14 | Econometric analysis of total individual cooperation in the experiment. We fit an OLS estimator having total individual contributions (Total Contribution) as the dependent variable. The set of covariates is the same used for the model described in Table S11 – except for past sanctions. Heteroskedasticity-robust standard errors clustered at the group level are in brackets. See Section S1.5 for variable description. *** p<0.001; ** p<0.01; * p<0.05; † p<0.10.

596

Country / Source	Male	Individual Citizen	Local Citizen	Country Citizen	World Citizen	Trust
GER-Exp						
Mean	0.49	2.42	1.41	1.87	2.16	0.62
Median	0.50	0.71	0.95	0.87	0.76	0.49
Min	0	0	0	0	0	0
Max	1	3	3	3	3	1
N	384	383	384	384	383	369
GER-WVS						
Mean	0.50	2.18	2.13	2.25	1.69	0.58
Median	0.50	0.84	0.83	0.73	0.94	0.49
Min	0	0	0	0	0	0
Max	1	3	3	3	3	1
N	2046	1978	2025	2017	1976	2017
RUS-Exp						
Mean	0.47	1.10	1.31	2.15	0.98	0.45
Median	0.50	0.96	1.01	0.93	0.95	0.50
Min	0	0	0	0	0	0
Max	1	3	3	3	3	1
N	384	384	384	372	384	372
RUS-WVS						
Mean	0.45	0.93	0.89	2.58	1.49	0.71
Median	0.50	0.98	0.95	0.67	1.00	0.45
Min	0	0	0	0	0	0
Max	1	3	3	3	3	1
N	2500	2015	2164	2448	2277	2350

Table S15 | Analysis of differences in gender and social identity in our sample and World Value Survey sample. Descriptive statistics of variables that were used in both our post-experiment questionnaire and in the World Value Survey (WVS) in Germany and Russia are reported. GER-Exp and RUS-Exp denote data from our own study, while GER-WVS and RUS-WVS denote data from the World Value Survey. Male is a dummy variable identifying males. The other variables are answers to the Question 25 in the questionnaire, which asked participants to express their agreement with the following statements: "I see myself as an autonomous individual" (for 'Individual Citizen'); "I see myself as part of my local community" (for 'Local Citizen'); "I see myself as part of the Russian (for Russian version) / German (for German version) nation." (for 'Country Citizen'); "I see myself as a world citizen." (for 'World Citizen'). Answers were given on the following scale: 0 = "Strongly disagree"; 1 = "Disagree"; 2= "Agree", 3= "Strongly agree". (The original scale was reversed, see Question 25). These questions were also asked in the 2011 WVS wave conducted in Russia and in 2013 WVS wave in Germany, thus making a comparison possible.

S.3 Supplementary Figures

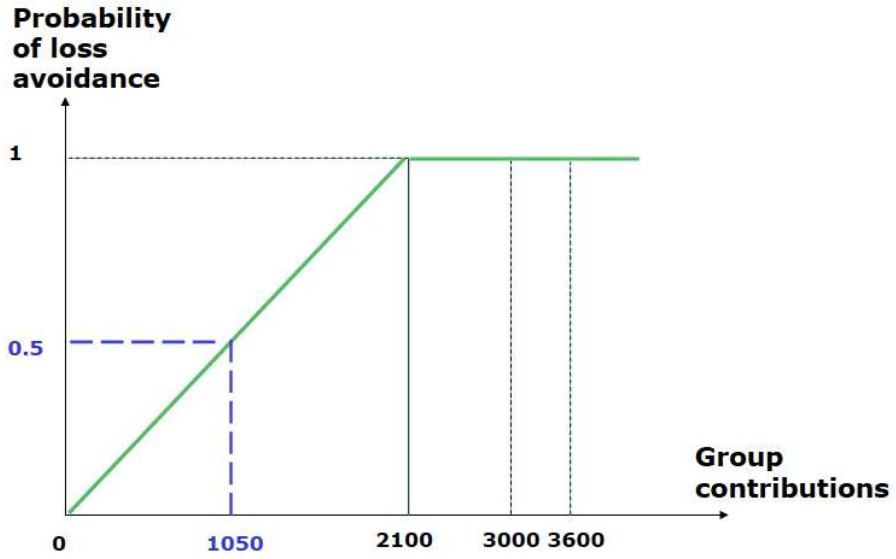
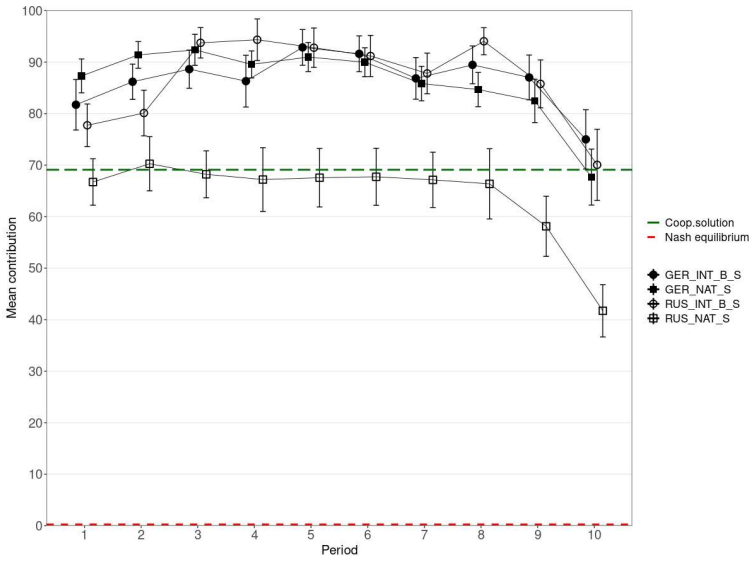
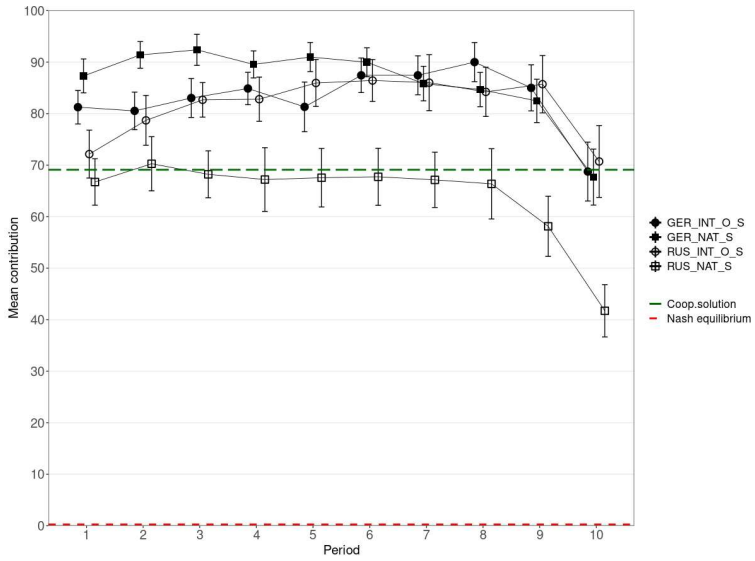


Fig. S4: The loss avoidance scheme. The probability of loss avoidance was proportional to the tokens contributed to the collective fund by the group members. Loss was certain with no contribution, and was avoided with certainty when group contributions equaled the threshold of 2,100 tokens. For instance, if 1,050 tokens were contributed, the probability of loss avoidance would have been 0.5 (see dashed line). The total number of tokens available for contribution by group members was 3,000, while the sum of individual endowments (including tokens available for sanctioning) was 3,600 tokens.

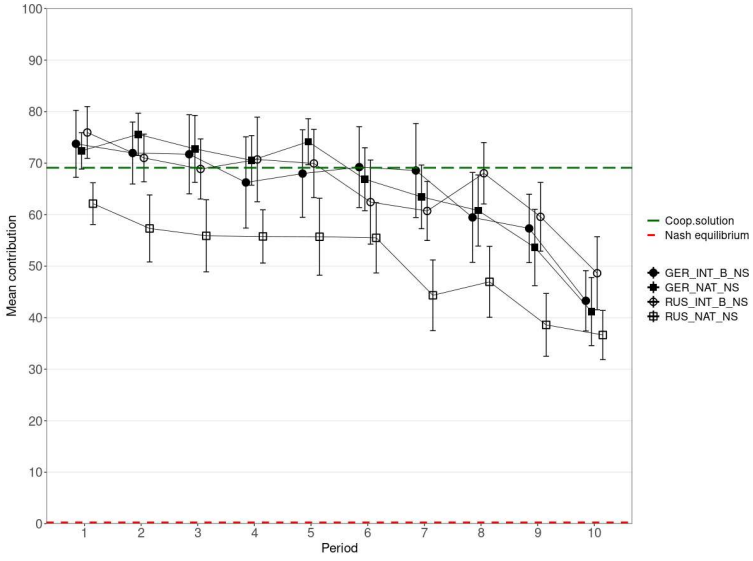
(A) National and International Blind treatments with Sanctions



(B) National and International Open treatments with Sanctions



(C) National and International Blind treatments without Sanctions



(D): National and International Open treatments without Sanctions

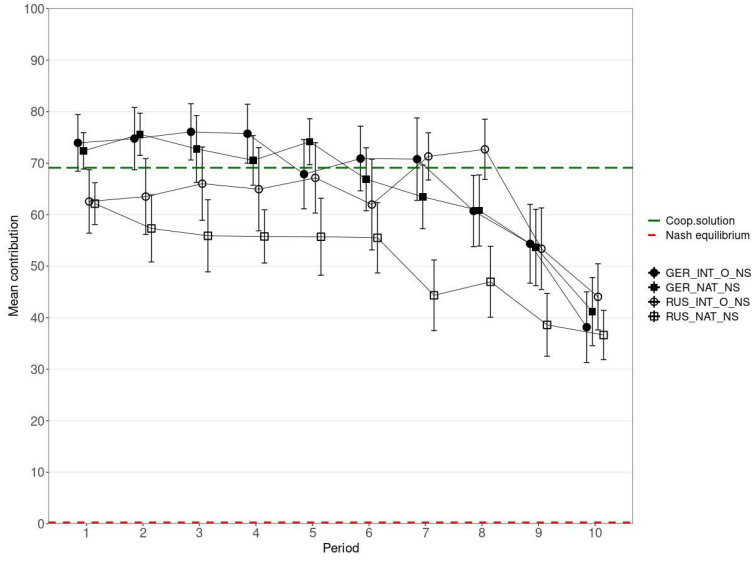
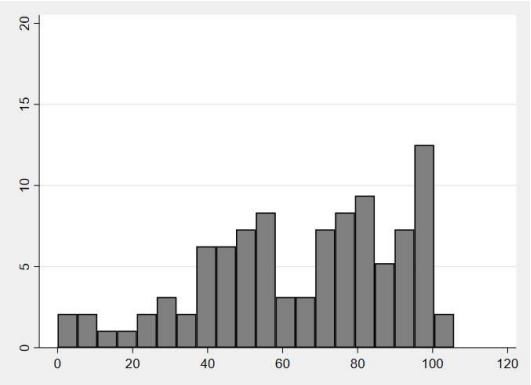


Fig. S5: Evolution of cooperation rate by treatment and nationality. GER_Int_Blind = German participants' decisions in International Blind interactions; RUS_Int_Blind = Russian participants' decision in International Blind interactions. GER_Int_Blind = German participants' decisions in International Blind

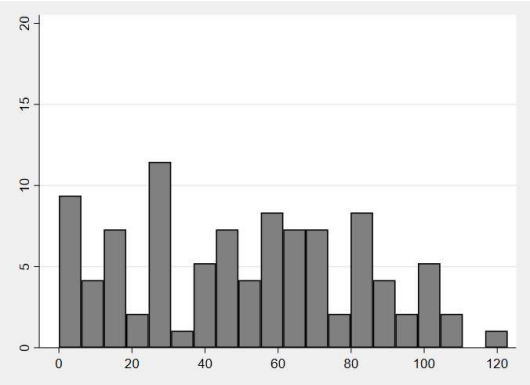
interactions. RUS_Int_Blind = Russian participants' decisions in International Blind interactions. GER_Int_Open = German participants' decisions in International Open interactions. RUS_Int_Open = Russian participants' decisions in International Open interactions. See Table 1 or Section S7 for definition of other labels.

21

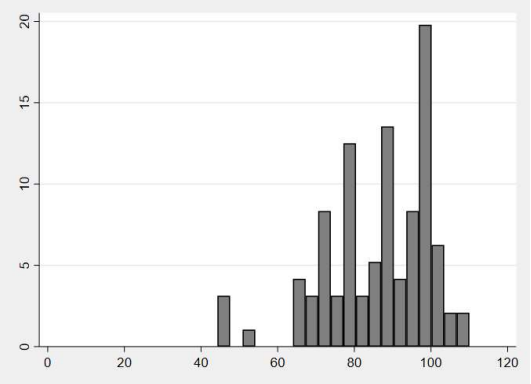
622



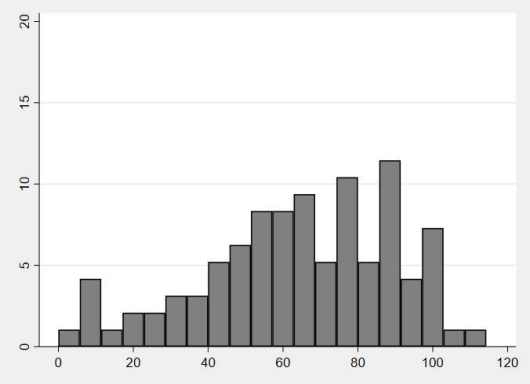
Panel A: National Germany –No Sanction



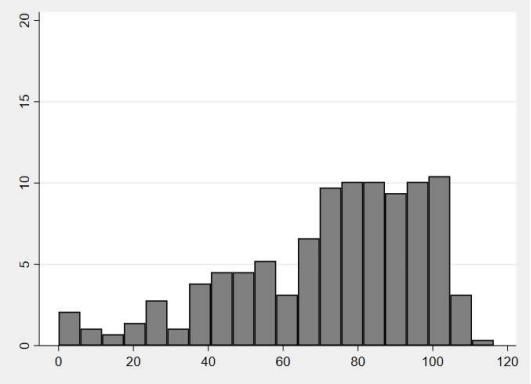
Panel B: National Russia – No Sanction



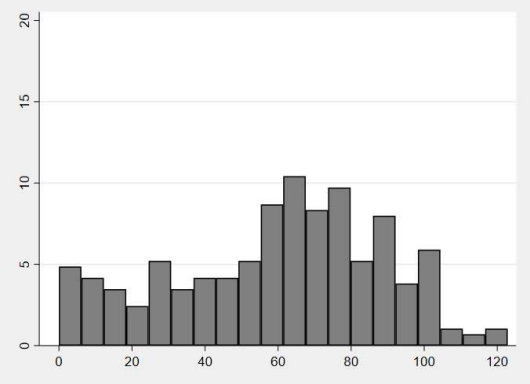
Panel C: National Germany – Sanction



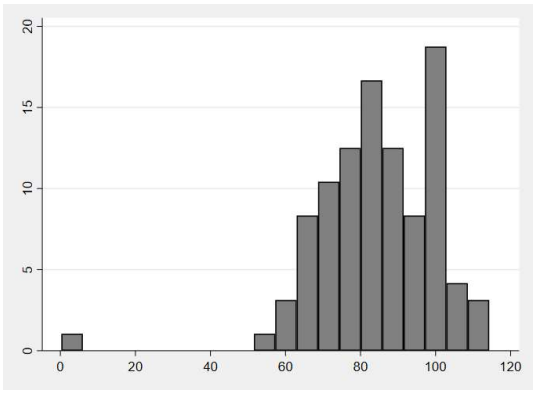
Panel D: National Russia – Sanction



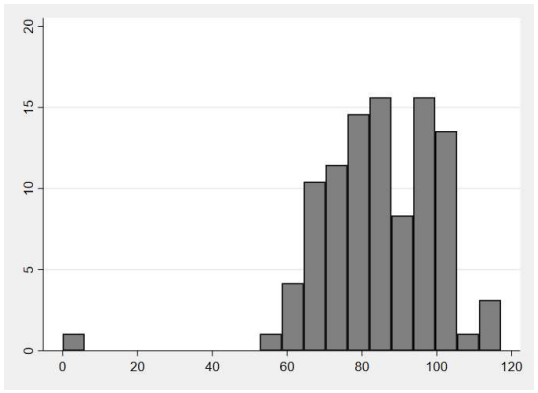
Panel E: International No Sanction – Germans



Panel F: International No Sanction – Russians

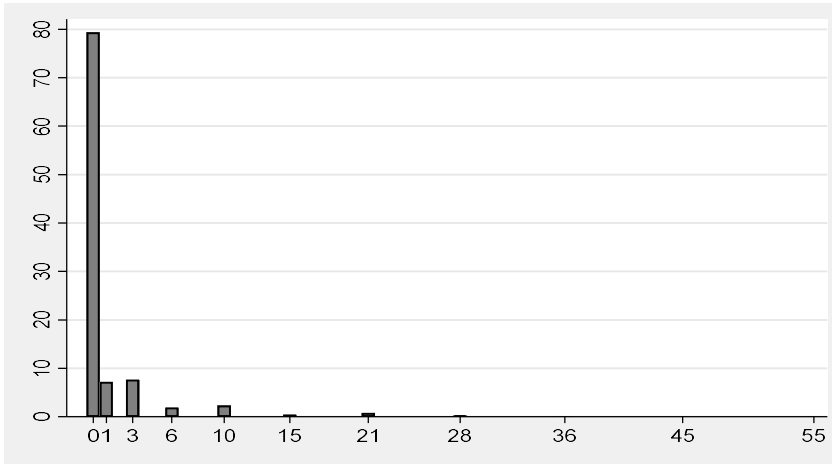


Panel G: International Sanction – Germans

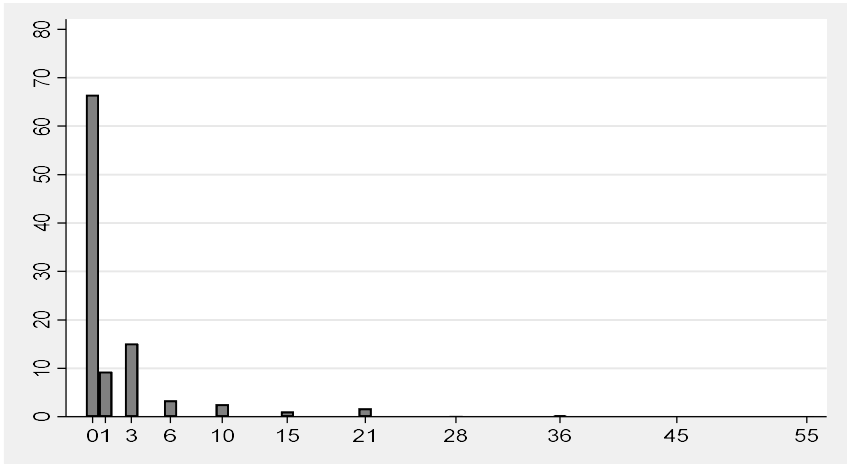


Panel H: International Sanction Russians

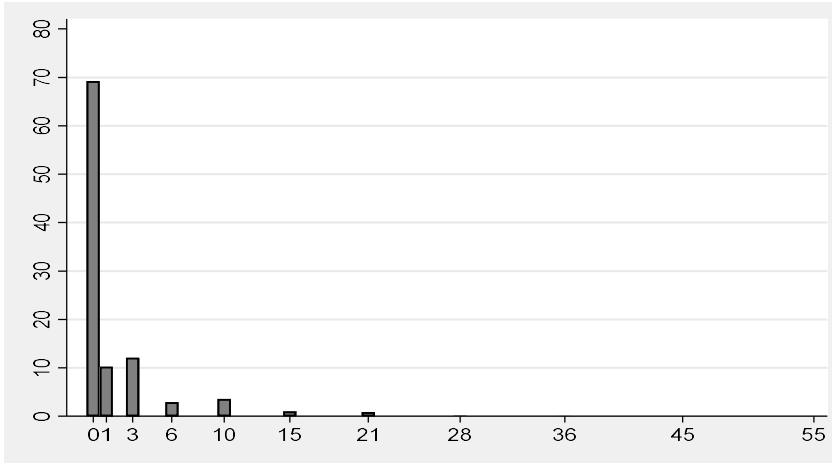
Fig. S6 | Histograms of Total Individual Contributions. Total Individual Contributions over the 10 rounds are expressed in percentages of the level necessary to achieve full risk avoidance (350 tokens), had everyone else contributed the same amount. For example, if Total Individual Contributions equal 100, it means that a participant contributed 350 tokens, which would produce a PLA=1 had other group members contributed the same. Total Individual Contributions are grouped into 20 bins. Frequencies (in percentage terms) are reported on the vertical axis.



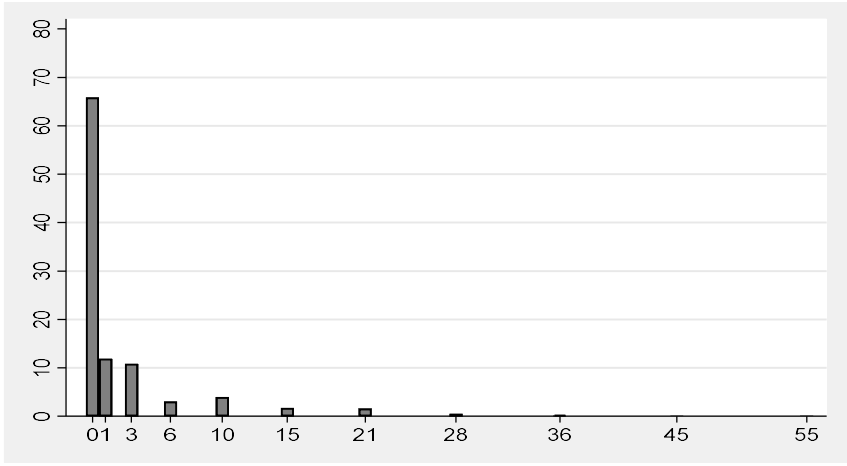
Panel A: National Germany Sanction



Panel B: National Russia Sanction

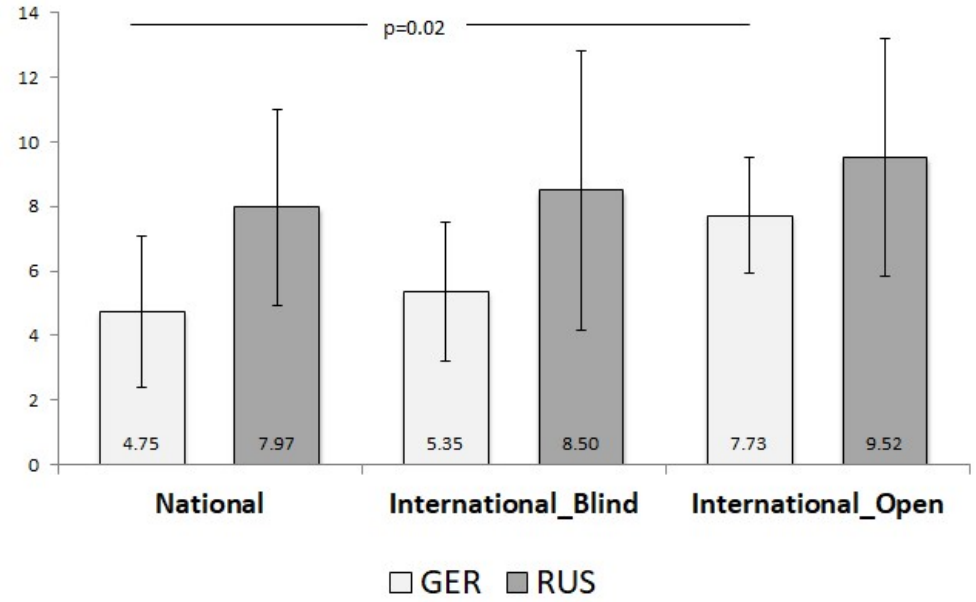


Panel C: International Blind Sanction



Panel D: International Open Sanction

Fig. S7 | Histograms of tokens lost due to sanctions. The histograms show frequencies of tokens lost to sanctions for each period and individual. Frequencies (in percentage terms) are reported on the vertical axis. See Table S6 for possible levels of sanction losses.



633

634 **Fig. S8 | Mean number of tokens spent on sanctioning, by treatment**
635 **and nationality.** Means are computed over each (sub)group over the
636 whole 10 rounds, broken down by nationality in international treatments.
637 Error bars are 95% confidence intervals with bootstrapped standard errors
638 (10,000 repetitions).
639

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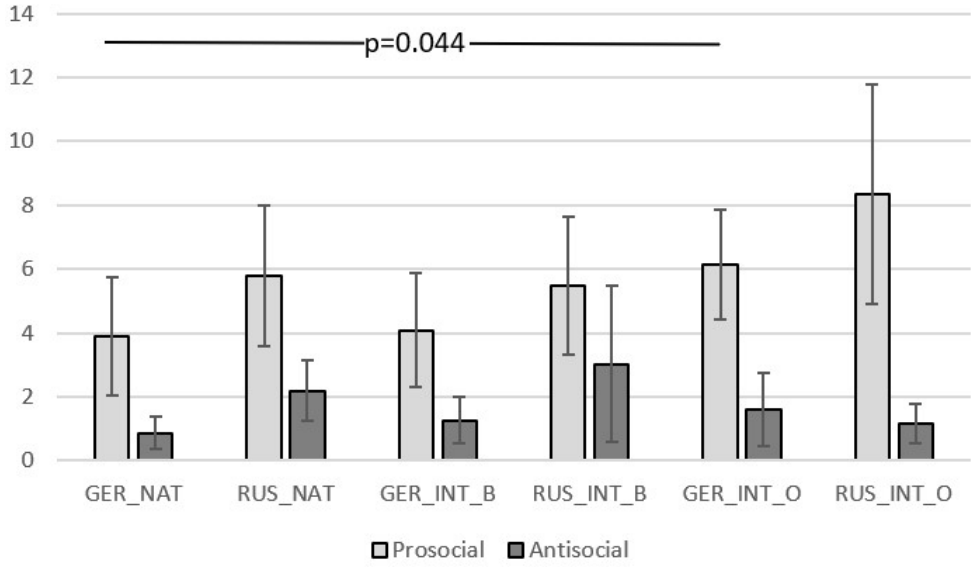

Fig. S9 | Prosocial and antisocial sanctioning (mean number of tokens)**.** Prosocial and Antisocial sanctioning are defined in Section S1.4. Error bars are 95% confidence intervals with bootstrapped standard errors (10,000 repetitions).

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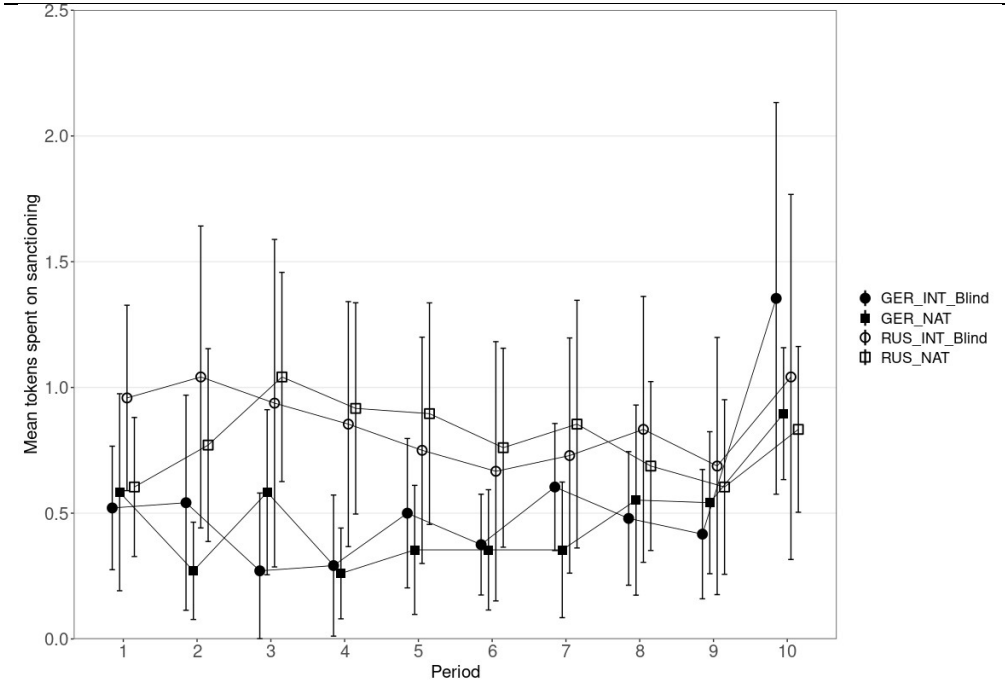
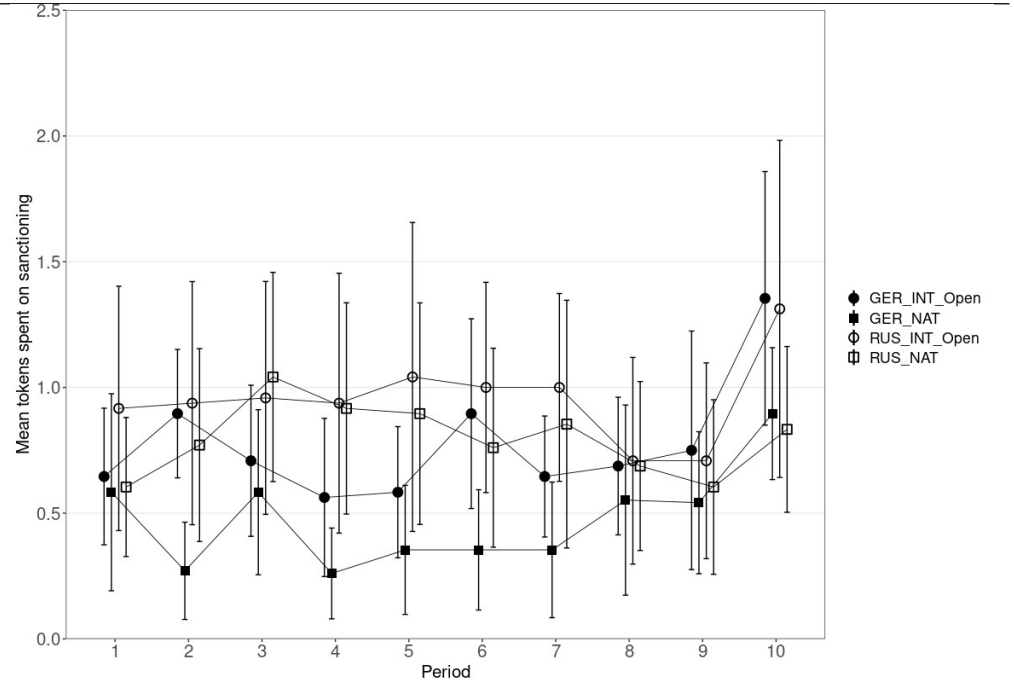
Panel A: National and International Blind treatments with Sanctions



Panel B: Open international treatments Vs. national treatments



648 **Fig. S10 | Evolution of sanctioning by treatment and nationality.** See Table 1, Fig. S5, or Section S7 for definition of labels. Error bars are 95% confidence
649 intervals with bootstrapped standard errors (10,000 repetitions).

650

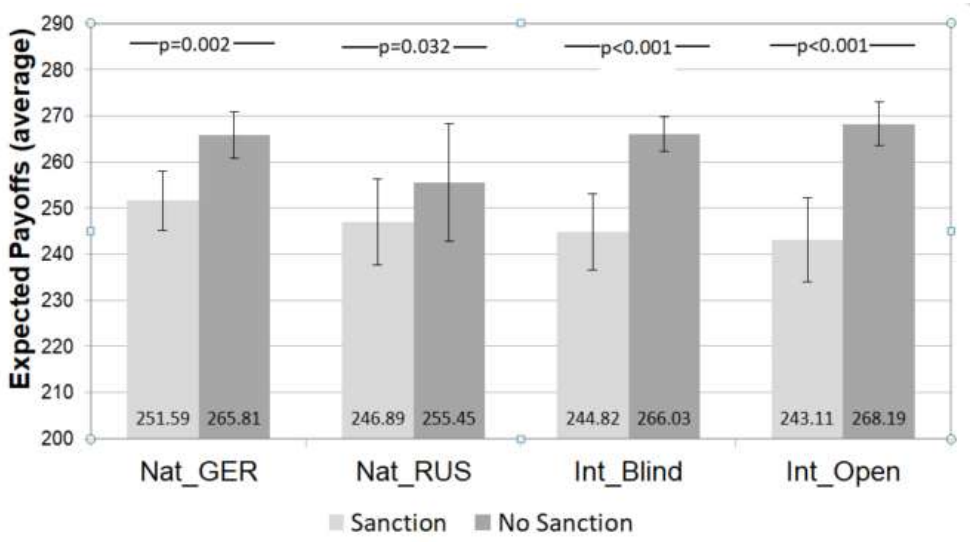


Fig. S11 | Average expected individual payoffs per treatment. See Table 1, Fig. S5, or Section S7 for definition of labels. Only results of pairwise tests between S and NS-treatments for each treatment (e.g. National Germany) are reported. Error bars are 95% confidence intervals with bootstrapped standard errors (10,000 repetitions).

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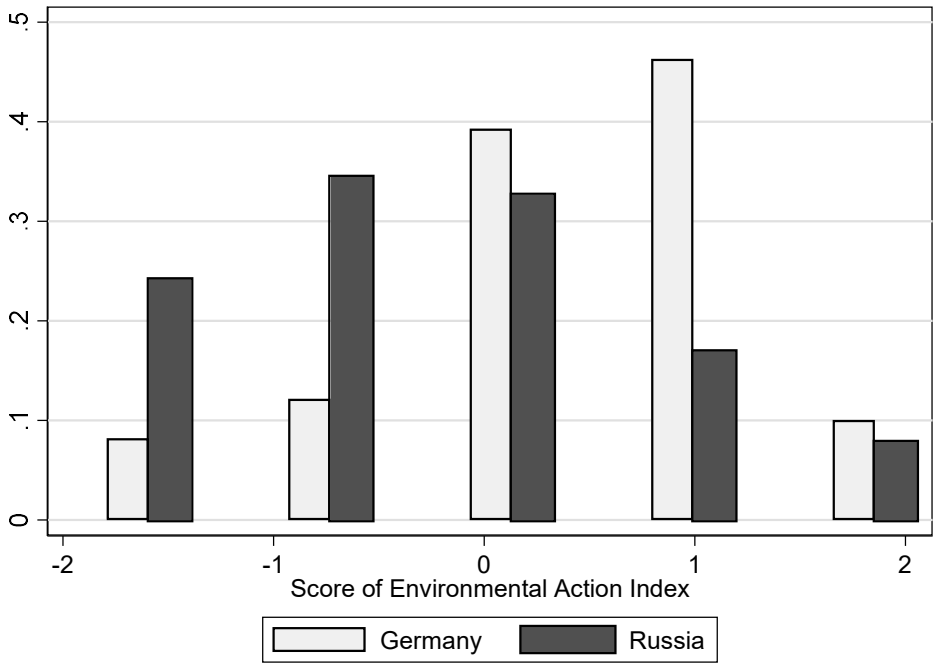


Fig. S12: Histograms of Environmental Action Index. The index is the first principal component of four questions asking whether participants buy environmentally-friendly goods, save water, participate in ecological movements, and are active in recycling (see Section S1.5). The x-axis marks the score of the index. The y-axis is the frequency (in percentage terms) of observations for each possible level of the index.

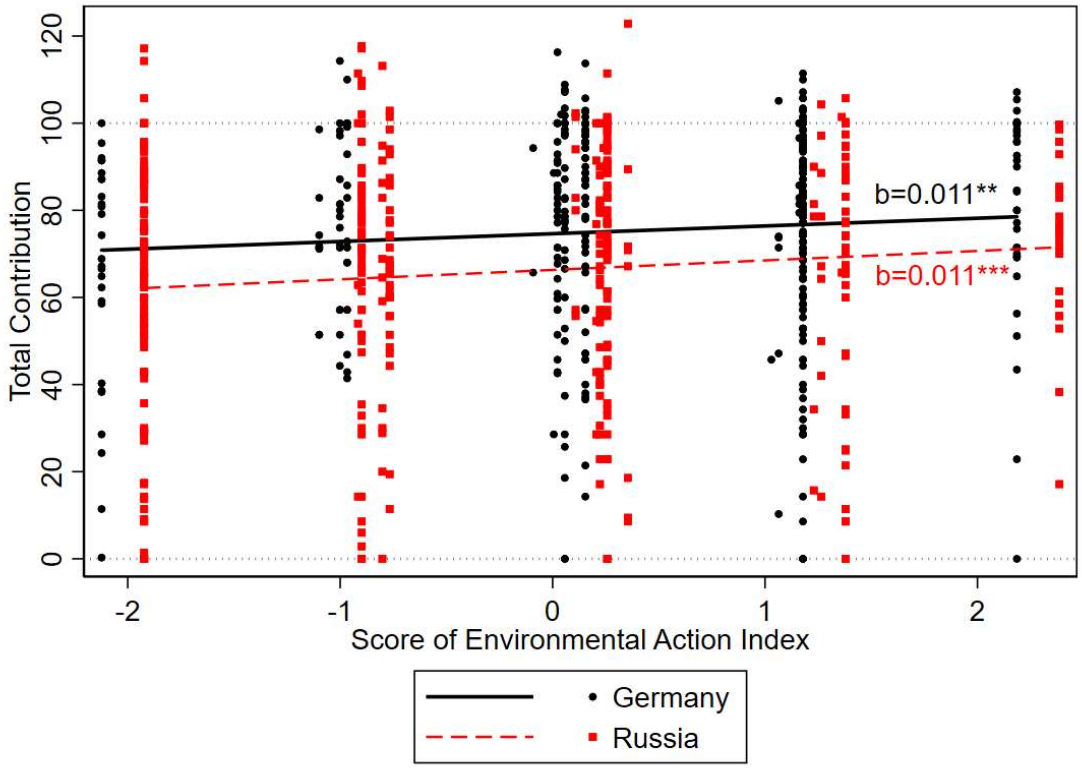


Fig. S13: Relationship between Environmental Action Index and Total Contribution (individual level). Scatterplot of the score of the Environmental Action Index (see Section S1.5 and Fig. S12) on x-axis and of individual Total Contributions over the 10 periods of interaction on y-axis. Environmental Action Index scores for Russia have been shifted rightwards not to have them overlap with those for Germany. Total Contributions are normalized by the level that would have yielded full loss avoidance had anyone in the group contributed that amount (350 tokens). The solid lines are OLS interpolating lines. The coefficient b of the interpolation is reported, together with its significance value. *** $p<0.001$; ** $p<0.01$.

S4 Supplementary Methods

The experiment protocol has been deposited at: dx.doi.org/10.17504/protocols.io.bw2ppgdn.

S4.1 Methods to ensure between-country comparability of data

International experimental research is subject to three problems that may compromise data comparability[24]. We follow relevant literature in responding to such issues[5,24].

- *Experimenter effects*

It is well-known that personal differences between experimenters conducting research sessions may induce some differences in participants' behavior. Personal differences include personality or gestural differences, or other physiological differences in, for instance, voice pitch, intonation, and, of course, gender and age, which may ultimately elicit different responses by participants. These effects could not be eliminated, but we strived to minimize them.

Firstly, we produced an experimental script (available at https://osf.io/k4d8w/) that provided a detailed description of the various stages of the experimental session and the instructions to be administered to participants (see the timeline of the experiment in Fig. S14). Each lead researcher (the authors of this paper) read the same instructions from this script, thus ensuring that identical information was given in identical order and in identical format in all the research sessions. Some of these instructions involved PowerPoint© presentations (available at https://osf.io/ch4gd/), which were prepared using the same format for all locations. Since the sessions were run simultaneously, the duration of the various stages of the session had to be approximately the same. Research materials, such as the materials to run the final lottery draw, and the video cameras used for the video links (see next sections) were also the same in all locations.

Secondly, the lead researchers participated in two collective meetings before data collection, in which session procedures were discussed and agreed upon. In one meeting in Moscow, a mock experimental session was conducted by one lead researcher under the observation of all others, in order to make the conduction of the session as uniform as possible.

- *Language effects*

Since a word may have a different nuance, or additional meanings, when translated into another language, language effects may also pre-empt full comparability

of international experimental data. Differences in syntactic rules across languages, and the fact that language expressions ultimately reflect different cultural norms in the way people address each other in different countries, may also introduce some subtle differences in the way people react to the same set of instructions in different languages. In fact, a significant foreign language effect in decision-making has been found[25]. We followed what we believe is the best practice in cross-country and inter-country experimental research[5,24] and used the back-translation method to make instructions in Russian and German as comparable as possible.

As none of the five authors is bilingual in German and Russian, we elaborated the master version of the instructions in English. Researchers from our team translated this version into their native language. We then asked a professional German-Russian translator to back-translate the Russian version of the instructions into German. This back-translated version was compared with the original German version. Every difference in the two versions was discussed among members of our team and the translator, and the original translations were then adapted to minimize differences in connotation.

- *Currency effects*

Another issue that could hinder comparability is the possibility that the monetary incentives used in different locations were different from each other. We followed standard practice in experimental economics, and formulated instructions referring to 'tokens' rather than to national monetary units. Adjusting the monetary value of a token using the official exchange rate between two currencies is not sufficient, because differences in general price levels between the two countries will alter the purchasing power of a currency when exchanged into another currency. Given that official statistics of Purchasing Power Parity are published with a delay of some years on current prices, we used the standard hourly pay rate for student assistants at universities in each country as the conversion factor to ensure that the monetary value of a token had the same purchasing power in each location. This method is appropriate for university students. This resulted in a token being worth 0.07 Euros in German locations and 2.0 Ruble in Russian locations. In addition, participants received a show-up fee of 5 Euro/150 Ruble.

S4.2 Determination of sample size

We anchored the sample size in our study to the sample size of other studies with a similar design to ours[26-27]. In these studies, the unit of observation is a group of

participants, and each group comprises 6-10 participants (we chose the lower bound of 6 for our experiment). These studies had 10 groups per treatment and found a very large effect size for their treatments. In particular, the size of the effect of introducing uncertainty over the safety threshold in one of these studies[27] was Cohen's d=3.59 {m1 = 150.9, m2 = 79.9, sd1 = 7.69, sd2 = 26.90}. We were skeptical that in the context of our study, in which the main treatment concerns the variation in cooperation in an international environment vis-à-vis a national one, the effect size would have been as large. Therefore, we decided to increase sample size to N=16 per treatment. Ex post power analysis confirmed that our prediction was correct. The sample size requested for Type-1 error = 0.05 ad for Power = 0.80 to detect a significant difference in the means observed in one of our key treatments (the difference of cooperation in the International Open treatment and the National Russian treatment under sanctions, where {m1 = 22.4375, m2 = 28.7875, sd1 = 6.9067, sd2 = 4.6133}) is N=15, which is very close to our choice of N=16. The size of this effect is Cohen's d=-1.16.

S4.3 Ethical approval and data protection

Since our research could not provide any harm to participants and did not involve any medical treatment, the approval by an ethics committee or institutional review board was waived by our universities. The experiments were run according to the ethical standards of the experimental economics profession that do not allow deception. We followed standard procedures when dealing with human subjects, and asked every participant to read an information sheet and sign an informed consent form. Data were fully anonymized upon starting the session, as participants were assigned ID codes as soon as they entered the experiment room, and every one of their decision and answer to the questionnaire was recorded through that number. Payments were paid in cash inserted in a sealed envelope at the end of the session. Participants were asked to sign a receipt, but this was not handled by researchers but was sent to the university administrative office. No participant refused to sign the informed consent form or decided to drop out of the study, even if it was clearly stated that this was possible at any time during the session.

S.4.4 Experimental protocol

- *Randomization*

Randomization occurred at the session level. Since we wanted to achieve a fully balanced sample across treatments, we did not randomize a treatment for each session, but rather we followed a pre-fixed sequence that alternated treatments. The treatment sequence had to take into account various constraints. One constraint was that our International "Blind" treatments (where participants were not informed that they were interacting with people from another country) had to be conducted before the International "Open" treatments. Had we done differently, "contagion" effects across participants from different sessions may have affected the internal validity of the Blind treatments, because some students may have inferred that other participants were from another country. Our strategy was overall successful because most participants revealed that they expected the other laboratory to be located within their country in the Blind treatments (SI: Table S4). Other constraints had to do with the university academic calendars, as students were not present on campus out of term. We balanced the assignment of treatments to starting times, to avoid that, say, all sessions belonging to one treatment were run in the morning, while all sessions relative to another treatment were run in the afternoon. This aspect of the design should prevent that treatment effects were confounded with self-selection into particular times of the day.

- *Recruitment and admission*

32 sessions were conducted between November 2016 and February 2017. We tried to run the sessions in the shortest possible time, compatibly with the university calendars. Participants were recruited via email in Tomsk and via the recruiting systems BeLab-System in Moscow and hroot[28] in Kiel and Bonn. Upon arrival, we checked students' passport and admitted only national passport holders to the session. Participants were given an information sheet and were asked to sign an informed consent form before entering the laboratory. Upon arrival, participants were randomly allocated to individual cubicles divided by opaque separators (Fig. S15) to ensure the privacy of decisions. They were randomly divided into groups of six with three group members each being from two different locations in Germany and/or Russia depending on the treatment.

- *Instructions*

All sessions were computerized using the experimental software z-Tree[29] (programs are available at https://osf.io/x82j5/). Participants from the two locations interacted via the Internet and took their decisions at the same time. They received equivalent experimental instructions in their respective native language. Participants were informed that all participants would take their decisions simultaneously and would be provided with equivalent instructions. (See the English translation of the instructions in Section S5).

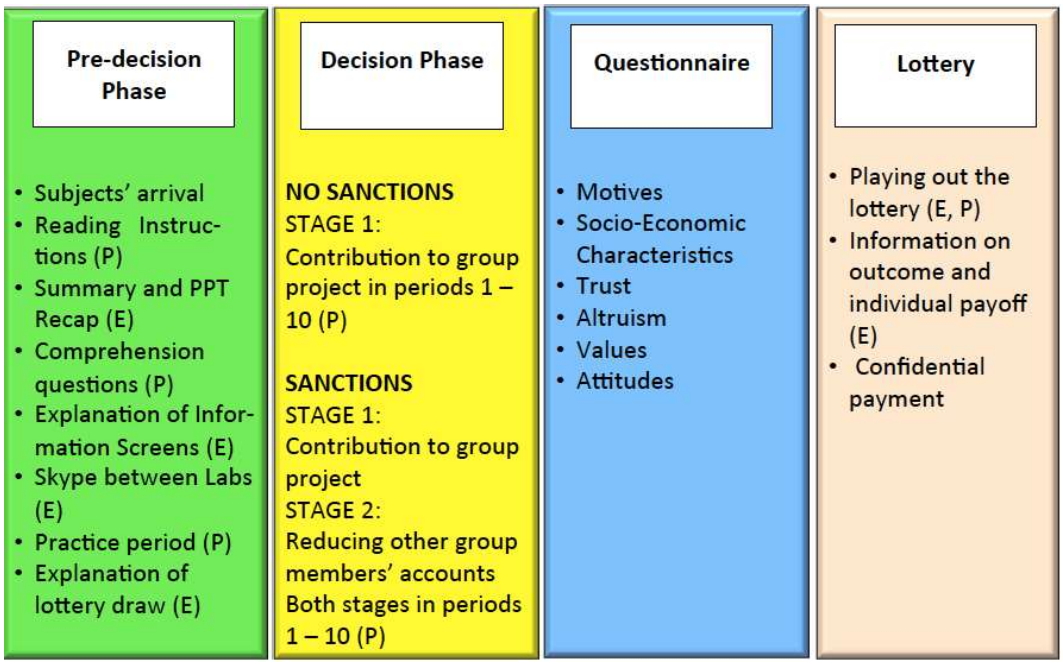


Fig. S14: Timeline of the experiment. (P): Participant's activity/decision; (E): Experimenter's activity

Participants were given ample time to read the instructions and ask clarifying questions which were answered in private. To ensure that participants understood the decision task and the procedure of the experiment, we summarized the instructions in a PowerPoint© presentation with text in German or Russian (available at https://osf.io/ch4gd/). We also made clear that due to our confidential payment method we were not able to trace any individual participant's decisions. Participants then had to answer a set of comprehension questions on their computer screens – showing German text in the German locations and Russian text in the Russian locations also in international treatments. The decision stage did not start unless all participants had answered all control questions correctly.

Fig. S15: The four experimental laboratories.

Before entering the decision part of the experiment, participants were presented an information recap in PowerPoint© to make them familiar with the information options provided throughout the experiment.

- *Videoconference link*

To attenuate possible suspicions on the existence of the other lab, we set up two Skype© connections during the session, lasting a few minutes each. Lead researchers would briefly greet each other and introduce the other participants on a large projector screen visible to all participants. Participants were not allowed to talk or communicate with each other in this phase – as well as in any other phase of the research session. To show that the interaction was occurring in real time, we followed previous research and asked some participants in one location to state some numbers[30]. Such numbers were communicated via the Internet to researchers at the other location, who then wrote these numbers on a slip of paper and showed them on the projector screen through the videoconference link. The same procedure was repeated at the other location. An identical protocol was repeated in all sessions, with the exception that researchers communicated in the respective national languages in the National treatments, interacted in English in the International Open treatments, while the Skype© link was muted in the International Blind treatments. We believed that this set of procedures was the best suited to fully assure participants that they were not being deceived and that all the information given in the instruction was truthful.

- *Decisions*

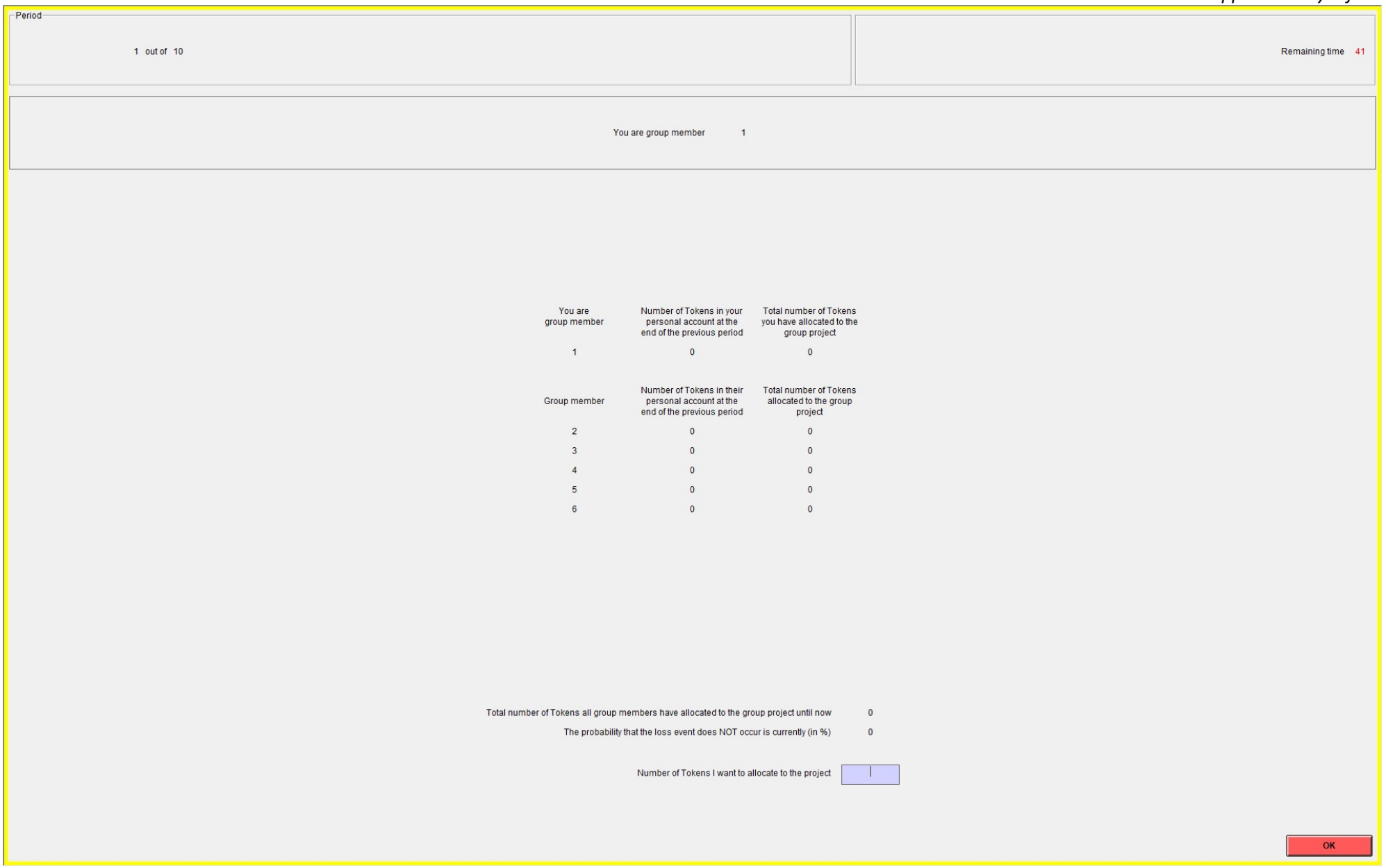
After the videoconference link, participants completed a practice period on their computers. In order not to bias actual experimental decisions, participants were not communicated others' decisions in the practice period but rather were only allowed to get familiar with the commands of the software. Afterward, the experimenters in both locations explained how the lottery would be implemented. Finally, participants made

their decisions in periods 1 to 10 in the No-Sanction (NS)- or Sanction (S)-treatments.

To illustrate the participants' decision task, Fig. S16 provides the decision screen for the contribution decision in Stage 1. In addition to making their decisions, each member was informed about the contributions of all six group members as well as about the tokens in each of their personal accounts, both accumulated over the previous periods. Furthermore, they saw the total number of tokens contributed to the project and the current probability that the loss event will not occur.

After participants had taken their decisions they could get visual information on each group member's contributions in each of the previous periods (Fig. S17). In NS-treatments, the period ended at this point and each participant was informed about their contribution in the current period as well as about everyone's personal account in tokens at the end of the previous and the current periods.

In S-treatments, participants entered Stage 2 and made their decision on how many tokens they wanted to spend to sanction each of the other group members. Before having done so they could retrieve information on each group member's contributions in each of the previous periods (Fig. S17) and in the current period (Fig. S18), the accumulated number of tokens in each group member's personal account, and the number of tokens each group member spent in the last period on each of the other group members to reduce that person's personal account.



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863 **Fig. S16 | Participants' decision screen and information in Stage 1.**

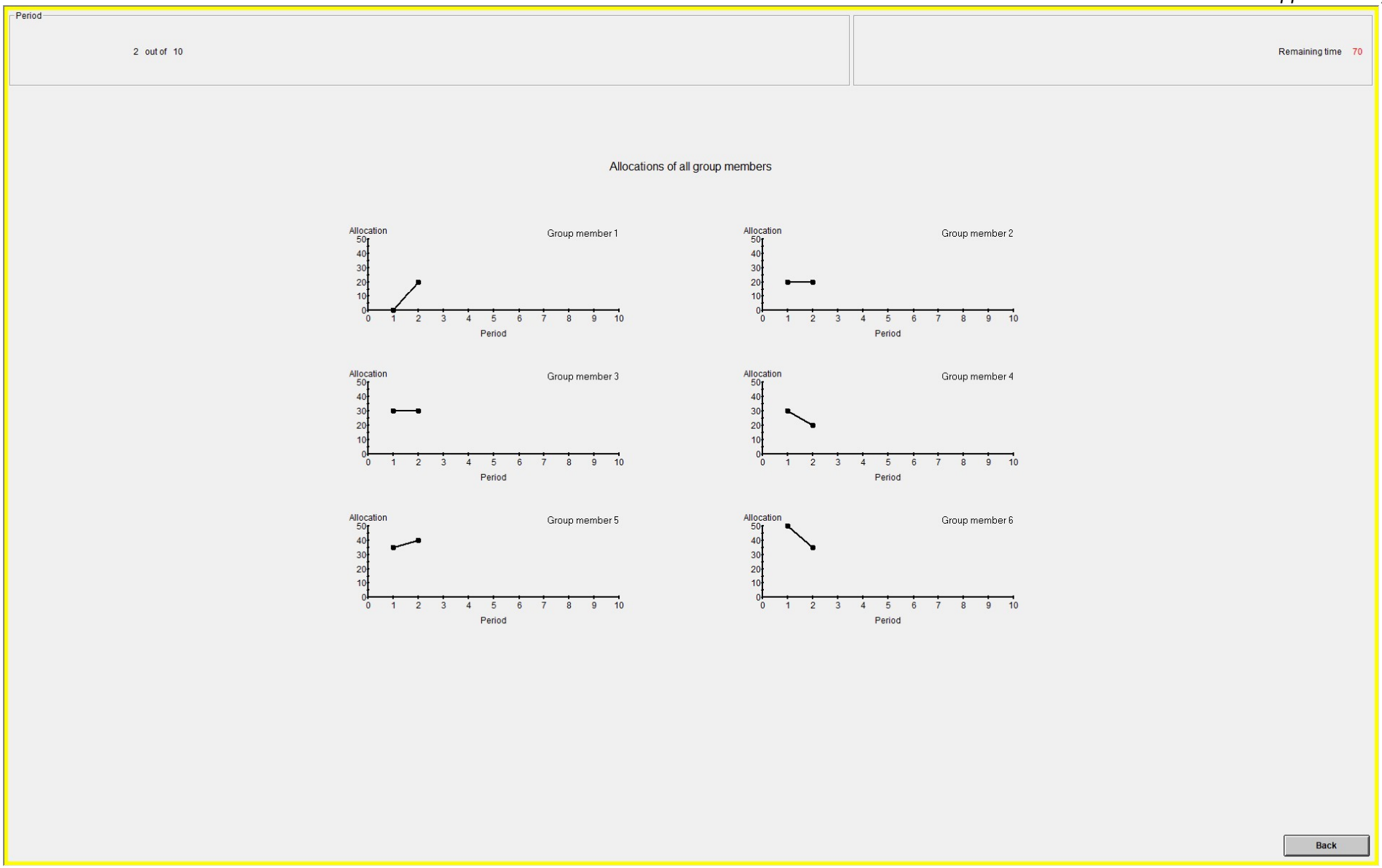

Fig. S17: **Graphical information on each group member's contributions in each of the previous periods.**

Fig. S18: Participants' decision screen and information in Stage 2.

At the end of Stage 2 of each period, participants received the same information as in NS-treatments and learned the number of tokens spent on others and deducted from their own account.

- *Final procedures*

Having finished the experimental tasks, the lottery to decide whether the loss event would occur was played out. From a bag containing lottery chips numbered 1 - 100, one chip was drawn by a participant. If the number was larger than the percentage x of the target amount the group members had contributed to the group project, the loss event occurred and 75% of the amount collected in each group member's personal account was lost. If the number drawn was smaller or equal to x, the loss event did not occur and each group member was paid out the total amount in his or her personal account. This procedure was repeated for each of the four groups participating in a session. The outcomes of the lottery draws were transmitted via Skype© to both participating labs but information on the lottery outcome relevant for a specific group was not made available to the participants until they had filled in a non-incentivized questionnaire on social characteristics, risk attitudes[4], personal values[31] and other questions taken from the World Value Survey (see Section S6). The survey questions were available and externally validated in both languages.

Finally, we applied an anonymized payment procedure by distributing the payments from the experiment plus the show-up fee and receipts in an envelope marked with the cubicle number. Participants took the money, signed the receipt, confidentially put the receipt into a box, and left the laboratory. All features of the experimental design and procedure were common knowledge and did not raise any questions. Sessions lasted about 2 hours on average. Mean earnings were 25.00€ in Germany and 750 Ruble in Russia (12.5€ at the time of running the experiment) including the show-up fee (see Section S4.1).

S5 Instructions

Note: No-Sanction treatments ended after Stage 1.
[Sentences in brackets: Change in instructions according to specific treatments.]

General instructions to the participants

Welcome to this experimental session. You will take a sequence of decisions and you have the opportunity to earn money. How much money you earn will depend both on your decisions and the decisions of other participants. It is therefore very important that you read these instructions with care.

Your total payoff will be paid in cash at the end of the experimental session.

Both your decisions and your payoffs are anonymous, that is, no other participant will be able to associate this information with a specific person during or after the experimental session. We commit to treat your decisions confidentially and analyze them anonymously.

These instructions are for your private use only. During the whole experimental session, it is not allowed to communicate with other participants. If you violate this rule, you may be dismissed from the experiment and forfeit all payments.

Should you have any questions, please raise your hand. We will then come to your workstation and answer your questions in private.

During the session we will not talk in terms of [Euro/Ruble], but in terms of Tokens. That means, your entire payoff will first be calculated in Tokens. At the end of the experimental session your total amount of Tokens will be converted to [Euro/Ruble] at the following rate:

1 Token = 0.07 Euro/2 Ruble .

In addition you will receive a show-up fee of **5** Euro/ **150** Ruble.

At the end of the session each participant will be paid in private.

The participants of this experimental session are randomly divided into groups of six. You will therefore be in a group with five other participants. You and two other participants are together in this room and the other three participants are students

- [National treatment: from another German city. / another Russian city.]
- [International Blind treatments: (in both locations): another city[6]].
- [International Open treatments: (in German location): a Russian city. / (in Russian location): a German city].

[**International open only**: Note that for participants in Germany 1 Token = **0.07** Euro. For Russian participants 1 Token = **2.0** Ruble. The exchange rate is such that equal amounts of Tokens have equivalent purchasing power in both countries.]

Participants in both universities interact via internet. All participants take their decisions at the same time and are provided with equivalent instructions**.**

We will set up a Skype connection later to show you that you are interacting in real time with participants from another city.

Your decision tasks in this experiment

There are 10 periods in this session and the composition of the groups will stay the same for all periods. Each group member is identified by a specific number (1, 2, 3, 4, 5 or 6). The identification number for each group member stays the same in all periods.

In each of the 10 periods in this session you will receive an initial sum of 60 Tokens.

[6] Three German participants were in fact matched with three Russian participants, but this was not revealed. See Table 1, Section S4.4, and Table S4.

[Sanction treatments: Each period is divided into a first stage (Stage 1) and a second stage (Stage 2). In each period, you can use 50 Tokens to make decisions in Stage 1, and 10 Tokens to make decisions in Stage 2.

We now explain your task in Stage 1. Later we will explain your task in Stage 2].

YOUR TASK [Sanction Treatments: IN STAGE 1]

You have to decide how many of the 50 Tokens you want to allocate to a **group project** (see below) and how many you want to keep for yourself. What you keep for yourself will be collected in your **personal account**, and shall immediately be added to it. As you decide how many Tokens to allocate to the project, you also decide how many Tokens you keep for yourself. This is:

Amount added to your personal account =

50 Tokens minus the amount you allocated to the group project.

You can only choose integer numbers.

No one of the group members will observe others' decisions when making their own.

All the Tokens allocated to the project by the six group members during the 10 periods will be accumulated. If the group members altogether allocate **at least 2,100 Tokens to the project by the end of the last period**, each group member will be paid out what he or she has collected in his/her personal account over the 10 periods (plus the show-up fee).

If the group members altogether allocate less than 2,100 Tokens to the project, then **a loss event may occur with some probability**. If the loss event occurs, **75% of the total amount each group member has collected in his/her personal account over the 10 periods will be lost**. The remaining 25% will be paid out to each group member (plus the show-up fee).

The probability with which the loss event does not occur depends on the **percentage of the target amount of 2,100 Tokens that the group allocates to the project**. The more tokens **the group** allocates to the project **in total**, the higher the probability that the loss event will not occur.

In general terms, if the group members allocate in total x% of the target amount of 2,100 Tokens to the project by the end of period 10, the loss event will not occur with a probability of x%, and will occur with a probability (100-x)%.

For instance, if the group members allocate a total of 1,050 Tokens to the project, the loss event will not occur with a probability of **50%** – because 1.050 is 50% of 2100 Tokens:

$$Probability\ that\ the\ loss\ event\ does\ not\ occur = \frac{1050}{2100} = 0.5(50\%).$$

If the group members allocate in total 1,890Tokens to the project, the loss event will not occur with a probability of **90%** (because 1,890 Tokens is 90% of 2,100 tokens) and will occur with the residual probability of 10%.

$$Probability\ that\ the\ loss\ event\ does\ not\ occur = \frac{1890}{2100} = 0.9(90\%)$$

If the group members allocate in total 0 Tokens to the project, the loss event will occur for sure.

If the group members allocate in total 2,100 Tokens, **or more**, to the project, the loss event will **not** occur for sure.

Note that **the Tokens allocated to the project will never be returned to anyone, regardless of whether the loss-event occurs or not**. In particular, if the group allocates more than 2,100 Tokens to the project, the Tokens in excess of 2,000 Tokens are also not going to be returned to anyone. For instance, *if 2,200 Tokens are allocated to the project, no one receives back the 2,200 Tokens.*

YOUR TASK IN STAGE 2

In each of the 10 periods, you have to decide how many of the **10** Tokens you receive in Stage 2 you want to **spend to reduce the number of Tokens in other group members' personal accounts** or how many you want to **put in your personal account**. Any Token(s) you put in your personal account will be immediately added to it. Any Token(s) you spend will reduce the personal account of some other group member(s). By spending their Tokens other group members can also reduce your personal account. Or they can leave it unchanged. They can also reduce others' personal accounts or leave them unchanged.

How does this work? You can spend 1 or 2 Tokens to reduce the personal account of any other of your group members, or you can decide to spend nothing. How many Tokens will be deducted from the other members' personal accounts depends on how many group members decide to spend their Tokens, according to the following table:

Total number of Tokens spent to reduce one group member's personal account by the other five group members	Number of Tokens deducted from this group member's personal account
0	0
1	1
2	3
3	6
4	10
5	15
6	21
7	28
8	36
9	45
10	55

You will notice that the number of Tokens deducted from a group member's personal account will increase over-proportionately if other group members spend more Tokens to reduce that group member's account.

If you and any other group member do not spend any Token(s), no Tokens will be deducted from any other group member's personal account. If you spend 1 Token to reduce the personal account of a given group member, and nobody else spends any token, then this group member's personal account will be reduced by 1 Token.

If you spend 2 Tokens to reduce the personal account of a given group member, and nobody else spends any token, then this group member's personal account will be reduced by 3 Tokens.

Likewise, if you spend 1 Token to reduce the personal account of a given group member, and another group member spends 1 Token, and nobody else spend any token, then this group member's personal account will also be reduced by 3 Tokens.

If other group members spend a total of 3 Tokens to reduce your account, this will decrease by 6 Tokens. If other group members spend 5 Tokens your account will be reduced by 15 Tokens.

Note that the amount of Tokens in your personal account cannot ever become negative. If the total number of Tokens that you spend and others want to reduce from your personal account exceed what you actually have in your personal account, your personal account will go to zero, but will not become negative.

At the end of Stage 2 of each period, the total amount of Tokens in your personal account = Tokens collected in your personal account by the end of the previous period (This is 0 in the first period) + 60 Tokens you have received at the beginning of this period

-
Tokens you have allocated to the project in Stage 1 of this period
-
Tokens you have spent in Stage 2 of this period
-
Tokens deducted from your personal account in Stage 2
OR **ZERO TOKENS**, IF THE SUM OF ALL TERMS ABOVE IS NEGATIVE.

Before making your decisions, you will receive information on others' decisions. We will explain to you this information later in detail.

How it is determined whether the loss event occurs will be explained later.

When you are finished reading these instructions, please click the OK button.

Comprehension Questions

[No-Sanction Treatments:]

Part 1

1. If you or another group member contributes more Tokens to the project does the probability that the loss event does not occur rise, decrease or stay the same?
   a. The probability rises.
   b. The probability decreases.
   c. The probability stays the same.

2a. Suppose that over the 10 periods group member 1 has contributed a total of 350 Tokens and group member 5 has contributed a total of 150 Tokens to the project. And suppose the loss event does not occur. Which of the two group members will finally receive a higher payoff?

   i. Group member 1 receives a higher payoff.
   ii. Group member 5 receives a higher payoff.
   iii. Both group members receive the same payoff.

2b. Let us now assume that the loss event does occur. Which of the two group members will finally receive a higher payoff?

i. Group member 1 receives a higher payoff.
ii. Group member 5 receives a higher payoff.
iii. Both group members receive the same payoff.

3. Tokens that are contributed to the project will at the end of the Session
   a. ...not be paid back to those group members who had contributed them.
   b. ... be paid back to those group members who had contributed them.
   c. ... only be paid back if the loss event does not occur.

Part 2

4. Suppose that over the 10 periods the following amounts have been contributed to the project in total:
   - Group member 1 has contributed 500 Tokens,
   - Group members 2, 3 and 4 each have contributed 100 Tokens,
   - Group member 5 has contributed 250 Tokens,
   - Group member 6 has contributed 0 Tokens.

   a. What is the probability that the loss event does not occur?
   b. Assume that the loss event does not occur. What is group member 1's final payoff in Tokens?
   c. What is group member 2's final payoff in Tokens?
   d. What is group member 6's final payoff in Tokens?
   e. Assume now that the loss event does occur. What is group member 1's final payoff in Tokens?
   f. What is group member 2's final payoff in Tokens?
   g. What is group member 6's final payoff in Tokens?

Part 3

5. Suppose the amounts are like in the previous example, yet group member 1 contributes nothing instead of 500 Tokens as before. Therefore, in total the following amounts have been contributed to the project:
   - Group member 1 has contributed 0 Tokens,
   - Group members 2, 3 and 4 each have contributed 100 Tokens,
   - Group member 5 has contributed 250 Tokens,
   - Group member 6 has contributed 0 Tokens.

a. What is the probability that the loss event does not occur?

b. What is group member 1's final payoff in Tokens if the loss event does not occur?

c. What is group member 1's final payoff in Tokens if the loss event does occur?

Sanction Treatments

Part 1

1. If you or another group member contributes more Tokens to the project does the probability that the loss event does not occur rise, decrease or stay the same?

a. The probability rises.

b. The probability decreases.

c. The probability stays the same.

2.a. Suppose that over the 10 periods group member 1 has contributed a total of 350 Tokens and group member 5 has contributed a total of 150 Tokens to the project. And suppose further that no group member has spent any Tokens on reducing the number of Tokens in any other group member's personal account. Thus, all group members keep the 100 Tokens from Stage 2. Moreover, assume that the loss event does not occur. Which group member will finally receive a higher payoff?

i. Group member 1 receives a higher payoff.

ii. Group member 5 receives a higher payoff.

iii. Both group members receive the same payoff.

2b. Let us now assume that the loss event does occur. Which group member will finally receive a higher payoff?

i. Group member 1 receives a higher payoff.

ii. Group member 5 receives a higher payoff.

iii. Both group members receive the same payoff.

3. Tokens that are contributed to the project will at the end of the Session

a. ... not be paid back to those group members who had contributed them.

b. ... be paid back to those group members who had contributed them.

c. ... only be paid back if the loss event does not occur.

4. Suppose that in a given period:

- Group member 2 spent 2 Tokens,

- Group member 3 spent 2 Tokens,

- Group member 4 spent 1 Token,
- Group member 5 spent 1 Tokens,
- Group member 6 spent 0 Tokens,

on reducing the number of Tokens in the personal account of group member 1.

- By how many Tokens is the personal account of group member 1 reduced due to other group members spending Tokens on reducing the personal account of group member 1? (Note: Use the table on page 4 of the Instructions).
- By how many Tokens is the personal account of group member 2 reduced in the given period?

Part 2

5. Suppose that over the 10 periods the following amounts have been contributed to the project in total:
   - Group member 1 has contributed 500 Tokens,
   - Group members 2, 3 and 4 each have contributed 100 Tokens,
   - Group member 5 has contributed 250 Tokens,
   - Group member 6 has contributed 0 Tokens.

   a. What is the probability that the loss event does not occur?

   b. Suppose that no group member has spent any Tokens on reducing the number of Tokens in other group members' personal accounts. Thus, all group members' personal accounts will be increased by 100 Tokens. Assume that the loss event does not occur. What is group member 1's final payoff in Tokens?

   c. What is group member 2's final payoff in Tokens?

   d. What is group member 6's final payoff in Tokens?

   e. Assume now that the loss event does occur. What is group member 1's final payoff in Tokens?

   f. What is group member 2's final payoff in Tokens?

   g. What is group member 6's final payoff in Tokens?

Part 3

6. Suppose the amounts are like in the previous example, yet group member 1 contributes nothing instead of 500 Tokens as before. Therefore, in total the following amounts have been contributed to the project:
   - Group member 1 has contributed 0 Tokens,

- Group members 2, 3 and 4 each have contributed 100 Tokens,
- Group member 5 has contributed 250 Tokens,
- Group member 6 has contributed 0 Tokens.

a. What is the probability that the loss event does not occur?

b. Suppose that no group member has spent any Tokens on reducing the number of Tokens in other group members' personal accounts. Thus, all group members' personal accounts will be increased by 100 Tokens. What is group member 1's final payoff in Tokens if the loss event does not occur?

c. What is group member 1's final payoff in Tokens if the loss event does not occur?

S6 Questionnaire

N	Question	Answers
1	Age	Open question
2	Sex	O Female O Male
3	Which degree are you attending?	O economics or business O mathematics or engineering O natural sciences O medicine O social sciences O humanities O arts O other; specify
4	Please indicate your grade point average	Open question
5	In which city were you born?	Open question
6	Did you take part in university exchange programs?	Open question
7	If yes, for how long?	Open question
8	How many years overall have you resided outside Russia (for Russian version) or Germany (for German version)?	Open question
9	In which country was your father born?	Open question
10	In which country was your mother born?	Open question
11	Please indicate how many older siblings you have	Open question
12	Please indicate how many younger siblings you have	Open question
13	Are you married?	O yes O no
14	How tall are you?	Open question
15	How much do you know about global warming or climate change?	O A great deal O A fair amount

		O Only a little O Not at all
16	How much do you worry about global warming or climate change?	O A great deal O A fair amount O Only a little O Not at all
17	Do you think that global warming will pose a serious threat to you or your family in your lifetime?	O yes O no
18	Temperature rise is a part of global warming or climate change. Do you think rising temperatures are a result of human activities, a result of natural causes, or both?	O Result of human activities O Result of natural causes O Both
19	Have you avoided using certain products that harm the environment in the past year?	O yes O no
20	Have you been active in a group or organization that works to protect the environment in the past year?	O yes O no
21	Have you tried to use less water in your household in the past year?	O yes O no
22	Have you voluntarily recycled newspapers, glass, aluminum, motor oil, or other items in the past year?	O yes O no
23	Please answer for each of the following actions whether you think it can always be justified, never be justified, or something in between: O Claiming government benefits to which you are not entitled O Avoiding a fare on public transport O Cheating on taxes if you have a chance O Someone accepting a bribe in the course of their duties O Homosexuality O Prostitution O Abortion O Divorce	Use the following scale, where 1 means “Never justifiable” and 5 means “Always justifiable”

	O Euthanasia—ending the life of the incurable sick O Suicide O For a man to beat his wife	
24	How proud are you to be Russian / German?	O Very proud O Quite proud O Not very proud O Not at all proud
25	People have different views about themselves and how they relate to the world. Please indicate how strongly you agree or disagree with each of the following statements about how you see yourself? O I see myself as a world citizen. O I see myself as part of my local community. O I see myself as part of the Russian (for Russian version) / German (for German version) nation. O I see myself as part of the Commonwealth of Independent States (for Russian version) / European Union (for German version). O I see myself as an autonomous individual.	Use the following scale, where 1 means "Strongly agree", 2 - "Agree", 3 - "Disagree" and 4 means "Strongly disagree"
26	What language do you normally speak at home?	O Russian (for Russian version) / German (for German version) O Other
27	Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?	Use the following scale:10 means that most people can be trusted and 1 means that you need to be very careful.
28	All things considered, how satisfied are you with your life as a whole these days?	Use the following scale: 10 means 'Completely satisfied' and 1 means 'Not at all satisfied'.
29	For each of the following organizations, state how much trust do you have in them. Answer using the following scale, where 1 means "No trust at all" and 5 means "Full trust".	O Armed forces O Police O Press O Television

		O Environmental organizations O Chancelor /President O Parliament O Government O Political parties O Justice system O The Churches O Migrants from other countries O European Union O Russians /Germans O United Nations
30	How do you see yourself? Are you generally a person who is fully willing to take risks or do you try to avoid taking risks?	Please tick a box on the scale below, where 0 means "fully try to avoid risk" and 10 means "fully prepared to take risks"
31	People can behave differently in different situations. How would you rate your willingness to take risks in the following areas? How are you prepared to take risks… O while driving? O in financial matters? O during leisure and sport? O in your occupation? O with your health? O your faith in other people?	Please tick a box on the scale below, where 0 means "risk averse" and 10 means "fully prepared to take risks"
32	How many inhabitants has the town where you lived at the age of 16?	Open question
33	What are your religious views?	O Atheist/agnostic O Catholic O Protestant O Orthodox O Muslim

		O Jewish O Hinduist O Buddist O Other:
34	Now I will briefly describe some people. Please read each description carefully and tick the box showing how much each person is or is not like you. 1 Thinking up new ideas and being creative is important to him/her. He/she likes to do things in his/her own original way. 2 It is important to him/her to be rich. He/she wants to have a lot of money and expensive things. 3 He/she thinks it is important that every person in the world should be treated equally. He/she believes everyone should have equal opportunities in life. 4 It's important to him/her to show his/her abilities. He/she wants people to admire what he/she does. 5 It is important to him/her to live in secure surroundings. He/she avoids anything that might endanger his/her safety. 6 He/she likes surprises and is always looking for new things to do. He/she thinks it is important to do lots of different things in life. 7 He/she believes that people should do what they're told. He/she thinks people should follow rules at all times, even when no one is watching. 8 It is important to him/her to listen to people who are different from him/her. Even when he/she disagrees with them, he/she still wants to understand them. 9 It is important to him/her to be humble and modest. He/she tries not to draw attention to himself/herself. 10 Having a good time is important to him/her. He/she likes to "spoil" himself/herself.	Use the following scale, where -1 means "Not at all similar to me", 0 - "Not similar to me ", 1 - "Somewhat similar to me", 2 - "To an extent similar to me", 3 - "Similar to me", and 4 means "Fully similar to me"

	11 It is important to him/her to make his/her own decisions about what he/she does. He/she likes to be free and not depend on others. 12 It's very important to him/her to help the people around him/her. He/she wants to care for their well-being. 13 Being very successful is important to him/her. He/she hopes people will recognise his/her achievements. 14 It is important to him/her that the government ensures his/her safety against all threats. He/she wants the state to be strong so it can defend its citizens. 15 He/she looks for adventures and likes to take risks. He/she wants to have an exciting life. 16 It is important to him/her always to behave properly. He/she wants to avoid doing anything people would say is wrong. 17 It is important to him/her to get respect from others. He/she wants people to do what he/she says. 18 It is important to him/her to be loyal to his/her friends. He/she wants to devote himself/herself to people close to him/her. 19 He/she strongly believes that people should care for nature. Looking after the environment is important to him/her. 20 Tradition is important to him/her. He/she tries to follow the customs handed down by his/her religion or his/her family. 21 He/she seeks every chance he/she can to have fun. It is important to him/her to do things that give him/her pleasure. 22 Religion plays an important role in his/her life. He/She tried to live up to his/her destiny. 23 He/She works hard, conscientiously and persistently. Punctuality and order are typical for him/her.	
35	How many times have you taken part in research on decision-making before?	Open question
36	Which is the highest level of education that your father achieved?	O Primary school

		O Secondary school O High school O Undergraduate degree O Master O Ph.D.
37	Which is the highest level of education that your mother achieved?	O Primary school O Secondary school O High school O Undergraduate degree O Master O Ph.D.
38	Which is your father's current job?	Open question
39	Which is your mother's current job?	Open question
40	Please write your household's yearly income, including all salaries, pensions, and other returns, net of taxes and other deductions.	Open question
41	Please write below your motivations for the decisions that you made during this research.	Open question
42	Please write below if you wish your opinions on this research.	Open question
43	In which city do you think the other lab was located?	Open question

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S7 List of Abbreviations

APLA = Average PLA = Average Probability of Loss Avoidance.

AS = Anti-social Sanctioning - instances in which an *ego* punished an *alter* who contributed no less than the group median.

B-treatments = Blind Treatments: Participants were not made aware that students from the other laboratory were actually from another country.

C = Total contributions by a group.

c_i = Individual contribution

c_{-i} = Strategy profile of the other players except *i*. $c_{-i} = (c_1, ..., c_{i-1}, c_{i+1}, ..., c_n)$

CRSD = Collective Risk Social Dilemma.

CS = Cooperative Solution: It takes the perspective of the entire group and maximizes the total sum of expected monetary payoffs.

GER_NAT_NS = Within-country treatments in Germany without sanctions.

GER_NAT_S = Within-country treatments in Germany with sanctions.

INT = International Level of Interaction.

INT_B_NS = International (between-countries) treatments without sanctions with "blind" interaction when participants did not know that they were interacting with people from another country.

INT_B_S = International (between-countries) treatments with sanctions with "blind" interaction when participants did not know that they were interacting with people from another country.

INT_O_NS = International (between-countries) treatments without sanctions with "open" interaction when participants knew that they were interacting with people from another country.

INT_O_S = International (between-countries) treatments with sanctions with "open" interaction when participants knew that they were interacting with people from another country.

KW = Kruskal-Wallis test.

L = Percentage of a loss to each player's private account if $C < T$.

n = Number of persons in the group (in our experiment n=6).

NAT = National Level of Interaction (within Germany (GER) or Russia (RUS)).

NE = Nash Equilibrium: It identifies the set of individual actions such that each action is the best response to others' individual actions, assuming that each agent maximizes their own monetary payoff.

NS-treatments = Treatment without sanctions.

O-treatments = Open Treatments: German and Russian participants were informed that the other city was located either in Russia or in Germany, respectively.

P = Probability of Loss Avoidance.

PLA = Probability of Loss Avoidance.

PS = Pro-social Sanctioning - instances in which an *ego* punished an *alter* who contributed less than the group median.

RUS_NAT_NS = Within-country treatments in Russia without sanctions.

RUS_NAT_S = Within-country treatments in Russia with sanctions.

s = Share of the private account that is not lost in case the loss event occurs; $s = 1 - L$

Sanction_{t-1} = Variable identifying whether a participant had been sanctioned in the previous period.

S-treatments = Treatment with sanctions included at the second stage of each period of the experiment.

SM = Supplementary Materials.

T = Certain safety threshold equal 2100 tokens.

Tokens_Deducted(t-1) = Amount of tokens deducted from a participant's account in the previous period.

w = Initial endowment in each period, equal to 60 tokens in NS-treatments or 50 tokens at the first stage plus 10 tokens at the second stage in S-treatments.

WMW = Wilcoxon-Mann-Whitney tests.

ΔCooperation = Difference in Contribution to the collective fund between the current Period and the previous Period.

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1354

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