Supplementary Information for Does One Person Make a Difference?
Many-One Effects in Judgments of Prosocial Action

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1. Participants, Analyses, and Results for Experiments 1-6

1.1 Experiment 1

Participants

We aimed to recruit (before exclusions) 800 participants online via Connect. After manual exclusions for duplicate Connect IDs and IP addresses (n = 14) and incomplete entries (n = 9), our final sample was N = 799 (452 women, 328 men, M_{age} = 35.86, SD_{age} = 11.75). The survey automatically prevented participants who used a mobile device or did not pass the attention check question from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Connect.)

1.2 Experiment 2A

Participants

We aimed to recruit (before exclusions) 800 participants online via Prolific. After manual exclusions for participants who didn't consent to the survey (n = 6), incomplete entries (n = 22), duplicate IP addresses (n = 6), participants who spent longer than 35 seconds in the CAPTCHA task (n = 65), failed the attention check (n = 14) or one of the four comprehension check questions (n = 30), our final sample was N = 670 (402 women, 261 men, M_{age} = 41.98, SD_{age} = 14.37). The survey automatically prevented participants who used a mobile device from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Prolific.)

Supplementary Analyses and Results

In the analysis, response options were coded as 1 for "benefits outweigh costs" (i.e. benefits to people in need outweigh personal costs to donors), -1 for "costs outweigh benefits" (i.e. personal costs to donors outweigh benefits to people in need) and 0 for "not sure".

A non-preregistered independent t test, comparing participants' responses from the first condition that they saw did not find a significant difference between participants' responses in the *many* (80.1% benefits outweigh costs, 13.6% costs outweigh benefits, 6.3% not sure) and *one* (75.5% benefits outweigh costs, 16.2% costs outweigh benefits, 8.3% not sure) conditions, $t(666.8) = -1.27$, $p = .203$, $d = -0.10$, 95% CI [-0.25, -0.05]).

We also conducted a non–preregistered regression with the *many* vs. *one* condition, first vs. second judgment, and their interaction as predictors, clustering standard errors by participant (Table S1). Judgment number did not significantly predict participants' responses, however, the interaction of judgment number and condition was significant, that is, there was a larger many-one effect in their second judgment.

Table S1

Results of Regression Analyses in Study 2A

Dependent variable: are benefits or costs bigger 1 = benefits outweigh costs, 0 = not sure, -1 = costs outweigh benefits				
Independent variables	*b*	clustered *SE*	*t*	*p*

Condition: *one* (-.5) vs. *many* (.5)	0.18	0.03	5.57	< .001
Judgment number: first (-.5) vs. second (.5)	-0.01	0.03	-0.39	.698
Interaction: condition × judgment number	0.22	0.09	2.33	.020
Constant	0.62	0.02	26.64	< .001

Observations	1,340
Clusters	670
Adjusted R^2	.018

1.3 Experiment 2B

Participants

We aimed to recruit (before exclusions) 800 participants online via Prolific. After manual exclusions for participants who didn't consent to the survey (n = 11), participants who spent longer than 35 seconds in the CAPTCHA task (n = 122), failed the attention check (n = 13) or one of the four comprehension check questions (n = 70), our final sample was N = 595 (365 women, 220 men, M_{age} = 41.57, SD_{age} = 14.24). The survey automatically prevented participants who used a mobile device from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Prolific.)

Supplementary Analyses and Results

As in 2A, response options were coded as 1 for "benefits outweigh costs", (i.e. benefits to people in need outweighs personal costs to donors), -1 for "costs outweigh benefits" (i.e. personal costs to donors outweigh benefits to people in need) and 0 for "not sure".

In addition to the preregistered analyses reported in the main article, we conducted a non-preregistered paired t test comparing the *fewer* and *more* conditions. Across all participants, benefits were judged greater in the *more* condition than in the *fewer* condition, $t(594) = -5.36$, $p < .001$, $d = -0.22$, 95% CI [-0.31, -0.14].

To look at between-subjects effects, we conducted an independent t test, comparing the responses of the participants who saw the scenario with one actor for their first judgment (71.0% benefits outweigh costs, 20.0% costs outweigh benefits, 9.0% not sure) and participants who saw the scenario with 50,000 actors for their first judgment (81.4% benefits outweigh costs, 11.0% costs outweigh benefits, 7.6% not sure). Participants who saw the scenario with five actors first, regardless of which between-subjects condition they were in, were excluded. Participants showed a significant between-subjects many-one effect, $t(292.39) = -2.28$, $p = .023$, $d = -0.26$, 95% CI [-0.49, -0.03].

We also conducted a non–preregistered regression with the *fewer* vs. *more* condition, first vs. second judgment, and their interaction as predictors (Table S2), using judgments made about either one actor or 50,000 actors, excluding again judgments made about five actors. There was a significant main effect of the *fewer* vs. *more* condition, however, judgment number, nor its interaction with condition did not significantly predict participants' responses.

Table S2

Results of Regression Analyses in Study 2B

Dependent variable: are benefits or costs bigger 1 = benefits outweigh costs, 0 = not sure, -1 = costs outweigh benefits				
Independent variables	*b*	*SE*	*t*	*p*
Condition: *fewer* (-.5) vs. *more* (.5)	0.17	0.06	2.82	.005
Judgment number: first (-.5) vs. second (.5)	0.03	0.06	0.45	.656
Interaction: condition × judgment number	-0.05	0.12	-0.42	.672
Constant	0.61	0.03	20.74	< .001
Observations	595			
Adjusted R^2	.009			

1.4 Experiment 2C

Participants

We aimed to recruit (before exclusions) 400 participants online via Prolific. After manual exclusions for participants who did not consent to the survey (n = 19), duplicate IP addresses (n = 2), participants who spent longer than 35 seconds in the CAPTCHA task (n = 102), failed the attention check (n = 13) or either of the comprehension check questions (n = 27), our final sample was N = 254 (127 women, 123 men, M_{age} = 41.52, SD_{age} = 13.39). The survey automatically prevented participants who used a mobile device from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Prolific.)

Supplementary Analyses and Results

The dependent variables in the study were on a 0-100 scale, reflecting the perceived societal significance of the costs and benefits associated with taking action to help people in need. Participants made four consecutive judgments, the order of which was randomized and counterbalanced across participants.

In addition to the preregistered regression reported in the main article, we conducted four non-preregistered regressions looking at simple effects of *many* vs. *one* for the *costs* and *benefits* conditions separately, and *costs* vs. *benefits* in the *many* and *one* conditions separately, clustering standard errors by participant. The *one* vs. *many* contrast significantly predicted perceived societal significance of *costs*, b = 25.81, clustered SE = 1.98, $t(253)$ = 13.04, $p < .001$, and *benefits*, b = 31.02, clustered SE = 2.00, $t(253)$ = 15.53, $p < .001$. And, as reported in the main article, *costs* (-.5) vs. *benefits* (.5) significantly predicted perceived societal significance in the *many* condition, b = 3.52, clustered SE = 1.35, $t(253)$ = 2.61, p = .009, but not in the *one* condition, b = -1.69, clustered SE = 1.69, $t(253)$ = -1.00, p = .318.

To explore order effects, we first looked at participants' first judgments (see Table S3 for means and standard errors by question). In a non-preregistered analysis, we ran the same regression as in our main analysis, but with the first judgment only. We only observed an effect of *many* vs. *one*, with no effect of *costs* vs. *benefits* or interaction (see Table S4)—unsurprisingly, given the noisiness of the dependent variable and the between-subjects nature of this first-judgment analysis.

Table S3

Descriptive Statistics of Participants' First Judgments Across Conditions

Condition	Judgment Type	Mean	SD
Many	Costs	71.8	20.6
	Benefits	72.4	18.4
One	Costs	57.5	33.9
	Benefits	52.4	32.3

Table S4

Results of Regression Analyses of the First Judgment in Study 2C

Dependent variable: perceived societal significance (0-100) 0 = completely insignificant, 100 = as significant as it could possibly feel				
Independent variables	*b*	*SE*	*t*	*p*
One (-.5) vs. *many* (.5)	17.14	4.31	5.03	< .001
Costs (-.5) vs. benefits (.5)	-2.25	3.41	-0.66	.511
Interaction: *one* vs. *many* × costs vs. benefits	5.72	6.82	0.84	.402
Constant	63.54	1.71	37.27	< .001
Observations	254			
Adjusted R^2	.091			

We also conducted a non–preregistered regression with the *many* vs. *one* condition, *costs* vs. *benefits*, judgment order, and their interactions as predictors, clustering standard errors by participant (Table S5). The idea was to see if the *one* vs. *many* × *cost* vs. *benefits* interaction would increase across participants' four judgments, measured by the three-way interaction with judgment order, which was not significant.

Table S5

Results of Regression Analyses in Study 2C

Dependent variable: perceived societal significance (0-100) 0 = completely insignificant, 100 = as significant as it could possibly feel				
Independent variables	*b*	clustered	*t*	*p*

		SE		
One (-.5) vs. *many* (.5)	28.31	1.78	15.89	< .001
Costs (-.5) vs. *benefits* (.5)	0.71	1.24	0.57	.568
Judgment number (-1.5, -0.5, 0.5, 1.5)	-1.45	0.64	-2.28	.022
Interaction: *one* vs. *many* × *costs* vs. *benefits*	6.00	1.88	3.19	.001
Interaction: *one* vs. *many* × judgment number	4.34	1.57	2.76	.006
Interaction: *costs* vs. *benefits* × judgment number	0.99	1.82	0.55	.586
Interaction: *one* vs. *many* × *costs* vs. *benefits* × judgment number	2.49	3.51	0.71	.479
Constant	60.66	1.36	44.56	< .001
Observations	508			
Clusters	254			
Adjusted R^2	.203			

1.5 Experiment 2D

Participants

We aimed to recruit (before exclusions) 400 participants online via Positly. After manual exclusions for participants who failed either of the two comprehension questions at the beginning of the survey (n = 28), our final sample was N = 372 (178 women, 195 men, M_{age} = 46.09, SD_{age} = 12.12). Although we also preregistered to exclude repeat responses, incomplete responses, or responses that failed the attention check question, there were no such responses in the data.

Supplementary Analyses and Results

As in 2A and 2B, response options were coded as 1 for "benefits outweigh costs" (i.e. benefits to people in need outweighs personal costs to donors), -1 for "costs outweigh benefits" (i.e. personal costs to donors outweigh benefits to people in need), and 0 for "not sure".

To test for a between-subjects many-one effect, we conducted a non-preregistered independent t test, comparing participants' responses from the first condition that they saw. Even between subjects, participants were more likely to think that benefits outweighed costs in the *many* condition (61.7% yes, 10.0% no, 28.3% not sure) than in the *one* condition (58.9% yes, 23.4% no, 17.7% not sure), $t(361.6) = 2.07$, $p = .039$, $d = 0.21$, 95% CI [0.01, 0.42]).

To further explore order effects, we conducted a non-preregistered regression with condition (*one* vs. *many*), judgment number and their interaction as predictors, clustering standard errors by participant (Table S6). We found no significant interaction, although, directionally, the many-one effect is larger in the second judgment.

Table S6

Results of Regression Analyses in Study 2D

Dependent variable: are benefits or costs bigger 1 = benefits outweigh costs, 0 = not sure, -1 = costs outweigh benefits				
Independent variables	*b*	clustered *SE*	*t*	*p*
Condition: *one* (-.5) vs. *many* (.5)	0.22	0.05	4.30	< .001
Judgment number: first (-.5) vs. second (.5)	-0.01	0.05	-0.19	.849
Interaction: condition × judgment number	0.12	0.13	0.97	.333
Constant	0.43	0.03	13.66	< .001

Observations	744
Clusters	372
Adjusted R^2	.017

1.6 Experiment 2E

Participants

We aimed to recruit (before exclusions) up to 3,000 participants online via CloudResearch Connect. We used the Pre-Registered Interim Analysis Design (PRIAD) procedure (André & Reinholtz, 2024) to determine our sample. Following the procedure, we preregistered our maximum sample as 3000, with a stopping point at 1500. At the stopping point (and after conducting preregistered exclusions, see below), we ran our preregistered *t* test. Because the *p* value was above the reduced, preregistered significance threshold of .029, we continued data collection. We then repeated the *t* test after collecting the full 3,000 sample, determining significance using the reduced, preregistered significance threshold of .029.

After manual exclusions for duplicate Connect IDs ($n = 4$) and IP addresses ($n = 4$), participants who failed the attention check question at the end of the survey ($n = 29$) or either of the two comprehension questions at the beginning of the survey ($n = 255$), our final sample was $N = 2{,}731$ (1,563 women, 1,109 men, $M_{age} = 40.41$, $SD_{age} = 13.16$). (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Connect.)

1.7 Experiment 2F

Participants

We aimed to recruit (before exclusions) 800 participants online via Connect CloudResearch. After manual exclusions for incomplete entries (n = 14) and participants who failed the attention check (n = 14), our final sample was N = 791 (453 women, 311 men, M_{age} = 35.96, SD_{age} = 11.64). (Note, our exclusions and final sample add up to more than our intended sample size because many excluded responses were not submitted for payment on Connect.)

1.8 Experiment 3A

Participants

We aimed to recruit (before exclusions) 400 combined U.K. and U.S. participants online via Prolific. After manual exclusions for duplicate Prolific IDs and IP addresses (n = 14) and incomplete entries (n = 21), our final sample was N = 397 (269 women, 123 men, M_{age} = 42.91, SD_{age} = 15.13). The survey automatically prevented participants who used a mobile device or did not pass the attention check question from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because some excluded responses were not submitted for payment on Prolific.)

Supplementary Analyses and Results

Analyzing the questions on whether the commuter/commuters *should* walk (1 for "yes", 0 for "neither", and -1 for "no"), participants' views on whether a single individual or group should walk to work did not significantly differ, $t(396) = 1.64$, $p = .103$, $d = 0.07$, 95% CI [-0.01, 0.15]). When asked if a single individual should walk to work, 69% said yes, 15% said no, and 16% said neither. For the group of 10,000 people, 75% said yes, 16% said no, and 10% said neither. This result indicates a weaker many-one bias on moral judgments about what people *should* do. We speculate that costs and benefits are just two of many inputs into moral judgments, which might also depend on fairness and virtue, etc.

1.9 Experiment 3B

Participants

We recruited Chinese participants online via WenJuanXing. After manual exclusions for duplicate IP addresses (n = 118), incomplete entries (n = 114) and writing nonsensical free response answers (e.g., "1111" or "world peace" or an answer that contradicted their response, n = 50), our final sample was N = 129 (55 women, 74 men, M_{age} = 34.13, SD_{age} = 7.57). A hypothesis-blind Mandarin-speaking research assistant reviewed free responses and determined exclusions prior to us conducting any analyses. The survey automatically prevented participants who used a mobile device or did not pass the attention check question from continuing with the survey. Statistical significance remains the same whether we exclude participants based on their free response answers or not.

Unintentionally, the survey did not enforce responding to the collectivism and individualism scales for the first week of data collection, and so *all*(!) participants skipped these questions. After amending the survey to force responses, 101 participants responded to the scales and this sample was used in the exploratory regression analyses with these measures.

Supplementary Analyses and Results

Analyzing the questions on whether the commuter/commuters *should* walk (1 for "yes", 0 for "neither", and -1 for "no"), participants' views on whether a single individual or group *should* walk to work did not significantly differ, although the result did reach marginal significance $t(128) = 1.74$, $p = .084$, $d = 0.14$, 95% CI [-0.02, 0.30]). When asked if a single individual should walk to work, 43% said yes, 52% said no, and 5% said neither. For the group of 10,000 people, 44% said yes, 40% said no, and 16% said neither. This result is consistent with that in Experiment 3A.

The collectivism scale (6 items; $\alpha = .76$) predicted both evaluating benefits to be worth costs (b = 0.42, clustered SE = 0.10, $t(100)$= 4.07, $p < .001$) and that people *should* walk to work (b = 0.44, clustered SE = 0.14, $t(100) = 3.12$, $p = .002$). The individualism scale (5 items; $\alpha = .67$[1]) did not predict evaluating benefits to be worth costs (b = 0.08, clustered SE = 0.14, $t(100) = 0.54$, $p = .592$) nor that people *should* walk to work (b = -0.02, clustered SE = 0.14, $t(100) = -0.16$, $p = .870$). The many-one effect (measured by subtracting the dependent variable in the *one* condition from that in the *many* condition) was not predicted by collectivism (b = -0.04, SE = 0.10, $t(100) = -0.39$, p = .699) or individualism (b = 0.01, SE = 0.11, $t(100) = 0.12$, $p = .905$).

[1] Cronbach's alpha for the full 6-item individualism scale was .60. We dropped one item, 'I feel sick when I'm like everyone else in my group,' to improve the reliability of the scale.

1.10 Experiment 3C

Participants

Participants were offered the chance to participate in an experiment during their visit to Edinburgh Zoo. Parents or guardians were approached and told about the experiment, provided signed consent, and were asked not to guide or interfere with their child's answers. Questions were presented on tablets and accompanied with pictures illustrating the scenarios (see Section 2.10 for full materials). In exchange for participating, children were given a small reward (a small toy). All participants were tested by trained experimenters between April and July 2023.

In line with our preregistration, we aimed to recruit 100 children between the age of 5-11 years[2], with an option to stop at 50 if the *p* value of our preregistered analysis was below a critical threshold of .0057 to avoid a longer-than-necessary recruitment process. To maintain the false positive rate at .05, we set a stricter critical threshold of .0492 for the full sample of 100 based on O'Brien & Fleming (1979). After collecting 50 participants (29 girls, 21 boys, M_{age} = 7.06, SD_{age} = 1.77) who met all our preregistered inclusion criteria (passed all content checks, correct age, and not coached by their parents), and excluding 20 participants on this basis, we found that the key *p* value was below the critical threshold ($p < .0001$) and ceased further collection. The majority of the sample consisted of White British individuals ($n = 35$), with the remainder identifying as White Scottish (5), White Other (2), White Canadian (1), American (1), Pakistani (1), South African (1), Chinese British (1), Indian British and White British (1). Another 2 opted not to provide their ethnicity.

Supplementary Analyses and Results

Here, we report our preregistered analysis to support the simplified by-scenario analysis in the Results section of Experiment 3C in the main article. As preregistered, we conducted a regression analysis with the scenario type (rubbish, traffic) and condition (*one*, *many*) as predictors and the decision as the outcome variable, clustering standard errors by participant. Condition was a significant predictor, such that children were more likely to say acting was worth the effort in the *many* condition than in the *one* condition, ($b = 0.53$, clustered $SE = 0.11$, $t(49) = 4.67$, $p < .001$). Scenario type was not a significant predictor, ($b = -0.15$, clustered $SE = 0.10$, $t(49) = -1.54$, $p = .124$).

[2] We initially included 5 year olds but partway through collection opted (and updated our preregistration) to exclude 5 year olds due to more than 50% failing content checks.

To explore if the many-one effect was moderated by the children's age, we conducted a non-preregistered regression with the decision as the outcome variable and condition, age, and their interaction as predictors, clustering standard errors by participant. We found a significant interaction with age, such that the many-one effect was greater for older participants (b = 0.14, clustered SE = 0.06, $t(49) = 2.21$, $p = .027$).

We also explored order effects in non-preregistered analyses. Restricting to only the very first judgment participants made (first condition in the first scenario), the many-one effect was, although directional, not significant, $t(30.5) = 0.37$, $p = .715$. In the second judgment (i.e., the second condition of the first scenario), it was highly significant, $t(44.1) = 4.36$, $p < .001$. Using the first scenario only, but both judgments in that scenario, we conducted a non-preregistered regression with the decision as the outcome variable and *many* vs. *one* condition, first vs. second judgment, and their interaction as predictors, clustering standard errors by participant. We replicated the many-one effect, b = 0.49, t(49) = 3.29, clustered SE = 0.21, $p = .001$ and found no main effect of first vs. second judgment, b = 0.16, t(49) = 1.07, clustered SE = 0.15, $p = .283$. Interestingly, we did find an interaction such that the many-one effect was significantly larger in the second judgment, b = 0.81, clustered SE = 0.34, $t(49) = 2.39$, $p = .017$.

1.11 Experiment 4

Participants

We aimed to recruit (before exclusions) 800 U.S. participants online via Prolific. After manual exclusions for duplicate IP addresses (n = 6), no remaining participants had incomplete responses, so we did not perform any such exclusions. Our final sample was N = 798 (376 women, 406 men, M_{age} = 41.76, SD_{age} = 13.43). The survey automatically prevented participants who used a mobile device or did not pass the attention check question from continuing with the survey. (Note, our exclusions and final sample add up to more than our intended sample size because some excluded responses were not submitted for payment on Prolific.)

Supplementary Analyses and Results

Here, we report the results of the hypothetical judgment. Response options were coded as 1 for "yes, the benefits are greater", 0 for "not sure whether benefits or costs are greater", and -1 for "no, the cost is greater". In a preregistered paired t test, we found that participants considered the benefits of the donation to outweigh the costs more for a group than for a single individual, $t(797) = 7.47$, $p < .001$, $d = 0.25$. When asked if the benefits would outweigh the costs for a single individual, 47% said yes, 16% said no, and 36% were undecided. For the group of 10 people, 58% said yes, 10% said no, and 32% were undecided.

1.12 Experiment 5

Participants

We aimed to recruit 500 local government representatives with CivicPulse, a nonprofit organization that conducts national surveys of local government officials from the United States. All participants contributed to the experiment on a volunteer basis and were not compensated for their participation. Our final sample was $N = 516$ (166 women, 343 men, 7 undisclosed). 5 extra participants took the survey but did not respond to our dependent variable questions and so we excluded them from our demographics reporting. See Table S7 for a breakdown of participants' birth years (data collected in October and November 2022). Fifty-three participants (11%) were part of an ethnic minority. Participants' political party affiliation was the following: Republican (35%), Democrat (32%), independent (28%), and other parties (4%).

Table S7

Distribution of Participants by Year of Birth

Age group	*n*	%	Age group	*n*	%
1931 - 1935	2	0.4	1966 - 1970	53	10.3
1936 - 1940	7	1.4	1971 - 1975	42	8.1
1941 - 1945	26	5.0	1976 - 1980	28	5.4
1946 - 1950	73	14.1	1981 - 1985	28	5.4
1951 - 1955	73	14.1	1986 - 1990	11	2.1
1956 - 1960	72	14.0	1991 - 1995	7	1.4
1961 - 1965	81	15.7	NA	13	2.5

We preregistered to use all responses with no comprehension questions or exclusions. This experiment was part of a larger survey, so participants answered questions about other scenarios unrelated to this experiment.

Supplementary Analyses and Results

Response options were coded as 1 for "benefits of the policy are greater than costs", -1 for "costs of the policy are greater than benefits" and 0 for "both are equal".

To look at between-subjects effects, we conducted a non-preregistered Welch's *t* test, comparing the responses of the participants who saw the scenario with *one* local government for their first judgment (33.0% benefits outweigh costs, 44.6% costs outweigh benefits, 22.5% equal) and participants who saw the scenario with *all* local governments for their first judgment (33.3% benefits outweigh costs, 41.4% costs outweigh benefits, 25.3% equal). There was no significant between-subjects many-one effect, $t(512.4) = 0.47$, $p = .640$, $d = 0.04$, 95% CI [-0.13, 0.21].

We also ran a non-preregistered regression with condition (*one* vs. *many*), judgment number and their interaction as predictors, clustering standard errors by participant (Table S8). We found a significant interaction effect, supporting the observation that the many-one effect emerged more strongly in participants' second judgment.

Table S8

Results of Regression Analyses in Study 5

Dependent variable: are benefits or costs bigger 1 = benefits outweigh costs, 0 = equal, -1 = costs outweigh benefits					
Independent variables		*b*	clustered *SE*	*t*	*p*
Condition: *one* (-.5) vs. *many* (.5)		0.24	0.04	6.82	< .001
Judgment number: first (-.5) vs. second (.5)		-0.00	0.04	-0.02	.980
Interaction: condition × judgment number		0.42	0.13	3.20	.001
Constant		0.43	0.03	13.66	.003
Observations	1,032				
Clusters	516				
Adjusted R^2	.032				

1.13 Experiment 6

Participants

We aimed to recruit 300 legal experts on a voluntary basis by email starting in August 2023. We originally preregistered that we would recruit only judges until October 30th, 2023, after which point we would recruit the remaining sample through a combination of judges, lawyers, law academics, and law students. However, our initial response rate from judges was very low (less than 20 valid responses in the first month) so we began recruiting lawyers on September 24th, 2023. Our sample (N = 300) contained 263 lawyers and 37 judges (77 women, 179 men, M_{age} = 59.76, SD_{age} = 11.55).

After collecting data from 300 unique IP addresses, we observed that some responses from duplicate IPs nonetheless had distinct email addresses and demographics; presumably, some participants completed the survey at the same workplace location. Thus, we also repeated our analyses including all responses with a unique email address or a unique combination of age, gender, and IP address, which yielded a final sample of 309 valid participants (82 women, 183 men, M_{age} = 59.54, SD_{age} = 11.57), containing 45 judges and 264 lawyers. Including repeat IP addresses did not change the significance of the preregistered analysis (see below).

This experiment was part of a larger survey, so participants also answered questions about 5 other projects in addition to this experiment (all sections in randomized order). We included responses from participants who did not complete the entire survey in our final analysis as long as they answered the questions relevant for this experiment.

Supplementary Analyses and Results

Here, we report some exploratory analyses. As in the main analysis in the Experiment 6 Results section in the main article, response options were coded as 1 for "yes" (i.e., benefits are more important), 0 for "equal", and -1 for "no" (i.e., costs are more important). First, we replicated our main result in a between-subjects analysis using only the first responses from participants who saw the *many* condition first (47% yes, 16% no, 37% equal) and participants who saw the *one* condition first (34% yes, 28% no, 38% equal), $t(295.61) = -2.85$, $p = .005$, $d = 0.33$, 95% CI[0.10, 0.56].

We then ran a non-preregistered regression with condition (*one* vs. *many*), judgment number and their interaction as predictors, clustering standard errors by participant (Table S9). Participants were on average slightly more likely to think that costs were more important in their second judgment, b = -0.07, clustered SE = 0.04, $t(599) = -1.77$, $p = .077$. Participants were also marginally more likely to

respond in line with a many-one effect in their second judgment, b = 0.28, clustered SE = 0.14, $t(599) = 1.80$, $p = .072$.

Table S9

Results of Regression Analyses in Study 6

Dependent variable: are benefits or costs bigger 1 = benefits outweigh costs, 0 = equal, -1 = costs outweigh benefits					
Independent variables		*b*	clustered *SE*	*t*	*p*
Condition: *one* (-.5) vs. *many* (.5)		0.39	0.04	9.76	< .001
Judgment number: first (-.5) vs. second (.5)		-0.07	0.04	-1.77	.077
Interaction: condition × judgment number		0.28	0.14	1.80	.072
Constant		0.15	0.04	3.82	< .001
Observations	600				
Clusters	300				
Adjusted R^2	.007				

In further exploratory analyses, we tested for the many-one effect in judges and lawyers separately. Lawyers (n = 263, 158 men, 68 women, M_{age} = 60.76, SD_{age} = 11.15) believed that the benefits of the ruling outweighed the costs more in the *many* condition (49% yes, 15% no, 35% equal) than in the *one* condition (30% yes, 38% no, 32% equal, $t(262) = 6.18$, $p < .001$, $d = 0.54$, 95% CI[0.36, 0.71]). Judges (n = 37, 21 men, 9 women, M_{age} = 53.56, SD_{age} = 12.26) also appeared to believe the benefits of the ruling outweighed the costs more in the *many* condition (46% yes, 8% no, 46% equal) than in the *one* condition (35% yes, 19% no, 46% equal), but as our sample only included 37 judges, we were probably underpowered, and this difference did not reach statistical significance, $t(36) = 1.48$, $p = .147$, $d = 0.32$, 95% CI[-0.15, 0.78].

In an exploratory analysis including responses with duplicate IP addresses but distinct demographics (as described above), we found again that participants believed action was more worthwhile in the *many* condition (49% yes, 14% no, 37% equal) than in the *one* condition (30% yes, 35% no, 34% equal, $t(308) = 6.71$, $p < .001$, $d = 0.52$). In an analysis using only lawyers but including duplicate IP addresses as specified, we found again that lawyers (n = 264, 159 men, 68 women, M_{age} = 60.78, SD_{age} = 11.12) believed the benefits of the ruling outweighed the costs more in the *many* condition

(49% yes, 15% no, 36% equal) than in the *one* condition (30% yes, 38% no, 33% equal, $t(263) = 6.42$, $p < .001$, $d = 0.54$). Similarly, in an analysis using only judges' responses but including duplicate IP addresses with distinct demographics or emails ($n = 45$, 24 men, 14 women, $M_{age} = 53.05$, $SD_{age} = 11.79$), we found that judges thought the benefits outweighed the costs more in the *many* (47% yes, 9% no, 44% equal) than in the *one* condition (33% yes, 22% no, 44% equal), but this effect was only marginally significant, $t(44) = 2.01$, $p = .050$, $d = 0.38$.

2. Full Materials for Experiments 1-6

2.1 Experiment 1

[The survey begins with participants consenting to the research, followed by a CAPTCHA task, followed by an attention check. We start with the attention check page here.]

In this survey, you will answer questions about costs and benefits. Please answer the next question accordingly.

Based on the description above, what will this survey be about?

[ ] Evaluating a product
[ ] Watching a video
[ ] Costs and benefits
[ ] Reading a story
[ ] Playing a game

[page break]

[The following pages were only displayed if participants passed the attention check.]

Thank you for reading carefully! Please continue to start the survey.

[Each participant read about one scenario and responded to either the many or the one condition question. The text for the four scenarios — vegetarianism, boycotting Amazon, protesting child labor, or commuting — and the many and one conditions is listed below.]

[vegetarianism scenario]

For background, as of 2019, most farm animals in the US are factory farmed. Factory farming is generally considered to be bad for animal welfare and the environment. (See https://www.sentienceinstitute.org/us-factory-farming-estimates for more information if you are interested.)

[page break]

[for participants assigned to the one *condition only]*

Imagine <u>one</u> person from a neighborhood like yours.

Imagine now that this <u>one</u> person refrains from eating all meat and animal products.

Would the potential benefits for animal welfare and the environment be worth more than the total costs to this <u>one</u> person's welfare (i.e., this <u>one</u> person missing out on eating all meat and animal products)?

[ ] Yes
[ ] No

[for participants assigned to the many *condition only]*

Imagine 500,000 typical people from neighborhoods like yours.

Imagine now that all 500,000 people refrain from eating all meat and animal products.

Would the potential benefits for animal welfare and the environment be worth more than the total costs to all of these 500,000 people's welfare (i.e., all 500,000 people missing out on eating all meat and animal products)?

[ ] Yes
[ ] No

[protesting child labor scenario]

For background, the production of cocoa in west Africa has long been linked to human rights abuses. Recently, Nestlé, Cargill, Barry Callebaut, Mars, Olam, Hershey and Mondelēz have been accused of using child labor on their cocoa farms.

[page break]

[for participants assigned to the one *condition only]*

Imagine one person from a neighborhood like yours.

Imagine now that this one person joins [126,532/626,531] original protesters in a protest against these companies.

Would the potential benefits for human rights from one extra person protesting these companies be worth more than the total costs to this one person's welfare (i.e., this one person spending a whole day protesting)?

[ ] Yes
[ ] No

[for participants assigned to the many *condition only]*

Imagine 500,000 typical people from neighborhoods like yours.

Imagine now that all 500,000 people join 126,532 original protesters in a protest against these companies.

Would the potential benefits for human rights from 500,000 extra people protesting these companies be worth more than the total costs to all of these 500,000 people's welfare (i.e., all 500,000 people spending a whole day protesting)?

[ ] Yes
[ ] No

[commuting scenario]

For background, as of 2019, vehicles are the single largest contributor to air pollution in the US, causing about one-third of all air pollution. Car pollutants are generally considered harmful to the environment.

[page break]

[for participants assigned to the one *condition only]*

Imagine one person from a neighborhood like yours.

Imagine now that this one person refrains from driving to work by taking public transportation, bicycling, or walking.

Would the potential benefits for the environment from not driving be worth more than the total costs to this one person's welfare (i.e., this one person spending more time to get to work)?

[ ] Yes
[ ] No

[for participants assigned to the many *condition only]*

Imagine 500,000 typical people from neighborhoods like yours.

Imagine now that all 500,000 people refrain from driving to work by taking public transportation, bicycling, or walking.

Would the potential benefits for the environment from not driving be worth more than the total costs to all of these 500,000 people's welfare (i.e., all 500,000 people spending more time to get to work)?

[ ] Yes
[ ] No

[boycotting Amazon scenario]

For background, the convenience and ubiquity of shopping on Amazon has hurt many local businesses that have struggled during the pandemic. Some people have even argued that Amazon is a monopoly with unchecked power.

[page break]

[for participants assigned to the one *condition only]*

Imagine one person from a neighborhood like yours.

Imagine now that this one person participates in a boycott of Amazon, which currently has [1,126,532/1,626,531] boycotters, by refusing to purchase goods from there.

Would the potential benefit of reducing Amazon's monopoly power from the extra one person boycotting Amazon be worth more than the total costs to this one person's welfare (i.e., this one person spending extra time and money to buy the goods they need)?

[ ] Yes
[ ] No

[for participants assigned to the many *condition only]*

Imagine 500,000 typical people from neighborhoods like yours.

Imagine now that all 500,000 people participate in a boycott of Amazon, which currently has 1,126,532 boycotters, by refusing to purchase goods from there.

Would the potential benefits of reducing Amazon's monopoly power from the extra 500,000 people boycotting Amazon be worth more than the total costs to all of these 500,000 people's welfare (i.e.,

all 500,000 people spending extra time and money to buy the goods they need)?

[ ] Yes
[ ] No

[page break]

What is your age?

[select from a dropdown]

What is your gender? *[options displayed in random order]*

[ ] Man
[ ] Woman
[ ] Other
[ ] Prefer not to answer

2.2 Experiment 2A

[The survey begins with participants consenting to the research and completing a CAPTCHA.

We counterbalanced within subjects whether participants saw the one *or* many *question first. In this example, the* one *condition is presented first.*

We also counterbalanced between subjects whether the costs or benefits of the donation are described first and listed first in the response options. In this example, the costs are presented first.

In the many *condition, the number of prior helpers was always 1,356; in the* one *condition, the number of prior helpers was randomly selected from the following values: 1,356; 1,399; 1,499; 1,599; 1,699; 1,799; 1,899; and 1,955. In the example below, the number of prior helpers is denoted by n*, *note that it may be a different number in the* one *and* many *conditions.]*

*[*one *condition]*

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Please select the statement that accurately describes the scenario. *[options displayed in random order]*

[ ] *n* people have committed to making a box so far and they will go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] 10,000 people have committed to making a box so far
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "*n* people have committed to making a box so far and they will go first to where they are most needed."

[page break]

Please see the scenario again below in grey, with new details in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there is one extra person (from a neighborhood similar to yours) who decides to make a box. The one extra person makes the box independently, **without** communicating with anyone else who is also making one or even knowing how many of them there are.

Please select the statement that accurately describes the situation of this one extra person. *[options displayed in random order]*

[ ] This one extra person makes the box independently
[ ] This one extra person knows some of the people who are already making boxes
[ ] This one extra person communicates with others who are making boxes
[ ] This one extra person knows how many other people are making boxes

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "This one extra person makes the box independently."

[page break]

Please see the scenario again below in grey, with the key question in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there is one extra person (from a neighborhood similar to yours) who decides to make a box. The one extra person makes the box independently, without communicating with anyone else who is also making one or even knowing how many of them there are.

Now we want your opinion on something—there is no right or wrong answer. What do you think is bigger?

[ ] The **costs** to this **one** extra person of creating a box
[ ] Not sure
[ ] The **benefits** to the displaced population from this **one** extra box

[page break]

We will now repeat the scenario but this time with different numbers of people helping and ask you a few questions.

[page break]

*[*many *condition]*

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Please select the statement that accurately describes the scenario. *[options displayed in random order]*

[ ] *n* people have committed to making a box so far and they will go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] 10,000 people have committed to making a box so far
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "*n* people have committed to making a box so far and they will go first to where they are most needed."

[page break]

Please see the scenario again below in grey, with new details in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there are 600 extra people (each from different neighborhoods, similar to yours) who each decide to make a box. The 600 people each make the box independently, without communicating with each other or anyone else who is also making one or even knowing how many of them there are.

Please select the statement that accurately describes the situation of this one extra person. *[options displayed in random order]*

[ ] These 600 extra people make the boxes independently
[ ] These 600 extra people know some of the people who are already making boxes
[ ] These 600 extra people communicate with each other or the people who are already making boxes
[ ] These 600 extra people know how many other people are making boxes

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "These 600 extra people make the boxes independently."

[page break]

Please see the scenario again below in grey, with the key question in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there are 600 extra people (each from different neighborhoods, similar to yours) who each decide to make a box. The 600 people each make the box independently, without communicating with each other or anyone else who is also making one or even knowing how many of them there are.

Now we want your opinion on something—there is no right or wrong answer. What do you think is bigger?

[ ] The **costs** to these **600** extra people of creating extra boxes
[ ] Not sure.
[ ] The **benefits** to the displaced population from these **600** extra boxes

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

What is your age?
[select from a dropdown]

What is your gender?
[ ] Man
[ ] Woman
[ ] Non-binary or gender not listed
[ ] Prefer not to answer

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.3 Experiment 2B

[The survey begins with participants consenting to the research and completing a CAPTCHA.

We counterbalanced within subjects whether participants saw the fewer *or* more *question first. In this example, the* fewer *condition is presented first.*

We also counterbalanced between subjects whether fewer *and* more *conditions corresponded to 1 vs. 5 extra helpers (*one-five*), or 5 vs. 50,000 extra helpers (*five-50,000*). In this example, the* one-five *conditions are presented.*

We counterbalanced between subjects whether the costs or benefits of the donation are described first and listed first in the response options. In this example, the costs are presented first.

The number of prior helpers was determined as follows:

- *for 50,000 extra helpers, we randomized an integer between 100,000 and 149,999, which we call* $n_{50,000}$*;*
- *for 5 extra helpers (whether in the few or many condition), we added a random integer between 0 and 9,999, multiplied by 5, to* $n_{50,000}$*, which we call* n_5*;*
- *for 1 extra helper, we added a random integer between 0 and 4 to* n_5*, which we call* n_1*.]*

*[*fewer *condition]*

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, n_1 people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Please select the statement that accurately describes the scenario. *[options displayed in random order]*

[ ] n_1 people have committed to making a box so far and they will go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] Only 10,000 people have committed to making a box so far
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "n_1 people have committed to making a box so far and they will go first to where they are most needed."

[page break]

Please see the scenario again below in grey, with new details in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, n_1 people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there is 1 extra person (from a neighborhood similar to yours) who decides to make a box. The 1 extra person makes the box independently, **without** communicating with anyone else who is also making one or even knowing how many of them there are.

Please select the statement that accurately describes the situation of this one extra person. *[options displayed in random order]*

[ ] This 1 extra person makes the box independently
[ ] This 1 extra person knows some of the people who are already making boxes
[ ] This 1 extra person communicates with others who are making boxes
[ ] This 1 extra person knows how many other people are making boxes

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "This 1 extra person makes the box independently."

[page break]

Please see the scenario again below in grey, with the key question in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, n_1 people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there is 1 extra person (from a neighborhood similar to yours) who decides to make a box. The 1 extra person makes the box independently, without communicating with anyone else who is also making one or even knowing how many of them there are.

Now we want your opinion on something—there is no right or wrong answer. What do you think is bigger?

[ ] The **costs** to this **1** extra person of creating an extra box
[ ] Not sure
[ ] The **benefits** to the displaced population from this **1** extra box

[page break]

Thank you for answering the questions for the first scenario in the survey!

We will now show you a very similar scenario, with slight differences. Please read carefully and make sure you understand. This is the last scenario you will see before completing the survey.

[page break]

*[*more *condition]*

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, n_5 people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Please select the statement that accurately describes the scenario. *[options displayed in random order]*

[ ] n_5 people have committed to making a box so far and they will go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] 10,000 people have committed to making a box so far
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "n_5 people have committed to making a box so far and they will go first to where they are most needed."

[page break]

Please see the scenario again below in grey, with new details in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, n_5 people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there are 5 extra people (from a neighborhood similar to yours) who decide to make a box. The 5 extra people make the boxes independently, without communicating with each other or anyone else who is also making one or even knowing how many of them there are.

Please select the statement that accurately describes the situation of this one extra person. *[options displayed in random order]*

[ ] These 5 extra people make the boxes independently
[ ] These 5 extra people know some of the people who are already making boxes
[ ] These 5 extra people communicate with each other or the people who are already making boxes
[ ] These 5 extra people know how many other people are making boxes

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "These 5 extra people make the boxes independently."

[page break]

Please see the scenario again below in grey, with the key question in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, *n* people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will not be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Suppose there are 5 extra people (from a neighborhood similar to yours) who decide to make a box. The 5 extra people make the boxes independently, without communicating with each other or anyone else who is also making one or even knowing how many of them there are.

Now we want your opinion on something—there is no right or wrong answer. What do you think is bigger?

[ ] The **costs** to these **5** extra people of creating extra boxes
[ ] Not sure
[ ] The **benefits** to the displaced population from these **5** extra boxes

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

What is your age?

[select from a dropdown]

What is your gender?

[ ] Man
[ ] Woman
[ ] Non-binary or gender not listed
[ ] Prefer not to answer

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.4 Experiment 2C

[The survey begins with participants consenting to the research and completing a CAPTCHA.

We fully randomized the presentation order of the four blocks. In this example the blocks are presented after the introduction and comprehension checks in the following order: one cost, one benefit, many cost, many benefit.

We counterbalanced between subjects whether the costs or benefits of the donation are described first. In this example, the costs are presented first.

The number of prior helpers, n, was determined as follows:

- *for the* many *blocks, we randomized an integer between 100,000 and 149,999, which we call* $n_{50,000}$*;*
- *for the* one *blocks, we added a random integer between 0 and 49,999 to* $n_{50,000}$*, which we call* n_1*.]*

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Please select the statement that accurately describes the scenario. *[options displayed in random order]*

[ ] The boxes go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "The boxes go first to where they are most needed."

[page break]

Some extra people (each from different neighborhoods, similar to yours) might also decide to make a box. They would each make their box independently, **without** communicating with each other or anyone else who is also making one or even knowing how many of them there are.

Please select the statement that accurately describes the situation of these extra people. *[options displayed in random order]*

[ ] These extra people make the boxes independently
[ ] These extra people know some of the people who are already making boxes
[ ] These extra people communicate with each other or the people who are already making boxes
[ ] These extra people know how many other people are making boxes

[page break]

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant responded incorrectly]

You did not answer correctly. The correct statement is: "These extra people make the boxes independently."

[page break]

Please see the scenario again below in grey, with details about the next questions at the end in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed.

Some extra people (each from different neighborhoods, similar to yours) might also decide to make a box. They would each make their box independently, **without** communicating with each other or anyone else who is also making one or even knowing how many of them there are.

The next few questions ask you to rate the societal significance of various **costs** and **benefits**. By this, we mean how important is the cost or benefit in the scheme of events that happen to society, balancing the number of people affected and how intensely they are affected. You should answer this based on your first impression. There is no need to do calculations.

[page break]

*[*one benefits*]*

Please see the scenario again below in grey, with the next question at the end in black.

[scenario repeats in gray, not printed for brevity]

For example, suppose that so far, n_1 people have made a box, and now **one extra person** makes a box. How would you judge the societal significance of the **benefits** to the displaced population from that **one extra person** making a box?

> [slider scale from 0 ("completely insignificant") to 100 ("as significant as it could possibly feel")]

[page break]

*[*one costs*]*

Please see the scenario again below in grey, with the next question at the end in black.

[scenario repeats in gray, not printed for brevity]

For example, suppose that so far, n_1 people have made a box, and now **one extra person** makes a box. How would you judge the societal significance of the **costs** (i.e., time, money and effort) to that **one extra person** from making a box?

> [slider scale from 0 ("completely insignificant") to 100 ("as significant as it could possibly feel")]

[page break]

*[*many benefits*]*

Please see the scenario again below in grey, with the next question at the end in black.

[scenario repeats in gray, not printed for brevity]

For example, suppose that so far, $n_{50,000}$ people have made a box, and now **50000 extra people** make a box. How would you judge the societal significance of the **benefits** to the displaced population from those **50000 extra people** making a box?

> [slider scale from 0 ("completely insignificant") to 100 ("as significant as it could possibly feel")]

[page break]

*[*many costs*]*

Please see the scenario again below in grey, with the next question at the end in black.

[scenario repeats in gray, not printed for brevity]

For example, suppose that so far, $n_{50,000}$ people have made a box, and now **50000 extra people** make a box. How would you judge the societal significance of the **costs** (i.e., time, money and effort) to those **50000 extra people** from making a box?

> [slider scale from 0 ("completely insignificant") to 100 ("as significant as it could possibly feel")]

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

What is your age?

[select from a dropdown]

What is your gender?

[ ] Man
[ ] Woman
[ ] Non-binary or gender not listed
[ ] Prefer not to answer

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.5 Experiment 2D

[The survey begins with participants consenting to the research and completing a CAPTCHA.

We counterbalanced within subjects whether participants saw the many *or* one *question first. In this example, the* one *condition is presented first.*

We also counterbalanced between subjects whether the costs or benefits of the donation are described first and listed first in the response options. In this example, the costs are presented first.

The number of prior helpers was determined as follows:

- *for 50,000 extra helpers (*many *condition), we randomized an integer between 100,000 and 149,999, which we call* $n_{50,000}$*;*
- *for 1 extra helper (*one *condition), we added a random integer between 0 and 49,999 to* $n_{50,000}$*, which we call* n_1*.]*

[introduction]

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Please select which of the following statements accurately describe the scenario. *[options displayed in random order]*

[ ] The boxes go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

Please select which of the following statements accurately describe the scenario. *[options displayed in random order]*

[ ] The delivery systems are already set up so that all the boxes are costless to deliver
[ ] The people making boxes communicate with each other about it
[ ] The delivery systems are set up such that each extra box is a bit cheaper to deliver
[ ] The delivery systems are set up such that each extra box is a bit more expensive to deliver

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant answered the first question incorrectly]

You answered one of the questions incorrectly. The correct statement is:

- The boxes go first to where they are most needed.

[if participant answered the second question incorrectly]

You answered one of the questions incorrectly. The correct statement is:

- The delivery systems are already set up so that all the boxes are costless to deliver.

[if participant answered both questions incorrectly]

You answered both questions incorrectly. The correct statements are:

- The boxes go first to where they are most needed.
- The delivery systems are already set up so that all the boxes are costless to deliver.

[page break]

*[*one *condition]*

Please see the scenario again below in grey, with the next question at the end in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Suppose that, in total, **200,000** people end up making boxes. At the point where just $\boldsymbol{n_1}$ people had made a box, for the next **one** extra person who made a box, how would you compare the total **costs** to this **one** extra person of making a box and the total **benefits** to the displaced population from that **one** extra box? In other words, **what do you think is bigger**?

[ ] The total **costs** to this **one** extra person of creating a box
[ ] Not sure
[ ] The total **benefits** to the displaced population from this **one** extra box

[page break]

*[*many *condition]*

Please see the scenario again below in grey, with the next question at the end in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Suppose that, in total, **200,000** people end up making boxes. At the point where just $\boldsymbol{n_{50,000}}$ people had made a box, for the next **50,000** extra people who made a box, how would you compare the total **costs** to these **50,000** extra people of making a box and the total **benefits** to the displaced population from those **50,000** extra boxes? In other words, what do you think is bigger?

[ ] The total **costs** to these **50,000** extra people of creating a box
[ ] Not sure
[ ] The total **benefits** to the displaced population from these **50,000** extra boxes

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.6 Experiment 2E

[The survey begins with participants consenting to the research and completing a CAPTCHA.

We randomized between subjects whether participants saw the one *or* many *question.*

We also counterbalanced between subjects whether the costs or benefits of the donation are described first and listed first in the response options. In this example, the costs are presented first.

The number of prior helpers was determined as follows:

- *for 50,000 extra helpers (*many *condition), we randomized an integer between 100,000 and 149,999, which we call* $n_{50,000}$*;*
- *for 1 extra helper (*one *condition), we added a random integer between 0 and 49,999 to* $n_{50,000}$*, which we call* n_1*.]*

[introduction]

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Please select which of the following statements accurately describe the scenario. *[options displayed in random order]*

[ ] The boxes go first to where they are most needed
[ ] Realistically, there will be enough boxes to help all the displaced people
[ ] The boxes only cost each person about $10 to make
[ ] Making the boxes only takes about an hour

Please select which of the following statements accurately describe the scenario. *[options displayed in random order]*

[ ] The delivery systems are already set up so that all the boxes are costless to deliver
[ ] The people making boxes communicate with each other about it
[ ] The delivery systems are set up such that each extra box is a bit cheaper to deliver
[ ] The delivery systems are set up such that each extra box is a bit more expensive to deliver

[if participant responded correctly]

This is correct, thank you for reading carefully.

[if participant answered the first question incorrectly]

You answered one of the questions incorrectly. The correct statement is:

- The boxes go first to where they are most needed.

[if participant answered the second question incorrectly]

You answered one of the questions incorrectly. The correct statement is:

- The delivery systems are already set up so that all the boxes are costless to deliver.

[if participant answered both questions incorrectly]

You answered both questions incorrectly. The correct statements are:

- The boxes go first to where they are most needed.
- The delivery systems are already set up so that all the boxes are costless to deliver.

[page break]

*[*one *condition]*

Please see the scenario again below in grey, with the next question at the end in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Suppose that, in total, **200,000** people end up making boxes. At the point where just $\boldsymbol{n_1}$ people had made a box, for the next **one** extra person who made a box, how would you compare the total **costs** to this **one** extra person of making a box and the total **benefits** to the displaced population from that **one** extra box? In other words, **what do you think is bigger**?

[ ] The total **costs** to this **one** extra person of creating a box
[ ] Not sure
[ ] The total **benefits** to the displaced population from this **one** extra box

*[*many *condition]*

Please see the scenario again below in grey, with the next question at the end in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods.

To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. They each make their box independently, following instructions from a non-profit's website, **without** communicating with each other or anyone else who is also making one.

Each box benefits 10 displaced people, providing supplies for one day. However, realistically, there will **not** be enough boxes to help all the millions of displaced people, so the boxes go first to where they are most needed. The delivery systems are already set up so that the boxes are all costless to deliver.

Suppose that, in total, **200,000** people end up making boxes. At the point where just $\boldsymbol{n_{50,000}}$ people had made a box, for the next **50,000** extra people who made a box, how would you compare the total **costs** to these **50,000** extra person of making a box and the total **benefits** to the displaced population from those **50,000** extra boxes? In other words, what do you think is bigger?

[ ] The total **costs** to these **50,000** extra people of creating a box
[ ] Not sure
[ ] The total **benefits** to the displaced population from these **50,000** extra boxes

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

What is your age?

[select from a dropdown]

What is your gender?

[ ] Man
[ ] Woman
[ ] Non-binary or gender not listed
[ ] Prefer not to answer

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.7 Experiment 2F

[The survey begins with participants consenting to the research and completing a CAPTCHA.]

We counterbalanced between subjects whether the costs or benefits of the donation are described first. We also counterbalanced whether the question about costs of benefits was displayed first, and randomized the order of items in the matrix tables. In this example, the costs question is displayed first and the empathizing items are displayed first.]

[introduction]

Please read the scenario carefully and then answer the following questions.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods. To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. Each box benefits 10 displaced people, providing supplies for one day.

[page break]

Scenario displayed again in grey, questions below in black.

Imagine a disaster has displaced millions of people. Although these people are now safe, they urgently need specific goods for their basic dignity and wellbeing.

Globally, many people have committed to help by each preparing one box of these urgently needed goods. To prepare the box and purchase the goods, it individually costs each of these people $500 and takes a week of their time. Each box benefits 10 displaced people, providing supplies for one day.

In this scenario, how easy is it to…
[Matrix table: Extremely difficult (1), (2), (3), (4), (5), (6), Extremely easy (7)]

> [ ] imagine what it would be like to be one of the people who could make a box
> [ ] compare the total **costs** to different numbers of people making extra boxes (e.g., **one** additional box or **50,000** additional boxes) to the overall size of the problem

In this scenario, how easy is it to…
[Matrix table: Extremely difficult (1), (2), (3), (4), (5), (6), Extremely easy (7)]

> [ ] imagine what it would be like to be one of the people in need
> [ ] compare the **benefits** of different numbers of extra boxes (e.g., **one** additional box or **50,000** additional boxes) to the overall size of the problem

[page break]

How did the people in these scenarios help the victims of the disaster? *[options displayed in random order]*

[ ] By preparing boxes of goods
[ ] By sending the displaced people money
[ ] By writing to local politicians
[ ] By volunteering at the site of the disaster

[page break]

What is your age?

[select from a dropdown]

What is your gender?

[ ] Man
[ ] Woman
[ ] Non-binary or gender not listed
[ ] Prefer not to answer

Do you have any comments about the survey? Did anything seem wrong? If so, please indicate in the text box below. *[optional]*

[text box]

[page break]

Thank you for your participation in this survey! Please click the arrow below to submit your responses.

2.8 Experiment 3A and 3B

[Note, 3B was in Mandarin, so for 3B, this text was translated.]

[The survey begins with participants consenting to the research, followed by an attention check. We start with the attention check page here.]

In this survey, you will answer questions about costs and benefits. Please make a note of that before proceeding to the next page.

[page break]

Based on the description on the previous page, what will this survey be about?

[ ] Evaluating a product
[ ] Watching a video
[ ] Costs and benefits
[ ] Reading a story
[ ] Playing a game

[The following pages were only displayed if participants passed the attention check.]

Thank you for reading carefully! Please see the main instructions on the next page.

[page break]

[We counterbalanced whether participants saw the questions about costs and benefits first, or the questions about what the residents should do first. We also counterbalanced whether the one *(one person) or* many *(10,000 people) questions were asked first in each case. In this example, the cost-benefit questions and the* one *questions come first.]*

Imagine 100,000 people who live in the same city, each with lives similar to you, but who generally commute to work by driving in their own car (taking them 10 minutes each way). Each one of them is considering whether to walk to work (which would be less convenient for them, taking around 60 minutes each way) in order to help reduce air pollution in the city.

Also imagine that many of these people, but not all, will actually decide to walk.

When answering the following questions, consider both the inconvenience to any individuals of walking to work and the implications for air pollution in terms of the potential benefits to the world.

Now let's look at <u>one</u> randomly chosen person (out of all the total 100,000 people).

Do you think that the expected benefits (to the world) from this <u>one</u> person walking to work would outweigh the costs (to that <u>one</u> person)?

[ ] Yes
[ ] No
[ ] Neither

Please very briefly explain your answer to the previous question (in one or two lines).

[text box]

Now let's look at <u>a randomly chosen group of 10,000 people</u> (out of all the total 100,000 people).

Do you think that the expected benefits (to the world) from these 10,000 people walking to work would outweigh the costs (to all of those 10,000 people)?

[ ] Yes
[ ] No
[ ] Neither

Please very briefly explain your answer to the previous question (in one or two lines). Why was it the same as or different from your answer to the previous question?

[text box]

[page break]

Below we repeat the same scenario. Then we ask two new questions.

Imagine 100,000 people who live in the same city, each with lives similar to you, but who generally commute to work by driving in their own car (taking them 10 minutes each way). Each one of them is considering whether to walk to work (which would be less convenient for them, taking around 60 minutes each way) in order to help reduce air pollution in the city.

Also imagine that many of these people, but not all, will actually decide to walk.

When answering the following questions, consider both the inconvenience to any individuals of walking to work and the implications for air pollution in terms of the potential benefits to the world.

Once again, let's look at one randomly chosen person (out of all the total 100,000 people), but now let's consider what such a person should do.

Assuming that this one person is making the decision without knowing what others are doing, should that one person walk to work?

[ ] Yes
[ ] No
[ ] Neither

Please very briefly explain your answer to the previous question (in one or two lines).

[text box]

Once again, let's look at a randomly chosen group of 10,000 people (out of all the total 100,000 people), but now let's consider what 10,000 people should do.

Assuming that these 10,000 people are making the decision together without knowing what others outside the group are doing, should those 10,000 people walk to work?

[ ] Yes
[ ] No
[ ] Neither

Please very briefly explain your answer to the previous question (in one or two lines). Why was it the same as or different from your answer to the previous question?

[text box]

[page break - Experiment 3B only - translated to Mandarin]

[collectivism scale]

Please choose the degree to which you agree with the following sentences according to your relationship with your group. "Group" can refer to family, friends, country, colleagues, etc. (1 = Very much against, 5 = Strongly Agree).

- In general, I accept the decisions made by my group.
- When I learn about something, my first consideration is the impact it will have on my community -- the people I care about.
- My preferences are usually the same as my group.
- What is good for my group is good for me.
- If you know which group I belong to, you know who I am.
- I try to understand and meet the needs and desires of my group.

[individualism scale]

Please select how much you agree with the following sentences (1 = Very much against, 5 = Strongly Agree).

- Expressing my opinions is very important to me, even when they differ from those of my friends.
- It is very important to me to live by my own principles and not be bound by principles or traditions defined by others.
- The best decisions are usually the ones I make myself.
- I decide my own destiny.
- I feel sick when I'm like everyone else in my group.
- My family should not interfere with my way of life.

[page break - both Experiment 3A and Experiment 3B]

What is your age?

[select from a dropdown]

What is your gender? *[options displayed in random order]*

[ ] Man
[ ] Woman
[ ] Other
[ ] Prefer not to answer

2.9 Experiment 3B Note

Please see the QSF (Qualtrics) file on ResearchBox for the full translated materials for Experiment 3B: https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. As many readers will not understand Mandarin, we have not reproduced them here.

2.10 Experiment 3C

[Children were presented with two stories in a randomized order: the rubbish story and the traffic story. They were asked two comprehension checks after each story. This is an example of what children who were presented with the rubbish story first would have seen.]

Scotland has a big problem. There is too much rubbish lying around on the streets! It's bad when there is too much rubbish on the street, right? The trouble is, having to pick up rubbish is also bad because picking up rubbish is boring and people don't like it! So, we have to decide who should pick up rubbish.



Before we start, can you tell me:

In the story, why is it good to pick up rubbish?

[ ] Because there is too much rubbish on the streets
[ ] Because you might find treasure

In the story, why don't people like picking up rubbish?

[ ] Because it is boring
[ ] Because it is snowing outside

[page break]

[We counterbalanced whether participants saw the many *or* one *question first. In this example, the* one *condition is presented first.]*

Imagine that only one person in Scotland is going to clean up rubbish, and they cannot talk to or play with anyone else while they do it.

Do you think one person could clean up enough of Scotland's rubbish that this one person should do some cleaning, even if it means this one person has a boring time? *[options presented in random order]*

[ ] Yes
[ ] No
[ ] Not sure

[page break]

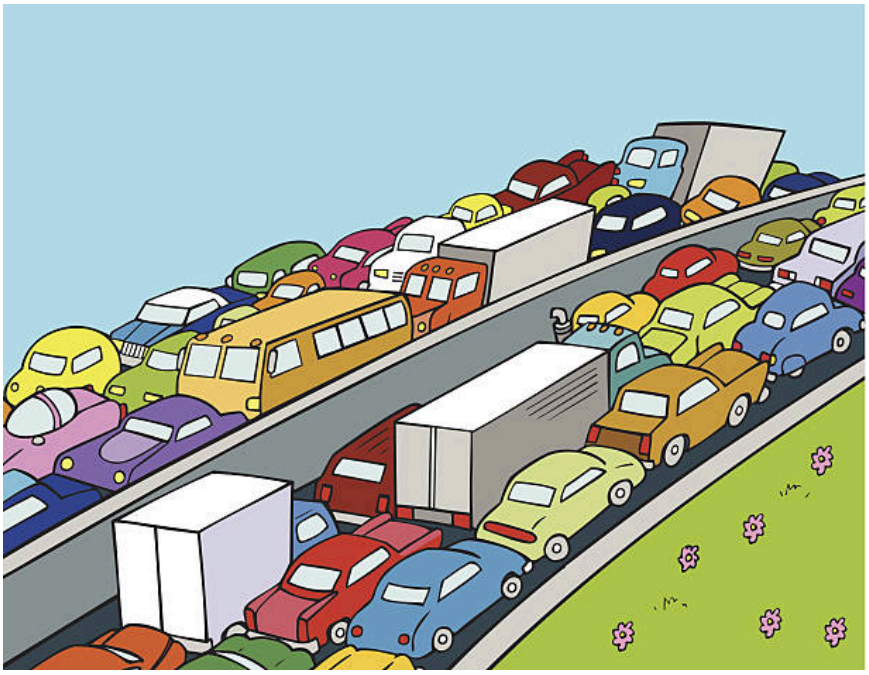
Imagine that everyone in Scotland is going to clean up rubbish, and they cannot talk to or play with anyone else while they do it.

Do you think all the people in Scotland could clean up enough of Scotland's rubbish that everyone should do some cleaning, even if it means everyone has a boring time? *[options presented in random order]*

[ ] Yes
[ ] No
[ ] Not sure

[page break]

Scotland has a big problem. There are too many traffic jams! It's boring to be stuck in a traffic jam, right? Traffic jams happen when too many people are driving their cars. There will be less traffic jams if people start walking to work. The trouble is, walking is tiring and can take a very long time, so most people prefer to go in a car! So, we have to decide when people should be allowed to drive to work or should have to walk instead!



Before we start, can you tell me:

In the story, why is it good to walk to work?

[ ] Because there are too many traffic jams
[ ] Because you might get a prize

In the story, why don't people like walking to work?

[ ] Because it is tiring and takes a long time
[ ] Because you might get in trouble

[page break]

[We counterbalanced whether participants saw the many *or* one *question first. In this example, the* one *condition is presented first.]*

Imagine that one person in Scotland is going to walk to work instead of driving.

Do you think one person walking to work could help enough with Scotland's traffic jams that they should walk, even if it means this one person gets tired walking? *[options presented in random order]*

[ ] Yes
[ ] No
[ ] Not sure

[page break]

Imagine that everyone in Scotland is going to walk to work instead of driving.

Do you think that all the people in Scotland walking to work could help enough with Scotland's traffic jams that they should walk, even if it means everyone gets tired walking? *[options presented in random order]*

[ ] Yes
[ ] No
[ ] Not sure

[page break]

[After completing the survey, children and their parents answered the following demographic questions. Research assistants entered the participant number and testing location questions.]

Participant Number _____

Date of Birth (mm.dd.yyyy) _____

Age
[ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ] 11

How do you identify?
[ ] Boy [ ] Girl [ ] Other ____ [ ] Prefer not to answer

How would you describe your race, ethnicity, and/or cultural background? Please select all that apply.

[ ] Bengali British
[ ] Black British
[ ] Chinese British
[ ] Indian British
[ ] Mixed Race/Dual Heritage
[ ] Pakistani British
[ ] White British
[ ] Another identity (please specify) _____
[ ] Prefer not to say

Testing location:

[ ] Online/zoom
[ ] University

[ ] Zoo
[ ] Other public space (e.g., dynamic earth) _____
[ ] School _____
[ ] Other _____

[page break]

Thank you for participating today!

2.11 Experiment 4

[The survey begins with participants consenting to the research, followed by an attention check. We start with the attention check page here.]

In today's experiment, you will be asked to answer some questions about yourself. It is important for us to recognize participants who read the experiment descriptions from those who don't. So, if you are reading this, instead of selecting the current year, 2023, please select twenty-nineteen for the first question, below. We ask you this question to ensure the validity of our results, as it is important that you carefully read any information that you are provided. You will be asked questions regarding the information that you are given and we ask that you read all information presented on the page.

Please select the year, as instructed:

[ ] 2018
[ ] 2019
[ ] 2020
[ ] 2021
[ ] 2022
[ ] 2023

[page break]

[The following pages were only displayed if participants passed the attention check.]

Thank you for reading carefully! Please see the main instructions on the next page.

[page break]

World Vision is a charity that provides animals such as goats and egg-laying chickens to impoverished families world-wide to help them attain sustainable food security. By donating to the charity, people can help purchase an animal for a family in need.

In these next questions, consider a **typical survey-taker** making a donation.

[page break]

[We counterbalanced whether participants saw the many *(10 people) or* one *(1 person) question first. In this example, the* one *condition is presented first.]*

*[*one *condition]*

Do the benefits of **one typical survey-taker donating $5** to World Vision outweigh the cost of the donation for that person?

[ ] Yes, the benefits are greater
[ ] No, the cost is greater
[ ] Not sure whether benefits or cost are greater

*[*many *condition]*

Do the benefits of **10 typical survey-takers each donating $5** to World Vision outweigh the total costs of all of the donations for those 10 people?

[ ] Yes, the benefits are greater

[ ] No, the cost is greater
[ ] Not sure whether benefits or cost are greater

[page break]

Every participant in this experiment has a chance of being endowed with $5 that they will either receive as a bonus or that will be donated on their behalf. However, they will not make this decision for themselves, instead, other participants in the survey will make this decision for them. So, you will make decisions about whether other participants will donate their assigned $5 to charity or receive it as a bonus. Likewise, if you are endowed with $5, another participant will decide whether you will donate it or receive it as a bonus. This means your decisions will not affect your own chances of receiving a bonus or donating it. All participants are anonymous, so you cannot know who you are deciding for and others cannot know if they are deciding for you.

We will ask you to make two decisions:

1. choose whether one other participant donates $5
2. choose whether a group of 10 other participants all donate $5 each

To limit the costs of the experiment, not all decisions will result in *actual* donations or bonuses. A random number generator will determine whether each decision counts towards the final outcome, giving each decision a fair chance of influencing the outcomes of the experiment. **Remember that your decisions will not affect your *own* bonus money.**

The charity that will receive the donations is the charity we described above, World Vision. It provides animals such as egg-laying chickens to impoverished families world-wide to help them attain sustainable food security. By donating to the charity, people can help purchase an animal for a family in need.

[page break]

[We counterbalanced whether participants saw the many *(10 people) or* one *(1 person) question first. In this example, the* one *condition is presented first.]*

*[*one *condition]*

You will make your first decision that could count for real on this page.

In this question, you will choose whether one other participant donates their $5 to charity rather than getting to keep it. *If this decision is selected by the random number generator to count for real, it will actually determine whether another participant donates their bonus money. So, please make this decision carefully, keeping in mind the costs to the participant of donating and the benefits to the charity.*

Do you choose for this one other participant to donate their $5 instead of keeping it?
[ ] Yes
[ ] No

*[*many *condition]*

Now, you will make your second decision that could count for real.

In this question, you will choose whether a group of 10 other participants each donate their $5 to charity rather than getting to keep it. *If this decision is selected by the random number generator to count for real, it will actually determine whether other participants donate their bonus money. So, please make this decision carefully, keeping in mind the costs to the participants of donating and the benefits to the charity.*

Do you choose for this group of 10 other participants to each donate their $5 instead of keeping it?

[ ] Yes
[ ] No

[page break]

Please explain your decisions about what to do with the $5 in 1-2 sentences.

- If you picked different options for the group of 10 than for one person, please explain why.
- If you picked the same option in both cases, please explain why.

[text box]

[page break]

What is your age?

[select from a dropdown]

What is your gender? *[options displayed in random order]*

[ ] Man
[ ] Woman
[ ] Other
[ ] Prefer not to answer

2.12 Experiment 5

[Participants answered one question for the many *condition and one for the* one *condition, in counterbalanced order about one of three policy options. The three policy options were randomized between subjects and described below.]*

In this section of the survey, we want to understand how you weigh costs and benefits when making policy choices.

Imagine a situation where {scenario 1}

How do you think the total benefits of this policy would compare with the total costs of this policy?
[ ] The total benefits would probably be greater than the total costs
[ ] The total benefits would probably be equal to the total costs
[ ] The total benefits would probably be less than the total costs

[page break]

Now, imagine the same situation, but this time {scenario 2}

How do you think the total benefits of this policy would compare with the total costs of this policy?
[ ] The total benefits would probably be greater than the total costs
[ ] The total benefits would probably be equal to the total costs
[ ] The total benefits would probably be less than the total costs

In general, to what extent do you value coordination with other local governments when choosing?
[text box]

*[Texts for scenarios 1 and 2 by order of condition (*many *vs.* one*) and policy domain. The appropriate text was inserted in the curly braces above.]*

Policy 1: Procurement

Many *condition first:*

- *scenario 1 = "the United States is entering a recession, and all local governments across the United States are considering a policy to limit procurement to only American companies in an effort to help support the American economy. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."*
- *scenario 2 = "your local government is acting unilaterally in considering adopting a policy to limit its procurement to American companies in an effort to help support the American economy."*

One *condition first:*

- *scenario 1 = "the United States is entering a recession, and your local government is considering a policy to limit procurement to only American companies in an effort to help support the American economy."*
- *scenario 2 = "all local governments across the country are considering adopting a policy to limit procurement to only American companies in an effort to help support the American*

economy. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."

Policy 2: Drug crime

Many *condition first:*

- *scenario 1 = "all local governments across the United States are considering a policy to reallocate 10% of police effort from stopping property crimes to policing illegal drug activity to address international drug trafficking. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."*
- *scenario 2 = "your local government is acting unilaterally in considering a policy to reallocate 10% of police effort from stopping property crimes to policing illegal drug activity to address international drug trafficking."*

One *condition first:*

- *scenario 1 = "your local government is considering a policy to reallocate 10% of police effort from stopping property crimes to policing illegal drug activity to address international drug trafficking."*
- *scenario 2 = "all local governments across the country are considering a policy to reallocate 10% of police effort from stopping property crimes to policing illegal drug activity to address international drug trafficking. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."*

Policy 3: Carbon

Many *condition first:*

- *scenario 1 = "all local governments across the United States are considering a policy to reduce their carbon footprint by 20% by switching to cleaner energy sources. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."*
- *scenario 2 = "your local government is acting unilaterally in considering a policy to reduce their carbon footprint by 20% by switching to cleaner energy sources."*

One *condition first:*

- *scenario 1 = "your local government is considering a policy to reduce its carbon footprint by 20% by switching to cleaner energy sources."*
- *scenario 2 = "all local governments across the country are considering adopting a policy to limit procurement to only American companies in an effort to help support the American economy. Assume the trade-off between costs and benefits is the same for all other localities as for your locality."*

[page break]

Finally, just a few questions to better understand the demographics of our survey respondents.

In general, do you think of yourself as:

[ ] Very conservative

[ ] Somewhat conservative
[ ] Moderate, middle of the road
[ ] Somewhat liberal
[ ] Very liberal
[ ] Not sure

Generally speaking, do you usually think of yourself as a…
[ ] Democrat
[ ] Republican
[ ] Independent
[ ] Other party (Please specify.)
[text box]

Do you think of yourself as closer to the Democratic Party or the Republican Party?
[ ] Democratic Party
[ ] Republican Party
[ ] Neither

[page break]

What is your gender?
[ ] Man
[ ] Woman
[ ] Prefer to self-describe
[text box]

When were you born?
[5-yr interval dropdown]

What is the highest level of education that you have completed?
[ ] Less than high school
[ ] High school graduate
[ ] Technical/trade school
[ ] Some college
[ ] College graduate
[ ] Some graduate school
[ ] Graduate degree

What racial or ethnic group best describes you? Please check all that apply.
[ ] White
[ ] Black/African American
[ ] Hispanic/Latinx
[ ] Asian/Pacific Islander
[ ] Native American
[ ] Middle Eastern
[ ] Mixed Race
[ ] Prefer to self-describe
[text box]

[In the remainder of the survey, participants were asked a few questions for other experiments. The survey concluded by asking participants if they would be interested in participating in future

research (if they responded "yes", we asked for their contact email) and general feedback on the survey.]

2.13 Experiment 6

[This experiment was part of a larger survey, so participants also answered questions about 5 other projects in addition to this experiment (all sections in randomized order).]

Now consider this scenario:

Imagine that there is a series of lawsuits against many developed nations' governments. The lawsuits are opposing these countries' measures to reduce CO2 emissions. These measures include carbon taxes that would increase costs for consumers, and risk putting some firms out of business. Overall, these measures could considerably reduce the long-term GDP of the nations that adopt them, although experts disagree on exactly how much. However, the measures would reduce each nation's CO2 emissions by up to 10%. Please assume that to decide the case, it is required to weigh the costs to consumers, industry, and GDP against the positive impact of these measures on mitigating climate change.

[Participants answered one question for the many *condition and one for the* one *condition, in counterbalanced order. This is an example of what a participant who saw the* one *condition first would have seen.]*

Imagine you are judging the case for a very small country. Please answer with your opinion about how it would be appropriate to decide such a case.

For context, this small country contributes around 0.01% of global CO2 and around 0.02% of global GDP. Its GDP per capita is around $33,000.

Do the benefits to the world from reduced climate change outweigh the domestic economic costs of these measures?

[ ] The economic costs are more important
[ ] They are equally important
[ ] The reduced climate change is more important

[page break]

Now consider this scenario:

Imagine that there is a series of lawsuits against many developed nations' governments. The lawsuits are opposing these countries' measures to reduce CO2 emissions. These measures include carbon taxes that would increase costs for consumers, and risk putting some firms out of business. Overall, these measures could considerably reduce the long-term GDP of the nations that adopt them, although experts disagree on exactly how much. However, the measures would reduce each nation's CO2 emissions by up to 10%. Please assume that to decide the case, it is required to weigh the costs to consumers, industry, and GDP against the positive impact of these measures on mitigating climate change.

Now imagine instead that you are the judge of an international tribunal judging the case for a large group of countries.

For context, this group of countries contributes around 10% of global CO2 and around 20% of global GDP. Its GDP per capita is around $33,000.

Do the benefits to the world from reduced climate change outweigh the domestic economic costs of these measures?

[ ] The economic costs are more important
[ ] They are equally important
[ ] The reduced climate change is more important

[These questions comprised one of six sections in the survey. Sections were presented in random order. In the remainder of the survey, participants answered the remaining questions for other experiments. At the conclusion of the full survey, they were asked the following questions:]

How many years have you been a {judge/lawyer} for? Please respond with a number. ____

In which country is your jurisdiction?
[select from a dropdown]

[page break]

What is your age?
[select from a dropdown]

What is your gender?
[ ] Man
[ ] Woman
[ ] Other
[ ] Prefer not to answer

Do you have any comments, questions, or feedback about the survey? (optional)
[large text box]

If you would like to be informed about the results of the survey, please leave your email address below (optional).

We will share a link to the results with you when the experiment is completed.

Email address: _____

3. Research Transparency

Experiment 1

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 09/29/2025, prior to data collection which also began later that day. The Experiment 1 Results section includes the unique preregistered analysis exactly as preregistered, along with some non-preregistered, exploratory analyses. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2A

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 03/31/2025, prior to data collection which began on 04/02/2025. The Experiment 2A Results section includes only the unique preregistered analysis exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2B

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 04/08/2025, prior to data collection which began on 04/10/2025. The Experiment 2B Results section includes the preregistered analyses exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2C

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 04/08/2025, prior to data collection which began on 04/16/2025. The Experiment 2C Results section includes the unique preregistered analyses exactly as preregistered, along with some non-preregistered, exploratory analyses. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2D

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 04/19/2025, prior to data collection which began on 04/23/2025. The Experiment 2D Results section includes the unique preregistered analysis exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2E

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 05/18/2025, prior to data collection which began 05/21/2025. The Experiment 2E Results section includes the unique preregistered analysis exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 2F

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 09/08/2025, prior to data collection which began on 09/10/2025. The Experiment 2F Results section includes only and all preregistered analyses exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC.

Experiment 3A

Preregistration: No aspects of the study were preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).

Experiment 3B

Preregistration: No aspects of the study were preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC in the form of a Qualtrics (QSF) file. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).

Experiment 3C

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 04/26/2023, prior to data collection which began on 4/28/2023. However, on 05/24/2023, we submitted a new preregistration with an adjustment indicating a stricter age restriction for participants recruited after the date of this new preregistration (so the change did not affect the inclusion of participants already recruited). To simplify the main analyses, we deviate from our preregistration in the Experiment 3C Results section, but we report the preregistered analysis in the Supplementary Information which also supports the hypothesis, $p < .001$. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary

Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).

Experiment 4

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 03/31/2023, prior to data collection which also began on 3/31/2023. The Experiment 4 Results section includes only preregistered analyses exactly as preregistered. There is one additional preregistered analysis, which we report in the Supplementary Information, which also supports our hypothesis, $p < .001$. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).

Experiment 5

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 10/20/2022, prior to data collection which began on 10/21/2022. The Experiment 5 Results section includes all and only preregistered analyses exactly as preregistered. Materials: All study materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).

Experiment 6

Preregistration: The hypotheses, methods, and analysis plan were preregistered at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC on 08/01/2023, prior to data collection which began on 8/15/2023. We started collecting data from lawyers sooner than we preregistered, due to the slow pace of recruitment of judges. Otherwise, the Experiment 6 Results section includes all and only preregistered analyses exactly as preregistered. Materials: All study

materials are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC and in the Supplementary Information. Data: All primary data are publicly available at https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC. Analysis scripts: All analysis scripts are publicly available (https://researchbox.org/1114&PEER_REVIEW_passcode=EQHOGC).