UNIVERSITY OF AMSTERDAM

UvA-DARE (Digital Academic Repository)

Support for redistribution is shaped by compassion, envy, and self-interest, but not a taste for fairness

Sznycer, D.; Lopez Seal, M.F.; Sell, A.; Lim, J.; Porat, R.; Shalvi, S.; Halperin, E.; Cosmides, L.; Tooby, J.

DOI
10.1073/pnas.1703801114

Publication date
2017

Document Version
Other version

Published in
Proceedings of the National Academy of Sciences of the United States of America

License
Article 25fa Dutch Copyright Act (https://www.openaccess.nl/en/policies/open-access-in-dutch-copyright-law-taverne-amendment)

Link to publication

Citation for published version (APA):
Sznycer, D., Lopez Seal, M. F., Sell, A., Lim, J., Porat, R., Shalvi, S., Halperin, E., Cosmides, L., & Tooby, J. (2017). Support for redistribution is shaped by compassion, envy, and self-interest, but not a taste for fairness. *Proceedings of the National Academy of Sciences of the United States of America*, *114*(31), 8420-8425. https://doi.org/10.1073/pnas.1703801114

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, P.O. Box 19185, 1000 GD Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (https://dare.uva.nl)

Download date:10 Nov 2026

Supplementary Information

Support for redistribution is shaped by compassion, envy, and self-interest, but not a taste for fairness

1. STUDIES 1a–d

Methods

Measures. The measures of Studies 1a–d were as follows:

Support for redistribution (based on (1))
Studies 1a–c
1 (strongly disagree) - 5 (strongly agree)

High incomes should be taxed more than is currently the case.
The government should increase taxes to give more help to the poor.
We should resist the demands for more benefits from people on welfare. (R)
In politics, one should strive to assure similar income levels for everyone, regardless of education and employment.
The government should intervene economically to redistribute wealth from those who have more resources to those who have fewer resources.
The government spends too much money on the unemployed. (R)
Wealth should be taken from the rich and given to the poor.
Wealthy people should not be taxed more heavily than others. (R)
The wealthy should give more money to those who are worse off.
It is not fair that people have to pay taxes to fund welfare programs. (R)
Inequality in the distribution of wealth is unjust.

Study 1d
1 (strongly disagree) - 7 (strongly agree)

The Israeli fiscal authority should take money from those who have more and give it to those who have less.
The Israeli government should increase taxes on high earners to give more help to the poor.
Increasing taxes on the wealthy to expand welfare programs can only worsen the current economic situation in Israel. (R)
The well-to-do should not be taxed more heavily than others. (R)
It is very unfair that income is unequally distributed in Israel.
The rich should be forced to give more to the poor.
It is not fair that people have to pay taxes to fund welfare programs. (R)
High incomes should be taxed more than is currently the case.
The Israeli government already spends too much money on the unemployed. (R)

(R): Reverse-coded item

Dispositional compassion (based on (2))
Studies 1a–d
1 (very inaccurate [in describing myself]) - 5 (very accurate [in describing myself])

I tend to dislike soft-hearted people. (R)
I suffer from others' sorrows.
I try not to think about the needy. (R)
I feel sympathy for those who are worse off than myself.
I can't stand weak people. (R)
I believe people should fend for themselves. (R)
I sympathize with the homeless.
I value cooperation over competition.
I believe in an eye for an eye. (R)
I am not interested in other people's problems. (R)

(R): Reverse-coded item

Dispositional envy (based on (3))
Studies 1a–d
1 (strongly disagree) - 5 (strongly agree)

I feel envy every day.
The bitter truth is that I generally feel inferior to others.
Feelings of envy constantly torment me.
It is so frustrating to see some people succeed so easily.
No matter what I do, envy always plagues me.
I am troubled by feelings of inadequacy.
It somehow doesn’t seem fair that some people seem to have all the talent.
Frankly, the success of my neighbors makes me resent them.

Expected personal gain from redistribution
Studies 1a–d

Imagine that a policy of higher taxes on the wealthy is implemented. What overall impact do you think the higher taxes on the wealthy would have on you?

My own economic situation would significantly worsen (1)
My own economic situation would slightly worsen (2)
My own economic situation would stay the same (3)
My own economic situation would slightly improve (4)
My own economic situation would significantly improve (5)

Aid to the poor
Studies 1a–c

In the last 12 months, did you give money, food, or other material resources of your own to poor people (either directly to them or to charities)? (yes, no)

Fiscal scenarios
Studies 1a–c

Consider the following two scenarios and select the one that you prefer.

The top 1% wealthiest individuals pay an extra 50% of their income in additional taxes, and as a consequence of that the poor get an additional $100 million [US] / ₹100 billion [IN] / £100 million [GB] per year (the extra 50% in taxes paid in former fiscal years leaving the wealthiest with relatively less taxable income.) (coded "1")

The top 1% wealthiest individuals pay an extra 10% of their income in additional taxes, and as a consequence of that the poor get an additional $200 million [US] / ₹200 billion [IN] / £200 million [GB] per year (the extra 10% in taxes paid in former fiscal years leaving the wealthiest with relatively more taxable income.) (coded "0")

Socio-economic status
Studies 1a–c
1 (strongly disagree) - 5 (strongly agree)

My family usually had enough money for things when I was growing up.
I grew up in a relatively wealthy neighborhood.
My family struggled financially when I was growing up. (R)
In the future, I don't think I'll have to worry about money too much.
I will probably be relatively poor later in life. (R)
I have enough money to buy the things I desire.
I feel relatively poor these days. (R)

(R): Reverse-coded item

Study 1d
1 (low) - 7 (high)

How would you define the socio-economic status of your parents?

Table S1.

Regression models predicting participants' support for redistribution (Studies 1a–d)

Study	1a (United States)				1b (India)			1c (United Kingdom)			1d (Israel)		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Compassion	.39***	.41***	.41***	.33***	.29***	.29***	.28***	.37***	.38***	.37***	.28***	.30***	.30***
Envy	.14***	.13***	.13***	.11***	.13**	.13**	.11*	.10**	.12**	.09*	.12*	.14*	.15*
Self-interest	.30***	.30***	.30***	.23***	.30***	.30***	.30***	.21***	.20***	.17***	.18**	.18**	.22**
Age		-.05	-.05	-.02		.06	.06		.05	.04		.01	.01
Female		-.09***	-.09***	-.08**		.04	.04		-.09*	-.09**		-.09	-.09
SES			.00	.01			-.05			-.15***			.07
Democrat				.45***									
R^2	.28	.30	.30	.49	.17	.18	.18	.22	.22	.24	.13	.14	.14
N	1032	1024	1024	677	560	558	558	646	606	606	282	282	282

Note. Coefficients are standardized regression coefficients. Asterisks indicate the significance of the *t* statistic (*$p < .05$, **$p < .01$, ***$p < .001$). SES: Socio-economic status. Democrat: 0 = participant most identified with Republican party or Libertarian Party, 1 = participant most identified with Democratic Party.

Table S2

Scale reliabilities: Cronbach's alphas (Studies 1a–d)

Study	1a	1b	1c	1d
Redistribution	.90	.58	.85	.78
Compassion	.81	.61	.71	.58
Envy	.91	.87	.90	.87
Socio-economic status	.77	.74	.75	–

Table S3

Descriptive statistics (Studies 1a–d)

Study	1a (US)	1b (IN)	1c (GB)	1d (IL)
Redistribution	3.19[a] (0.82)	3.34[b] (0.46)	3.23[a] (0.70)	4.45 (1.01)
Compassion	3.55[a] (0.64)	3.50[a] (0.50)	3.54[a] (0.56)	3.68[b] (0.44)
Envy	2.30[a] (0.93)	2.60[b] (0.83)	2.41[a] (0.91)	1.96[c] (0.78)
Self-interest	3.22[a] (0.76)	3.20[ab] (0.87)	3.07[b] (0.73)	2.92[c] (0.71)
% Gave to poor[α]	74.4[a]	89.7[b]	77.9[a]	
% Fiscal pref.[β]	13.7[a]	17.9[b]	16.7[ab]	

Note. Displayed are means with standard deviations in parentheses, and percentages (two bottom rows). All scales in all studies measured with 5-point Likert scales, except for Redistribution in Israel, which is measured on 7-point scales. US: United States, IN: India, GB: United Kingdom, IL: Israel. Means in the same row followed by the same letter are not significantly different at the .05 level by the Dunnett's C test (the Study 1d Redistribution mean is not comparable to those of Studies 1a–c). Percentages in the same row followed by the same letter are not significantly different at the .05 level by the Chi-squared test. [α] Percentage of subjects who gave money, food, or other material resources of their own to poor people in the last 12 months. [β]Percentage of subjects preferring the "wealthiest pay relatively more taxes, poor get relatively less money" scenario over the "wealthiest pay relatively less taxes, poor get relatively more money" scenario.

Table S4

Descriptive statistics, by political party (Study 1a)

	Democratic	Republican	Libertarian	Another party	No party
% Identification	42.3	15.7	7.9	3.5	30.5
Redistribution	3.55^{a} (0.63)	2.44^{b} (0.75)	2.74^{b} (0.86)	3.27^{acd} (0.77)	3.17^{d} (0.75)
Compassion	3.70^{a} (0.63)	3.39^{b} (0.62)	3.33^{b} (0.59)	3.27^{b} (0.74)	3.52^{b} (0.63)
Envy	2.30^{ab} (0.94)	2.14^{b} (0.88)	2.44^{bc} (0.92)	2.72^{acd} (0.90)	2.29^{bd} (0.92)
Self-interest	3.33^{a} (0.74)	2.99^{bc} (0.75)	3.00^{bde} (0.80)	3.33^{acd} (0.83)	3.24^{ae} (0.74)

Note. Displayed are means, with standard deviations in parentheses, and percentages (top row). Means in the same row followed by the same letter are not significantly different at the .05 (or lower) level by the Dunnett's C or Bonferroni tests.

Table S5

Binary logistic regression models predicting participants having given money, food or resources of their own to the poor in the last 12 months (Studies 1a–c)

Study	1a (United States)		1b (India)		1c (United Kingdom)	
	OR	95% CI	OR	95% CI	OR	95% CI
Constant	.06***		.11		.005***	
Redistribution	0.94	(0.76 - 1.17)	1.17	(0.58 - 2.38)	1.31	(0.94 - 1.82)
Compassion	2.61***	(1.99 - 3.42)	4.61***	(2.25 - 9.45)	1.96***	(1.32 - 2.91)
Envy	1.08	(0.91 - 1.29)	0.84	(0.56 - 1.27)	1.03	(0.82 - 1.30)
Self-interest	0.76*	(0.61 - 0.94)	1.04	(0.74 - 1.47)	0.98	(0.73 - 1.30)
Age	1.02**	(1.00 - 1.04)	0.99	(0.95 - 1.03)	1.04**	(1.01 - 1.06)
Female	1.03	(0.76 - 1.40)	0.67	(0.37 - 1.20)	1.99**	(1.23 - 3.23)
Socio-economic status	1.30*	(1.05 - 1.62)	0.97	(0.58 - 1.64)	1.74***	(1.26 - 2.40)

Note. OR: Odds ratio, CI: 95% confidence interval. Asterisks indicate the significance of the *Wald* statistic (*$p < .05$, **$p < .01$, ***$p < .001$).

Table S6

Binary logistic regression models predicting participants' wealthy-harming preference (Studies 1a–c)

Study	1a (United States)		1b (India)		1c (United Kingdom)	
	OR	95% CI	OR	95% CI	OR	95% CI
Constant	.23		.44		.11	
Redistribution	1.20	(0.91 - 1.57)	0.81	(0.47 - 1.40)	1.72*	(1.13 - 2.62)
Compassion	0.73	(0.53 - 1.01)	0.67	(0.39 - 1.15)	0.51**	(0.31 - 0.84)
Envy	1.23*	(1.00 - 1.51)	1.47*	(1.06 - 2.04)	1.43*	(1.07 - 1.90)
Self-interest	0.97	(0.74 - 1.26)	1.17	(0.90 - 1.53)	1.27	(0.90 - 1.81)
Age	1.00	(0.98 - 1.02)	1.00	(0.97 - 1.03)	1.00	(0.97 - 1.02)
Female	0.85	(0.59 - 1.24)	1.41	(0.90 - 2.22)	0.76	(0.43 - 1.36)
Socio-economic status	1.02	(0.78 - 1.33)	0.81	(0.55 - 1.18)	0.95	(0.65 - 1.38)

Note. OR: Odds ratio, CI: 95% confidence interval. Asterisks indicate the significance of the *Wald* statistic (*$p \leq .05$, **$p < .01$).

2. STUDIES 2a–c

Method

Participants and Design. We collected data from 355 participants in Study 2a, 364 in Study 2b, and 275 in Study 2c (5 and 11 participants were excluded from analyses in Studies 2a and 2b due to failure to correctly respond to an attention check).

Measures. Support for redistribution was measured with the same scale as in Studies 1a–c, except that the scales ranged from 1 (strongly disagree) to 7 (strongly agree). Dispositional compassion, dispositional envy, and expected personal gain from redistribution were measured with the same scales as in Studies 1a–d. Socio-economic status was measured with the same scale as in Studies 1a–c, except that Study 2c included an additional item: "How would you define your parents' socioeconomic status?" (low–high). Studies 2a–c also included measures of endorsement of 1) procedural fairness, and 2) distributional fairness.

Note: The decisions of the distributional fairness instrument were hypothetical in Studies 2a and 2b, and consequential in Study 2c. In Study 2c, these decisions were paid with a lottery method. Participants rolled two dice at the end of the session. If they rolled double-sixes, one randomly selected decision out of the seven decisions was actualized. Participants had a 1 in 36 chance of causing themselves to earn between $5 and $16, and causing two other (anonymous) participants to earn between $1 and $22 each. Participants' total chance of earning any money (as deciders or receivers) was thus 3 in 36.

Endorsement of procedural fairness
Studies 2a–c
1 (do not agree at all) - 7 (strongly agree)

The notion of different standards for different individuals is offensive.
Every group should be judged with the same yardstick.
It would not bother me much if different groups of people were subject to different rules. (R)
Equality before the law is the most important principle of a civilized society.
Profiling based on race or ethnicity is a reasonable approach to law enforcement. (R)
The law of the land should apply to everybody in the same way.
Sometimes you just have to disregard the law in order to do the right thing. (R)

(R): Reverse-coded item

Endorsement of distributional fairness. Instructions.

Study 2a

Next, we ask you to make a number of decisions. Each decision has three options, each of which is a particular allocation of money between you and two other persons of your same sex and age. The numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, you would get $60, person 1 would get $72, and person 2 would get $48. If you choose option 2, you would get $60, person 1 would get $18, and person 2 would get $42. If you choose option 3, you would get $60, person 1 would get $102, and person 2 would get $60.

The decisions are all hypothetical, but imagine that the options chosen will actually be paid. Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, assume that you cannot share any money you receive with the other persons and that they cannot share with you. Also assume that neither the other persons nor anyone else will know what choices you make.

Study 2b

Next, we ask you to make a number of decisions. Each decision has three options, each of which is a particular distribution of incomes among you and two groups of people. These groups are: (a) The rich – the current top 5% income earners in the United States; (b) The poor – the current bottom 5% income earners in the United States. The numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, your income from now on would be $70,000, the income of each person among the rich from now on would be $90,000, and the income of each person among the poor from now on would be $50,000. If you choose option 2, your income from now on would be $70,000, the income of each person among the rich from now on would be $60,000, and the income of each person among the poor from now on would be $30,000. If you choose option 3, your income from now on would be $70,000, the income of each person among the rich from now on would be $120,000, and the income of each person among the poor from now on would be $70,000. Assume that the set of incomes chosen will remain fixed from now and into the indefinite future—assume further a future without inflation. Thus, the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option.

The decisions are all hypothetical, but imagine that the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option—again, assume there will be no inflation in the future. Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, assume that you cannot share any fraction of the income with the other persons and that they cannot share with you. Also assume that neither the other persons nor anyone else will know what choices you make.

Study 2c

Next, we ask you to make a number of decisions. These decisions will determine how much money you and two other participants in this room will receive at the end of the experiment.

The identity of these two other participants will be randomly determined at the end of the experiment. You will not know the identity of these persons. For that reason, we'll refer to them as "Person 1" and "Person 2".

Each decision has three options, and each option determines a different distribution of money among you, Person 1, and Person 2.

In this task, the numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, you get $8, Person 1 gets $10, and Person 2 gets $6. If you choose option 2, you get $8, Person 1 gets $6, and Person 2 gets $3. If you choose option 3, you get $8, Person 1 gets $13, and Person 2 gets $8.

At the end of the experiment, you will roll two dice. If you roll double sixes, ONE of your decisions will be chosen at random to determine the actual amount of money given to you, Person 1, and Person 2. This means that any single decision you make may end up determining how much real money is given to you, Person 1 and Person 2. (If you do not roll double sixes, no money will be given.)

Because each decision potentially determines a real monetary outcome, please make all of your decisions independently of the others. That is, do not let any decision you make influence any of the other decisions you make.

There really are no "right" or "wrong" answers to the questions. Please respond based on how you actually feel about the options.

Important: If you roll doubles sixes, neither Person 1 nor Person 2 will know the identity of the person causing them to earn money (that is, you). You won't know the identity of Persons 1 or 2 and these persons won't know your identity. Therefore, you won't be able to share any money you receive with them, and they won't be able to share any money with you.

NOTE: Regardless of whether you roll double sixes and get paid, another participant in this room may roll double sixes and you may be randomly selected as this participant's Person 1 or Person 2 for payment. However, bear in mind that since a) participants are not necessarily matched with one another, b) the participants' decisions will not be communicated to one another, and c) the identities of the matching participants will not be disclosed, your decisions cannot affect others' decisions and, likewise, others' decisions cannot affect your decisions.

Endorsement of distributional fairness. Decisions.

Table S7

Interpersonal scale (Study 2a) (amounts in $)

	Option 1	Option 2	Option 3
person 1	165	**120**	30
you	100	**100**	100
person 2	100	**80**	70
person 1	6	**24**	33
you	20	**20**	20
person 2	14	**16**	20
person 1	3	17	**12**
you	10	10	**10**
person 2	7	10	**8**
person 1	**33**	39	15
you	**30**	30	30
person 2	**27**	30	12
person 1	50	**36**	5
you	25	**25**	25
person 2	25	**15**	8
person 1	**56**	8	76
you	**40**	40	40
person 2	**24**	20	40
person 1	**77**	91	35
you	**70**	70	70
person 2	**63**	70	28

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with the least variance and the lowest aggregate self-other difference—the Distributional Fairness option. Underline denotes the Envy option. The unmarked numbers represent the Compassion option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Table S8

Groups scale (Study 2b) (amounts in $)

	Option 1	Option 2	Option 3
the rich (per person)	110,000	**80,000**	50,000
you	60,000	**60,000**	60,000
the poor (per person)	60,000	**40,000**	20,000
the rich (per person)	30,000	**55,000**	70,000
you	50,000	**50,000**	50,000
the poor (per person)	25,000	**45,000**	50,000
the rich (per person)	25,000	110,000	**85,000**
you	75,000	75,000	**75,000**
the poor (per person)	15,000	75,000	**65,000**
the rich (per person)	**45,000**	55,000	32,000
you	**40,000**	40,000	40,000
the poor (per person)	**35,000**	40,000	30,000
the rich (per person)	150,000	**120,000**	90,000
you	100,000	**100,000**	100,000
the poor (per person)	100,000	**80,000**	60,000
the rich (per person)	**50,000**	40,000	60,000
you	**45,000**	45,000	45,000
the poor (per person)	**40,000**	25,000	45,000
the rich (per person)	**75,000**	95,000	60,000
you	**65,000**	65,000	65,000
the poor (per person)	**55,000**	65,000	35,000

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with the least variance and the lowest aggregate self-other difference—the Distributional Fairness option. Underline denotes the Envy option. The unmarked numbers represent the Compassion option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Table S9

Interpersonal scale (Study 2c) (amounts in $)

	Option 1	Option 2	Option 3
person 1	9	**6**	4
you	5	**5**	5
person 2	5	**4**	2
person 1	4	**8**	11
you	6	**6**	6
person 2	1	**4**	6
person 1	4	12	**9**
you	7	7	**7**
person 2	2	7	**5**
person 1	**12**	16	8
you	**9**	9	9
person 2	**6**	9	3
person 1	18	**13**	6
you	10	**10**	10
person 2	10	**7**	3
person 1	**14**	9	17
you	**13**	13	13
person 2	**12**	9	13
person 1	**18**	22	14
you	**16**	16	16
person 2	**14**	16	10

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with the least variance and the lowest aggregate self-other difference—the Distributional Fairness option. Underline denotes the Envy option. The unmarked numbers represent the Compassion option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Table S10

Scale reliabilities: Cronbach's alphas (Studies 2a–c)

Study	2a	2b	2c
Redistribution	.92	.92	.85
Compassion	.85	.84	.73
Envy	.91	.92	.87
Socio-economic status	.78	.76	.78
P-fair	.68	.74	.56
D-fair	.86	.88	.85

Note. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness.

Table S11

Descriptive statistics (Studies 2a–c)

Study	2a	2b	2c
Redistribution	4.44 (1.42)	4.40 (1.38)	4.10 (0.99)
Compassion	3.59 (0.70)	3.65 (0.67)	3.57 (0.55)
Envy	2.33 (0.93)	2.28 (0.96)	2.42 (0.83)
Self-interest	3.24 (0.74)	3.25 (0.82)	3.00 (0.90)
P-fair	5.27 (0.92)	5.24 (0.98)	5.24 (0.80)
D-fair	.33 (.34)	.46 (.38)	.36 (.35)

Note. Displayed are means, with standard deviations in parentheses. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness (range: 0–1). Redistribution and procedural fairness are measured with 7-point Likert scales; compassion, envy, and self-interest are measured with 5-point scales.

Table S12

Regression models predicting participants' support for redistribution (Studies 2a–c)

Study	2a (interpersonal - AMT)					2b (groups - AMT)					2c (interpersonal - Students)				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Comp.	.43***	.42***	.43***	.41***	.41***	.43***	.42***	.43***	.42***	.42***	.35***	.34***	.35***	.34***	.35***
Envy	.20***	.21***	.21***	.23***	.18***	.19***	.20***	.20***	.20***	.16**	.15**	.16**	.15**	.16**	.17**
Self-int.	.28***	.27***	.27***	.26***	.23***	.32***	.32***	.32***	.32***	.30***	.29***	.30***	.29***	.30***	.26***
P-fair		.05		.07	.08		.02		.02	.02		.11*		.11*	.13*
D-fair			-.07	-.08	-.08			-.05	-.05	-.04			.01	-.01	-.02
Age					-.09*					-.07					.15**
Female					-.10*					-.06					.00
SES					-.14**					-.10*					-.05
R^2	.37	.38	.38	.38	.42	.38	.38	.38	.38	.39	.24	.25	.24	.25	.28
N	350	350	350	350	350	353	353	353	353	353	275	275	275	275	275

Note. Coefficients are standardized regression coefficients. Asterisks indicate the significance of the *t* statistic (*$p < .05$, **$p < .01$, ***$p < .001$). AMT: Amazon Mechanical Turk. Comp.: compassion. Self-int.: self-interest. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness. SES: socio-economic status.

3. STUDIES S1a–b

Introduction

In Studies 2a–c, the Distributional Fairness option of the distributional fairness instrument features *some* variance in payoffs—P gets less than P1 and more than P2. Might the fairness effect be moderated by the (absolute) variance in payoffs? For example, if the fair option consists of equal payoffs (zero variance), would these updated Distributional Fairness choices predict support for redistribution? To answer this question, we conducted Studies S1a and S1b. These were identical to Studies 2a (Distributional Fairness: interpersonal allocations) and 2b (Distributional Fairness: allocations between groups; "the rich", "the poor"), respectively, except that in Studies S1a–b the Distributional Fairness amounts for P1, P, and P2 were *the same*. Note that, given this modification, the Compassion and Envy options are now more properly termed Efficiency and Spite options (Tables S13–S14).

Methods

Participants. We recruited 347/350 AMT participants in the US (Studies S1a/b); 11/7 participants were excluded from analyses due to failure to correctly respond to an attention check, leaving an effective sample size of 336/343 (% male: 48/43). Their mean age was 36/36 (SD = 13/14).

Measures. Support for redistribution was measured with the same scale as in Studies 1a–c, except that the scales ranged from 1 (strongly disagree) to 7 (strongly agree). Dispositional compassion, dispositional envy, and expected personal gain from redistribution were measured with the same scales as in Studies 1a–d. Socio-economic status was measured with the same scale as in Studies 1a–c. Endorsement of procedural fairness was measured as in Studies 2a–c.

In Study S1a, endorsement of distributional fairness was measured with the same (hypothetical, interpersonal) instrument as in Study 2a, except that the payoffs in the Distributional Fairness option had a variance of zero—that is, the Participant, P1, and P2 would all receive the same amount.

In Study S1b, endorsement of distributional fairness was measured with the same (hypothetical, groups) instrument as in Study 2b, except that the payoffs in the Distributional Fairness option had a variance of zero—that is, the Participant, "the rich", and "the poor" would all receive the same amounts (salaries) per capita.

Endorsement of distributional fairness. Instructions.

Study S1a

Next, we ask you to make a number of decisions. Each decision has three options, each of which is a particular allocation of money between you and two other persons of your same sex and age. The numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, you would get $60, person 1 would get $60, and person 2 would get $60. If you choose option 2, you would get

$60, person 1 would get $18, and person 2 would get $42. If you choose option 3, you would get $60, person 1 would get $102, and person 2 would get $60.

The decisions are all hypothetical, but imagine that the options chosen will actually be paid. Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, assume that you cannot share any money you receive with the other persons and that they cannot share with you. Also assume that neither the other persons nor anyone else will know what choices you make.

Study S1b

Next, we ask you to make a number of decisions. Each decision has three options, each of which is a particular distribution of incomes among you and two groups of people. These groups are: (a) The rich – the current top 5% income earners in the United States; (b) The poor – the current bottom 5% income earners in the United States. The numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, your income from now on would be $70,000, the income of each person among the rich from now on would be $70,000, and the income of each person among the poor from now on would be $70,000. If you choose option 2, your income from now on would be $70,000, the income of each person among the rich from now on would be $60,000, and the income of each person among the poor from now on would be $30,000. If you choose option 3, your income from now on would be $70,000, the income of each person among the rich from now on would be $120,000, and the income of each person among the poor from now on would be $70,000. Assume that the set of incomes chosen will remain fixed from now and into the indefinite future—assume further a future without inflation. Thus, the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option.

The decisions are all hypothetical, but imagine that the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option—again, assume there will be no inflation in the future. Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, assume that you cannot share any fraction of the income with the other persons and that they cannot share with you. Also assume that neither the other persons nor anyone else will know what choices you make.

Endorsement of distributional fairness. Decisions.

Table S13

Interpersonal scale (Study S1a) (amounts in $)

	Option 1	Option 2	Option 3
person 1	165	**100**	30
you	100	**100**	100
person 2	100	**100**	70
person 1	6	**20**	33
you	20	**20**	20
person 2	14	**20**	20
person 1	3	17	**10**
you	10	10	**10**
person 2	7	10	**10**
person 1	**30**	39	15
you	**30**	30	30
person 2	**30**	30	12
person 1	50	**25**	5
you	25	**25**	25
person 2	25	**25**	8
person 1	**40**	8	76
you	**40**	40	40
person 2	**40**	20	40
person 1	**70**	91	35
you	**70**	70	70
person 2	**70**	70	28

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with zero variance and zero aggregate self-other difference—the Distributional Fairness option. Underline denotes the Spiteful option. The unmarked numbers represent the Efficiency option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Table S14

Groups scale (Study S1b) (amounts in $)

	Option 1	Option 2	Option 3
the rich (per person)	110,000	**60,000**	50,000
you	60,000	**60,000**	60,000
the poor (per person)	60,000	**60,000**	20,000
the rich (per person)	30,000	**50,000**	70,000
you	50,000	**50,000**	50,000
the poor (per person)	25,000	**50,000**	50,000
the rich (per person)	25,000	110,000	**75,000**
you	75,000	75,000	**75,000**
the poor (per person)	15,000	75,000	**75,000**
the rich (per person)	**40,000**	55,000	32,000
you	**40,000**	40,000	40,000
the poor (per person)	**40,000**	40,000	30,000
the rich (per person)	150,000	**100,000**	90,000
you	100,000	**100,000**	100,000
the poor (per person)	100,000	**100,000**	60,000
the rich (per person)	**45,000**	40,000	60,000
you	**45,000**	45,000	45,000
the poor (per person)	**45,000**	25,000	45,000
the rich (per person)	**65,000**	95,000	60,000
you	**65,000**	65,000	65,000
the poor (per person)	**65,000**	65,000	35,000

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with zero variance and zero aggregate self-other difference—the Distributional Fairness option. Underline denotes the Spiteful option. The unmarked numbers represent the Efficiency option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Results and discussion

Distributional fairness has no effect in Study S1a (interpersonal allocations); however, it has an effect in Study S1b: The more participants prefer *equal payoffs* (salaries) for themselves, the rich, and the poor (i.e. over the Efficiency and Spite alternatives), the more they support redistribution. This effect survives the inclusion of the emotion/motivation triplet, procedural fairness, and demographic variables. Thus, the distributional fairness effect (i) decreases with the (absolute) variance of the fair alternative, and (ii) is specific to groups of individuals (rich, poor). Procedural fairness has no effect in the regressions. The emotion/motivation triplet predicts support for redistribution, even when entered with the other variables. We note that, even in Study S1b, the study where distributional fairness has a significant and unique effect, the effect of the emotion/motivation triplet is several times greater than the effect of distributional fairness (Σsr^2: emotion/motivation triplet: .25; distributional fairness: .04) (Tables S15–S17).

Table S15

Scale reliabilities: Cronbach's alphas (Studies S1a–S1b)

Study	S1a	S1b
Redistribution	.93	.92
Compassion	.83	.85
Envy	.92	.91
P-fair	.69	.69
D-fair	.96	.96
SES	.77	.74

Note. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness.

Table S16

Descriptive statistics (Studies S1a–S1b)

Study	S1a	S1b
Redistribution	4.37 (1.48)	4.54 (1.45)
Compassion	3.62 (0.70)	3.63 (0.73)
Envy	2.08 (0.93)	2.14 (0.91)
Self-interest	3.18 (0.85)	3.33 (0.79)
P-fair	5.36 (0.95)	5.30 (0.98)
D-fair	.64 (.43)	.43 (.44)
SES	2.91 (0.80)	2.89 (0.76)

Note. Displayed are means, with standard deviations in parentheses. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness (range: 0–1). Redistribution and procedural fairness are measured with 7-point Likert scales; compassion, envy, self-interest, and SES are measured with 5-point scales.

Table S17

Regression models predicting participants' support for redistribution (Studies S1a–S1b)

Study	S1a (interpersonal)					S1b (groups)				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Comp.	.40***	.40***	.40***	.40***	.41***	.47***	.46***	.44***	.43***	.44***
Envy	.13**	.14**	.13**	.14**	.10†	.17***	.18***	.15***	.15***	.14**
Self-int.	.37***	.37***	.38***	.38***	.37***	.34***	.34***	.32***	.32***	.31***
P-fair		.01		.01	.03		.05		.04	.05
D-fair			-.02	-.02	-.01			.21***	.21***	.22***
Age					-.15**					-.01
Female					-.02					-.08†
SES					-.01					-.04
R^2	.34	.34	.34	.34	.36	.42	.42	.46	.46	.47
N	336	336	336	336	336	343	343	343	343	343

Note. Coefficients are standardized regression coefficients. Asterisks indicate the significance of the *t* statistic († $.050 \leq p \leq .061$, *$p < .05$, **$p < .01$, ***$p < .001$). Comp.: compassion. Self-int.: self-interest. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness. SES: socio-economic status.

4. STUDIES S2a–d

Introduction

In Studies 2a–c, the Compassion option of the distributional fairness instrument is the option with the highest aggregate payoff (Tables S7–S9). This is potentially problematic, because people value the total size of the pie, or efficiency (4). Thus, this measure may be insensitive to participants who value distributional fairness but not so much to trade it for efficiency. To address this potential issue, we conducted further follow-up studies where the Compassion option was simply removed from the distributional fairness instrument. The resulting instrument thus features two options: a high-efficiency, low-variance Distributional Fairness option, and a low-efficiency, high-variance Envy option (Tables S18–S19). Still, the resulting two-option measure may lack sensitivity to participants who value low-variance payoffs but fail to correctly identify a particular set of payoffs as *the low-variance* set. To address this other potential issue, we labeled the Distributional Fairness (Envy) options as follows: "Note: In this option, the money is split most (least) evenly and the total amount is larger (smaller)" (we did this in some but not all of the studies; see below). We conducted four follow-up studies in the US with these modified measures of distributional fairness. Each of the four studies measured the emotion/motivation triplet, endorsement of procedural fairness, and endorsement of distributional fairness. The latter was measured in one of four ways: interpersonal, options unlabeled (Study S2a); interpersonal, options labeled (Study S2b); groups, options unlabeled (Study S2c); and groups, options labeled (Study S2d). In studies S2a–b, the decisions were paid by lottery method.

Methods

Participants. We recruited 381/385/384/385 AMT participants in the US (Studies S2a/b/c/d); 9/13/7/12 participants were excluded from analyses due to failure to correctly respond to an attention check, leaving an effective sample size of 372/372/377/373 (% male: 47/50/50/46). Their mean age was 34/34/34/35 (SD = 12/12/12/13).

Measures. Redistribution and endorsement of procedural fairness were measured with the same scales as in Studies 2a–c. Dispositional compassion and dispositional envy were measured with the same scales as in Studies 1a–d. Studies S2a–S2d also included the following measures.

Expected personal gain from redistribution

Imagine that a policy of higher taxes on the wealthy is implemented. What impact do you think the higher taxes on the wealthy would have on you?

My own economic situation would significantly worsen (1)
My own economic situation would slightly worsen (2)
My own economic situation would stay the same (3)
My own economic situation would slightly improve (4)
My own economic situation would significantly improve (5)

Endorsement of distributional fairness. Instructions.

Studies S2a and S2b

Next, we ask you to make a number of decisions. Each decision has two options, each of which is a particular allocation of money between you and two other (randomly selected) persons participating in this study. We'll refer to them as person 1 and person 2. The numbers are in Dollar units.
For example, in this decision [example shown], if you choose option 1, you would get $8, person 1 would get $10, and person 2 would get $6. If you choose option 2, you would get $8, person 1 would get $6, and person 2 would get $3. Another example. In this decision [example shown], if you choose option 1, you would get $8, person 1 would get $9, and person 2 would get $7. If you choose option 2, you would get $8, person 1 would get $12, and person 2 would get $4.

IMPORTANT: Potentially, there is actual money involved in this study (a bonus) in addition to your sign-up payment. Your decisions will be selected for payment with odds of 1 in 50. If yours is the 1 in 50 decision set selected for payment, we will pay you (and the other two persons you are paired with) one randomly selected decision of yours, based on the choice you made for the selected decision. Even if your decision set is NOT selected for payment, if you happen to be paired with a person whose decisions ARE selected for payment, you will get paid based on this person's selected decision. NOTE: Neither you nor the persons you are paired with will know the identity or the choices of the others. Thus, no one can influence the others' choices.

Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, bear in mind that you cannot share any money you receive with the other persons and that they cannot share with you. Also, bear in mind that neither the other persons nor anyone else will know what choices you make.

Studies S2c and S2d

Next, we ask you to make a number of decisions. Each decision has two options, each of which is a particular distribution of incomes among you and two groups of people. These groups are (a) The rich – the current top 5% income earners in the United States. (b) The poor – the current bottom 5% income earners in the United States. The numbers are in Dollar units.

For example, in this decision [example shown], if you choose option 1, your income from now on would be $65,000, the income of each person among the rich from now on would be $75,000, and the income of each person among the poor from now on would be $55,000. If you choose option 2, your income from now on would be $65,000, the income of each person among the rich from now on would be $50,000, and the income of each person among the poor from now on would be $40,000. Assume that the set of incomes chosen will remain fixed from now and into the indefinite future--assume further a future without inflation. Thus, the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option.

Another example, in this decision [example shown], if you choose option 1, your income from now on would be $70,000, the income of each person among the rich from now on would be $90,000, and the income of each person among the poor from now on would be $50,000. If you choose option 2, your income from now on would be $70,000, the income of each person among the rich from now on would be $110,000, and the income of each person among the poor from now on would be $30,000.

The decisions are all hypothetical, but imagine that the incomes of you and the current rich and poor will, from now and into the indefinite future, be the incomes indicated in the chosen option--again, assume there will be no inflation in the future. Please make each of your decisions independently of your other decisions. That is, do not let any decision you make influence any of the other decisions you make. As you work through the decisions, assume that you cannot share any fraction of the income with the other persons and that they cannot share with you. Also assume that neither the other persons nor anyone else will know what choices you make.

Endorsement of distributional fairness. Decisions.

Note: Study S2b included the labels "Note: In this option, the money is split most evenly and the total amount is larger" and "Note: In this option, the money is split least evenly and the total amount is smaller" in the headings of the distributional fairness and envy options, respectively. Study S2a did not include any labels.

Table S18

Interpersonal scale (Studies S2a – S2b) (amounts in $)

	Option 1	Option 2
person 1	**6**	4
you	**5**	5
person 2	**4**	2
person 1	4	**8**
you	6	**6**
person 2	1	**4**
person 1	4	**9**
you	7	**7**
person 2	2	**5**
person 1	**12**	8
you	**9**	9
person 2	**6**	3
person 1	**13**	6
you	**10**	10
person 2	**7**	3
person 1	**14**	9
you	**13**	13
person 2	**12**	9
person 1	**18**	14
you	**16**	16
person 2	**14**	10

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with the least variance and the lowest aggregate self-other difference—the Distributional Fairness option. Underline denotes the Envy option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Note: Study S2d included the labels "Note: In this option, the money is split most evenly and the total amount is larger" and "Note: In this option, the money is split least evenly and the total amount is smaller" in the headings of the distributional fairness and envy options, respectively. Study S2c did not include any labels.

Table S19

Groups scale (Studies S2c – S2d) (amounts in $)

	Option 1	Option 2
the rich (per person)	**80,000**	50,000
you	**60,000**	60,000
the poor (per person)	**40,000**	20,000
the rich (per person)	30,000	**55,000**
you	50,000	**50,000**
the poor (per person)	25,000	**45,000**
the rich (per person)	25,000	**85,000**
you	75,000	**75,000**
the poor (per person)	15,000	**65,000**
the rich (per person)	**45,000**	32,000
you	**40,000**	40,000
the poor (per person)	**35,000**	30,000
the rich (per person)	**120,000**	90,000
you	**100,000**	100,000
the poor (per person)	**80,000**	60,000
the rich (per person)	**50,000**	40,000
you	**45,000**	45,000
the poor (per person)	**40,000**	25,000
the rich (per person)	**75,000**	60,000
you	**65,000**	65,000
the poor (per person)	**55,000**	35,000

Note. Each set of three rows separated by a blank line constitutes a separate decision. Bold denotes the option with the least variance and the lowest aggregate self-other difference—the Distributional Fairness option. Underline denotes the Envy option. The unmarked numbers represent the compassion option. The marks were not presented to the participants. Order of decision was randomized within and between subjects.

Note: the decisions of the distributional fairness instrument were hypothetical in Studies S2c and S2d, and consequential in Studies S2a and S2b. In Studies S2a and S2b, these decisions were paid with a lottery method. Participants were selected with a 1 in 50 chance. If they were selected for payment, one randomly selected decision out of the seven decisions was actualized. Participants had a 1 in 50 chance of causing themselves to earn between $5 and $16, and causing two other (anonymous) participants to earn between $1 and $18 each. Participants' total chance of earning any money (as deciders or receivers) was thus 3 in 50.

Results

The observed distributional fairness scores have positive zero-order associations with support for redistribution in all four studies (rs = .13–.25, Ps = 10^{-6}–.01). However, when entered with the emotion/motivation triplet and procedural fairness, the distributional fairness effect becomes non-significant in 3 of the 4 studies (β = .00–.05, Ps = .32–.99). In the fourth study (S2d), this effect is positive (β = .11, P = .007). Procedural fairness has no effect in the regressions. By contrast, dispositional compassion, dispositional envy, and expected personal gain from redistribution independently predict support for redistribution in all four studies, even when entered with both fairness measures. We note that, even in Study S2d, the study where distributional fairness has a significant and unique effect, the effect of the emotion/motivation triplet is of far greater magnitude than the effect of distributional fairness (Σsr^2: emotion/motivation triplet: .31; distributional fairness: .01) (Table S20–S22).

Table S20

Scale reliabilities: Cronbach's alphas (Studies S2a–S2d)

Study	S2a	S2b	S2c	S2d
Redistribution	.92	.91	.92	.92
Compassion	.84	.82	.83	.81
Envy	.89	.90	.91	.90
P-fair	.71	.68	.66	.70
D-fair	.88	.86	.91	.87

Note. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness.

Table S21

Descriptive statistics (Studies S2a–S2d)

Study	S2a	S2b	S2c	S2d
Redistribution	4.36 (1.38)	4.41 (1.36)	4.29 (1.4)	4.12 (1.40)
Compassion	3.65 (0.70)	3.69 (0.64)	3.65 (0.70)	3.55 (0.65)
Envy	2.08 (0.82)	2.14 (0.87)	2.14 (0.88)	2.10 (0.87)
Self-interest	3.19 (0.74)	3.29 (0.75)	3.16 (0.80)	3.18 (0.82)
P-fair	5.25 (0.97)	5.32 (0.95)	5.27 (0.95)	5.32 (0.96)
D-fair	.88 (.24)	.93 (.19)	.87 (.27)	.89 (.24)

Note. Displayed are means, with standard deviations in parentheses. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness (range: 0-1). Redistribution and procedural fairness are measured with 7-point Likert scales; compassion, envy, and self-interest are measured with 5-point scales.

Table S22

Regression models predicting participants' support for redistribution (Studies S2a–S2d)

Study	S2a interpersonal, unlabeled	S2b interpersonal, labeled	S2c groups, unlabeled	S2d groups, labeled
Comp.	.46***	.39***	.47***	.38***
Envy	.09*	.11*	.13***	.17***
Self-int.	.32***	.34***	.31***	.40***
P-fair	.01	−.02	.03	.04
D-fair	.00	.05	.02	.11**
R^2	.35	.32	.42	.40
N	372	372	377	373

Note. Coefficients are standardized regression coefficients. Asterisks indicate the significance of the *t* statistic (*$p < .05$, **$p < .01$, ***$p < .001$). Comp.: compassion. Self-int.: self-interest. P-fair: endorsement of procedural fairness. D-fair: endorsement of distributional fairness (range: 0-1).

REFERENCES

1. Petersen MB, Sznycer D, Sell A, Cosmides L, Tooby J (2013) The Ancestral logic of politics: Upper-body strength regulates men's assertion of self interest over economic redistribution. *Psychol Sci* 24(7):1098–1103.
2. Goldberg LR (1999) A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. eds Mervielde I, Deary I, De Fruyt F, Ostendorf F (Tilburg University Press., Tilburg, The Netherlands), pp 7–28.
3. Smith RH, Parrott WG, Diener EF, Hoyle RH, Kim SH (1999) Dispositional envy. *Pers Soc Psychol Bull* 25(8):1007–1020.
4. Charness G, Rabin M (2002) Understanding social preferences with simple tests. *Q J Econ* 117:817–869.