

# Only in My Backyard: The Effect of Flood Exposure on Environmental Behaviour

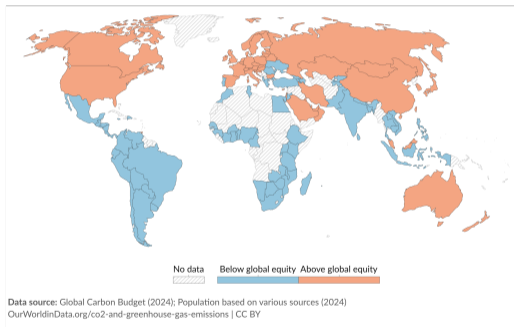
Derrick Xu

University of Bristol

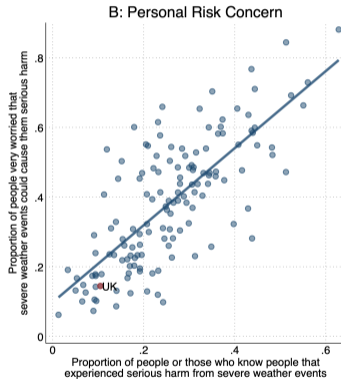
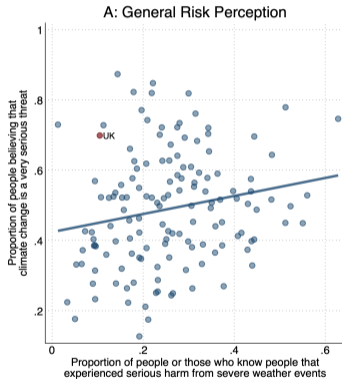
January 1, 2025

# Motivation I - High-income countries are major contributors to climate change, but public actions remain insufficient.

Are consumption-based CO<sub>2</sub> per capita emissions above/below the global average? 2022



## Motivation II - Awareness of climate change is high, but few people are personally affected.



Does experiencing the consequences of climate change (specifically floods) make people more pro-environmental?



# Preview

## Estimation Strategy

- Compare  $\Delta$  **environmental behaviours** before/after a flood between **people affected** and those living in areas with **the same flood risk but unaffected**.

## Main Results

- After being directly affected by floods:
  - People are **more likely** to support environmental charities and the Green Party;
  - However, they are **less likely** to see themselves as environmentally friendly.
  - Expectation of Green Activities  $\uparrow \Rightarrow$  Self-Assessment  $\downarrow \Rightarrow$  Green Action  $\uparrow$
- After floods affecting their neighbours:
  - People **do not** change their actions, even if they live within 200 metres.
  - The lack of response is driven by individuals with **lower moral universalism** values.

## Related Literature and Contributions

### **Effect of natural disasters on environmental behaviours:**

- Political behavior (Baccini and Leemann, 2021; Coury, 2023); Everyday activities (Lohmann and Kontoleon, 2023); Green giving (Li et al., 2011)

⇒ The first study to use real-world donations to measure green behaviour and leverage precise locations to identify those affected, uncovering highly localised reactions.

### **Effect of natural disasters on beliefs/preferences:**

- Risk Perception (Hoffmann et al., 2022); Risk Preference (Hanaoka et al., 2018); Pro-sociality (Scharf et al., 2022)

### **Drivers of pro-environmental behaviours:**

- Social norms and comparison (Allcott and Rogers, 2014); Economic incentives and Moral suasion (Ito et al., 2018); Self-evaluation (Sonenshein et al., 2014)

⇒ A new channel through which floods may change behaviours: self-assessment.

Data

Estimation Strategy

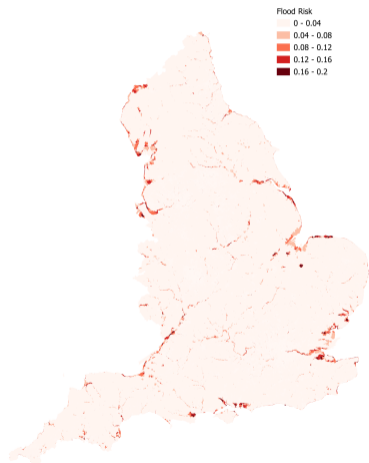
Results

Conclusion

# Flood Risk in England

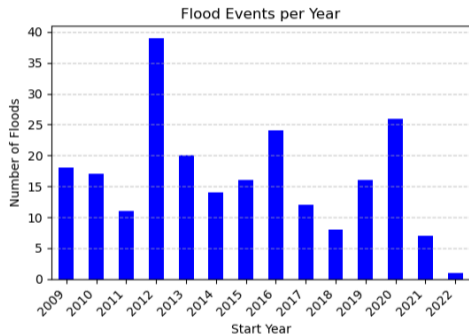
Floods are **unpredictable** within areas that share the same level of flood risk.

- Data Source: Fathom
- Annual prob. of flood depth  $\geq 10$  cm
- Risk modelling accounts for water discharge, elevation, and flood defences
- 10 m resolution, mean for each postcode

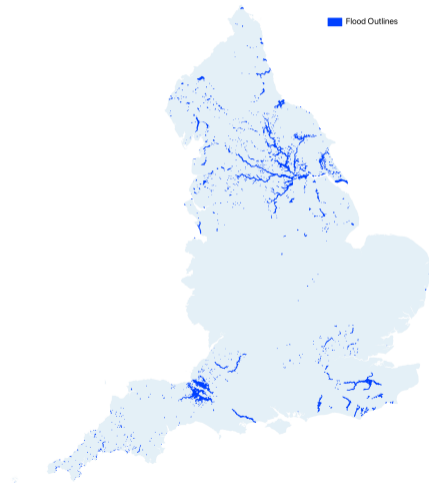




# Flood Occurrence in England



Data Source: Environment Agency



## Do people link floods with climate change?

	Flood Search		Climate Search	
	(1)	(2)	(3)	(4)
Flood Occurrence	0.939 (0.170)*** [0.000]	0.861 (0.151)*** [0.000]	0.240 (0.110)** [0.000]	0.227 (0.103)** [0.000]
Observations	808	808	808	808
Year Fixed Effects	Yes	No	Yes	No
Year by Month Fixed Effects	No	Yes	No	Yes

Data Source: Weekly Google Trends Index from 2009 to 2022

# Environmental Behaviours

## Green Giving

- All transactions made through Charities Aid Foundation from 2011 to 2022.
- 91,665 donors living in England who have been active for more than 7 years.
- It indicates if a person gives to environmental charities in a given year.

## Green Politics

- Understanding Society: Waves 1 - 12, except for 8.
- It equals one if a people considers himself a supporter of the Green Party.

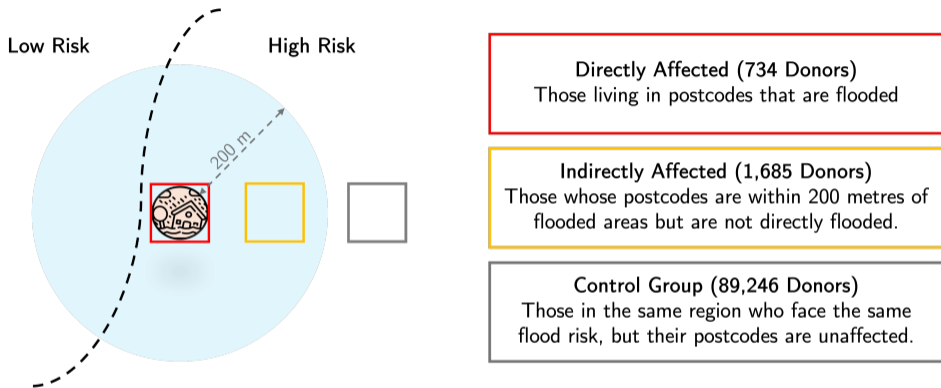
Data

Estimation Strategy

Results

Conclusion

# Difference-in-Differences Design



Compare  $\Delta$  **Environmental Outcomes** before and after a flood, between people (directly or indirectly) affected and those in the control group.

# Estimation Specification

## Assumption:

- Flood exposure is random in a given year within areas of the same flood risk.  $\Rightarrow$  Common Trends Assumption

## Specification:

$$Y_{it} = \beta_1 F_{it}^{direct} + \beta_2 F_{it}^{indirect} + \alpha_i + \gamma_{rt} + \delta_t R_i + u_{it}$$

- $F_{it}^{direct} = 1$  if individual  $i$  has directly experienced a flood affecting his own postcode since 2009.
- $F_{it}^{indirect} = 1$  if individual  $i$  has indirectly experienced a flood affecting his neighbouring postcodes within a 200-metre radius, but not his own, since 2009.
- $\alpha_i$  individual FE;  $\gamma_{rt}$  region-year FE;  $\delta_t R_i$  risk-year FE.

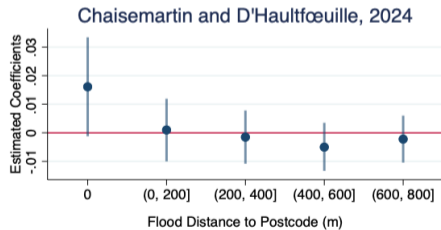
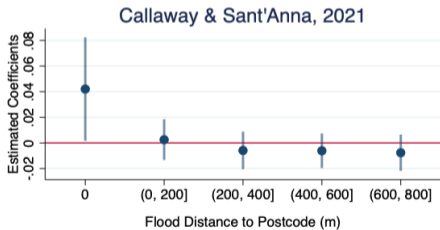
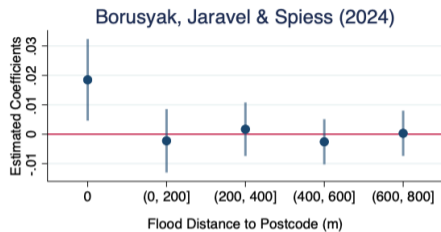
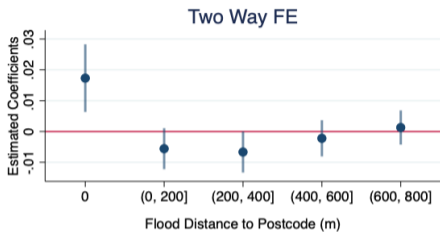
Data

Estimation Strategy

**Results**

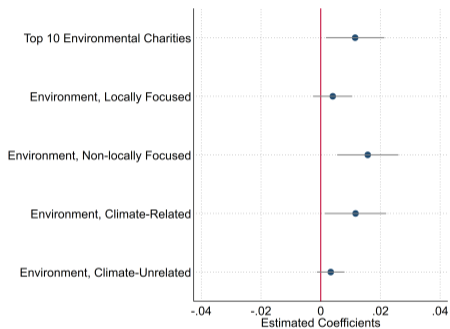
Conclusion

# Only direct flood exposure increases green donations.

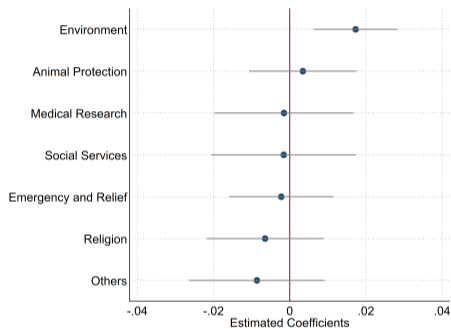




# Flood exposure increases giving for climate change, but not to others.

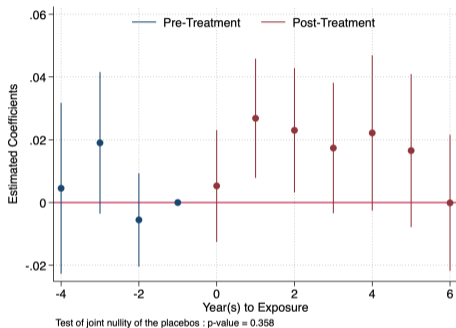


(a) by Environment Type

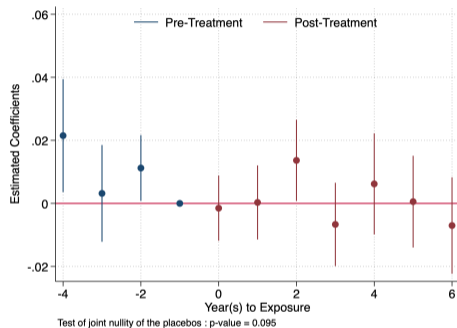


(b) by Social Cause

# The effect of direct flood exposure lasts up to five years.

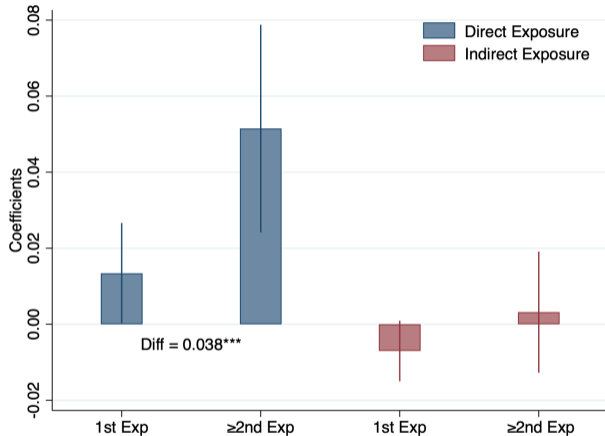


(a) Direct Flood Exposure

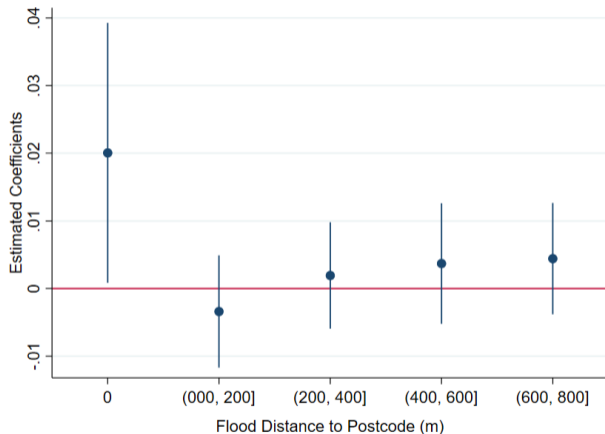


(b) Indirect Flood Exposure

The more one is affected, the more likely they are to act.



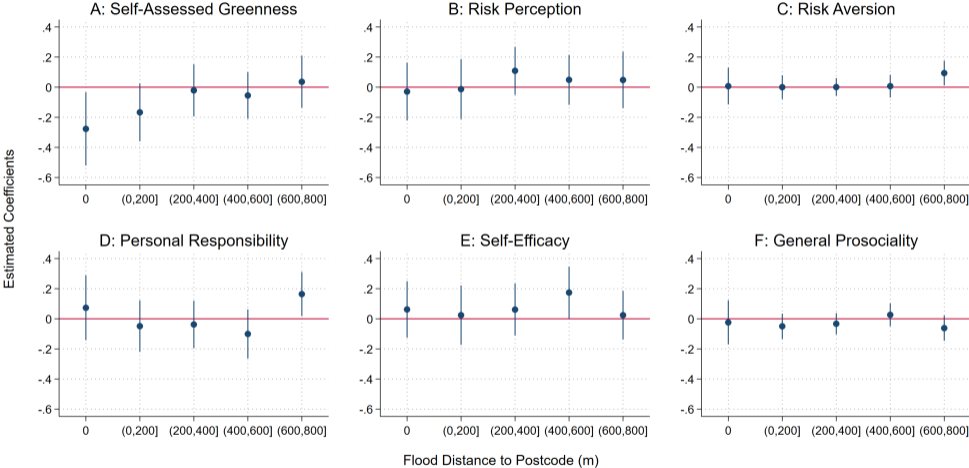
## The localised effects extend to support for the Green Party.



# Robustness Check

- Specification Forms for Flood Risk:
  - 1 Alternative flood depth thresholds for defining flood risk
  - 2 Discrete levels of flood risk
- Stricter Control Group
  - 3 People facing the same flood risk, from the same city
  - 4 People facing the same flood risk, living between 200 and 800 m away from floods
- 5 Randomisation Test
- 6 Conditional Logit Models

# Potential Channels – Environmental Beliefs and Preferences



▸ Measures on Beliefs

▸ Results on Beliefs

▸ Risk Behaviour

▸ Prosociality

# Why Don't People Respond to Neighbours' Floods?

Experiencing floods directly triggers pro-environmental responses:

- Change in environmental beliefs – self-perception
- Information and salience
- Internalisation of climate costs

Observing floods affecting neighbours might trigger two altruistic responses:

- Viewing neighbours' floods as a global problem (**Universalist Response**)
- Caring about neighbours (**Communitarian Response**)

# Measuring Constituency-level Universalism

## Data:

- British Election Studies, around 30,000 individuals in each wave
- Take mean value at the constituency level

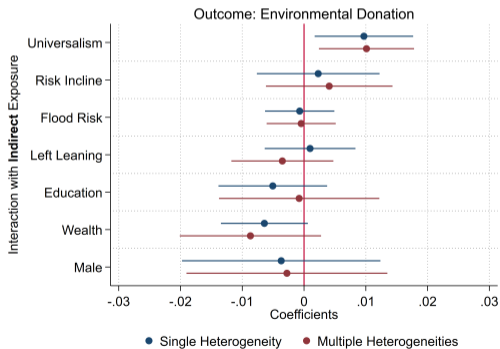
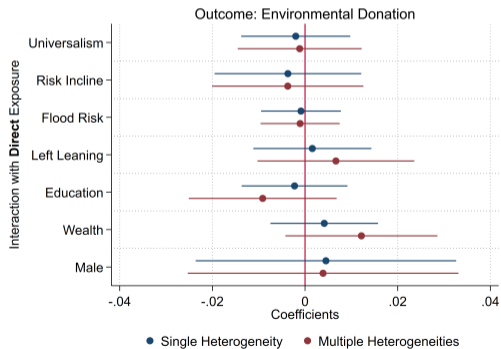
## Method: Principal Component Analysis (PCA)

	Component 1	Component 2
<i>Proportion of Variance</i>	0.53	0.47
<i>Factor Loadings:</i>		
Sense of belonging to local community	-0.71	0.71
Globalisation is a good or bad thing	0.71	0.71



# Universalists become more pro-environment without personal exposure.

$$Y_{it} = \beta_1 F_{it}^{direct} + \beta_1' F_{it}^{direct} \times Universalism_{c(i)} \\ + \beta_2 F_{it}^{indirect} + \beta_2' F_{it}^{indirect} \times Universalism_{c(i)} \alpha_i + \gamma_{rt} + \delta_t R_i + u_{it}$$



Data

Estimation Strategy

Results

Conclusion

# Conclusion

## **Reconcile the results:**

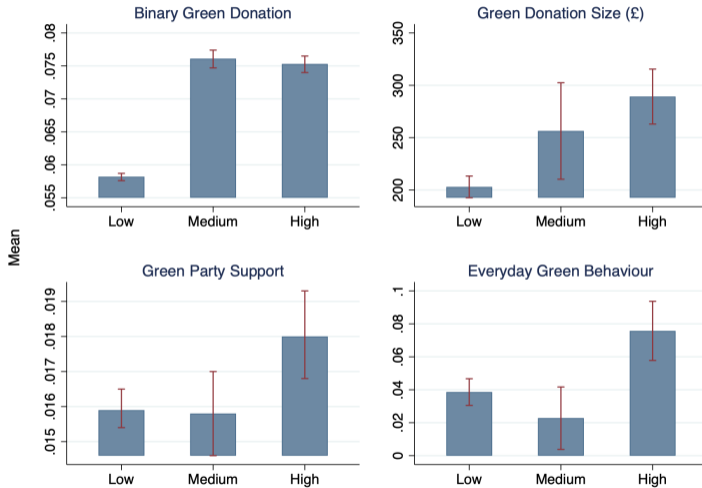
- People become more pro-environment after floods directly affect them, but this effect is absent when floods only affect their neighbours.
- The lack of response to neighbouring floods is driven by people with weaker universalism values.

## **Implications:**

- Highly localised effects highlight the importance of personal relevance.
- Promoting universalism values could potentially drive greater behavioural change, even among those less likely to be personally affected.

Thank You!  
derrick.xu@bristol.ac.uk

# Environmental Behaviours by Flood Risk Level



◀ Back

## Descriptive Statistics by Flood Risk

	All	Low Risk	Medium Risk	High Risk
Monthly Gross Income (£)	1,806.16 (4,381.59)	1,765.92 (4,417.14)	1,868.01 (2,598.59)	1,948.99 (5,387.97)
Age	47.74 (18.57)	47.41 (18.57)	48.78 (18.55)	48.43 (18.56)
Female	0.54 (0.50)	0.54 (0.50)	0.54 (0.50)	0.54 (0.50)
University Degree	0.26 (0.44)	0.25 (0.43)	0.26 (0.44)	0.28 (0.45)
Urban Address	0.81 (0.39)	0.85 (0.36)	0.71 (0.46)	0.71 (0.45)
Obs.	385,893	278,299	51,468	56,126

[◀ Back](#)

## Count of CAF Donors Flooded by Year and Flood Risk

Year	Low and Medium Flood Risk			High Flood Risk		
	Obs.	Direct Exp.	Indirect Exp.	Obs.	Direct Exp.	Indirect Exp.
2011	73,974	19	233	15,135	92	95
2012	73,974	29	171	15,135	80	65
2013	73,974	30	133	15,135	108	70
2014	73,974	1	8	15,135	5	2
2015	73,974	54	318	15,135	169	79
2016	73,974	10	95	15,135	17	16
2017	73,974	7	12	15,135	5	5
2018	73,974	1	1	15,135	1	4
2019	73,974	7	87	15,135	23	43
2020	73,974	14	123	15,135	49	59
2021	73,974	3	26	15,135	7	18
2022	73,974	2	18	15,135	1	4
Total	-	177	1,225	-	557	460

[◀ Back](#)

## Count of UKHLS Respondents Flooded by Year

Wave	Observations	Direct Flood Exposure	Indirect Flood Exposure
2009	41925	15	31
2010	40685	-	26
2011	36899	14	24
2012	35114	17	39
2013	33584	13	62
2014	34182	29	34
2015	32007	34	92
2016	29956	42	86
2017	27604	-	16
2018	26511	-	-
2019	24802	26	69
2020	22624	12	86
Total	-	202	565

◀ Back

*Notes:* Missing observations indicate the number is fewer than 10, and the total does not include years when the observation is fewer than 10.



# Everyday Green Behaviour

	Factor Loading	Unexplained Variance
<b>A: Energy index</b>		
Don't leave TV on standby for the night	0.433	0.812
Switch off lights in rooms that aren't being used	0.620	0.616
Don't keep the tap running while you brush your teeth	0.599	0.641
Wear more clothes rather than turning on heating when it's cold	0.594	0.648
<i>Eigenvalue</i>	1.283	
<i>Proportion of variance explained</i>	0.321	
<b>B: Recycle index</b>		
Decide not to buy something because of overpackaging	0.743	0.447
Buy recycled paper products such as toilet paper or tissues	0.759	0.424
Take your own shopping bag when shopping	0.582	0.661
<i>Eigenvalue</i>	1.467	
<i>Proportion of variance explained</i>	0.489	
<b>C: Transport index</b>		
Use public transport rather than travel by car	0.835	0.303
Walk or cycle for short journeys less than 2 or 3 miles	0.835	0.303
<i>Eigenvalue</i>	1.394	
<i>Proportion of variance explained</i>	0.697	
<b>Overall: Everyday Green Behaviour</b>		
Energy Index	0.718	0.485
Recycle Index	0.720	0.482
Transport Index	0.583	0.660
<i>Eigenvalue</i>	1.372	
<i>Proportion of variance explained</i>	0.457	
Obs.	104,702	

◀ Back

# Environmental Belief Indexes

	Factor 1	Factor 2	Factor 3	Factor 4	Unexplained Variance
<b>Unrotated factors</b>					
Eigenvalues	2.863	2.072	1.172	1.078	
Proportion of explained variance	0.205	0.148	0.084	0.077	
Not worth UK to make changes because other countries will cancel out what we do	0.715	-0.131	-0.045	-0.056	0.467
Not worth me doing things to help the environment if others don't do the same	0.710	-0.054	0.002	-0.142	0.473
The effects of climate change are too far in the future to really worry me	0.659	0.032	-0.148	0.110	0.530
Climate change is beyond control - it's too late to do anything about it	0.573	0.122	0.029	0.189	0.620
Any changes I make to help the environment need to fit in with my lifestyle	0.547	0.110	0.019	-0.154	0.665
Environmental crisis facing humanity has been greatly exaggerated	0.532	-0.065	-0.291	0.083	0.621
Being green is an alternative lifestyle and it's not for the majority	0.358	-0.313	-0.051	0.178	0.740
I would be prepared to pay more for environmentally-friendly products	-0.027	0.712	0.061	0.219	0.440
My behaviour and everyday lifestyle contribute to climate change	0.029	0.666	0.137	-0.038	0.535
We will soon experience an environmental disaster if current course continues	0.040	0.644	0.325	0.134	0.461
I'm happy with what I do at the moment	0.160	-0.583	-0.039	0.369	0.497
People in the UK will be affected by climate change in the next 200 years	-0.011	0.028	0.855	-0.048	0.266
People in the UK will be affected by climate change in the next 30 years	-0.094	0.195	0.830	0.035	0.262
I'm environmentally friendly in most things or everything I do	-0.040	0.069	-0.009	0.869	0.239
Obs.	69,002				

**Factor 1:** self-efficacy; **Factor 2:** personal responsibility; **Factor 3:** risk perception; **Factor 4:** self-identity

# The Effect of Flood Exposure on Moving

	Change in Address	
	(1)	(2)
<b>Direct Flood Exposure</b>		
distance = 0 m	-0.014 (0.022)	-0.014 (0.023)
<b>Indirect Flood Exposure</b>		
000 < distance ≤ 200 m	-0.003 (0.012)	0.001 (0.012)
200 < distance ≤ 400 m	0.003 (0.010)	0.004 (0.010)
400 < distance ≤ 600 m	-0.006 (0.010)	-0.006 (0.010)
600 < distance ≤ 800 m	-0.018* (0.010)	-0.015 (0.010)
F(All Coefs of Indirect Exposure = 0)	1.060	0.817
Observations	262,067	259,820
Individual FE	Yes	Yes
Flood Risk ( $t - 1$ ) by Year FE	No	Yes
Region by Year FE	Yes	Yes

# The Effect of Flood Exposure on Attrition

	Attrition	
	(1)	(2)
<b>Direct Flood Exposure</b>		
distance = 0 m	0.017 (0.017)	0.016 (0.017)
<b>Indirect Flood Exposure</b>		
000 < distance ≤ 200 m	-0.003 (0.011)	-0.004 (0.011)
200 < distance ≤ 400 m	0.004 (0.008)	0.003 (0.008)
400 < distance ≤ 600 m	-0.007 (0.008)	-0.008 (0.008)
600 < distance ≤ 800 m	-0.002 (0.008)	-0.002 (0.008)
F(All Coefs of Indirect Exposure = 0)	0.275	0.328
Observations	273,980	273,980
Flood Risk by Year FE	Yes	Yes
Region by Year FE	No	Yes

# The Effect of Flood Exposure on Environmental Behaviour

	(1) Green Donation	(2) Green Party Support	(3) Everyday Green Behaviour
<b>Direct Flood Exposure</b>			
distance = 0 m	0.017 (0.006) <sup>***</sup> [0.007] <sup>**</sup>	0.020 (0.012) <sup>*</sup> [0.011] <sup>*</sup>	0.078 (0.102) [0.092]
<b>Indirect Flood Exposure</b>			
000 < distance ≤ 200 m	-0.006 (0.004) [0.004]	-0.003 (0.005) [0.005]	0.127 (0.073) <sup>*</sup> [0.080] <sup>*</sup>
200 < distance ≤ 400 m	-0.006 (0.004) [0.003] <sup>*</sup>	0.002 (0.005) [0.005]	0.045 (0.071) [0.072]
400 < distance ≤ 600 m	-0.002 (0.004) [0.004]	0.004 (0.005) [0.006]	-0.034 (0.066) [0.073]
600 < distance ≤ 800 m	0.001 (0.003) [0.003]	0.004 (0.005) [0.005]	0.024 (0.056) [0.058]
Mean Outcome	.063	.016	.042
F(All Coefs of Indirect Exposure = 0)	1.26	0.493	0.957
Observations	1,025,652	283,418	56,747
Individual FE	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes

Notes: Standard errors clustered at the postcode (area) level are reported in round (square) brackets.  
<sup>\*\*\*</sup> significant at 1%, <sup>\*\*</sup> significant at 5%, <sup>\*</sup> significant at 10%.

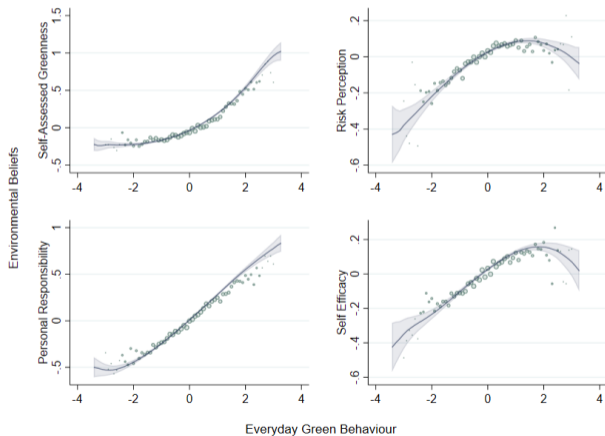
# The Effect of Flood Exposure on Support for Other Parties

	(1) Labour Party Support	(2) Conservative Party Support	(3) Political Interest
<b>Direct Flood Exposure</b>			
distance = 0 m	0.032 (0.023)	0.018 (0.024)	-0.018 (0.039)
<b>Indirect Flood Exposure</b>			
000 < distance ≤ 200 m	0.006 (0.015)	0.004 (0.013)	0.008 (0.028)
200 < distance ≤ 400 m	0.005 (0.014)	-0.010 (0.014)	0.029 (0.024)
400 < distance ≤ 600 m	0.005 (0.013)	0.004 (0.013)	0.012 (0.021)
600 < distance ≤ 800 m	0.003 (0.012)	-0.002 (0.011)	0.002 (0.023)
Observations	283,418	283,418	287,443
Individual FE	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes

# Environmental Beliefs and Behaviours

- Understanding Society: Wave 4 (2012); Wave 10 (2018)
- Apply PCA to 14 questions to construct four environmental beliefs

► Belief PCA



# The Effect of Flood Exposure on Environmental Beliefs

	(1)	(2)	(3)	(4)
	Sef-Assessed Greenness	Risk Perception	Personal Responsibility	Self Efficacy
<b>Direct Flood Exposure</b>				
distance = 0 m	-0.305 (0.148)** [0.177]**	-0.018 (0.114) [0.096]	0.065 (0.137) [0.157]	0.074 (0.112) [0.114]
<b>Indirect Flood Exposure</b>				
000 < distance ≤ 200 m	-0.165 (0.116) [0.111]	-0.008 (0.117) [0.099]	-0.062 (0.109) [0.102]	0.023 (0.116) [0.114]
200 < distance ≤ 400 m	-0.026 (0.107) [0.089]	0.113 (0.093) [0.086]	-0.035 (0.102) [0.114]	0.058 (0.102) [0.090]
400 < distance ≤ 600 m	-0.051 (0.095) [0.137]	0.046 (0.100) [0.128]	-0.114 (0.104) [0.131]	0.169 (0.102)* [0.091]*
600 < distance ≤ 800 m	0.020 (0.107) [0.091]	0.056 (0.111) [0.101]	0.173 (0.093)* [0.100]*	0.029 (0.095) [0.092]
F(All Coefs of Indirect Exposure = 0)	0.597	0.486	1.370	0.820
Observations	32,098	32,098	32,098	32,098
Individual FE	Yes	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes	Yes

*Notes:* Standard errors clustered at the postcode (area) level are reported in round (square) brackets.  
 \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.



# The Effect of Flood Exposure on Risk Preferences

	(1)	(2)	(3)	(4)	(5)	(6)
	Content Insurance	National Savings	Company Stocks	National Savings Share	Company Stocks Share	Log AllInvest Amt
<b>Direct Flood Exposure</b>						
distance = 0 m	0.003 (0.030)	0.058 (0.087)	-0.045 (0.110)	0.231 (0.260)	-0.078 (0.083)	-0.992 (0.999)
<b>Indirect Flood Exposure</b>						
000 < distance ≤ 200 m	-0.000 (0.020)	-0.013 (0.040)	0.006 (0.055)	0.001 (0.216)	-0.037 (0.149)	-0.098 (0.440)
200 < distance ≤ 400 m	0.000 (0.015)	0.000 (0.058)	0.014 (0.058)	-0.256 (0.273)	-0.057 (0.103)	0.057 (0.468)
400 < distance ≤ 600 m	0.003 (0.019)	-0.018 (0.047)	-0.005 (0.048)	0.083 (0.257)	0.136 (0.252)	0.452 (0.637)
600 < distance ≤ 800 m	0.038* (0.021)	0.040 (0.046)	-0.001 (0.041)	0.102 (0.130)	-0.087 (0.150)	0.230 (0.687)
F(All Coefs of Ind Exp = 0)	0.893	0.249	0.019	0.414	0.237	0.169
Observations	158,162	42,936	42,936	2,148	3,734	7,320
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes	Yes	Yes	Yes

*Notes:* Standard errors clustered at the postcode level are reported in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

# The Effect of Flood Exposure on General Pro-Sociality

	(1) Whether Donated	(2) Donation Frequency	(3) Donation Amount
<b>Direct Flood Exposure</b>			
distance = 0 m	-0.011 (0.042)	0.096* (0.058)	-20.563 (45.323)
<b>Indirect Flood Exposure</b>			
000 < distance ≤ 200 m	-0.023 (0.024)	-0.066 (0.047)	-7.510 (40.703)
200 < distance ≤ 400 m	-0.015 (0.020)	-0.063 (0.040)	2.973 (28.754)
400 < distance ≤ 600 m	0.012 (0.021)	0.044 (0.038)	-36.615* (19.019)
600 < distance ≤ 800 m	-0.029 (0.024)	0.003 (0.043)	-16.178 (29.994)
F(All Coefs of Indirect Exp = 0)	0.820	1.480	1.052
Observations	136,136	81,545	80,435
Individual FE	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes

Notes: Standard errors clustered at the postcode level are reported in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

# Alternative Threshold for Defining Flood Risk

	Green Donation			
	(1)	(2)	(3)	(4)
<b>Direct Flood Exposure</b>				
distance = 0 m	0.017*** (0.007)	0.017** (0.007)	0.017** (0.007)	0.016** (0.007)
<b>Indirect Flood Exposure</b>				
0 < distance ≤ 200 m	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)
200 < distance ≤ 400 m	-0.007 (0.004)	-0.007 (0.004)	-0.007* (0.004)	-0.007* (0.004)
400 < distance ≤ 600 m	-0.002 (0.004)	-0.002 (0.004)	-0.002 (0.004)	-0.002 (0.004)
600 < distance ≤ 800 m	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
Observations	1,025,652	1,025,652	1,025,652	1,025,652
F(All Coefs of Indirect Exposure = 0)	1.261	1.270	1.286	1.306
Threshold of Flood Depth to Define Flood Risk (cm)	10	25	50	100
Flood Risk by Year FE	Yes	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

# Control for Discrete Risk by Year FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Green Donation	Green Party Support	Everyday Green Behaviour	Self-Assessed Greenness	Risk Perception	Personal Responsibility	Self Efficacy
<b>Direct Flood Exposure</b>							
distance = 0 m	0.017** (0.007)	0.020* (0.012)	0.080 (0.101)	-0.287* (0.147)	-0.005 (0.116)	0.079 (0.130)	0.084 (0.113)
<b>Indirect Flood Exposure</b>							
000 < distance ≤ 200 m	-0.005 (0.004)	-0.003 (0.005)	0.126* (0.074)	-0.175 (0.117)	-0.005 (0.121)	-0.047 (0.104)	0.025 (0.120)
200 < distance ≤ 400 m	-0.007 (0.004)	0.002 (0.005)	0.043 (0.071)	-0.018 (0.105)	0.112 (0.098)	-0.042 (0.096)	0.056 (0.105)
400 < distance ≤ 600 m	-0.002 (0.004)	0.004 (0.005)	-0.037 (0.066)	-0.061 (0.094)	0.047 (0.101)	-0.097 (0.099)	0.172* (0.104)
600 < distance ≤ 800 m	0.001 (0.003)	0.004 (0.005)	0.025 (0.056)	0.042 (0.105)	0.048 (0.114)	0.165* (0.089)	0.028 (0.098)
F(All Coefs of Indirect Exposure = 0)	1.240	0.486	0.929	0.699	0.428	1.281	0.801
Observations	1,025,652	283,418	56,747	32,098	32,098	32,098	32,098
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flood Risk Level by Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Control for Postcode Area by Year FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Green Donation	Green Party Support	Everyday Green Behaviour	Self-Assessed Greenness	Risk Perception	Personal Responsibility	Self Efficacy
<b>Direct Flood Exposure</b>							
distance = 0 m	0.019*** (0.007)	0.021* (0.012)	0.041 (0.107)	-0.267* (0.159)	-0.076 (0.128)	0.024 (0.134)	0.140 (0.120)
<b>Indirect Flood Exposure</b>							
000 < distance ≤ 200 m	-0.005 (0.004)	-0.003 (0.005)	0.104 (0.074)	-0.117 (0.121)	-0.009 (0.122)	-0.110 (0.117)	0.034 (0.124)
200 < distance ≤ 400 m	-0.006 (0.004)	0.002 (0.005)	0.035 (0.074)	0.014 (0.116)	0.095 (0.107)	-0.068 (0.105)	0.070 (0.113)
400 < distance ≤ 600 m	-0.002 (0.004)	0.004 (0.005)	-0.049 (0.063)	-0.064 (0.099)	0.071 (0.103)	-0.111 (0.099)	0.184* (0.105)
600 < distance ≤ 800 m	0.001 (0.003)	0.005 (0.005)	0.003 (0.058)	0.047 (0.106)	0.088 (0.116)	0.197** (0.092)	0.052 (0.100)
F(All Coefs of Indirect Exposure = 0)	1.04	0.606	0.705	0.376	0.446	1.932	0.962
Observations	1,025,652	283,395	56,699	32,054	32,054	32,054	32,054
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flood Risk by Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Postcode Area by Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

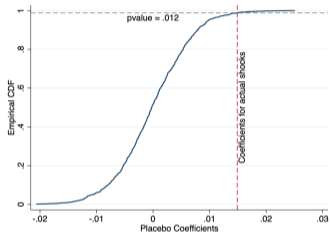
## Control Group: people ever living between 200 and 800 metres from floods

	Green Giving	Green Party Support	Self-assessed Greenness
	(1)	(2)	(3)
<b>Direct Flood Exposure</b>			
distance = 0 m	0.018*** (0.007)	0.018*** (0.007)	0.018*** (0.007)
<b>Indirect Flood Exposure</b>			
0 < distance ≤ 200 m	-0.005 (0.004)	-0.005 (0.004)	-0.005 (0.004)
Observations	93,726	93,726	93,726
Flood Risk by Year FE	Yes	Yes	Yes
Region by Year FE	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes

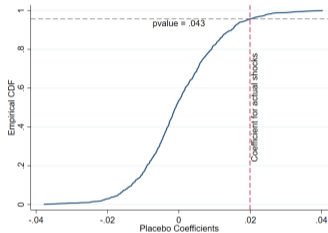
*Notes:* Standard errors are clustered at the postcode level.

\*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

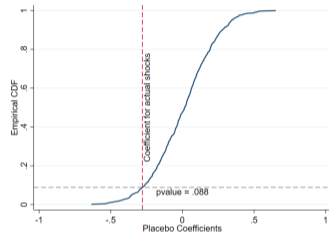
# Randomisation Test



(a) Green Donation



(b) Green Party Support



(c) Self-Assessed Greenness

# Conditional Logit Model

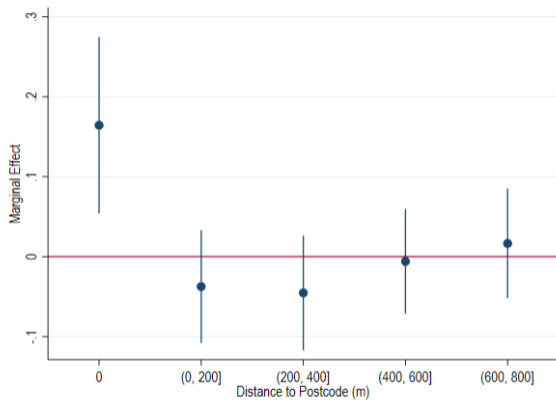
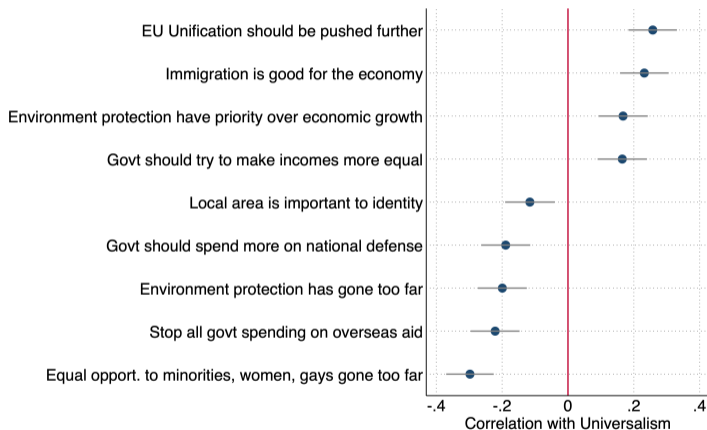


Figure: Environmental Giving



# Verifying the Measure for Universalism



## References I

- Allcott, H. and Rogers, T. (2014). The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation. *American Economic Review*, 104(10):3003–3037.
- Baccini, L. and Leemann, L. (2021). Do natural disasters help the environment? how voters respond and what that means. *Political Science Research and Methods*, 9(3):468–484.
- Coury, M. (2023). Climate risk and preferences over the size of government: Evidence from california wildfires. *The Review of Economics and Statistics*, pages 1–46.
- Hanaoka, C., Shigeoka, H., and Watanabe, Y. (2018). Do risk preferences change? evidence from the great east japan earthquake. *American Economic Journal: Applied Economics*, 10(2):298–330.
- Hoffmann, R., Muttarak, R., Peisker, J., and Stanig, P. (2022). Climate change experiences raise environmental concerns and promote green voting. *Nature Climate Change*, 12(2):148–155.
- Ito, K., Ida, T., and Tanaka, M. (2018). Moral suasion and economic incentives: Field experimental evidence from energy demand. *American Economic Journal: Economic Policy*, 10(1):240–267.
- Li, Y., Johnson, E. J., and Zaval, L. (2011). Local warming: Daily temperature change influences belief in global warming. *Psychological science*, 22(4):454–459.
- Lohmann, P. M. and Kontoleon, A. (2023). Do flood and heatwave experiences shape climate opinion? causal evidence from flooding and heatwaves in england and wales. *Environmental and Resource Economics*, pages 1–42.
- Scharf, K., Smith, S., and Ottoni-Wilhelm, M. (2022). Lift and shift: The effect of fundraising interventions in charity space and time. *American Economic Journal: Economic Policy*, 14(3):296–321.
- Sonenshein, S., DeCelles, K. A., and Dutton, J. E. (2014). It's not easy being green: The role of self-evaluations in explaining support of environmental issues. *Academy of Management Journal*, 57(1):7–37.