A National Longitudinal Investigation of Environmental Attitudes and Behaviours

New Zealand: 2009-2018

Joseph Bulbulia

School of Psychology
Faculty of Science
Te Herenga Waka Victoria University of Wellington

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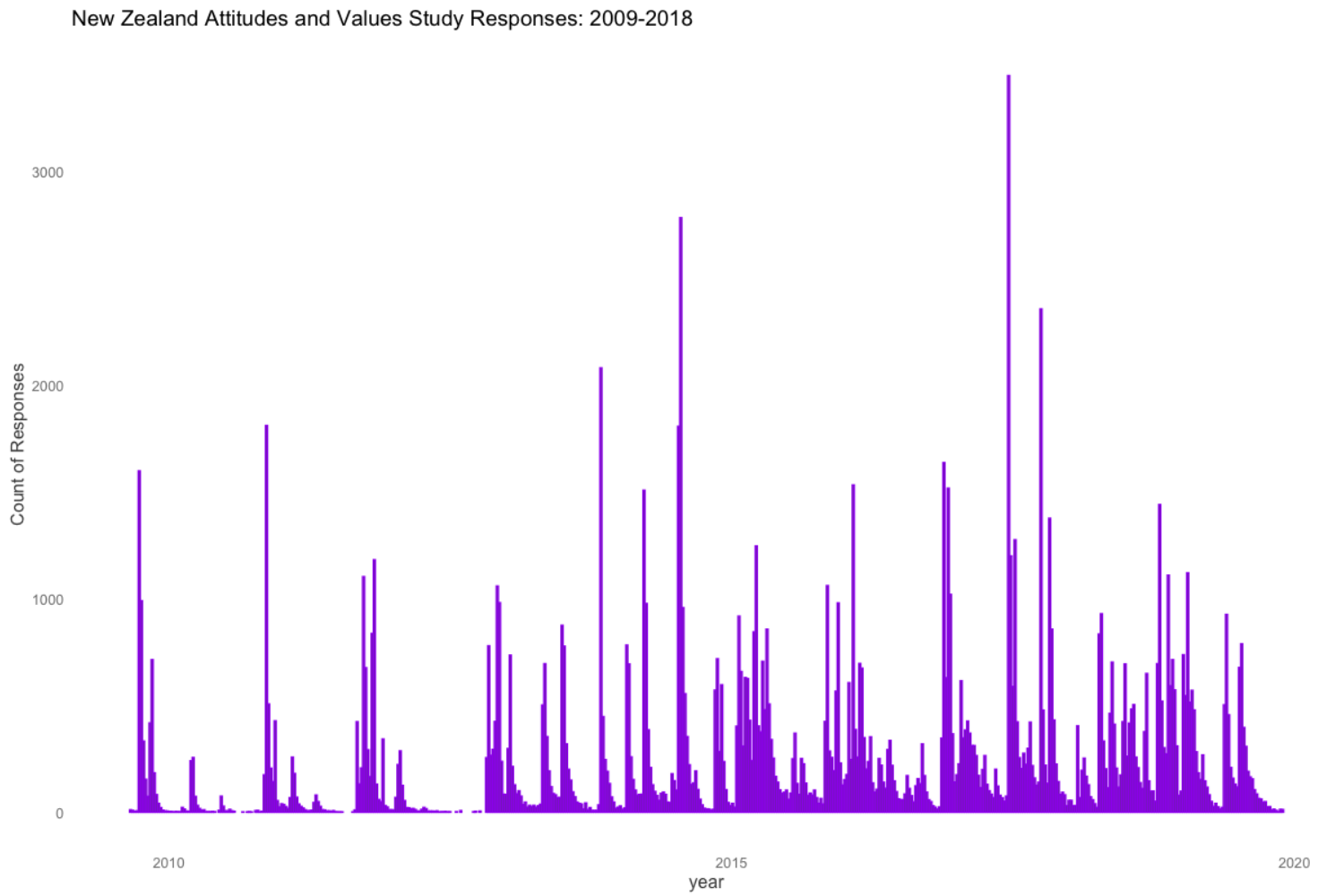
Outline

1. Background: New Zealand Attitudes and Values Study
2. Climate Change Beliefs
3. Concern about Climate
4. Beliefs My Behavior Can Help The Environment
5. Sacrificial Behaviour for the Environment
6. What Motivates Sacrifice for the Environment?
7. Summary

What is the New Zealand Attitudes and Values Study (NZAVS)?

- Planned 20-year longitudinal study, currently in its 11^{th} year.
- Postal questionnaire.
- Sample frame drawn randomly from NZ Electoral Roll.
- Large multidisciplinary research team.
- Focus on personality, social attitudes, values, religion, adult character development, identity, employment, experiences of discrimination, well-being and health, and **environmental attitudes**.
- Current sample contains $> 42,000$ unique people, or 1.45% of the adult NZ population (we have responses from 61,535 individuals.)

Histogram of weekly NZAVS responses reveals magnitude of information capture



Here, we investigate change in (1) Climate Beliefs, (2) Climate Concern, (3) Environmental Efficacy, (4) Sacrificial Behaviour for the Environment in $N = 26,790$ longitudinal participants (responded to two or more waves).

Model

$$\sum_{k=1}^{K} \text{EnvironmentalOrientation}_{ij} \sim N\left(\mu, \sigma^2\right)$$

$$\begin{aligned}\mu = {} & \alpha_{j[i]} + \beta_1(\text{years}) + \beta_2(\text{Relid. S}) + \beta_3(\text{Pol. Orient. S}) + \\ & \beta_4(\text{Edu. S}) + \beta_5(\text{Age. C. decade}) + \beta_6(\text{EthnicCats}_{\text{Mori}}) + \beta_7(\text{EthnicCats}_{\text{Pacific}}) + \\ & \beta_8(\text{EthnicCats}_{\text{Asian}}) + \beta_9(\text{Male}_1) + \beta_{10}(\text{NZdepS}) + \beta_{11}(\text{Urban}_1) + \\ & \beta_{12}(\text{years} \times \text{Relid. S}) + \beta_{13}(\text{years} \times \text{Pol. Orient. S}) + \beta_{14}(\text{years} \times \text{Edu. S})\end{aligned}$$

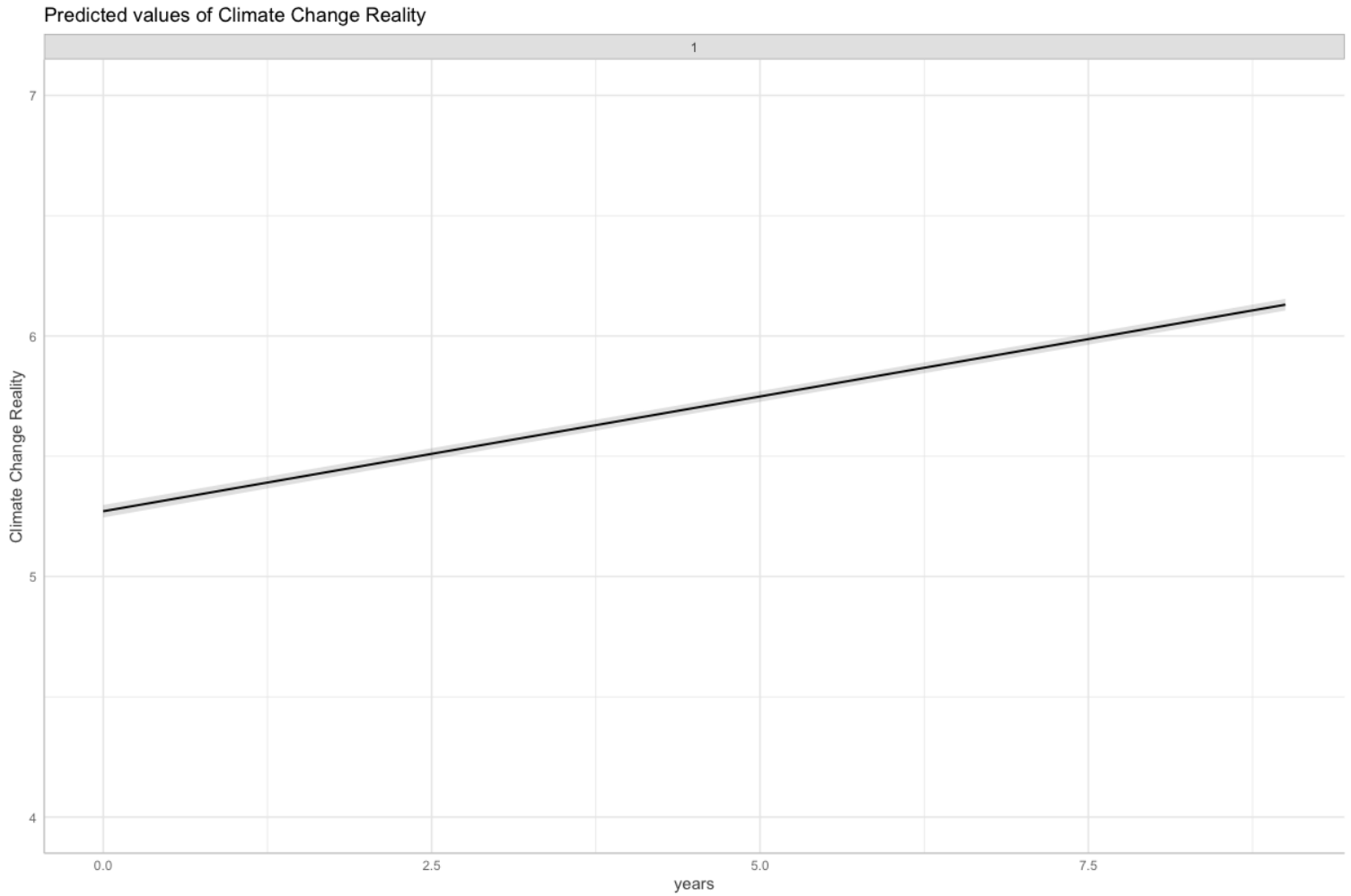
$$\alpha_j \sim N\left(\mu_{\alpha_j}, \sigma^2_{\alpha_j}\right), \text{ for } i = 1 \ldots 26,790 \text{ Id}, j = 1 \ldots 10 \text{ Waves}$$

1. Climate Change Questions

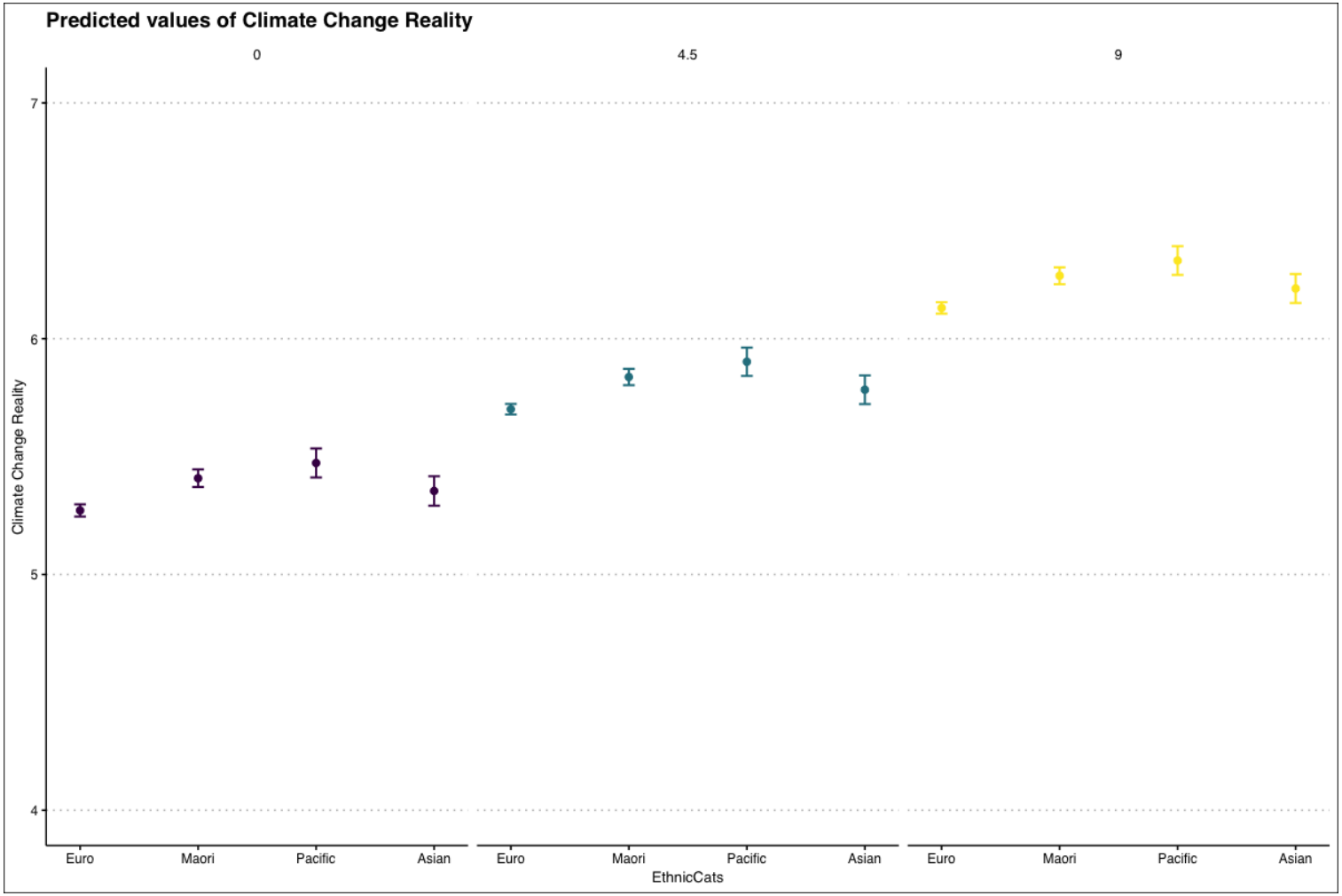
"Climate change is real."

"Climate change is caused by humans."

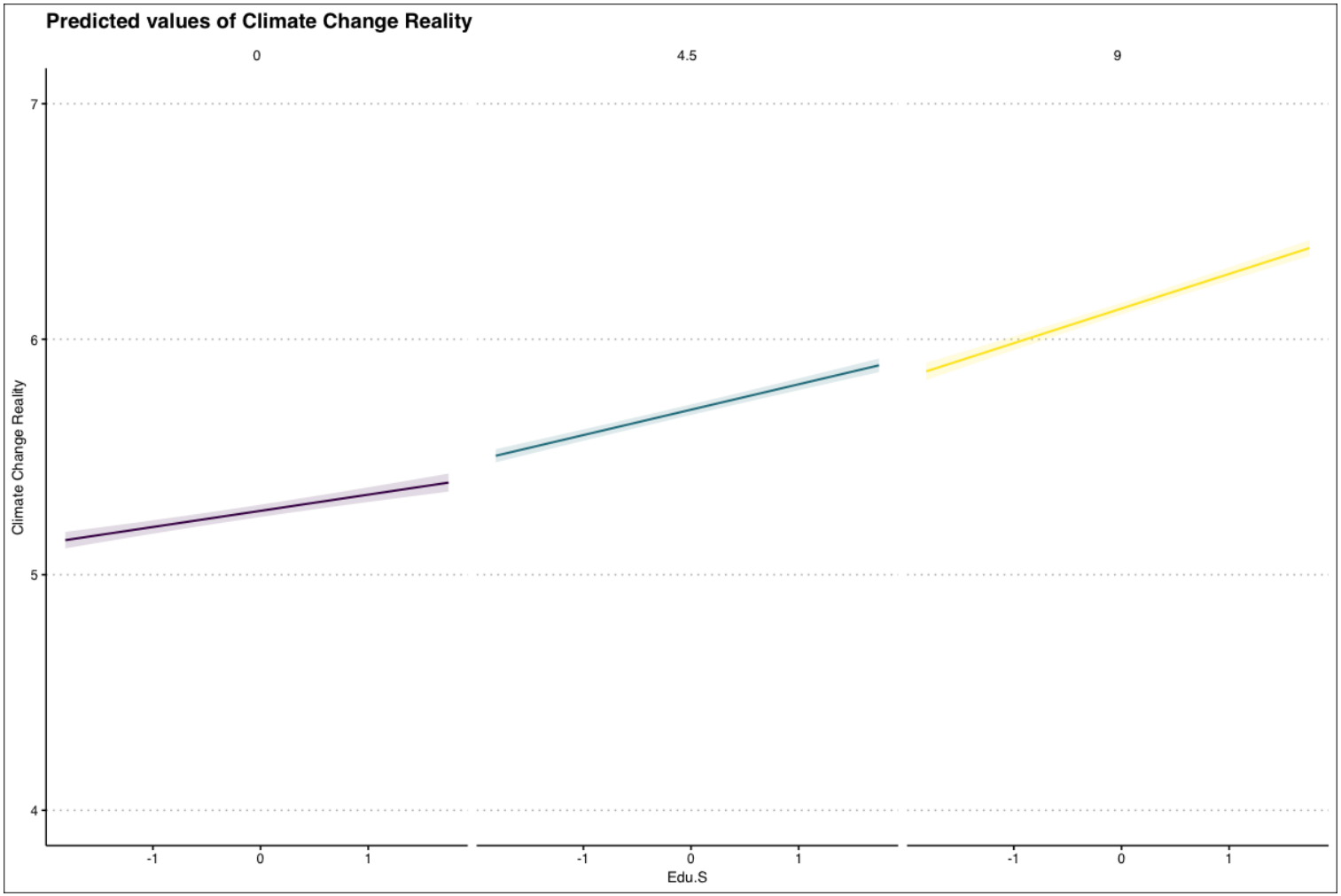
Trend: in only nine years, there was nearly a 1 point increase in beliefs that climate change is real (!)



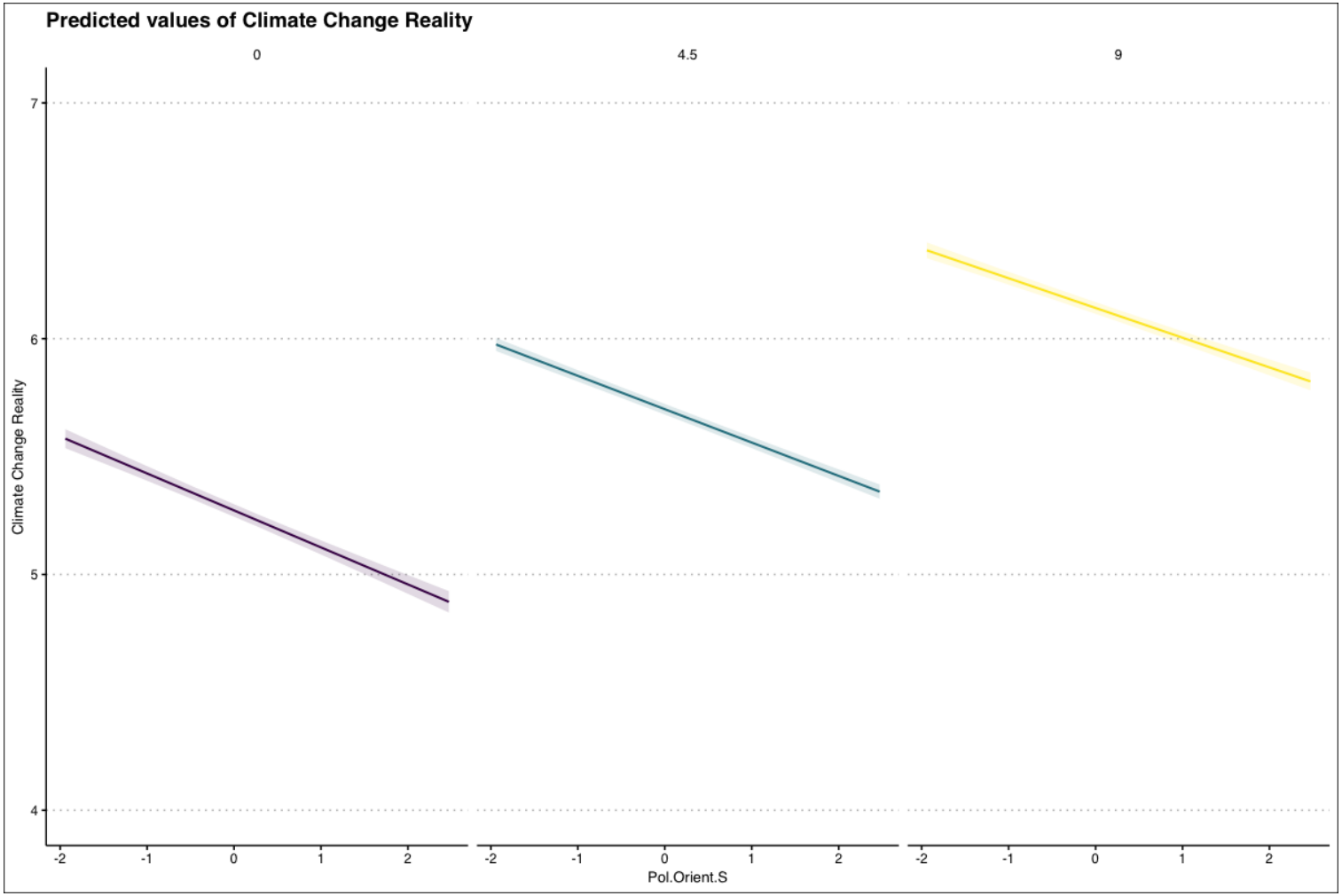
Ethnicity: non-Europeans, and especially Pacific/Māori have the strongest climate beliefs (panels show years 2009,2013,2018).



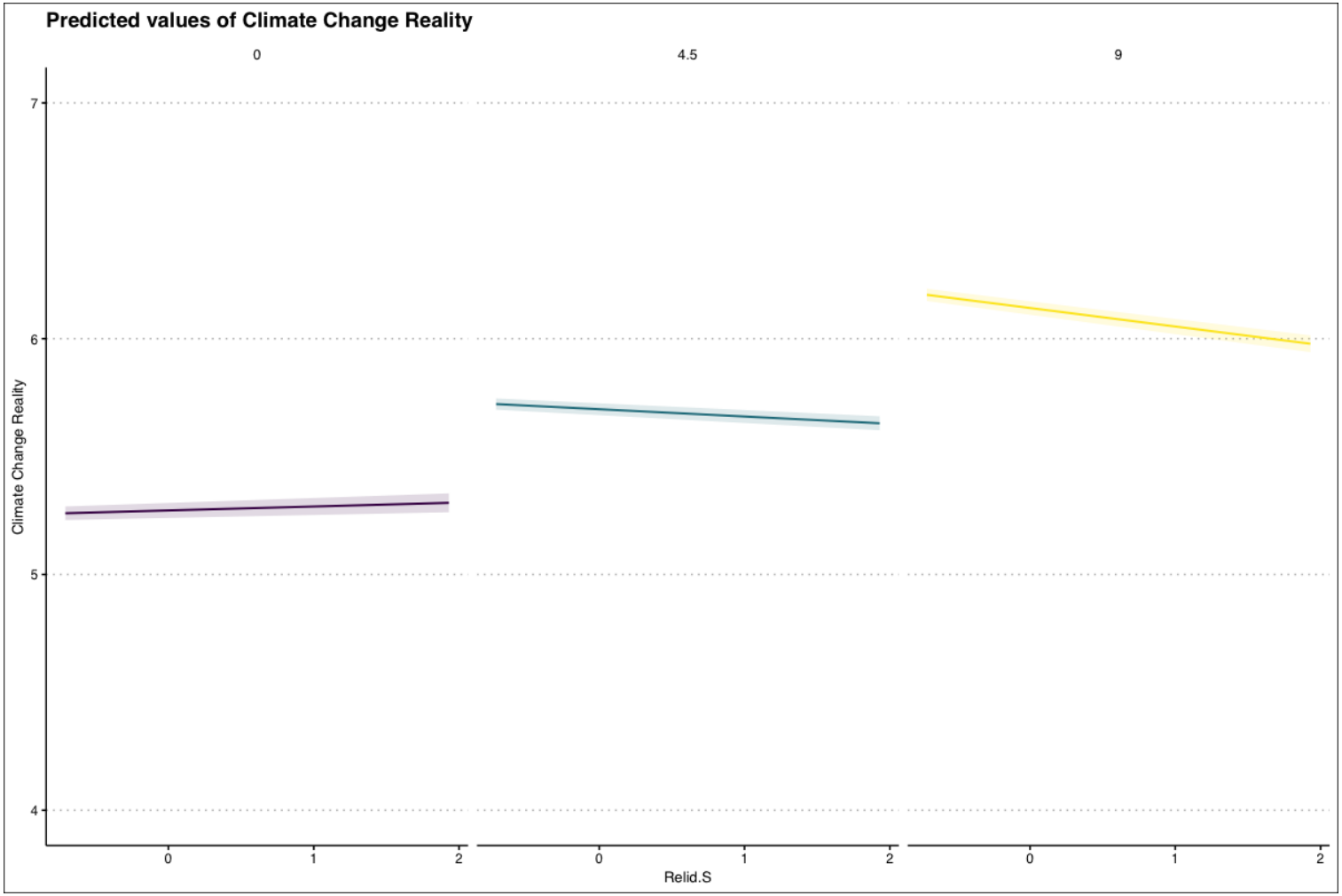
Education: the relationship between education and climate change beliefs has strengthened.



Political conservatism predicts weaker beliefs in climate change, however conservatives are more convinced of climate change than were liberals were a decade ago.



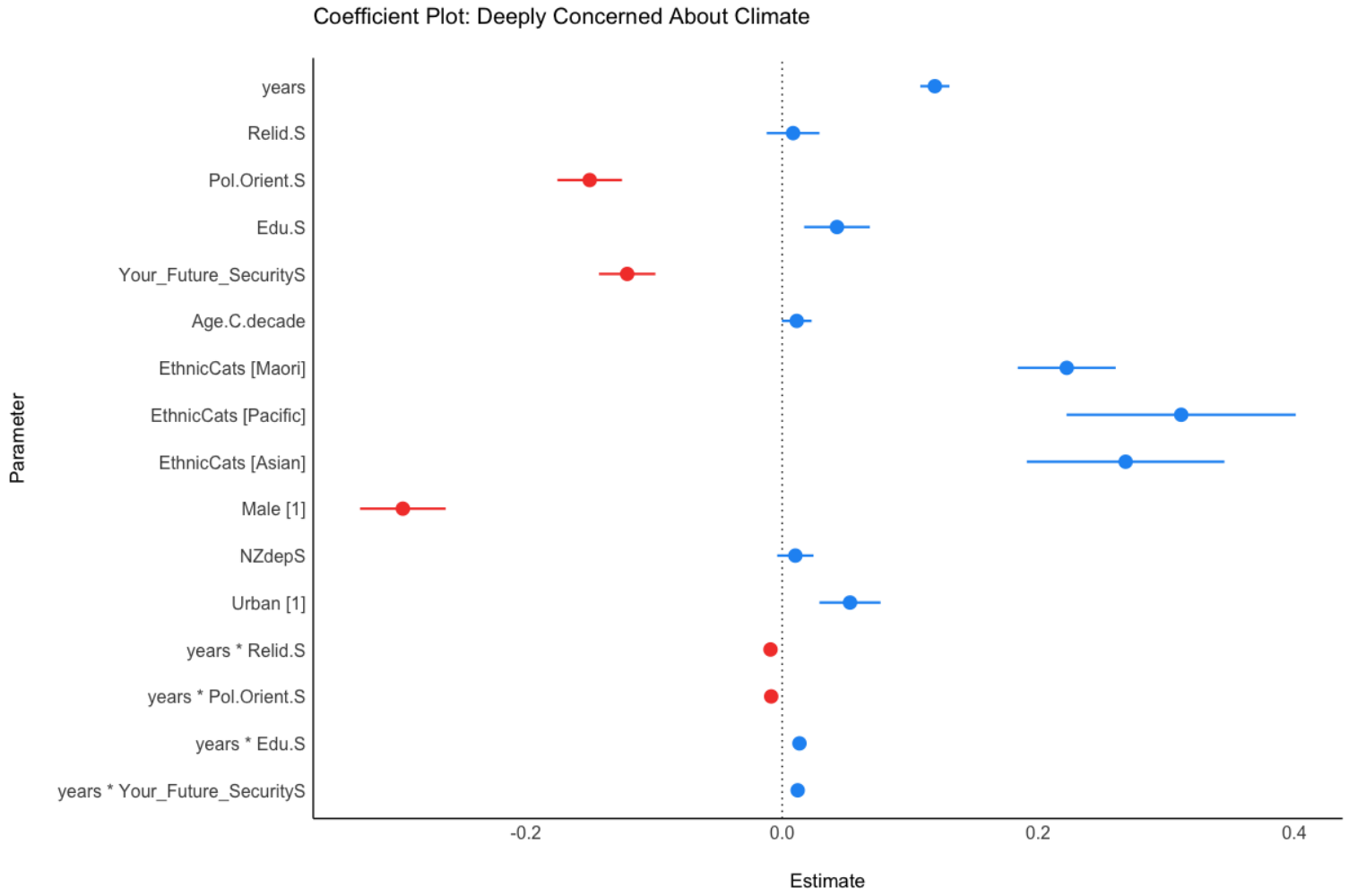
Religious people have also increasingly accepted climate change, but religious identification is increasingly attenuating such beliefs.



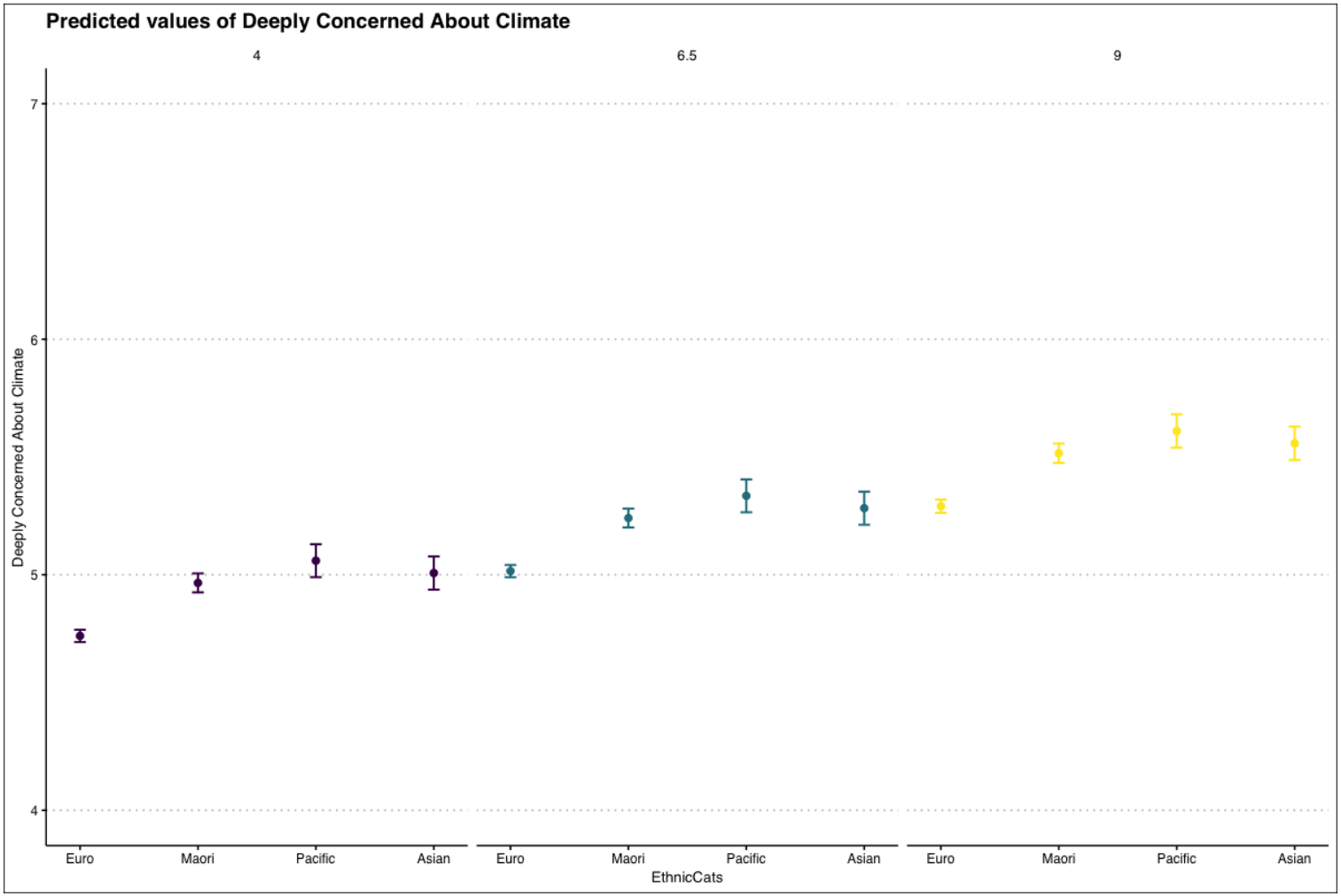
2. Climate Concern Question (2013-2018

"I am deeply concerned about climate change."

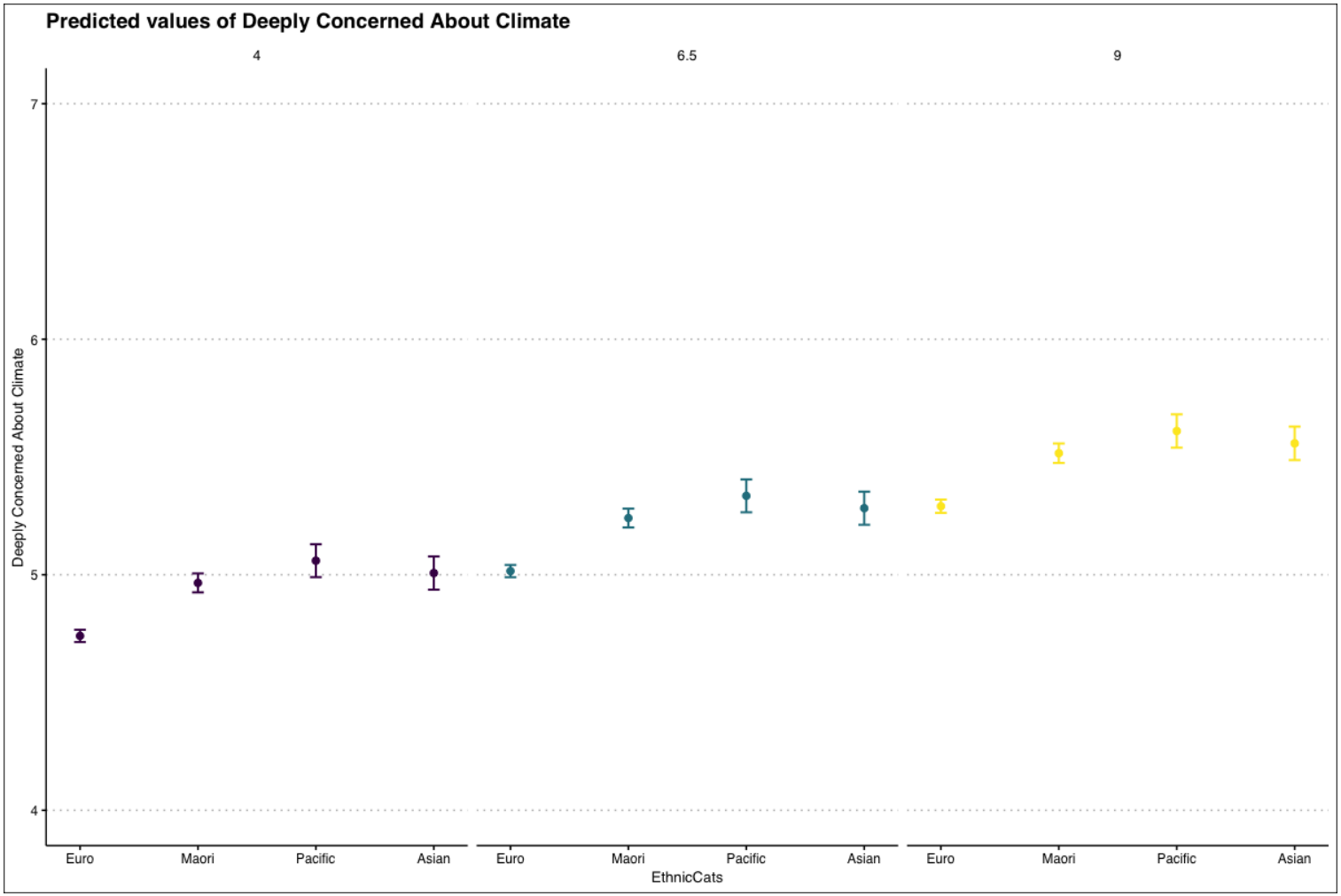
Trend: during the past five years, there has been a strong increase in concern about climate (about 1/2 point)



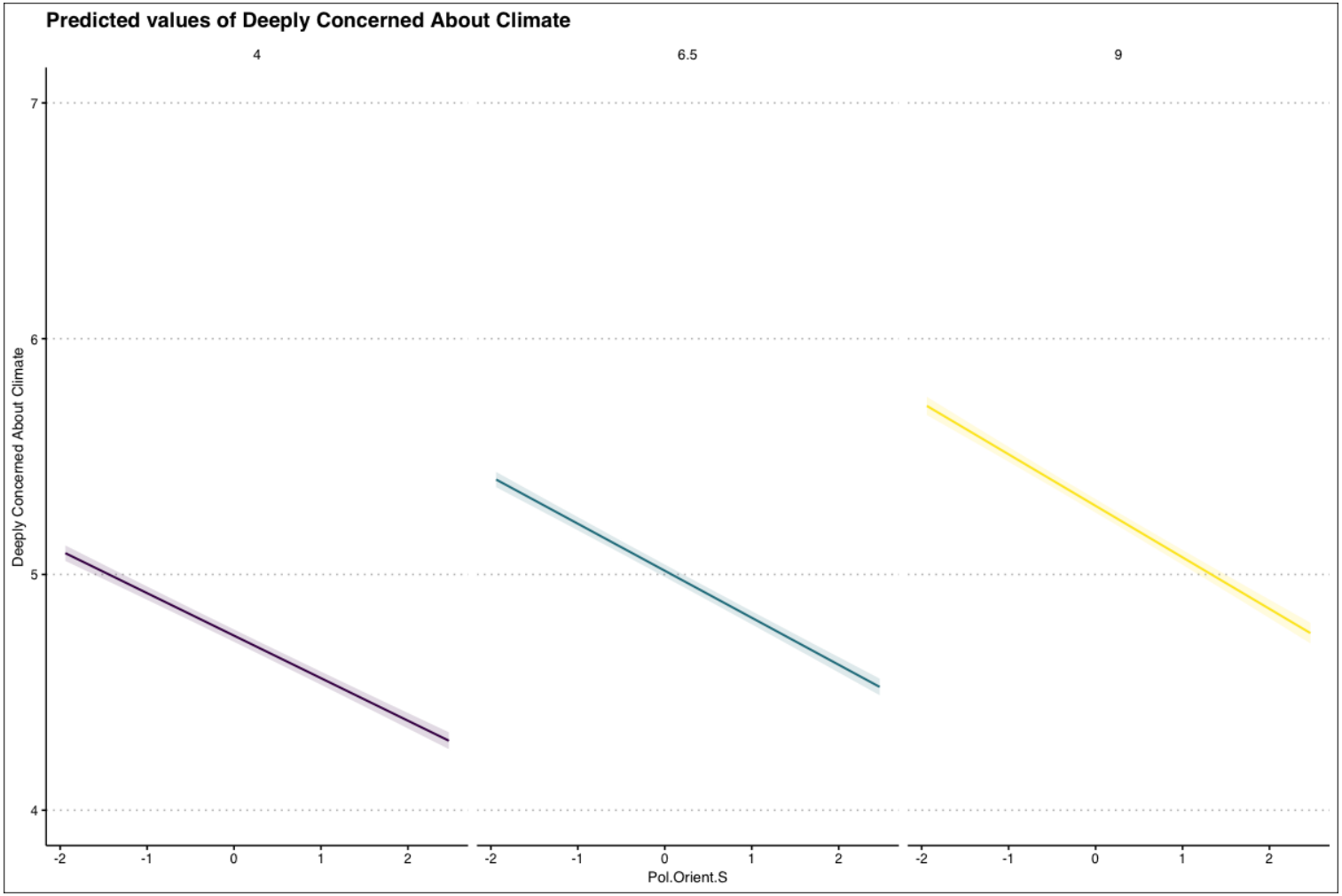
Ethnicity: Europeans are substantially less concerned about climate than are other ethnic groups



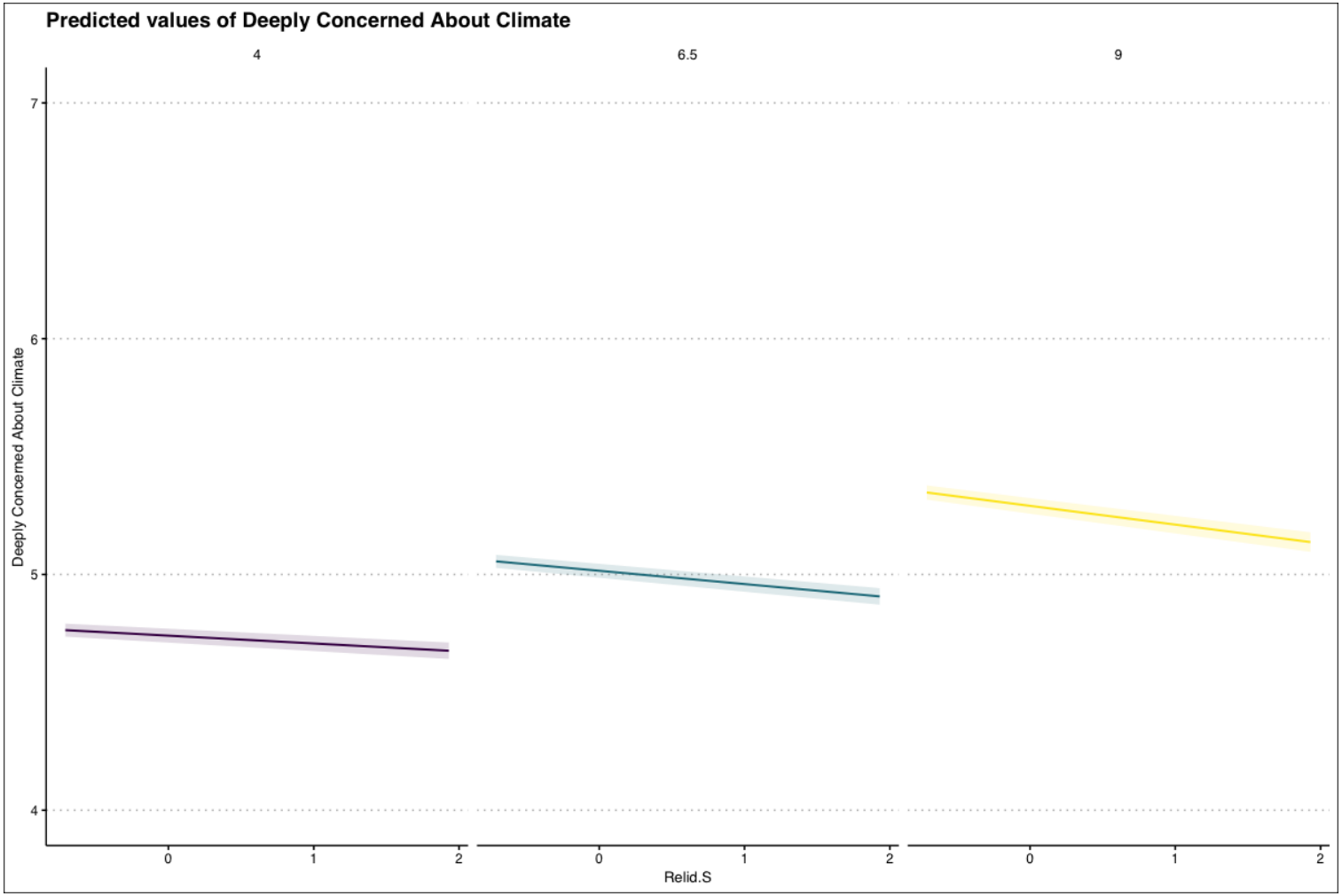
Education: the relationship between education and climate concern has increased.



Political Conservativism strongly attenuates climate concern (even as conservatives accept climate change is real.)



Religious people have grown in climate concern, but religious identification is increasingly suppressing environmental concern

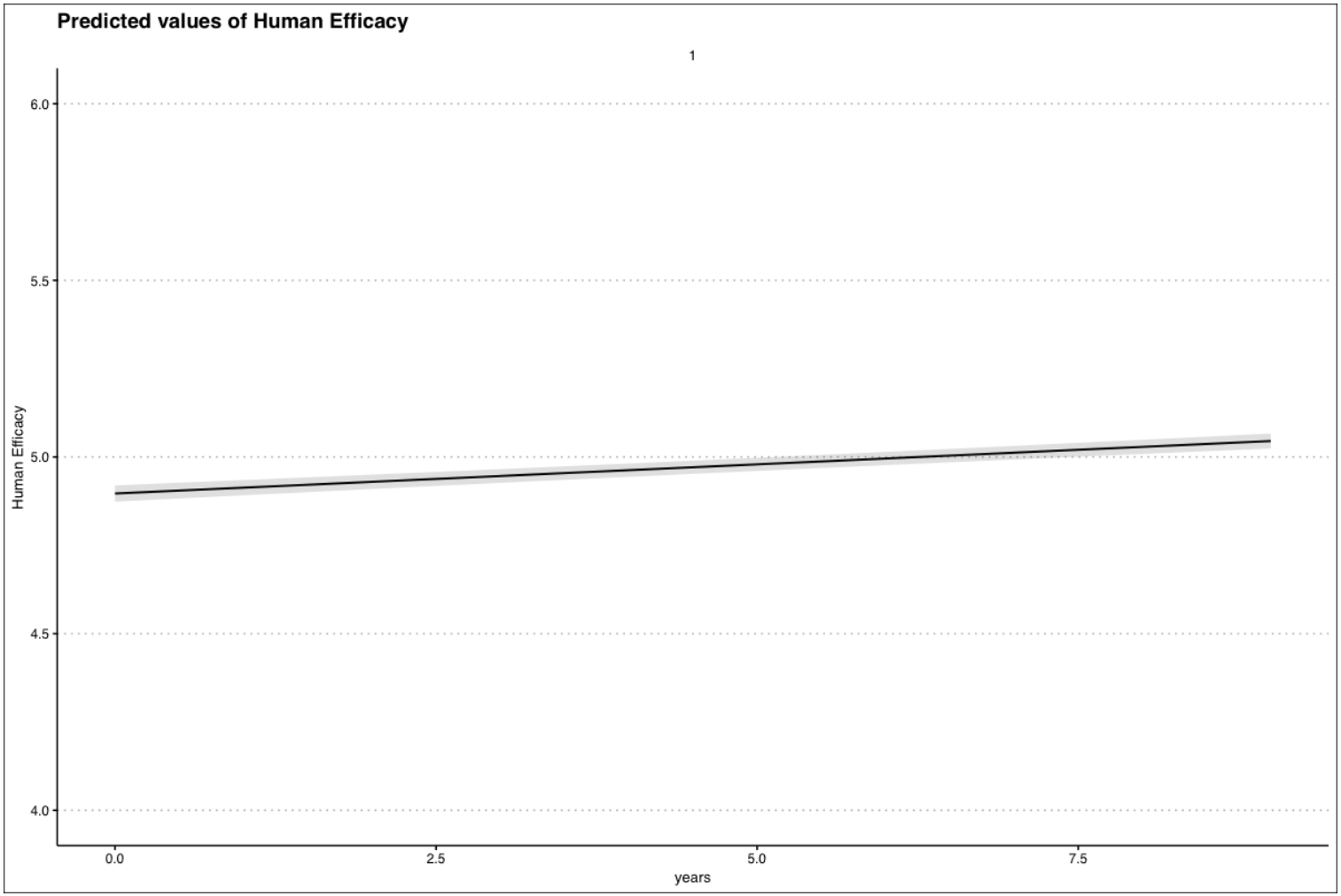


3. Environmental Efficacy Questions

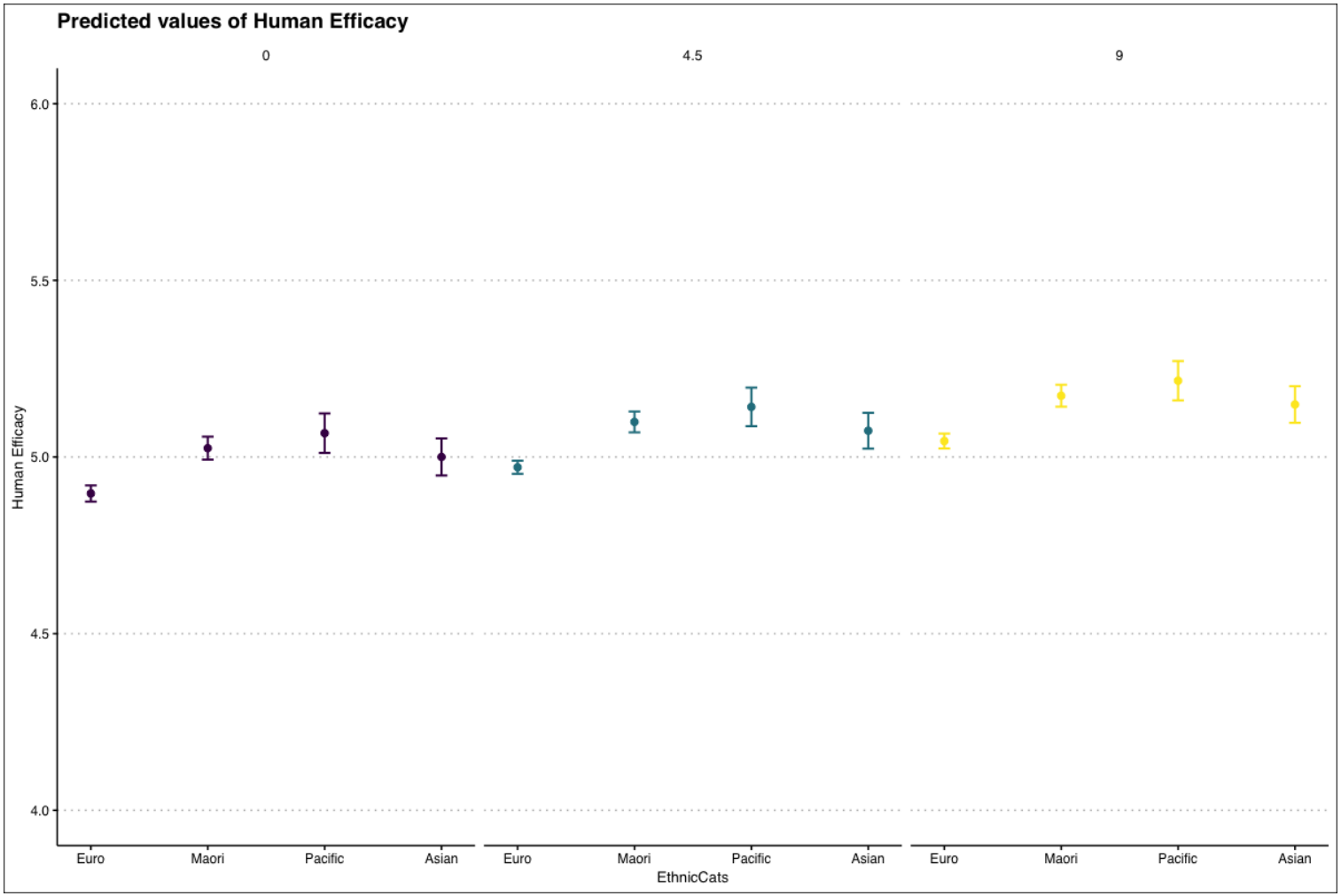
"By taking personal action I believe I can make a positive difference to environmental problems."

"I feel I can make a difference to the state of the environment."

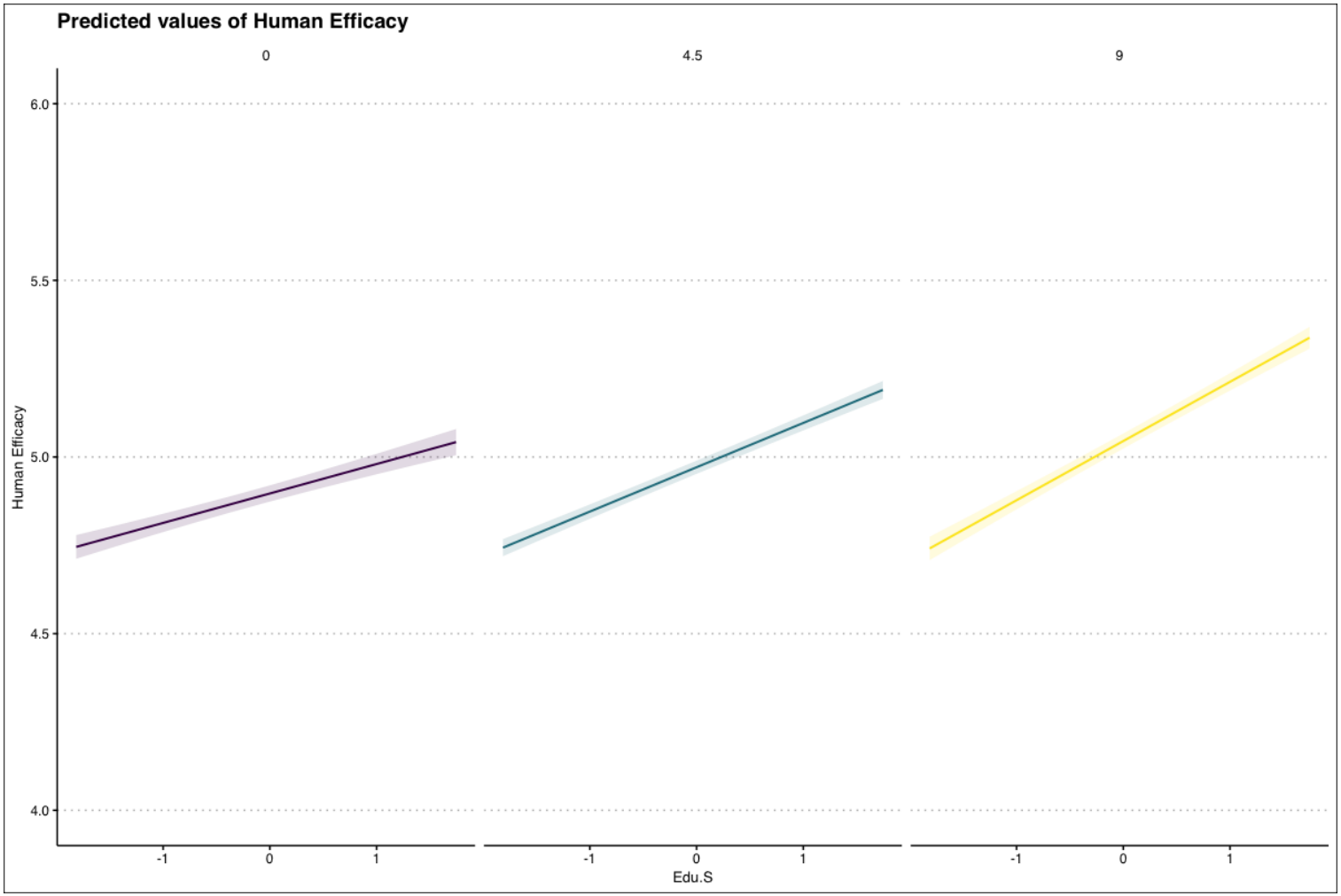
Trend: beliefs in environmental efficacy are slowly increasing



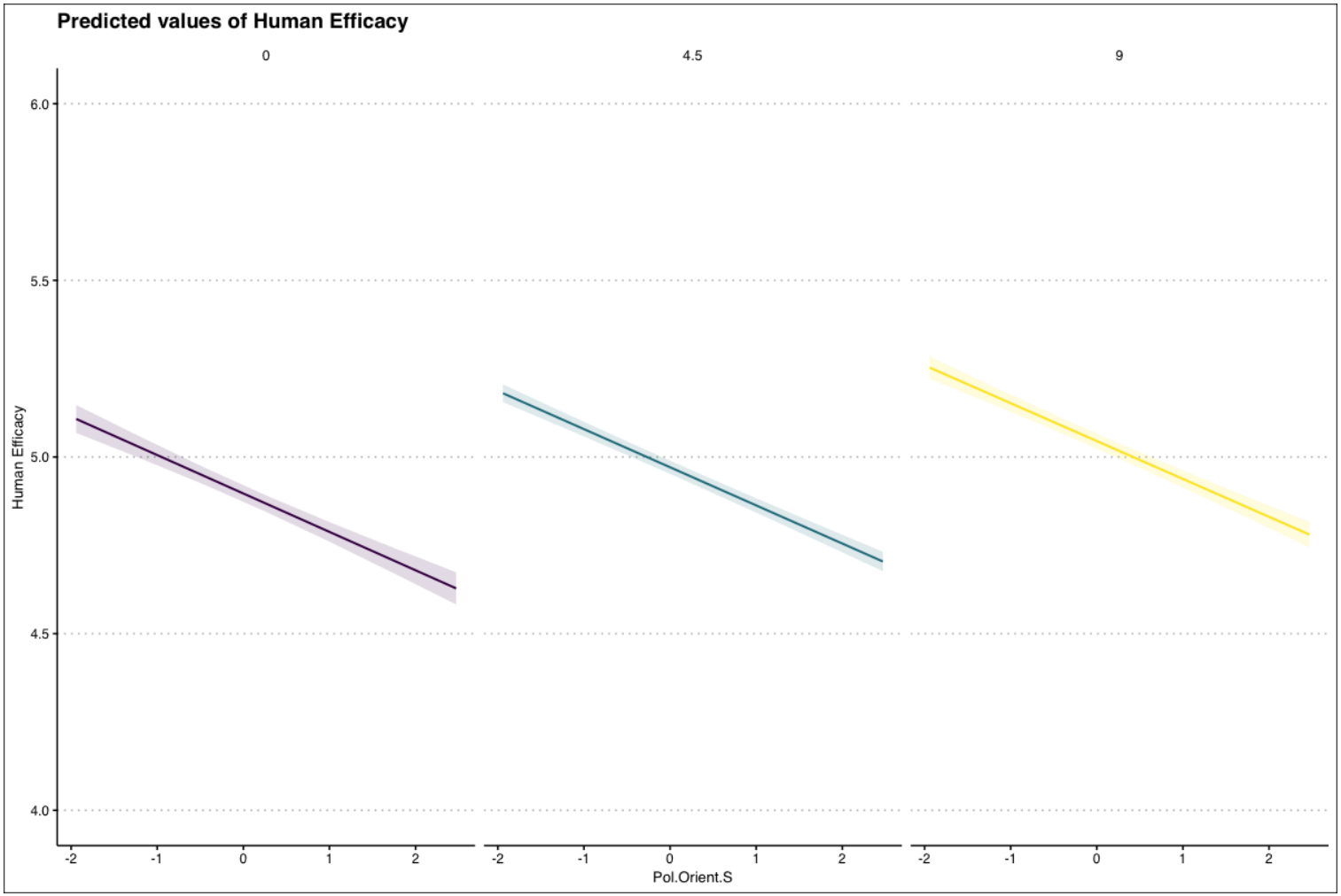
Ethnicity: Pakeha are only now catching up with Māori a decade ago in environmental efficacy beliefs



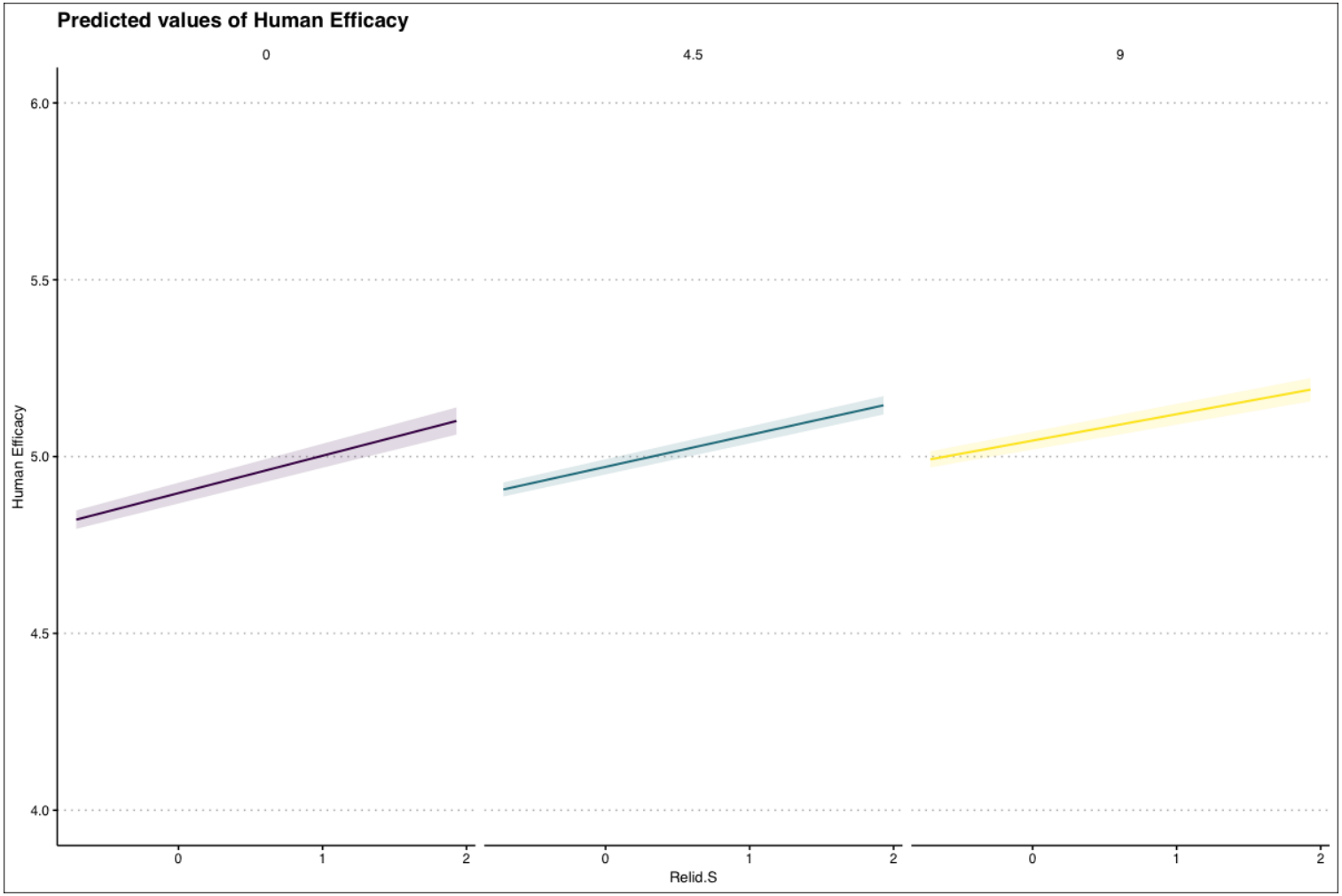
Education: the relationship of education to environmental efficacy beliefs is becoming increasingly important.



Political Conservativism predicts **weaker** environmental efficacy beliefs.



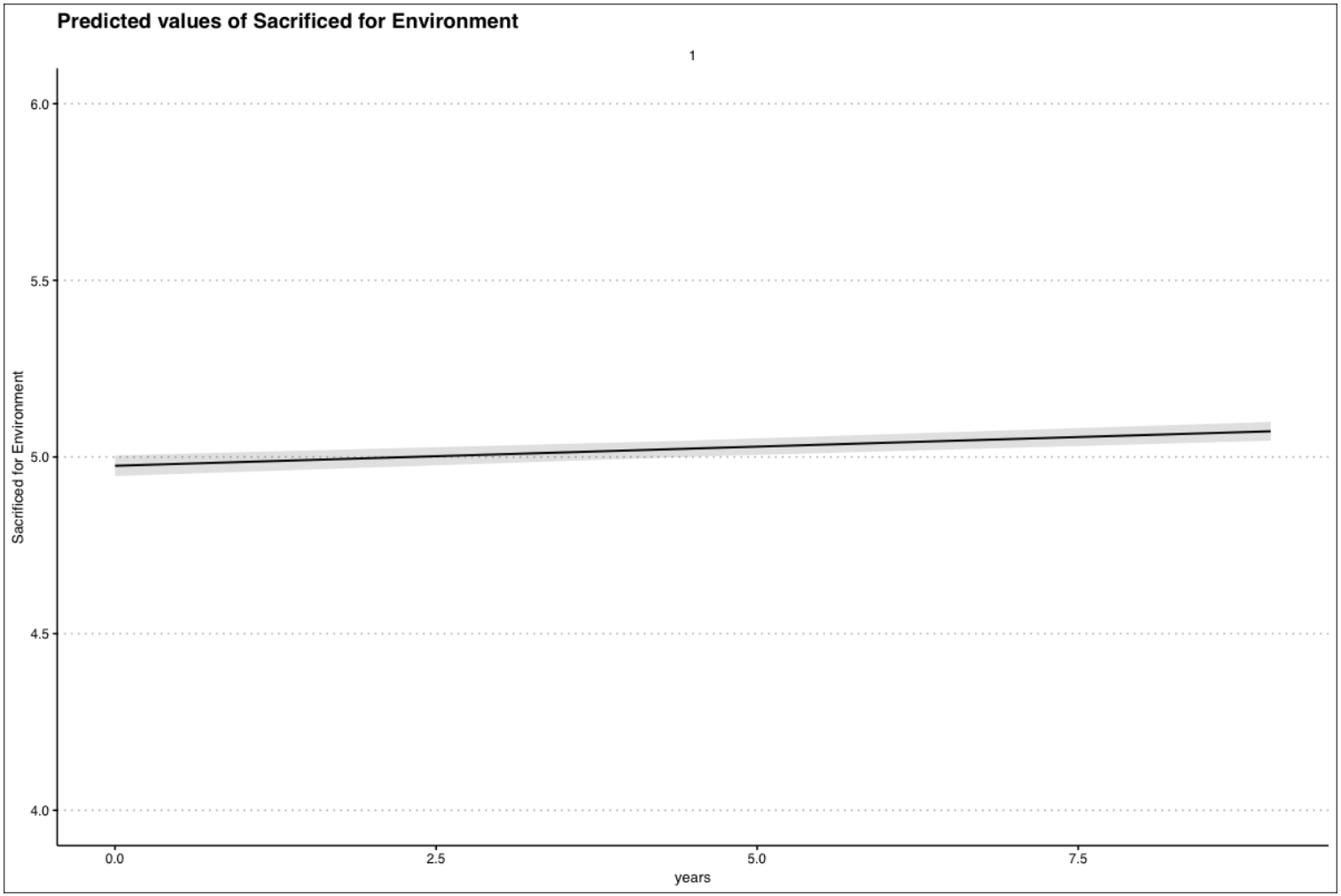
Religion has long been associated with **stronger** environmental efficacy beliefs, however the relationship is weakening



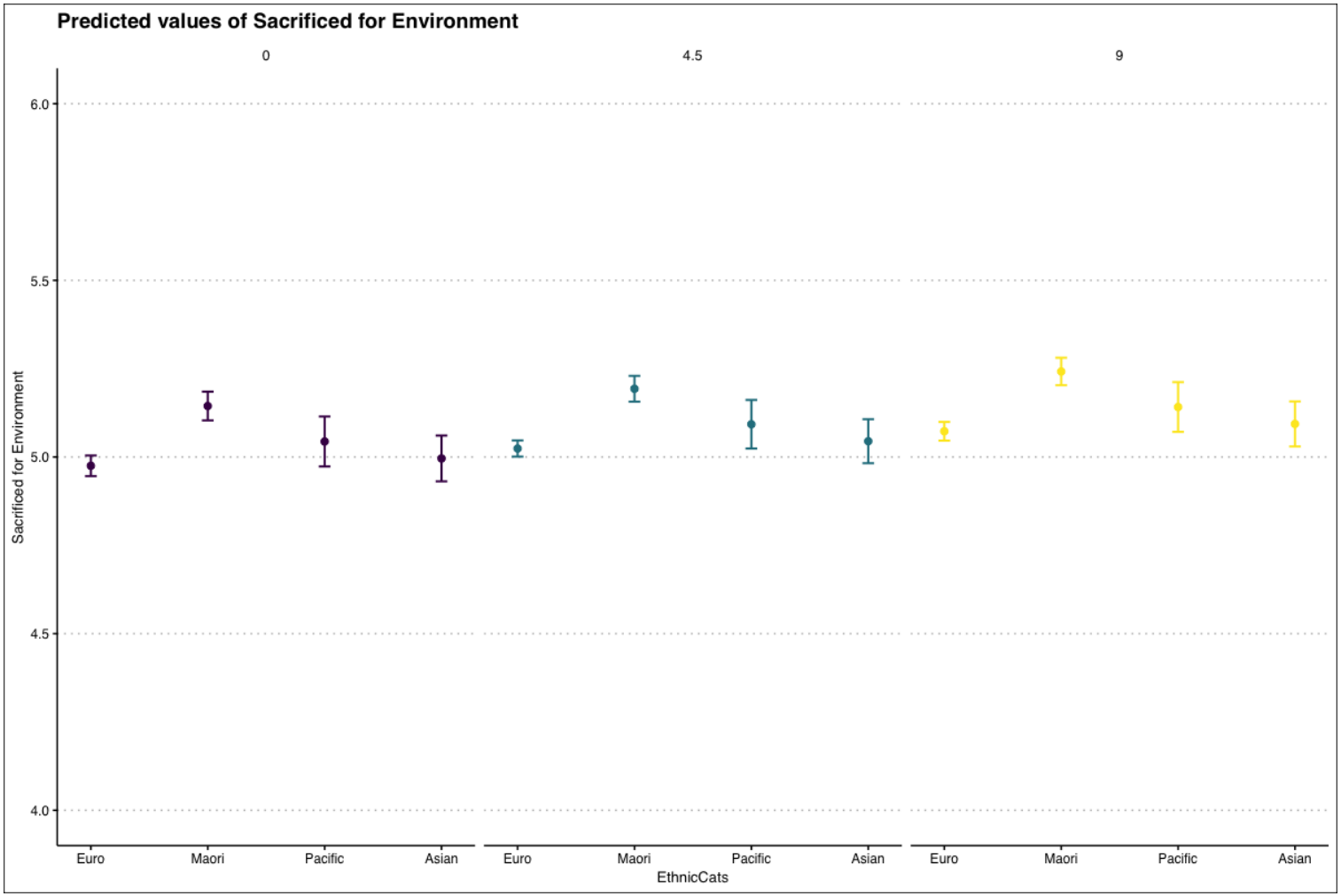
4. Climate Sacrifice Questions

"Have you made sacrifices to your standard of living (e.g., accepted higher prices, driven less, conserved energy) in order to protect the environment?"

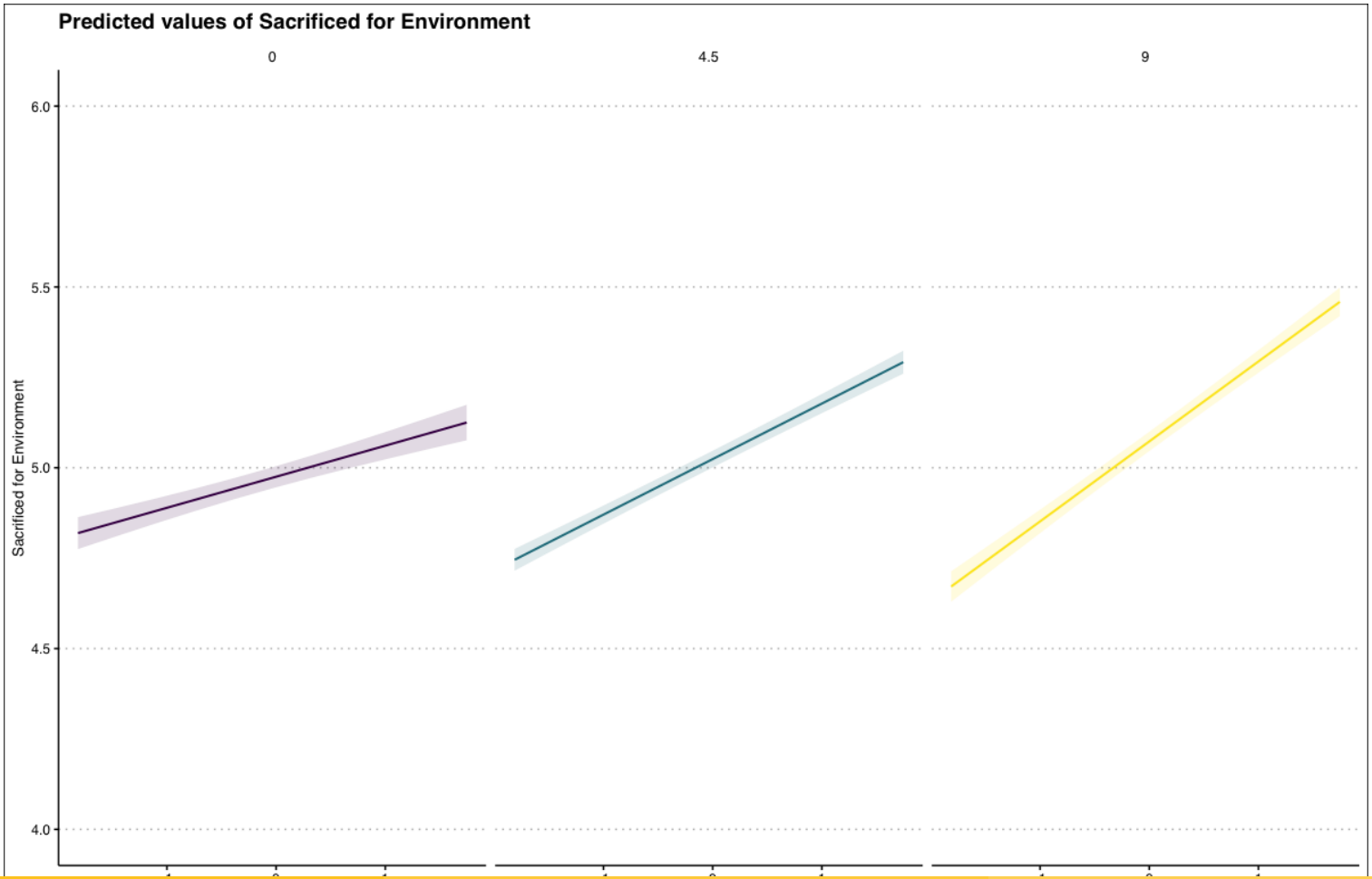
Trend: there has not been much increase in environmental sacrificial behaviors.



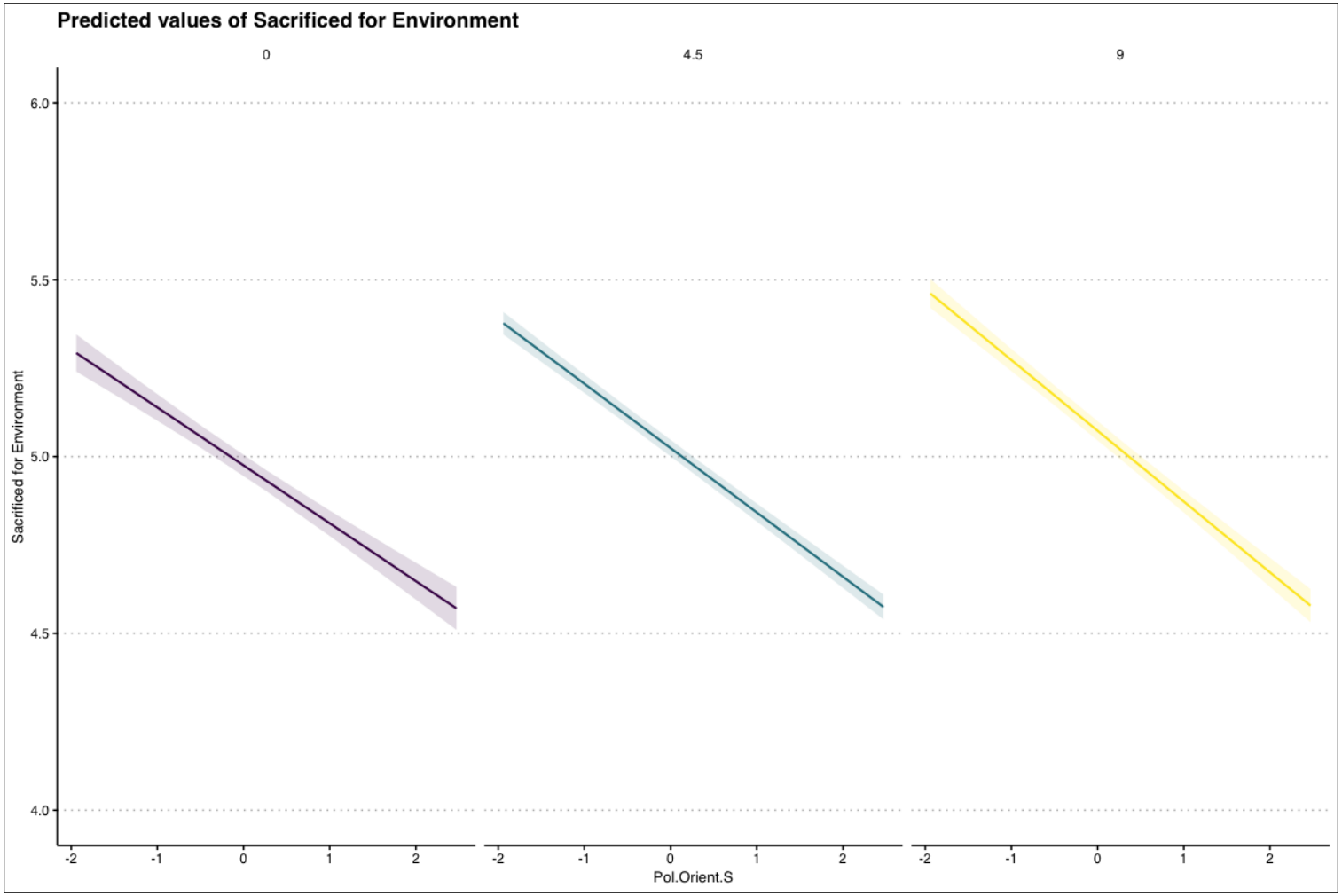
Ethnicity: Māori sacrifice more for the environment, and Pakeha have yet to catch up



Education: the relationship between education and environmental sacrifice is becoming more important; those low in education are sacrificing **less** now than a decade ago.



Political Conservativism predicts **lower** environmental sacrifice, with all of the growth occurring among political liberals



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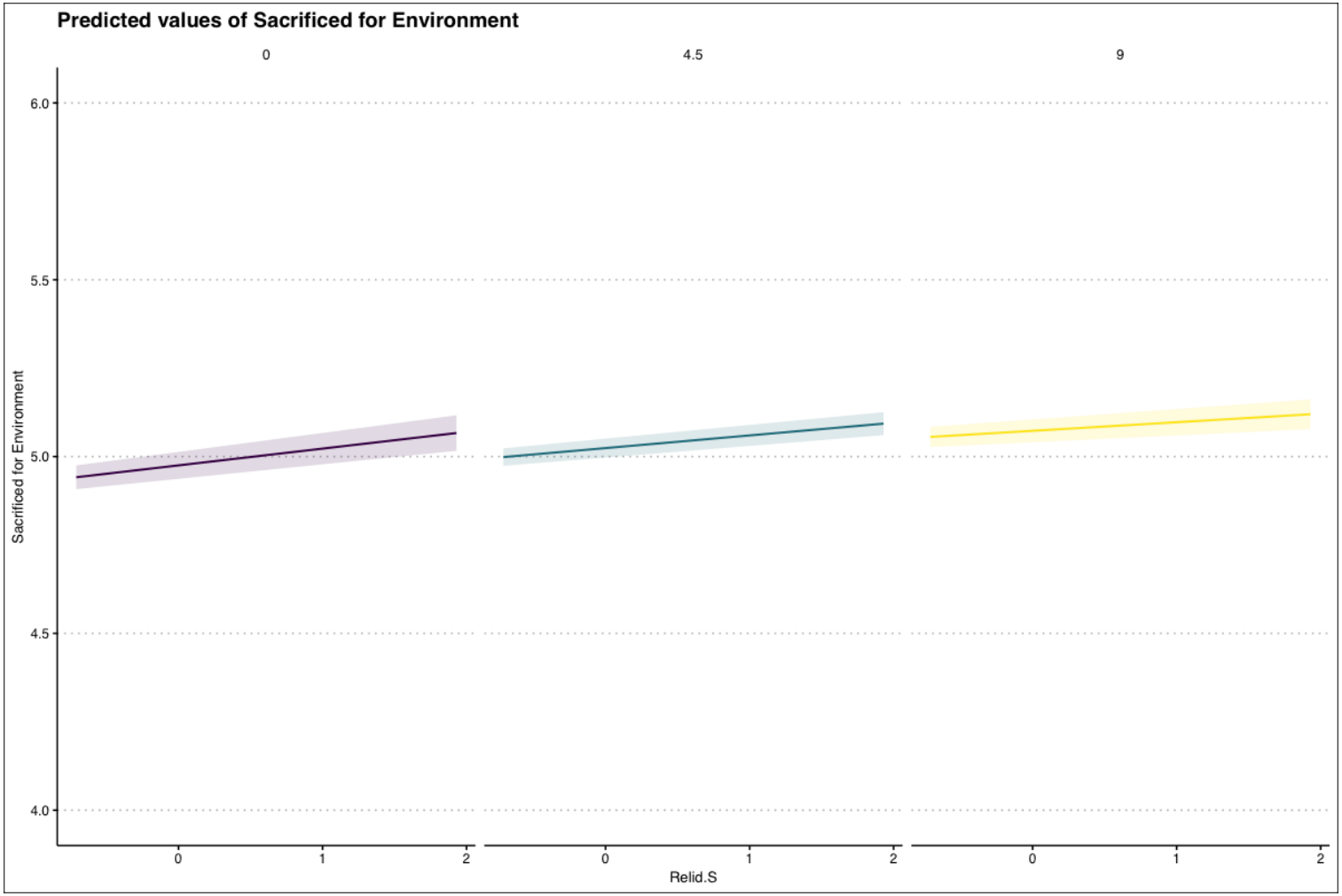


How do ideologies and emotions combine to motivate environmental sacrifice?

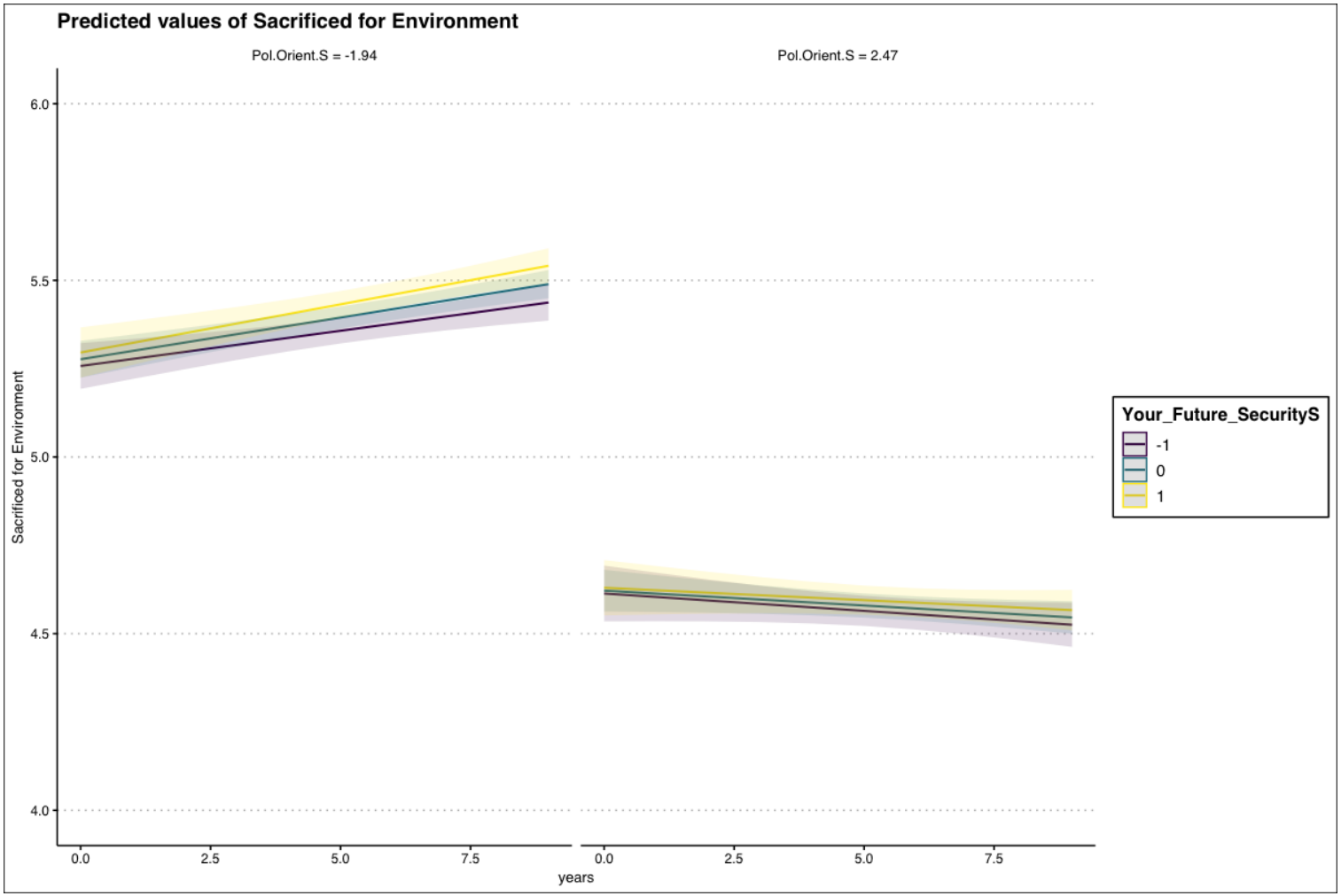
Future (in)Security

"Satisfied with my future security."

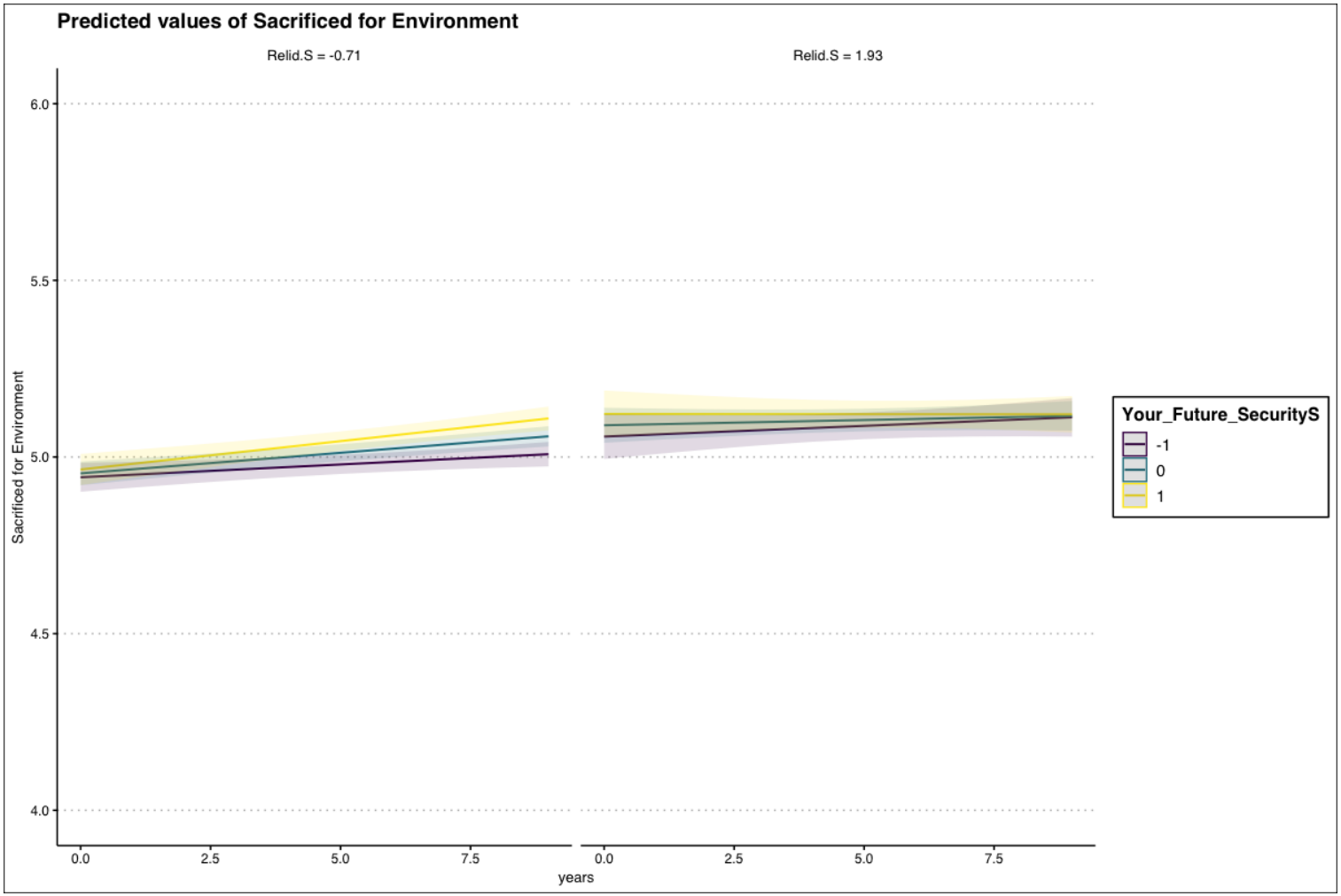
(dis)Satisfaction with New Zealand's environment

Satisfaction with quality of New Zealand's natural environment.

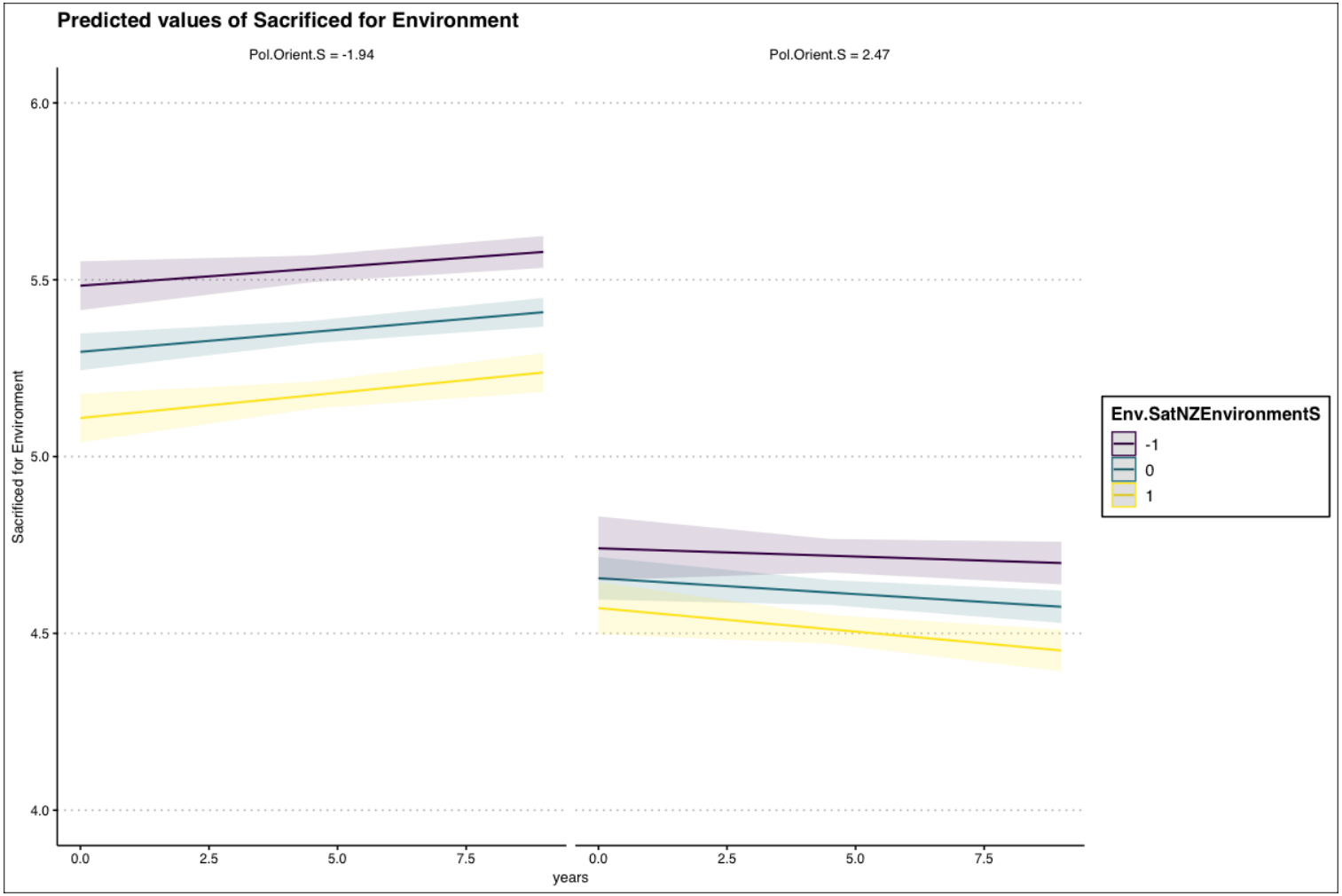
Political Conservativism: future (in)security and does not predict greater environmental sacrifice.



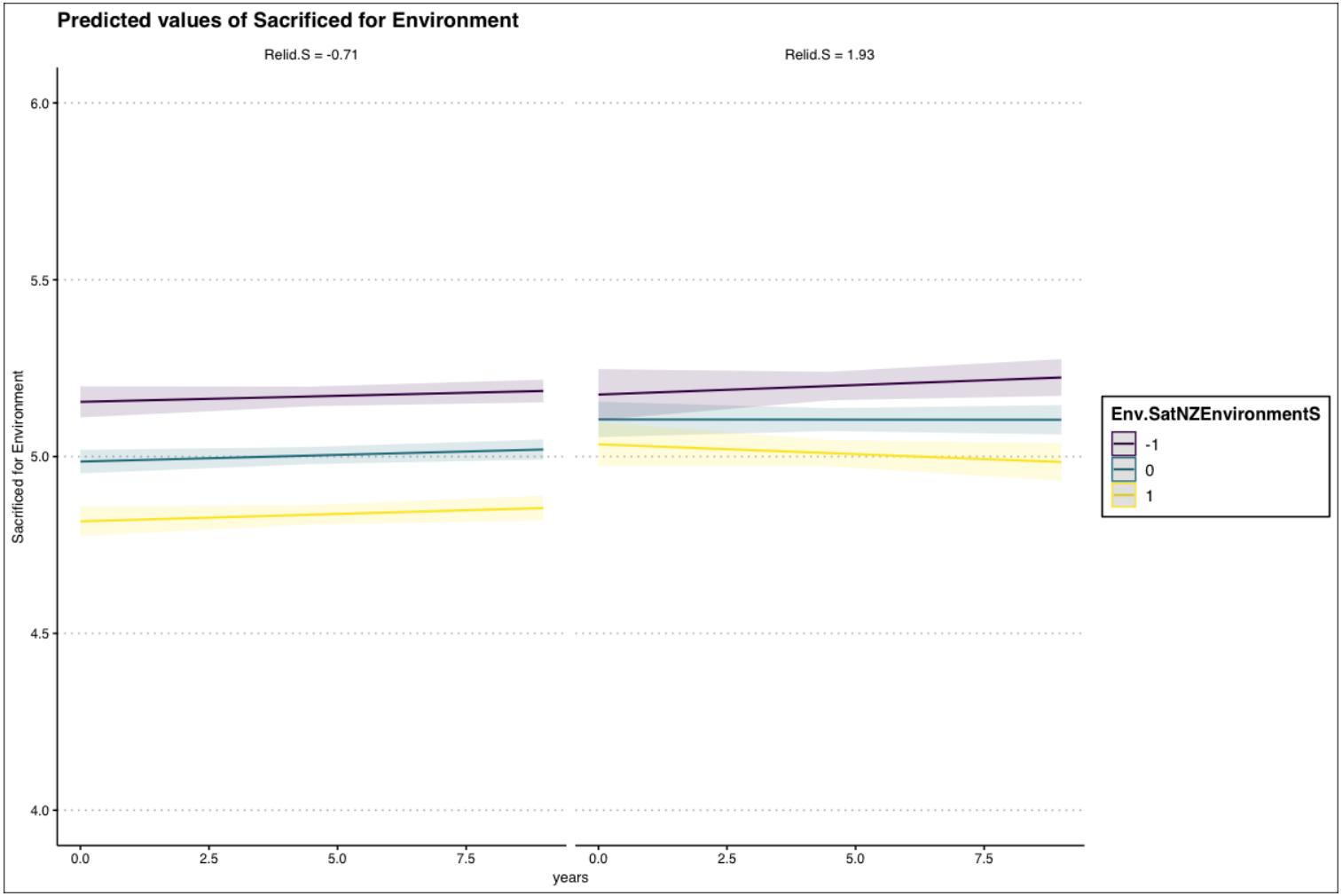
Religious Identification: future (in)security does not predict greater environmental sacrifice



(dis)Satisfaction with the environment predicts greater environmental sacrifice at low and high levels of Political Conservativism.



(dis)Satisfaction with the environment predicts greater environmental sacrifice at low and high level of Religious Identification.



What what predicts pro-environmental priorities?

Government spending on motorways

"Increased government spending on new motorways."

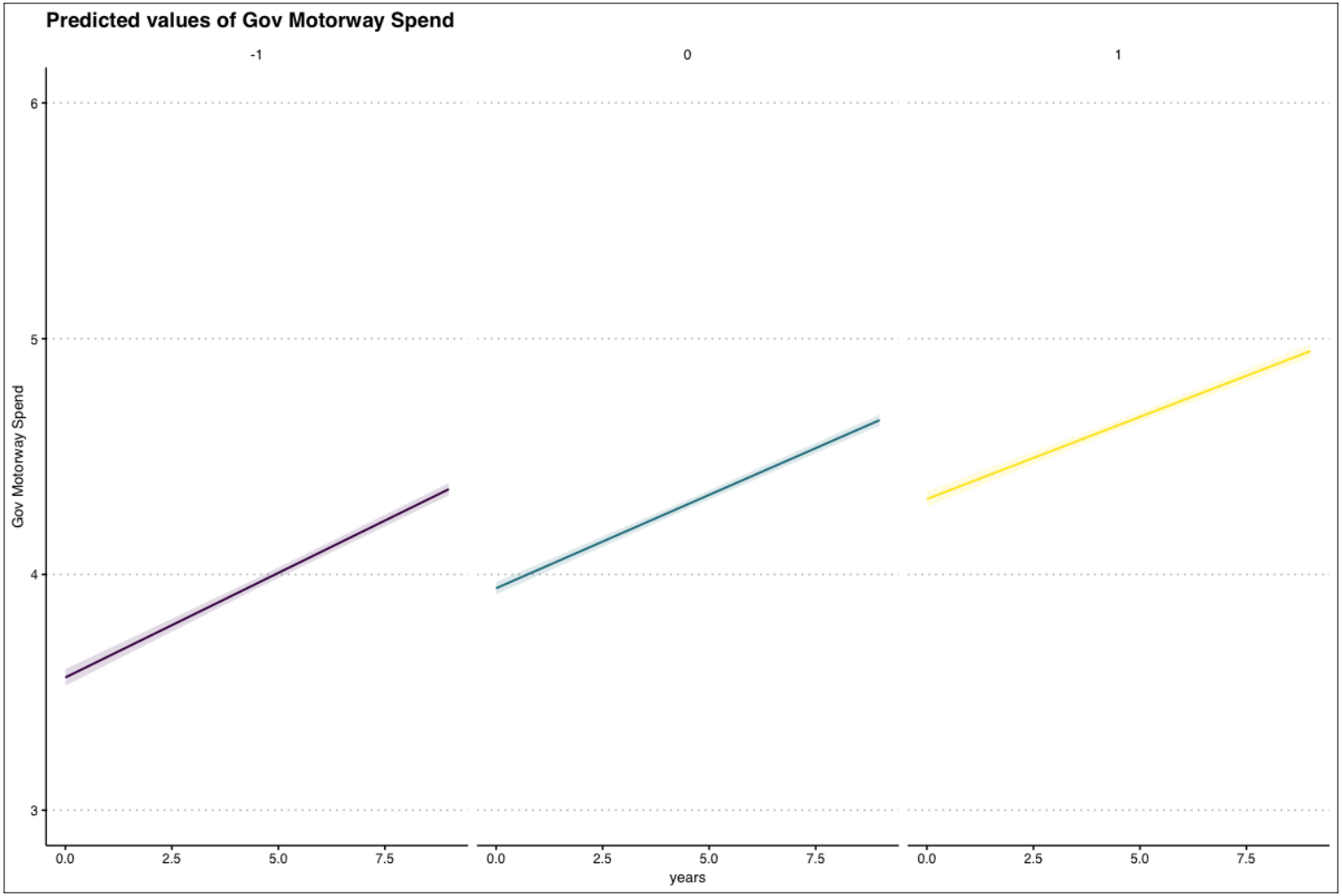
Government spending on public transport

"Government subsidy of public transport."

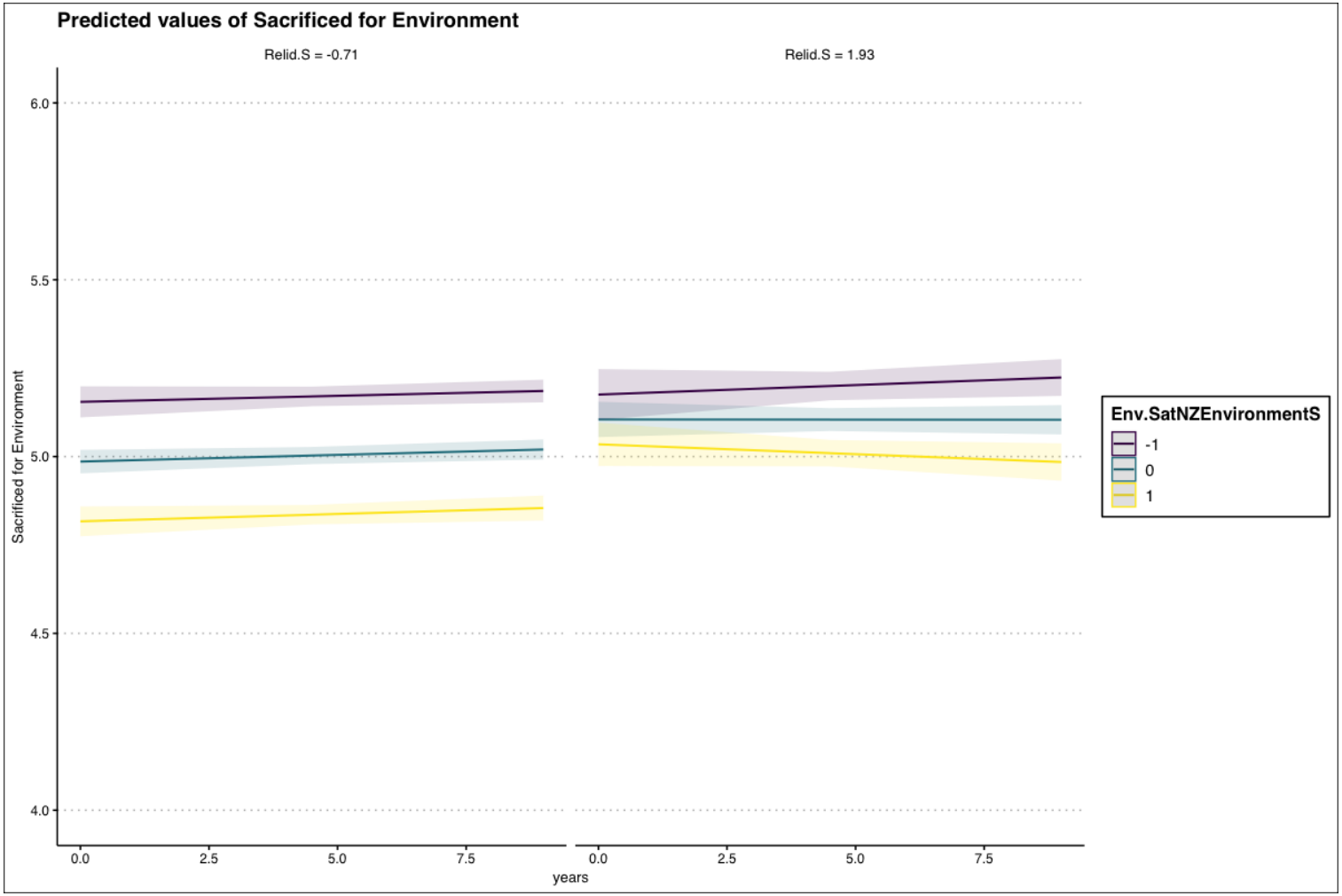
Protection of New Zealand Native Species

"Protecting New Zealand's native species should be a national priority."

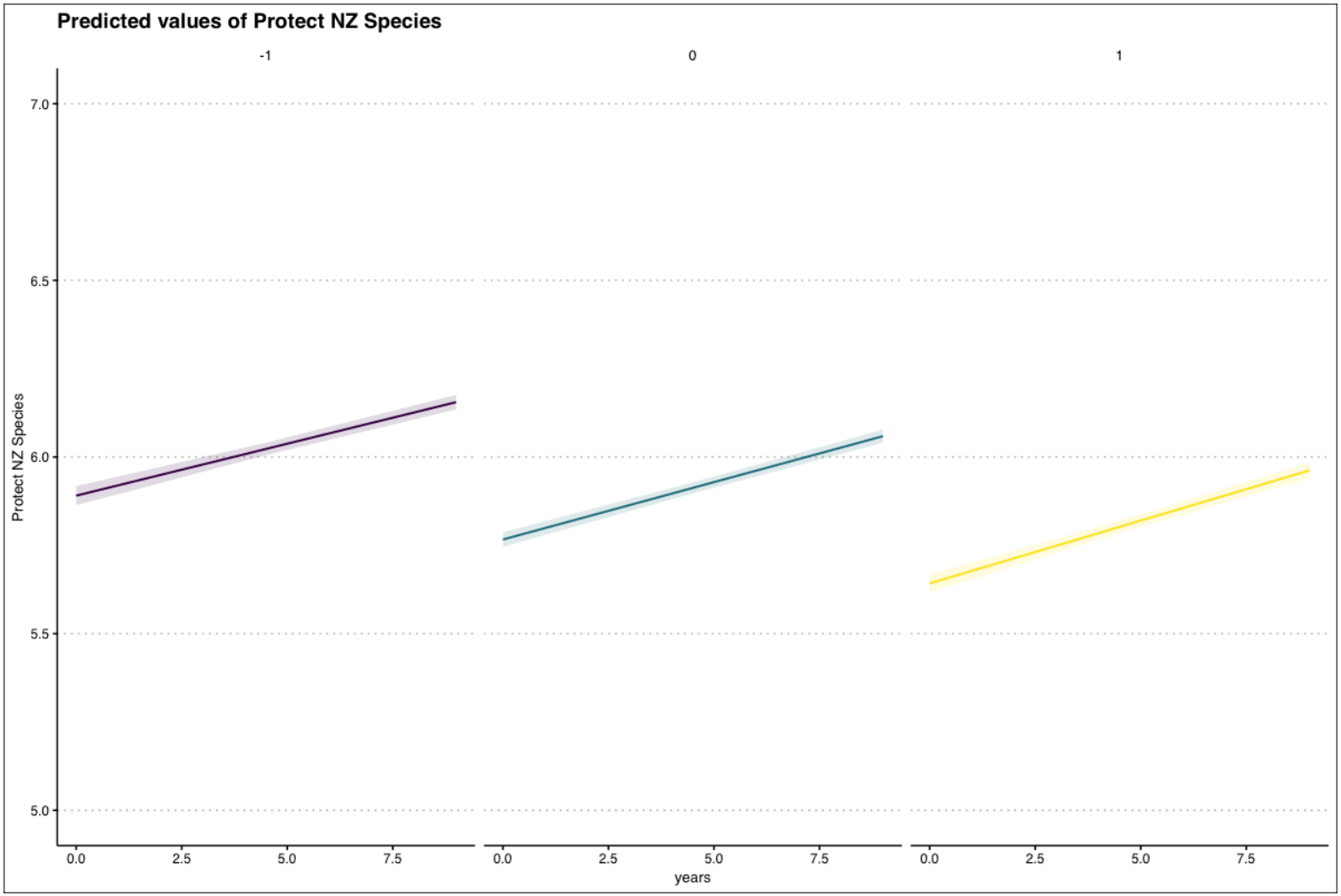
(dis)Satisfaction with the NZ environment predicts lower support for Motorway Spending (a revealed CO_2 preference).



(dis)Satisfaction with the NZ environment predicts greater support for public transport spending (a revealed CO_2 preference).



(dis)Satisfaction with the NZ environment predicts greater support for protection of NZ species.



Take Homes

- The first message: compared with a decade ago, New Zealanders are substantially **more (1) aware** and **(2) more concerned about climate change**.

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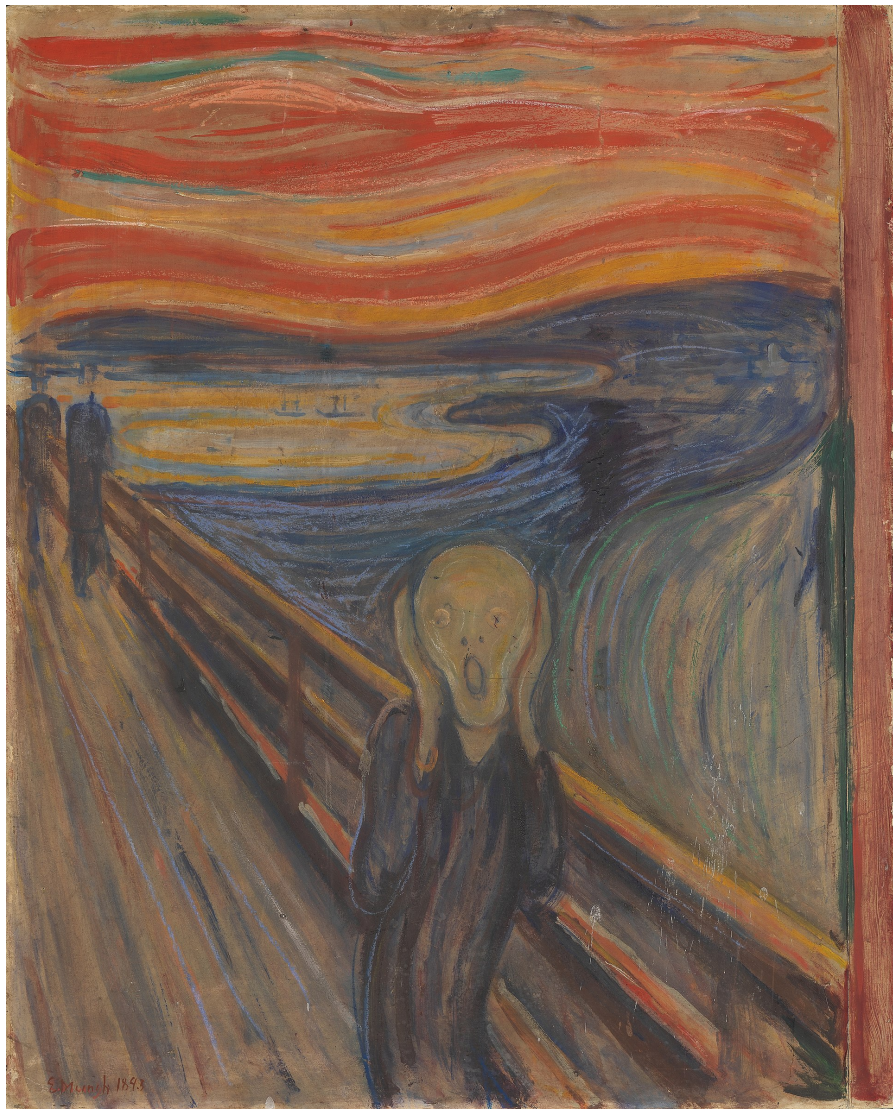
Frustration > Fear



Thanks!

- Prof Dominic Johnson (University of Oxford) for the idea.
- Prof Chris G. Sibley (University of Auckland) for the heavy lifting.
- $>$ 50 NZAVS collaborators (join us!)
- $>$ 61,535 New Zealanders who have participated for their time.
- Templeton Religion Trust for their financial support.

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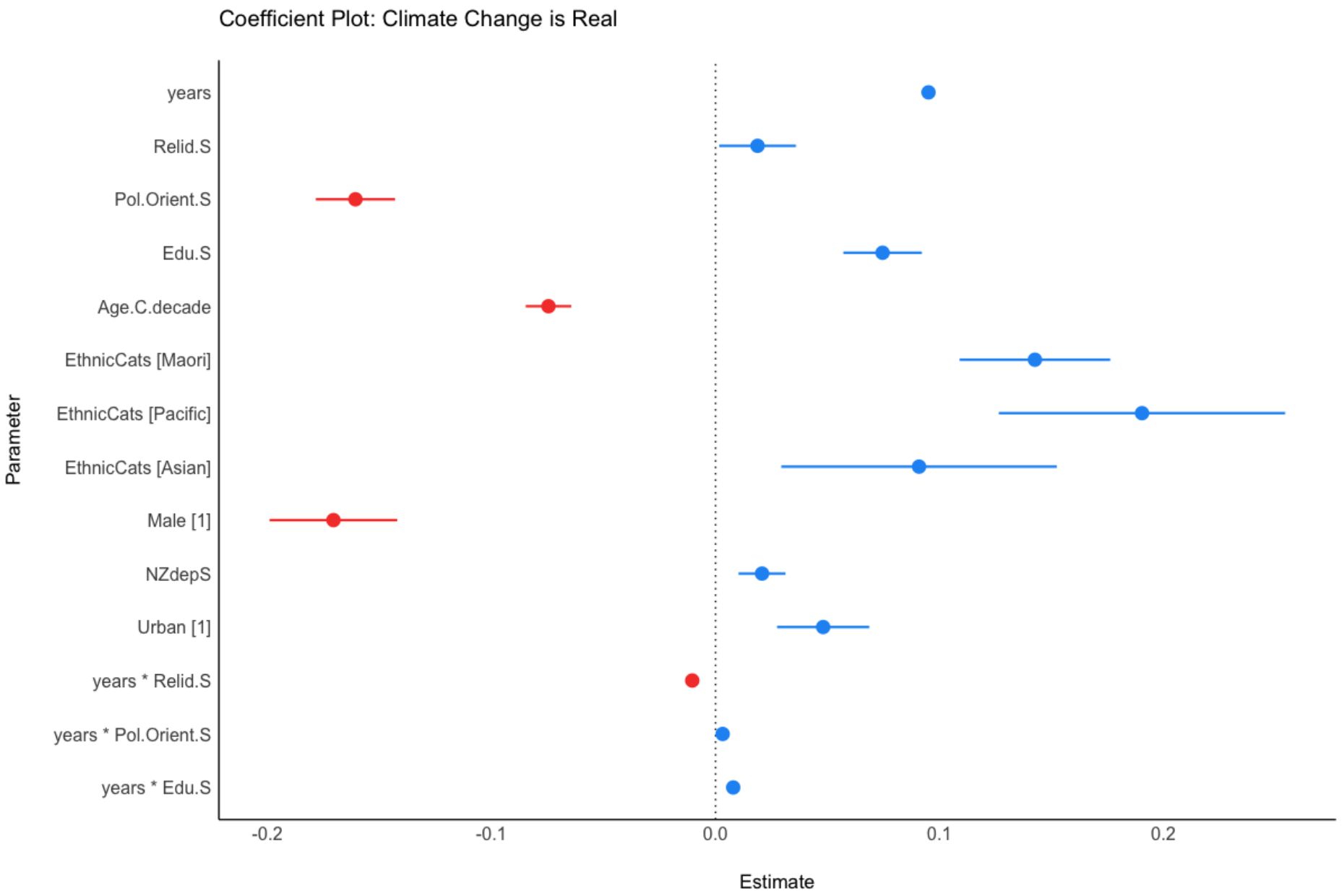
Cheers

joseph.bulbulia@vuw.ac.nz

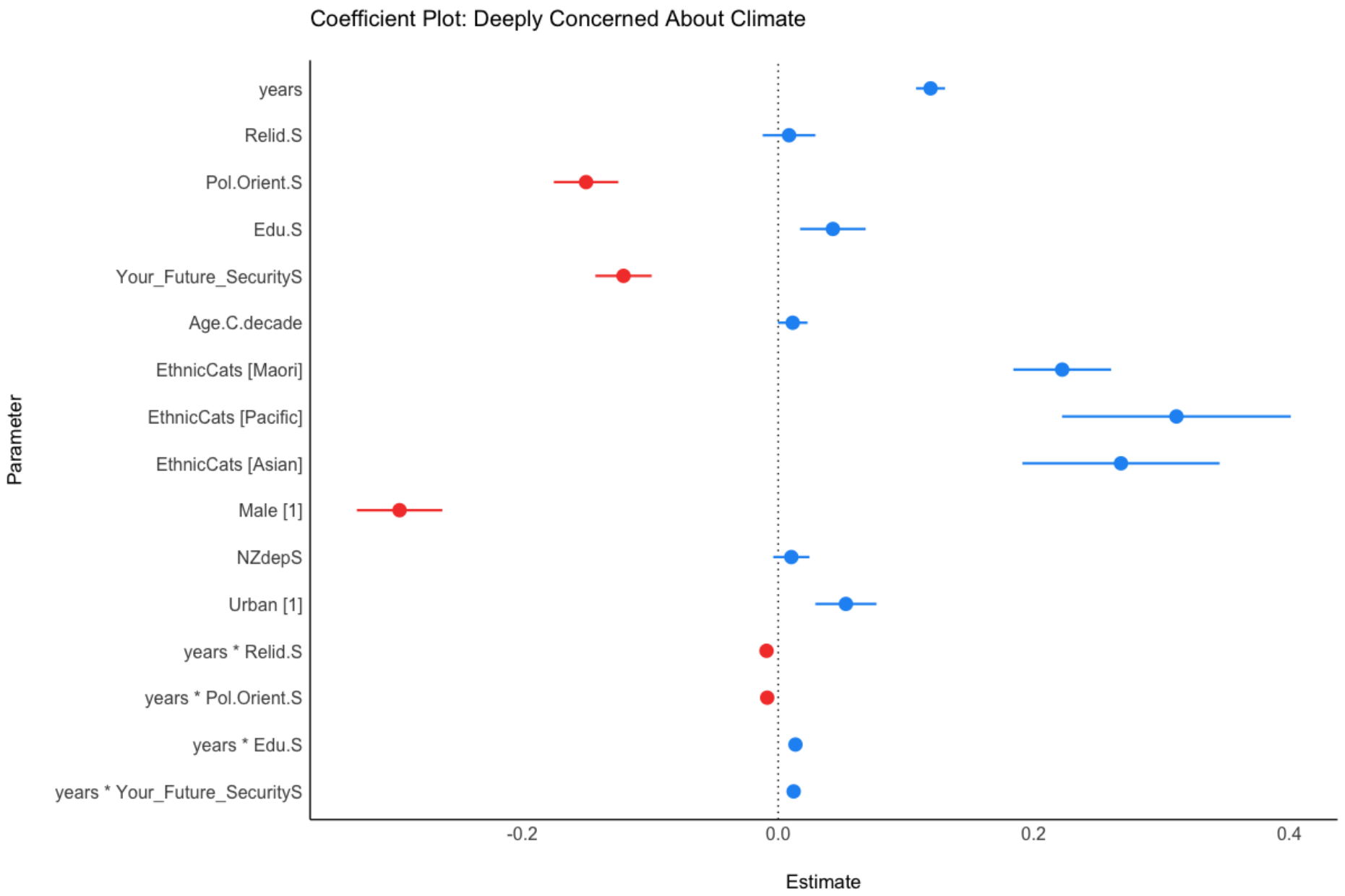
Extra Slides: 2009-2018 Sample Demographic Indicators

	Wave									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	n = 5523	n = 4430	n = 6652	n = 11300	n = 17241	n = 15801	n = 13929	n = 20402	n = 17017	n = 18020
Age										
	48.7 (15.3)	51.0 (15.2)	50.7 (15.8)	49.7 (14.9)	48.1 (14.0)	49.3 (14.0)	50.8 (13.9)	50.2 (13.8)	51.3 (13.8)	52.3 (13.6)
EthnicCats										
Euro	4050 (73.3%)	3341 (75.4%)	4650 (69.9%)	8375 (74.1%)	13166 (76.4%)	12573 (79.6%)	11113 (79.8%)	16363 (80.2%)	13844 (81.4%)	14622 (81.1%)
Maori	890 (16.1%)	687 (15.5%)	721 (10.8%)	1743 (15.4%)	2168 (12.6%)	1973 (12.5%)	1668 (12%)	2244 (11%)	2002 (11.8%)	2081 (11.5%)
Pacific	206 (3.7%)	139 (3.1%)	140 (2.1%)	408 (3.6%)	471 (2.7%)	433 (2.7%)	351 (2.5%)	449 (2.2%)	319 (1.9%)	335 (1.9%)
Asian	227 (4.1%)	164 (3.7%)	219 (3.3%)	478 (4.2%)	679 (3.9%)	632 (4%)	492 (3.5%)	806 (4%)	646 (3.8%)	678 (3.8%)
missing	150 (2.7%)	99 (2.2%)	922 (13.9%)	296 (2.6%)	757 (4.4%)	190 (1.2%)	305 (2.2%)	540 (2.6%)	206 (1.2%)	304 (1.7%)
Edu										
	5.1 (2.8)	NaN (*missing*)	NaN (*missing*)	5.7 (2.8)	5.9 (2.8)	6.1 (2.8)	6.2 (2.8)	6.3 (2.7)	6.5 (2.7)	6.5 (2.7)
Male										
0	3338 (60.4%)	2729 (61.6%)	4161 (62.6%)	7085 (62.7%)	10890 (63.2%)	9966 (63.1%)	8707 (62.5%)	12806 (62.8%)	10756 (63.2%)	11287 (62.6%)
1	2185 (39.6%)	1701 (38.4%)	2491 (37.4%)	4215 (37.3%)	6351 (36.8%)	5782 (36.6%)	5172 (37.1%)	7528 (36.9%)	6203 (36.5%)	6690 (37.1%)
missing	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	53 (0.3%)	50 (0.4%)	68 (0.3%)	58 (0.3%)	43 (0.2%)
NZdep										
	5.0 (2.8)	4.9 (2.8)	4.6 (2.7)	4.9 (2.8)	4.8 (2.8)	4.7 (2.8)	4.7 (2.8)	4.6 (2.7)	4.6 (2.7)	4.6 (2.7)
Pol Orient										
	3.8 (1.2)	4.0 (1.3)	3.7 (1.4)	3.7 (1.3)	3.6 (1.3)	3.6 (1.3)	3.6 (1.3)	3.6 (1.4)	3.6 (1.4)	3.6 (1.4)
Relid										
	2.3 (2.8)	2.2 (2.8)	1.9 (2.7)	2.0 (2.7)	1.9 (2.7)	1.9 (2.7)	2.0 (2.7)	1.8 (2.6)	1.7 (2.6)	1.7 (2.6)
Urban										
0	2220 (40.2%)	1785 (40.3%)	2161 (32.5%)	3815 (33.8%)	5583 (32.4%)	5158 (32.6%)	4621 (33.2%)	7039 (34.5%)	3089 (18.2%)	3220 (17.9%)
1	3269 (59.2%)	2623 (59.2%)	4006 (60.2%)	7310 (64.7%)	11531 (66.9%)	10439 (66.1%)	8986 (64.5%)	13124 (64.3%)	13688 (80.4%)	14512 (80.5%)
missing	34 (0.6%)	22 (0.5%)	485 (7.3%)	175 (1.5%)	127 (0.7%)	204 (1.3%)	322 (2.3%)	239 (1.2%)	240 (1.4%)	288 (1.6%)

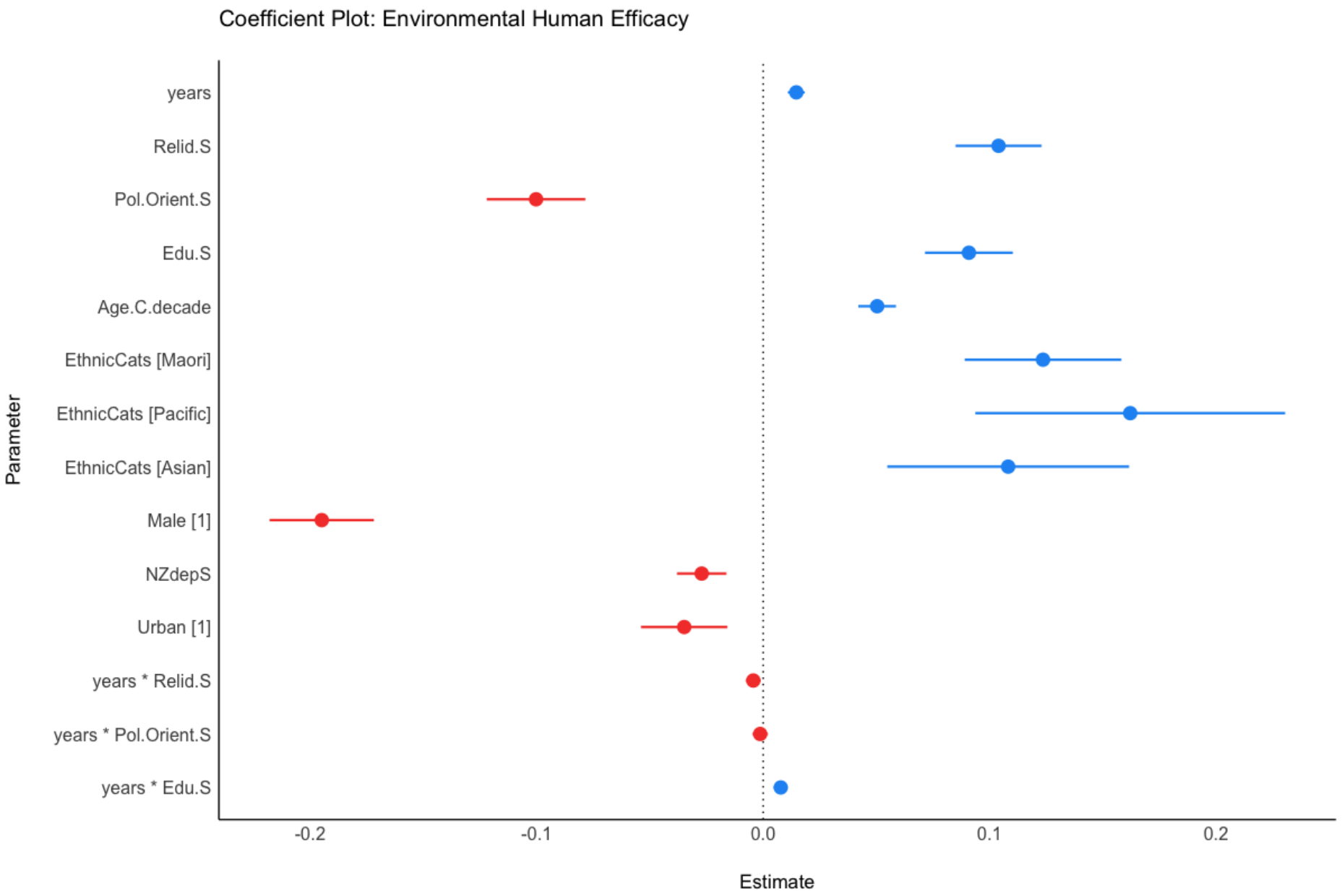
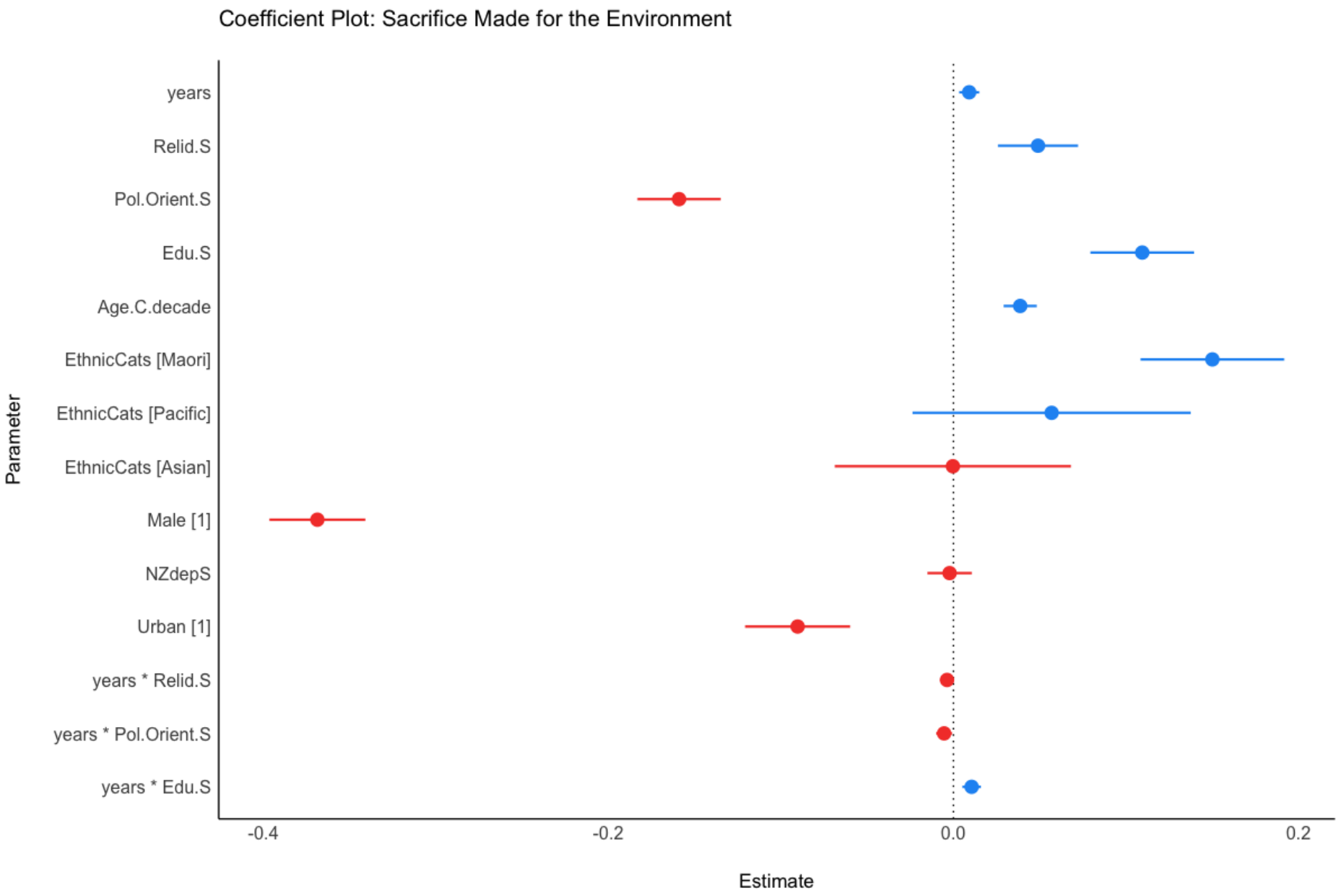
Coefficient Plot: Climate Change is Real



Coefficient Plot: Environmental Concern



Coefficient Plot: Environmental Efficacy



Coefficient Plot: Sacrifice Made