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The Moral Foundations of Environmentalism: Care- and Fairness-Based Morality Interact With Political Liberalism to Predict Pro-Environmental Actions

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Supplementary Materials: Data [see [Index of Supplementary Materials](#)]



Abstract

There is robust evidence showing associations between political ideology and environmentalism such that self-identified political liberals tend to hold greater pro-environmental positions than conservatives. Drawing from research on moral foundations, we report two studies examining the extent to which political ideology and individualising foundations of care- and fairness-based morality interact to predict environmentalism. Results support the predicted moderating role of individualising foundations, with no moderating effects for the binding foundations of loyalty-, authority- and sanctity-based morality. Liberal ideology was a stronger predictor of electricity conservation with increasingly high levels of individualising morals (Study 1, N = 144), while conservative ideology was a stronger predictor of positive feelings towards the Green Party with increasingly high levels of individualising morals (Study 2, N = 233). The results indicate that individualising morals might intensify environmentalism for those who already lean towards a pro-environmental stand but also for those who lean away from a pro-environmental stand. The findings confirm the important role of both care- and fairness-based morality in addressing environmental problems.

Keywords

environmentalism, political ideology, morality, moral foundations



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Scientists and the general public agree that human actions have adverse effects on the global environment (Doran & Zimmerman, 2009; IPCC, 2014; Millennium Ecosystem Assessment, 2005; Oreskes, 2004). Indeed, there exists a consensus that industrialisation and current lifestyles—especially in developed countries—have led to serious environmental problems, including climate change through increasing greenhouse gas emissions, which are a major contributor to rising global temperatures. Not only is there agreement that human behaviour has negatively impacted the environment, there is also agreement that we must make changes to our lifestyles if we are to address the issue of climate change (IPCC, 2014).

Much of environmental psychology research has focused on identifying determinants of pro-environmental behaviour and promoting behavioural change in individuals (e.g., Bamberg & Möser, 2007; Steg & Vlek, 2009). Equally necessary is the promotion of government policies to address environmental problems, for it is these policies that can make a major impact through enforcing and/or incentivising widespread behavioural changes (Lavergne, Sharp, Pelletier, & Holtby, 2010). Increasing both individuals' willingness to engage in pro-environmental behaviours *and* support for the implementation of government policies are therefore important targets for behavioural scientists interested in tackling environmental issues and reducing our carbon footprint on the globe.

Despite the consensus on the effects of human behaviour on climate change and the need to do something about it, extant research has found that some individuals and groups are more likely than others to engage in pro-environmental behaviours, and/or support policies aimed at reducing greenhouse gas emissions (e.g., Bamberg & Möser, 2007; Kellstedt, Zahran, & Vedlitz, 2008; Lavergne et al., 2010; Malka, Krosnick, & Langer, 2009; Milfont & Gouveia, 2006; Milfont & Sibley, 2012; Steg & Vlek, 2009). Whilst many socio-demographic and psychological predictors of pro-environmental behaviour and support for climate change related policies have been identified in the literature (for a review, see Schultz & Kaiser, 2012), here we will focus on political ideology and beliefs about morality and moral concerns.

Political Ideology and Environmentalism

Political ideology has been found to be a consistent predictor of environmentalism—here broadly defined as concern for the environment, and support for environmentally-friendly attitudes, intentions and behaviours. Holding a liberal, rather than conservative, political ideology is associated with greater concern for the environment (Buttel & Flinn, 1978; Olofsson & Öhman, 2006; Van Liere & Dunlap, 1980), beliefs in climate change (McCright & Dunlap, 2011), pro-environmental behaviours (Dietz, Stern, & Guagnano, 1998; Theodori & Luloff, 2002), and support for environmental policies and Green politics (Coan & Holman, 2008; Dunlap, Xiao, & McCright, 2001; Konisky, Milyo, & Richardson, 2008; Samdahl & Robertson, 1989).

In an earlier review of the environmental attitudes literature, Van Liere and Dunlap (1980) found that whilst political party affiliation in the USA was a weak predictor of environmental concern (with Democrats more likely to be concerned about environmental issues), a much stronger and more consistent predictor was self-identified political ideology (e.g., politically liberal vs. politically conservative). Their findings show that self-identified liberals are more environmentally concerned than those who identify as political conservatives. More recent studies have also replicated these findings (e.g., Dunlap et al., 2001; Jones & Dunlap, 1992; Olofsson & Öhman, 2006). For example, Olofsson and Öhman (2006) reported that liberals in both North American and Scandinavian nations were more environmentally concerned than conservatives.

Not only do political liberals exhibit higher levels of general environmental concern, they also show significantly more concern about the specific issue of climate change. For example, McCright and Dunlap (2011) used Gallup poll data from the USA to show that liberals are more likely to believe that global warming is happening, and to be personally concerned with the effects of climate change. These researchers went further by tracking the relationship between ideology and climate change beliefs over time, and found a process of divergence over time between liberals and conservatives on climate change beliefs between 2001 and 2010.

Concern about climate change is more obvious among liberals than conservatives, which gives rise to a political polarisation regarding this issue. Indeed, a growing number of studies have shown that climate change scepticism is most salient among individuals who hold conservative political orientations and ideologies that justify and protect the status quo (e.g., Jylhä & Akrami, 2015; Jylhä, Cantal, Akrami, & Milfont, 2016; Milfont, Richter, Sibley, Wilson, & Fischer, 2013). A meta-analysis has confirmed that political ideology is a key predictor of belief in climate change (Hornsey, Harris, Bain, & Fielding, 2016), and cross-cultural studies have confirmed the role of conservative ideologies on scepticism about anthropogenic climate change (Hornsey, Harris, & Fielding, 2018; Milfont et al., 2018).

Although it is well documented in the psychological literature that pro-environmental attitudes do not always lead to environmentally friendly behaviours (e.g., Knussen & Yule, 2008; Rabinovich, Morton, & Postmes, 2010; Thapa, 1999), there is also evidence that liberals not only hold more pro-environmental attitudes but also perform more environmentally-friendly actions than conservatives (Dietz et al., 1998; Samdahl & Robertson, 1989). For example, Theodori and Luloff (2002) found that political liberals in their study reported more frequent pro-environmental behaviours, such as donating money to environmental organisations, factoring in the environment when buying products, and voting for political candidates based on their environmental policies, than those who did not identify as liberals.

In brief, there exists a clear political distinction between liberals and conservatives over environmental issues with liberals tending to be more concerned with the state of

the environment compared to conservatives. This political distinction between liberals and conservatives on environmentalism can perhaps be linked to specific moral foundations.

Morality and Environmentalism

Alongside political ideology, morality is another construct that has been found to be a significant predictor of environmentalism (e.g., Bamberg & Möser, 2007; Farrell, 2013; Feinberg & Willer, 2013). In their meta-analysis of predictors of pro-environmental intentions and behaviours, Bamberg and Möser (2007) identified moral norms as a significant independent determinant of pro-environmental behavioural intentions. Moral norms in this context refer to “ought to” belief statements such as “People who are important to me think I should conserve energy”, and “People who are important to me would support me using public transport instead of the car for everyday trips”. Other researchers have also reported that the degree to which the environment is perceived as a moral issue is directly related to the strength of one’s attitudes about the environment (Stern, Dietz, Abel, Guagnano, & Kalof, 1999).

The relationship between morality and the environment is perhaps best conceptualised by Schwartz’s (1977) norm-activation theory of altruistic behaviour. This theory defines personal norms as feelings of moral obligations to behave in beneficial rather than harmful ways towards people, with altruistic behaviour being a function of people’s assignment of responsibility for their actions (i.e., ascription of responsibility) and people’s understanding that their actions might have consequences for the welfare of others (i.e., awareness of consequences). Norm-activation theory has proven influential in its ability to help explain why certain people are more likely to perform pro-environmental behaviours than others (Bamberg & Schmidt, 2003; Hopper & Nielsen, 1991; Milfont, Sibley, & Duckitt, 2010; Schultz & Zelezny, 1999; Stern, Dietz, & Black, 1985; Van Liere & Dunlap, 1978). To the extent that some individuals have the propensity to view environmental issues in moral terms, these individuals are more likely to have heightened awareness of the consequences of their behaviour on the environment and are also more likely to feel personally responsible for these consequences.

As with the norm-activation theory, the morality literature tends to converge on the idea that most of the moral underpinnings of environmentalism can be attributed to moral concerns over care (Karpiak & Baril, 2008). That is, the highest levels of environmental concern have been found to be rooted in care-based morality. That moral norms and pro-environmental behaviours appear to be driven by care-based morality—and to some extent also justice-based morality (e.g., Karpiak & Baril, 2008)—is critical, as different ideological groups have been found to differ in their endorsements of these moralities (Farrell, 2013; Graham, Haidt, & Nosek, 2009). Not only does political ideology and morality independently explain unique variance in environmentalism, political ideology and morality might also interact in explaining environmentalism. Moral Foundations Theory

(e.g., Haidt & Graham, 2007; Haidt, Graham, & Joseph, 2009; Haidt & Joseph, 2004) provides a useful framework for understanding the links between political ideology and morality in the context of environmental issues.

Moral Foundations Theory and Environmentalism

Moral Foundations Theory (MFT) posits that all cultures base their morality on five universal moral foundations: Care/harm, Fairness/cheating, Loyalty/betrayal, Authority/subversion, and Sanctity/degradation (Haidt & Graham, 2007; Haidt & Joseph, 2004). In brief, (1) Care/harm is related to attachment systems and involves caring for others and voiding inflicting harm or suffering upon them, and underlies virtues of kindness, gentleness, and nurturance; (2) Fairness/cheating is related to reciprocal altruism and involves concerns about fairness, equality, justice, and the avoidance of cheating others; (3) Loyalty/betrayal is related to the ability to form shifting coalitions and involves loyalty and other obligations to one's in-group, and the avoidance of betrayal; (4) Authority/subversion is related to hierarchical social interactions and involves conformity with the social order (e.g., respect for authority, obedience and traditional role fulfilment) and its protection from subversion; and (5) Sanctity/degradation is related to disgust and contamination and involves concerns about physical and spiritual purity, including chastity, suppression of desires, wholesomeness, and the avoidance of contamination and degradation.

More important in the context of the present research, these five moral foundations are grouped into two broader categories of moral intuitions. Care/harm and Fairness/cheating moral foundations are known as *individualising* morals, as they refer to the way individuals relate to one another. Individualising morals are related to liberal morality because Care/harm and Fairness/cheating support individual-focused contractual approaches used in enlightenment ethics (Graham et al., 2011). Loyalty/betrayal, Authority/subversion and Sanctity/degradation moral foundations are known as *binding* morals as they relate to the morals needed to bind groups together to function optimally in larger groups and institutions.¹

Although the five moral foundations and the two broad moral intuitions are arguably universal, the extent to which the foundations are relied upon has been found to differ across national cultures and specific political cultures (Graham et al., 2009; McAdams et al., 2008). Graham and colleagues (2009) found that self-identified political liberals in the USA have a two-factor morality in which liberals tend to rate the individualising foundations as highly relevant and important for moral judgments, whilst they appear to reject,

1) We understand that the use of the terms *individualising* and *binding* might be confusing and counter-intuitive for readers familiar with the discourse within the environmental literature. One would think that individualising morals have a greater influence on conservatives (e.g., private property rights, individual freedom, liberty, etc.) than on liberals, and that binding morals have a greater influence on liberals (e.g., communalism, group integration/cohesion, etc.) than on conservatives. We decided to keep these terms as originally proposed by MFT for the sake of consistency.

or at least be ambivalent towards, the binding foundations. In contrast, conservatives hold a five-factor morality whereby they evaluate both the individualising and binding foundations as important, although conservatives do not rate the individualising foundations as important as liberals do. [McAdams and colleagues \(2008\)](#) reaffirm this difference between political cultures, with liberals relying more on individualising morals and conservatives on binding morals when engaging in moral discourse (for a more recent study confirming this divide, see [Smith, Ratliff, Redford, & Graham, 2019](#)).

As liberals and conservatives appear to have different underlying moralities, MFT may be a good candidate for helping to understand the relationship between political ideology and environmentalism. Although this line of research is still recent, MFT has proven fruitful in explaining the political divide in environmentalism. [Graham et al. \(2011\)](#) identified that the individualising foundations (mainly Care/harm but also Fairness/cheating) were associated to positive feelings towards environmentalists and vegetarians, even after controlling for political ideology. Studying culture war attitudes in the USA, [Koleva, Graham, Iyer, Ditto, and Haidt \(2012\)](#) found that whilst political liberalism was the strongest determinant of attitudes towards global warming, the individualising foundations were also significant, independent predictors of believing that the government should introduce restrictions on carbon emissions in order to stem the effects of global warming. In contrast, Sanctity/degradation (one of the binding foundations) was a significant negative predictor of such attitudes.

A growing number of studies have directly investigated the relationships between moral foundations and environmental issues (see, e.g., [Dickinson, McLeod, Bloomfield, & Allred, 2016](#); [Farrell, 2013](#); [Feinberg & Willer, 2013](#); [Graham et al., 2011](#); [Karpiak & Baril, 2008](#); [Koleva et al., 2012](#); [Vainio & Mäkinemi, 2016](#); [Wolsko, 2017](#); [Wolsko, Ariceaga, & Seiden, 2016](#)). In their seminal article, [Feinberg and Willer \(2013\)](#) observed that most of the rhetoric about environmental issues is centred upon the Care/harm foundation—as also indirectly observed by [Graham et al. \(2011\)](#). Differences in environmental attitudes between liberals and conservatives can thus be attributed to liberals tackling environment issues in terms of their greater concern over Care/harm-based morality. Interestingly, [Feinberg and Willer \(2013, Study 3\)](#) were also able to increase environmental concern among conservative participants presented with pro-environmental messages couched in terms of Sanctity/degradation (compared to conservative participants exposed to Care/harm or neutral messages). This finding suggests that moral concerns and political ideology can interact in predicting environmentalism.

Support for the interaction between moral concerns and political ideology in predicting environmentalism is evidenced by recent experimental work conducted by [Wolsko, Ariceaga, and Seiden \(2016\)](#). Across three experiments, these authors observed that conservatives displayed more conservation intentions, climate change attitudes and willingness to donate to an environmental organisation after being presented with a binding pro-environmental frame (relative to those in individualising and control conditions),

while liberals did not differ substantially across conditions. In a follow-up publication, Wolsko (2017, Experiment 1) observed that pro-environmental attitudes of conservatives increased after being presented with messages emphasising binding (and liberty) moral concerns.

The Present Study

The conceptual ideas and empirical findings reviewed above suggest that both political ideology and specific moral concerns influence environmentalism. Indeed, it seems clear from the findings reported by Feinberg and Willer (2013) and others that moral concerns are important in understanding the relationship between ideology and pro-environmental attitudes. Most previous research has examined the predictive utility of political ideology or moral concerns to environmentalism as independent predictors (e.g., Dickinson et al., 2016), but a growing number of studies have started examining possible interactive effects of political ideology and moral concerns in predicting environmentalism (e.g., Wolsko et al., 2016). The present study contributes to this emerging literature by explicitly examining whether political ideology and moral concerns interact in predicting specific environmentalism measures.

The present research contributes to the extant literature in several ways. First, this is the first research examining the moderating role of moral concerns on the ideology-environmentalism link. Using moderated multiple regressions, we sought to determine the extent to which political ideology and moral concerns *interact* to predict additional variance in different domains of environmentalism. That is, political ideology may be more or less strongly associated with environmentalism depending upon low/high levels of moral concern. In particular, we examine the moderating role of individualising *and* binding foundations on the association between political ideology and both individual conservation behaviours aimed at mitigating climate change (Study 1) and feelings towards the environmentally-focused Green Party of Aotearoa New Zealand (Study 2). According to the typology of environmentally significant behaviours proposed by Stern (2000), the measure of direct mitigation actions used in Study 1 focused on private-sphere behaviours, while the feeling thermometer ratings towards the Green Party used in Study 2 provide a measure of environmental citizenship. This research also extends past studies by directly linking scores on the Moral Foundations Questionnaire with specific measures of environmentalism. Finally, to our knowledge this is the first study to extend the investigation of MFT, political ideology and environmentalism in the New Zealand context.

Study 1

A number of studies have shown that the individualising morals of Care/harm and Fairness/cheating are related to environmentalism (e.g., Farrell, 2013; Feinberg & Willer, 2013; Graham et al., 2011; Karpiak & Baril, 2008; Koleva et al., 2012). We thus hypothesised that the positive relationship between self-reported liberal ideology and engagement in personal emissions-reducing behaviours will be moderated by individualising moral foundations. That is to say, the positive association between political ideology (being liberal) and environmentalism should be strongest in the case of high levels of individualising moral foundations, but this association should not be influenced by the levels of binding moral foundations. Study 1 tests this hypothesis.

Method

Participants and Procedure

First-year psychology students at Victoria University of Wellington, New Zealand, participated in this study as part of a larger survey for partial course credit. Sample size was restricted by the hours allocated to our study in the university student pool, yielding a possible total of 150 participants. The final sample ($N = 144$) included 42 males and 102 females, with ages ranging from 17 to 45 years old ($M_{age} = 19$, $SD = 2.60$). The majority (76%) were born in New Zealand and classified themselves (72%) as New Zealand European/Pakeha (i.e., Caucasian). The survey was administered online using SurveyMonkey. To avoid issues with presentation order, the measures were presented in random order across participants and items within each measure were also randomised.

Measures

Liberal political ideology — A single-item measure of political ideology was used, ranging from 1 (extremely liberal) to 7 (extremely conservative). To facilitate interpretations, the item was reverse-coded so that a higher score indicates stronger endorsement of liberal political ideology.

Mitigation actions — To measure personal emissions-reducing actions we used a retrospective behavioural self-report scale (see Milfont & Sibley, 2012, Study 2) measuring participants' habits by asking them to indicate how often they performed 15 electricity conserving actions on a 5-point Likert scale from 1 (never) to 5 (very often). Examples of items are: "Turn the lights off in rooms that are not being used," and "Unplug appliances or switch them off at the wall when they're not in use (i.e., avoid leaving appliances on stand-by)" (see Appendix for all items). These behaviours are among the most promoted electricity conservation actions in New Zealand (Energy Efficiency and Conservation Authority, www.eeca.govt.nz), and this 15-item scale showed good internal consistency ($\alpha = .86$).

Moral Foundations Questionnaire — To measure morality we used the 30-item Moral Foundations Questionnaire (MFQ, Graham et al., 2011), which has been shown to be a reliable and valid tool for exploring the moral domain and has previously been tested in the New Zealand context (Davies, Sibley, & Liu, 2014). The first part of the questionnaire asks respondents to identify relevant considerations when deciding whether something is right or wrong (anchored by 0 = not at all relevant and 5 = extremely relevant). This first part includes three items for each of the five foundations, such as “Whether or not some people were treated differently than others” (Fairness/cheating). The second part of the questionnaire also includes three items for each of the foundations, and measures more concrete moral judgements by asking respondents to indicate their level of agreement to statements related to their feelings and behaviour (anchored by 0 = strongly disagree and 5 = strongly agree). An example of a moral judgement item is “Chastity is an important and valuable virtue” (Sanctity/degradation). Scores for each of the five moral foundations are calculated by averaging the specific six items, and scores for the higher order individualising and binding morals are calculated by averaging the specific foundation scores.

Results

Descriptive statistics and bivariate correlations between the measures are given in Table 1. For completeness we also report the correlations for all five moral foundations, but we focus on the individualising morals (formed by care- and fairness-based morality) and binding morals (formed by loyalty-, authority-, and sanctity-based morality). As expected, both liberal ideology (albeit non-significantly) and individualising moral foundations showed positive relationships with engagement in personal emissions-reducing behaviours.

We hypothesized an interaction between liberal ideology and individualising morals, but not for binding moral foundations, in predicting pro-environmental actions. To test this interactive effect, we used moderated multiple regressions (Aiken & West, 1991; Baron & Kenny, 1986) by first centering liberal ideology, individualising morals and binding morals, and then creating the product terms by multiplying the centered scores of ideology and morality. We conducted a separate regression model for individualising morals and another for binding morals. In each regression model, liberal ideology was entered in Step 1, individualising or binding morals at Step 2, and the interaction term at Step 3. There was no indication of multicollinearity in these regression models: individualising (tolerance < 1.0; variance inflation factor < 1.1) and binding (tolerance < 0.9; variance inflation factor < 1.4).

Starting with the regression model for individualising morals, the main effect of political ideology in predicting pro-environmental actions was statistically non-significant ($p = .991$), but there was a significant main effect of individualising morals ($\beta = .36$, $t = 4.62$, $p < .001$) which was qualified by the expected significant interaction. As predicted,

the ideology \times individualising interaction was a significant predictor of electricity conservation, $\beta = .24$, $t = 3.19$, $p = .002$; $F(3, 140) = 13.65$, $p < .001$; $R^2 = .23$, $Adj R^2 = .21$, $R^2_{change} = .06$, $F_{change}(1, 140) = 10.20$, $p = .002$. This significant interaction indicates that the effect of liberal ideology on electricity conservation depended upon individualising moral foundations. Regarding the regression model for binding morals, neither political ideology nor binding morals emerged as significant predictor of electricity conservation ($p > .131$ for both). More importantly, and in contrast to the finding of the first model, the liberal ideology \times binding morals interaction was *not* a significant predictor of electricity conservation ($\beta = -.02$, $t = -.19$, $p = .850$).²

Table 1

Descriptive Statistics and Bivariate Correlations

Variables	1	2	3	4	5	6	7	8	M	SD
Study 1										
1. Liberal ideology									4.75	1.21
2. Individualising morals	.19*								3.41	0.78
3. Care/harm	.16	.93***							3.47	0.89
4. Fairness/cheating	.19*	.91***	.70***						3.35	0.79
5. Binding morals	-.47***	.29***	.31***	.22**					2.60	0.72
6. Loyalty/betrayal	-.29**	.42***	.43***	.36***	.82***				2.75	0.76
7. Authority/subversion	-.41	.30***	.32***	.24**	.88***	.61***			2.72	0.83
8. Sanctity/degradation	-.49***	.07	.10	.02	.87***	.54***	.65***		2.32	0.93
9. Electricity conservation	.08	.41***	.39***	.37***	.07	.14	.09	-.03	3.39	0.66
Study 2										
1. Liberal ideology									5.33	1.24
2. Individualising morals	.13								3.65	0.54
3. Care/harm	.06	.89***							3.64	0.71
4. Fairness/cheating	.18**	.81***	.45***						3.66	0.56
5. Binding morals	-.50***	.18**	.24***	.05					2.15	0.72
6. Loyalty/betrayal	-.27***	.19**	.21**	.11	.75***				2.16	0.71
7. Authority/subversion	-.46***	.08	.16*	-.06	.86***	.55***			2.40	0.89
8. Sanctity/degradation	-.45***	.18**	.21**	.08	.83***	.39***	.54***		1.88	1.04
9. Green Party support	.46***	.19**	.14*	.18**	-.24***	-.10	-.29***	-.19**	5.76	1.48

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1 presents the post-hoc probing of the liberal ideology \times individualising interaction. The graphed interaction and simple slopes analysis show that individuals with strong individualising morals evidenced a positive relationship between liberal ideology and electricity conservation (simple slope = .12, $t = 2.03$, $p = .040$), whereas individuals who reported weak individualising morals evidenced a negative relationship (simple

2) Because female participants tend to be more liberal and environmentally concerned compared to males (e.g., Milfont & Sibley, 2016; Zelezny et al., 2000), regressions were run controlling for gender, which yielded similar results in both studies.

slope = $-.12$, $t = 2.03$, $p = .040$). Liberal ideology was a stronger predictor of electricity conservation with increasingly high levels of individualising morals.

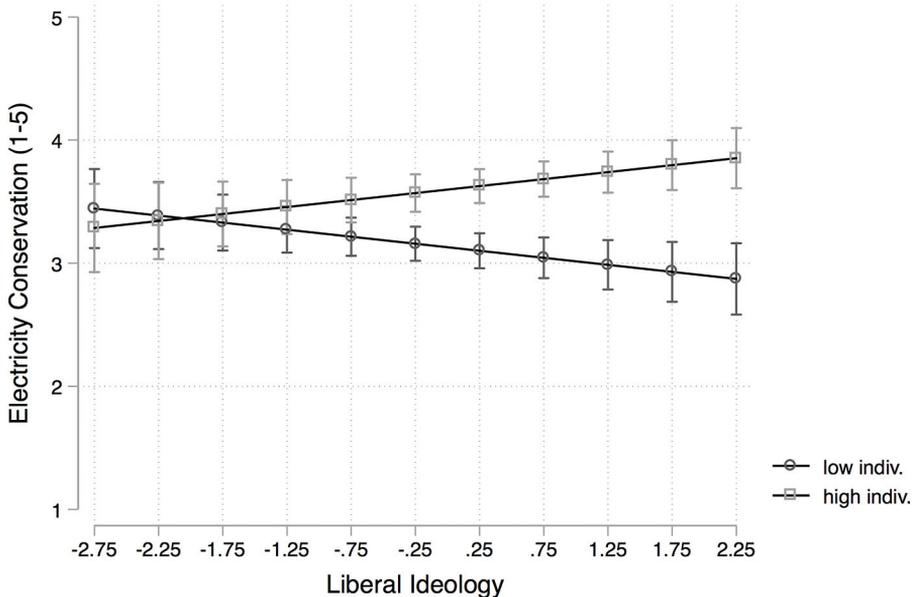


Figure 1. Mean levels of engagement on electricity conservation actions as a function of liberal ideology and individualising moral foundations.

Discussion

The results of this study supported our hypothesis that individualising moral foundations—but not binding morals—would interact with liberal ideology in predicting mitigation actions. Although the predicted moderation was supported, the resulting interaction is considered a rare pattern to obtain, described as a “funnel pattern” (Jose, 2013, p. 192), because the interaction yields slopes in opposite directions. A positive relationship between liberal ideology and electricity conservation was observed under conditions of high individualising morals, but a negative relationship was observed under conditions of low individualising morals. The highest level of self-reported conservation behaviour was obtained for high liberal participants who had high individualising morals, whereas the lowest level of self-reported conservation behaviour was found for high liberal participants who had low individualising morals.

That the positive effect of liberal ideology on electricity conservation behaviours is stronger for those holding *high* individualising morals suggests that individualising morals functions as an enhancer because the highest levels of electricity conservation were reported by highly liberal individuals who also reported high levels of individualising

morals. In contrast, for those holding *low* individualising morals the relationship between liberal ideology and electricity conservation behaviours is in fact negative. This provides support for the important role of moral concerns in understanding the direct effect between political ideology and pro-environmental engagement. Study 2 expands the initial study by considering a broader measure of environmental engagement (i.e., positive feelings toward the Green Party of New Zealand), and by considering a convenience sample from the general population as opposed to undergraduate students. Replicating the moderation finding using another measure of environmentalism and a community sample will provide further evidence for the interaction of individualising morals and liberal political ideology in predicting environmentalism.

Study 2

Endorsement of the Green Party is an important measure of environmentalism as many scholars agree that the best and most influential way to tackle environmental issues such as climate change is at the government level (Lavergne et al., 2010), and that environmental organisations should be focusing on changing governmental policies rather than on changing individuals (Pettifor, 2008). This seems especially the case for New Zealand, where the Green Party is the third largest political party. Since 1996, governance has been decided using a proportional representation electoral system whereby the proportion of seats in parliament reflects the proportion of the nationwide vote. This means that the Green Party could end up with considerable political power if they chose to go into a coalition and govern with either of the two major parties: the National Party or the Labour Party, which respectively are the major centre-right and centre-left parties in New Zealand politics. Indeed, this is what happened in the 2017 election when the Green Party joined the coalition government formed by the Labour Party and New Zealand First.

A previous New Zealand study (Milfont, Harré, Sibley, & Duckitt, 2012) has shown that, while support for climate change actions predicted increased support for the Labour Party and decreased support for the National Party for people with children, parental status had no moderating effect in the association between support for both climate change actions and the Green Party. This suggests that endorsement of the Green Party is an important indirect measure of environmentalism (at least in New Zealand). Similar to Study 1, it was hypothesised that liberal ideology and individualising foundations will interact in predicting Green Party support.

Method

Participants and Procedure

A convenience sample from the general population in New Zealand participated in this study as part of a larger survey on social attitudes and political issues. Participants were recruited via a regular column article published by the third author in the *New Zealand Listener*, the highest circulation general interest and current affairs magazine in the country. The survey was administered online using SurveyMonkey, and the goal was to recruit as many participants as possible. A total of 289 participants completed the online survey but 56 participants had missing data for all MFQ30 items and were not considered in the analyses. The age of the remaining 233 participants ranged from 12 to 83 ($M_{age} = 51.38$, $SD = 14.16$), and New Zealand citizens (91%) and females (72%) were overrepresented in this sample.

Measures

Liberal political ideology — As in Study 1, a single-item self-report measure of political ideology was used in which responses ranged from 1 (extremely liberal) to 7 (extremely conservative), which was reverse-coded so higher scores indicate stronger endorsement of liberal ideology.

Green party support — Support for the environmentally-focused Green Party of New Zealand was measured through a feeling thermometer scale in which participants were asked to rate their feelings towards this political party (anchored by 1 = strongly negative and 7 = strongly positive). Higher scores on this measure indicate more positive feelings towards the Green Party.

Moral Foundations Questionnaire — As in Study 1, the MFQ30 was used to measure moral foundations. Scores on the Care/harm and Fairness/cheating foundations were combined to create the individualising morals score, and responses on the Loyalty/betrayal, Authority/subversion, and Sanctity/degradation items made up the binding morals score.

Results

Table 1 presents the descriptive statistics and bivariate correlations, and confirmed the expected positive correlations between both liberal political ideology and individualising morals with positive feelings towards the Green Party. We hypothesised an interaction between liberal ideology and individualising morals, but not for binding moral foundations, in predicting Green Party support. Moderated regressions were conducted as for Study 1 by first centering the predictors and multiplying these centered scores to create the product terms. We conducted separate regression models for individualising morals

and binding morals. Liberal ideology was entered in Step 1, individualising or binding morals at Step 2, and the interaction term at Step 3. There was no indication of multicollinearity in these regression models: individualising (tolerance < 1.0; variance inflation factor < 1.1) and binding (tolerance < 1.0; variance inflation factor < 1.5).

Starting with the regression results for individualising morals, there was a statistically significant main effect of both liberal ideology ($\beta = .46, t = 7.66, p < .001$) and individualising morals ($\beta = .14, t = 2.28, p = .023$) in predicting positive feelings towards the Green Party, but these main effects were qualified by a significant interaction. As predicted the ideology \times individualising interaction was also a significant predictor of positive feelings towards the Green Party, $\beta = -.15, t = -2.55, p = .012, F(3, 217) = 23.77, p < .001; R^2 = .25, Adj R^2 = .24, R^2_{change} = .02, F_{change}(1, 214) = 6.49, p = .012$. This result indicates that the strength of the relationship between liberal ideology and favourability ratings of the Green Party was affected by endorsement of individualising moral foundations. Results for the regression model examining binding morals showed a statistically significant main effect of liberal ideology ($\beta = .47, t = 6.48, p < .001$) but not for binding morals ($\beta = .01, t = .07, p = .943$). Notably, the liberal ideology \times binding morals interaction was not significant ($\beta = -.01, t = -.17, p = .869$).

Figure 2 presents the post-hoc probing of the interaction, showing that the moderation applies only under conditions of low liberal ideology.

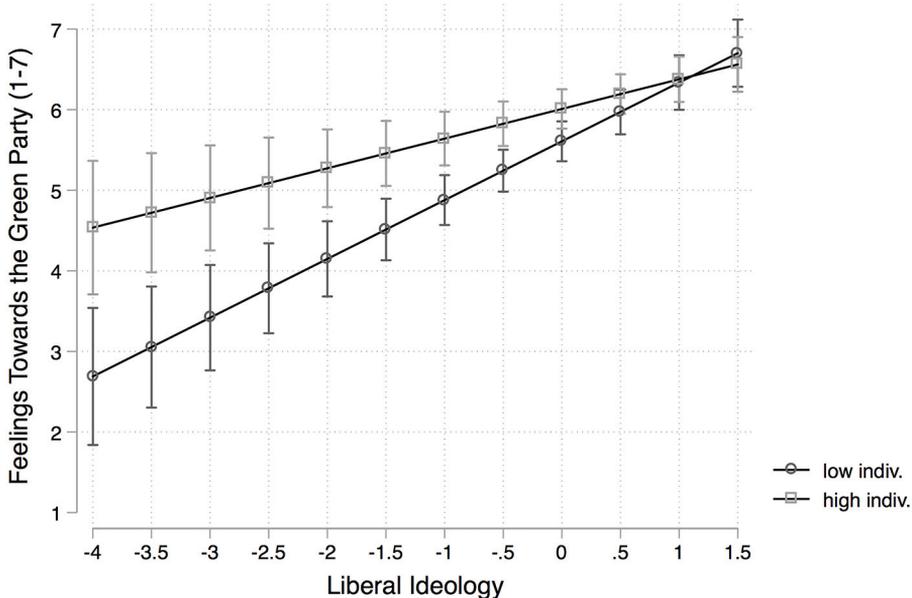


Figure 2. Mean levels of positive feelings towards the Green Party as a function of liberal ideology and individualising moral foundations.

That is, the relationship between high liberal ideology and positive feelings towards the Green Party is positive and strong irrespective of high/low endorsement of individualising morals. Simple slopes analysis also shows that the slope for low individualising morals is steeper (simple slope = .73, $t = 6.93$, $p < .001$) than the slope for high individualising morals (simple slope = .37, $t = 3.86$, $p < .001$).

Discussion

Results of Study 2 showed that individualising moral foundations and liberal political ideology interacted in predicting positive feelings towards the Green Party in New Zealand. That the slope for low individualising morals is steeper than the slope for high individualising morals suggests a damper effect (Jose, 2013, p. 191), and the fact that high individualising morals predict higher Green Party support in the absence of liberal ideology suggest an either-or relationship. That is, positive feelings toward the Green Party can be based on either liberal ideology or individualising morals. This pattern of findings might reflect a ceiling effect since participants in this sample tended towards a liberal orientation and to hold positive feelings toward the Green Party. Indeed, the scores for these variables reported in Table 1 were statistically significantly higher than the scale middle-point of 4: $t(222) = 16.08$, $p < .001$, $d = 1.08$, and $t(222) = 17.74$, $p < .001$, $d = 1.19$, respectively.

Perhaps due to this possible ceiling effect, the findings showed that the observed interaction effects of liberal political ideology and individualising morals on positive feelings toward the Green Party occurred only under conditions of low liberal ideology. Among participants with low levels of liberal ideology, greater positive feelings toward the Green Party was reported by those who also reported high endorsement of individualising morals, compared to those with low individualising morals. Endorsement of individualising morals thus seems to counteract negative affect typically associated with the Green Party, and perhaps of environmental policies, among those individuals with less liberal ideological underpinnings. Since Green Party support was lowest among less liberal participants holding low individualising morals, it can be speculated that endorsement of individualising morals might act as a buffer by weakening the often-negative relationship between less liberal political ideology and feelings towards environmentally-oriented political parties and issues.

General Discussion

Political ideology has been shown to influence how individuals view and act regarding environmental problems, with those with a more liberal political orientation tending to show greater environmental concern and greater willingness to engage in pro-environmental behaviours, including concern for climate change and engagement in mitigation

actions (e.g., Fransson & Gärling, 1999; Hornsey et al., 2018; Milfont, 2012; Van Liere & Dunlap, 1980). Moral concerns have also been shown to be important predictors of pro-environmental actions (e.g., Bamberg & Möser, 2007; Farrell, 2013), and more recent research has shown that political ideology and moral concerns interact to predict environmentalism (e.g., Feinberg & Willer, 2013; Wolsko et al., 2016). Extending this literature, the present research investigated the potential moderation between political ideology and morality in predicting environmentalism. In particular, and drawing from Moral Foundations Theory (MFT; Haidt & Graham, 2007), we investigated whether individualising moral foundations interact with liberal ideology to predict climate change mitigating behaviours (Study 1), and positive feelings toward the Green Party of New Zealand (Study 2).

Consistent with previous findings, self-reported liberal ideology was positively associated with both higher levels of mitigating actions (albeit non-significantly) and Green Party support, and similar positive associations were observed for individualising morals (see Table 1). Going beyond direct effects, the predicted moderation was supported in both studies, with individualising morals—but not binding morals—interacting with liberal political ideology to predict self-reports of electricity conservation and positive feelings toward the Green Party. The present findings provide additional empirical evidence for the role of political liberalism and Care/harm and Fairness/cheating moral foundations in predicting environmentalism (Feinberg & Willer, 2013; Graham et al., 2011; Karpiak & Baril, 2008).

It is plausible that some of the direct effect of political ideology on environmentalism that is so widely described in the literature (e.g., Dietz et al., 1998; Dunlap et al., 2001; Olofsson & Öhman, 2006) could also be susceptible to a moderating influence of individualising morals. It is thus recommended that moral foundations, in particular care- and fairness-based morality, are measured in future research examining the association between political ideology and environmentalism, so that moderation effects can be examined instead of merely reporting their direct effects (e.g., Dickinson et al., 2016). Moreover, and given that liberals and women tend to score higher on the individualising moral foundations of Care/harm and Fairness/cheating (Graham et al., 2009), endorsement of individualising morals might explain (at least partially) why liberals and women tend to be more environmentally concerned (for a review of gender differences in environmentalism, see Zelezny, Chua, & Aldrich, 2000). It is important to note, however, that the moderation effect of individualising morals on the ideology-environmentalism relationship observed in this research held up even after controlling for gender.

In Study 1, the level of electricity conservation actions was greater for those high liberal individuals who held high levels of individualising morals. In Study 2, high liberal individuals tended to display positive feelings towards the Green Party, regardless of the degree of individualising morals they held. For low liberal individuals, in contrast, greater positive feelings toward the Green Party was reported by those who also reported

high endorsement of individualising morals, compared to those with low individualising morals. These findings are in line with other studies using MFT in understanding the political divide in environmental attitudes (Feinberg & Willer, 2013; Graham et al., 2011; Koleva et al., 2012), and also suggest that the interaction between individualising morals and liberal/conservative political ideology will influence measures of environmentalism differently. By considering different forms of environmentalism, it might be possible to gain more insights into the moderating role of individualising morals in the relationship between political ideology and environmentalism. It is also interesting to note that while the correlations between political ideology and moral foundations were stronger for binding than individualising morals—a pattern observed in other studies as well (e.g., Davies et al., 2014; Dickinson et al., 2016)—the interaction effect was only observed between political ideology and individualising morals. Moreover, political ideology and binding morals were not reliably correlated with the environmentalism measure in Study 1 but were reliably correlated with Green Party support in Study 2, which indicates the effects might vary depending on the measure used. Future studies could further examine the weaker but interactive links between political ideology and individualising morals in the environmental domain, as well as the pattern of correlations between political ideology and moral foundations with distinct environmentalism measures.

It is worth noting important limitations of our study. First, our research is correlational and therefore does not provide strong support for causal statements. Another limitation is that some of the measures were based on single-items measures (i.e., political ideology in both studies, and party support in Study 2). Although single-item measures of political orientation are widely used, it would be important to replicate our interaction findings with psychometrically stronger and multi-item measures. We also relied on self-report measures of electricity conservation and Green party support, and it is worth trying to replicate the effects with observed measures of environmentalism.

The findings from Study 1 and 2 are related to those reported by Feinberg and Willer (2013). Our findings indicate that the individualising foundations of Care/harm and Fairness/cheating intensify environmentalism for those who already lean towards pro-environmental stands (i.e., individualising morals enhance environmentalism for liberals). On the other hand, the individualising foundations of Care/harm and Fairness/cheating attenuate anti-environmentalism for those who already lean away pro-environmental stands (i.e., individualising morals buffer anti-environmentalism for conservatives). Future studies should further test these enhancing and buffering effects of the individualising foundations.

It would also be important to consider diverse samples within and between countries. Political polarisation is perhaps more salient in the USA—and getting stronger (McCright & Dunlap, 2011)—than in other countries (e.g., see Hornsey, Harris, & Fielding, 2018). Beliefs about the severity of environmental problems can also be influenced by political leanings within regions of a country (Milfont, Abrahamse, & McCarthy, 2011). The rela-

tionship between political ideology and environmentalism, and the moderating role of individualising morals on this relationship, might differ across samples. However, considering the extant literature and present findings we predict that the political polarisation of environmentalism (with greater pro-environmental stands for liberals than conservatives) as well as the influential role of individualising morals would be observed independently of location. The strength of the direct and moderation associations might differ, but the overall pattern should be consistent across countries and regions within a country. Future research will be able to test this prediction.

Another direction of future studies is to employ longitudinal designs to investigate the influence of political ideology on environmentalism, and the role of morality as a moderator of this relationship. A longitudinal study has shown that parenting practices and attitudes, as well as early temperamental traits, predict later political ideology (Fraleigh, Griffin, Belsky, & Roisman, 2012). Specifically, authoritarian parenting practices and attitudes coupled with early temperamental qualities of fearfulness and deficits in attentional control predicted a stronger likelihood of conservative ideologies at age 18 years. At the same time, egalitarian parenting practices and attitudes, coupled with early high levels of activity and restlessness, predicted a stronger likelihood of liberal ideologies later in life. In the environmental domain, a longitudinal study has shown that high levels of environmentalism predicted active participation in an unrelated psychological experiment two years later, demonstrating that environmentalists tend to act pro-socially even in activities unrelated to environmental conservation (Kaiser & Byrka, 2011). These findings suggest that political ideologies, and resulting environmentalism, may be formed early in life and to be trait-like. Future studies could explore how the ideology-environmentalism relation develops over time, and whether morality can exert any change in established political ideologies to foster environmentalism.

Several studies have examined the influence of value orientations on environmentalism (e.g., Milfont & Gouveia, 2006; Schultz & Zelezny, 1999; Steg, 2016), and there are conceptual and empirical relations between values and moral foundations (Boer & Fischer, 2013; Feldman, 2019; Graham et al., 2011). Indeed, the meta-analytical findings by Feldman (2019) indicate that the self-transcendence versus self-enhancement value dimensions in the Schwartz theory of human values were more strongly associated with individualising foundations, while conservation versus openness-to-change value dimensions were more strongly associated with binding foundations. Earlier meta-analytical findings by Boer and Fischer (2013) provide support for these links, and add conceptual links between values and moral foundations—particularly self-transcendence values and individualising morals—in relation to pro-environmentalism. Considering these conceptual and empirical links, future studies could more systematically examine the extent to which moral foundations add to what we already know on the relationship between values and environmentalism, and vice-versa.

Overall, this research adds to the literature by providing more nuanced understanding of the relationship between political ideology, moral concerns and environmentalism. The literature examining the relationships between both political ideology and morality with environmentalism has by and large neglected to consider the extent to which ideology and morality interact to predict pro-environmental attitudes and actions. Our research shows that ideology is more strongly associated with environmentalism under certain levels of individualising morals. The relationship between political ideology and environmentalism is therefore notably more complex than the previous literature would suggest. The present study highlights the importance of incorporating moral foundations as a third variable in the study of political ideology and environmentalism.

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Data Availability: For both studies, datasets and codebooks are freely available (see the Supplementary Materials section).

Supplementary Materials

Datasets for Study 1 and Study 2 with full annotations/codebooks. (For access see Index of [Supplementary Materials](#) below.)

Index of Supplementary Materials

Milfont, T. L., Davies, C. L., & Wilson, M. S. (2019). *Datasets and codebooks to "The moral foundations of environmentalism: Care- and fairness-based morality interact with political liberalism to predict pro-environmental actions"*. PsychOpen.
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Appendix

All electricity conserving actions measured in Study 1. Participants indicated how often they performed each action on a 5-point Likert scale from 1 (never) to 5 (very often).

1. Turn the lights off in rooms that are not being used
2. Unplug appliances or switch them off at the wall when they're not in use (i.e., avoid leaving appliances on stand-by)
3. Use energy-efficient appliances or electrical equipment
4. Pull the curtains before dark to keep the heat in
5. Only heat rooms which are in use
6. Air-dry clothes instead of putting them in a clothes dryer
7. Pro-actively choose 'green' electricity products and services
8. Restrict the length of showers to save electricity
9. Turn off equipment (television, computers, etc.) when not in use
10. Air-dry towels instead of putting them on heated towel rails
11. Use cold water instead of hot or warm water when washing clothes
12. Keep your hot water cylinder thermostat at 60° C
13. Use thermostats and timers on electrical equipment (e.g., heated towel rails, heaters)
14. Use electrical devices less often
15. Use blankets or warm clothes instead of turning the heating on



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