

Disentangling the relationships between conservative economic and social attitudes and support for environmental action

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Abstract

Scholars have debated why people on the right of politics are consistently found to be less likely to support environmental action than those on the left. Some authors argue that this relationship is primarily driven by conservative economic attitudes, while several studies have demonstrated a negative link between conservative social attitudes and environmental attitudes. However, as few studies include both conservative economic and social attitudes, it remains unclear whether both sets of attitudes relate to environmental attitudes independently, or whether one confounds the other. This study uses Bayesian regression analyses of data from the 2017 New Zealand election study, finding that both conservative economic attitudes (free market support, opposition to welfare) and conservative social attitudes (exclusionary attitudes, right-wing authoritarianism) have independent negative relationships with environmental attitudes. These results imply that the link between conservative ideology and environmental attitudes is as much about social attitudes and worldview as about economics.

Keywords: Environmental attitudes; conservative attitudes; political orientation; political ideology; environmental policy

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Introduction

Research on public opinion on the environment has consistently found that people who place themselves on the right of the political spectrum tend to be less engaged with environmental issues compared with those on the left (Cruz 2017; Dunlap 1975; Hornsey et al. 2016; Haring, Jagers and Matti 2017; Liu, Vedlitz and Shi 2014; McCright, Marquart-Pyatt et al. 2016; McCright, Dunlap and Marquart-Pyatt 2016; Nawrotzki 2012). Yet, we do not have a clear understanding of why right-leaning people are hesitant to support action on the environment. Two broad explanations have been suggested for the link between conservative ideology and environmental attitudes. The first proposes that conservative support for free markets conflicts with the collective action that is necessary to address most environmental issues (Buttel and Flinn 1978; Heath and Gifford 2006; Longo and Baker 2014; McCright and Dunlap 2013). The second posits that conservative social attitudes, such as exclusionary attitudes and right-wing authoritarianism, are linked to low levels of engagement with environmental issues through support for existing hierarchies and beliefs about human domination over nature (Milfont, Richter et al. 2013; Milfont, Bain et al. 2018; Stanley et al. 2017).

There is substantial empirical support for both conservative economic and social attitudes being negatively related to environmental attitudes. However, few studies have tested the relationship between conservative economic and social attitudes and environmental attitudes simultaneously see, however: Jylhä, Strimling and Rydgren 2020. It is thus unclear whether conservative economic and social attitudes independently explain the relationship between right-wing orientation and environmental attitudes, or whether one confounds the other.

Using data from the 2017 New Zealand Election Study (NZES 2017), the current study investigates the extent to which both conservative economic and social attitudes relate to public support for government action on climate change and people's preference for environmental protection over economic development. I thus seek to determine the independent influence of conservative economic and social attitudes on opinions about environmental action and policy. In doing so I aim to advance our understanding of why left-right political orientation is consistently found to be a predictor of people's views on climate change and other environmental issues.

Solving environmental problems such as climate change requires far-reaching government action and policies which must be legitimized by public support. Support for these policies, however, seems to be much weaker among people who consider themselves right-wing compared with those on the left of politics. Improving our understanding of which parts of conservative ideology negatively relate to opinions about the environment can therefore help to shed

light on why political ideology seems to be so strongly associated with people’s environmental views. This improved understanding can, in turn, help environmental activists and communicators seeking to advance the acceptance of the environmental policies they wish to see adopted.

Theory

Political orientation and environmental attitudes

A number of potentially catastrophic environmental problems caused by human activity have become apparent in recent decades. Solving these problems will likely require substantial changes to society, with a recent Intergovernmental Panel on Climate Change report on the actions necessary to prevent warming over 1.5°C, for example, noting that ‘there is no historical precedent for the scale of the necessary transitions, in particular in a socially and economically sustainable way’ IPCC 2018, p. 392. The required changes could include reductions to industrial pollution (including greenhouse gasses), changes to individual lifestyles, such as travel, eating habits and leisure, and re-thinking urban planning to increase sustainability and reduce human encroachment on natural areas.

People’s worldview or ideology can make it difficult for them to accept such wide-scale social changes. For instance, many people believe that the government should refrain from ‘interfering’ with the economy, and therefore reject government regulation to curb environmental problems (Dreyer and Walker 2013; Longo and Baker 2014). Individuals may dismiss suggested changes to their preferred lifestyle aimed at addressing environmental problems (such as dietary changes), seeing such suggestions as a challenge to their way of life (Jost and Andrews 2011). Some people also believe that it is the place of humans to dominate nature, and therefore reject the notion that wildlife and biodiversity requires substantial protection (Milfont, Richter et al. 2013). There are thus strong theoretical reasons to expect that people’s ideology will relate to attitudes towards environmental issues.

The literature empirically demonstrating the link between political ideology and environmental views is vast. Many studies have demonstrated that political orientation (including left-right spatial orientation, liberal/conservative identification and party affiliation) relates to people’s opinions on environmental issues, at least in developed countries (Cruz 2017; Dunlap 1975; Hornsey et al. 2016; Harring, Jagers and Matti 2017; Liu, Vedlitz and Shi 2014; McCright, Marquart-Pyatt et al. 2016; McCright, Dunlap and Marquart-Pyatt 2016; Nawrotzki 2012). For example, in a review covering over 140 studies on public opinion on climate change, McCright, Marquart-Pyatt et al. (2016) find that left-right orientation is the second most consistent predictor of climate views, after pro-environmentalism. Cruz (2017) uses a meta-analysis to demonstrate that political ideology has a robust relationship with environmental concern in the US, where those on the left have higher levels of concern than those on the right. The relationship between right-wing orientation and environmental concern has grown stronger over time, indicating that political context – such as the extent to which political parties contest environmental issues – influences the strength of the relationship. Guber 2013; McCright, Xiao and Dunlap 2014

While the link between political orientation and environmental attitudes is strongly supported empirically, most previous studies have relied on single-item measures of political orientation, typically asking respondents to place themselves on a left-right spatial scale, with possible responses ranging from 0 or 1 (indicating the far left) to 10 (indicating the far right) (e.g. Cruz 2017). However, political orientation is a broad concept, and there are likely to be a range of differing attitudes among people who identify as ‘right’ (or ‘left’) (Feldman 2013; Mair 2007; Stenner 2009). Specifically, there are economic and social attitudes which are often associated with being right-wing, but are not necessarily consistently held among people who consider themselves right-wing (Altemeyer 1981; Mair 2007). For example, some people on the political right may be primarily concerned about economic issues, and support measures to liberalize or marketize the economy (Feldman 2013). Others on the right may prioritize social issues, for instance, preferring a social order where some individuals or groups maintain higher status and wealth than others (Altemeyer 1981; Sidanius and Pratto 2001).

Despite the variation in economic and social attitudes held among people on the right of politics, there are specific sets of attitudes that are closely related to considering oneself ‘right-wing’. I refer to these sets of economic and social attitudes – which I define in detail below – as ‘conservative’ attitudes. As Jost, Glaser et al. (2003) argue, conservative political ideology has at its heart resistance to change and acceptance of inequality. From this basic definition, a number of different aspects of conservative ideology can be identified, including exclusionary attitudes, a preference for authoritarianism and opposition to social welfare (Jost, Glaser et al. 2003; Stenner 2009). However, as Stenner (2009) points out, these conservative attitudes are distinct and are sometimes in opposition to one another. For example, some people who embrace free markets may also oppose strong leaders (and thus authoritarianism), as they value individual liberty in economic, social and political matters (Stenner 2009). Studies using only a left-right spatial scale to measure political orientation are likely to miss some of this complexity.

To understand the relationship between political orientation and environmental attitudes, it is important to disentangle the ways in which conservative economic and social attitudes may relate to support for action on the environment. Many authors believe that conservative *economic* attitudes, particularly a preference for free market economics, best explain the link between conservatism and environmental attitudes (Buttel and Flinn 1978; Heath and Gifford 2006; Longo and Baker 2014; McCright and Dunlap 2013). Given that wide-ranging government action is central to addressing most environmental problems, it is easy to see why people who oppose government economic intervention might also resist government action to halt or mitigate environmental problems. However, a number of recent studies have also found that conservative *social* attitudes, such as support for group-based hierarchies, authoritarianism and exclusionary attitudes negatively relate to support for environmental action (Milfont, Richter et al. 2013; Milfont, Bain et al. 2018; Stanley et al. 2017). The current study aims to test both economic and social conservative attitudes, and thus shed light on the extent to which they independently relate to environmental preferences.

It is important to note that the nature of the relationships between conservative and environmental attitudes may vary across space and time. As mentioned, there is evidence that ideological polarisation has increased around some environmental issues, as the level of contestation has increased among political elites and in the media. Guber 2013 Moreover, political ideology has a stronger relationship with environmental attitudes in some countries than in others, being particularly strong in the US and other anglophone countries. McCright, Marquart-Pyatt et al. 2016; E. K. Smith and Mayer 2019 That said, there appear to be long term patterns in the relationships between conservative and environmental attitudes. Evidence of a political divide in environmental attitudes was reported on as early as the 1970s. Buttel and Flinn 1978 Additionally, studies investigating different aspects of political ideology and how they relate to environmental attitudes have found similar patterns across most Western countries, although some countries are more polarised than others McCright, Dunlap and Marquart-Pyatt 2016. The results described below, while focussing on the specific context of New Zealand, can thus provide insight into the nature of the relationship between political ideology and environmental attitudes in general.

In the remainder of this section, I review the existing literature on conservative economic and social attitudes, and state my expectations on the relationship between the economic and social attitudes and environmental attitudes. I then describe my expectations about whether the previously observed negative link between conservatism and support for addressing environmental issues is more about economic ideas, social worldview or a combination of the two.

Conservative economic attitudes

Conservative economic attitudes include both support for free markets, and opposition to government welfare. Support for free markets and preferences for minimal government intervention in the economy have been central aspects of conservative politics since at least the 1980s (Antonio and Brulle 2011). People who support free markets often do so not just on pragmatic grounds (that is, the argument that free markets produce greater economic growth), but also on ideas about individual liberty (Henry 2008). A closely related (but distinct) attitude is the extent to which people oppose the welfare state or other government methods to reduce inequality (Achterberg, Houtman and Derks 2011; Otjes 2018).

However, a conservative economic outlook is not universally held among conservatives. In particular, right-wing populist parties tend to have a diverse set of positions on economic interventionism (Achterberg, Houtman and Derks 2011; Otjes et al. 2018). Some right-wing populist parties, for instance, apply their nativist view of politics to economics, supporting a welfare state for ‘natives’, but not for ‘foreigners’ (Otjes et al. 2018), or, alternatively, adopt market-friendly policies primarily to enhance their appeal to voters rather than on ideological grounds (Coffé 2008). Moreover, some supporters of right-wing populist parties may oppose welfare on the grounds that it encourages ‘sponging’, but continue to support economic redistribution (and disapprove of free market policies) due to their insecure personal economic positions (Achterberg, Houtman and Derks 2011).

Support for free markets and economically liberal policies has a natural tension with concern about environmental issues, as comprehensively addressing environmental problems requires a degree of state action, including implementing taxes and regulations (Hursh and Henderson 2011; McCright and Dunlap 2003). While the exact degree of necessary government intervention in the economy is widely debated, it is difficult to see how adequately addressing issues such as climate change is fully compatible with highly liberal free market economics (Jaffe, Newell and Stavins 2005; V. K. Smith 2015). People with a strong conservative economic outlook are thus likely to find it difficult to support the action necessary to address environmental problems, as it conflicts with their views about how the economy should be managed.

A number of studies have directly tested the extent to which a conservative economic outlook is associated with low levels of support for environmental action (Buttel and Flinn 1978; Dreyer and Walker 2013; Dunlap,

Xiao and McCright 2001; Heath and Gifford 2006; Longo and Baker 2014; McCright, Xiao and Dunlap 2014; E. K. Smith and Mayer 2019). For example, in the US, Longo and Baker (2014) find that a measure of support for government economic intervention was strongly and negatively related to concern about environmental issues. Investigating acceptance and support for climate policy in Australia, Dreyer and Walker (2013) find that people who approve of free market principles were less likely to support the adoption of carbon pricing by the Australian federal government. Based on the above research, my first hypothesis reads as:

H1: People with a strong conservative economic outlook will tend to have lower levels of support for environmental action and policies compared with people with a weak conservative economic outlook.

Conservative social attitudes

In addition to conservative economic characteristics, many conservatives hold particular views about how society should be structured. I consider two well-theorized concepts that have previously been found to correlate with right-wing orientation, and are associated with conservative ideology (Jost, Glaser et al. 2003): exclusionary attitudes (Jylhä and Hellmer 2020; Jylhä, Strimling and Rydgren 2020 and right-wing authoritarianism (Altemeyer 1981; Milfont, Richter et al. 2013).

Exclusionary attitudes towards particular groups are often found among conservatives. These attitudes are often understood through the lens of social dominance theory, and its individual-level attribute, social dominance orientation (SDO) (Pratto et al. 1994; Sidanius and Pratto 2001). SDO measures the extent to which a person believes that certain groups are inherently superior to others, and prefers politicians and policies that protect the status of their own group (often defined by ethnicity, nationality, age or gender) (Pratto et al. 1994). Typically, people with a high SDO belong to groups that already occupy privileged positions in society, and are more likely to be white and male than those with low levels of SDO (Pratto et al. 1994; Sidanius and Pratto 2001).

Social dominance theory did not initially incorporate ideas about nature and the environment, and therefore did not make clear predictions about the relationship between SDO and support for environmental action. However, Milfont, Richter et al. (2013) argue that, while social dominance is about the dominance of one group over another, the concept can easily be extended to dominance of humans over nature. People oriented towards social dominance tend to adhere to legitimising myths, such as sexism and racism, used to justify group-based hierarchies (Sidanius and Pratto 2001). Legitimising myths about dominance of humans over nature are thus easily adopted by people with high SDO, as they are similar to the myths they already believe about hierarchies (Milfont, Richter et al. 2013). There may also be more indirect links between SDO and environmental concern; for example, given that people who support group-based hierarchies tend to belong to privileged groups, the substantial social changes that may be required to address environmental problems are a direct threat to existing hierarchies (Jylhä and Akrami 2015; Milfont and Sibley 2014).

Milfont and colleagues (Milfont, Richter et al. 2013; Milfont and Sibley 2014; Milfont and Sibley 2016; Milfont, Bain et al. 2018) have produced a number of studies demonstrating the link between SDO and low levels of environmental concern and support for environmental action (see also: Carrus, Panno and Leone 2018; Jylhä and Akrami 2015; Häkkinen and Akrami 2014; Stanley et al. 2017). Using data from the New Zealand Values and Attitudes Study, Milfont, Richter et al. (2013) found that people with high levels of SDO also tended to have low levels of environmental concern, and Milfont, Bain et al. (2018) found a similar pattern in a multi-country, cross-cultural sample of students.

SDO is typically measured by items that refer to inter-group dominance in general, for example ‘Some groups of people are just more worthy’ (Sidanius and Pratto 2001). In contrast, exclusionary attitudes are negative attitudes towards specific groups such as women or immigrants. Jylhä and Hellmer (2020) find that exclusionary attitudes are closely related to SDO, and that exclusionary attitudes mediate a large portion of the relationship between SDO and environmental attitudes (specifically climate change denial). The hypothesis relating to exclusionary attitudes is thus formulated as:

H2: People who hold exclusionary attitudes towards particular groups will tend to have lower levels of support for environmental action and policies compared with people who do not hold exclusionary attitudes.

Right-wing authoritarianism (RWA) is a closely related, but separate concept to SDO (Altemeyer 1981; Sidanius and Pratto 2001). In contrast to SDO, people who score high on RWA believe in individual-based hierarchies, rather than group-based hierarchies as with SDO. Altemeyer (1981) defines RWA as characterized by deference to authority, aggression and conventionalism. He describes deference as trust in and respect of established authority figures of many kinds, including parents, religious officials and heads of government. People with high RWA tend

to hold aggressive attitudes towards various targets when they believe this aggression is supported by established authorities and conventions (Altemeyer 1981). For instance, right-wing authoritarians will generally be in favour of physical discipline of children and of capital punishment for criminals (Altemeyer 1981). Finally, right-wing authoritarians hold conventional and traditional attitudes on issues such as religion, marriage and gender roles (Altemeyer 1981).

A clear theoretical link between RWA and environmental concern has yet to be established. It is typically suggested that system justification is the primary reason people with high RWA tend to have low levels of belief in or concern about environmental issues (Häkkinen and Akrami 2014; Schultz and Stone 1994). In other words, it is the challenge to the status quo presented by environmental issues that prevents people with high levels of RWA from fully engaging with environmental issues. Thus, the conventionalism aspect of RWA offers the most obvious theoretical link to environmental views.

A number of studies have confirmed the negative association between RWA and environmental concern Carrus, Panno and Leone 2018; Häkkinen and Akrami 2014; Jylhä, Strimling and Rydgren 2020; Milfont, Richter et al. 2013; Schultz and Stone 1994; Stanley et al. 2017. Schultz and Stone (1994), for example, find a negative correlation between RWA and a general measure of environmental concern. Investigating climate change denial, Carrus, Panno and Leone (2018) find that people with high RWA are more likely to deny the existence and human causes of climate change. A panel study by Stanley et al. (2017), based on a sample of students at a New Zealand university, also suggests that causality flows from RWA to environmental attitudes, rather than in the opposite direction. The above research leads to the following hypothesis:

H3: People with high levels of right-wing authoritarianism will tend to have lower levels of support for environmental action and policies compared with people with low levels of right-wing authoritarianism.

Do conservative economic and social attitudes independently relate to environmental attitudes?

Both conservative economic and social attitudes have been shown to explain at least part of the relationship between left-right orientation and environmental attitudes that has been reported in previous studies. However, as the economic and social components of conservative ideology may be related (Feldman 2013), it is possible that any relationship between conservative social attitudes and environmental attitudes is confounded by economic attitudes (or vice versa). For example, SDO may appear to relate to environmental attitudes only because people with high SDO are also more likely to support a conservative economic outlook. To gain a clear understanding of why conservatives tend to have negative attitudes towards environmental action, it is critical to determine whether conservatives reach this view of environmental issues primarily through their economic attitudes, social attitudes or both.¹

Few studies investigating environmental attitudes, however, have investigated both conservative economic and social attitudes as explanatory measures. One exception is Jylhä, Strimling and Rydgren (2020), who explore the differences in climate denial among radical right, mainstream right and left-wing voters in Sweden. They investigate the relationship between climate change denial and conservative attitudes, including conservative economic attitudes, exclusionary attitudes towards women and immigrants, SDO and RWA. Their results indicate that most of the conservative attitudes examined have positive relationships with climate denial, however economic and exclusionary attitudes (towards women) were stronger predictors of climate denial than SDO and RWA. The final hypothesis thus reads:

H4: Conservative economic and conservative social attitudes have independent negative relationships with support for environmental action and policies.

Although there have been few studies previously testing this hypothesis, it seems reasonable to assume that both conservative economic and social attitudes will independently relate to environmental attitudes, given there are clear theoretical reasons for each of these relationships, as outlined above.

¹Incorporating both economic and social axes in an analysis also helps to cover a range of conservative viewpoints. For instance, some conservatives may be social libertarians, having high scores on measures of conservative economic attitudes, but low scores on measures of conservative social attitudes such as right-wing authoritarianism. The analyses below estimate the size of the relationship between conservative economic attitudes and environmental attitudes regardless of where individuals sit on the conservative social axis.

Table 1: Summary of dependent variables

Variable	Survey Question	Response Coding (proportion of responses in brackets)
Support for government action	To act against climate change, stronger government policies are needed to reduce carbon emissions	1. Strongly/somewhat disagree (12.6%) 2. Neither agree or disagree (11.3%) 3. Strongly/somewhat agree (65.0%) 4. Missing / Don't know (11.0%)
Environment vs. economy	1 stands for the opinion that we should do more to protect the environment, even if that means less economic development. 7 stands for the opinion that we should do more to encourage economic development even if that means more harm to the environment. Where would you place your view?	1. Do more to encourage economic development (5/6/7 on original scale) (17.0%) 2. Neither (4 on original scale) (19.3%) 3. Do more to protect environment (1/2/3 on original scale) (56.3%) 4. Missing / Don't know (7.2%)

Data and Method

To test the extent to which conservative economic and social attitudes relate to climate change and environmental attitudes, I used data from the 2017 New Zealand Election Study (NZES 2017). The NZES is conducted after each election in New Zealand (usually every three years). The study randomly selects respondents from the New Zealand electoral roll. Respondents are initially sent a letter containing the survey with instructions on how to respond, and are allowed to complete the survey either online or by returning the questionnaire via post. In all, 3,445 respondents completed the 2017 NZES survey. 1,339 respondents had previously participated in the 2014 NZES. The response rate for participants who had completed the 2014 survey was 61.6%, and 30.6% for the rest of the sample.

Dependent Variables

I use two measures of environmental attitudes: *support for government action* on climate change and *support for environmental protection over economic development*.² The first dependent variable, measuring support for government action, uses the response to a question asking respondents about the extent to which they support stronger government policies to reduce carbon emissions.

A second dependent variable was constructed from a question asking respondents to position themselves on a 7-point scale, where 1 stands for the opinion that we should do more to protect the environment, while 7 stands for the opinion we should do more to encourage economic development. This variable was reverse coded, so that supporting the environment represented a higher value. Environmental protection and economic development are not diametrically opposed – looking after the environment will most likely strengthen a country’s economy in the long run. However, many environmental policies have substantial short term economic costs associated with them, and trade-offs may therefore be required. Hirsch et al. 2011 It is thus useful to include ‘forced choice’ questions in surveys to gauge the choices respondents might make in cases where a ‘zero sum’ environment versus the economy trade-off must be made.³

To ensure the models were parsimonious and to ease interpretation of the results, I reduced both the dependent variables to three categories.⁴ The Spearman’s rank-order correlation coefficient between the two dependent variables is 0.34. Table 1 summarizes the dependent variables.

²Most previous studies on the relationship between political ideology and environmental attitudes use belief in environmental problems as the dependent variable (such as whether the environmental problem actually exists or is a serious problem) (e.g. Longo and Baker 2014; Milfont, Richter et al. 2013). However, some studies have investigated other dimensions of environmental attitudes, such as support for government action and environmental policy, finding that there is a similar relationship between these dependent variables and ideology as between belief and ideology (Crawley, Coffé and Chapman 2020; Dreyer and Walker 2013; Kulin and Sevä 2019).

³An additional advantage of forced choice questions is that respondents tend to consider their responses more carefully compared with ‘check all that apply’ alternatives. Neuert 2017

⁴I also completed the analyses described below using the original number of categories for both dependent variables (with five and seven categories respectively). The results were similar, and are presented in section 4.2 of the supplemental material.

Explanatory Variables

To measure conservative economic and social attitudes I constructed five composite variables by combining responses (almost all of which were on a 5-point scale, ranging from ‘Strongly disagree’ to ‘Strongly agree’) to a number of statements about political and economic issues. The responses were averaged to create a composite score, with any missing values dropped when calculating the mean. Table 2 summarizes the five independent variables, and presents metrics for reliability (Cronbach’s Alpha, α) and internal consistency (inter-item correlation).⁵

Conservative economic attitudes are measured by two variables capturing respondents’ degree of support for free market policies and the extent to which respondents’ believe the government should be actively addressing inequality, particularly through welfare. Support for free markets has a close theoretical relationship with preferring economic development over environmental protection (measured by the ‘environment vs. economy’ dependent variable). However, the value of including the support for free markets variable in the analyses below is that it controls for a subset of conservative economic attitudes relating to free markets and thus provides insight into the relationship between conservative social attitudes and environmental attitudes. Moreover, the ‘support for government action’ dependent variable does not have such an obvious link to free market principles, and thus sheds light on the relationship between support for free markets and environmental attitudes.

Three variables are used to measure conservative social attitudes. I include two variables that relate to respondents’ level of exclusionary attitudes, measuring respondents’ degree of negative attitudes towards minorities and women. Finally, the measure of RWA includes items on support for strong leaders, discipline and law and order.

⁵While the Cronbach’s Alpha values for some of the measures are below the conventionally used threshold of 0.7, the reliability value may be underestimated due to the small number of items. It is not possible to know if adding more items would increase reliability. As Schmitt points out, the risk of using measures which may be unreliable is that the size of the relationship between the composite variable and any other variables of interest will be underestimated. It is therefore possible that there is undetected unreliability in some of the measures, meaning the effects are underestimated. However, the alpha values for all the composite variables are 0.55 or above despite the low number of items for each measure, and – as shown in the results below – an effect is observed for each of the composite variables, suggesting that the results were not substantially affected by any possible unreliability in the measures. Schmitt 1996

Table 2: Summary of composite variables measuring conservative attitudes

Conservative attitudes	Variable	Indicators	α	IIC
Economic attitudes	Support for free markets	<ul style="list-style-type: none"> • Trade unions in New Zealand have too much power • The government should remove tax breaks currently available to property investors (R) • Privatisation of state-owned enterprises has gone too far (R) • Big business in New Zealand has too much power (R) 	0.62	0.28
	Opposition to welfare	<ul style="list-style-type: none"> • Should there be more or less public expenditure in each of the following areas? Welfare benefits (R)^a • The government should take measures to reduce differences in income levels (R) • Unemployed people should have to work for their benefits • Many people who get welfare benefits don't really deserve any help • With lower welfare benefits people would learn to stand on their own two feet 	0.78	0.41
Social Attitudes	Anti-minority attitudes	<ul style="list-style-type: none"> • Minorities should adapt to the customs and traditions of the majority • Reference to the Treaty of Waitangi should be removed from the law • The will of the majority should always prevail, even over the rights of minorities • Māori should have more say in all government decisions (R) 	0.74	0.41

Conservative attitudes	Variable	Indicators	α	IIC
	Anti-feminism attitudes	<ul style="list-style-type: none"> • Society would be better off if women stayed home with their children • On the whole, men make better political leaders than women do • The law should be strengthened to reduce pay differences between women and men (R) • Should there be more efforts to increase the number of women MPs? If so, what means would you prefer?^b 	0.55	0.23
	Right-wing authoritarianism	<ul style="list-style-type: none"> • Having a strong leader in government is good for New Zealand, even if the leader bends the rules to get things done • The death penalty should be brought back for some murders • A few strong leaders could make this country better than all the laws and talk • What young people need most of all is strict discipline by their parent • Should there be more or less public expenditure in each of the following areas? Police and law enforcement^a 	0.68	0.30

Control variables

The analyses also include some control variables. To control for the possibility that any link between political orientation and environmental attitudes is due to party sorting (Cruz 2017), I also include a variable indicating which party the respondent voted for in the 2017 election. Dummy variables for each of the major parties (National, Labour, New Zealand First, and Green)⁶ were included, with the reference category being support for a minor party. Finally, I also included several socio-demographic control variables that have previously been found to relate to environmental attitudes: gender, age, whether the respondent has a university-level degree, employment status, ethnicity and level of interest in politics (Hornsey et al. 2016). Full details of the control variables can be found in section 1 of the supplemental material.

Analytic Strategy

To analyse the data, I first calculated correlations (using Spearman’s rank-order correlation) between the dependent variables and main explanatory variables. This first step gives an initial indication of the relationships between the measures of conservative social and economic attitudes, and the measures of environmental attitudes. To estimate the independent relationships between the social and economic variables on environmental attitudes, I modelled the relationship between the independent and dependent variables using Bayesian multinomial logistic regression. While ordinal logistic regression is often used when the dependent variable is ordinal, proportional odds tests suggested that the proportional odds assumption was violated, and therefore multinomial logistic regression was a more appropriate choice.

As 13% of the observations in the dataset had one or more ‘don’t know’ response or missing value, I employed multiple imputation to estimate these values. The results for models using the original data set (without multiple imputation) were similar to those presented below. Further details on the approach to model selection, multiple imputation, and other aspects of the method used, can be found in section 2 of the supplemental material.

Results

Descriptive Analyses

As an initial test of the relationship between the main independent variables and the dependent variables, Spearman’s rank-order correlations are presented in table 3 below. Table 3 also includes a measure of left-right orientation to test the extent to which the variables measuring conservative economic and social attitudes tend to be higher among those who position themselves on the right of the political spectrum. The left-right orientation variable relies on a question asking respondents to place themselves on a left-right scale, with 0 being the most left, and 10 being the most right.

As illustrated in Table 3 below, all the measures of the conservative attitudes have positive correlations with left-right orientation, indicating that people with high scores on these measures tend to place themselves to the right of the political spectrum. All of the correlations between left-right orientation and the measures of conservative attitudes are medium to large in magnitude, with the largest being support for the free market, which has a correlation of 0.46.

Table 3 also shows that all the measures of conservative attitudes have negative correlations with the dependent variables measuring support for environmental action, indicating that people who see themselves as right-wing, or hold the conservative attitudes that are investigated in this study, are more likely to have negative environmental attitudes. Most of the correlations are small to medium in magnitude, with the largest being -0.31 between anti-feminist views and support for stronger government action on climate change.

Perhaps surprisingly, given the close theoretical relationship described above, the correlation between supporting free markets and preferring environmental protection over economic development was only -0.30. However, only a small proportion of respondents placed themselves towards the end of the scale preferring economic development, perhaps because few people were willing to support environmental ‘harm’, which could explain the lower than expected correlation.

⁶The two largest parties in New Zealand, National and Labour are positioned to the centre-right and centre-left respectively. The Green Party is an environmentally-focussed party, positioned to the left of Labour on many issues. It can be difficult to precisely place New Zealand First on the political spectrum; however in recent years they have mostly taken centrist positions, and often engage in populist rhetoric.

Table 3: Correlations between measures of conservative attitudes, left-right orientation, and support for environmental action

Right-wing value	Support for climate change policies	Environment vs. economy	Left/right orientation
Right-wing authoritarianism	-0.14	-0.24	0.35
Anti-feminism views	-0.31	-0.27	0.41
Anti-minority views	-0.25	-0.28	0.42
Free-market support	-0.20	-0.31	0.50
Anti-welfare views	-0.24	-0.27	0.49

Note:

All values significant at $p < 0.01$

Explanatory Analyses

The analyses presented below investigate the extent to which the bivariate negative relationships described above still hold when social and economic attitudes are introduced simultaneously in a multivariate model and when controlling for mainstream socio-economic characteristics. Below I present average marginal effects (AME) of each of the independent variables on each of the dependent variables (Leeper 2018). In the plots below, the x axis represents the AME of the predictor on the dependent variable for each of the three levels of the dependent variable. The AMEs were rescaled so that the independent variable effectively ranged between 0 and 1. Doing so allows for easier comparison between the effects of the independent variables. Section 4.1 of the supplemental material presents the full results from the regression analyses described here.

Figure 1 shows the AMEs of the independent variables for each level of support for stronger government policies to address climate change. The lowest level indicates the respondent somewhat or strongly disagrees that the government should do more about climate change, the middle category indicates neither agree or disagree, and the highest level indicates somewhat or strongly agree. As expected, people who hold anti-feminism or anti-minority views, support free markets or oppose government welfare measures are less likely to support government action on climate change. The effect sizes are quite substantial for all four of these variables; someone with the maximum anti-feminism score has a 0.34 lower probability of supporting stronger government policies than a person with the minimum anti-feminism score.

However, people holding high levels of right-wing authoritarianism appear to be more likely to support stronger government action on climate change than someone with low levels of RWA. Given that the bivariate correlation between right-wing authoritarianism and support for government climate action is negative (see table 3), this unexpected relationship appears to be partly because other conservative attitudes have partialled out the aspects of RWA that negatively relate to environmental attitudes. The remaining effect of RWA thus has a positive relationship with supporting the environment over the economy. I expand on the possible interpretation of this result in the discussion section below. Stepwise regression suggests that the direction of the authoritarian coefficient changes from negative to positive when the anti-feminism, anti-minority and anti-welfare variables are added to the model.

Most of the control variables do not have a noticeable effect on support for government action on climate change, with the exception of being female, having a strong interest in politics and voting for the Green party, all of which have small positive effects. People who cast their vote for the National party were moderately less likely to support government action on climate change compared with voters supporting a minor party, while there was also a small negative effect of religiosity on support for government action.

The AMEs for the ‘environment over the economy’ dependent variable are presented in figure 2. All of the variables measuring conservative attitudes have the expected negative relationship with wanting to do more to protect the environment over encouraging economic development. Support for the free market has the largest effect, which is unsurprising given the dependent variable is specifically about economic policy. People who support the free market had a 0.20 increased probability of giving the middle ‘neutral’ answer, although the effect size of a high level of free-market support on giving an answer in the lowest category was 0.19. However, there are also substantial effects for the variables measuring levels of exclusionary attitudes and RWA, with right-wing authoritarianism, anti-feminism and anti-minority views having effects sizes ranging between -0.12 and -0.26 on the probability of a person preferring that more is done to protect the environment, even if it means less economic development. Compared with voters supporting a minor party, people who vote for the Green party are substantially more likely

Figure 1: Average marginal effects (with 95% credible intervals) of conservative attitudes and control variables on support for government action on climate change

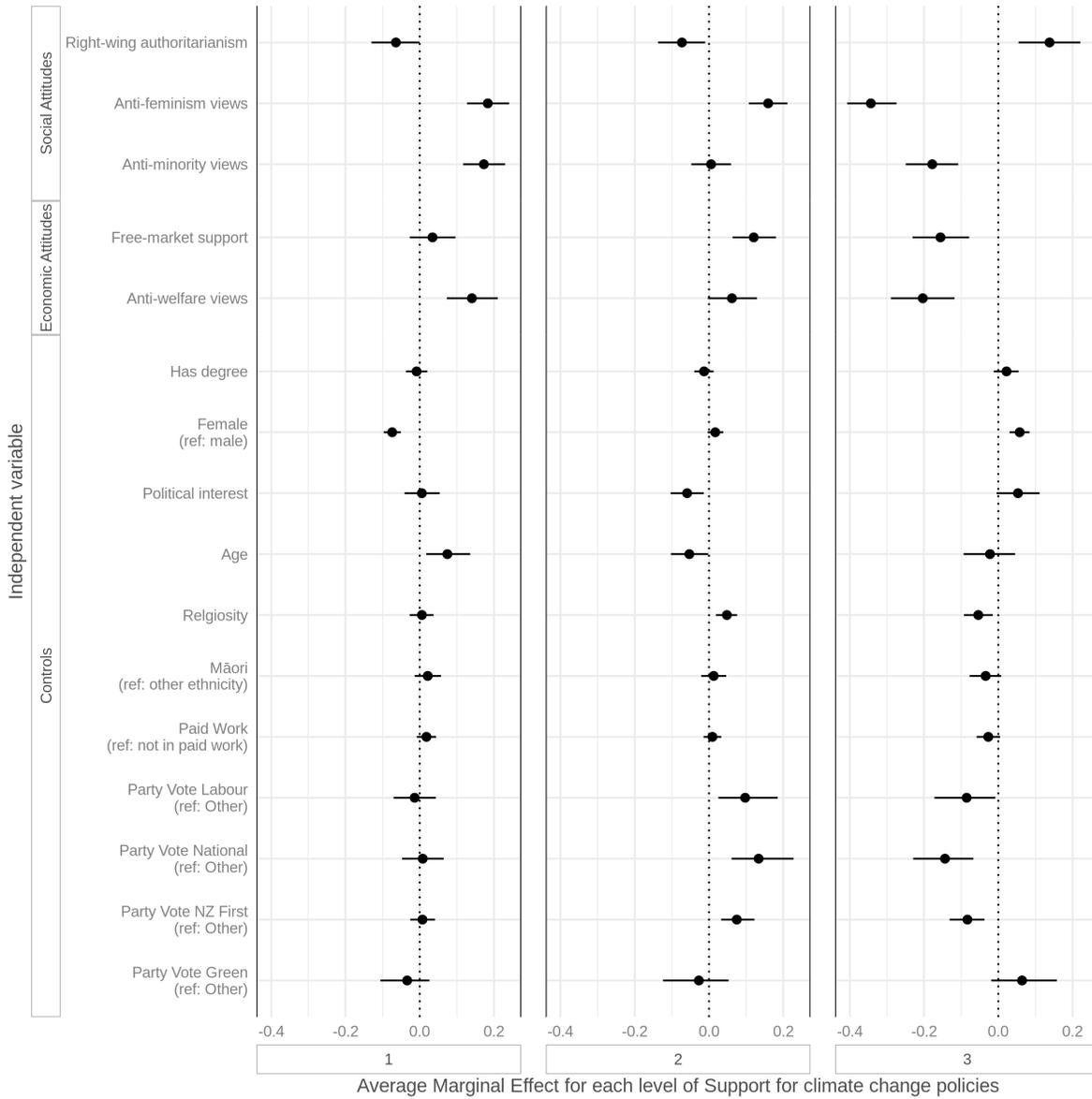
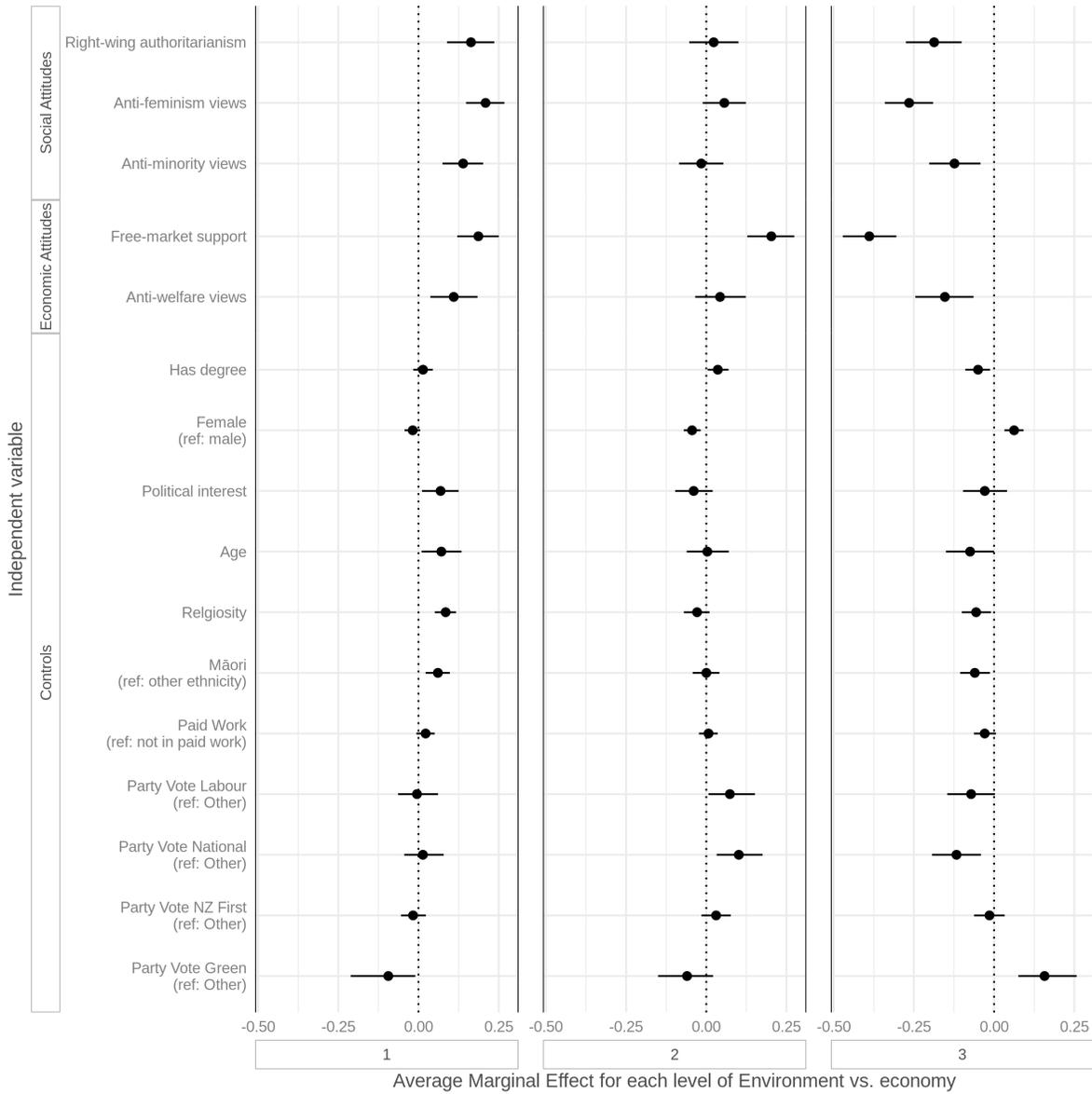


Figure 2: Average marginal effects (with 95% credible intervals) of conservative attitudes and control variables on preference for protection of the environment over economic development



to support action on the environment over the economy. The other control variables do not appear to strongly relate to preferring the environment over the economy, although being female (compared with being male) has a small positive effect, and voting for the National party has a small negative effect.

In light of these results, H1 is supported, as both measures of conservative economic attitudes have negative relationships with supporting environmental action. H2 is also accepted, as people with exclusionary attitudes tend to have lower levels of both dependent variables measuring environmental attitudes. RWA appears to have a positive relationship with support for government action; thus H3 is supported for the second dependent variable, but not the first. As the variables measuring both conservative economic and social attitudes have independent relationships with the measures of environmental attitudes, H4 is also accepted.⁷

Discussion and conclusion

In this study, I have examined the extent to which conservative economic and social attitudes relate to individuals' views on climate change and the environment. The results suggest that both conservative economic and social attitudes have independent negative relationships with environmental attitudes. Economic views (including preferences for less government intervention in the economy, and being opposed to welfare measures) are strongly linked to people's perspectives on environmental action and policy. The reasons for this link between economic and environmental opinions are relatively clear: people who favour a more free market conception of the economy, or who oppose government measures to reduce inequality through welfare will tend to see environmental issues as a challenge to this method of economic management, and therefore will engage less with environmental issues compared with those who do not hold conservative economic views (Longo and Baker 2014).

Conservative social attitudes are also linked to lower levels of support for environmental action and policy. In particular, exclusionary attitudes such as anti-feminist and anti-minority views are consistently related to low levels of support for government action on climate change and a preference for economic development over environmental protection. These results align with previous studies suggesting that exclusionary attitudes, which are part of SDO, have a negative relationship with environmental attitudes (Jylhä and Hellmer 2020; Milfont, Richter et al. 2013). However, the results presented here confirm this relationship exists even when controlling for conservative economic attitudes, which are known to be correlated with SDO (Jylhä, Strimling and Rydgren 2020). My findings thus support Milfont, Richter et al. (2013), who suggest that those who are high in SDO tend to have negative attitudes towards the environment because they see the environment as something to be dominated by humans.

I did not expect to find a positive relationship between right-wing authoritarian attitudes and support for government action on climate change. Bivariate correlations between RWA and support for increased government action on climate change showed a negative relationship (see table 3). However, when the other conservative attitudes are accounted for (particularly anti-minority, anti-feminist and anti-welfare views) the relationship between RWA and support for government action on climate change appears to be positive (see figure 1). This positive relationship suggests that people who have high levels of RWA, but low levels of some of the other conservative attitudes tend to support government action on climate change. It is possible that deference to authority – a central component of right-wing authoritarianism (Altemeyer 1981) – was mostly involved in the positive relationship with a preference for stronger government action on climate change when the other conservative attitudes were accounted for in the model. This interpretation is supported by the fact that, even when controlling for the other conservative attitudes, RWA has a negative relationship with the second dependent variable, where the preference for government action was not strongly stated in the question.

In contrast to most existing research on environmental attitudes, this study focuses on support for environmental action and policies, rather than belief in the existence or seriousness of environmental problems (e.g. Longo and Baker 2014; Milfont, Richter et al. 2013). Previous studies have shown that, while a large majority of the public accepts the existence or seriousness of environmental problems, support for policies or action to address environmental issues is not always as widespread (Crawley, Coffé and Chapman 2020; Dreyer and Walker 2013). Despite this difference between dimensions of environmental attitudes, the results presented here align with previous findings that political ideology has a similar relationship with support for environmental action as it does for belief in environmental problems (Crawley, Coffé and Chapman 2020; Kulin and Sevä 2019).

One limitation of this study is that it does not include all economic and social components of right-wing

⁷In addition to investigating the extent to which social and economic attitudes have an independent relationship with support for action on the environment, I also empirically explored whether there are interactions between the different measures of social and economic attitudes. Most of these interactions were not significant, suggesting that the effects of conservative economic and social attitudes do not reinforce one another. Further details of the analyses including interactions can be found in section 4.3 of the supplemental material.

orientation and conservative ideology. In particular, I did not explicitly include a measure of system justification – where individuals believe that the status quo should be protected – an attribute that has previously been found to negatively relate to environmental attitudes (Feygina, Jost and Goldsmith 2010). Despite this limitation, the results presented here suggest that relying on the frequently used left-right positional measure (where respondents are asked to place themselves on a scale ranging from ‘very left’ to ‘very right’) when investigating the relationship between political orientation and environmental views may mask some important differences between the economic and social aspects of conservatism (such as the positive relationship of some elements of right-wing authoritarianism with environmental attitudes). Overall, however, given that all conservative attitudes included in this study had negative correlations with environmental attitudes, left-right orientation could be considered a useful proxy for a set of economic and social attitudes that are commonly considered right-wing, at least when investigating the relationship between political orientation and environmental views.

The focus of this study is the relationship between political orientation and environmental views in New Zealand, a country which has (compared with other developed nations) low population density, a strong agricultural sector and a history of governments adopting market-oriented policies (Nicholls 2018). These factors contribute to a unique environmental and political context. One should therefore be careful about generalising the results presented above to other countries. However, there is reason to believe that similar relationships between conservative attitudes and public opinion on climate change and the environment will exist in other countries. These relationships may be more readily found in countries with political contexts that are similar to New Zealand, such as Australia, Canada, the UK and – to a lesser extent – the US, all of which are liberal market economies. In coordinated market economies, such as Germany, and most of the EU, conservative economic attitudes may hold less sway over environmental views, due to free market ideology tending to be less prevalent in those countries. Indeed, the relationship between political orientation and environmental views seems to vary by country (McCright, Dunlap and Marquart-Pyatt 2016; E. K. Smith and Mayer 2019). Future research may therefore be able to gain greater insight into this country-level variation by comparing the relationships between different aspects of conservatism and environmental attitudes in different contexts.

Investigating attitudes towards specific types of environmental action is another extension of this research which could further clarify the relationship between conservative and environmental attitudes. There are a range of different kinds of actions that might be required to properly address environmental problems, including taxes, subsidies, regulation and changes to consumer behaviour and lifestyle. Previous studies have found that right-wing people are less likely to support or adopt such actions (Drews and van den Bergh 2016; Tobler, Visschers and Siegrist 2012, however few papers have examined these how different aspects of conservative attitudes relate to support for different kinds of actions. Such an investigation may clarify the specific concerns conservatives have about addressing environmental problems. Moreover, it is possible that those holding conservative economic attitudes will be opposed to different kinds of environmental actions than those holding conservative social attitudes.

This study confirms previous findings that political orientation is one of the most consistent and strongest predictors of environmental attitudes, and that people holding attitudes characteristic of the right of the political spectrum are less likely to support action or policies to address environmental issues (e.g. McCright, Marquart-Pyatt et al. 2016). The results I have presented here give us a more detailed picture of this link between political orientation and environmental attitudes. In particular, the results indicate that people who identify as right-wing or conservative tend to be less engaged with environmental issues not just because of concerns about economic impacts, but also because the reality of climate change and other environmental problems challenges their preferences for how society should be ordered. In short, the link between conservatism and environmental attitudes is not just about economics, but is also about social attitudes and worldview.

The results therefore have implications for environmental communicators or activists seeking to increase support for action on climate change and other environmental issues. It is not enough to convince people that environmental problems will be economically devastating if not properly addressed. To accept the necessary large-scale social changes that are needed to address environmental issues, many people on the political right will need reassurance that, if these changes are made, they will still have a place in the world.

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