

# Identifying Distinct Subgroups of Green Voters: A Latent Profile Analysis of Crux Values Relating to Green Party Support

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## Abstract

The Green Party experienced unprecedented support in the 2011 New Zealand General Election. However, people may vote Green for very different reasons. The Green voter base is thus likely to be comprised of a number of distinct subpopulations. We employ Latent Profile Analysis to uncover subgroups within the Green voter base ( $n = 1,663$ ) using data from the New Zealand Attitudes and Values Study at Time Four (2012). We delineate subgroups based on variation in attitudes about the environment, equality, wealth, social justice, climate change, and biculturalism. Core Green Liberals (56% of Green voters) showed strong support across all ideological/value domains except wealth, while Green Dissonants (4%) valued the environment and believed in anthropogenic climate change, but were low across other domains. Ambivalent Biculturalists (20%) expressed strong support for biculturalism and weak support for social justice and equality. Greens in Principle (20%) supported equality and social justice, but were less supportive of biculturalism. Our study identifies points of convergence (such as environmental values) and crux values that represent points of divergence (such as valuing social justice and Māori rights) across distinct subpopulations of Green voters. These results highlight the diversity of the Green voter base and identify different crux points the Green Party must manage in order to maintain and grow their diverse voter base.

**Keywords:** The Green Party, Latent Profile Analysis, Values, Voter Behaviour.

These islands shine in the world for a tradition of ecological living, fair trade, human rights and peace.

—Green Party of Aotearoa Vision Statement (2014)

The Green Party of Aotearoa benefitted greatly from the introduction of Mixed Member Proportional representation (MMP) in New Zealand in 1996. In the elections since, the party has consistently attained at least five percent of the party vote and thus reached the threshold to gain seats in Parliament. In the recent 2014 General Election, the Greens cemented their position as the third largest political party in New Zealand with 10.7% of the vote (New Zealand Electoral

Commission, 2014). However, since the introduction of MMP, the Greens have arguably undergone fundamental shifts in policy priorities, most of which relate to an increasingly diverse focus that includes a strong voice on social policy.

We argue that the Green Party must maintain a careful balance in representing the interests and values of a potentially diverse voter base with varying levels of concern for ecological living, social justice, and human rights. As the party grows in appeal to a larger voter base, there may, however, be difficulties in maintaining this balance. It is possible, for example, that the party may risk fragmenting or losing part of their potential voter base as a result of alienating more conservative environmentalists through liberal social policies in non-environmental domains.

In the present study we aim to explore this possibility by assessing whether there are distinct subgroups of Green voters who differ in terms of their core social values and level of environmental concern.

## *The Green Party of Aotearoa*

A brief history and context of the Green Party is warranted at this point. The Green Party of Aotearoa can be traced as far back as May 1972 to the formation of the New Zealand Values Party, which won 2% of the vote in the 1972 election (Bale & Wilson, 2006). Although the Values Party obtained an increased share (5.2%) of the vote in the 1975 election, the electoral system of the time (First Past the Post) meant that this did not translate into any seats in parliament. In 1990, members of the Values Party, including future co-leaders Jeanette Fitzsimons and Rod Donald, formed the Green Party (Green Party of Aotearoa, 2015). Under this new banner, the Green Party won 6.8% (and no seats) in the 1990 election. In 1993, the Greens entered into an alliance with a number of other left-wing parties, including NewLabour, the Democratic Party (previously Social Credit) and Mana Motuhake. Under the Alliance, the Greens successfully campaigned for the introduction of MMP and won three of the thirteen Alliance seats at the introduction of MMP in 1996. However, in 1997 the Greens announced that they would leave the Alliance and contest the 1999 election in their own right (Bale & Wilson, 2006). While the Alliance was later disestablished, the Greens continued on to consistently win at least 5% of the vote (and therefore win seats in Parliament) at each election since the 1999 election (Wilson, 2010).

The core policy priorities of the Greens have undergone a number

of changes since the establishment of the Party. In our reading of the political landscape, the Greens have shifted from primarily emphasising environmental concerns to being increasingly committed to issues which reflect broader social values, such as strong opposition to neoliberal reforms, militarism, and inequality. Although this can be seen as a way to potentially increase their voter base, broadening the platform also comes with a number of risks. For example, this diversification risks diluting the core message of the Green Party, thereby undermining their ability to make tangible changes or attract voters. The incorporation of left wing social values also risks alienating those who may be more conservative environmentalists, as they could be attracted by a purely environmental focus. Furthermore, the Green Party may be wary that this broadening of focus may lead to a schism within the Party (much like that of the Alliance) whereby the Party becomes divided over issues such as social justice, wealth or Māori rights.

Uncovering the configuration of Green voters' values is of fundamental interest to both the strategists of the Green Party, and political psychologists, whose primary interests include the ideological underpinnings of vote choice. Research within political psychology has tended to explore this question by investigating variables which may predict voting for one party instead of another. Here, we investigate within group differences to uncover whether or not subgroups of voters exist who all vote for the Greens but are distinct from one another in terms of key attitudes and values. For example, just how diverse is the Green voter base in terms of its values? Are there genuinely distinct subpopulations who voted Green for different reasons? And what are the core points of convergence and divergence for such subpopulations? Empirical research exploring such questions is scant at best. Here, we present a statistical model identifying sub-groups of Green Party voters from a nationally representative sample of New Zealanders, the New Zealand Attitudes and Values Study (N = 12,182). We utilise Latent Profile Analysis (LPA), to create a model of subgroups of Green

Party voters based on different patterns of endorsement for various attitudes and values relevant to the Green Party. LPA enables us to test the premise that when it comes to attitudes and values, Green voters are not all similar. Instead there may be distinct subgroups, which all voted for the Green Party, but who differ across key values and attitudes, and may vote Green for quite different reasons.

Previous opinion on the configuration of Green Party voters has been divided. For example, in the Australian context, Manning (2002) suggested that Green parties may lose support from their traditional voter-base through liberal social values. In comparison, Carroll, Casswell, Huakau, Perry, and Howden-Chapman (2009) tested a similar hypothesis in the New Zealand context by exploring social values as a possible reason for the relatively weak support for the Green Party in the 2005 election. Carroll et al. showed that support for environmental policies was correlated with support for social justice. They concluded that Green voters are likely to be liberal environmentalists. Thus, there seem to be two diverging perspectives on the possible nature and composition of the Green voter base. On the one hand, the Green Party may risk being divided over social justice issues. On the other, previous data implies that there may be a reasonably homogenous core group of liberal environmentalists who form the backbone of the Green voter base. Our use of LPA allows us to explicitly test these possibilities.

### *Latent Profile Analysis (LPA)*

To examine Green Party support, we apply LPA to uncover subgroups of Green voters who show a similar pattern of responses across a range of theoretically relevant variables. LPA is a statistical method which is used to uncover different groups or profiles within a population (Hagenaars & McCutcheon, 2002). LPA uses response patterns from multiple continuous variables to group together participants into profiles, which we will refer to as latent subgroups. In our case, these variables are a range of theoretically relevant attitudes and values, rated by the extent that each participant endorses that attitude or value. LPA

builds a model by creating a latent variable which accounts for the hidden structure of response patterns across manifest variables, thus uncovering distinct sub-populations, or subgroups of Green voters. Furthermore, this method estimates the fit of the model to the given data, thereby allowing various models to be compared (Nylund, Asparouhov & Muthén, 2007).

Here, we employ LPA to determine the number of subgroups which best represents the data. Importantly, LPA identifies subgroups (or latent categories) without enforcing *a priori* pattern of profiles, thus summarising the variability of the data rather than restraining the data to what has been hypothesised (see Liu & Sibley, 2013, 2015; for discussion of the application of LPA in the social sciences). The application of LPA in the social sciences remains relatively novel, and has been used to examine patterns and variation in topics such as types of paranormal belief (Wilson, Bulbulia, & Sibley, 2014), attitudes toward bicultural policy (Sibley & Liu, 2013), experiences of deprivation (Osborne, Sibley, Smith, & Huo, in press), beliefs about climate change (Milfont, Milojev, Greaves & Sibley, in press), representations of historical figures (Hanke et al., 2015), and types of sexism (Sibley & Becker, 2012). In the context of the attitudes and values of Green voters, LPA allows for the identification of subgroups 'hidden' within the data, without relying on our ability to necessarily hypothesise their existence or directly measure them *a priori*.

Having identified distinct subpopulations of Green voters based on diverging patterns of values (what we refer to as latent subgroups), we then explore demographic differences amongst the subgroups, such as differences in education level, income, age, gender and ethnicity in order to identify the defining features of these profiles. These demographic differences between subgroups may have important implications for the stability and future direction of the Green Party of New Zealand.

Our use of LPA in this context provides a novel contribution to the study of politics, as statistical modelling of possible subpopulations is simply

not possible using earlier (and more well-known) ordinary least squares regression-based approaches. Previous studies, for example, have tended to assess the extent to which variation in attitudes and values may predict support for different political parties using more well-known regression-based models. For example, Cutts, Ford and Goodwin (2011) explored the values of the British National Party to ascertain the unifying features of the party. They showed that a range of different demographic and attitudinal variables predicted support for the British National Party, including racial prejudice and anti-immigrant sentiment. Although informative of the general or average extent to which different attitudes predict support for a given party, analyses of this type assume a 'one-size fits all model'. Thus, they do not allow for the possibility that there may be distinct subgroups who express different combinations of strong and weak support for a diverse range of issues.

LPA has been previously utilised to investigate political behaviour in New Zealand more generally. Greaves, Osborne, and Sibley (2014), for example, developed a model assessing the extent to which New Zealanders could be reliably categorised into different voter profiles depending upon the types of parties they tended to support (e.g., Sole-National supporters, National and ACT supporters, Labour and Green supporters, Sole-Labour supporters). Using LPA, Greaves and colleagues (2014) also identified a distinct latent voting bloc representing nearly a third of the sample, which they referred to as a 'Fence-Sitter' profile. This group of voters tended to be apathetic or neutral in terms of their support for all political parties. This work by Greaves and colleagues demonstrates that LPA can be successfully utilised to explore political party support in New Zealand. Our study represents a novel extension of this as we explore converging and diverging values within a political party to uncover whether or not subgroups exist within that party.

Additionally, LPA has also been used to uncover a variety of latent profiles in other domains. Notably, Weber and Federico (2013) examined the endorsement of 19 policy issues

among North American undergraduates. Their results demonstrate significant heterogeneity in policy endorsement on each side of the political spectrum, but especially on the right. This suggests that people across the spectrum support political ideologies as a result of a vast range of attitudes and beliefs. However, Weber and Federico grouped participants according to where they fell on the political spectrum. In comparison, we use a manifest behaviour, vote choice, to group participants and uncover their values. Application of LPA to a group which is defined by vote choice will reveal whether or not heterogeneity exists within a distinct voting bloc.

In sum, LPA has proven fruitful for identifying different distinct categories of people who support different political parties (Greaves et al., 2014) and different combinations of social policy (Weber & Federico, 2013). However, as far as we are aware, LPA has not been previously used to look at the different categories of people who may vote for a political party for heterogeneous reasons. To uncover classes which are significant to the Green Party, we seek to build a latent profile model that identifies 'hidden' or latent subgroups within the population of Green voters by differentiating them on a set of core attitudinal and social values which are all relevant to the Green Party's vision statement and policy.

### *Green Party Values*

Our analysis should help to resolve the contention within the literature and the media surrounding division within the Green Party over social issues (e.g., Manning, 2002; Carroll et al., 2009; Edwards, 2014). If our analysis identifies two large groups that are divided across value for social issues and value for the environment, this will provide empirical evidence for the hypothesis that social issues are crux issues separating distinct camps of Green voters. In comparison, if a majority group emerges which displays strong support for both social and environmental domains, this would provide support for the Greens' current balanced approach. However, it is also important to test a variety of other factors, such as support for Māori rights and value for wealth, so as to uncover whether these are further crux issues

within the Green voter base.

### *Importance of Values*

There are a number of reasons to test values as points of convergence or divergence within political parties like the Greens. Here, we have chosen to utilise the widely-used Schwartz values as our measures of environmentalism, support for social justice and value for wealth (Schwartz, 1992). This framework theorises value for social justice, equality and the environment as being part of the domain of "universalism" which has been associated with left-wing parties in the past (Schwartz, Caprara & Vecchione, 2010). In comparison, value for wealth comes from the domain of "power" which is more likely to be supported by right-leaning/conservative parties (Schwartz, 2010). It is thus possible that many Green Party voters may value social justice, equality and environmentalism as they go hand-in-hand as universalism values. In comparison, Green voters (especially the most committed Green voters) may not value wealth to the same extent, as it comes from a domain which is not as aligned with Green Party values.

The alignment of New Zealand political parties with various values has also been explored (e.g., Wilson, 2004). Vowles, Aimer, Catt, Lamare, and Miller (1995), for example, argued that New Zealand's political parties can be understood using a model of "old" and "new" politics. These old political attitudes include issues such as state ownership of resources, welfare, regulation and unions. In comparison, social justice and ecological values, along with attitudes towards Māori, are framed as new political attitudes. Vowles et al. (1995) argue that the Green Party (at that time part of the Alliance) were primarily focussed on these new political attitudes. Thus, in our model we test environmentalism, value for social justice and attitudes towards Māori as new values which are crucial to understanding the Green Party.

### *Value for the Environment*

As environmental issues are a primary concern of the Green Party, and what they are largely known for, we would expect Green voters to value

the environment to a greater degree than the average person. This is in line with O'Brien (2012), who argues that the success of the Green Party is contingent on their ability to maintain a consistent environmental message which provides a link to more mainstream concerns. Thus, it is possible that environmental support is a non-negotiable value of Green Party supporters which links in to more diverse issues. However, the extent to which they are homogenous in their support is unclear and it is possible that there are within group differences in terms of the degree to which Green voters value the environment.

### ***Belief in Anthropogenic Climate Change***

In line with its environmentalism, the Green Party asserts that climate change is caused by humans and is a genuine threat (Green Party of Aotearoa, 2014). Although there has been some evidence that the New Zealand population is not thoroughly convinced the climate change is anthropogenic (Sibley & Kurz, 2013), it is unlikely that this applies to Green Party supporters due to the party's unwavering stance on the issue.

The centrality of climate change as a core platform for the Green Party is further supported by Milfont, Harré, Sibley, and Duckitt (2012) who provide evidence that support for climate change actions predicts support for the Green Party. If there are indeed different latent subgroups within the Green voter base, it is possible that all of these subgroups will express strong support for policies that address climate change and protect the natural environment. In comparison, we might expect them to differ in key ways when it comes to support for Indigenous rights, value for wealth and value for social justice.

### ***Value for Wealth***

Although Green voters are likely to have relatively strong belief in anthropogenic climate change and high regard for the environment, it remains an open question as to whether they will be similar in the extent to which they value wealth. It may be, for example, that there is one core subgroup which is pro-environmental and anti-materialist. This is perhaps the most salient stereotype

that many people may have of the 'prototypical Green voter.' However, it is also possible that there are other voter profiles within Green supporters who value wealth to a greater degree. This possibility is highlighted by the Greens' billboard campaign during the lead up to the 2014 General Election, which advocates for a "smarter economy" (Green Party of Aotearoa, 2014). Furthermore, the continued existence of "eco-consumerism", by which environmentally-friendly products are sold at a premium, suggests that some environmentally minded people may hold and value wealth.

Relatively high value for wealth is an important possibility to explore, as if this is the case, then this may point to a so-called 'fracture-point' or division within Green voters that the party may need to carefully manage. In such a case, the Green Party may have to walk a fine line in satisfying their supporters who value economic prosperity and those that would sacrifice it (if it were a simple trade off), if it wants to retain support from both groups. The potential for disagreement on this point is highlighted by Milfont and colleagues (2012), who argued that fear of a reduction in standards of living inhibits people's support for parties who are actively challenging climate change.

### ***Value for Social Justice and Equality***

Values of social justice and equality tend to be endorsed by all New Zealanders, and are seen as a core part of New Zealand identity (Sibley, Hoverd, & Liu, 2011). Although there may still be variation in these values within the Green Party, it will tend to be in the range of strong support to those expressing extremely strong support. In our view, it is unclear as to whether Green voters, in particular, will be unified in their level of support for social justice issues (keeping in mind that this is a question about relative levels).

Historical events inform understanding of the position of social justice within Green parties. At the introduction of MMP in New Zealand in the 1996 election, a number of environmentally-focussed parties formed as centrist and moderate-right alternatives to the left-wing Green Party

(at that time part of Alliance). While these centrist and right-wing environmental parties experienced a low level of support and consequently dissolved, the Green Party has continued with a commitment to social justice issues above and beyond its environmental focus. However, as these alternative parties are no longer options, it is possible that the Green Party has gained some highly environmentally-focussed voters who do not necessarily view social justice concerns as being comparatively as important as other values. Moreover, there are potentially a number of voters who are attracted to the Green Party purely for their environmentalism and are either unaware of or unconcerned with their liberal social values. Thus, it is important that we test value for social justice and equality as possible divisive factors within Green voters. Along with wealth, we suspect that such values may provide another crux value which may differentiate profiles, although perhaps may not differentiate them quite as strongly given that we expect the overall level of support for social values and equality to be fairly strong (Sibley et al., 2011).

### ***Support for Māori Rights and Representation***

Although Sibley et al. (2011) found social justice to be endorsed to a large extent by all New Zealanders, attitudes towards Māori were more contentious. Thus, it is possible that Green Party voters' attitudes towards Māori may also reflect this division. Although we suspect that there may be a group of Green voters who see support for Māori culture and political power as in line with their support for social justice and equality, we doubt that similarly strong levels of support will be shared across the party. Importantly, these attitudes may be heterogeneous in themselves. Sibley (2010) argued that there are two ideologies which work together to legitimise material and symbolic inequality in post-colonial countries like New Zealand. Symbolic Projection versus Exclusion indexes the degree to which Māori culture is seen as central to New Zealand identity, while Historical Recognition versus Negation indexes the degree to which historical injustices experienced by Māori are seen

as relevant to contemporary society. Thus Symbolic Projection refers to the symbolic domain of intergroup relations, while Historical Recognition describes the material. Although Greaves, Osborne, Sengupta, Milojev, and Sibley (2014) found that overall increases in Green Party support are associated with decreases in Historical Negation and Symbolic Projection over time, it is unclear if Green Party voters will be unified in supporting these ideologies.

Furthermore, Sibley and Liu (2013) provide evidence that people fall into distinct profiles of beliefs about Māori culture and the relevance of past injustices. They utilised LPA to test attitudes towards biculturalism, with four classes forming; Pro-Bicultural, Moderate Differentiated, Bivalent Bicultural, and Anti-Bicultural. Sibley and Liu (2013) reported the percentage of people who voted Green in the 2008 election who fit each of these profiles. Their results suggest that almost half of Green Party voters adopted the Moderate Differentiated profile with moderate support across material and symbolic domains. Only a few were opposed across domains, or Anti-Bicultural, while Pro-Bicultural made up almost 20% of Green voters. The remaining 28% supported Māori symbolically but not materially, which suggests that there is a high level of diversity within the Green Party voter base. However, as this measured voters at the 2008 election, the impact of the increase in support for the Green Party in the 2011 election remains unclear. Moreover, it is important to investigate whether these attitudes, specific to Māori rights, align significantly with other attitudes, most notably broader concerns for social justice and equality.

### Overview and Guiding Hypotheses

The current paper uses LPA to investigate patterns of support for ideologies and values of those who gave their party vote to the Greens in the 2011 election. Using the responses of those who indicated they gave their party vote to the Greens in the 2011 General Election in the fourth wave of the New Zealand Attitudes and Values Study (NZAVS), we modelled latent

profiles. These profiles describe groups who share similar levels of support across seven domains: value for the environment, belief in anthropogenic climate change, support for equality, support for social justice, support for Māori culture, recognition of colonial history and material rights for Māori, and value for wealth. As strong support across all of these variables except value for wealth is best representative of Green Party policy, this allowed us to determine whether those who vote Green are unified in their values, or if they are a diverse group with different motivations for supporting the Green Party.

We expected there to be some heterogeneity in domain support within the Green Party, thus several distinct profiles should emerge. We predicted that a large primary subgroup reflecting the Green Party position of strong support across all domains except wealth would emerge, thereby giving the party its mandate for policy. However, we further hypothesised the emergence of a smaller subgroup with weak support across all domains except support for the environment and belief in anthropogenic climate change, representing a group who are purely motivated by environmental concerns. This group would encompass those who are primarily focussed on environmental issues but not concerned with social issues, and those who are unaware of the Green Party's position on social issues. Lastly, we expected there to be a group which is defined by their support for Māori culture and political rights, so as to provide a mandate for the Greens' supportive position on these issues (Green Party of Aotearoa, 2014). Although we did not predict any further distinct groups, LPA allows latent subgroups to emerge without a priori predictions. As there have been no Latent Profile models done on the diversity of values within the Green Party or within political parties generally, it was unclear as to how many distinct profiles would emerge, and what form they would take.

## Method

### Participant Details

We limited our analyses to the 1,663 participants (1,135 women and 528 men) who completed the NZAVS at Time 4 (2012) and stated that they had voted for the Green Party with their party vote in the 2011 General Election. This constituted 13.6% of the full NZAVS sample. It is worth noting here that The Green Party won 11.1% of the overall vote in the 2011 election, so the NZAVS oversampled Green voters by a margin of 2.5%.

The mean age of participants in our sample of Green voters was 46 years ( $SD = 14.10$ ). In terms of ethnicity, 94% of Green voters identified as European ( $n=1,563$ ), 12.7% as Māori ( $n=211$ ), 2.2% as Pacific ( $n=37$ ), 2.7% as Asian ( $n=45$ ) and 2.5% reported another ethnicity or did not answer ( $n=41$ ). The majority of Green voting participants were in paid employment (77.1%,  $n=1,283$ ). In addition, 28.1% identified as religious ( $n=467$ ).

With regards to education, 4.8% did not report their highest level of education or said they had no education ( $n=79$ ), 15.6% reported finishing some high school ( $n=259$ ), 12.6% reported having studied towards a diploma or certificate ( $n=209$ ), 37.1% reported that they had studied at undergraduate level ( $n=617$ ), and 30.0% reported studying at the post-graduate level ( $n=499$ ).

### Sampling Procedure

The Time Four (2012) NZAVS contained responses from 12,182 participants (6,805 retained from one or more previous waves, 5,377 new participants). This sample was drawn from two sources. Of the sample analysed here, 4,051 of these participants were retained from the original Time 1 (2009) NZAVS sample of 6,518 participants. These participants were randomly selected from the electoral roll (a national registry of voters, available for research purposes). The initial response rate of the original sample was 16.6%, with a retention rate of 62.2% over three years. 2,705 participants were also retained from earlier samples, having entered through non-random recruiting through a newspaper website, recruiting through Pasifika networks

and self-selecting in at previous years. Participants were posted a copy of the questionnaire, followed by a second copy two months later. Those who provided an email address were also invited to complete the questionnaire online instead.

Secondly, participants in Time Four (2012) of the NZAVS were drawn from five independent booster samples aimed at increasing sample diversity. The first of these consisted of a randomly selected sample of 20,000 people from the 2012 New Zealand Electoral Roll, of which 2,431 responded (representing a response rate of 12.34%). The second frame consisted of a regional booster of 10,000 people who lived in the Auckland region, randomly selected from the New Zealand Electoral Roll. 890 participants responded to this regional booster, representing a response rate of 9.04%. The third frame was also a regional sample. 3,000 people living in Christchurch who were randomly selected from the Electoral Roll, of whom 333 responded (adjusted response rate = 13.52%). The fourth frame randomly selected 9,000 people who lived in mesh block units which rated moderate to high in deprivation on the New Zealand Deprivation Scale on the Electoral Roll. Of these, 767 responded, representing an adjusted response rate of 9.73%. The fifth sample frame represented a random sample of those who identified as Māori on the 2012 Electoral Roll. Of the 9,000 randomly selected, 690 responded (adjusted response rate = 7.79%).

### *Deprivation at the Local Area Unit*

We measured the affluence of participants' immediate (small area) neighborhood using the 2013 New Zealand Deprivation Index (Atkinson, Salmond, Crampton, 2013; see also Salmond, Crampton & Atkinson, 2007). New Zealand is unusual in having rich census information about each area unit/neighborhood of the country available for research purposes. The smallest of these area units are meshblocks. The NZAVS includes the meshblock code for each participant. The geographic size of these meshblock units differs depending on population density. Each unit tends to cover a region containing

a median of roughly 81 residents ( $M = 95.95$ ,  $SD = 73.49$ , range = 0-1899). In 2013, at the time of the latest census, there were a total of 44,211 meshblocks for which data was available.

Statistics New Zealand (2013) defined a meshblock as "a defined geographic area, varying in size from part of a city block to large areas of rural land. Each meshblock abuts against another to form a network covering all of New Zealand including coasts and inlets, and extending out to the two hundred mile economic zone. Meshblocks are added together to 'build up' larger geographic areas such as area units and urban areas."

The New Zealand Deprivation Index (Atkinson et al., 2013; Salmond et al., 2007) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. Because it is a decile-ranked index, the 10% of meshblocks that are most affluent are given a score of 1, the next 10% a score of 2, and so on. The index is based on a Principal Components Analysis of the following nine variables (in weighted order): proportion of adults who received a means-tested benefit, household income, proportion not owning own home, proportion single-parent families, proportion unemployed, proportion lacking qualifications, proportion household crowding, proportion no telephone access, and proportion no car access.

The New Zealand Deprivation Index thus reflects the average level of deprivation for small neighborhood-type units (or small community areas of about 80-90 people each) across the entire country. The index is a well-validated index of the level of deprivation of small area units, and has been widely used in health and social policy research examining numerous health outcomes, including mortality, rates of hospitalization, smoking, cot death, and access to health care, to name just a few examples (e.g., HURA Research Alliance et al., 2006; Mitchell, Stewart, Crampton, & Salmond, 2000; Salmond & Crampton, 2000; Crampton, Salmond, Woodward & Reid, 2000). In our sample, Green voters' mean score on this scale was 4.67 ( $SD=2.66$ ), indicating

a moderate level of deprivation

### *Questionnaire Measures*

Participants were asked "did you vote in the last (2011) New Zealand general election?" Those who answered yes (89.7% of the sample) also then answered the open-ended question "If yes, to which party did you give your electorate vote?" We selected only participants who had indicated that they had voted for the Green Party.

Social values were assessed using specific items from the Schwartz Values Scale (Schwartz, 1992) on a nine point scale, with -1 representing opposition to values and all other values falling between 0 (not important) to 7 (of supreme importance). Value for the environment was assessed by the statement "Protecting the environment (preserving nature)", value for equality was assessed by the statement "Equality (equal opportunity for all)", social justice was phrased as "Social justice (correcting injustice, care for the weak)" and wealth was assessed by "Wealth (material possessions, money)". Ratings were rescaled so that they ranged from 1 (low value) to 7 (high value) so that they had the same range as other item responses in our model.

Belief in anthropogenic climate change was assessed using the item from Sibley and Kurz (2013): "Climate change is caused by humans" on a scale of 1 (strongly disagree) to 7 (strongly agree).

Beliefs about the role of Māori culture in contemporary society were measured using three items from Symbolic Projection versus Exclusion scale developed by Sibley (2010). The items were: "New Zealand would be a better place to live if we forgot about trying to promote Māori culture to everyone", "I think that Māori culture helps to define New Zealand in positive ways" (reverse coded) and "I reckon that Māori culture should stay where it belongs – with Māori. It doesn't concern other New Zealanders". These were rated on a scale of 1 (strongly disagree) to 7 (strongly agree) and averaged to give an overall mean scale score.

Beliefs about the relevance of injustices experienced by Māori in today's society were assessed by the

Historical Recognition versus Negation scale (Sibley, Liu, Duckitt, & Khan, 2008). Items included “We should all move on as one nation and forget about past differences and conflicts between ethnic groups”, “We should not have to pay for the mistakes of our ancestors” and “People who weren’t around in previous centuries should not feel accountable for the actions of their ancestors”. Items were rated on a scale ranging from 1 (strongly disagree) to 7 (strongly agree) and averaged to give an overall mean scale score.

Support for the Green Party was measured with the instruction to “Please rate how strongly you oppose or support each of the following political parties.” The Green Party was listed as one of these parties and responses were measured on a scale of 1 (strongly oppose) to 7 (strongly support).

In terms of demographic features, gender was asked with the question “Are you male or female?” participants could tick a box indicating that they identify as female (coded as 0) or male (coded as 1). Education level was measured by “what is your highest level of qualification?” and coded as an ordinal variable, with -2 as no qualification, 0 as having obtained or studied toward a diploma/certificate, and 2 indicating the participant had obtained or studied towards a post graduate qualification. Age was measured with the question “What is your date of birth?” and was then coded in years.

Religion was gathered by the question “Do you identify with a religion and/or spiritual group?” and employment was measured with the question “Are you currently employed?”, with both being coded with no as 0 and yes as 1. Birthplace was asked with the question “Where were you born?”, with all answers that were “New Zealand” being coded as a 1 and all others as a 0. Ethnicity was measured with the standard NZ Census question “Which ethnic group(s) do you belong to?” with those who answered New Zealand European being coded as a 1 and all others being coded as a 0 for the New Zealand European demographic item. For the Māori ethnicity question, those who answered Māori were coded as one and all others were coded as a 0. For parenthood, participants were asked

“How many children have you given birth to, fathered, or adopted?” and those who answered 1 or above were coded as 1, and those who answered none were coded as 0. Participants were asked “what is your relationship status?” and those who answered that they were married, civil union, de facto, living together, or engaged were coded as 1, with single, dating, separated, and widowed being coded as 0.

### Analytic Approach

Latent Profile Analysis (LPA) was used to examine the number of distinct subgroups emerging from the analysis of values, beliefs about climate change and attitudes toward biculturalism and Māori. In essence, this analysis allowed us to test the core premise that when it comes to these attitudes and values, not all Green voters are similar. Instead, there may be distinct subgroups, which all voted for the Green party, but who differ statistically in their values and attitudes, and may vote Green for quite different reasons. Having identified whether there are distinct subgroups, we extended our analysis to explore how

model run on the sample to one another in terms of which model best explains the data (Nylund, Asparouhov, & Muthén, 2007). As more parameters are included, more variance is explained. The BIC is known to penalise these increases more harshly, while AIC is more liberal. Thus, a focus on the BIC tends to lead to the selection of simpler models, while a focus on the AIC in isolation is more likely to lead to the selection of more complex models (Posada & Buckley, 2004).

In interpreting the BIC and AIC, smaller values suggest that more variance has been accounted for. Results indicated that a four profile solution provided a good fit to the data. The final fit index we used to assess model performance was entropy. Entropy values range from 0 - 1.0, with higher values representing improvements in prediction (see Vermunt & Magidson, 2004, for discussion). Entropy indices for our analysis suggested that a four profile model was as effective as a six profile model and performed better than a five profile model. Thus on the basis of parsimony we opted for a four

Table 1. Model fit for the different class solutions of the LPA.

Class Solution	BIC	AIC	aBIC	Entropy
Two	33372.391	33253.257	33302.500	.778
Three	32877.191	32714.735	32781.885	.790
Four	32623.789	32418.013	32503.069	.814
Five	32490.401	32241.303	32344.266	.791
Six	32405.338	32112.918	32233.788	.814
Seven	32313.994	31978.253	32117.029	.825

these different subgroups differ in core demographics, such as the proportion of men and women, levels of socio-economic deprivation, age, ethnicity, birthplace, parenthood, and education.

## Results

### Model Estimation

Latent Profile solutions ranging from two to seven profiles were specified in Mplus 7.2. Fit statistics for these models are presented in Table 1. Bayesian Information Criterion (BIC), the Akaike Information Criterion (AIC), and the sample size adjusted BIC (aBIC) are relative fit indices that compare each

profile solution. A four profile solution also provided a clear and interpretable solution, with the identification of additional profiles simply extracting more fine grained distinctions in the relative level of all indicators (with one profile splitting into two, both following the same pattern, but in which one profile reflected people with slightly higher scores than the other), rather than qualitatively distinct patterns of combinations of high/low belief.

Finally, we estimated the probability that each participant belonged to each of the four classes. The probabilities (averaged across participants) that a given participant belonging to a given

class would be correctly categorized are presented on the diagonal in Table 2. This provides an intuitive way to assess the reliability of the latent class model. As shown, these probabilities are all well above .85, indicating excellent classification likelihood and only a small average likelihood of incorrect classification.

**Latent Subgroups**

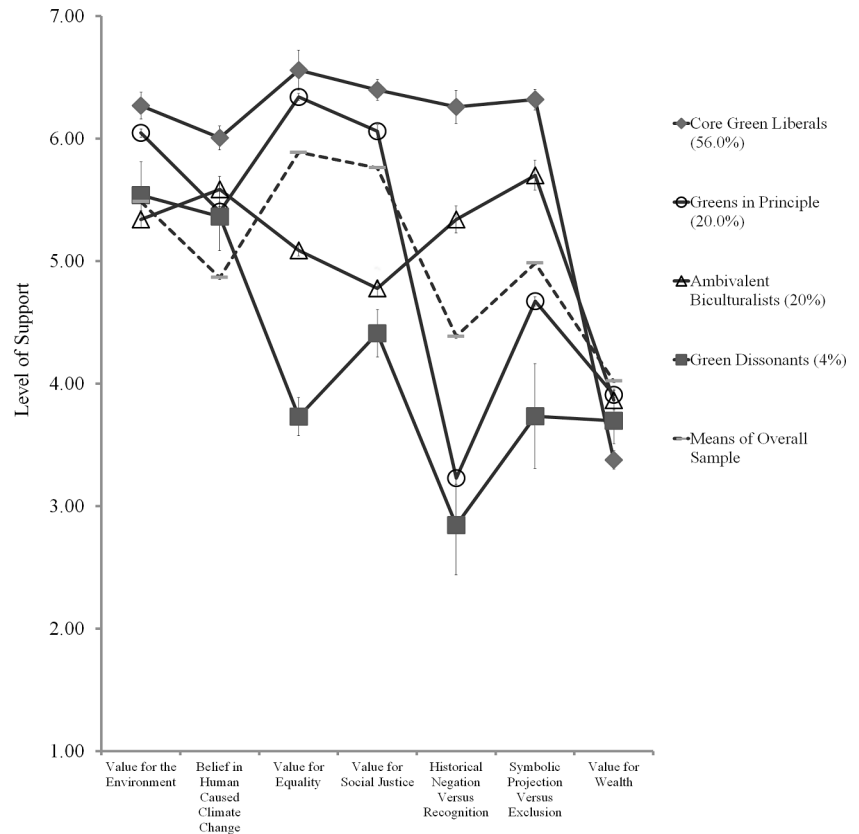
Means for the levels of support across the seven attitudes and values domains for each of the subgroups and the overall NZAVS sample are shown in Figure 1. All latent subgroups were relatively similar in three of the seven domains; with high value for the environment, strong belief in anthropogenic climate change and low value for wealth. However, value placed on social justice and equality, along with support for Māori culture and recognition of the importance of past injustices against Māori proved to be issues which differentiated the groups

The largest of the subgroups made up 56% of the sample. This group had relatively strong support across all domains except value for wealth and thus they were labelled as Core Green

Liberal domains of value for social justice, value for equality, Symbolic Projection

social issues when voting, and those with no awareness of the Green Party

**Figure 1. Mean levels of support across attitude and value variables for the four subgroups and the overall NZAVS sample.**



**Table 2. Latent Class probabilities for most likely classification by latent class membership (row) and latent class (column).**

	1.	2.	3.	4.
1. Green Dissonants	<b>.898</b>	.066	.000	.035
2. Ambivalent Biculturalists	.021	<b>.860</b>	.075	.044
3. Core Green Liberals	.000	.053	<b>.918</b>	.029
4. Greens in Principle	.018	.052	.066	<b>.864</b>

Values along the diagonal (shown in bold) represent the average probability that a person in a given latent class was correctly categorized as belonging to that class.

Liberal, as the values of this subgroup best reflected current Green Party policy. This subgroup was higher across all domains except value for wealth (on which they were lower) in comparison to all other subgroups. In comparison, the smallest subgroup, making up just 4% of the sample, was labelled Green Dissonants. This group had relatively weak support across the four contentious

and Historical Negation. They were strong in their value for the environment and belief in human caused climate change, but were weaker in all other domains. The small size of this subgroup suggests that very few people who vote Green do so purely for environmental concerns, as we expect this small group to encompass those who knowingly prioritise environmental concerns above

position on these social issues.

The two remaining latent subgroups were of equal size and in direct contrast to each other across the four disputed domains of value for social justice, value for equality, Symbolic Projection, and Historical Negation. The first of these groups were labelled Greens in Principle, due to their value for



social justice and equality being relatively strong but their support for Symbolic Representation and Historical Recognition being relatively weak. This pattern represented the values of 20% of the sample. In comparison, the final group we detected made up the final 20% and were labelled Ambivalent Biculturalists. This group valued social justice and equality to a weaker extent, but had strong support for symbolic Māori culture, and relatively strong support for material support for Māori when compared to the other subgroups.

#### Demographic Differences

Having identified a solution that performed well in terms of model fit while also making theoretical sense, we then examined differences in the demographic features of each group. We conducted a multinomial logistic regression predicting the likelihood of differential profile membership based on participants' demographic features of age, deprivation, gender, ethnicity, religious status, birthplace, employment, relationship status, and education levels. This regression analysis used a three-step approach which weighted the parameters based on classification likelihoods from our

LPA and is presented in Table 3. We assigned the majority group, the Core Green Liberals, as the reference class due to their size and alignment with Green Party policy. A significant effect of gender was found for each of the groups, with more men in the Greens in Principle ( $b = .394, p = .024$ ), Green Dissonants ( $b = .696, p = .044$ ) and Ambivalent Biculturalist ( $b = .402, p = .032$ ) groups relative to the Core Green Liberals. This means that the Core Green Liberal group had a significantly higher proportion of women than any other group.

Table 3. Multinomial logistic regression predicting likelihood of differential profile membership (reference category is Core Green Liberals)

	b	se	t	p
Green Dissonants				
Intercept/Threshold	-2.065	1.503	-1.367	.172
Gender (0 female, 1 male)	.696	.346	2.011	.044
Age (years)	-.014	.015	-.953	.340
NZ Deprivation Index 2013 (1 – 10)	-.042	.061	-.688	.491
New Zealand European (0 no, 1 yes)	1.155	1.208	.956	.339
Māori (0 no, 1 yes)	-.887	.672	-1.320	.187
Born in New Zealand (0 no, 1 yes)	-.618	.361	-1.710	.087
Religion (0 no, 1 yes)	.045	.350	.127	.899
Parent (0 no, 1 yes)	-.397	.399	-.995	.320
Relationship (0 no, 1 yes)	.218	.394	.554	.580
Employment (0 no, 1 yes)	-.306	.366	-.836	.403
Education (ordinal -2 to 2)	-.535	.135	-3.957	.000
Greens in Principle				
Intercept/Threshold	-.954	.583	-1.637	.102
Gender (0 female, 1 male)	.394	.175	2.249	.024
Age (years)	.021	.007	3.003	.003
NZ Deprivation Index 2013 (1 – 10)	-.009	.032	-.286	.775
New Zealand European (0 no, 1 yes)	-.390	.372	-1.048	.294
Māori (0 no, 1 yes)	-1.067	.363	-2.937	.003
Born in New Zealand (0 no, 1 yes)	-.503	.191	-2.638	.008
Religion (0 no, 1 yes)	.119	.177	.673	.501
Parent (0 no, 1 yes)	-.333	.191	-1.740	.082
Relationship (0 no, 1 yes)	.210	.195	1.075	.282
Employment (0 no, 1 yes)	-.072	.206	-.352	.725

	b	se	t	p
Education (ordinal -2 to 2)	-.350	.076	-4.622	.000
Ambivalent Biculturalists				
Intercept/Threshold	-.368	.566	-.651	.515
Gender (0 female, 1 male)	.402	.188	2.140	.032
Age (years)	-.012	.007	-1.599	.110
NZ Deprivation Index 2013 (1 – 10)	-.043	.035	-1.238	.216
New Zealand European (0 no, 1 yes)	-.484	.393	-1.231	.218
Māori (0 no, 1 yes)	-.710	.313	-2.270	.023
Born in New Zealand (0 no, 1 yes)	.579	.250	2.313	.021
Religion (0 no, 1 yes)	-.515	.209	-2.464	.014
Parent (0 no, 1 yes)	.175	.216	.812	.417
Relationship (0 no, 1 yes)	-.118	.198	-.595	.552
Employment (0 no, 1 yes)	.029	.224	.131	.896
Education (ordinal -2 to 2)	.090	.079	1.129	.259

Note. These results employed a three-step approach which weighted the estimates based on the likelihood of profile membership.

Education levels also significantly predicted differential group membership. Lower levels of education predicted membership in the Greens in Principle ( $b = -.350, p < .001$ ) and Green Dissonants ( $b = -.535, p < .001$ ). There was no significant difference between the Ambivalent Biculturalist group and the Core Green Liberals ( $b = .090, p = .259$ ). Thus, those in the Core Green Liberals are more educated than those in the Greens In Principle and Green Dissonants profiles, but not those in the Ambivalent Biculturalist subgroup.

A significant effect of age was only found for one profile, with older people being more likely to fall in the Greens in Principle group ( $b = .021, p = .003$ ) than the Core Green Liberals. Age did not significantly predict membership into any other profile.

Māori ethnicity predicted group membership for the Greens in Principle ( $b = -1.067, p = .003$ ) and Ambivalent Biculturalist ( $b = -.710, p = .023$ ) profiles. Therefore, the Core Green Liberals has a significantly higher percentage of people identifying as Māori than the Greens in Principle and Ambivalent Biculturalist groups, but not the Green Dissonants.

Country of birth also had a significant effect in predicting profile

membership. Those in the Greens in Principle group were significantly less likely to be born in New Zealand ( $b = -.503, p = .008$ ), while those in the Ambivalent Biculturalists were significantly more likely to be born in New Zealand ( $b = .579, p = .021$ ) when compared to the Core Green Liberals. There was no significant effect for the Green Dissonants.

Religious affiliation significantly predicted group membership for the Ambivalent Biculturalist group ( $b = -.515, p = .014$ ). This means that the Core Green Liberals had a significantly higher proportion of religious members than the Ambivalent Biculturalist group. This was not the case when compared to any other profile.

The remaining demographic variables included in the model were unassociated with class membership. Thus, socioeconomic status (as assessed by the NZDep 2013 measure), employment, parenthood, relationship status, and European ethnicity did not uniquely predict profile membership.

The proportion of men, women, European and non-European, and so forth, in each of the latent profiles are presented in Table 4. Analyses of the proportion of people in each profile were based on a secondary analysis in which

demographic variables were entered into a regression analysis predicting the classification probabilities of each of the four classes in turn (which were estimated and saved as scores in the primary analysis). We then used the values from this regression equation to estimate the proportion of each demographic group classified as belonging to each class, following the approach implemented in Milojev et al. (2014). Note that these proportions are based on the unique associations of each demographic, adjusting for all other demographics listed in Table 3. These results provide a descriptive supplement to the inferential statistics presented in the formal multinomial logistic regression model presented in Table 3. The overall proportion of each demographic who voted for The Green Party or another party in the NZAVS sample is also included in Table 4. As shown, and consistent with logits reported in Table 3, women were more likely to be Core Green Liberals, whereas men tended to be more highly concentrated in the other subgroups. Similarly, those of Māori ethnicity were more highly concentrated in the Core Green Liberal subgroup than any other subgroup.

Table 4. Proportion of men, women, European and non-European, and so forth, in each of the latent profiles, and that voted for The Green Party or not in the total NZAVS sample (analysis of demographic proportions in each latent profile are based on a secondary analysis of classification likelihoods from the primary logistic regression model).

		Green Subtype Classification Likelihoods			Total NZAVS		
		Green Dissonants	Ambivalent Biculturalists	Core Green Liberals	Greens In Principle	Not Voted Green	Voted Green
Gender							
	Men	.052	.222	.496	.231	.867	.133
	Women	.033	.192	.589	.186	.822	.178
European							
	Yes	.040	.199	.563	.197	.926	.074
	No	.012	.239	.493	.255	.826	.174
Māori							
	Yes	.024	.192	.674	.111	.871	.129
	No	.041	.203	.543	.213	.833	.167
Born in NZ							
	Yes	.036	.212	.566	.186	.840	.160
	No	.052	.158	.535	.255	.835	.165
Religion							
	Yes	.037	.162	.581	.219	.891	.109
	No	.039	.217	.551	.193	.802	.198
Parent							
	Yes	.036	.214	.567	.183	.868	.132
	No	.044	.180	.546	.230	.741	.259
Partner							
	Yes	.038	.197	.554	.210	.847	.153
	No	.040	.210	.571	.178	.821	.179
Employed							
	Yes	.037	.202	.562	.199	.826	.174
	No	.046	.200	.550	.203	.872	.128
N		60	309	859	307	8683	1663

Note. Analyses of the proportion of people in each profile were based on a secondary analysis in which demographic variables were used to simultaneously predict each classification probability (CPROB in Mplus, saved as part of the output of the primary model). We then estimated predicted values (proportions) for each classification probability at (centered) conditional values for each categorical covariate. The predicted values thus adjusted for all other demographics included in the model. Note that we did not estimate conditional values for continuous covariates included in the primary model. 126 cases were excluded from this secondary analysis due to missing data on one or more demographic variable, yielding N = 1,535 for model predicting classification likelihoods.

## Differences in Support for the Green Party

We conducted additional analyses examining whether the different Green voter subgroups varied in their mean level of support for the Green Party. To examine this issue, we conducted a LPA which again estimated the same solution as our primary analysis, but modelled ratings of support for the Green Party as a continuous outcome variable using the three-step procedure developed by Lanza, Tan, and Bray (2013) to estimate distal outcome scores in LPA. At step one, this approach allowed us to estimate a standard latent profile model independent of covariates. Step two then estimated the most likely class variable, or the likelihood of each person's classification in a profile. In the third step, when using a distal approach, profile membership was used to predict covariates (here, demographic factors) that were weighted to adjust for misclassification in profile membership. The extent to which people in one profile differed from those in other profiles was then assessed using equality tests of the means and probabilities (for continuous and categorical covariates) across profiles.

The overall test for mean differences in support for the Green Party between the four Green voter subtypes was significant ( $\chi^2(3)=221.38, p<.001$ ). Of the four classes, Green Dissonants ( $M = 5.52$ ) reported weakest support for the Green Party, being significantly lower than the Core Green Liberals, who had the strongest support ( $M = 6.41; \chi^2(1)=37.19, p<.001$ ). The Greens in Principle also expressed weaker support for the Green Party ( $M = 5.63$ ), and this group did not differ in mean support from the Green Dissonant class ( $\chi^2(1)=.49, p = .483$ ). Finally, the Ambivalent Biculturalists ( $M = 5.82$ ) sat in the middle of the range, expressing significantly weaker support for the Green Party relative to the Core Green Liberals ( $\chi^2(1)=90.37, p < .001$ ), but stronger support than the Greens in Principle ( $\chi^2(1)=5.32, p = .021$ ) and also (marginally) the Green Dissonants ( $\chi^2(1)=3.77, p = .052$ ).

In sum, while the people in each of these profiles all voted for the Green Party in the 2011 General Election, they expressed significantly different mean

levels of support for the party overall. Put another way, strong support for the Greens was not homogenous across different profiles of Green voters.

## Discussion

The current study investigated the attitudes and values of Green voters to uncover whether or not subgroups of Green voters exist. Over the past ten years the Green Party has arguably shifted to represent broader social values. This shift could in turn risk alienating more hardline environmentalists and thereby lose the Greens an important voter base. At the same time, the broadening of their policy platform away from a primarily environmental focus may, we suggest, put the Greens at risk of creating a schism within their voter base, should their voter base be divided on social issues. It is thus important to explore the values of Green voters to uncover whether or not distinct subgroups of Green voters exist, all of which vote for the Greens for different reasons.

Our analysis identifies four distinct subpopulations of people who all vote Green but who differ from one another in core social values and attitudes in key ways. Although all four of the subgroups that we identified valued the environment, believed in anthropogenic climate change valued social justice and equality, and placed relatively little importance on wealth, support for Māori culture and recognition of past injustice against Māori proved to be issues that distinguished the subgroups from one another. Thus, our first hypothesis that there would be heterogeneity in attitudes and values within Green Party voters was supported.

As we predicted, the largest of the groups reflected Green Party policy, with strong support across all domains except wealth. This group was labelled the Core Green Liberals and constituted 56% of the sample. The formation of this majority subgroup demonstrates that a large proportion of Green voters have values which align with current Green Party Policy. This group tended to be more educated when compared to the Greens in Principle and Green Dissonant subgroups, and had a significantly higher proportion of women when compared to any other group.

Consistent with our predictions, a small group formed which did not align with Green Party values except in their support for the environment and belief in anthropogenic climate change. This group was labelled Green Dissonants and made up 4% of the sample. Although small, this group remained stable across different profile solutions, suggesting that it exists and is distinct from the other groups within the voter base. The Green Dissonants profile would encompass those who are unaware of the Greens' social policy, along with those who are aware but purely motivated by environmental concerns. This group was significantly less educated than the Core Green Liberals. This suggests that there are distinct groups of voters who have diverse motivations for voting Green.

The last two groups each made up 20% of the sample and were divided across support for Māori culture and recognition of past injustice and value for social justice and equality. The first of these profiles, the Ambivalent Biculturalists, consisted of those who were strongly supportive of Māori culture and recognised past injustice against Māori. Interestingly, they had relatively low value for social justice and equality, suggesting that they were largely motivated by their concern for Māori issues. This is in contrast to the Green Party position, which situates broader social justice principles as underlying support for Māori (Bale & Wilson, 2006). Members of this group were significantly more likely to have been born in New Zealand but less likely to be religious. This subgroup were significantly less likely to be of Māori ethnicity when compared to the Core Green Liberals, suggesting that this subgroup is not motivated by self-interest as could be suggested.

Although we hypothesised the existence of these first three subgroups, we did not predict a specific profile evidenced by the Greens in Principle subgroup. The uncovering of unforeseen subgroups is made possible by LPA, which creates models which best explain the heterogeneity of manifest variable and how they interact with each other, rather than enforcing an *a priori* pattern on the data. The Greens in Principle subgroup represented those who had strong support for social justice and

equality, but weaker support for Māori culture and lower recognition of past injustice against Māori. This subgroup had significantly lower proportions of those born in New Zealand and people of Māori ethnicity. They also had significantly lower education levels in comparison to the Core Green Liberals. These last two groups provide further evidence for our first hypothesis, that there are distinctly different groups within the Green Party who vote for the Greens for diverse reasons.

Our findings would seem to contradict the argument that the Green Party would benefit from maintaining a primarily environmental stance (Manning, 2002; Edwards, 2014). The Core Green Liberals embody the vision statement quoted in our epigraph, with attitudes and values consistent with a desire for New Zealand to embrace “a tradition of ecological living, fair trade, human rights and peace” (Green Party of Aotearoa, 2014). This subgroup constituted 56% of the Green voter base. As show in Figure 1, the Greens in Principle (20%) were similar to the Core Green Liberals in their expressions of strong support for social justice and equality. Put another way, roughly three quarters of Green voters thus expressed strong support for social justice and equality. The Ambivalent Biculturalist (20%) subgroup were similar to the Core Green Liberals in a different domain, in their expressions of strong support for Māori rights. Thus, three quarters of Green voters also expressed strong support for Māori rights, although the people doing so only partially overlapped with those expressing strong support for social justice and equality (i.e., those in the Core Green Liberal subtype who were high on both). This implies that if the Green Party were to change their position in any of these domains, it may risk departing from the values held by roughly three quarters of their voter base, just a different three quarters depending on the position in question.

We also provide empirical support for O'Brien's (2012) position that the success of the Green Party is contingent on their ability to maintain a consistent environmental message which provides a link to more mainstream concerns. The unifying factors of the party were

high value for the environment, high belief in anthropogenic climate change and relatively low value for wealth. These were supported universally by the four latent subgroups. Thus, it appears there is not a group within the Green Party who vote for only non-environmental factors. The lack of a non-environmental group suggests that the Greens are able to attract supporters by linking environmental concern with more diverse issues, such as social policy and support for Māori. Attracting supporters in this way has some interesting implications for the future positioning of the Green Party, as attracting new voter bases may rely on the Greens' ability to link their environmental position with economic or geopolitical concerns.

These findings highlight the nuances of the relationship between values and voting behaviour. For example, we have found that the vast majority of Green supporters do not vote purely as a result of their environmental values, but in unison with other concerns, such as concern for Indigenous rights and culture, or value for social justice and equality. Furthermore, no group had weak support for the environment, suggesting that people do not vote for the Greens if they do not value the environment. However, it is unclear as to whether or not this is their primary motivation for voting Green. Although we determined the extent to which voters endorsed various attitudes and values, we were unable to explore how these attitudes and values were weighted in relation to their vote choice. For example, those in the Ambivalent Biculturalist group may choose to vote Green primarily as a result of their attitudes towards Māori, with the environmentalism as a secondary concern.

Whether or not environmental concerns are primary motivation for vote choice, or a secondary concern, has important implications for both the Greens and larger parties. For example, if future research uncovers that the environment is not a crucial motivation for voting it may shift how environmental issues are treated in the lead up to future elections and during governmental terms. Researchers should seek to uncover the extent to which

people weigh various attitudes and values when voting, especially in a multi-party system, so as to explore this relationship further.

Our findings speak to this question to some extent. Our model indicates that only 4% of Green Voters (those belonging to the Green Dissonant profile) are motivated purely by their concern for the environment. On the one hand, this could be seen to support Manning's (2002) position that the Greens have alienated a voter base of centrist environmentalists, as this group of solely environmentally concerned Green voters is small. However, it is unclear as to whether there is a group of people in the voter base who would vote for the Greens should they shift to a primarily environmental focus. Instead, it appears likely that most people are mobilised by a number of values, all acting in unison to provide the foundation for vote choice.

This position is in line with the findings of Carroll et al. (2009) that environmentalism was correlated with left wing social values. Vowles and colleagues' (1995) work provides further support for this position, as they provide evidence that certain values cluster together, into groups of old and new political attitudes. Thus, the Greens' environmentalism can be seen as working in unison with a number of other new political attitudes (such as support for Māori and social justice) to motivate people to vote Green. Thus, it appears risky for the Greens to become a primarily environmentalist party, as it is likely that very few people would be motivated purely by environmentalism. Rather, it appears that people vote as a result of a number of attitudes and values, all acting in unison.

The Green Dissonants profile includes voters who choose to vote for a party which does not represent their social values and attitudes towards Māori, and also those who perhaps have no knowledge of the Greens' policies of strong support for social justice, equality and Māori rights and are only aware of the Greens' environmental position. As the fourth wave of the NZAVS did not test political sophistication or knowledge, we are unable to differentiate between these two groups. Future research could answer

this theoretically interesting question by testing the political sophistication of Green voters to see whether this group is itself heterogeneous in non-environmental values.

Our secondary analysis of party support can provide some insight into these issues of political knowledge and identification. We found that those in the Core Green Liberal group expressed stronger support for the Green Party than any of the other three subgroups. This finding is not surprising, as this group is voting for a party which fits with their position across a range of attitudes and values. However, it is interesting to note that the Greens in Principle subgroup expressed a similarly weak level of support for the Greens as that of the Green Dissonants class, while the Ambivalent Biculturalist class was in the middle of the range. This suggests that the Greens in Principle and Green Dissonants subgroups do not identify with the Greens as much as those in the Ambivalent Biculturalist, or to a greater degree, the Core Green Liberals. This is of interest to strategists of the Green Party and rival parties, as it suggests that those in the Green Dissonants and Greens in Principle profile are not as supportive of the Green Party and thus more likely to change their vote in future elections.

## Conclusion

Our analysis indicates that there may be distinct Green policies that attract quite distinct types of voters. The Green voter base, in other words, is composed of a number of distinct subpopulations who differ across a number of crux values. We employed Latent Profile Analysis to model these different subpopulations and examine their values, attitudes and demographic characteristics using data from the Green voter base sampled from the broader and nationally representative New Zealand Attitudes and Values Study. We uncovered four distinct profiles that differed in their pattern of support across seven attitudinal domains; value for the environment, equality, social justice, wealth, belief in anthropogenic climate change, views about historical injustice and reparations for Māori, and value for Māori culture.

The largest of these profiles, the Core

Green Liberals (56%), showed strong support across all ideological/value domains except wealth. By comparison, the smallest, Green Dissonants (4%), valued the environment but expressed less support for the other ideological/value domains we examined. Ambivalent Biculturalists (20%) valued equality and social justice to a lesser extent, while they had relatively strong support for Māori culture and reparation for past injustice. Greens in Principle (20%) expressed strong support for equality and social justice, but weaker support for the rights of Māori. Our study identifies points of convergence (such as environmental values) and crux values that represent points of divergence (such as valuing social justice and Māori rights) across distinct subpopulations of Green voters. As political parties generally seek to increase their market share (see Lees-Marshment, 2001), a key challenge for the Green Party will be continuing to grow its voter base while representing the interests of the diverse subpopulations of Green voters.

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