Profiling the Fence-Sitters in New Zealand Elections: A Latent Profile Model of Political Voting Blocs

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Fence-Sitters, or undecided voters, represent a wildcard that can dramatically change elections. Yet research modelling how Fence-Sitters differ from committed voters in their demographic characteristics, ideological beliefs, and personality remains lacking. We apply Latent Profile Analysis to identify Fence-Sitters (those who expressed moderate/neutral support for all parties) and other Latent Voting Blocs (LVBs) using data from the 2009 wave of the New Zealand Attitudes and Values Study (N=6,284). Our analysis of this national probability sample of registered voters indicated that Fence-Sitters constituted roughly a third of the sample (32.8%). The other LVBs were National Supporters (24.3%), Right-Wing Supporters (12.5%), Left-Wing Supporters (16.4%) and Labour Supporters (14%). Relative to other LVBs, Fence-Sitters were ideologically moderate, tended to be female, younger, and non-New Zealand European. We then map the geographic distribution of the Fence-Sitter LVB and show that it reliably predicts lower voter turnout across electorates in the 2011 election (R^2=.066). This paper advances a novel method for identifying and profiling the Fence-sitters in elections. We discuss how the methods we present here can be extended to uncover differences between types of voters and also model change in the fence-sitter population over time.

Keywords: Latent Profile Analysis, Voter Turnout, Undecided Voters, Latent Voting Blocs, Political Support

'The undecided voters are a deliberate breed, who take their civic duty very seriously, they're committed, thorough, infuriating, wishy washy, thick-headed, boobs.'

-Mo Rocca, *The Daily Show with Jon Stewart, 2000*

A key group in any election are those voters who are often called things like fence-sitters, centrists, floating voters, undecideds, swing-voters, independents, or moderates. Despite the fact that they tend to swing elections, the personality, ideological and demographic characteristics of this supposed category of people remains largely unexplored (Mayer, 2008). It is also unclear if this category represents a distinct group (or perhaps many subgroups) and if the group actually votes (Feddersen & Pesendorfer, 1996). Furthermore, the scarce literature in this area focuses exclusively on a group referred to as *swing-voters*, which includes those who vote erratically and the *politically apathetic* (i.e., those who express mild or moderate, rather than erratic, support for multiple parties; Dalton, 2006; Mayer, 2007, 2008). Additionally, decreasing voter turnout is an issue in New Zealand (Vowles, 2012) and research on swing-voters, their turnout rates and the different voting blocs comes almost exclusively from America's two-party system (Mayer, 2007). A gap remains in the literature when looking at multi-party systems like New Zealand (NZ) in trying to account for undecided voters or for developing statistical modelling techniques to determine *types* of voters based on political preference. Mixture modelling, namely Latent Profile Analysis provides an opportunity to uncover these types of voters, where they are, who they are and whether they actually vote.

This paper applies recent advances in Latent Profile Analysis (LPA; Lanza, Tan, & Bray, 2013) in a national sample of registered voters to model the different profiles of political supporters. We label these profiles *Latent Voting Blocs*. Voter Blocs traditionally refer to identifiable cohorts or demographic groups that vote in a homogenous fashion. We apply LPA in a data-driven attempt to profile people's political preferences by modelling systematic patterns in the underlying structure of potential voters' support for political parties. As such, we use the term Latent Voting Blocs (LVBs) to refer to these underlying types of people who express different combinations of support for multiple parties; be it high support for one party, some combination of support and opposition, or moderate levels of support for multiple parties. LVBs thus represent different groups of *potential* voters who should be oriented to vote for different political parties, as well as those who may be less likely to vote because they express moderate levels of support toward all parties; those who are the focus of this paper: the Fence-Sitters.

A mixture modelling approach like LPA is needed to identify different blocs of political support in a multi-party system. In said system, people may support different parties to different degrees, rather than one versus the other. The literature suggests that in multi-party systems, more complex partisan attachments may exist than may be uncovered by a simple left-to-right scale (Breen, 2000; Green, Palmquist, & Schickler, 2002). Additionally, most statistical models of voter types focus on who participants voted for rather than differentiating between support ratings for multiple parties (c.f. Breen, 2000; Gormley & Murphy, 2005;

Gormley & Murphy, 2008). Using the three-step distal approach for LPA, we then describe these profiles in terms of demographics, personality, and ideology; *without* having these covariates inform the model solution (Lanza, Tan, & Bray, 2013).

We then use the model to assess the extent to which differences in the proportion of the Fence-Sitter LVB across electorates predicts variation in voter turnout for the 2011 NZ election. The NZ electoral system is organized into 63 general and 7 Māori-specific electorates, or geographical areas of between 55,000 (in the case of some Māori electorates) and 70,000 people. This is a highly relevant, critical validity test as voter turnout has been declining in NZ over recent decades (Vowles, 2012). Thus, this is not only the first study applying LPA to Fence-Sitters, but is the first to illustrate how Fence-Sitters are distributed geographically and how this may affect turnout. We examine how the people belonging to the different LVBs differ in terms of gender, age, deprivation, education, employment, ethnicity, political ideology, and the Big-Six model of personality. Our analyses thus provide much needed information on who the Fence-Sitters are, where they are, and the extent to which profile membership predicts known rates of voter turnout.

Defining Fence-Sitters

There is no single definition of the term *swing-voter*. It is used to refer to voters who swing between parties, but can also describe voters who swing elections (Dalton, 2006; Mayer, 2008). Swing-voters can be thought of as two key groups: party switchers and political moderates (Dalton, 2006; Shaw, 2008). Party switchers are erratic voters—those who swing between parties election-to-election. However, this may include those who have a clear preference that changes by the next election (Dalton, 2006). The other component of Swing-Voters, sometimes called political moderates, show a lack of support for any party. As such, their vote choice may swing an election if they *actually* vote (Battaglini, Morton, & Palfrey, 2010; Dalton, 2006; Feddersen & Pesendorfer, 1996; Shaw, 2008). Research on this broader group of Fence-Sitters (versus committed voters) has suggested that they tend to be less ideological, less informed, less educated, younger, poorer, and from minority ethnic groups (Battaglini, Morton, & Palfrey, 2010; Dalton, 2006; Feddersen & Pesendorfer, 1996).

In the most comprehensive study of swing-voters to date, Mayer (2008) analysed affective feeling thermometer ratings of presidential candidates from the 1972-2004 American National Election Studies. Mayer (2008) posited that there were not only presidential supporters and opponents, but also a group of fence sitters who "rather than seeing one party as the embodiment of all virtue and the other as the quintessence of vice, swing-voters are pulled—or repulsed—in both directions" (p. 2). Mayer's (2007, 2008) main finding was that demographic differences across the years were trivial, but there were reliable ideological differences in that swing-voters tended to be ideologically moderate.

This paper employs LPA to model Fence-Sitters based on measures of political party support. We measured the extent to which participants supported 6 parties active in New Zealand's Parliament during data collection on a 1 (strongly oppose) to 7 (strongly support) scale. Such a scale was used so that we could detect patterns of support, opposition or neutrality across a number of parties at a single point in time. The term Fence-Sitter is used because these voters are not necessarily swing-voters, centrists or political independents. Again, although definitions in the literature tend to vary we believe that swing voters may show preferences that differ across elections, centrists may favour moderate parties, and independents would likely favour no parties. Instead, Fence-Sitters sit on the metaphorical fence of political support: they express neutral levels of support for all parties.

Latent Profile Modelling of Voting Blocs

Latent Profile Analysis (LPA) is a type of mixture modelling that uses sets of responses to continuous variables to build latent/unobserved typologies or response profiles. LPA allows us to group together people across a number of domains. To use a simple example, we could use LPA to identify the number of subgroups of people with various combinations of dimensions like height, weight and shoe size. LPA might give us common combinations like tall and heavy with big feet, and short and light with small feet, but also less common combinations like tall and heavy with small feet. If we just look at averages of each characteristic we might miss a key group, but LPA allows for a number of latent profiles of participants to emerge. In this case we are looking at *Latent Voting Blocs* that summarise several response patterns of support across political parties in an interpretable and theoretically sensible way (Lanza, Tan, & Bray, 2013).

LPA has been previously used in population health and medical research to identify at-risk groups and has recently been used in social psychology to identify different profiles of religious faiths, sexisms, and bicultural policy attitudes (Pickles et al., 1995; Sibley & Becker, 2012; Sibley & Liu, 2013; Wilson, Bulbulia, & Sibley, 2013). One notable example in political psychology used policy support items to identify six ideological profiles with LPA (Weber & Federico, 2013). Results showed people had different levels of endorsement for 19 policy issues including both economic and social issues. Six profiles were identified: consistent liberals, libertarians, social conservatives, moderates, consistent conservatives, and inconsistent liberals. Because these analyses were based on an LPA, the authors' results went beyond traditional methods of simply categorising people as liberal or conservative based on a single dimension (Feldman & Johnston, 2009; Weber & Federico, 2013). This is particularly important, as two-party systems typically characterise voters as polar opposites with just *independent* voters in the centre. However, within two-party systems people may have different levels of support for parties. For example, someone could be high on support for both parties, low for both, high on one and low on the other or just apolitical. LPA provides a useful way to categorise different political support blocs, regardless of the system.

Previously, mixture models (of which LPA is one application) have

been used to analyse legislative voting decisions for members of both the United Kingdom's House of Commons and United States' House of Representatives to uncover voting blocs of politicians (Hartigan, 2000; Spirling & Quinn, 2010). Although some research using mixture modelling has been completed in the US in relation to different ballot proposals, a few studies have been conducted in multi-party systems like the UK, Canada, and Ireland (Dubin & Gerber, 1992; Clarke & McCutcheon, 2009). To date, no studies have used LPA to identify Fence-Sitters, or differentiate them from other LVBs. Rather, mixture modelling has been used to identify key partisan and policy voting blocs (Breen, 2000; Clarke & McCutcheon, 2009; Gormley & Murphy, 2011; Gormley & Murphy, 2005; Vermunt, 2010).

What does this approach offer for our understanding of political party support? The analysis of different LVBs is particularly important in multi-party contexts because it can help uncover complex patterns of support for multiple parties. The risk is that we might miss a group or groups with specific low/high combinations of political support. Going back to the previous example, we might miss a group that deviates from what we would theorise – the group that is tall, heavy and has small feet – any group that has a novel combination of responses is a particularly interesting group to find and describe. Indeed, a key strength of LPA is its exploratory nature. In our research the analysis of different LVBs is particularly important as in multi-party contexts it can help uncover complex patterns of support for multiple parties. For example, in a multi-party system, one may be high in support for one party, or may also support the parties' allies. Although NZ rejected a two-party First Past the Post (FPP) electoral system twenty years ago, there may still be older voters who oppose minor parties and opt for majority parties because they were socialised under a winner-takes-all system (Green, Palmquist, & Schickler, 2002; Osborne, Valentino, & Sears, 2011). Such an approach also provides the proportion of the population that are Fence-Sitters, which can be mapped on to any given area, as we know which electorate that participants vote (or, rather, do not vote) in. This technique allows us to see if the proportion of Fence-Sitters in an area predicts voter turnout in that electorate.

Voter Turnout

Voter turnout is thought to decide elections, as multi-million dollar campaigns in many democracies are developed to 'get out the vote' (Green & Gerber, 2008). NZ has had a world-leading legacy of high voter turnout which has faltered in recent years (Nagel, 1988; Vowles, 2012). Many researchers have attempted to identify the cause of this drop-off in voter turnout, both in NZ and around the world. The most common explanation posits that declining voter turnout follows a general drop-off in community and civic participation (Gerber & Green, 2000).

This may not be the case for committed voters, however. Indeed, decades-old research has shown that partisan voters are more engaged in politics and are more likely to vote than their non-partisan counterparts (Campbell, Converse, Miller, & Stokes, 1960; Verba, Nie, & Kim, 1978). Even in 1924, Merriam and Gosnell lamented that the greatest cause of non-voting is indifference. Downs (1957) proposed a rational choice theory of voter turnout, in that the effort associated with educating oneself and actually voting may not exceed the reward. Thus, for the disinterested citizen, voting may not hold an appeal. This leads to the question: do Fence-Sitters actually vote? Feddersen and Pesendorfer (1996) found that uninformed, indifferent voters preferred not to vote even when voting was costless. However, key questions remain about whether Fence-Sitters vote and what predicts being an uninformed/indifferent voter.

Demographic and Psychological Differences in Latent Voting Blocs

Existing research on voter preferences examined demographic differences between voters, with a particular focus on age, Socio-Economic Status (SES), religion, and ethnicity (e.g., see Visser, 1994). Although the link between SES and voter preference has been decreasing over the years, it may remain in modern NZ politics; given that ACT and National supporters tend to be more affluent (Katz, 2001; Mulgan, 1997). The only research exploring the SES of something close to Fence-Sitters has shown that American swing-voters in 2004 earned marginally less than Democrats, and far less than Republicans (Dimock, Clark, & Menasce Horowitz, 2008).

Education is another demographic variable that differentiates voter: liberals are generally more educated than conservatives, but the findings for Fence-Sitters are mixed (Carney, Jost, Gosling, & Potter, 2008). Some research suggests that Fence-Sitters may have lower levels of education (Dimock, Clark, & Menasce Horowitz, 2008; Mayer, 2008). Conversely, interviews with undecided voters have shown they may be just as educated and informed as others (Dalton, 2006; Mayer, 2008).. As the opening epigraph laments, undecided voters may be a highly deliberative group taking their time *or* they may not be thinking about politics. Existing research examining these distinct possibilities, however, remains unclear.

Gender and ethnicity are also important characteristics in NZ politics. Recent research in NZ has shown a modern-day gender gap wherein women vote for Labour at higher rates than National (Levine & Roberts, 2008). Additionally, a recent study found that women were more likely than men to support the Greens and Labour (Greaves, Osborne, Sengupta, Milojev, & Sibley, 2014). The three main ethnic minority groups in NZ are people from Māori, Pacific and Asian descent (Ministry of Social Development, 2010). While there is some research on Māori and Pacific voters, few studies have examined the preferences of Asian voters in NZ. It is thought that Māori tend to support the left because Labour has had a long running relationship with the Rātana Church (a Māori Anglican Church) and due to the long running economic inequality between New Zealand Europeans and Māori (Miller, 2010). It remains to be seen if Pacific Nations' New Zealanders still strongly support Labour based on the immigration policies of the 1970s, and again, socio-economic inequality (Mulgan, 1997). Ideology

(for example, the extent to which someone is liberal or conservative) is a consistent—and shared—belief system that has the potential to shape public opinion, political preference, and voting behaviour (Jost, 2006; Jost, Federico, & Napier, 2009; Tedin, 1987). Jost (2006) showed that a simple liberal-conservative scale could account for 85% of the variance in voting behaviour in American samples. Therefore, it is necessary for us to include political ideology as part of our model. Despite NZ's multi-party system, researchers have placed NZ party supporters on this scale, with supporters of Labour typically being liberal and National supporters being conservative (see Sibley & Wilson, 2007; Wilson, 1999). Research on the ideology of Fence-Sitters suggests that they fall around the centre of the political spectrum, potentially demonstrating their political apathy (Mayer, 2008).

Personality—"relatively enduring styles of thinking feeling and acting" (McCrae & Costa, 1997, p. 509) —has proven useful for predicting political preference. While the literature in personality and politics is a well-developed area (for a review see Gerber et al., 2011), we are unaware of any research that has examined the personality traits of political moderates. Instead, the research has focused on the differences between liberals and conservatives (e.g., Carney, et al., 2008). This study will use the Mini-IPIP6, a version of the Big Six model of personality that has been validated for use in NZ, to predict LVB membership. The six traits found in this model of personality are: Extraversion (sociability/warmth), Agreeableness (altruism/compliance), Conscientiousness (orderliness/self-discipline), Neuroticism (anxiousness/emotionality), Openness to Experience (unconventionalism/interest in novelty), and Honesty-Humility (fairness/sincerity; Ashton & Lee, 2007; Sibley et al., 2011).

The literature is fairly extensive on which traits predict being liberal or conservative, with Openness to Experience often being the best predictor of political preference: conservatives are said to be more resistant to new experiences and change, whereas liberals celebrate novel experiences (Sibley, Osborne, & Duckitt, 2012). Another common predictor of conservatism is high Conscientiousness, which manifests itself in a need for order, traditionalism, and discipline (Sibley, Osborne, & Duckitt, 2012). Some evidence also suggests that liberals tend to be higher on Agreeableness (Osborne, Wootton, & Sibley, 2013). The recent theoretical addition of Honesty-Humility has been found to predict support for left-wing parties (Chirumbolo & Leone, 2010). Research on the other two traits tends to be mixed, with Extraversion and Neuroticism being found to weakly (and inconsistently) correlate with both sides (e.g., Barbaranelli, Caprara, Vecchione, & Fraley, 2007; Carney et al., 2008).

Overview and Guiding Hypotheses

This paper used an LPA of political support to create a model of LVBs in NZ, using data from the first wave (2009) of the New Zealand Attitudes and Values Study (NZAVS). Following our LPA, we compared the LVBs on key demographic and psychological variables specifically focussing on the Fence-Sitters. We also compared the proportion of Fence-Sitters for each of NZ's general electorates with data on the rates of voter turnout for the 2011 election.

We expected that several distinct LVBs would emerge: there would be at least one bloc that primarily supported Labour and one which primarily supported National. A Fence-Sitting bloc was also expected to emerge (with a neutral level of support for all of the parties). However, it was possible that smaller blocs would appear that could not be predicted *a priori* because there have been no previous LPAs of political support, the exact number and nature of the LVBs that would appear was unclear. We extended this analysis to also examine differences in the demographic and psychological composition of the different LVBs. We assessed how the people classified as belonging to the different LVBs differed in terms of gender, age, deprivation, education, employment, ethnicity, political ideology, and personality.

We hypothesised that the Fence-Sitters and the political left would be more economically-deprived (Dimock, Clark, & Menasce Horowitz, 2008). However, some research suggests that the political left may be more educated, leading us to hypothesise that any left-wing blocs would be more educated (Carney et al., 2008). Women were hypothesised to be more supportive of the political left than men as research suggests that women are more likely to support the liberal Green and Labour parties (Aimer, 1993; Levine & Roberts, 2008; Greaves et al., 2015; Mulgan, 1997). We expected that the political left would have higher proportions of minority ethnic groups as Māori and those of Pacific descent have traditionally supported Labour (Miller, 2010; Mulgan, 1997). We predicted that members of any blocs supporting the political left would be liberal and the right would be conservative, with Fence-Sitters being ideologically moderate. In terms of personality, the political right was hypothesised to be slightly less extraverted, more Conscientious and less Open to Experience (Sibley et al., 2011). No research has been conducted on the personality traits of Fence-Sitters, so it was unknown how and whether the Fence-Sitters would significantly differ from other LVBs.

We tested the model by mapping the geographic distribution of LVBs and assessing whether differences in the proportion of the Fence-Sitter LVB reliably predicted voter turnout across both Māori and general electorates based on archival data from the 2011 national NZ election. We expected that those electorates with lower turnout rates would have a higher proportion of Fence-Sitters, as research shows that less partisan voters are less motivated to vote (Feddersen & Pesendorfer, 1996).

Method

Sampling Procedure

We analysed data from the New Zealand Attitudes and Values Study 2009 (NZAVS-09). The NZAVS-09 contained responses from 6,518 participants sampled from the 2009 electoral roll.

The electoral roll is publicly available for scientific research and contained 2,986,546 registered voters. The overall response rate (adjusting for the address accuracy of the electoral roll and including anonymous responses) was 16.6%. This response rate was relatively low, but consistent with mail-based studies, likely reflecting the fact that people were opting in to a 20-year annual longitudinal study.

Participant Details

Complete responses to the measures analysed here were provided by 6,284 participants (96.4% of the sample). Participants' mean age was 47.87 (*SD*=15.68). 71.4% of the sample identified as NZ European, 17% Māori, 4.2% of Pacific Nations descent, 4.6% Asian, 2.7% reported another ethnicity or did not answer. The sample matched census-based estimates of the proportion of ethnic groups fairly closely; however, women were more likely to respond than men. With regard to age, the NZAVS tended to undersample younger people in their 20s, oversample those in their 50s, and then under-sample those aged 75 and over.

With regard to other demographics, 75.3% of the sample were employed. 23.4% did not report their highest level of education or reported no education, 29.2% reported at least some high school, 15.9% reported having studied towards a diploma or certificate, 22.5% reported having studied at the undergraduate level, and 9% reported having pursued post-graduate study. Participants' postal addresses were used to identify the level of economic deprivation of their neighbourhood (Salmond, Crampton, & Atkinson, 2007). The New Zealand Deprivation Index (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 mean score on this deprivation measure in our sample was 5.05 (*SD*=2.84).

Questionnaire Measures

Participants rated their level of party support for 6 parties represented in Parliament after the 2008 election: National, Labour, Green, ACT, Māori, and United Future. Support for these political parties was rated on a scale from 1 (strongly oppose) to 7 (strongly support; e.g., Sibley & Wilson, 2007). Personality was assessed using the Mini-IPIP6 scale on a 1 (very inaccurate) to 7 scale (very accurate; Sibley et al., 2011). The Mini-IPIP6 is a short-form inventory assessing the Big-Six dimensions of personality (αs for Extraversion=.71, Agreeableness=.66, Conscientiousness=.65, Neuroticism=.64, Openness=.67, and Honesty-Humility=.78). The scale has been validated for use in the NZAVS dataset with good test re-test stability (Milojev, Osborne, Greaves, Barlow, & Sibley, 2013; Sibley, 2012; Sibley & Pirie, 2013). Political Orientation was measured on a single scale ranging from 1 (extremely liberal) to 7 (extremely conservative; Jost, 2006).

Results

Model Estimation

We conducted a series of Latent Profile Analyses (LPA) using M*plus* 7.30 to model Latent Voting Blocs using political party support. Bivariate correlations for these variables are presented in Table 1. Fit statistics for models including 2-7 profiles are presented in Table 2. Fit statistics indicated that a five-profile solution provided a reasonable fit to the data and that the identification of additional profiles beyond this did not substantially improve fit.

Table 1. Bivariate correlations between all variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Support for National																			
2. Support for ACT	.395**																		
3. Support for United Future	.132**	.504**																	
4. Support for Māori Party	-.178**	.067**	.283**																
5. Support for Greens	-.350**	-.075**	.142**	.399**															
6. Support for Labour	-.512**	-.250**	.021	.215**	.463**														
7. Gender	.036**	.023	-.034**	-.053**	-.154**	-.073**													
8. Age	.080**	-.124**	-.119**	-.053**	-.193**	-.059**	.091**												
9. Deprivation	-.193**	-.095**	.014	.118**	.070**	.196**	.002	-.049**											
10. Employment	.031*	.065**	.020	.009	.064**	-.041**	.051**	-.354**	-.097**										
11. Education	-.044**	.015	.044**	.092**	.167**	.017	-.093**	-.146**	-.185**	.208**									
12. Majority Ethnicity	.088**	.021	-.069**	-.202**	-.044**	-.157**	-.032*	.093**	-.243**	-.002	.086**								
13. Political Ideology	.282**	.195**	.096**	-.180**	-.323**	-.275**	.020	.082**	-.069**	-.025	-.089**	.044**							
14. Extraversion	.041**	.038**	-.001	.051**	.045**	-.009	-.056**	-.125**	-.023	.076**	.032*	-.001	-.125**						
15. Agreeableness	-.011	-.014	.047**	.095**	.148**	.050**	-.301**	-.017	-.057**	.007	.129**	.076**	-.081**	.208**					
16. Conscientiousness	.113**	.056**	.028*	-.051**	-.029*	-.031*	-.114**	.091**	-.056**	-.008	.016	-.014	.082**	.003	.149**				
17. Neuroticism	-.097**	-.029*	-.023	-.016	.052**	.059**	-.121**	-.174**	.060**	-.005	-.019	-.031*	-.030*	-.082**	-.022	-.115**			
18. Openness	-.107**	-.020	.007	.085**	.178**	.052**	.012	-.183**	-.023	.102**	.220**	.041**	-.217**	.252**	.244**	.012	-.010		
19. Honesty-Humility	-.042**	-.105**	-.025	.038**	.041**	-.031*	-.116**	.254**	-.097**	-.077**	.088**	.174**	.021	-.097**	.149**	.095**	-.189**	.024	

N=6,284, *p<.05, **p<.01

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

Profile Solution	BIC	AIC	entropy
Two	134887.041	134758.872	.662
Three	131834.427	131659.038	.774
Four	130038.433	129815.823	.799
Five	129324.624	129054.794	.782
Six	128952.589	128635.538	.782
Seven	128405.630	128041.359	.809

Note: BIC = Bayesian Information Criterion; AIC = Akaike Information Criterion.

We settled on a five-profile solution based on analysis of change in the various fit statistics, as well as interpretability (more profiles split ratings at points evenly along the distribution of all item ratings). The Bayesian Information Criterion (BIC), and the Akaike Information Criterion (AIC) statistics indicated that increase in model fit plateaued once five profiles were specified. The BIC, AIC, and the entropy for different model specifications are presented in Table 2. Entropy values range from 0 to 1.0, where a high value indicates a lower classification error and hence a better fitting model. An entropy value of closer to 1.0 indicates that there is a clear separation of classes, or in other words, that the model clearly separates the data into distinct profiles. So-called rules-of-thumb for what constitutes an acceptable entropy value tends to recommend values around or above .80 (Collins & Lanza, 2009). The entropy for our five-profile model approached this value and was .78, this indicating that our model performed fairly well in identifying profiles with a high likelihood of being distinct. The probability (averaged across participants) that a participant belonged to a given profile ranged from .80 to .89, indicating only a small average likelihood of misclassification.

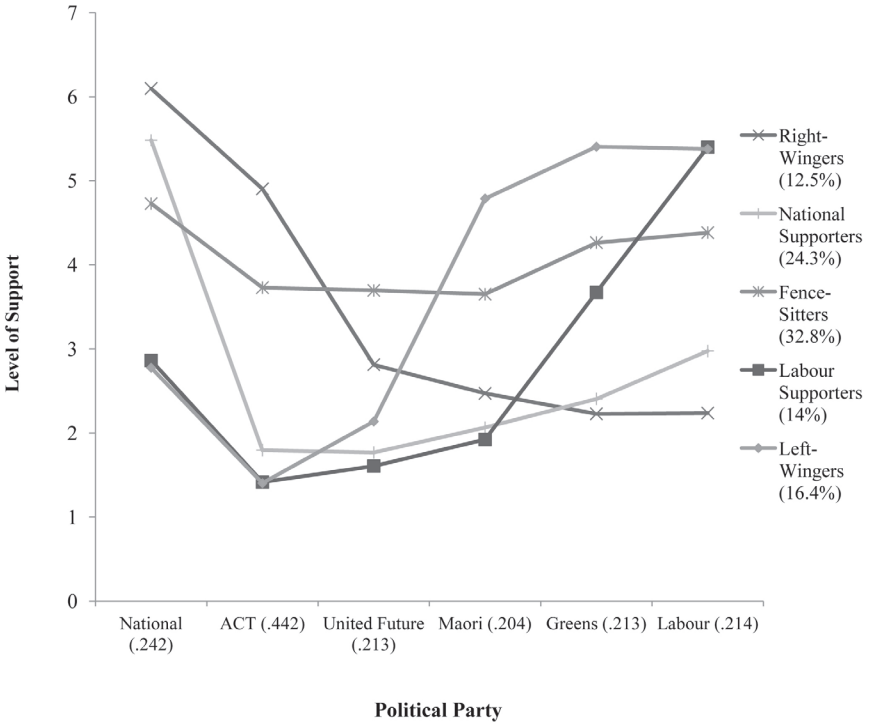
Latent Voting Blocs

Means for the levels of support for each party over the five identified LVBs are presented in Figure 1. The variable-specific entropy of support for each party is also reported in parentheses on the x-axis of Figure 1. These values provide an indicator of how informative each indicator (scale score) was for differentiating profiles (Asparouhov & Muthén, 2014). As reported, most of the party support items provided reasonably equal contributions to the model, with the exception of support for the ACT party which provided more information that differentiated between profiles (in other words, the different profiles differed to a higher extent on this item, perhaps indicating polarised opinions on ACT).

Here, we define support as a score of around 5 or above, neutrality as between approximately a 3 and 5, and a low level of support as a score of 3 or below. Two blocs emerged on the right of the political spectrum. One we labelled Right-Wing Supporters (12.5% of the sample). Participants in this LVB displayed a high level of support for both the National Party (M=6.01) and some support for its ally ACT (M=4.90) but had a neutral level of support toward other parties. The other bloc on the political right, labelled National Party Supporters (24.3% of the sample), showed a high level of support National (M=5.49), but did not support ACT (M=1.80).

Two blocs also emerged on the political left. One bloc was labelled Left-Wing Supporters (16.4% of the sample) as they showed a high level of support for Labour (M=5.38), The Greens (M=5.41) and some support for The Māori Party (M=4.79), but low levels of support for the right-wing parties. The second LVB was called Labour Supporters (14% of the sample) as they expressed high levels of support for Labour (M=5.40) but less so the Greens (M=3.67). We also reliably detected the hypothesized Fence-Sitter profile, which constituted 32.8% of the sample. Members of the Fence-Sitter profile expressed moderate levels of support for all six parties (M_{range}=3.65 to 4.72).

Figure 1. Levels of mean political support for each party over LVBs. (Variable-specific entropy reported in parentheses for each indicator on the x-axis).



Demographic and Psychological Differences

After identifying an acceptable model, the extent to which the LVBs differed across demographics, ideology and personality was examined. This

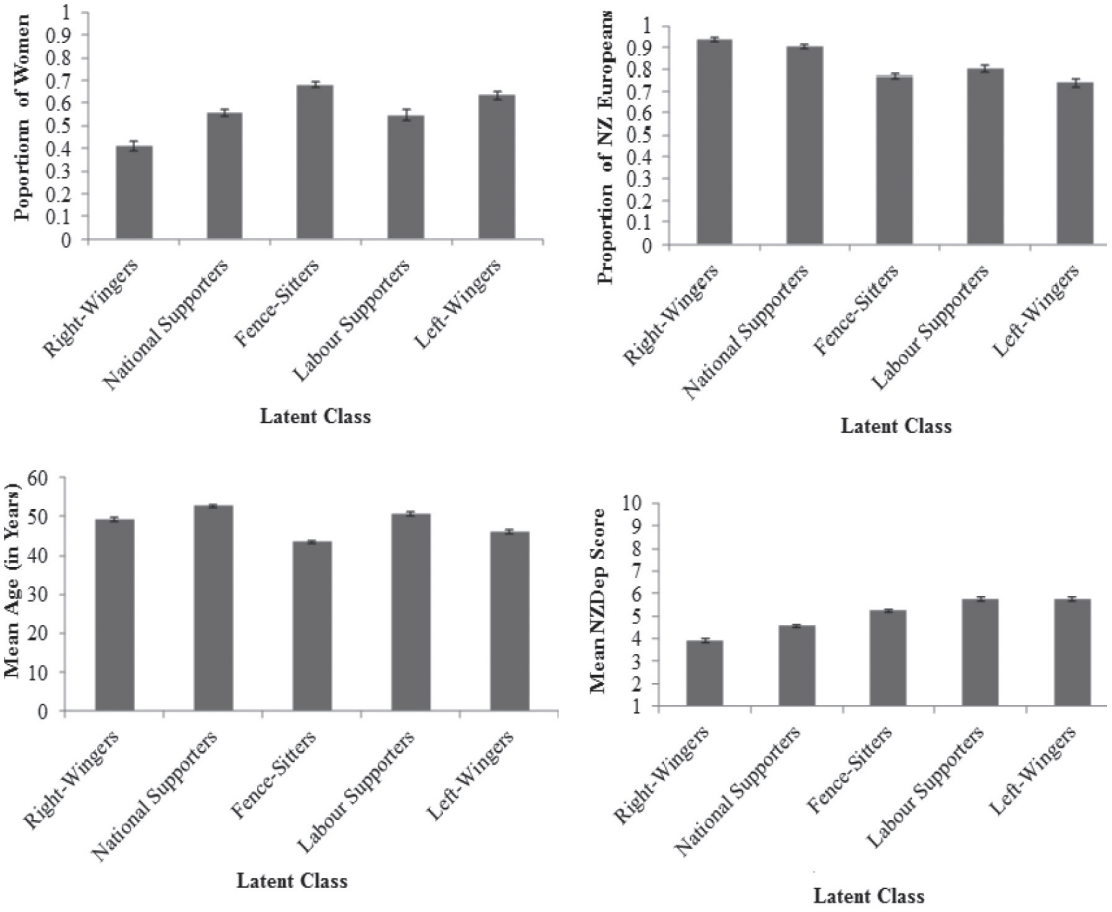
approach has not been used in political psychology previously: it allows the solution to be estimated *without* being informed by covariates of interest (Lanza, Tan, & Bray, 2013). At step one, this approach allowed us to estimate a standard latent profile model independent of covariates. Step two then 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 then 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 of gender differences between LVBs was significant ($\chi^2_{(4)}$=144.033, p<.001). The proportion of women by bloc is shown in Figure 2. Overall, women were overrepresented in the sample, and we did not apply any sample weight corrections. As such, if there were no gender differences in LVB membership we would expect 59.1% of a voting bloc to be women, but women only comprised 41% of the Right-Wing Supporters. This represents the biggest gender disparity within any profile (b=.410, se=.021). By comparison, women were most likely to be Fence-Sitters (b=.681, se=.012).

The overall test for age differences among LVBs was also significant ($\chi^2_{(4)}$=382.230, p<.001). Results are shown in Figure 2. The oldest LVB was National Supporters (M=52.7), followed by Labour Supporters (M =50.8), indicating that older people were more likely to support a single party. In contrast the youngest profile was the Fence-Sitter LVB who had a mean age of 43.4 years. The overall tests of difference for both deprivation ($\chi^2_{(4)}$=331.640, p<.001) and employment ($\chi^2_{(4)}$=25.145, p<.001) were significant. As shown in Figure 2, the Right-Wing (M=3.89) bloc were the least deprived, in contrast to the Left-Wing (M=5.73) and Labour Supporters (M=5.76). This indicates that supporters of the political right live in more affluent neighbourhoods. Additionally, the Right-Wing Supporters had the highest level of employment at 80.1% (b=.801, se=.016), whereas Labour Supporters had the lowest level of employment (b=.699, se=.024).

Additionally, the overall test for differences in the level of education between the LVBs was significant ($\chi^2_{(4)}$=476.565, p<.001). Education was coded on an ordinal-ranked scale from -2 (no education) through to 2 (post-graduate education). The bloc with the highest average level of education was the Left-Wing Supporters (M=0.144). The other LVBs all scored somewhere between having completed some high school and a diploma/certificate, with the least formally educated being Labour Supporters (M=-.981). We also tested for the probability that the members of an LVB were from the majority NZ European ethnic group. The overall test was significant ($\chi^2_{(4)}$=216.217, p<.001; see Figure 2). Both the Right-Wing (b=.936, se=.010)

Figure 2. The proportion of women, proportion of NZ Europeans, mean age and mean deprivation score (1 low–10 high) for each LVB.



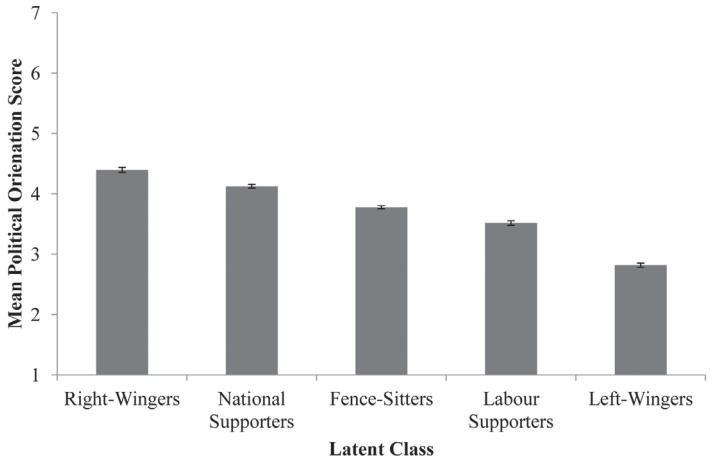
and National Supporters (b=.905, se=.009) had a higher probability of being NZ European. The Left-Wing LVB (b=.741, se=.018) were more ethnically diverse, as were the Fence-Sitters, who were 76.8% NZ European (b=.768, se=.011).

The test for differences in political ideology between LVBs was significant ($\chi^2_{(4)}$=1132.546, p<.001). As Figure 3 illustrates, the most conservative bloc was the Right-Wing (M=4.40), followed by National Supporters (M=4.13). This shows that those who support right-wing parties are more likely to self-identify as conservative. The most liberal bloc was the Left-Wing (M=2.82), followed by Labour Supporters (M=3.52), suggesting that the left tend to identify as liberal. Unsurprisingly, the Fence-Sitter bloc indicated their political orientation was near the centre of the scale (M=3.78).

For all six of the personality traits tested – Extraversion ($\chi^2_{(4)}$=23.030, p<.001),

Agreeableness ($\chi^2_{(4)}$=120.624, p<.001), Conscientiousness ($\chi^2_{(4)}$=59.095, p<.001), Neuroticism ($\chi^2_{(4)}$=42.045, p<.001), Openness ($\chi^2_{(4)}$=214.584, p<.001) and Honesty Humility ($\chi^2_{(4)}$=63.548, p<.001) – the overall tests were significant, indicating that the LVBs differed in terms of personality. Figure 4 displays the six personality traits by LVB.

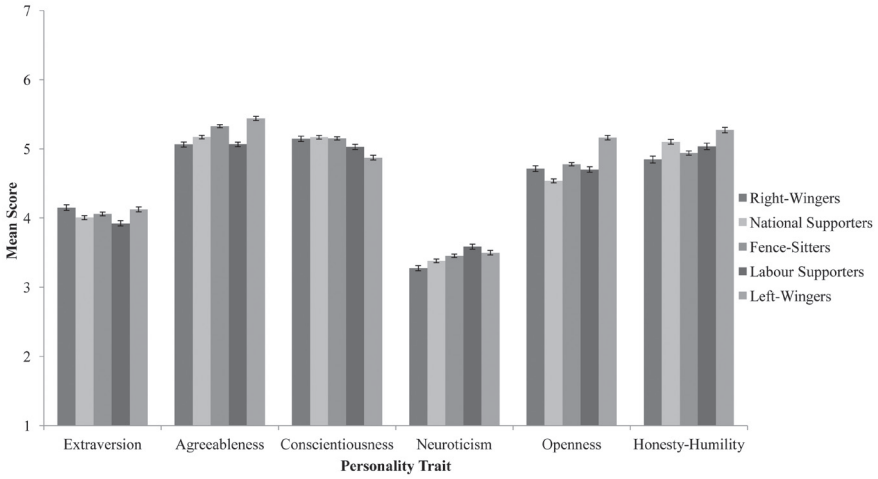
Figure 3. Mean levels of political ideology across LVBs.



For both Extraversion and Agreeableness, the LVBs did not group together ideologically. Conscientiousness followed the typical pattern in the literature in that Right-Wing (M=5.15) were more conscientious compared to Left-Wing (M=4.87). The second trait that usually predicts political preference, Openness, also followed a similar pattern to the literature. Left-Wing Supporters had the highest level of Openness (M=5.16), with the least open LVB being National Supporters (M =4.54). Similar to Extraversion and Agreeableness, the mean scores for the LVBs did not follow a pattern based on political preference. Notably, the Fence-Sitters had the second highest level of Openness (M=4.78).

Labour (M=3.59) and Left-Wing Supporters (M=3.50) – were the most neurotic, a slight contrast to the National Party (M=3.38) and Right-Wing Supporters (M=3.28). The Fence-Sitters were the middle LVB with a mean Neuroticism score of 3.54. For Honesty-Humility, Right-Wing Supporters (M=4.85), followed by the Fence-Sitters (M=4.54), had the lowest scores. The highest Honesty-Humility scores came from the Left-Wing (M=5.27) and National Supporters (M=5.10). Again, and like most of the other traits examined here, the LVBs did not follow a pattern based on support for left versus right-wing parties.

Figure 4. Mean levels for each trait of the Big Six model of personality across LVBs.



Fence-Sitters and Voter Turnout

Voter turnout has been declining in recent decades, so a key criterion was to compare the proportion of Fence-Sitters in each electorate against its voter turnout. Because the NZ electoral system is divided into 63 general electorates and 7 Māori electorates, participants' addresses could be used to map the proportion of Fence-Sitters by electorate. Based on contact information (name and address), participants were matched to the 2011 electoral roll, where information was drawn for whether they were on the Māori or general roll.

A map of each of the general electorates shaded by proportion of Fence-Sitters is shown in Figure 5 and the same map for the Māori electorates is shown in Figure 6. Across the nation, 32.8% of participants were classified as Fence-Sitters, however, this varied by electorate. The highest proportion of Fence-Sitters (>.40, shaded black) were concentrated in the general electorate of Selwyn (44%) and the Māori electorate of Ikaroa-Rāwhiti (44%). Followed by the Helensville

(43%), Taupo (42%), Northcote (40%) and Botany (40%) general electorates. The general electorates with the smallest proportions (<.25, shaded white) of Fence-Sitters were Auckland Central (22%) and Mount Albert (22%). For the Māori electorates, Hauraki-Waikato had the lowest proportion of Fence-Sitters at 29%. Generally, the electorates with the highest and lowest proportion of Fence-Sitters did not geographically cluster.

Figure 5. Map showing the proportion of the Fence-Sitters across the 63 general electorates.

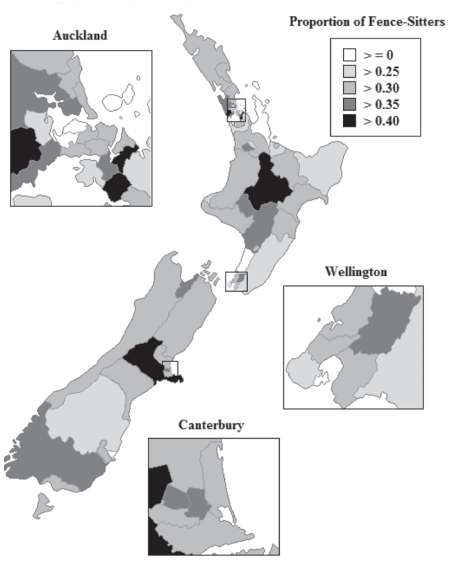
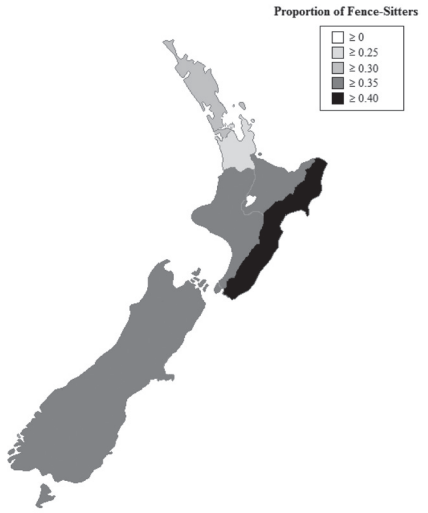


Figure 6. Map showing the proportion of the Fence-Sitters across the 7 Māori electorates.



To test the utility of the LPA in predicting voter turnout, we tested if the proportion of the Fence-Sitting LVB predicted voter turnout across the electorates. The proportion of Fence-Sitters in each electorate was significantly, negatively correlated with voter turnout in an electorate (r=-.255, p=.033). We also ran an alternative version of the model with sample weighted correction for the gender bias. Results were comparable, for example the correlation between proportion of Fence-Sitters and voter turnout shifted to r=-.237, p=.030. A simple linear regression showed that the proportion of Fence-Sitters in an electorate explained 6.6% of the variance (p=.032) in that electorate's voter turnout. Figure 7 shows the scatterplot and slope for proportion voter turnout by the proportion of Fence-Sitters. This confirmed that the proportion of Fence-Sitters in an electorate predicts voter turnout, and that LVBs derived from the LPA have utility in predicting voting behaviour.

Discussion

We introduced and modelled Latent Voting Blocs (LVBs) in a large national sample of registered NZ voters. LVBs refer to the underlying types of people who express different combinations of support for multiple political parties; be it high support for one party, some combination of support and opposition, or moderate levels of support for multiple parties. Five LVBs emerged and, as hypothesised, one was a Fence-Sitting LVB that rated all parties neutrally. This profile made up 32.8% of the sample, and when compared with other blocs, tended to be female, younger, non-NZ European, and ideologically centrist. Mapping LVB across electorates, we show that the proportion of Fence-Sitters in an electorate predicts the extent to which the population of a given electorate will vote. The proportion of Fence-Sitters in each region was negatively correlated with voter turnout and predicted 6.6% of the variance in voter turnout. Showing that a politically Fence-Sitting LVB constitutes a sizeable minority of the population and that areas with higher proportions of these Fence-Sitters tend to have lower voter turnout.

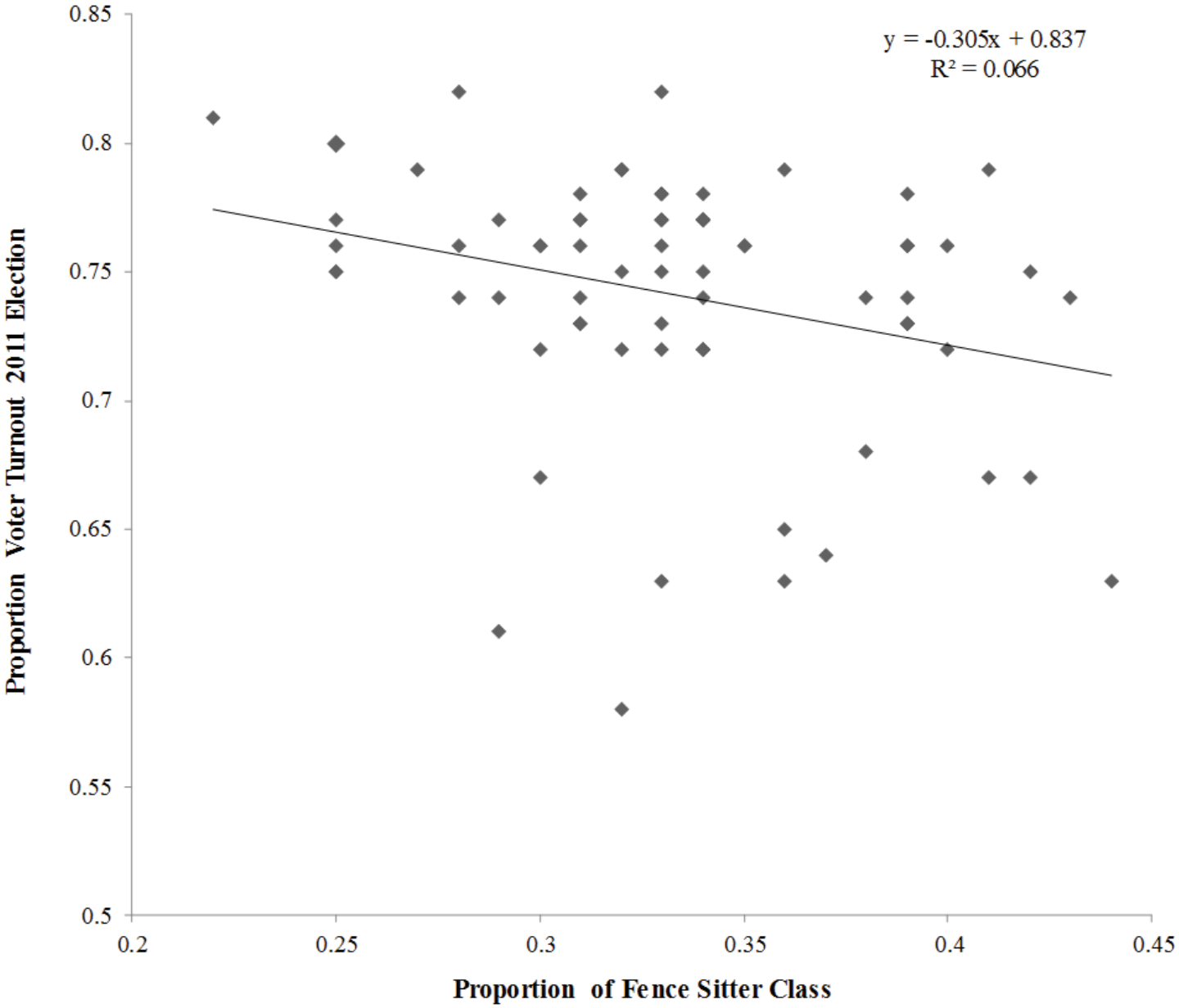
We identified four other LVBs that cover the range of political support in NZ. Two blocs on the political right emerged—National Party Supporters and Right-Wing Supporters—and two on the political left—Labour Supporters and Left-Wing Supporters. Surprisingly, four LVBs emerged from the LPA to cover NZs political spectrum. This suggests that a simple left-right dimension may not be useful in categorising party support across multi-party systems. Moreover, differences in demographic and psychological variables across these profiles show that LVBs are comprised of different types of people, even though they are typically lumped together as 'The Left' or 'The Right'.

Differences between Types of Voters

The profiles differed on key variables, suggesting that LVB members 'look' different, in terms of certain demographics, ideology and personality, across blocs. These differences occurred even between the two LVBs that would typically be combined as 'The Left' and between the two typically called 'The Right.' Although Left-Wing Supporters had a relatively high proportion of women and Right-Wing Supporters had the lowest, the Labour and National Supporter LVBs were comprised of a comparable proportion of women. Contrary to previous research (Dimock, Clark, & Menasce Horowitz, 2008), Fence-Sitters were more affluent than the political left. There were significant effects for both employment and deprivation, showing that National and Right-Wing Supporters were more likely to be employed and live in affluent neighbourhoods. Left-Wing Supporters were the most educated, although, Labour Supporters were the least educated.

Fence-Sitters were the youngest, suggesting these voters have either not had enough time to explore their political options, or are less invested in politics (e.g., Glenn & Grimes, 1968). The blocs with the oldest mean age were those that supported one party (Labour and National Supporter LVBs). Such a finding is consistent with the Impressionable Years Hypothesis which suggests that older people take longer than the young to adjust to political change (Osborne, Sears, & Valentino, 2011). The members of these older profiles came of age at a

Figure 7. Proportion voter turnout for the 2011 election for each electorate by the proportion of Fence-Sitters (Note that the seven most extreme outliers were the seven Maori electorates; estimation of the model without these electorates slightly improved the model R^2).



time when NZ had a FPP system and only a limited number of parties could survive. Therefore, most of these older voters were either National or Labour supporters. As such, older voters may still think in terms of National versus Labour and ignore the array of minor parties.

Another difference between Fence-Sitters and other LVBs was that they had the lowest proportion of the majority NZ Europeans. It was hypothesised that those from the majority NZ European group would have higher rates of support for right-wing parties. This hypothesis was supported; the Right-Wing and National Supporters had the highest proportions of NZ Europeans. This suggests that NZ Europeans have a tendency to support National, whereas some also support ACT. However, our analyses grouped all participants who did not identify as NZ European into a single 'minority' group. This group is far from homogeneous and warrants further study *particularly* as the demographics of NZ continue to diversify.

As expected, the right-of-centre LVBs (Right-Wing and National Supporters) were more conservative, whereas the left-of-centre LVBs (Left-Wing and Labour Supporters) were more liberal. Also as predicted, Fence-Sitters were in the middle of the spectrum. This supports previous research showing that Fence-Sitters are ideologically moderate and provides further evidence of the utility of a simple liberal-conservative dimension for measuring simply ideology, even in multi-party systems (Jost, 2006). However, a limitation of this research is that although we label LVBs as "Left" or "Right" wing these labels are theoretical and independent of any measure of left to right ideology. Unfortunately, we did not have the data to explore how the LVBs varied across ideology on a left-to-right continuum. Research suggests that left/right alone or in combination with liberal/conservative may be a more relevant measure for the New Zealand's complex, multi-party context as liberal/conservative could be taken to refer to one's views on social issues, whereas left/right may refer to economic issues (Perry & Sibley, 2013; Wilson, 2004; Sibley & Wilson, 2007). Where, for example, the Right-Wing LVB (a multiple party supporting LVB) versus the solely-National Supporting LVB might sit on a left to right continuum, i.e., who is 'further to the right' on this measure of ideology, remains to be seen.

Previous research has shown that the political right (versus left) are more Conscientious, Open to Experience, and to a lesser extent, more Extraverted (Sibley, Osborne, & Duckitt, 2012). Indeed, the blocs were different in terms of personality; however, these differences did not follow a simple left-to-right pattern. Whereas Right-Wing Supporters were the highest on Extraversion, Left-Wing Supporters were second highest, contrary to expectations. Similar results emerged for Openness, as Left-Wing Supporters were highest in Openness, followed by Fence-Sitters and Right-Wing Supporters. Our findings for Conscientiousness followed the standard trend in the literature of conservatives (National and Right-Wing Supporters) being higher on Conscientiousness than liberals (Labour and Left-Wing Supporters). Interestingly, differences in Neuroticism also emerged such that the LVBs of the political right were less neurotic than the left. It should be noted, however, that these were relatively small differences. An explanation could be that the emotional stability associated with low Neuroticism corresponds with conservatives' preference for stability (Carney et al., 2008). This study also provided the first examination of the personality profiles of political Fence-Sitters. Fence-Sitters were not the highest or lowest LVB on any of the Big-Six traits. This suggests that Fence-Sitters do not have any particular traits which set them apart from committed partisans.

Fence-Sitters and Voter Turnout

It seems that Fence-Sitters were less likely to vote in the 2011 election. Although we did not analyse whether each participant in the NZAVS actually voted, the relationship between voter turnout and the proportion of Fence-Sitters in a given electorate suggests that this may be the case. Furthermore, the proportion of the other four LVBs by electorate had no relationship with voter enrolment or turnout. Such a finding demonstrates that profiles produced from our LPA can predict outcomes like voter turnout. Previous American research has examined the differences between states in aggregated personality traits and voting preferences within a state (Rentfrow, 2010). For example, Rentfrow (2010) has mapped personality traits geographically and found that states with higher proportions of people with high Openness had more votes cast for the Democratic Party in the 2008 election. Here, instead of shading geographic areas by quintile based on a continuous dimension, we have taken a novel approach by dividing the potential voters in an electorate into latent profiles. We then geographically plotted the proportion of Fence-Sitters across each electorate (the only LVB predictive of voter turnout). Unlike research on personality dimensions, we did not find a pattern of geographical clustering for Fence-Sitters across electorates. Future research should examine the stability of profile membership over multiple political events to see if a region retains similar levels of Fence-Sitters over time or if this proportion changes based on the local relevance of policy issues.

Some readers may be wondering if the Fence-Sitter profile merely represents a methodological artifact of participants with a tendency to circle 'neutral' on our questionnaire. This is highly unlikely because firstly, the proportion of Fence-Sitters was predictive of voter turnout in our analysis of variation across electorates. This suggests that participants' responses reflect meaningful variation rather than a methodological artifact. Secondly, if our Fence-Sitter LVB merely identified participants with a tendency to circle 'neutral', then this response tendency would be expected to also emerge across other scales. This was clearly not the case, as the Fence-Sitters diverged markedly from 'neutral' on dimensions of personality. For example, Fence-Sitters had a mean Neuroticism score of 3.5, but a mean Agreeableness score of 5.3.

Future Research

Although we have emphasised throughout this paper the usefulness of LPA in a multi-party system, this technique may also be useful in other electoral systems. For example, in a two-

party context like the US, there would undoubtedly be strongly partisan profiles as we found here. However, there could be blocs that weakly support or oppose both parties or are decidedly neutral across parties (Fence-Sitters). LPA could help uncover LVBs of political support across many different contexts and party systems. While Weber and Federico (2013) have looked at similar issues using LPA, this research could be extended by looking at classes of LVBs over support for the ratings of both the Republican and Democratic parties beyond a single dimension. Although it is likely that a two-party system would not have the same complexity in patterns of support as a multi-party system, it would nevertheless be useful to identify Fence-Sitters and examine their characteristics. Likewise, examining potential differences in voter turnout across geographical areas would provide important information for Get-Out-The-Vote campaigns.

The data reported here were collected as part of an ongoing longitudinal study, as such, one area of interest we wish to explore in the future is how LVB membership may change over time. Namely, how the Fence-Sitter profile may change across time and elections. The way to model this longitudinally is though a statistical method called Latent Transition Analysis (LTA). LTA is the longitudinal extension of Latent Profile Analysis. Rather than looking at a profile at one period, LTA looks at 'latent statuses' across these times points (Collins & Lanza, 2009). Researchers estimate latent status membership probabilities at each time point – or the proportion of individuals in each profile at each time point. Then one estimates the transition probability, or the probability of moving from one latent status to another at the next time point. Demographic and other variables can be used via logistic regression to predict not only the latent status probability at a given time point, but also the transition probability (Lanza, Patrick, & Maggs, 2010). Meaning that researchers can see which variables predict participants moving from one profile to another over time. Looking at Fence-Sitters using LTA would mean we could see not only if the size of the profile changes with the political climate, but also what predicts people moving into or out of the profile. For example, we could see if younger people move out of this profile when they age, or if this is a cohort effect. Basically, it would allow us to see which variables predict the Fence-Sitters becoming more partisan.

Concluding Comments

Fence-Sitters have been given a wide variety of labels—from undecideds to floating voters—and these single labels have referred to a wide variety of groups (e.g., swing-voters, the politically-apathetic, etc.). Our analysis shows that Fence-Sitters reflect a voting bloc that rated all political parties neutrally and constitute roughly a third (32.8%) of the NZ population. Fence-Sitters tended to be ideological centrists, women, ethnic minorities, and were younger than the other LVBs. The proportion of this group living in an electorate also negatively predicted voter turnout. LPA allowed us to advance a new method for uncovering types of voters, which is especially important in multi-party systems such as NZ. That said, we encourage the use of LPA in any system with two or more parties. Utilising LPA and the three-step distal approach allowed us to not only identify the Fence-Sitters, but to answer contentious questions about the variables that predict political apathy and, ultimately, voter turnout.

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