What Role Does Affective Proximity Play in Canadian Elections?

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Abstract

Voters' feelings toward social and political groups can impact their political behaviour. How does group-based affect—voters' relatively warmer or colder feelings toward different groups—impact their vote choice? The goal of our present work is twofold. Our first task is descriptive: What does the "affective space" look like in Canada? To answer this question, we use data from the Canadian Election Study on feelings toward ethnic groups, sexual minorities, political parties, and national groups (e.g., Canadians, Quebeckers, and Americans). We use unsupervised machine learning techniques to reduce the dimensionality of affective space in Canada. Our second task is inferential: How does group-based affect impact vote choice? To answer this question, we regress vote choice on two, uncorrelated dimensions of group-based affect— ideological and ethnocultural —in seven different elections from 1993 to 2019 in Quebec and Canada outside Quebec. Our results suggest that voters' group-based affect contributes to polarized pluralism in the party system (Johnston, 2017), but that fault lines are also emerging.

Introduction

There is a growing recognition that voters' social identities impact social cognition—voters express more positive feelings toward in-group members and negative feelings toward out-group members (Iyengar et al., 2019; Kinder and Kalmoe, 2017). Inter-group affect and interparty animosities meaningfully shape political behaviour. How does Canadians' group-based affect—voters' relatively warmer or colder feelings toward different groups—impact their vote choice? In our present work, we clarify what the "affective space" looks like in Canada and identify how group-based affect impacts vote choice among partisans non-partisan voters in both Canada outside of Quebec and in Quebec.

In the United States, affective polarization, which refers to the tendency for Democratic-identifiers to express dislike for the Republican Party and Republican-identifiers to express dislike for the Democratic Party, has been increasing over time. Efforts to measure affective polarization in Canada have been stymied by the challenge of measuring partisans' relative dislike for opposing parties in a multiparty system. These methodological challenges have resulted in mixed findings, with some scholars concluding that affective polarization is declining in Canada (Gidron, Adams and Horne, 2020), and others concluding that it is on the rise (Boxell, Gentzkow and Shapiro, 2020; Johnston, 2019*a*). Another shortcoming of these analyses is that they are limited to the study of party identifiers at the exclusion of independents—centrally important voters who can swing elections. Finally, existing studies of affective polarization focus exclusively on feelings toward out-group partisans, neglecting feelings toward a range of other social groups.

In Canada, there are theoretical reasons to suspect that other group-based attitudes might shape political behaviour. In particular, Johnston's (2017, p. 5) analytic history of the Canadian party system explains the peculiarities of Canadian politics by reference to the combination of "low-detail Westminster institutions with the sociology of deep division." Johnston (2017) makes the case that Canada's "polarized pluralism", a multiparty system with a dominant centrist party, is a result of the Liberal Party holding onto the centre on the idological left-right dimension by taking ownership of the centre of a second, national dimension. That is to say, the Liberal Party has managed to

be the pro-Quebec party outside of Quebec and the pro-Canada party within Quebec. The idea that inter-group affect—specifically, voters' feelings toward Quebec and Quebec's place within a multicultural Canada—plays a central role in shaping Canada's political landscape is central to Johnston's thesis, although he does not test this directly.

In our present work, we use data from the Canadian Election Studies from seven different elections between 1993 to 2019 in Quebec and Canada outside Quebec to answer two questions. First, what does the "affective space" look like in Canada? Second, how does group-based affect impact vote choice? To answer these questions, we take a number of variables measuring feelings toward ethnic groups, sexual minorities, political parties, and national groups (e.g., Canadians, Quebeckers, and Americans) and use unsupervised machine learning techniques to reduce the dimensionality of affective space in Canada. Specifically, we use Principal Component Analysis (PCA) to convert Canadian voters' feeling thermometer ratings into a smaller set of uncorrelated dimensions. We then use hierarchical clustering to identify meaningful clusters of group-based affect. To address our inferential question, we regress vote choice on two, uncorrelated dimensions of group-based affect (ideological and ethnocultural affect), controlling for partisanship and other confounders.

Our analysis reveals a number of important findings. With respect to Canada outside of Quebec, we find that ideological affect has become a notably stronger predictor of voting for the Conservative Party relative to the Liberal Party over time. This offers strong evidence that affective polarization—related to feelings toward groups associated with the ideological left and right—is changing electoral dynamics in Canada outside of Quebec. Similarly, ethnocultural affect— based on feelings toward groups associated with Quebec versus feelings toward ethnic minorities—has also become a stronger predictor of voting for the Conservative Party relative to the Liberal Party, although the importance of ethnocultural affect has not increased to the same extent as ideological affect. By contrast, while ideological affect predicted voting for the NDP relative to the Liberal Party in the 1990s, it no longer predict voting for one left-leaning party over the other. This suggests that the centre is fading away, restructuring this dimension as a competition between the left and the right. With respect to Quebec, we see the same dynamics whereby ideological affect is getting weaker at predicting vote for the NDP versus the Liberal Party with time. This suggests that

the Canadian party system is slowly reorganizing itself and moving away from polarized pluralism, which rests on a strong centre party. We also find that, unsurprisingly, ethnocultural affect predicts voting for the Bloc Québécois (BQ), a nationalist party. On the ideological dimension, we find that historically moving toward the right pole has been associated with a lower likelihood of voting for the BQ relative to the Liberal Party, but that this relationship is getting weaker with time. In 2019, the relationship reverses and voters who are leaning more toward the right are more likely to vote for the BQ relative to the Liberals. This has implications for the Conservative Party, which has been able to win majorities by crafting an ends-against-the-middle coalition that brought together nationalists in Quebec and anti-Quebec voters in the rest of Canada. If right-leaning ideological affect—which should benefit the Conservatives—now benefits the BQ, the Conservatives may no longer be competitive in Quebec.

Affective Polarization and Canadian Polarized Pluralism

In the United States, there is a well-documented rise in *affective polarization*, which refers to the tendency for political partisans—those who identify with either the Democratic or Republican parties—to dislike and distrust members of the opposing party (Iyengar et al., 2019). Research on affective polarization draws on social identity theory, which recognizes the role that social group memberships play in cognition and behaviour (Tajfel et al., 1979; Huddy, 2001). In particular, to the way that perceptions of group memberships trigger automatic positive evaluations of one's perceived in-group and negative evaluations of perceived out-groups (Billig and Tajfel, 1973). Drawing on this literature, political scientists view affective polarization as "a natural offshoot of this sense of partisan group identity" (Iyengar et al., 2019, p. 130).

Comparative research on affective polarization is complicated by the multiparty nature of most democratic political systems. In the United States, affective polarization is most commonly measured by taking the difference between the feeling thermometer rating of a partisan's in-group and their out-group, a simple metric in a two-party system. For multiparty systems, Reiljan (2020) proposes an "Affective Polarization Index" that takes the difference between a partisan's feelings

toward their party and a weighted sum of feelings toward all outparties in their country's party system. The sum of outparty sentiment is weighted based on the size of each outparty, as measured by each party's national vote share in the election that took place when the data was collected. Their analysis excludes non-partisans who do not identify with any party.

There is also a growing interest in the degree of affective polarization in Canada. While Reiljan's (2020) analysis only considers European countries, Gidron, Adams and Horne (2020) use Reiljan's (2020) Affective Polarization Index in their cross-national analysis that includes Canada.[1] Gidron, Adams and Horne (2020) conclude that affective polarization is on the *decline* in Canada. By contrast, Boxell, Gentzkow and Shapiro (2020) use a similar weighting scheme but restrict their analysis to the top two parties in each country (i.e., the Liberals and Conservatives in Canada).[2]Boxell, Gentzkow and Shapiro (2020) conclude that affective polarization has increased in Canada, not as steeply as in the United States but more steeply than in other countries. More in line with Boxwell et al.'s 2020 finding, Johnston (2019*a*) analyzes the dispersion of party ratings (as measured by the standard deviation) to show that dispersion in party feeling thermometer ratings of all parties has increased between 1988 and 2015.

Johnston (2019*a*) also graphs the mean thermometer ratings of each outparty by partisanship to offer a more nuanced picture of affective polarization in Canada. In particular, Johnston (2019*a*) finds that Conservative partisans now like their own party more than ever before and increasingly dislike the parties of the left —particularly the centre-left Liberal Party, who are now viewed nearly as negatively as the social democratic New Democratic Party (NDP). In Canada outside of Quebec, the greatest change has been the growing affective polarization among Liberal and Conservative partisans. As Johnston (2019*a*) shows, part of this shift was precipitated by the emergence of the right-wing populist Reform Party in 1987, as partisans on the left viewed the Reform Party especially negatively. After the Reform Party merged with the centre-right Progressive Conservative Party to form the modern-day Conservative Party in 2003, left-leaning partisans' perceptions of the new party remained nearly as low as perceptions toward the Reform Party had been. By contrast, over-

[1]Using Comparative Study of Electoral Systems (CSES) data

[2](Boxell, Gentzkow and Shapiro, 2020) use data from the Canadian Election Study from every Canadian election between 1988 and 2015.

time trends show that left-leaning partisans feel increasingly warm toward one another's parties; over time, NDP partisans have, on average, expressed increasingly more positive feelings toward the Liberal Party and vice versa.

Focusing on Quebec, the greatest changes have been that, firstly, that Bloc Québécois-identifiers are expressing on-average more negative feelings toward the Conservative Party over time. The Bloc Québécois (BQ) is a nationalist party that exclusively contests seats in Quebec. Secondly, BQ-identifiers' average feelings toward to NDP surged in 2004 with the "Orange Wave" that shook the political landscape. However, since 2004 BQ-identifiers' average feelings toward to NDP have gradually declined to nearly their pre-Orange Wave levels.

Johnston's 2019*a* analysis helps explain the contradictory findings in the literature, and point to some of the shortcomings of existing attempts to study affective polarization in multiparty (and multinational) federations. For instance, because Boxell, Gentzkow and Shapiro (2020) limit their analysis to the two biggest parties in each country—in Canada, the Liberals and Conservatives—they are picking up on the growing affective polarization among Liberal and Conservative partisans toward the Conservative and Liberal parties, respectively, but are ignoring the increasingly positive feelings that left-leaning partisans feel for one another's parties (including the surging, then gradually declining, positive sentiment that Quebec sovereigntist voters expressed toward the NDP party). Because Gidron, Adams and Horne (2020) (and others) down-weight smaller parties, they may be underestimating the impact of feelings toward Canada's right-of-centre parties during the period of time when the right was divided. These authors are certainly underestimating the powerful and lasting impacts that smaller, more extreme parties can have on voters' feelings toward *all* parties in the party system. With respect to the particular challenges of studying multinational and federated countries, both Boxell, Gentzkow and Shapiro (2020) and Gidron, Adams and Horne (2020) fail to conduct separate analyses for Canada's two largest sub-national[3] regions: Quebec and Canada outside of Quebec. Because Quebec and the rest of Canada have different party systems, the failure to conduct separate analyses within these sub-regions misses meaningful trends.

[3]The country of Canada is also home to many distinct Indigenous nations, although members of Indigenous nations tend to be more geographically dispersed and smaller in population (limiting their ability to impact the Canadian party system).

Another shortcoming with the existing affective polarization literature is that it is, by definition, limited to an analysis of party identifiers.[4] Excluding independents excludes important voters—the kind of voters who can decide an election. There is no theoretical reason for restricting studies of how group-based affect shapes political behaviour to partisanship. Public opinion presumably arises from the "attachments and antipathies of group life" *in general*, and not only from the attachments to political parties (c.f., Kinder and Kalmoe, 2017, p. 127).

The importance of feelings toward a range of social groups—beyond political parties—on political behaviour and party dynamics is illustrated by research on "polarized pluralism" in Canada. Johnston (2017) describes the post-1970 Canadian party system as a case of polarized pluralism, a multiparty system with a dominant centrist party (Sartori, 1966). He makes the case that the Liberal party was able to withstand centrifugal forces and occupy the centre on the ideological left-right dimension by taking ownership of the centre on another dimension, the "national" dimension, which refers to the place of Quebec within the Canadian federation. In the post-1970 period, conflict has revolved around the accommodation of Quebec's claims of nationhood within the federation and Quebec's occasional threats of secession. Quebec's demands have often pushed against the conception of Canada as a multicultural state, ratified in the *Constitution Act, 1982*. In this context, the Liberals have been able to rally voters outside Quebec who feel warmly toward Quebec and who support Francophones' rights and voters in Quebec who feel warmly toward ethnic minorities and who want to live in a multicultural, rather than binational, state. Hence, by building a coalition of voters across Quebec and the rest of Canada who are sympathetic to the other side, the Liberal Party has taken hold of the centre. As the champions of national unity, they effectively blocked the growth of the NDP on the left of the ideological dimension and established their dominance within the party system.

However, by occupying the centre on the national question, Johnston (2017) notes that the Liberals are vulnerable on both flanks. To understand why, it should be noted that, firstly, Quebec voters tend to vote in unison, and winning over the Quebec voting block has historically been a necessary condition for the Liberals to form government (Johnston, 2017; Bakvis and Macpherson,

[4]All existing studies are limited to party identifiers, since all operationalizations involve taking the difference in feelings toward a political in-group and a political out-group.

1995). The coordination of voters in the vote-rich region of Quebec means that any party that convinces Quebec voters that they are the best defender of Quebec's demands can gain a substantial share of the total seats in federal parliament. Secondly, there are many voters who hold pro-Quebec (and anti-multiculturalist) attitudes in Quebec, and many "francophobic" voters (voters who hold negative attitudes and feelings toward Quebec and French-speaking Canadians) in the rest of Canada. This has allowed the Conservatives, at times, to defeat the Liberals by crafting an ends-against-the-middle coalition that brought together Quebec Francophones and francophobic voters in the rest of Canada. Yet, by its nature this type of coalition is precarious, and the resulting tensions have undermined the Conservatives' ability to win over Quebec nationalists longer-term. Furthermore, this strategy has often been thwarted by the Bloc Québécois, which, despite being a small nationalist party that only runs candidates in Quebec, has been able to win enough seats to carry weight in Canada's federal parliament because of the coordination of Quebec voters.

The points of friction inherent to polarized pluralism should make it unsustainable. The fact that this system has endured in Canada for decades now is somewhat puzzling. However, signs of its demise have been visible since the 1993 election. Due to its diminishing demographic weight and the growing fragmentation of its vote, Quebec is no longer the pivot for government, thus undercutting the base of the Liberals' dominance (Johnston, 2017). What is more, the Liberal Party can no longer claim ownership of the centre on the ideological left-right dimension, as the NDP has been steadily moving toward the ideological centre, closing the ideological gap with the Liberal Party (Johnston, 2019*b*). On the Conservative Party's side, the emergence of the Bloc Québécois curtailed the reach of their nationalist appeal and made their ends-against-the-middle strategy almost impossible.

While the theoretical underpinning of Johnston's (2017) analysis of polarized pluralism rests on an understanding that social cleavages play a central role in Canadian politics, his analysis is centreed on institutions. Our present work offers an empirical look at how voter affect—feelings toward both political parties and other salient social groups (including Quebec, Canada, and ethnic minorities)—shape Canadian voter behaviour. Our analysis supplements Johnston's (2017) historical-institutional approach by demonstrating how voters' feelings toward social groups con-

tribute to the dynamics of polarized pluralism. Our analysis also makes a theoretical and methodological contribution to the existing literature on affective polarization. Our work challenges the assumption that voters' feelings toward political parties are the only theoretically relevant feature of affective space, as well as the assumption that political partisans are the only voters whose group-based affect matters for politics. By using unsupervised machine learning techniques to assign weights to different group-based affect variables, we also address the methodological shortcomings of existing studies of affective polarization which make unwarranted assumptions about the relative importance of political parties.

Methods

To shed light on what affective space looks like in Canada and to identify how affect shapes vote choice, we use data collected as part of the Canadian Election Studies (CES) during the 1993, 1997, 2006, 2008, 2011, 2015 and 2019 Canadian federal elections. Our choice of elections was determined based on the availability of the data—we included as many elections as we could for which there was the largest set of feeling thermometer variables available to measure group-based affect. The feeling thermometers variables ask respondents how they feel toward different groups on a 101-point scale, where zero means they really dislike the group and 100 means they really like the group. The CES surveys in our analysis included feeling thermometer ratings for the following groups, as labelled in the questionnaire: racial minorities, "Aboriginal peoples" (Indigenous peoples), gays and lesbians, feminists, Quebec, Canada, United States, the federal Liberal Party, the federal Conservative Party, the federal New Democratic Party, the Bloc Québécois, the Progressive Conservative Party, and the Reform party. Each feeling thermometer rating was standardized and normalized prior to analysis.[5]

In showing what affective space looks like in Canada, we analyze Canadians' feeling thermometer ratings of these fourteen different groups using two unsupervised methods: cluster analysis (specifically, hierarchical clustering) and principal component analysis. Hierarchical clustering, a technique

[5]To help eliminate measurement error (individual-level variation in how people respond to feeling thermometers), we standardized the variables by subtracting a respondent's average rating for all feeling thermometers from each feeling thermometer before standardizing the feeling thermometers. Standardizing the variables is required before PCA can be performed.

that is popular among marketers interested in identifying distinct groups of shoppers or potential customers (Wedel and Kamakura, 2012), will allow us to identify subgroups of voters, while principal component analysis (PCA) helps visualize the voter clusters in two-dimensional space. Our cluster analysis uses Ward's method for the linkage function and estimates the Euclidean distance as a similarity measure. Ward's method maximizes distance between clusters and minimizes within-cluster variation, which makes it the ideal method for identifying voter "types." Additional information on using unsupervised methods for clustering and feature extraction is available in the Supplementary Material section.

PCA additionally allows us to reduce the dimensionality of our data by extracting two uncorrelated latent measures of "group-based affect" that we will use in a subsequent regression analysis. Because PCA allows us to reduce the high-dimensional and highly correlated feeling thermometer data to a smaller number of orthogonal features that explain a good amount—but not all—of the variance in the original data, the "signal" (rather than the noise) is concentrated in the first couple of principal components (James et al., 2013, p. 389). As such, PCA is known for producing "less noisy" measures (James et al., 2013, p. 389). Because of these properties, the results of the PCA not only helps paint a picture of what affective space looks like in Canada, but it also allows us to extract latent features (principal components) summarizing group-based affect that we will use in our regressions modelling vote choice. Based on Johnston's (2017) theory of polarized pluralism, we expect to retain two principal components from our PCA, which reflect the two traditional axes of electoral competition in Canada: the left-right ideological dimension and a dimension centered around the national question.

We use multinomial logistic regression to estimate the relationship between group-based affect and vote choice. Because we expect vote choice to be related to these affective dimensions in different ways in Quebec and the rest of Canada, we estimate separate models for these two samples.[6] Vote choice is measured in the post-election survey with a categorical variable that includes major and minor parties as well as a category for more marginal parties labelled "other." We estimate vote choice as a function of the two main dimensions extracted from our PCA and a vector of

[6]Moreover, the set of alternatives for our outcome variable is different in Canada and Quebec, as they feature regional parties.

control variables. The controls are: party identification (categorical), age (categorical), income (categorical), gender (binary), university education (binary), non-European as ethnicity (binary), French as first language (binary) and Catholic as religion (binary).

Results

What Does "Affective Space" Look Like in Canada?

In order to analyze the affective space, we use visualizing tools that integrate the results of both our Principal Component Analysis (PCA) and hierarchical cluster analysis (Figure 1). Graphically displaying the results of the PCA allows us to assess the relationship between the variables used to construct the principal components by plotting the variables as vectors (the arrows in Figure 1) on a two-dimensional map, where each dimension is a principal component derived from the PCA. The angle between the vectors (the arrows) indicates the degree of correlation between the variables: an angle of 90° indicates no correlation, an angle smaller than 90° indicates a positive correlation, and an angle greater than 90° indicates a negative correlation between two variables. The length of a vector indicates how much a variable contributes to the principal components, with a longer vector indicating that a variable contributes more to a given principal component. The results of our hierarchical cluster analysis are also presented in Figure 1, where the different clusters are represented using different colours. Superimposing the cluster analysis results over the biplots clarifies where voters clusters are situated in affective space.

The PCA recovers two[7] meaningful dimensions which we interpret as *ideological affect* and *ethnocultural affect*. We refer to the first dimension of interest (which is plotted along the $x-$axes in Figure 1), as "ideological affect" because it explains variation in voters' feelings toward groups associated with the ideological left and ideological right. Specifically, it explains variation in voters' feelings toward left-wing parties and disempowered social groups (such as sexual and ethnic mi-

[7]PCA always generates as many principal components as there are variables. It is up to the researcher (guided by existing theory and with aids such as a scree plot) to decide how many components to retain for subsequent analyses. Theoretically, Johnston's (2019*b*; 2017) work leads us to expect that two components—an ideological component tapping into left-right political ideology and an ethnocultural component tapping into the role of Quebec vs. multicultural Canada should be sufficient.

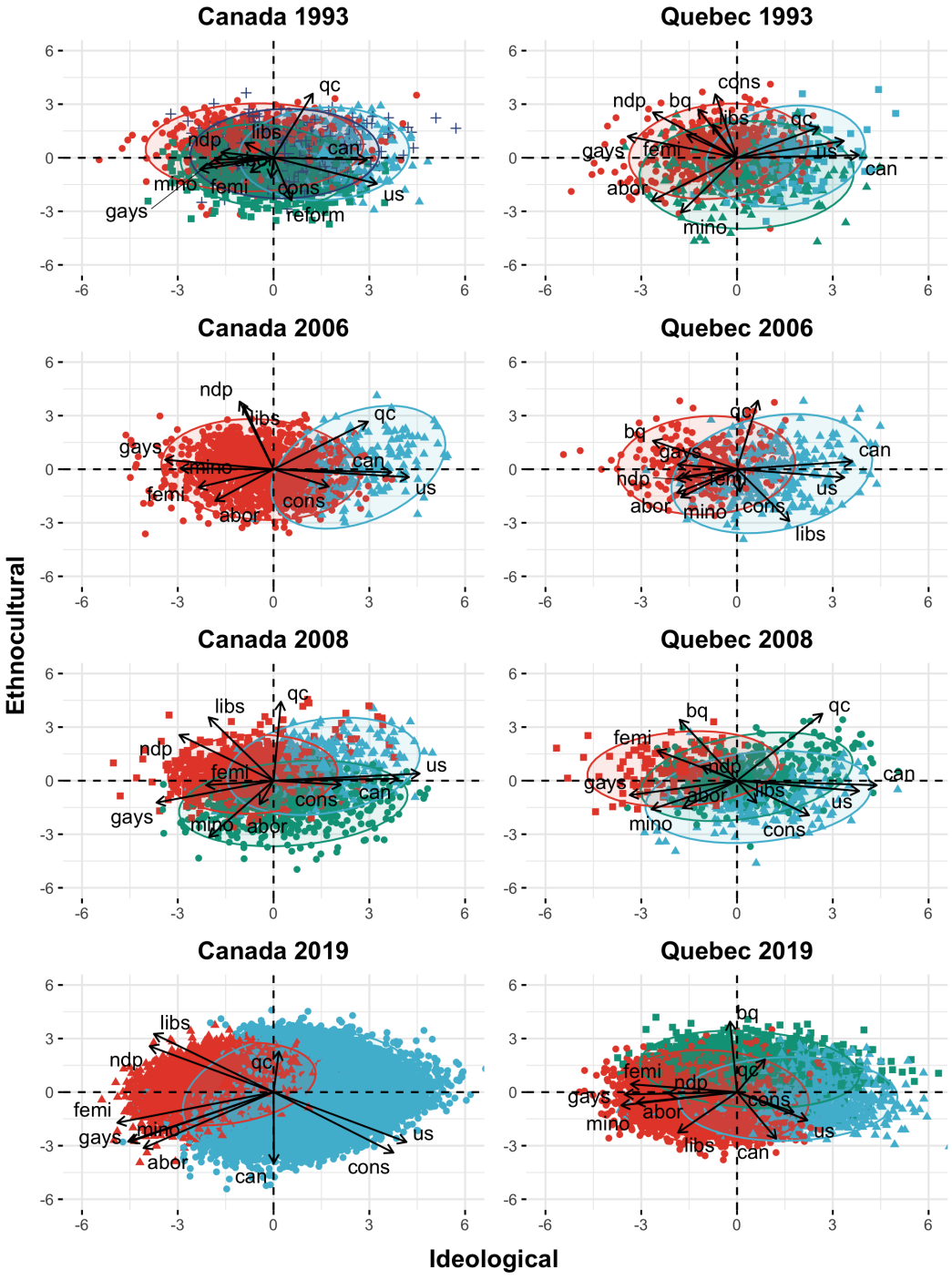
norities) and right-wing parties and empowered groups (such as states like Canada and the United States). We extract this component to use as a predictor variable in subsequent analyses. Higher scores on the ideological affect variable correspond to warmer feelings toward groups associated with the ideological right while lower scores on this dimension correspond to warmer feelings toward groups associated with the ideological left. As we will show, ideological affect is a powerful predictor of vote choice, even controlling for voters' partisanship. Ideological affect explains the most variance in affective space (approximately 20% of the variance in voters' feelings toward social and political groups in any given year, see Tables S15 to S28).

We refer to the second dimension of interest (which is plotted along the y-axes in Figure 1), as "ethnocultural affect" because it explains variation in feelings toward groups associated with Quebec and feelings toward other ethnic minority groups. Higher scores on ethnocultural affect indicate warmer feelings toward Quebec and sovereigntist groups (more pro-Quebec nationalist sentiments), while lower scores indicate warmer feelings toward ethnic minority groups (more pro-multicultural sentiments). The importance of ethnocultural affect (how much total variation in feelings toward different groups is captured by ethnocultural affect) varies across years and regions, but always explains at least 10% of the variance of the total affective space in Canada and Quebec. [8]

The results of our hierarchical cluster analysis reveal at least two or—depending on the election year—more distinct clusters of voters based on affect toward social and political groups. Figure 1 shows that there is clear electoral segmentation with respect to voters who express warmer feelings toward groups associated with the ideological left (red cluster) on the one hand, and warmer feelings toward groups associated with the ideological right (blue cluster) on the other hand. However, these clusters sometimes split and a cleavage over the national question emerges within the left-right ideology dimension. The two biplots for the elections during the 1990s reflect the dominance of the debate around the place of Quebec in Canada in this decade. This debate reaches its climax in 1995, with the referendum on Quebec sovereignty–a point we return to in our discussion.

[8] Ethnocultural affect is not always the second component in the principal component analysis. However, it explains at least 10% of the variance every year in Canada and Quebec. See Tables S15 to S28.

Figure 1: Voter Clusters projected onto Ideological and Ethnocultural Dimensions



There are theoretically meaningful differences between Quebec and the rest of Canada in the relationships between the variables that make up the dimensions. First, warm feelings toward the Liberals are associated with warm feelings toward Quebec in Canada outside of Quebec, but not in Quebec. Outside of Quebec, this is shown by the vector representing the variable measuring feelings toward the Liberal Party which points to the pro-Quebec pole of the ethnocultural dimension (plotted along the y-axes). In Quebec, the vectors representing variables measuring feelings toward both the Liberal and Conservative parties point toward the multiculturalist pole of the ethnocultural dimension.

To validate our interpretation of the PCA results (as ideological and ethnocultural affect), we projected issue attitudes onto the biplots. Confirming our interpretation of the first principal component as ideological affect, we show that higher scores on ideological affect are associated with right-wing stances on social issues, including support for increasing spending on defense and fighting crime (Figure S3 and Figure S4 in the appendix). We also show that higher scores on ethnocultural affect are associated with stronger support for Quebec sovereignty among voters in Quebec, or stronger support for Quebec's demands among voters in the rest of Canada.

Do Measures of Group-Based Affect Predict Vote Choice?

In this section, we seek to answer the following question: controlling for partisanship and sociodemographic features, do our measures of ideological and ethnocultural affect account for significant variation in vote choice? We answer this question by running a multinomial logistic regression of vote choice on the two affect dimensions, controlling for partisanship, age, income, gender, university education, non-European ethnicity, French-speaking, and Catholicism. Figure 2 shows the standardized coefficients of the affect dimensions for each election and sample (the regression tables are presented in Table S29 through Table S42).[9] The reference category on the outcome variable is the Liberal party and so the coefficients represent the difference in the log-odds of voting for a given party versus the Liberal party for a one standard deviation increase on the independent

[9]Note that due to data sparsity, the NDP outcome category for the 1993 Quebec sample was combined with "other." Hence it is not plotted.

variable. The thick band around the point estimate represents a 90% confidence interval and the thinner band represents a 95% interval.

The results offer a number of interesting findings. Starting with Canada outside of Quebec, we can see that a one standard deviation increase in ideological affect (warmer feelings toward groups associated with the ideological right) significantly increases the log-odds of voting for either the Reform or Progressive Conservative (PC) parties relative to the Liberals in the 1990s, and significantly increases the log-odds of voting Conservative relative to the Liberals from 2006 onward. The results also clearly show that the association between ideological affect and voting Conservative has increased considerably over time. A one standard deviation increase in ethnocultural affect (warmer feelings toward Quebec) significantly decreased the log-odds of voting Reform in the 1990s and decreased the log-odds of voting PC relative to the Liberals in 1993 (but not 1997). From 2006 onwards, ethnocultural affect significantly reduced the likelihood of voting Conservative relative to Liberal and the magnitude of this association has been increasing over time, but not as dramatically as the association between ideological affect and voting Conservative. Recall that the ideological and ethnocultural affect variables are standardized, facilitating comparisons between the coefficients, as well as across models and samples.

Continuing with our analysis of Canada outside Quebec, we can see that in the 1990s a one standard deviation increase in ideological affect (warmer feelings toward groups associated with the ideological right) significantly decreased the log-odds of voting for the NDP relative to the Liberal Party. However, this association disappears over time. From 2006 onward, there is no association between ideological affect and voting NDP relative to the Liberals in Canada outside Quebec. There is also no significant association (or a negligible association in 2019) between ethnocultural affect and the log-odds of voting NDP relative to the Liberal Party.

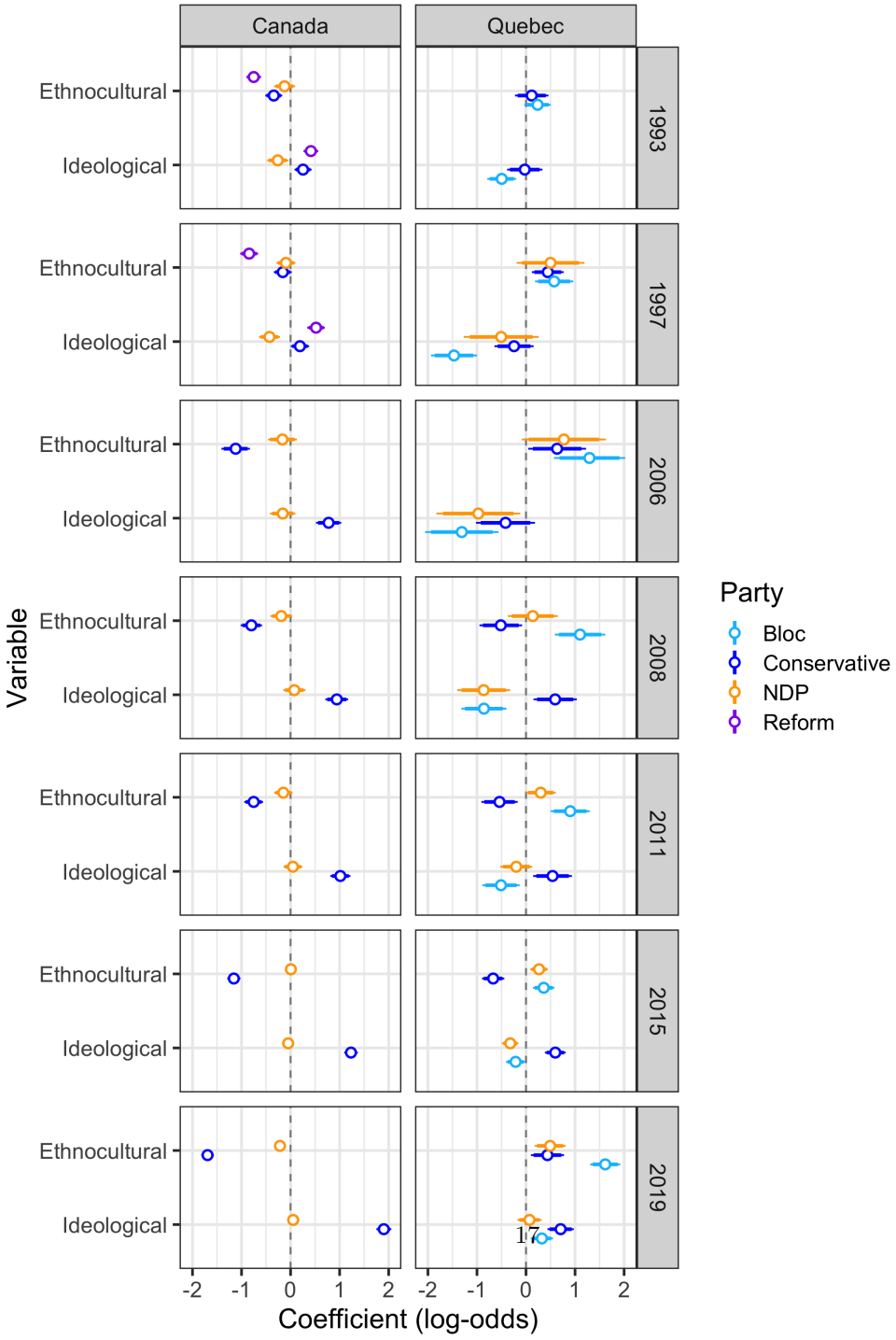
Distinct trends are apparent in Quebec. From 1993 until 2015 an increase in ideological affect (warmer feelings toward groups associated with the ideological right) decreased the log-odds of voting for the BQ relative to the Liberals. However, the magnitude of this coefficient has decreased over time, suggesting that feelings toward left or right-leaning groups have become less important for voting BQ relative to voting Liberal. By 2019, an increase in ideological affect was significantly

associated with an *increase* in the log-odds of voting BQ relative to the Liberals. The ability of the BQ to appeal to voters who score higher on ideological affect has important implications for the future strategy of the Conservative Party—a point we return to in our discussion. Perhaps unsurprisingly, higher scores on ethnocultural affect (warmer feelings toward Quebec and sovereigntist groups) are significantly and consistently associated with voting BQ relative to the Liberals.

Ideological affect is not associated with voting Conservative relative to voting Liberal in Quebec until Prime Minister Stephen Harper's second election. From 2008 onward, higher scores on ideological affect are significantly associated with a higher log-odds of voting Conservative instead of Liberal in Quebec. In contrast to the rest of Canada, the positive association between ideological affect and voting Conservative is smaller, and it does not grow with time. The association between ethnocultural affect and voting Conservative relative to Liberal in Quebec has shifted across elections. In most elections, a higher score on ethnocultural affect (more pro-Quebec feelings) was associated with lower log-odds of voting Conservative. However, in 1997, 2006 and 2019, the reverse is true.

Finally, with respect to voting NDP, we can see that in Quebec, like in the rest of Canada, ideological affect becomes a weaker predictor of voting NDP relative to the Liberals. By 2019, there is no significant association between ideological affect and the log-odds of voting NDP relative to the Liberals. In earlier elections there is also no association between ethnocultural affect and voting NDP relative to Liberal. This changes from the 2011 onward, where we find that voters who score higher on ethnocultural affect (warmer feelings toward Quebec and sovereigntist groups) are significantly more likely to vote NDP than Liberal.

Figure 2: Coefficient plot showing the multinomial logistic regression of vote choice on ideological and ethnocultural affect (controlling for age, income, gender, university education, non-European ethnicity, French-speaking, and Catholicism). The results are separated by sample (Quebec versus the rest of Canada) and year. The reference category on the outcome variable is the Liberal party. The thick band around the point estimate represent a 90% confidence interval and the thinner band represents a 95% interval.



Dynamics of the vote for the Bloc Québécois in 2019

The 2019 election represents a significant shift in the effect of ideological and ethnocultural affect on the BQ vote. Ethnocultural affect is a much stronger predictor of the BQ vote than it was in all elections except 2006. On the ideological dimension, moving toward the right has now a positive effect on voting for the BQ relative to the Liberal Party. These shifts have implications for the Conservative Party, a right-of-centre party that often caters to Quebec nationalists. Hence in this section, we look at the effect of ideological and ethnocultural affect on the probability of voting for the BQ among BQ partisans, Conservative partisans and non-partisans. We contrast the 2019 election with the 2006 election, in which having warmer feelings toward Quebec also increased the likelihood of voting for the Conservatives relative to the Liberal Party.

As Figure 3 shows, there is a strong relationship between having warmer feelings for groups associated with Quebec and voting for the BQ among all party identification groups in 2019. Most importantly, the Bloc was able to attract Conservative partisans over the ethnocultural dimension. A move toward the pro-Quebec pole corresponding to the interquartile range increases the probability of voting for the BQ among Conservative partisans by 20 percentage points. Figure 3 also shows that ideological affect only has a weak effect on the probability of voting for the BQ among all party identification groups. The slopes show that the Bloc did not loose many of its left-leaning partisans and did not repel a substantial amount of Conservative partisans leaning more toward the right.

Contrast this with 2006 (Figure 4), where the effect of ethnocultural affect on the probability of voting for the BQ is much weaker for all party identification groups, as shown by the weaker slopes. In 2006, the increase in the probability of voting for the Bloc for a move toward the pro-Quebec pole corresponding to the inter-quartile range is cut in half for Bloc partisans and more than half for Conservative partisans compared to 2019. The BQ also loses support as its partisans and non-partisans move toward the right.

Figure 3: 2019: Predicted Probability of Voting for the Bloc Québécois Party by Affect Dimension and PID

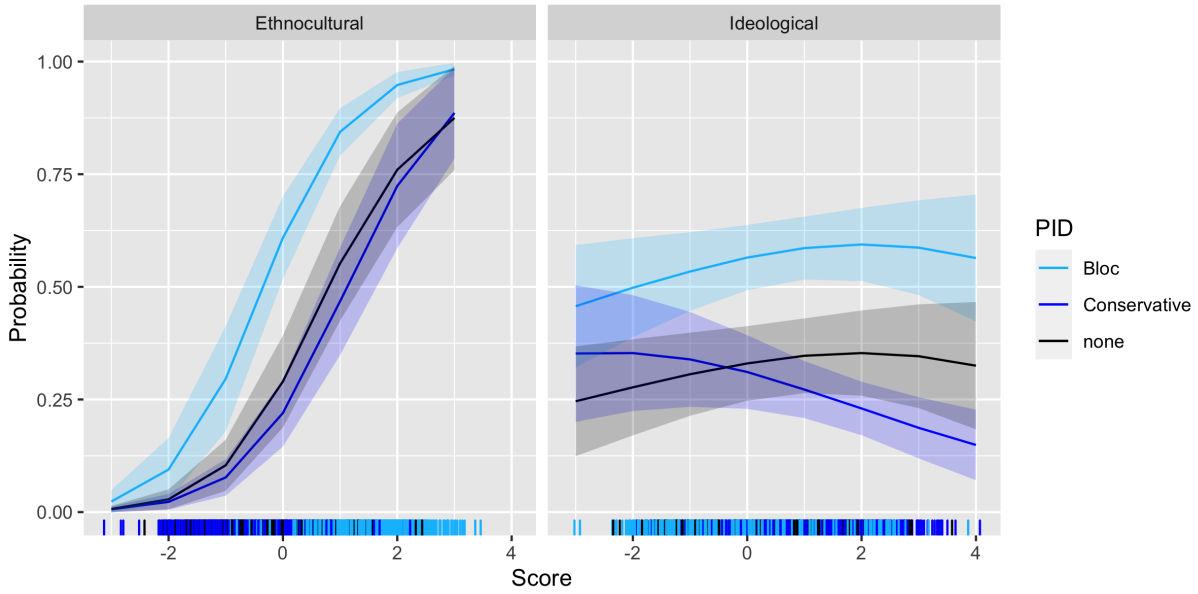
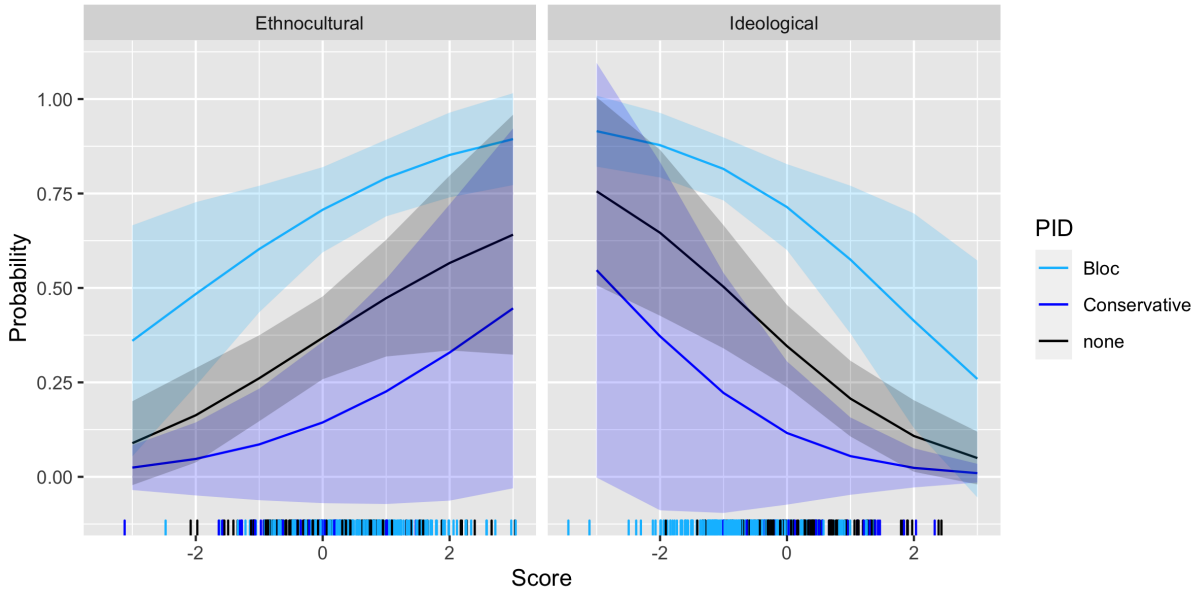


Figure 4: 2006: Predicted Probability of Voting for the Bloc Québécois by Affect Dimension and PID



Discussion

One of the criticisms of using unsupervised learning techniques is that they are data- (rather than theory-) driven. PCA involves taking the linear transformation of a set of correlated variables to produce a smaller set of uncorrelated principal components—the mathematical transformation is "blind" to the existing theory and literature. Cluster analysis is similarly data- rather than theory-driven. Despite this, our results strongly corroborate Johnson's theory of polarized pluralism, which describes how the distinctiveness of the Canadian party system can be explain by the division of Canadian politics along two axes: the ideological left-right axis and the national question. We show that the ideological left-right axis can be summarized at the level of voter attitudes as ideological affect. We also show that the debate about the place of Quebec in a multicultural Canada can be summarized at the individual-level as ethnocultural affect.

With respect to our first, descriptive task—to clarify what the "affective space" looks like in Canada—our findings show two main clusters of voters on the left and right of the ideological dimensions. At times, a cleavage on the ethnocultural dimension emerges and split voter clusters of the left and the right. This happens in the 90s, a decade marked by a referendum on the sovereignty of Quebec; in the 2000s, when Harper's "open federalism" appealed to Quebec nationalists; and in 2019, when the Bloc Québécois successfully united Quebec nationalists. Moreover, the PCA reveals important differences between Quebec and the rest of Canada with respect to the relationships between the feeling thermometer ratings that make up the ethnocultural dimensions. In Canada outside of Quebec, warm feelings toward the Liberal Party are associated with higher scores on ethnocultural affect (more positive feelings toward Quebec). The same is not true in Quebec, where the vector representing feelings toward the Liberal Party points in the opposite direction (more positive feelings toward multicultural groups). These results are in line with Johnston's (2017) theory of polarized pluralism, which posits that the Liberal party has maintained its dominance by adopting a pro-Quebec stance in Canada outside of Quebec and (post-1970) a pro-multiculturalism stance in Quebec. The centrist position of the Liberal Party on the ethnocultural dimension is also substantiated by the results of the multinomial logistic regressions of vote choice on our affect

dimensions.

In contrast, the Conservatives have benefited from the opposite strategy: an ends-against-the-middle coalition of Quebec nationalists and voters hostile to Quebec's demands in the rest of Canada. We find that in Canada outside of Quebec, higher scores on ethnocultural affect (warmer feelings toward Quebec) decrease the likelihood of voting Conservative relative to Liberal. In Quebec, the opposite dynamics operate. The Liberal party is most often the least likely choice as one moves toward the pro-Quebec pole. This is because the Conservatives' electoral strategy often targets Quebec nationalists. The contrast between the Conservatives' coefficients for Quebec and the rest of Canada on the ethnocultural dimension in 1997, 2006 and 2019 exemplify an ends-against-the-middle coalition: Quebec voters who score higher on ethnocultural affect are more likely to vote for the Conservatives, while the reverse is true in the rest of Canada. These findings can be interpreted in the context of the parties' strategic appeals in these elections. In 1997, Progressive Conservatives upheld Mulroney's pro-Quebec legacy under the leadership of Jean Charest, who sought to get Quebec recognized as a distinct society. Although Harper's promise of open federalism may have seduced Quebec nationalists in 2006, after this election it is the Bloc Québécois who reaps the benefits of the concessions made to Quebec in the context of Harper's minority governments. In 2019, Andrew Scheer took up some of the Bloc Québécois' policy proposals that were popular among nationalists, like giving Quebec the competence to collect federal taxes and restricting refugee influx from the U.S.

However, fault lines in the polarized pluralism structure of the Canadian party system are emerging. On the ideological dimension, our findings show that the Liberal Party is loosing its ownership of the centre in both Canada outside Quebec and in Quebec. The fact that ideological affect does not predict vote for the NDP versus the Liberals in 2019 means that their voters occupy the same position on that dimension. This reflects the long-term trend of the NDP moving toward the centre that Johnston (2019*a*) observes in his analysis of Comparative Manifesto Project data. As the NDP is closing the gap with the Liberals, the choice that voters face on the ideological dimension is redefined as a choice between left and right alternatives (there is no centre relatively speaking). Hence on that dimension, the system is more consistent with moderate pluralism than

polarized pluralism, which rests on a dominant centre party (Sartori, 1966).

In Quebec, the 2019 election may represent a significant shift in the dynamics of party competition. At first glance, the coefficient setup depicts an-ends-against-the-middle coalition for the Conservative party: moving toward the pro-Quebec pole increases the probability of voting for the Conservatives, indicating that a substantial pool of Quebec nationalists voted for them. Yet, our results suggest that the Bloc Québécois defeated the Conservatives' ends-against-the-middle strategy by outbidding the Conservatives among Quebec nationalists. Moreover, the absence of ideological affect as an inhibitor helped the Bloc unite nationalists. In sum, the Bloc Québécois is much better at attracting nationalists in 2019 than 2006, and is not vulnerable to right-wing appeals from other parties on the ideological dimension like it was in 2006. While decidedly standing on the left of the Liberal voters in the 90s and early 2000s, Bloc voters gradually shift toward the right until 2019, where they land on the right side of the Liberals. If this realignment consolidates in the future, it could mean that an ends-against-the-middle strategy for the Conservative party is no longer viable.

Another long-term trend that points to the dusk of the Conservative ends-against-the-middle strategy is the concomitant increase in the magnitude of the coefficients on the the ideological and ethnocultural dimensions for the Conservative party in English Canada. As Conservative voters in English Canada become more anti-Quebec and lean more heavily toward the right, a coalition with Quebec nationalists, who include voters across the left-right spectrum, becomes more unlikely. In sum, these dynamics weaken further the already precarious foundations of the Conservative ends-against-the-middle strategy that Johnston (2017) observes in earlier elections.

Conclusion

There is a growing interest in the political consequences of social identities, particularly with respect to the ways in which social identities shape social cognition. Research on affective polarization, which in two-party systems such as the United States is simply measured by taking the difference between partisans' feelings toward their inparty and outparty, shows that partisan animosities are on the rise. While affective polarization is an important and interesting line of research, existing

research suffers from certain limitations, particularly when applied to multiparty contexts such as Canada. First, all existing studies of affective polarization exclude independents. Second, while it is interesting to understand how group-based identities coalesce around political parties, partisan identities are not the only theoretically or empirically relevant identities for voter behaviour. This point is made clear in Canada, where existing scholarship leads to the expectation that social cleavages should be contributing to distinct sources of variation in ideological and ethnocultural affect (Johnston, 2017).

To show what affective space looks like in Canada, we used unsupervised statistical learning techniques to analyze the feeling thermometer ratings of fourteen different groups: racial minorities, Indigenous peoples, gays and lesbians, feminists, Quebec, Canada, the United States, the federal Liberal Party, the federal Conservative Party, the federal New Democratic Party, the Bloc Québécois, the Progressive Conservative Party, and the Reform party. We used two unsupervised methods: hierarchical cluster analysis and principal component analysis. Hierarchical clustering allowed us to identify subgroups of voters, while principal component analysis (PCA) helped us visualize the voter clusters in two-dimensional space. Furthermore, PCA allowed us to reduce the dimensionality of our data by extracting two uncorrelated latent measures of group-based affect—ideological and ethnocultural affect—that we used as explanatory variables in subsequent regression analyses. We then estimated a multinomial logistic regression model to identify how ideological and ethnocultural affect impact vote choice in Canada.

Even when controlling for partisanship and covariates normally associated with vote choice, we find that ideological affect has become a notably stronger predictor of voting for the Conservative Party relative to the Liberal Party over time in Canada outside of Quebec. This offers strong evidence that affective polarization—related to feelings toward groups associated with the ideological left and right—is changing electoral dynamics in Canada outside of Quebec. Similarly, ethnocultural affect— based on feelings toward groups associated with Quebec versus feelings toward ethnic minorities—has also become a stronger predictor of voting for the Conservative Party relative to the Liberal Party, although the importance of ethnocultural affect has not increased to the same extent as ideological affect. By contrast, while ideological affect predicted voting for the NDP relative to

the Liberal Party in the 1990s, it no longer predicts voting for the NDP relative to the Liberal Party. This suggests that the centre is fading away, restructuring this dimension as a competition between the left and the right.

With respect to Quebec, we see the same dynamics whereby ideological affect is getting weaker at predicting vote for the NDP versus the Liberal Party with time. This suggests that the Canadian party system is slowly reorganizing itself and moving away from polarized pluralism, which rests on a strong centre party. We also find that, unsurprisingly, ethnocultural affect predicts voting for the Bloc Québécois (BQ), a nationalist party. On the ideological dimension, we find that historically moving toward the right pole has been associated with a lower likelihood of voting for the BQ relative to the Liberal Party, but that this relationship is getting weaker with time. In 2019, the relationship reverses and voters who are leaning more toward the right are more likely to vote for the BQ relative to the Liberals. This has implications for the Conservative Party, which has been able to win majorities by crafting an ends-against-the-middle coalition that brought together nationalists in Quebec and anti-Quebec voters in the rest of Canada. If right-leaning ideological affect—which should benefit the Conservatives—now benefits the BQ, the Conservatives may no longer be competitive in Quebec. One of the implications of this is that if the Conservatives are able to win government, they may increasingly do so without Quebec. As a result, Conservative governments, winning with the support of francophobes outside Quebec and without Francophones within Quebec, would not be motivated to seek concessions for *la belle province*, which could result in further elite-driven ethnocultural affective polarization.

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Supplementary Material

Additional Information on Unsupervised Methods for Discovering Clusters and Feature Extraction

Unsupervised learning refers to a set of statistical tools used when researchers have a set of variables $X_1, X_2, ..., X_p$ measured on n observations, where there is no associated response variable Y (James et al., 2013). The purpose of unsupervised learning techniques is to discover something interesting about the measurements on $X_1, X_2, ..., X_p$. Unsupervised techniques are also useful for reducing dimensionality—reducing the number of variables in a data matrix—to a smaller set of features which can be extracted and used in subsequent, supervised methods such as regression analysis. In our present work, we analyze Canadians' feeling thermometer ratings of fourteen different groups using two unsupervised methods: cluster analysis (specifically, hierarchical clustering) and principal component analysis. Hierarchical clustering allows us to identify subgroups of voters, while principal component analysis (PCA) helps visualize the voter clusters in a two-dimensional space. Furthermore, PCA allows us to reduce the dimensionality of our data by extracting two, uncorrelated latent measures of "group-based affect" that we will use in a subsequent regression analysis. We briefly describe these two unsupervised methods before describing our model of vote choice.

Hierarchical Clustering for Discovering Subgroups

Cluster analysis refers a class of methods for identifying meaningful subgroups, or *clusters*, of observations. It is popular among marketers interested in identifying distinct groups of shoppers or potential customers (Wedel and Kamakura, 2012). Cluster analysis has also been used to identify subtypes of cancer from a larger number of measures of gene expressions (Lapointe et al., 2004; Tothill et al., 2008; Bertucci et al., 2005). Clustering involves partitioning the observations into distinct clusters to increase the within-group similarity while decreasing between-group similarity. Hierarchical clustering is the most common clustering technique, in part because hierarchical clustering does not require prespecifying the number of clusters or other initialisation parameters, thus

avoiding a central drawback of other clustering algorithms (such as k-means clustering). Instead, agglomerative hierarchical clustering starts by putting each observation in a distinct cluster, and then merging the closest pairs of clusters until there is only one cluster remaining.

We use agglomerative hierarchical clustering to discover distinct clusters of voters based on their feeling thermometer ratings of different social and political groups. Our cluster analysis uses Ward's method for the linkage function and estimates the Euclidean distance as a similarity measure. Ward's method maximizes distance between clusters and minimizes within-cluster variation, which makes it the ideal method for identifying voter "types". To determine how many clusters to retain, we use the merging cost, which is the amount by which the sum of squares (within-cluster variation) increases when merging two clusters. Hence as the merging cost increases, the observations within the clusters are becoming less similar. The optimal number of clusters is the one before the merging cost surges. Figure S1 and Figure S2 shows the merging cost for different numbers of clusters in each region and election.

Figure S1: Cluster Analysis: Merging Cost for Canada Outside Quebec Clusters

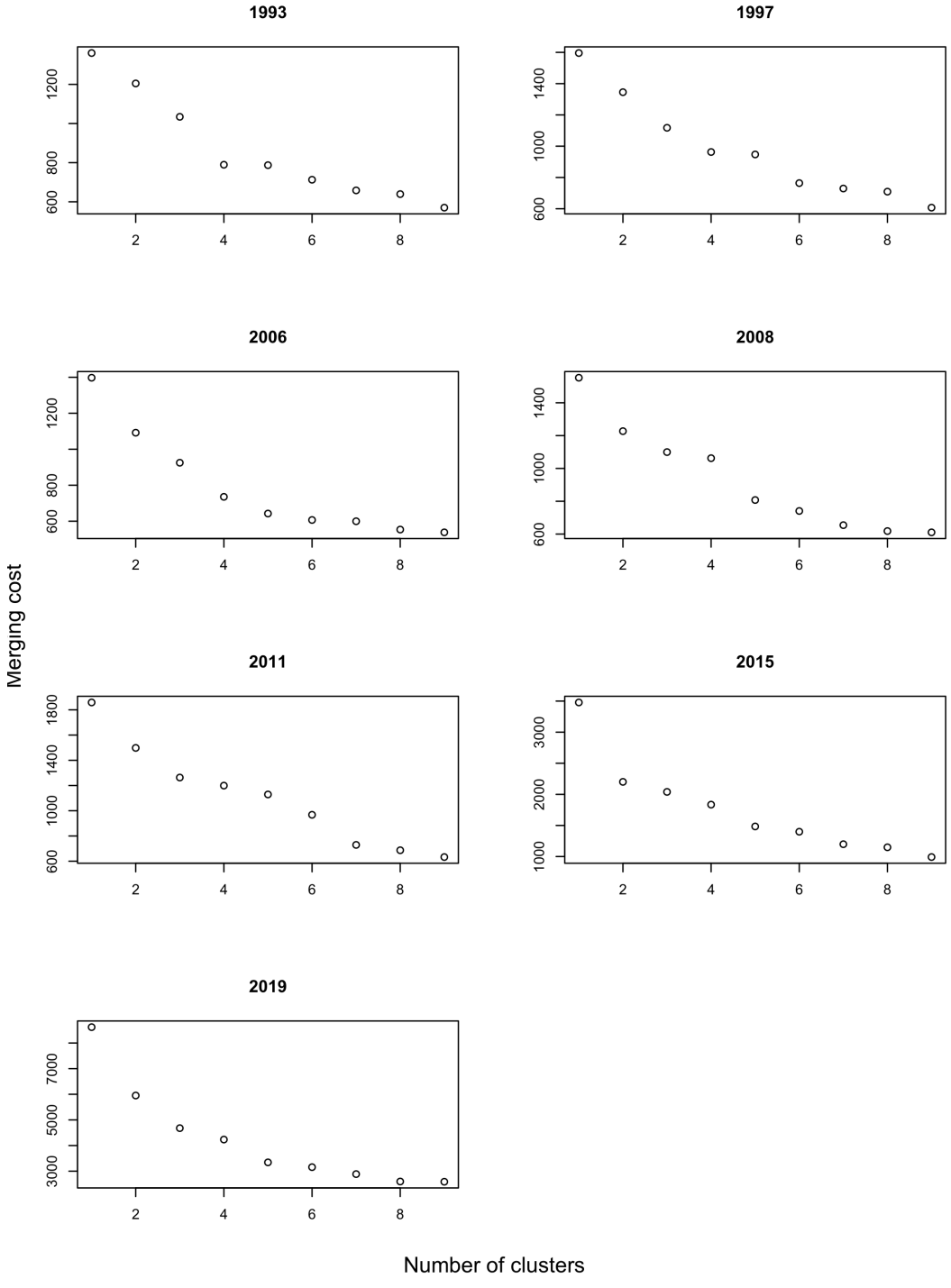
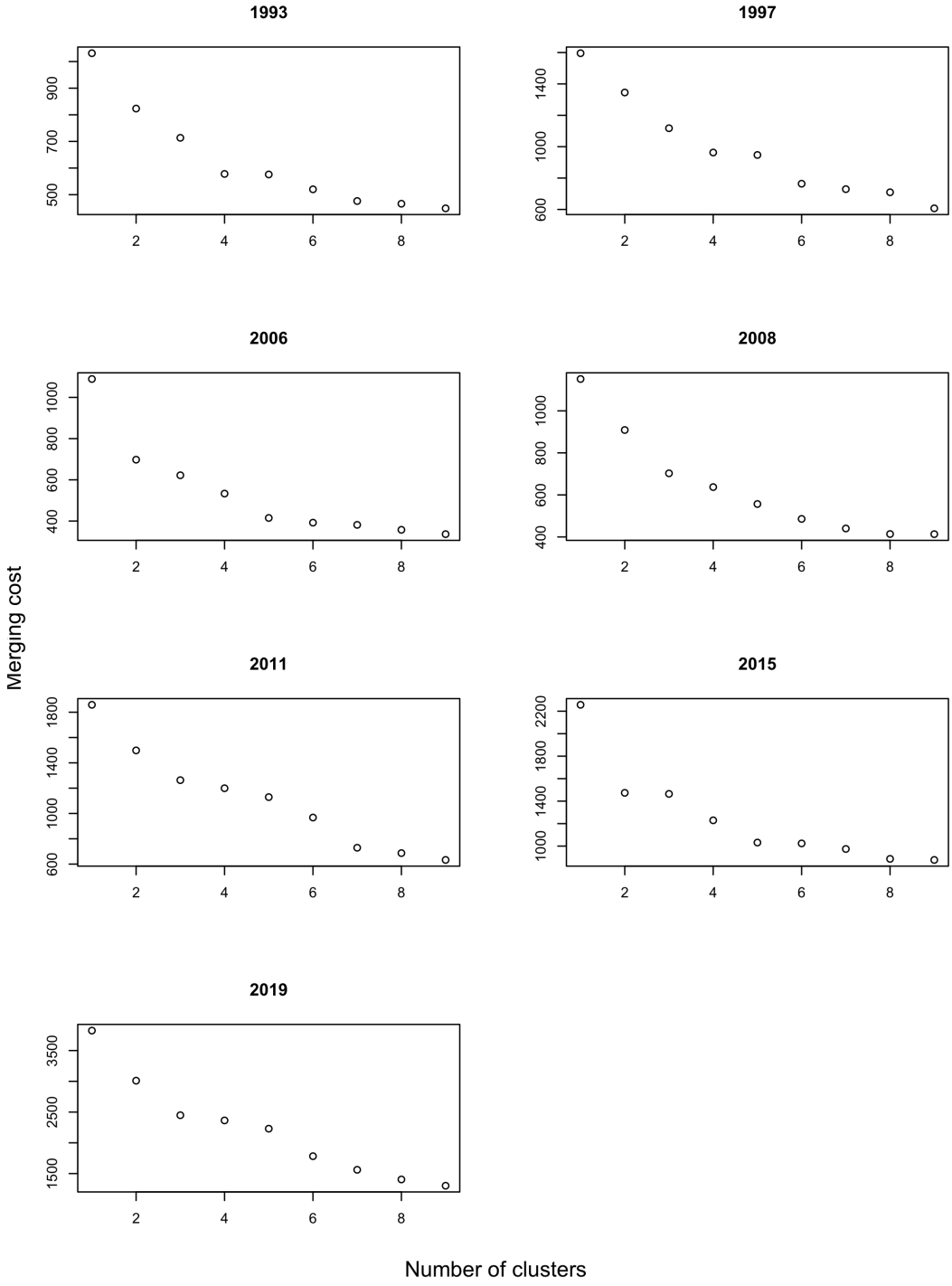


Figure S2: Cluster Analysis: Merging Cost for Quebec Clusters



Principal Component Analysis for Feature Extraction

Principal components analysis (PCA) is an unsupervised tool that is used for reducing dimensionality before using supervised techniques such as regression analysis (James et al., 2013; Hastie, Tibshirani and Friedman, 2009). PCA involves taking the linear transformation of an original set of correlated variables to produce a smaller set of uncorrelated variables (called principal components) that maximally account for the total variance of the original, observed values. The first low-dimensional representation of the original data ($X_1, ...X_p$), or first principal component (Z_1), has the highest variance among all linear combinations of the original variables. Each subsequent component is the linear combination of $X_1, ...X_p$ that has the highest variance among all linear combinations *and* that is uncorrelated with any prior principal components (i.e., Z_2 must be orthogonal to Z_1, Z_3 must be orthogonal to both Z_1 and Z_2, and so on).

One of the benefits of PCA is that by reducing the data to a smaller number of orthogonal features that explain a good amount—but not all—of the variance in the original data, the "signal" (rather than the noise) is concentrated in the first couple of principal components (James et al., 2013, p. 389). As such, PCA is known for producing "*less noisy* results" (James et al., 2013, p. 389). Because of these properties, we use PCA to visualize our results and to extract latent features (principal components) summarizing group-based affect that we will use in our regressions modelling vote choice.

As our analysis of principal components is theory-driven, we only keep the two components that correspond to our interpretation of the ethnocultural and ideological dimensions. However, we make sure that each component is relatively important, that is, it explains at least 10% of the variance. In the PCA summary output (Tables S1 to S14), principal components are ordered by decreasing order of importance. The ideological dimension is always the first component and explains the most variance (around 20%) in both Quebec and Canada outside Quebec for all elections. While the ethnocultural dimension is not always the second component in terms of importance (in 1993 and 1997, it is the third component in Quebec and the fourth component in Canada outside Quebec; in 2008, 2011 and 2019 it is the third component in Quebec), it always explain at least 10% of the

variance, and its difference with the preceding components is small.

The interpretation of these principal components as two latent dimensions representing ideological and ethnocultural affect is based on the strength and the direction of the association of the variables with each component, which is presented in Tables S15 to S28. The association of the variables with each component is measured by the variable "loadings", which represent the covariance between the variable and the principal component. The score of an observation on a given principal component is obtained by linear combination, i.e. the addition of its score on each variable multiplied by the variable's loading.

We interpret a principal component as representing the ethnocultural dimension when the loadings of, on one hand, the variables *qc* (feelings toward Quebec) and *bq* (feelings toward the Bloc Québécois), and on the other, the variables *mino* (feelings toward ethnic minorities) and *abor* (feelings toward aboriginal or indigenous people), have different directions. Hence this dimension is defined by opposing feelings toward groups associated with Quebec and feelings toward ethnic minority groups. In our analysis, there is a positive correlation between feelings toward groups associated with Quebec and ethnocultural affect, and a negative correlation between feelings toward ethnic minority groups and ethnocultural affect. Because this is a linear combination of standardized variables, high scores on the ethnocultural dimension indicate warmer feelings for groups associated with Quebec than for ethnic minority groups (all else being equal).

We interpret a principal component as representing the ideological dimension when the loadings of, on one hand, the variables *qc, us, can, cons, reform* (feelings toward Quebec, the United States, Canada, the Conservative Party or Progressive Conservative Party, and the Reform Party), and on the other, the variables *mino, femi, gays, abor, ndp, libs* (feelings toward ethnic minorities, feminists, gays and lesbians, aboriginal people, the NDP and the Liberal Party), have different directions.[10] Hence this dimension is defined by opposing feelings toward groups associated with the right (empowered groups, i.e. nation-states, and right-wing parties) and feelings toward groups associated with the left (disempowered groups and left-wing parties). In our analysis, there is a positive correlation between feelings for groups associated with the right and ideological affect,

[10]In 1993 and 1997, the variable *con* has the same sign than the variables that measure feelings toward groups associated with the left because the Progressive Conservative Party was a progressive party on social issues.

and a negative correlation between feelings for groups associated with the left and ideological affect. Because this is a linear combination of standardized variables, high scores on the ideological dimension indicate warmer feelings for groups associated with the right than for groups associated with the left (all else being equal).

Table S1: Quebec 1993: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.42	1.40	1.26	1.13	0.98	0.94
Proportion of Variance	0.18	0.18	0.14	0.12	0.09	0.08
Cumulative Proportion	0.18	0.36	0.51	0.62	0.71	0.79

Table S2: Quebec 1997: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.48	1.42	1.20	1.11	1.01	0.96
Proportion of Variance	0.20	0.18	0.13	0.11	0.09	0.08
Cumulative Proportion	0.20	0.38	0.51	0.62	0.72	0.80

Table S3: Quebec 2006: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.58	1.26	1.24	1.12	1.02	0.94
Proportion of Variance	0.23	0.14	0.14	0.11	0.09	0.08
Cumulative Proportion	0.23	0.37	0.51	0.63	0.72	0.80

Table S4: Quebec 2008: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.60	1.31	1.15	1.09	1.00	0.92
Proportion of Variance	0.23	0.16	0.12	0.11	0.09	0.08
Cumulative Proportion	0.23	0.39	0.51	0.62	0.71	0.79

Table S5: Quebec 2011: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.56	1.22	1.22	1.13	1.01	0.91
Proportion of Variance	0.22	0.14	0.14	0.12	0.09	0.08
Cumulative Proportion	0.22	0.36	0.49	0.61	0.70	0.78

Table S6: Quebec 2015: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.61	1.30	1.14	1.08	0.96	0.92
Proportion of Variance	0.23	0.15	0.12	0.11	0.08	0.08
Cumulative Proportion	0.23	0.39	0.50	0.61	0.69	0.77

Table S7: Quebec 2019: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.63	1.33	1.21	1.03	0.96	0.84
Proportion of Variance	0.24	0.16	0.13	0.10	0.08	0.06
Cumulative Proportion	0.24	0.40	0.54	0.63	0.72	0.78

Table S8: Canada Outside Quebec 1993: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.36	1.31	1.22	1.09	1.03	0.93
Proportion of Variance	0.17	0.16	0.13	0.11	0.10	0.08
Cumulative Proportion	0.17	0.32	0.46	0.57	0.66	0.74

Table S9: Canada Outside Quebec 1997: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.40	1.30	1.15	1.08	1.03	0.96
Proportion of Variance	0.18	0.15	0.12	0.11	0.10	0.08
Cumulative Proportion	0.18	0.33	0.45	0.56	0.65	0.74

Table S10: Canada Outside Quebec 2006: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.63	1.19	1.10	1.04	0.99	0.87
Proportion of Variance	0.26	0.14	0.12	0.11	0.10	0.08
Cumulative Proportion	0.26	0.41	0.53	0.64	0.73	0.81

Table S11: Canada Outside Quebec 2008: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.48	1.23	1.11	1.05	1.04	0.95
Proportion of Variance	0.22	0.15	0.12	0.11	0.11	0.09
Cumulative Proportion	0.22	0.37	0.49	0.60	0.71	0.80

Table S12: Canada Outside Quebec 2011: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.58	1.27	1.11	1.00	0.97	0.96
Proportion of Variance	0.25	0.16	0.12	0.10	0.09	0.09
Cumulative Proportion	0.25	0.41	0.53	0.63	0.72	0.82

Table S13: Canada Outside Quebec 2015: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.59	1.26	1.16	1.02	0.95	0.87
Proportion of Variance	0.25	0.16	0.13	0.10	0.09	0.08
Cumulative Proportion	0.25	0.41	0.55	0.65	0.74	0.82

Table S14: Canada Outside Quebec 2019: Importance of Principal Components

	PC1	PC2	PC3	PC4	PC5	PC6
Standard deviation	1.76	1.37	1.05	0.87	0.83	0.78
Proportion of Variance	0.31	0.19	0.11	0.08	0.07	0.06
Cumulative Proportion	0.31	0.50	0.61	0.69	0.75	0.81

Table S15: Quebec 1993: Variable Contribution by Principal Component

	PC1	PC3
cons	-0.08	0.49
libs	-0.09	0.26
ndp	-0.32	0.35
bq	-0.15	0.38
can	0.47	0.02
us	0.41	0.13
qc	0.31	0.24
abor	-0.33	-0.33
gays	-0.42	0.17
femi	-0.19	0.18
mino	-0.22	-0.43

Table S16: Quebec 1997: Variable Contribution by Principal Component

	PC1	PC3
cons	0.41	0.04
libs	0.49	-0.17
reform	0.31	0.09
ndp	0.31	0.04
bq	-0.15	0.36
can	0.45	-0.06
us	0.20	0.49
abor	-0.06	-0.48
gays	-0.23	-0.03
femi	-0.22	0.40
mino	-0.15	-0.45

Table S17: Quebec 2006: Variable Contribution by Principal Component

	PC1	PC2
cons	0.01	-0.22
libs	0.23	-0.51
ndp	-0.27	-0.10
bq	-0.37	0.28
can	0.51	0.08
us	0.47	-0.08
qc	0.09	0.67
abor	-0.26	-0.23
gays	-0.26	0.05
femi	-0.24	-0.07
mino	-0.25	-0.28

Table S18: Quebec 2008: Variable Contribution by Principal Component

	PC1	PC3
cons	0.25	-0.30
libs	0.07	-0.19
ndp	-0.13	0.13
bq	-0.20	0.54
can	0.49	-0.04
us	0.43	-0.09
qc	0.30	0.59
abor	-0.19	-0.24
gays	-0.38	-0.13
femi	-0.28	0.26
mino	-0.30	-0.25

Table S19: Quebec 2011: Variable Contribution by Principal Component

	PC1	PC3
cons	0.18	-0.26
libs	-0.07	-0.06
ndp	-0.19	0.28
bq	-0.27	0.53
can	0.50	0.02
us	0.46	-0.01
qc	0.19	0.62
abor	-0.14	-0.31
gays	-0.44	-0.21
femi	-0.32	0.16
mino	-0.20	-0.15

Table S20: Quebec 2015: Variable Contribution by Principal Component

	PC1	PC2
cons	0.19	-0.30
libs	0.05	-0.44
ndp	-0.14	-0.10
bq	-0.16	0.52
can	0.49	-0.14
us	0.47	-0.04
qc	0.25	0.56
abor	-0.35	-0.02
gays	-0.35	-0.14
femi	-0.34	0.03
mino	-0.19	-0.28

Table S21: Quebec 2019: Variable Contribution by Principal Component

	PC1	PC3
cons	0.22	-0.19
libs	-0.23	-0.38
ndp	-0.27	-0.01
bq	-0.03	0.66
can	0.15	-0.44
us	0.27	-0.26
qc	0.11	0.31
abor	-0.39	-0.10
gays	-0.44	-0.02
femi	-0.41	0.07
mino	-0.45	-0.12

Table S22: Canada Outside Quebec 1993: Variable Association with Principal Components

	PC1	PC4
cons	-0.01	-0.23
reform	0.09	-0.49
libs	-0.15	0.17
ndp	-0.27	0.06
can	0.48	-0.02
us	0.53	-0.30
qc	0.20	0.73
abor	-0.30	-0.02
gays	-0.33	-0.08
femi	-0.12	-0.17
mino	-0.38	-0.13

Table S23: Canada Outside Quebec 1997: Variable Association with Principal Components

	PC1	PC4
cons	-0.13	-0.14
reform	0.04	-0.52
libs	-0.20	0.06
ndp	-0.35	-0.02
can	0.43	-0.11
us	0.50	-0.18
qc	0.21	0.63
abor	-0.25	0.04
gays	-0.38	0.04
femi	-0.08	-0.51
mino	-0.37	0.00

Table S24: Canada Outside Quebec 2006: Variable Association with Principal Components

	PC1	PC2
cons	0.20	-0.15
libs	-0.11	0.57
ndp	-0.12	0.60
can	0.43	-0.03
us	0.49	-0.07
qc	0.34	0.42
abor	-0.21	-0.28
gays	-0.39	0.08
femi	-0.27	-0.16
mino	-0.34	0.01

Table S25: Canada Outside Quebec 2008: Variable Association with Principal Components

	PC1	PC2
cons	0.24	-0.03
libs	-0.23	0.49
ndp	-0.34	0.35
can	0.45	0.02
us	0.53	0.05
qc	0.03	0.61
abor	-0.05	-0.18
gays	-0.42	-0.17
femi	-0.24	-0.03
mino	-0.23	-0.44

Table S26: Canada Outside Quebec 2011: Variable Association with Principal Components

	PC1	PC2
cons	0.24	-0.15
libs	-0.28	0.44
ndp	-0.31	0.39
can	0.46	-0.03
us	0.49	0.11
qc	0.05	0.64
abor	-0.03	-0.28
gays	-0.39	-0.20
femi	-0.34	-0.19
mino	-0.21	-0.24

Table S27: Canada Outside Quebec 2015: Variable Association with Principal Components

	PC1	PC2
cons	0.28	-0.34
libs	-0.28	0.43
ndp	-0.30	0.47
can	0.43	0.03
us	0.48	0.07
qc	0.12	0.55
abor	-0.15	-0.08
gays	-0.39	-0.29
femi	-0.36	-0.25
mino	-0.16	-0.15

Table S28: Canada Outside Quebec 2019: Variable Association with Principal Components

	PC1	PC2
cons	0.31	-0.37
libs	-0.31	0.35
ndp	-0.33	0.28
can	0.00	-0.43
us	0.35	-0.30
qc	0.01	0.25
abor	-0.34	-0.34
gays	-0.38	-0.30
femi	-0.41	-0.19
mino	-0.38	-0.30

Multinomial Logisitic Regression Tables

Canada

Table S29: Canada 1993: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Prog. Conservative	NDP	Reform
Ideological	0.254***	-0.261**	0.414***
	(0.0889)	(0.111)	(0.0778)
Ethnocultural	-0.343***	-0.123	-0.752***
	(0.0884)	(0.109)	(0.0778)
Constant	0.151	-2.477***	0.251
	(0.255)	(0.431)	(0.231)
N: 2021			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S30: Canada 1997: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Prog. Conservative	NDP	Reform
Ideological	0.191**	-0.430***	0.519***
	(0.0955)	(0.109)	(0.0920)
Ethnocultural	-0.159*	-0.0953	-0.845***
	(0.0934)	(0.0990)	(0.0939)
Constant	1.256***	-1.834***	0.337
	(0.315)	(0.429)	(0.326)
N: 1704			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S31: Canada 2006: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Conservative	NDP	Green
Ideological	0.776***	-0.160	-0.0378
	(0.131)	(0.132)	(0.208)
Ethnocultural	-1.120***	-0.166	-0.518**
	(0.148)	(0.150)	(0.224)
Constant	3.734***	0.876	-0.882
	(0.576)	(0.614)	(0.937)
N: 891			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S32: Canada 2008: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Conservative	NDP	Green
Ideological	0.942***	0.0773	0.292*
	(0.119)	(0.115)	(0.154)
Ethnocultural	-0.799***	-0.190*	-0.517***
	(0.111)	(0.113)	(0.149)
Constant	3.498***	1.343***	-0.102
	(0.456)	(0.478)	(0.662)
N: 1384			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S33: Canada 2011: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:	
	Conservative	NDP
Ideological	1.015***	0.0477
	(0.105)	(0.0983)
Ethnocultural	-0.753***	-0.148
	(0.0985)	(0.0954)
Constant	3.106***	0.694
	(0.430)	(0.422)
N: 1993		

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S34: Canada 2015: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Conservative	NDP	Green
Ideological	1.232***	-0.0489	0.423***
	(0.0704)	(0.0597)	(0.103)
Ethnocultural	-1.157***	0.00608	-0.557***
	(0.0682)	(0.0626)	(0.102)
Constant	0.101	-1.068***	-2.900***
	(0.231)	(0.217)	(0.393)
N: 4438			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S35: Canada 2019: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Conservative	NDP	Green
Ideological	1.901***	0.0528	0.506***
	(0.0777)	(0.0621)	(0.0809)
Ethnocultural	-1.693***	-0.216***	-0.351***
	(0.0655)	(0.0536)	(0.0696)
Constant	0.724***	0.297	-1.287***
	(0.239)	(0.210)	(0.283)
N: 6876			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Quebec

Table S36: Quebec 1993: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:	
	Bloc	Prog. Conservative
Ideological	-0.495***	-0.0252
	(0.150)	(0.184)
Ethnocultural	0.236*	0.116
	(0.138)	(0.174)
Constant	2.321***	-0.907
	(0.677)	(0.888)
N: 712		

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S37: Quebec 1997: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Bloc	Prog. Conservative	NDP
Ideological	-1.468***	-0.244	-0.507
	(0.239)	(0.204)	(0.390)
Ethnocultural	0.574***	0.444***	0.500
	(0.199)	(0.166)	(0.353)
Constant	2.185**	-0.528	-2.546
	(0.908)	(0.806)	(1.628)
N: 608			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S38: Quebec 2006: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:		
	Bloc	Conservative	NDP
Ideological	-1.309***	-0.418	-0.972**
	(0.382)	(0.307)	(0.436)
Ethnocultural	1.294***	0.634**	0.772*
	(0.371)	(0.301)	(0.437)
Constant	1.746	0.445	0.463
	(1.700)	(1.601)	(1.734)
N: 348			

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S39: Quebec 2008: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:			
	Bloc	Conservative	NDP	Green
Ideological	-0.858***	0.594***	-0.864***	-0.405
	(0.234)	(0.225)	(0.275)	(0.435)
Ethnocultural	1.102***	-0.514**	0.139	0.106
	(0.262)	(0.222)	(0.260)	(0.438)
Constant	0.444	-2.303**	-2.630**	-18.27
	(1.090)	(1.003)	(1.188)	(2,276)
N: 466				

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S40: Quebec 2011: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:			
	Bloc	Conservative	NDP	Green
Ideological	-0.510***	0.541***	-0.199	-0.486
	(0.194)	(0.202)	(0.166)	(0.523)
Ethnocultural	0.901***	-0.540***	0.299*	-0.853
	(0.203)	(0.189)	(0.156)	(0.529)
Constant	2.450***	0.660	2.155***	-1.113
	(0.802)	(0.872)	(0.720)	(1.555)
N: 752				

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S41: Quebec 2015: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:			
	Bloc	Conservative	NDP	Green
Ideological	-0.212**	0.597***	-0.322***	-0.296
	(0.100)	(0.108)	(0.0849)	(0.243)
Ethnocultural	0.361***	-0.670***	0.265***	-0.467*
	(0.112)	(0.116)	(0.0921)	(0.251)
Constant	0.0640	-1.117**	-0.0204	-2.219**
	(0.661)	(0.553)	(0.400)	(1.040)
N: 1711				

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Table S42: Quebec 2019: Multinomial Regression of Vote Choice on Ideological and Ethnocultural Affect

	Dependent variable:			
	Bloc	Conservative	NDP	Green
Ideological	0.324***	0.706***	0.0716	0.191
	(0.116)	(0.137)	(0.126)	(0.192)
Ethnocultural	1.615***	0.437**	0.492***	1.086***
	(0.156)	(0.172)	(0.161)	(0.235)
Constant	0.0673	-2.197***	-0.378	-3.372***
	(0.665)	(0.722)	(0.662)	(1.281)
N: 1334				

Notes: *p<0.1; **p<0.05; ***p<0.01
The Ideological affect and Ethnocultural affect variables are standardized.
Controls: PID, french, income, female, age, non-European, university, catholic
Outcome reference level: Liberal party. "None" and "other" are not included.

Biplots and Issue Attitudes

In this section, we present graphs of the projection of relevant issue attitudes onto the bi-dimensional plots of our ideological and ethnocultural affect variables. As expected, favourable attitudes toward military spending ("def") and fighting crime ("crim") are correlated with higher scores on the ideological dimension, i.e. warmer feelings toward groups associated with the right. On the ethnocultural dimension, favourable attitudes toward Quebec's demands in Canada ("qc") and support for Quebec sovereignty in Quebec ("qsov") are correlated with warmer feelings toward groups associated with Quebec.[11]

[11]Particular survey items to measure attitudes on fighting crime change across time due to changes in the questionnaires. In 1993, the item is support for the statement "We must crack down on crime, even if it means people lose their rights." From 1997 to 2008, the survey item used to measure attitudes on crime is support for tougher sentences for young offenders. From 2008 until 2015, the item is government spending targeted at fighting crime. In 2019, the item asked whether the respondent believes immigrants increase crime rates.

Figure S3: Canada: Biplot with Issue Attitudes

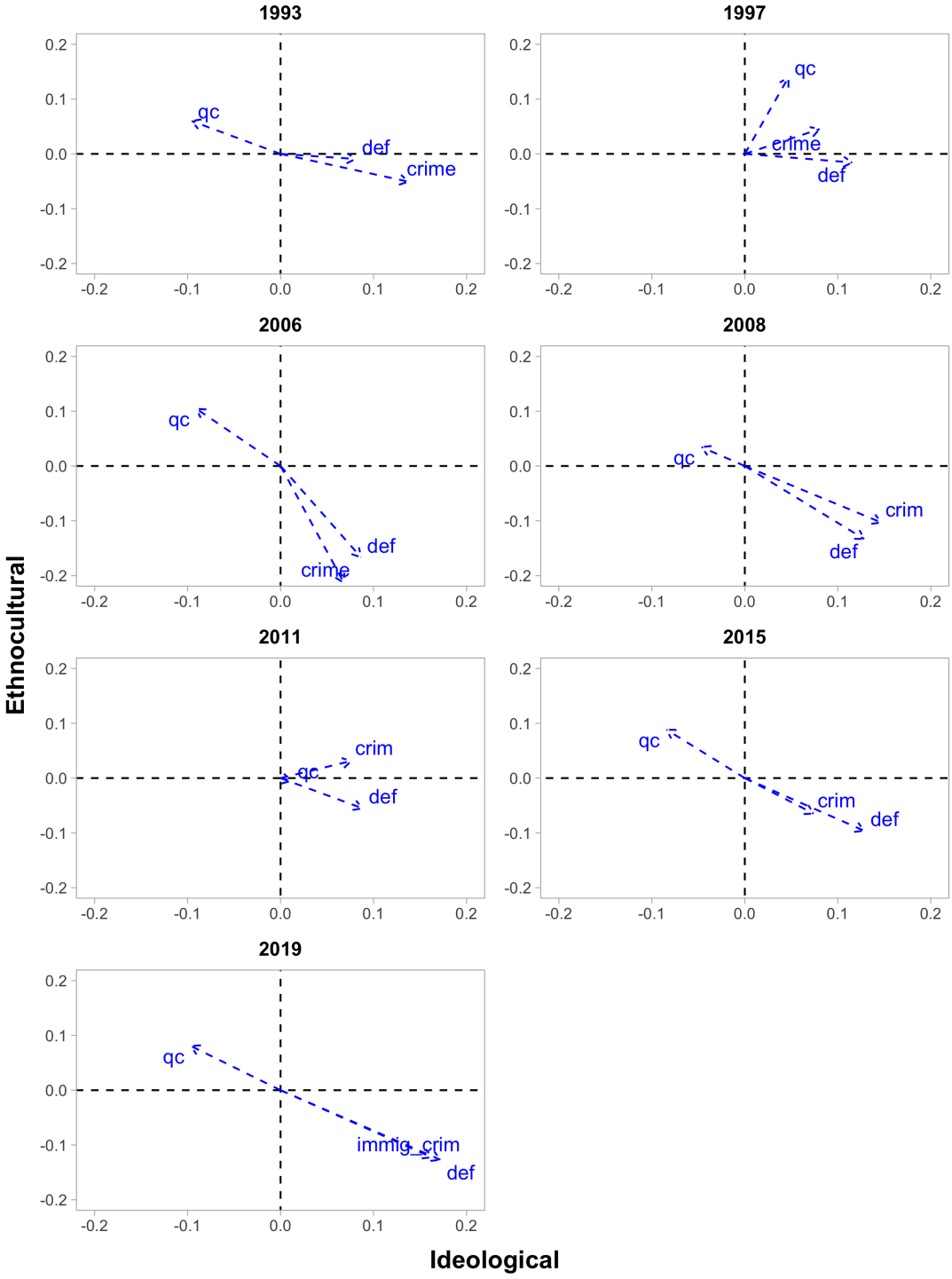


Figure S4: Quebec: Biplot with Issue Attitudes