Homegrown Islamist Radicalization in Canada: Process Insights from an Attitudinal Survey

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Who is likely to sympathize with, provide material support for or actually engage in violent extremism, and why, has become one of the more pressing security questions of our time. Pragmatically, the question is made difficult by the small numbers of those in this category, on the one hand, and the vast majority of people in comparable circumstances who exhibit a staunch resilience against radicalization, on the other hand. Generally speaking, radicalization is understood as a change in beliefs, feelings and actions towards increased support of one side of intergroup conflict. By this definition, for instance, women who pushed for the extension of the franchise qualify as radicals; so does the government of the United States after 9/11. Radicalization per se, then, is not necessarily problematic. This article is concerned with a particular subset of radicals: people who sympathize with, justify or feel a personal obligation towards politically motivated violent extremism or associated illegal acts.

For so timely and relevant an issue, the evidence base is surprisingly scant because individuals that meet the scope conditions are extraordinarily difficult to study. One popular approach has been to interview radicals who have been found guilty of political violence or associated activity. This approach raises a litany of methodological problems, not the least of which is that it samples on the dependent variable. In other
words, there is no way to control for possible drivers of radicalization because of the absence of a comparison group that has not been radicalized. This approach is also marred by selection bias and a small n. In theory, the solution to this quandary is large-n longitudinal analysis among at-risk communities, but longitudinal community surveys large enough to yield robust results would be prohibitively expensive.

Although the data in this article are confined to a snapshot of a single community at a moment in time, a cross-sectional study nevertheless makes it possible to assess how consistent theories of radicalization are with some comparatively robust data. Theories of radicalization describe a process that takes place over time. Ergo, they necessarily imply certain expectations about attitudinal or behavioural patterns at various temporal stages. Capturing attitudes to issues that are (believed to be) relevant to radicalization makes it possible to compare actual with predicted attitudes in a systematic and empirical way, for at least one sample community.

Such theories can be grouped into three categories. First, attitudes towards a state of issues might vary within a population but the relationship to violence is weak or indeterminate. Second, such attitudes might be largely consistent across a population, and violence is instead conditioned by other endogenous or exogenous effects. Third, such attitudes might vary within a population, and the variation is correlated with attitudes towards violence. Conducting a cross-sectional survey of communities in Canada’s capital that are perceived to be at risk makes it possible to scrutinize these theories. At the same time, such a survey makes it possible to gauge the issues that are commonly thought to be driving radicalization.

The survey’s results find the population to exhibit three interconnected forms of attitudinal variation: the most significant related to general social, financial and political satisfaction or dissatisfaction; a second related to moral and religious satisfaction or dissatisfaction, including dissatisfaction associated with political support for groups such as al Qaeda, Hamas and Hezbollah; and a third (among Muslims only) related to high levels of religious activity, small religious group participation and support for groups that break the law. In contrast, issues of Internet use, news sources and connections of various kinds to countries of origin that are often claimed as drivers of radicalization appear to have little significance. These findings are important because they are inconsistent with the most common models of radicalization. Moreover, they are inconsistent with the popular assumption that radicalization is a slippery slope that is triggered by some grievance, finds expression in religious dissatisfaction and eventually leads to radical beliefs and actions.

The first section lays out models of radicalization, the predictions each makes about radicalization and the characteristics that we would expect to find for any one of the models to apply. The second section
Abstract. Theories of radicalization make implicit predictions about variation among attitudes in the communities from which radicals are drawn. This article subjects some popular theories to empirical testing. The precise process by which individuals come to sympathize with, provide material support for or actually engage in political violence is fully comprehensible only by longitudinal analysis, but much existing work tries to reconstruct the process by looking only at one part of its outcomes: those who have become radicalized. The result is a large number of theories and mechanisms, with little compelling empirical support. A cross-sectional snapshot of an at-risk community cannot definitively support a particular theory of radicalization, but it can rule out those whose predictions about attitudes are at variance with the empirical observations. We designed a survey instrument to measure attitudes to issues widely believed to be relevant to radicalization and deployed it among Muslim communities in Ottawa. The results are remarkably inconsistent with patterns of variation in attitudes predicted by popular theories of radicalization. Instead, they show variation of attitudes along three independent dimensions: social/economic/political satisfaction/dissatisfaction, moral/religious satisfaction/dissatisfaction, and a dimension that appears to be associated with radicalization. This suggests that governments may have less policy leverage to mitigate radicalization than generally supposed.

operationalizes the key concepts of radical, radicalization and extremism, outlines research questions which these concepts raise and reviews methodological shortcomings in the current literature that addresses these questions. The third section explains the survey instrument and the method by which it was carried out. The fourth section uses multivariate analysis, in the form of singular value decomposition, to analyze the data. The fifth section discusses the results. The sixth section draws out some immediate implications for government policy, as well as the wider assumptions and methods that inform the study of radicalization.

1. The Problem of Home-Grown Radicalization

Recent Islamist terrorism in Canada—and in many other Western countries—has largely been carried out by second- and third-generation
citizens of immigrant origin who appear to become radicalized and form operational groups in a largely bottom-up fashion: “The presence of young, committed jihadists in Canada is of grave concern. They represent a clear and present danger to Canada” (CSIS, 2004; see also Bell, 2004; Wilner, 2010). Such home-grown terrorism poses a more difficult security challenge than “conventional” al-Qaeda terrorism, since there is little that distinguishes home-grown terrorists from their surrounding community until an attack is imminent, and the time between group coalescence and attacks has often been short. Many drivers for such bottom-up radicalization have been posited (Bartlett, Birdwell and King, 2010; Briggs and Birdwell, 2009; Hegghammer, 2006; O’Duffy, 2008): a sense of alienation in a non-Islamic society, economic marginalization, religious naiveté and even a desire for excitement in otherwise boring lives. Some common patterns have also been noted (Silber and Bhatt, 2007; Travis, 2008): for example, the presence of a local, charismatic figure who acts as a mentor and travel to one of the current “hot” regions where Islamic interests are perceived to be threatened (currently Afghanistan, Yemen and Somalia, but previously Iraq, Soviet-occupied Afghanistan, Chechnya and the Balkans). Models based on these drivers have been used tactically by law enforcement and counterterrorism to focus resources on the groups and individuals that present the greatest risk and by governments, in a more abstract way, in an effort to reduce the drivers that create radicalized individuals in the first place.

The connection between attitudes, beliefs and feelings, and the willingness to radicalize to the point of violent or illegal action, has been broadly understood in three ways. First, attitudes may vary within a population, but such variation is regarded as operationally useless; what matters is detecting when an individual crosses the line from radical views of any kind or intensity to planning and carrying out violent or illegal actions, in other words, a legalist view of radicalization. This viewpoint naturally leads to an emphasis on intelligence and law enforcement as a way to construct “tripwires” to detect when individuals move from ideas to action, for example, watching travel patterns, changes in behaviour and so on. This approach characterizes the NYPD’s alleged Demographic Unit (Apuzzo and Goldman, 2011) which “rakes” targeted ethnic communities. This model of radicalization makes no particular predictions about attitudes of radicals in contrast to the community from which they come, so the results of this article can neither validate nor falsify it.

Second, attitudes are broadly consistent across a population; what differentiates those who espouse violence and those who do not is their individual perceptions of the strength of the inhibitors to violence, both external and personality-based, a psychological and economic view of radicalization (Berman, 2009). This viewpoint naturally leads to an emphasis on (a) understanding the incentive structure in the population
and community, and (b) creating disincentives whenever possible to discourage the transition to violence. This model of radicalization predicts that attitudes to issues across a community should be relatively homogeneous, but that attitudes to economic or psychological issues should show some variation between radicals and those who are not, perhaps related to differences in risk aversion, for example. Thus it predicts a variational structure in which only a few members of the community hold extreme views about issues for which there is a strong incentive gradient, with little variation about other issues. This model also predicts that the distribution of individuals should show a pyramidal structure where, as opinions become more radical, the number of individuals who hold them should decrease.

Third, attitudes vary within a population, and these attitudes affect individuals’ tolerance of violence, a rationalist view of radicalization. This viewpoint naturally leads to a scan for, as it were, dangerous ideas, those attitudes that create a proclivity for violence (for example, Precht, 2007; Silber and Bhatt, 2007). Some attitudes, beliefs and feelings may be affected by changing external realities, so this approach is particularly fruitful in uncovering points of leverage accessible to governments and societies. Strategies for de-radicalization only make sense from this point of view (Bjorgo and Horgan, 2009; Horgan, 2009; Horgan and Taylor, 2011, Horgan, 2012). This model of radicalization maintains that attitudes should cluster, that there should be measurable differences in attitudes between those who are radical and those who are not. Either the particular issues for which these differences occur are drivers of radicalization or they are consequences (sequelae) of radicalization, and it may be possible to infer which is which. According to this model, the distribution of individuals by global opinions is also anticipated to have a pyramidal structure but perhaps with an even more obvious “gap” between commonly held opinions and those associated with radicalization.

A more diffuse model of radicalization that is implicit in many government programs posits intensity or dissatisfaction as inherently dangerous, to some extent regardless of the content of the dissatisfaction. Those who are political or religious activists are regarded with suspicion because of a belief that passion is a kind of slippery slope that leads from legitimate protest to illegal activity and finally to violence. This model predicts that radicalization should be associated with strong attitudes for or against issues of political and/or religious concern. A roughly pyramidal distribution of individuals by global opinions is again expected in this model, although attitudes associated with higher levels will be less content dependent. They might be associated with political, social, religious or moral intensity or dissatisfaction.

A related, but orthogonal, issue is whether there is a structure to the variation in attitudes and whether individuals move through such a struc-
ture (progress, or even sometimes regress) in a predictable way. This is a complex area that can really only be addressed using a longitudinal research design.

The survey instrument deployed in operationalizing this research was designed to capture both the distribution of attitudes across a population and the distribution of respondents relative to the entire set of questions. This makes it possible to ascertain whether the resulting structures, at the moment of the survey, are consistent with the predictions of structures implicit in the dynamic, longitudinal models described above.

The analytic approach is agnostic with respect to the possible structure of attitudes, preferring instead to allow any structures to emerge from the data. The results are more nuanced than any part of this typology would suggest; attitudes generally appear to vary smoothly. There is little sign of places where sharp changes in attitudes occur; still, qualitatively different dimensions emerge along which attitudes vary.

2. Studying Radicals, Radicalization and Extremists

For the purpose of this article we distinguish among three types of radicals that distinguish themselves by the types of action in which they are engaged.

A. They engage in politically motivated violence (“terrorists”);
B. They engage in non-violent but illegal politically motivated acts (“radicals”); or
C. They support individuals or groups who engage in politically motivated violence or other illegal acts (“activists”).

The boundaries between these categories of radicalism are objective, since a given individual has or has not provided support, engaged in illegal acts and engaged in violence. The nuance is important because the number of terrorists is bound to be minuscule. As a result, it is statistically improbable that a survey such as the one we designed and conducted will capture actual terrorists; even in the unlikely event that it did, the number would be far too small to yield results of any broader significance. The number of those who are prepared to engage in nonviolent yet illegal acts, such as building trigger switches, is somewhat larger. Finally, the number of those who sympathize with either or both of the first two categories is greater still. It includes people who harbour suspected terrorists, knowingly provide them with financial and/or material support, and the like.

On the surface, these three gradations of what are commonly lumped together as radicals cannot readily be distinguished from the much larger pool or community of those from whom the radicals are drawn but who
have not become radicalized. Radicalization, then, is the process by which an individual who is initially inert ends up in one of these three categories through changes in beliefs, feelings and actions towards one side of an intergroup conflict.

Potentially, a fourth category is conceivable: individuals who sympathize with radicals but who do not provide any actual support. Democratic pluralism effectively means that, with notably exceptions such as hate speech, ideas at the margin of society are not criminal per se, but acting on them may be. The article dispenses with this possibility—bravado by members of a community who claim to support a cause notwithstanding—as long as they do not break the law. Having spent decades studying the relation between beliefs and feelings (cognition and attitude) and action (behaviour), cognitive science has consistently shown that most behaviour is not well explained by attitudes. Under some circumstances, beliefs and feelings are good predictors of action (in a voting booth, for instance). In most circumstances, however, beliefs and feelings are weak predictors of action (when strong social norms run counter to an individual’s attitude, for instance), because acting on one’s beliefs can become quite costly, from possible incarceration to, for a suicide bomber, death. There is no simple generalization to be made about the commitment to violence by extremists: belief in and of itself is an unreliable predictor of an individual’s predisposition towards committing acts of terrorism (Taylor, 2010; Taylor and Ramsay, 2010). The number of people in each of the three categories of radicals is thus a function of the escalating costs associated with radical activity. That explains why the number of people in category A is smaller than the number of people in category B, which is smaller than the number of people in category C; and all combined are a small subset of the larger community from which they are drawn (compare Sage- man, 2008).

These observations give rise to a number of research questions addressed by radicalization researchers:

- Why do individuals end up in one of the three categories in the first place?
- Are there three different kinds of people who end up in these three different categories? Or are these “stages” along a “conveyor-belt” through which a given individual passes?
- What are the drivers of the transitions involved? What motivates an individual to cross boundaries, either passing from non-radical to radical, or from one category of radical to another?
- What are the barriers to these transitions? Why do so few people become radicalized? Why does the number of individuals in categories differ?
• Does the structure, and the transitions between different categories, depend on the particular cause being espoused or do all movements and issues exhibit commonalities in the structure of radicalization?

These questions are of theoretical and empirical interest (insofar as they can be subjected to scrutiny). As strategy turns from prosecution to interdiction and prevention (Jenkins 2010; Vidino, 2009), intelligence, counterterrorism, and law-enforcement organizations are also wondering:

• Is it possible to tell into which category an individual falls by examining her/his attitudes?
• Knowing this, is it possible to predict the future trajectory of that individual?

Attempts to answer both kinds of questions have suffered from a number of weaknesses. First, they often sample on the dependent variable, examining in detail the beliefs, attitudes and life histories of those who have become radical, without controlling for the contrasting beliefs, attitudes and life histories of the much larger pool of similar individuals who remain inert (Sageman, 2004, 2008). Hence the answers arrived at are not particularly compelling explanations of variation between these two groups, especially for studies that rely heavily on the subject’s ex post facto reconstruction of events which is notoriously biased and unreliable. Our survey is designed to overcome empirical and methodological limitations of this sort.

Second, the pool of radicals, especially those willing to be interviewed by researchers, is small; consequently, the evidence gleaned is almost necessarily anecdotal (for example, Atran, 2010; Bower Bell, 2000; Fair, 2008; Hegghammer, 2006; Horgan, 2005; Waldmann, 1989). A relatively small n facilitates the generation of hypotheses but not their testing.

Third, humans and human communities are complex. That makes it unlikely that radicalization is a single process (Bakker, 2008; Horgan, 2005; Precht, 2007; Silber and Bhatt, 2007; Taylor and Horgan, 2006; Vidino, 2010). A quantitative approach is better suited to multivariate research than the qualitative research that has been the hallmark of much of the literature thus far. Independent effects, feedback loops and causal mechanism are hard to disentangle using a qualitative approach, especially when they are posited to include a complex interaction of personal and structural factors, such as social background (for example, group relative deprivation), psychological make-up and personality characteristics (for example, trauma and madness) and circumstances of joining the jihad (for example, identity conflicts) (Bakker, 2008; Horgan 2005, 2011; King and Taylor, 2011; Sageman, 2004, 2008). These make it difficult to infer pathways, drivers, or barriers from qualitative work whose sam-
amples are small in size, selection-biased, and plagued by omitted variables (Hoffman 2007, 2008).

3. Survey

These questions are best scrutinized using a longitudinal ethnic-community study following a large sample, in which it is likely that, over time, some members will become radicalized. Such a study, however, has yet to be conducted at the micro-community level because it is prohibitively expensive. In an effort to assess how consistent theories of radicalization are, we settled for a cross-sectional approach.

The Ottawa Radicalization Survey was conducted by COMPAS Research. Respondents constituted a representative sample of 506 residents of Ottawa who were either Muslim (n = 455), Canadian or foreign born or of Christian Arab origin (n = 51). Of course, a larger sample would have made results more robust. The reality is that even this representative community-specific sample cost several orders of magnitude more than a comparable general-population survey. Nonetheless, among the innovations of this research is its contribution of some larger-\(n\) data with systematic controls, to a discussion that has thus far been largely devoid of such evidence.

Muslims make up approximately three-quarter million of Canada’s total population of 34.5 million. At 50,000, Ottawa has a proportionately sizeable Muslim population relative to its total population of 877,000. In controlling for endogenous effects, it is also advantageous that Ottawa’s Muslim population is largely of either Lebanese or Somali origin. In previous surveys, the attitudes of Canada’s Muslim population differed markedly from those of other Western countries. For example, in an Environics/CBC poll carried out in 2006, the percentage of respondents who felt that most or many of their fellow citizens are hostile to Muslims was 17 per cent, compared to 42 per cent in the UK, 51 per cent in Germany, and 39 per cent in France. The percentage of respondents who were satisfied with the way things were going in their country was 81 per cent (much higher than the general population), compared to 51 per cent in the UK, 44 per cent in Germany and 60 per cent in France. These favourable observations were echoed in a recent study of four Muslim groups in Canada (Moghissi et al., 2009) which reports that recent immigrants tend to be well integrated, but have reservations about marginalization and discrimination.

The survey’s questions were of two kinds: some used in a 2006 Pew poll (Pew Global Attitudes Project, 2006) conducted in the United States and other countries, allowing cross-country comparisons relating to support for Islamist radicalism; and others based on widely held views of
potential drivers of radicalism. Responses were obtained through telephone interviews carried out from June to September 2008 in either English or French. This was a quiet period from the point of view of world events except for the flare-up of internecine violence in the South Ossetia War and the Olympics in China.

The population of potential respondent households was constructed in stages. Statistics Canada dissemination areas (neighbourhoods with fewer than 700 residents) were selected if they had a supranormal incidence of households whose occupants immigrated from, or whose ancestors had immigrated from, countries with predominantly Muslim populations. Software was used to eliminate households with common Western European or Anglo-Saxon surnames. Two waves of human reviews were conducted to eliminate names of Eastern European derivation or otherwise not normally used in predominantly Muslim countries. Sequential vetting yielded a dataset of 13,030 households with a far higher than normal probability of being of Muslim or Arab descent.

All potential respondents were invited to participate in the survey interview, which was framed around the public’s satisfaction with democracy in Canada in the era of multiculturalism. Respondents were invited to participate in interviews regardless of ancestry. After several introductory questions, using an L-shaped survey design, respondents were qualified to continue the survey on the basis of religious and ethnic identification. They were retained if they had been brought up as Muslim even if they no longer identified as such. They were also retained if they had been brought up as Christians and were of Lebanese, Jordanian, Syrian or Palestinian origin. These qualifying questions were not asked at the outset to avoid the contamination risk of artificially heightening respondents’ religious and ancestral sensibilities. A small number of participants were also recruited for subsequent focus groups that enabled issues that surfaced from the survey to be explored more fully and to verify the survey’s findings through feedback.

A total of 1230 respondents were interviewed. Of these, 506 qualified for the questions at the core of the study as a result of being of Christian Arab origin or having been brought up as Muslims. Surveys of this size are deemed accurate within approximately 4.4 percentage points 19 times out of 20. The overall survey response rate for all 1230 respondents was 0.2. Although the non-response rate and abandonment rate were high, COMPAS (which conducted the survey), for methodological reasons that are beyond the scope of this article, is confident that this did not introduce significant bias into the sample.

One might object that individuals who hold strongly radical views and perhaps have even participated in support for terrorist groups do not talk to researchers. That claim is readily falsifiable. Terrorists have previously shown their willingness to talk to researchers in places such as
Northern Ireland, the Basque country and Germany (see Atran, 2010; Bower Bell, 2000; Fair, 2008; Hegghammer, 2006; Waldmann, 1989) as long as they had assurances that they would remain anonymous and not subject to prosecution. Although our survey probably undersampled the most extreme respondents, there is no evidence of a strong refusal bias among those who hold more extreme views considering that, given the aforementioned pyramidal structure, extremists will necessarily constitute a minority of respondents.

This does not mean that holding these extreme views might not influence the answers that such respondents give. Since their telephone number is known, they may be concerned about drawing attention to themselves from law-enforcement and counterterrorism authorities. Since hanging up risks having precisely this effect, there are two alternative tactics to which they might resort. The first is to give answers that differ from what they genuinely believe. This creates artifacts in the data only if they are able to do so in a consistent way, that is, to give across-the-board answers that are consistent with those that someone having different attitudes would give. This is exceedingly difficult in practice. It is far more likely that such a respondent will give aberrant answers to more sensitive questions and mainstream answers to less sensitive questions and we expect such a pattern to discriminate both the individual and the more sensitive questions in the analysis.

The second tactic is either to refuse to answer or give a “don’t know” response. Again, we would expect that this tactic would be employed more frequently in response to more sensitive questions. We addressed this issue by coding responses numerically. For questions that appeared, on the face of it, to be innocuous “don’t know” responses and “refused to answer” responses (the latter vanishingly rare) were coded as neutral values. For questions that appeared more sensitive, or where it seemed implausible for the respondent not to have an answer, responses were coded at the extreme end of the range. This resulted in a small number of respondents whose conspicuous pattern of responses was consistent with strongly negative attitudes to many issues, high religious activity, high support for terrorist groups and refusals to answer a number of the most sensitive questions.

4. Analysis

All methods of analysis understand survey-data responses by examining the affinities between questions and responses, between questions and questions, and responses and responses; usually this affinity is correlation. Combining these pairwise (local) similarities can reveal more global similarities, leading to factors and loadings, or clusters. One common way to do this is principal component analysis (PCA) (Jolliffe, 2002).
PCA is commonly applied to the question-question and (less often) to the respondent–respondent correlation matrices. However, a more direct and revealing approach is to work directly with the respondent–question matrix. If there are \( n \) respondents answering \( m \) questions, then there is a natural representation of the data in which each respondent corresponds to a point in \( m \)-dimensional space and the local affinities between each pair of respondents correspond (inversely) to the distance between these points. When \( m \) is large, working in this space is cumbersome and the \( m \) dimensions are not usually independent (rather there are a smaller number of dimensions representing the latent factors among the questions). Mapping the space into one of lower dimension is, therefore, usually more representative of the true structure of the data, provided that the mapping is faithful.

The best way to carry out such a dimension-reducing mapping is to use singular value decomposition—SVD—(Golub and van Loan, 1996). This makes explicit the calculation of the similarity structure for the respondents and the questions simultaneously, the normalization needed is better motivated, several useful properties become apparent, and the underlying geometry is clearer. Given a \( n \) by \( m \) matrix, say \( A \), containing the responses of \( n \) respondents to \( m \) questions, a singular value decomposition decomposes it as:

\[
A = USV' \]

where \( U \) is \( n \) by \( m \), \( S \) is an \( m \) by \( m \) diagonal matrix, \( V \) is \( m \) by \( m \), \( U \) and \( V \) are both orthogonal (their columns are uncorrelated) and the superscript indicates matrix transposition. The right-hand side of this equation can be understood as follows: the rows of \( V' \) correspond to new axes; \( S \) is a diagonal matrix with non-increasing entries that indicate the importance of variation along each of these axes in the original data, and the rows of \( U \) correspond to the co-ordinates of each respondent relative to the new axes (or loading relative to the new latent factors).

The first new axis is oriented along the direction of maximum variation in the data, the second axis along the direction of maximal remaining (uncorrelated) variation, and so on. Hence it is possible to truncate the matrices on the right-hand side at any value \( k \neq m \) and get a faithful representation of the relationships in the data. In particular, if \( k \) is 2 or 3, the relationships can be plotted and visualized.

So far, this is more or less identical to the result of a PCA. However, the SVD makes it clear that the situation is entirely symmetric with respect to both the respondents and the questions. Transposing the rows and columns of \( A \), we get the equation:

\[
A' = VS^2 U' \]
and the right-hand side can again be truncated to represent the questions as points in a low-dimensional space. A SVD does a simultaneous eigen-space calculation for both respondents and questions. What PCA would regard as the factor loadings for the latent factors in the questions are also the latent factors for the respondents and vice versa. This representation for structure in the data is sometimes called, in marketing, a perceptual space or perceptual map.

The geometry in lower-dimensional spaces can be used directly, rather than considering only the projections onto axes as PCA is usually used. The novel feature of this analysis is that questions become points that can be placed in a space. For example, in a one-dimensional analysis, questions for which the answers were generally positive would be placed at one end of a line and questions for which the answers were generally negative at the other, the distance from the centre reflecting the intensity of the responses overall. Hence, questions with similar patterns of response would be placed close to one another along the line. This intuition applies in two or three or even more dimensions. Points corresponding to each question are placed in similar directions from the centre if the patterns of responses to each is similar, while distance from the centre reflects the intensity of the responses. Given a large set of questions, clustering of the questions in different directions, if present, reveals emergent global attitudes whose content can be inferred by considering the issues addressed by the associated questions. Thus, for both respondents and questions, placement is based on two properties: distinct patterns which will cause placement in different directions and different intensities which will cause placement at different distances from the centre. Emergent structure can often be determined by inspection of the resulting figure.

Because SVD is a numerical technique, it can handle data only when it has been coded numerically. Many of the survey questions have responses using Likert scales, and these can be naturally converted to numeric values. Most other questions with multiple responses have a natural coding with a linear semantics that can be mapped to a numerical coding as well. Some questions, such as country of origin, are more difficult to code, and these were mapped such that countries from the same region mapped to a block of adjacent numbers.

The magnitudes of the coded entries for responses to questions can be very different. For example, a question about age and a question about preference, one using a five-step Likert scale answer and one using a seven-step Likert scale answer, produce values with different magnitudes. Explicit coding could reduce all of these magnitudes to comparable scales, but instead we follow common practice and normalize the columns of the data matrix to z-scores, that is, centring on the mean and dividing by the standard deviation of the entries in each column.
There is a potential issue here. For two different preference questions using, say, a five-point Likert scale, the normalization process will obscure systematic differences between the questions, for example if all respondent are more positive about one question than the other. That is, normalization focuses on variation, rather than absolute values. The case could be made that the nature of the responses are often directly comparable, so that a “strongly agree” response to one question means the same as a “strongly agree” response to the other. However, it is not generally possible to tell how each individual interprets the middle ground of such scales, that is, it is not so clear that “slightly agree” responses to different questions mean the same thing. In the absence of a more principled solution, we have followed the standard approach. In the analysis that follows the number of questions involved is between 30 and 90. Since each question has only a modest effect on the location of each of the points, the analysis is insensitive to any individual question or respondent.

5. Results and Discussion

Having laid out competing models of radicalization, outlined the research problem, explained the survey instrument, design and approach and the way the analysis in this article differs from conventional hypothesis-testing approaches, this section takes up the findings that flow from the analysis of the survey data. The actual questions contained in the survey instrument are summarized in the online appendix to this article.

5.1 All Muslims

Figure 1 shows a simplified view of the perceptual space associated with questions for all of the Muslim respondents (the full, but rather crowded, space is shown in Figure 2).

Two main kinds of variation emerge. The first (solid ellipse) runs horizontally across the figure, and represents an axis along which social/political dissatisfaction plots to the left and social/political satisfaction to the right. For example, questions at the left-hand end are associated with those who answered positively that they have been discriminated against; they have participated in demonstrations; they think the government has harmed a movement in which they believe; they have attended political meetings; they have not voted; they have given money to political and religious groups; they do not believe the War on Terror is sincere; and they do not own their home. Clustering at the right end of the spectrum are questions associated with those who answered that they have positive attitudes to Canada; they are satisfied with the state of democracy in Canada; they are satisfied with attitudes towards immigrants; they
believe that the government has helped them personally and also helped movements in which they believe; they have a positive attitude toward Israel; they believe force is justified in Iraq and Afghanistan; and they believe work leads to success. This spectrum resembles the normal variation in any community between those who are comfortable and so not very motivated to political action, and those who want to see things change and so get involved politically. Satisfaction/dissatisfaction is the canonical example of Herzberg’s hygiene/motivation spectrum, so we might expect a one-sided variation, but this does not seem to be the case in this data. It is also noteworthy that satisfaction related to social, political and personal aspects of life is highly correlated, and, conversely, dissatisfaction in any area seems to bleed into other areas. We might summarize this spectrum of variation as social/political satisfaction/dissatisfaction.

In focus groups, the most substantial social/political satisfaction issue, by far, was in the area of employment: issues of recertification, finding a job in sectors for which they were qualified, and complaints of bias among human-resources staff. No survey question explicitly addressed this, but the questions about whether or not “government has helped you” may be a surrogate.

The second kind of variation (dashed ellipse) visible in the figure runs from the lower left-hand corner to the upper right-hand corner. At the lower left are questions associated with strong belief that religion is important; high frequency of prayer; positive attitudes towards Hezbol-
lah, Hamas, Iran, al Qaeda, and to a lesser extent the Muslim Brotherhood, Russia, the Tamil Tigers and the IRA, and positive responses to individual experiences of discrimination within the past year (people acting suspicious of them, being called offensive names, or being singled out by law enforcement). Also associated with this direction are positive responses to government under the caliphate and being Shia. At the top right are questions associated with not being one of the special cases of religious affiliation (refusing to answer) and not believing that sharia law should be imposed on all. Differences in position along this axis correspond much more closely to differences in attitudes associated with radicalism. The correlation between positive regard for Islamist terrorist groups and other terrorist groups was typically explained, in the focus groups associated with the survey, as some variant of “the enemy of my enemy is my friend.” This spectrum of variation might be considered as moral/religious satisfaction/dissatisfaction.

The questions, and their relative importance as measured by the distance of the corresponding points along both the horizontal and vertical axes, are reproduced in the appendix which is available online.

The moral/religious axis is not orthogonal to the social/political axis (although the algorithm looks for uncorrelated variation, this may not simultaneously exist in both the respondents and the questions). Hence a person may be positioned far to the left on the social/political dissatisfaction axis and yet be neutral on the moral/religious axis. However, someone who is at the left-hand end of the moral/religious axis is necessarily also some distance along the social/political dissatisfaction axis. In other words, dissatisfaction exists in two forms: social/political dissatisfaction that does not spill over into moral/religious dissatisfaction, and moral/religious dissatisfaction that also seems to lead to social/political dissatisfaction.

There are three questions of particular interest that lie between these two axes of variation in the lower left area. These questions address frequency of attendance at mosque, frequency of participation in a religious small group, and continuing to support an organization that has espoused violence. This suggests that the most dangerous form of variation (dotted ellipse) is that which combines elements of social/political dissatisfaction with elements of moral/religious dissatisfaction, and corresponds more directly to radicalization.

The primary method for allocating meanings to these axes is to examine, collectively, the content of the questions most associated with them and extract their commonalities. However, this inductive approach can be verified by creating artificial sets of responses that correspond to the profiles associated with each end of each spectrum of variation and then inserting points corresponding to each into the analysis. In every case, such points end up at exactly the expected positions at the extremes of
each of these axes. Indeed, profiles that are consistent with the meaning of each of the axes but with reduced intensity, say, by using less extreme Likert scores, also fall along the expected axes, but at more midrange positions. This justifies some of the response coding, since strongly negative responses to sensitive questions do seem, globally, akin to weak versions of “refused to answer” responses.

Several observations are noteworthy in this plot. First, support (or not) for Israel is not correlated with attitudes to groups, such as Hezbollah, Hamas, al Qaeda and the Muslim Brotherhood. Rather, attitudes toward Israel are related to social/political satisfaction, and attitudes to the US and the UN (cf. McCauley et al., 2011). This perhaps surprising finding (compared to Atran, 2010; Pape, 2005; Pape and Feldman, 2010; for instance) was subsequently explored in focus groups. While many participants found it inexplicable, some participants suggested that much

**Figure 2**

Two-dimensional plot of perceptual space for all Muslims. The labels describe questions that are described in full in the online appendix.
Arab dissatisfaction was with repressive governments in the Middle East and that there is some respect, however grudging, for Israel as a democracy (cf. Leuprecht and Winn, 2011; McCauley et al., 2011).

Second, experiencing “generic” discrimination (“Have you ever been the victim of discrimination as a Muslim living in Canada?”) is uncorrelated with remembering particular discriminatory incidents over the past year (for example, “In the past 12 months, have you been called offensive names?”). A general feeling of discrimination is associated with social/political dissatisfaction; remembering specific incidents is associated with moral/religious dissatisfaction. This does not appear to support the suggestion that either the experience of personal discrimination or the surrogate experience of group discrimination are important drivers of radicalization.

Third, positive attitudes towards groups such as Hezbollah and Hamas correlate (weakly) with positive attitudes towards other terrorist groups that lack an Islamic connection, such as the IRA and Tamil Tigers. They even correlate with positive attitudes toward Russia, which is surprising given that Russia has been fighting the Chechens (and may perhaps be associated with the Russian invasion of Georgia during the time of the survey). This may manifest a surrogate for anti-US feeling; or it may just exhibit a general propensity towards gratuitous, nihilist violence.

Fourth, it is striking how many questions show little variation among the respondents. The points corresponding to such questions lie close to the centre in the plot in Figure 2. They include questions that address Internet and other media usage. Betz (2008) and Atran (2010), inter alia, have hypothesized that exposure to militant ideas in media or the Internet acts as a catalyst for radicalization. Yet, this hypothesis is unsupported by the data in this survey. Similarly, characteristics of relatives in other countries, including how often they are contacted and languages spoken, show little variation among respondents.

The results from the Canadian setting contrast markedly with the UK where it is widely believed that domestic government policies and decisions, ranging from participation in the Iraq invasion to local government housing decisions, play a much greater role in radicalization (Briggs and Birdwell, 2009; O’Duffy, 2008).

Figure 3 shows the plot with points corresponding to respondents as well as questions. Notwithstanding issues of scaling, in general respondents gravitate towards questions for which they offered a positive response (and the questions also gravitate towards respondents who responded positively to them; this is part of the “double” factor analysis). The respondents do not show the same linear variation as the structures derived from the questions. In other words, opinions among respondents are diverse and uncorrelated. Structure among the questions is uncovered only by means of SVD analysis. This combined plot
reveals respondents who are extreme in terms of any of the variations present in the questions: dissatisfied about social and political issues, dissatisfied about moral and religious issues, and perhaps also radicalized (although there seems only to be one outlier who is extreme along this dimension of variation).

5.2 Social/Political Satisfaction Questions

The deeper structure associated with social/political satisfaction or dissatisfaction can be explored by discarding the questions associated with vertical variation in the plot in Figure 1 and rerunning the analysis using only the questions associated with horizontal variation.

The result is shown in Figure 4. Variation according to social/political satisfaction separates into two uncorrelated components. The first, running from top left to bottom right, reflects general social and political
satisfaction/dissatisfaction. Questions at the top left report satisfaction with Canadian life as a Muslim immigrant and beliefs that the government is supportive both to individuals and to the organizations they support. At the other end of this spectrum are questions reflecting beliefs that the government is unsupportive of them, individually or collectively, and that the War on Terror is insincere. Dissatisfaction with life and government is also associated with speaking French.

The second spectrum of variation runs from top right to bottom left. It is associated with political activity; questions at the top right reflect political activism of various kinds. At the other end, questions reflect support for the US, the UN, Israel and the use of force in Iraq and Afghanistan. In other words, political activism correlates with dissatisfaction about these issues and actors. However, the majority of the respondents lie towards the bottom left.
This pattern is not all that different from a typical non-Muslim community in 2008, with a few exceptions. First, political activism is associated with giving money to religious organizations (that is, political and religious activism are not distinct as they probably would be for many non-Muslims), and also with continuing to support organizations that condone illegal activity. Second, positive answers to questions at the top right are correlated with speaking Arabic and having relatives who are Palestinian or Jordanian, while positive answers to the questions at the bottom left are correlated with speaking languages outside the set {Arabic, French, Persian, Somali, Spanish, German} and having relatives outside of the Middle East and Europe.

5.3 Moral/religious satisfaction questions

As for the vertical dimension in the original plot (Figure 1), questions associated with variation in this moral/religious dimension warrant special consideration. Figure 5 shows the plot when only questions related

**Figure 5**
Three-dimensional plot of perceptual space using only moral/religious satisfaction-related questions.
to the moral/religious spectrum are included. When issues of social and political satisfaction are excluded, three kinds of variation remain.

The first runs from the bottom left to the top right, and captures those who have experienced personal discrimination in the past year. At the top right, the question of “religion” separates those who refuse to answer, suggesting a relationship between discriminatory experiences and wariness about statements of public religious affiliation, which could be causal in either direction.

The second spectrum of variation runs from the left-hand side of the figure and represents support for groups such as al Qaeda, Hamas, Hezbollah and Iran. The third spectrum of variation is closely correlated with the second, but begins further up the left-hand side and represents strong participation in religious activity. It is noteworthy that support for the question about whether governments would be better under a caliphate is associated with religion rather than with radical political activity.

The other extremes of these two axes of variation are hard to separate but are associated with home ownership, higher levels of income and speaking Farsi. The latter is a surrogate for Iranian origin and probably reflects the large number of immigrants of Iranian origin who fled the religious upsurge in Iran in the 1980s.

Belief in the salience of religion is associated with both high levels of religious activity and support for terrorist groups. Questions about the importance of religion attracted high levels of support from many respondents, even those who hardly or never practised. Younger age is correlated with both higher levels of religious activity and support for terror groups. That finding is in line with a rational choice approach to payoffs for political engagement.

6. Implications for Models of Radicalization

The results from a single survey conducted at a particular moment in time are not conducive to drawing broad inferences about the dynamic or longitudinal structure of radicalization. However, consider individuals whose attitudes are neutral in every way considered in the survey. Their attitudes may, of course, stay the same; but if they change, the results indicate that they will do so in one of five predictable (that is, internally consistent) ways:

1. As satisfaction with life increases across the social, financial and political dimensions, respondents become more comfortable.

2. As satisfaction with the religious and moral world increases, respondents become less overtly religious and negatively inclined towards terrorist groups.
(3) As dissatisfaction with life increases across the social, financial and political dimensions, respondents become more active and involved with political groups.

(4) As dissatisfaction with the religious and moral world increases, respondents become more overtly religious and more positive towards terrorist groups.

(5) As dissatisfaction with both life and the religious and moral world increases, respondents become more overtly religious in ways that involve high-frequency and small-group religious activity, and they show a willingness to admit to supporting organizations that fight oppression even if they break the law.

Variation associated with social/political satisfaction/dissatisfaction can exist independently. However, increased moral dissatisfaction is also associated with increased life dissatisfaction; and increased moral satisfaction with increased life satisfaction; for a response that exhibits high levels of moral dissatisfaction is necessarily also some distance to the left of the centre in Figure 1, but a response that is far to the left of the origin does not necessarily have high levels of moral dissatisfaction.

The results overall suggest that attitudes in this population vary in three almost completely independent ways. For all three, negative intensity increases with leftward movement in the space and decreases with rightward movement.

Recall that the second class of explanation of radicalization in section 2 posits broad homogeneity of attitudes in a population of interest but variability of incentives. Although these results cannot directly address incentives, it is clear that attitudes are far from homogeneous and, in particular, vary substantially with respect to Islamic concerns. Thus the survey results do not support this kind of explanation.

The third class of explanation of radicalization is one in which attitudes vary within populations, and it is this variation that explains the characteristics and process of radicalization. The data suggest two possibilities that are consistent with these cross-sectional results. The first possibility is that individuals who become discontented do so based on content or narrative that appeals to them: some in the political domain, some in the moral domain and some in the domain of illegality and violence. In other words, the experience of intensity and activism is independent of the content that underlies that activism. This is a primarily psychological explanation.

The second possibility is that individuals who have become politically or morally discontented and become activist change the content of their discontent from dissatisfaction with life or with religion and become radicalized. The data cannot explain how this might happen. However, it does strongly suggest that, if it happens, it must happen relatively
quickly; for if this were not the case, then the sample would have included individuals who were partway between constellations of attitudes, and their patterns of responses would have blurred the axes of variation.

Thus the survey results are consistent with mechanisms of radicalization that are based on changes in attitudes to specific ideas rather than differential responses to a common incentive landscape. These attitudes have both political and religious content, and it is the blend of the two that appears significant. Intensity in either a purely political or purely religious domain does not appear relevant.

7. Policy Implications

A good deal of government policy—especially in Western Europe, for example the UK government’s PREVENT Strategy—makes implicit assumptions about structure: Muslims become radicals because they are unhappy. The rational policy maker’s utilitarian instincts kick in: happier Muslims means fewer radicals. Ergo, the solution is a programmatic policy response focused on spending money in areas of social support, education, housing and so on. Canadian senior officials, for instance, have gone on record identifying poverty and intense feelings of marginalization as root causes of terrorism (Riddell-Dixon, 2008: 37). In their work on individual attitudes, actions, and aggregate patterns of terrorism, Berman (2000), Li and Schaub (2004) and Chen (2010) all suggest that weak welfare policies may foment religious extremism, while Burgoon (2006) suggests that robust social policy reduces incidents of terrorism. That sort of social approach is also conveniently appealing to the egalitarian instincts of the electorate; it is in line with the welfare-state premise of nation building using T.H. Marshall’s (1950) social conception of citizenship, and it shows the government to be “doing something” about the problem.

Yet, Krueger and Maleckova (2004) find ties between economic fortune and extremism to be weak at both the individual and aggregate levels. This was also the view that informed the White House’s 2002 National Security Strategy (US White House, 2002) which goes out of its way to stress that the 9/11 attacks were perpetrated by middle-class, educated misanthropes led by a rich religious fanatic.

Our survey’s findings inform this debate quite unequivocally. Radical attitudes appear absent among Muslims with moral and/or social/political satisfaction. Moral dissatisfaction does appear to be associated with increased social dissatisfaction and, for some, the combination is associated with some activities and attitudes that corresponds to radicalization. Programmatic policy responses presume that improving individuals’ life satisfaction will decrease the prevalence of radical attitudes.
The results suggest that the variable that government policy would have to manipulate to mitigate radical attitudes is moral/religious satisfaction instead of social/political satisfaction. Moral/religious satisfaction, though, appears to be largely beyond the reach of government policy. In short, as appealing as programmatic reactions may be to politicians, policy makers and electorates, the strategic payoffs are not evident.

On the one hand, there appears to be little indication that governments should take the blame for the alleged inflammatory effects of their policies and actions (McCauley et al., 2011). Issues addressed by questions gauging variation in social satisfaction/political are a mixture of exogenous (for example, government action) and endogenous (for example, individual donations) effects. On the other hand, issues addressed by questions gauging variation in moral/religious satisfaction solely reflect internal drivers. Overall, the results suggest that radicalization is more of a personal issue than one of social, economic or foreign policy.

8. Conclusion

Since 9/11 governments have become especially concerned about a minority of individuals who may commit politically motivated violence, either at home or abroad, or who sympathize with or are prone to support violent extremism. Short of understanding why people feel the way they do, the approach employed in this article goes some way towards identifying (1) whether there is a structure to respondents’ attitudes and (2) whether a relationship emerges from that structure. Singular value decomposition allows us to gain insights into the structure of responses and respondents that overcomes the limits of composite analysis by relating responses and respondents in the same space. This is fundamentally different from most polling work. Election polls, for instance, inquire into the beliefs people hold, but they are agnostic about the structure that underpins those beliefs.

For the purpose of building a multivariate evidence base about radicalization, inferences drawn from cross-sectional data at one moment in time of a limited sample of one Muslim community in one place are inherently limited. Nonetheless, at the very least, the observations show that large-n survey research in the field of radicalization can yield relevant results. They fail to validate several popular longitudinal models of radicalization, since the results diverge from what these models predict. The findings narrow down the potential form of accurate longitudinal models because the predictions of such models must be consistent with the observed variation in attitudes. Moreover, there are methodological payoffs from going beyond conventional composites in interrogating the data. The use of singular value decomposition to analyze variation in
respondents and issues simultaneously forces consistent variation across both. Subtle patterns of variation emerge that would not be visible if respondent and issue variation were analyzed separately.

Supplementary Material

To view supplementary material for this article, dx.doi.org/10.1017/S0008423912001023, please visit http://journals.cambridge.org/cjp

Notes

1 Those arrested and prosecuted for Islamist terrorism-related offences in Canada thus far have been legal residents or Canadian citizens.

2 Oversampling among Ottawa Lebanese coincides with the Canadian Security Intelligence Service (CSIS) probing the prospects that Hezbollah might attack Israel’s diplomatic assets and/or Canada’s Jewish community in response to the anonymous slaying of Hezbollah mastermind Imad Mughniyeh in Syria (Bell, 2009). Hezbollah is also suspected of having used Canadians to secure financial assets and to purchase materials (Bell, 2002).

References


Bell, Stewart. 2009. “Canada May be Terror Target.” National Post, July 23.


