



HISTORICAL DATA REVIEW OF RADICALIZATION AND THE ECONOMY IN CANADA

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ABSTRACT

A contract was awarded to perform a statistical time series analysis on readily available open-source data concerning economic indicators and radicalization over the past 100 years. Upon commencing this work, it became clear that it was difficult to obtain comprehensive radicalization data going back 100 years, although there were good data from 1960 onwards. It also became clear that these data were not in electronic form and therefore needed to be manually entered into a brand new database. This database, combining socio-political, economic and radicalization data, was duly compiled and used to perform several statistical analyses, including simple descriptive statistics, bivariate correlations, time series analysis, and simple and multiple linear regression. Although one might intuitively assume that poverty or economic hardship are inexorably linked with radicalization, violent extremism and terrorism, the statistical analyses performed for this contract do not support this assumption. Of the 31 socio-political and economic variables, only those pertaining to urban and rural population ratios were statistically significantly related to total number of radical events. The database nevertheless provides a basis for future detailed analyses of open-source regional economic and radicalization data, or classified versions of the same.

RÉSUMÉ

Un contrat a été attribué en vue de l'analyse de séries statistiques chronologiques à partir de données d'accès libre et facile portant sur les indicateurs économiques et la radicalisation des cent dernières années. Dès le début de la recherche, il a fallu reconnaître qu'il était difficile d'obtenir des données complètes sur la radicalisation qui remontaient à cent ans, mais il a été possible de compiler des données intéressantes et utiles à partir de 1960. Toutefois, ces données n'étaient pas sous forme électronique et il a fallu les inscrire manuellement dans une toute nouvelle base de données. Nous avons donc constitué cette base de données, avec des données à caractère sociopolitique et économique ainsi que des données sur la radicalisation, et l'avons utilisée pour effectuer plusieurs analyses statistiques, dont des analyses de statistiques descriptives, des corrélations bidimensionnelles, des analyses de séries chronologiques ainsi que des régressions linéaires simples et multiples. Force est de constater que la pauvreté ou les difficultés économiques ne sont pas inexorablement liées à la radicalisation, à l'extrémisme violent et au terrorisme, comme les analyses statistiques exécutées dans le cadre du contrat l'ont révélé et contrairement à ce qu'on aurait pu imaginer. Des 31 variables sociopolitiques et économiques étudiées, seules celles qui avaient trait aux ratios de population urbaine et rurale présentaient un lien statistiquement significatif avec le nombre d'actes radicaux. La base de données servira néanmoins de fondement à d'autres analyses détaillées de données économiques régionales et de données sur la radicalisation libres d'accès, ainsi que de données protégées.

EXECUTIVE SUMMARY

Introduction: Defence Research and Development Canada (DRDC) – Toronto was tasked to investigate the effect of the 2008 global economic downturn on the potential for radicalization within Canada. As a part of this effort, CAE Professional Services was contracted to conduct a historical data review of radical groups and events and their relation to a range of socio-economic indicators over the past 100 years. The focus of this initiative was to use existing electronic databases of radical events and socio-economic factors in Canada in pursuit of a wide-ranging review of data to investigate the link between socio-economic factors, and radicalization and violent extremism.

Methods: Initial efforts focused on the compilation and merging of two comprehensive datasets: (1) radical, violent extremism and terrorist events related to Canada from 1960 to 2007; and (2) socio-economic and political factors over the past 100 years. After compiling the data, the team conducted a systematic series of statistical analyses of the radicalization database, culminating in time series and regression analyses. Quantitative analyses examined how socio-economic indicators co-vary with indicators of radicalization and violent extremism in Canada.

Results: Correlational analyses between the Canadian socio-economic and radical events data uncovered few significant correlations. In particular, there was no relationship between radical events and other cyclical economic indicators such as the percentage of population below the poverty line, unemployment, or inflation. There were mild relationships between longer-term aggregate socio-economic trends and radical events, such as the increase in the percentage of urban population and the decrease in infant mortality, though these relationships did not reach levels of statistical significance enough to be included in any model for predicting trends in radicalization related to a changing socio-economic climate.

Discussion: The current analyses uncovered scant covariance between number of radical events and socio-economic indicators, thus demonstrating that trends in Canadian radical events are most likely not caused by macro-level socio-economic factors. Further, the databases compiled as a part of this project serve as a foundation for future qualitative and quantitative analysis of Canadian radical events. Findings in this project suggest future research into examining other relationships, such as regional socio-economic data, identifying changes in specific radical campaigns, or global comparative analysis to states with similar and unique socio-economic contexts. It is hoped that future initiatives seek to continue upon such data collection and analysis.

SOMMAIRE

Introduction – Recherche et développement pour la défense Canada (RDDC) – Toronto a été chargé d’analyser l’incidence du ralentissement économique mondial de 2008 sur le risque de radicalisation au Canada. Dans cette optique, CAE Services professionnels s’est vu confier la réalisation d’un examen de données historiques sur les groupes et actes radicaux des cent dernières années et de leur relation avec un éventail d’indicateurs. Ce projet s’articulait autour des bases de données existantes sur les actes radicaux et les facteurs socioéconomiques au Canada et devait donner lieu à une vaste analyse du lien entre les facteurs socioéconomiques et la radicalisation et l’extrémisme violent.

Méthodes – Les premières étapes étaient centrées sur la compilation et la fusion de deux séries de données exhaustives, l’une portant sur les actes radicaux, les actes d’extrémisme violent et les actes de terrorismes exécutés au Canada entre 1960 et 2007, et l’autre sur les facteurs socioéconomiques et politiques qui se sont manifestés au cours des cent dernières années. Après avoir compilé les données, nous avons mené une série d’analyses statistiques systématiques des données sur la radicalisation, en terminant par des analyses chronologiques et de régression. Les analyses quantitatives nous ont permis d’examiner comment les indicateurs socioéconomiques covarient avec les indicateurs de radicalisation et d’extrémisme violent au Canada.

Résultats – Les analyses de corrélation entre les facteurs socioéconomiques et les actes radicaux n’ont fait ressortir que peu de corrélations statistiquement significatives. Ainsi, il n’existe aucun lien entre les actes radicaux et les autres indicateurs économiques cycliques tels que la proportion de la population qui vit en deçà du seuil de pauvreté, le chômage ou l’inflation. Si des relations ténues ont été dégagées entre les actes radicaux et les tendances socioéconomiques globales à long terme, telles l’augmentation de la proportion de la population urbaine et la baisse de la mortalité infantile, ces relations n’étaient pas suffisamment significatives sur le plan statistique pour être intégrées dans un modèle de prévision de la tendance à la radicalisation dans un climat socioéconomique évolutif.

Analyse – Les travaux ont mis au jour une faible covariance entre le nombre d’actes radicaux et les indicateurs socioéconomiques, et démontrent que les actes radicaux au Canada ne sont tout probablement pas attribuables à des facteurs socioéconomiques au niveau macro. Par ailleurs, les bases de données compilées dans le cadre de ce projet serviront de fondement aux futures analyses qualitatives et quantitatives des actes radicaux exécutés au Canada. Les constatations qui se dégagent de cette recherche font ressortir la nécessité de mener d’autres études sur d’autres liens, à l’aide de données socioéconomiques régionales, par exemple, d’examiner l’évolution de

certaines mouvements de radicalisation ou de comparer la situation dans des États aux contextes socioéconomiques spécifiques ou semblables à celui du Canada. Il est à espérer que les initiatives futures continueront de prendre appui sur la collecte et l'analyse de données.

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1 INTRODUCTION

1.1 Overview

The intention of this report is to document the results of the work conducted by CAE Professional Services (Canada) Inc. (CAE PS) under the contract for Defence Research and Development Canada (DRDC) – Toronto entitled, “Historical data review of radical groups and economic indicators in North America”. The intent of this initiative was to use pre-existing electronic databases of radical events and socio-economic data for Canada in pursuit of a wide-ranging review of data to investigate the link between socio-economic factors, and radicalization and violent extremism.

Specifically, this report describes the compilation and merging of the following two comprehensive datasets including descriptions of the variables used and the rationale for their inclusion: (1) dataset of radical, violent extremism and terrorist events related to Canada from 1960 to 2007; and (2) dataset of socio-economic and political factors between 1910 and 2010. The manner in which the radicalization database (including data compilation and coding) was compiled and a quantitative analysis examining how socio-economic indicators co-vary with indicators of radicalization and violent extremism in Canada are presented in the report. Recommendations for future exploratory work based on the preliminary analyses are also provided.

1.2 Background

In light of the perceived rise in extremism of cultural, political, social and religious movements, radicalization has become a topic of great interest to policy makers and security agencies in recent years. Some have linked radicalization to economic distress, and have postulated that the recent downturn in the global economy may have led, and may yet lead, to an increase in the levels of radicalization and violent extremism. At the request of the Assistant Deputy Minister (Science and Technology), the Adversarial Intent Section (AIS) at DRDC Toronto undertook a research project to investigate the implications of an economic downturn for Canada’s security and social stability. The project plan for this endeavour, entitled “Radicalization in the National Economic Climate”, was created in June 2009.

To gather information on the topic area, an analysis of open-source databases was performed to identify potential socio-economic indicators that co-vary with indicators of radicalization and violent extremism in Canada over the past 100 years. The purpose of gathering these data is to generate a high-level macro picture of relationships among these indicators rather than to explain potential relationships. Information gleaned from this analysis will be used to understand and explain relationships between socio-economic factors and radicalization and violent extremism in Canada.

It is expected that the events related to terrorism and radicalization compiled in the radical, extreme violent and terrorism database will prove extremely helpful for future work in terms of the *qualitative* information that they contain and/or that can be derived from them, namely where the events took place, the actors involved, their motivations and objectives, and so on. Non-parametric analyses of these types of categorical data could yield a lot of important insights in addition to the quantitative analysis attempted here. Trends observed and hypotheses generated in this work may be pursued in future follow-on studies. The dataset assembled for this project can therefore be very useful for future work concerned with the causes of radicalization and extreme events in the Canadian context.

1.3 Objectives

The stated objectives of this work were as follows:

1. Conduct a broad search for open-source Canadian or North American historical data from the past 100 years pertaining to:
 - Social variables (e.g., public opinion, infant mortality);
 - Economic variables (e.g., Gross Domestic Product (GDP) per capita, rate of unemployment); and
 - Events related to radicalization, violent extremism and terrorism.
2. Merge the selected variables into a single database:
 - Compile a database of socio-economic variables;
 - Compile a database of radicalization, violent extremism, terrorist events; and
 - Merge selected variables from the two databases into a single database using a time-series approach.
3. Conduct quantitative data analyses to gain a broad understanding of how social and economic variables have co-varied with indicators of radicalization across time.

The results of this study will be useful to policy makers who will appreciate an understanding of how socio-economic factors may have influenced violent extremism in the past. Lessons can be learned from how economic distress in the past has affected, or co-varied with, incidence of radical violence to help mitigate its occurrence in the future.

1.4 Scope of Document

This report documents the construction of the database of radical events and socio-economic data, the subsequent data analysis, and recommendations for future work, in the following sections:

- Radicalization in the new economic climate,
- Existing sources of socio-economic and radicalization data,
- Description of variables included in the databases,
- Analyses and results, and
- Discussion and recommendations for future work.

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2 RADICALIZATION IN THE NEW ECONOMIC CLIMATE

The influence of social and economic factors on human behaviour is immensely complex. A discovery workshop, held by DRDC Toronto in December 2009, explored and discussed the implications of an economic downturn on the potential for radicalization within Canada. The workshop brought together a wide variety of academics and practitioners from relevant fields and provided breadth and depth of perspectives to the issue. It was concluded that while research does not support the existence of a direct relationship between the economy and radicalization, the relationship between economic conditions and violent extremism is a complicated one with many mitigating factors, whereby the former may still serve as a catalyst for the latter (Gauthier, 2010). Studies evaluating the impact of the economy on the incidence of terrorism have demonstrated similar results. For example, a systematic study evaluating how economic circumstances influence terrorism by Blomberg, Hess and Weeapana (2002) found that for democratic, high income countries, economic contractions (i.e., recession) can serve as an aggravating factor for increased probabilities of terrorist activities. Meanwhile, a study that evaluated the hypothesis that poverty, inequality and poor economic development are root causes of terrorist activity found no significant relationship between economic development and terrorism in data aggregated from 96 countries (Piazza, 2006). Rather, they found that variables such as population, ethno-religious diversity, increased state repression and structure of party politics were significant predictors of terrorism.

The lack of a conclusive finding regarding the relationship between economic factors and radicalization clearly shows there is a need for further research in this area. One particular issue that needs to be considered when embarking on such research is what data should be used to indicate radicalization. Indeed, there is considerable debate about the proper definition of radicalization. Mandel (2009) has proposed a working definition of radicalization as “an increase in and/or reinforcing of extremism in the thinking, sentiments, and/or behavior of individuals and/or groups of individuals”. But Mandel’s definition does not operationally define what might indicate radicalization or violent extremism. Thus, this research must consider the work of others in selecting events that indicate extreme or radical agendas, and build upon the criteria they have used.

In addition to radical event-related data, a spectrum of socio-economic indicators needed to be compiled. Economic data were more readily available, since it is in high demand and is a well-established field of study. The most significant challenge involved identifying the most appropriate data sources and outlining their relative significance as indicators of economic climate. Data on social factors proved less easy to obtain than economic data, but easier to obtain than data about radicalization, again because of the maturity of the field of study. Information gleaned from this analysis will be used to

understand how socio-economic factors in the current economic climate might influence processes and outcomes of radicalization within Canada.

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3 EXTREME VIOLENCE AND TERRORISM DATA

A list of socio-economic and terrorism databases were provided by DRDC Toronto and used as a starting point for a systematic search for open-source data to include in the analysis. The search was specifically aimed at identifying organized data collection projects related to radicalization and violent extremism in Canada as well as social-political and economic conditions. A comprehensive search of the internet for open-source databases was initiated. Of particular interest were databases that included data on the existence of Canadian radical groups and/or radical or terrorist behaviour over the past 100 years, in addition to quantitative Canadian social, political and/or economic data. The following key words, both alone and in combination, were used in the search for electronic sources:

Table 3-1 Search Keywords

Search Keywords	
terrorism	radicalization
Canada	economic
population	census data
elections study	terrorist groups
radical groups	political mood
public opinion polls	data
database	open-source

Also included were several open-source databases recommended by Subject Matter Experts (SMEs) with backgrounds in intelligence analysis and economics.

Databases were included if they fit the following criteria:

- contained open-source data (i.e., accessible to the public) on the subject of social and economic data and data and information related to the presence of radical groups and/or the incidence of radical/terrorist behaviour;
- the data were quantitative or, at a minimum, categorical;
- the data included Canadian-specific content;
- the data were in a time-series format; and
- the data were assessed as credible.

Databases could only be assessed as credible if the project website contained sufficient information concerning the method of data collection and the expertise of the investigators. Other factors were also taken into consideration such as the motivation of the project and the reputation of the organization. Databases that did not meet all of the listed inclusion criteria but still contained information of interest were occasionally included and subsequently reviewed by the research team (DRDC Toronto and CAE PS), until the decision was made either to include or discard the database. The results of this search were kept in an Excel database provided in Appendix A.

3.1 Socio-economic Databases

A systematic search of open-source databases identified the following socio-economic and socio-political databases which were used to populate the economic and socio-political database:

- Canadian Socio-Economic Information Management System (CANSIM): Statistics Canada's key socio-economic database which provides a large range of data available in Canada (e.g., immigration, ethnic composition, average earnings).
- World Income Inequality Database (WIID): Produced by the World Institute for Development Economics Research (WIDER), WIID collects and stores information on income inequality for developed, developing, and transitioning countries.
- Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD: Created by Angus Maddison, a British economist. This database is exceptionally comprehensive, containing world population and GDP data dating back to year 1.
- World Development Indicators Online (WDI): Published by the World Bank Group is a comprehensive database on development data, covering more than 800 indicators, 209 economies, and 18 regional and income groups. The extensive collection of development data includes social, economic, financial, natural resources, and environmental indicators for more than forty years, 1960 to 2007, where data are available.
- Global Development Finance Online (GDF): Published by the World Bank Group, the GDF provides direct access to more than 200 debt and financial flows indicators (indications of whether a security is, or is in danger of, being overbought or oversold) for the 128 countries that report public and publicly-guaranteed debt to the World Bank Debtor Reporting System. These data run from 1970 to 2008 where available.
- The Canadian Opinion Research Archive (CORA): Founded in 1992, CORA contains hundreds of surveys including thousands of discrete items collected by major commercial Canadian firms dating back to the 1970s. This database was used

to access three public opinion polls: Canadian Elections Study (CES), Canadian Gallop Poll and the Decima Quarterly.

- Statistics Canada Census: The Statistics Canada Census takes place every five years and provides various data used in planning and development (e.g., positioning of social service resources).
- Elections Canada: History of election results in federal electoral ridings since 1867 and Voter Turnout at Federal Elections and Referendums, 1867-2008: Database containing results of past elections going back to 1867.

3.2 Terrorism and Political Violence Databases

In spite of the increased interest in terrorism, extremism and radicalism, very few studies have examined terrorism and radicalization in a Canadian context. In an effort to provide a comprehensive coverage of Canadian-related radical and terrorist activities both within and outside Canada, two global terrorism databases and two Canadian-specific works were used as the primary sources of data for radicalization, violent extremism and terrorism related to Canada. Details of the databases and Canadian-specific works are provided in the following sections.

All of the data regarding terrorism and political violence have been drawn from open sources, available to the general public. This method facilitates the sharing of all source data and analysis across the widest possible audience, fostering greater dialogue and discussion among practitioners in this field. However, there are, by necessity, some areas of data absent from the analysis. For instance, there is sparse data related to group membership, finances, and average incomes or employment of members. The absence of such data limits the ability to make some assessments regarding the causal relationships between economic climate and radical group membership.

3.2.1 Global Terrorism Database (GTD)

The GTD is an open-source database presenting information on terrorist events around the world since 1970 (currently updated through 2007). The database is maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START), based at the University of Maryland, College Park. It includes political, as well as religious, economic, and social acts of terrorism and instances of domestic and international terrorism¹. For each GTD incident, information is available on the date and location of the incident, the weapons used and nature of the target, the number of casualties and, when identifiable, the group or individual responsible.

¹Domestic terrorism is defined as terrorism that is perpetrated within the boundaries of a given nation by nationals from that nation.

The GTD is a compilation of three data collection efforts from 1970 to the present (LaFree, Dugan, Fogg, & Scott, 2006). From 1970 to 1997 the data were collected primarily from incidents recorded by using a broad-based definition of terrorism: “the threatened or actual use of illegal force and violence to attain a political, economic, religious or social goal through fear, coercion or intimidation”. The data from 1998 through 2007 contain information on more recent events that were collected in real-time by the researchers (i.e., as an event occurred the researchers added details to the database). New criteria for data collection were established to ensure the adherence to a broad definition of terrorism and to include more variables for each event. Finally, in 2008, a renewed effort of collecting data on terrorist attacks began which adhered to the new criteria and breadth of collection for events occurring in 2008 and beyond. As a consequence of the differences in data collection methods, Lafree et al. (2006) warns that the differences in the number of attacks before and after 1997 may be partially explained by the differences in the methods used for the three data collections. For further details on the criteria and data collection methodologies used for the GTD, refer to Lafree et al’s (2006) methodology document.

3.2.2 Worldwide Incidents Tracking System (WITS)

The WITS is the US National Counterterrorism Center’s (NCTC) database of terrorist events covering incidents worldwide from 2004 until present. According to the NCTC, the data provided in WITS consist of incidents in which subnational or clandestine groups or individuals deliberately or recklessly attacked civilians or noncombatants (including military personnel and assets outside war zones and similar unsafe locations). According to the WITS methodology, “terrorists must have initiated and executed the attack for it to be included in the database; failed or foiled attacks, as well as hoaxes, are not included in the database. Spontaneous hate crimes without intent to cause mass casualties are excluded . . .”. Genocidal events are also excluded. For further details on the criteria of the WITS database, refer to the methodology page on the WITS site (<http://wits-classic.nctc.gov/Methodology.doc>).

3.2.3 Terrorism in Canada, 1960 – 1989

Terrorism in Canada 1960 – 1989 (Kellett, Beanlands, Deacon, Jeffrey, & Lapalme, 1991) is a report detailing the results of a study on terrorism in and affecting Canada. The result of this effort is a monumental reference on terrorism and political violence up to 1989, itself based in part on work by Ross (1988). It includes a chronology of domestic and international terrorist events affecting Canada. Kellett defines international terrorism as “terrorist events or activities directed toward the prosecution of conflicts outside Canada” and “involves the targeting of internationally protected persons, diplomatic missions, or property owned by or associated with a foreign government or business” (p. 29). Domestic terrorism “refers to terrorist events or activities aimed ultimately at altering the Canadian social or political system, and in which Canadians, their personal or business property, or the property of some level of government, are

targeted” (p. 29). The report also includes a chronology of terrorism support activities, comprised of actions in support of the commission of terrorist acts in Canada (e.g., theft of explosives used in terrorist bombing, fundraising activities such as robbery and extortion or through the use of propaganda). Events that did not completely or clearly satisfy the inclusion requirements were placed in an Excluded Events chronology. All events in Kellett et al. (1991) were included in the radical, violent extreme and terrorist database. For further details on the criteria and data collection methodologies, refer to the Section III, Methodology in Kellett et al. (1991).

3.2.4 Equipe de Recherche et de Terrorisme et L’Antiterrorisme (ERTA)

Consolidating a number of existing sources, the ERTA (Langois-Lemans & Brodeur, 2005) developed a qualitative database composed of the large number of incidents that took place in Canada between 1973 and 2007. One major source was Kellett et al. (1991) (see section 3.2.3 above). Using Kellett’s database as a starting point, a chronology through the 1990s and 2000s was completed, in part with the help of others (i.e., Mickolus, 1980, 1993; Mickolus, Sandler, & Murdock, 1989; Mickolus & Simmons, 1997; Vareilles, 2001). Primary sources were also used which include but are not limited to newspaper articles, public reports and internet accounts. Langois-Lemans and Brodeur added much contextual information on the incidents. They used a “narrative” approach (i.e., prose descriptions of events) to their database rather than an incident-based classification “in which incidents are considered together rather than being extracted as discrete events” (p. 123).

An extremely wide interpretation of the phrase “terrorism in Canada” was adopted for this project. The types of incidents in the database include hoaxes, threats, individual attacks, support activities (e.g., fundraising), failed or foiled plots, and any situation regarded to have a Canadian link (e.g., perpetrated by a Canadian or against a Canadian, or somehow related to Canada or Canadian interests). As mentioned by others, “any link to Canada is interesting, even if it is only that an airplane hijacked in the USA had to refuel in Gander on its way to a third country” (Langois-Lemans & Brodeur, 2005, p. 123).

3.3 Description of Data Included in the Databases

This section describes the data on socio-economic factors and radical and violent extremist data that were chosen for inclusion in the databases for this project. The data compiled for this project are provided in an annex to this report.

3.4 Socio-economic Data

This section contains a brief description of the different social and economic factors and the rationale for including these variables in the analysis (see Table 3-2).

Table 3-2 Social and Economic Variables included in the Analysis

Variables	Description	Rationale to include in analysis
Trade Openness	The degree to which countries or economies permit or have trade (exports and imports) with other countries or economies relative to their national incomes. It is measured as the sum of exports and imports of goods and services as a share of gross domestic product.	Open economies generate greater market opportunities. At the same time they also face greater competition from businesses based in other countries. The degree of openness also indicates the extent to which a country is integrated in the world trading system. Increases in the value indicate greater rates of trade openness. There is a fairly large literature that has examined the impact of openness on growth and development, with most of the papers indicating a positive relationship (see Rajan, 2002).
Unemployment rate	The percentage of those in the labour force who are unemployed.	Indication of a country's economic prosperity. The loss of a job is known to have a negative impact on the stability of families, and individuals' health and well-being (see Rajan, 2002).
Inequality (Gini coefficient)	The Gini coefficient measures the extent to which the distribution of income in an economy deviates from a perfectly equal distribution, with zero representing perfect equality and one representing perfect inequality.	Extreme disparity of income among the poorest, the middle class, and the richest predict radicalization.
Poverty rate (%)	The percentage of the population living below the poverty line, where the latter indicates the minimum level of income required to afford basic needs.	Indication of a country's economic prosperity.
Poverty Gap	This is a measure of the depth of poverty in an economy and refers to the total amount of money that should be given to households to bring them up to the level of the poverty line.	The size of the poverty gap is an indication of the economic prosperity of a country, with a larger gap indicating lower prosperity.
Poverty Intensity	It is calculated by multiplying the poverty gap by the poverty rate. It is a more sensitive indication of poverty than the poverty rate and poverty gap because it takes into account any redistribution of income among the poor.	This measure will be used in the analysis as it is an indicator of a country's economic prosperity.
Inflation rate	The annual rate of change or the year-on-year change of the Consumer Price	Inflation is interpreted in terms of declining purchasing power of money

Variables	Description	Rationale to include in analysis
	Index (CPI). That is, the change in the cost of a fixed basket of goods and services for the average consumer.	and hence increased cost of living.
“Real” interest rate (bank rate)	This refers to the nominal interest rate adjusted for inflation and represents the real cost of borrowing or lending.	If the “real” interest rate is high, it is more expensive and therefore more difficult to afford loans or financing for investments (e.g., interest rate on mortgages).
Economic growth (%)	Measured as the rate of change in GDP.	Economic growth (%) is a widely used measure of the health of an economy. Negative growth rates represent a shrinking of an economy’s productive capacity, and the term “recession” is used to represent two consecutive quarters or more of negative GDP growth.
Economic growth per capita (%)	Measured as the rate of change from year to year in GDP per capita	Compared to the previous measure, economic growth per capita (%) corrects for the number of people in the country. Like economic growth (%), economic growth per capita (%) is the standard measure used to gauge the economic performance of a country over time.
GDP per Capita	An approximation of the value of goods produced per person in the country, equal to the country’s GDP divided by the total number of people in the country.	Indication of a country’s economic prosperity or level of development.
Population (million)	The number of residents in Canada regardless of legal status or citizenship—except for refugees not permanently settled in the country of asylum.	One would expect a positive relationship between population and radical/violent extremist activities since a larger population should contain greater numbers of every type of citizen.
Population growth rate (%)	Percentage change in population over time.	As above, one would expect a positive relationship between population growth rate and proportion of radical/violent extremist incidents, purely because of the greater numbers of people.
%Urban Population	Percentage of persons living in areas that have more than 400 people per square kilometre and has more than 1,000 people.	Changes in the % urban population are indications of socio-economic change. Increases typically mean economic improvements. This value is reciprocal

Variables	Description	Rationale to include in analysis
		to rural population.
% Rural Population	Percentage of persons living in rural areas. All territory outside urban areas is considered rural.	Changes in the % rural population are indications of socio-economic change. Decreases typically mean economic improvements. This value is reciprocal to urban population.
Immigrants arrivals to Canada	Number of immigrants arriving to Canada.	The number of immigrant arrivals indicates the extent to which a country is integrated with the rest of the world.
Ethnic composition (million)	Population by ethnic origin – mostly acquired by self-reporting (Statistics Canada Census data). Origins were categorized according to Other European, British, French, Asian, Other.	Indication of diversity within the population.
Federal political party in power	The federal political party that wins the most seats in the federal election for a particular year.	The political party in power can be an indicator of public mood.
Voter turnout (%)	The percentage of citizens who voted in the federal election.	Voter turnout could be an indication of interest in politics. Low turnout could indicate apathy toward political issues, while high turnout could indicate dissatisfaction with current political state of affairs
Majority/minority government	When the federal party wins more than half or less than half of the seats in the House of Commons.	Provides an indication of the stability of the federal government.
Political Disaffection Composite Index	Political disaffection is described as a lack of interest in politics, cynicism towards anything political, and a sense of alienation. The Wcalc algorithm ² was used to create a composite index of political disaffection by aggregating results from public opinion polls and surveys.	Political disaffection can provide indirect information about the percentage of the population that has a negative opinion of the government's ability to support or satisfy people's needs.

² Wcalc is a program which implements an algorithm to build dimensional "factor scores" from dated items with only partially overlapping cases. The Wcalc algorithm can be used to combine survey items from different surveys – about similar public opinion issues – to construct a single indicator of self-reported attitudes or beliefs.

3.4.1.1 Source of Socio-Economic Variables

Table 3-3 outlines the sources for the socio-economic data that were included in the analysis.

Table 3-3: Sources of Socio-economic Data

Variable	Source
Trade Openness	Statistics Canada and World Development Indicators online (WDI)
Unemployment rate (%)	Statistics Canada
Inequality (Gini)	World Income Inequality Database (WIID), WIDER
Poverty rate (%)	Statistics Canada
Poverty gap	Statistics Canada
Poverty intensity	Calculated from Statistics Canada data
Inflation rate (%)	Statistics Canada (calc); WDI 1976-
Real interest rate (%)	WDI and GDF
Economic growth (%)	Calculated from Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD
Economic growth, per capita (%)	Calculated from Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD
GDP per capita (US\$)	Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD
Population (million)	Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD
Population growth rate (%)	Calculated from Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD
Urban population (% total)	WDI, GDF and Census data (from Statistics Canada)
Rural population (% total)	100-Urban population (% total)
Immigrant arrivals	Statistics Canada
Ethnic composition (million) (Other European, British, French, Asian, Other)	Statistics Canada
Voter turnout (%)	Elections Canada
Federal political party in power	Elections Canada
Majority/Minority party in power	Elections Canada

Political disaffection

Canadian Elections Study (CES), Canadian Gallop Poll and the Decima Quarterly (Wcalc5 algorithm).

3.4.1.2 Composite Indexes of Economic Data

A number of economic variables were aggregated to create composite indices as a means of providing a statistical measure of general (positive and negative) economic performance. This allows for the control of particular aspects of the economy and reduces the number of indicators for ease of interpretation.

The following two composite indexes of economic prosperity were created:

- *Misery Index*. A measure of economic well-being for a specified economy, by combining unemployment rate and the inflation rate for a given period. An increasing index means a worsening economy. The main assumption in this index is that an increasing unemployment rate and relatively high inflation have a negative impact on economic growth. In economic terms, a rise in inflation coupled with high unemployment leads to lower consumer expenditures and contributes to an economic slow-down.
- *Economic Prosperity*. Economic growth per capita and GDP per capita. An increase in this index would indicate an increase in economic prosperity.

3.4.1.3 Methodological and Collection Issues

Several variables are available to measure the economic and social aspects of an economy. However, finding long time-series data that go back a hundred years is challenging, even for a developed country such as Canada. As a result, the major challenge encountered in collecting data was availability, for most of the variables except for basic data such as GDP and population. Great care was taken to ensure that data were also comparable over time (e.g., by adjusting financial indicators to control for inflation) and that variables used came from trusted sources. The creation of composite indexes for the overall economic performance of Canada was done to generate more reliable indices of economic prosperity. The selection of indicators for the composite indices (see Section 0) took into account the availability of data and ensured that there was no significant overlap (i.e., high correlations) among the chosen variables (see Appendix C for correlation matrix). Since we did not have any prior expectations or data regarding which variable is more important among the ones chosen, an equal-weighting scheme was used once variables were standardized.

3.5 Radical, Violent Extreme and Terrorism Data

This section contains a description of the data related to radical, violent extreme and terrorist activity, and the inclusion criteria and data coding methodology used to construct the database.

3.5.1 Radicalization, Violent Extremism and Terrorism Related to Canada: An Incidents Database

While there are a variety of methodologies for studying terrorism, radicalization and violence, the most popular is the “Events Data” approach (i.e., doing statistical analysis on numerically-coded characteristics of events). From a statistical analysis of radical and terrorist incidents, there are two main advantages to an Events Data approach. Specifically, researchers should be able to:

- a) determine geographical and temporal patterns of incidents; and,
- b) attach a statistical probability to the choices perpetrators make.

These outcomes have been achieved in the current project.

An events data approach does pose problems, however. Primarily, there may be little agreement as to what constitutes an event. As noted earlier, the ERTA database took a very broad perspective on terrorism, and included support to terrorism. This approach is attractive in a study of radicalism, mainly because no firm answer can be found regarding what indicators for radicalism may exist. To overcome this difficulty, an “event” must be broadly defined. To focus on actual violent actions is to risk a reactive approach to radicalism, rather than the proactive approach this research attempts to inform.

The following broad inclusion criteria were used to incorporate as many instances of radicalization, terrorism and political violence with Canadian content as possible and were derived from a combination of the inclusion criteria that was used in all of the four sources.

1. The incident or activity must entail some level of threatened or actual illegal activity. Support activities for a planned attack or terrorist groups would be included;
2. The event or activity was aimed at attaining a political, economic, religious, or social goal;
3. The event or activity included evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) other than the immediate victims;

4. The incident or activity must be intentional – the result of a conscious calculation on the part of a perpetrator (this criteria would include opportunistic actions which were part of an ideological outlook);
5. The incident or activity must have a link to Canada. For example, this dataset would include an incident that involved an aeroplane hijacked in the USA that had to refuel in Canada on its way to a third country or any plotting, preparation, or fundraising activity in Canada, even if the actual attacks are to take place elsewhere, is included; and
6. Single versus multiple incidents. Events identified as simultaneous and coordinated would be recorded as one attack to reduce reporting bias. For example, the simultaneous and coordinated attacks of 9/11 would be considered a single incident.

Events related to radicalization, terrorism and political violence were aggregated from the four sources mentioned in Section 3.2 into an incidents database using a time series approach (a statistical technique for identifying correlations between data where the cause may be separated from the effect by time. For the purposes of this project, it was decided that any incident reported in one of the four sources that had a link to Canada would be included in the database to provide a fuller picture of the situation.

3.5.1.1 Data Coding of Radical, Violent Extreme and Terrorist Events

Each incident entered into the database is a terrorist or radical event existing in one or more of the sources (GTD, WITS, Kellett et al. (1991), ERTA). An incident is characterized as a proven or unproven radical, politically violent or terrorist event. A proven incident is an event that has been demonstrated or verified without doubt by various sources (e.g., successful or attempted attack, arrest for support activities, official declaration of being a member of a terrorist/radical group, threatening letter received, etc.). Unproven incidences are events that have not been established as true by evidence or demonstration (e.g., anecdotal reports, report of suspicious activity without arrest, unsubstantiated confessions, etc.).³

Efforts were made to enter a single incident for every event that occurred on a particular date, and at a specific time and location. For example, if there were two bombings at the same location at the same time and day, it is considered one incident. If there were two bombings that occurred on the same day and time but at different locations, it is considered two events (provided these two incidents were uncoordinated). There were some events, however, that included more than one instance of radical, violent extreme or terrorist activity. For instance, only one incident was recorded for the activities of Wiebo Ludwig: (i.e., being charged for the crimes) although he was implicated in many acts of sabotage.

³Anyone doing analyses using this database may want to exclude this category of events from their analysis.

In regards to support activity, if a person is arrested for suspected terrorist activity (e.g., fundraising, possession of weapons), it is considered a single event. If the person is later charged and convicted for the same incident that will not be considered a separate event. If the person is later arrested or convicted for a different charge, then it is considered a separate event.

Each entry in the database provides as much detail as could be found in the available sources. For each incident, the incident type, date and location of the event, the perpetrators, who or what was the target of the event, weapons used, number of injuries and fatalities, collateral damage, potential motives for the event and the sources of information are provided. The database elements and information available in the sources were used as the basis to develop the categories in our database. The categories were then modified to match the objectives of this project.

Where a variable includes a bulleted list of possible entries, the number of the bullet corresponds to the entry that would be made in the database for an event falling into that classification.

Incident ID: Each incident is assigned a unique ID based on chronological order.

Incident Source (text): The original source in which the incident was found (i.e., ERTA, Kellett et al. (1991), GTD, WITS).

Source category (text): The categorization of the incident by the source material. The ERTA and Kellett et al. (1991) use different categorization schemes. The source category is useful to perform independent validation of the datasets.

Incident year: The year that an event occurred. It is *important to note* that the date of an incident can indicate one of the following: the actual year a radical, extreme violent and terrorist act occurred, the year the act was reported, or the date that a perpetrator was charged or convicted. Additional verification of the dataset is required to ensure all incidents are dated consistently. However, for the most part discrepancies in date do not exceed one year.

Incident month: The month in which the incident occurred (see note above).

Country (text): The country where the event occurred.

Province/state location (text): The province and/or state where the event occurred.

City (text): The city where the event occurred (if available or applicable).

Canadian location: An event has been classified according to whether it occurred within or outside Canada, or whether the location is unknown. This variable can have more than one entry.

- **(1) Within Canada**
- **(2) Outside Canada**
- **(3) Unknown**

Incident type: Each incident is categorized by the type of event and/or activity that occurred at a particular time and place. The events were categorized according to the following 6 incident types:

- **(1) Acts of vandalism and/or destruction:** The deliberate mischievous or malicious destruction or damage of property which include, but is not limited to arson, explosions, defacement, criminal damage and graffiti.
- **(2) Threats:** An act of coercion wherein a negative consequence is proposed to elicit response from an individual or a particular society. Threats can include acts of intimidation like cross burning.
- **(3) Failed or foiled plots:** Attempted attacks such as arson, explosions, vandalism that failed or were foiled.
- **(4) Hoaxes:** Deliberate attempt to deceive or trick people into believing or accepting something which the hoaxter (the person or group creating the hoax) knows is false.
- **(5) Support activities:** An activity by a group or individual that is executed as a means to support terrorist or radical group activity(ies) and/or attack(s). These include fundraising activities, demonstrations, extortion, possession of weapons, drugs stolen goods and explosives, robbery, traffic (arms and drugs), vandalism, training and theft.
- **(6) Individual attacks:** Attacks towards a person or persons including but not limited to beatings, murders, bombings, kidnapping, and letter bombings.

Nationality of target⁴: The nationality of the target in an event has been classified into three possible groups. If the information is not available in one of the data sources, the category “unknown” will be indicated. This variable can have more than one entry.

⁴ A person's nationality is based on the Citizenship and Immigration Canada definition of a Canadian citizen. In general, Canadian citizenship is typically obtained by birth in Canada, birth abroad when at least one parent is a Canadian citizen, or by adoption abroad by at least one Canadian citizen. It can also be granted to a permanent resident who lives in Canada for three out of four years and meets specific requirements. While there are some exceptions to the strict definition of a Canadian citizen, this definition will be used for the purposes of this database. The nationality of the target and perpetrator is based on the information available in one of the sources (i.e., WITS, GTD, ERTA list, Kellet et al. 1990)). If the information is not available in one of these sources, the category “unknown” will be indicated.

- **(1) Canadian.** Terrorist or radical activities or events that are targeting a Canadian citizen or Canadian diplomatic missions, property owned by or associated with a Canadian government (including those located in coastal waters within 200 km from the Canadian coast) or business⁵.
- **(2) Other.** Terrorist or radical activities or events that are targeting internationally protected persons, diplomatic missions or property owned or associated with a foreign government (including those located in coastal waters beyond 200 km from the Canadian coast) or business.
- **(3) Unknown.** The target is unknown or the information is not available in one of the available sources.
- **(4) Not Applicable.** Events for which there is no target and, thus, this variable is not applicable to the event.

Nationality of perpetrator: The nationality of the perpetrator (individual or group) that was involved in the event. The nationality of the perpetrator has been classified into three possible groups. If the information is not available in one of the data sources, the category “unknown” will be indicated. This variable can have more than one entry.

- **(1) Canadian.** Terrorist or radical activities or events that are perpetrated by a Canadian citizen or group of individuals belonging to a Canadian-based group.
- **(2) Other.** Terrorist or radical activities or events that are perpetrated by a person who does not possess a Canadian citizenship or by a group of individuals belonging to a foreign-based group.
- **(3) Unknown.** The perpetrator is unknown or the information is not available in one of the available sources.

Intended target type and Target location: These two variables refer to different characteristics of an event, but have the same options. They are both defined below. The intended target in an event is the actual physical target of the activity (e.g., what or who was bombed, attacked, set fire to, or an attempted attack, etc.). The target location refers to the location of the target at the time of the event. Target types and locations have been classified into 17 possible kinds of groups. This variable can have more than one entry.

- **(1) Business:** A legally recognized organization designed to provide goods and/or services to consumers. Also includes an individual or a group of individuals who are members of, are stakeholders and/or are employed by the business. This category

⁵ A business is considered Canadian if their head-office is based in Canada.

also includes target types that may not inherently constitute a business, but are commonly considered so, such as barns.

- **(2) Abortion institution/individuals:** An institution or clinic that educates, gives medical advice and/or performs abortions. Also includes an individual or a group of individuals who are members of, are stakeholders in, or are employed by the institution.
- **(3) Educational figure/institution:** Any institution dedicated to education. Also includes an individual or a group of individuals who are members of or are employed by the institution.
- **(4) Religious figures/institutions:** An institution or individual dedicated to educating and practicing a particular religion.
- **(5) Government (diplomatic or general):** A governing individual or body, especially to control and administer public policy in a political unit. Also includes the ruling political party or coalition of political parties in a parliamentary system, the cabinet in a parliamentary system and/or persons who make up a governing body. This includes diplomats.
- **(6) Journalists and media:** An institution or individual who deals in the creation and distribution of advertising, entertainment and information services.
- **(7) Utilities:** An institution or organization that creates distributes and provides energy. Also includes an individual or a group of individuals who are members of, are stakeholders in, or are employed by the institution.
- **(8) Air transport.** A system for scheduled air transport of passengers and freight. A business providing a system of scheduled air transport. Also includes an individual or a group of individuals who are members of, are stakeholders in, or are employed by the airline. Also includes air vehicles (on the ground or in the air) and air facilities.
- **(9) Military/Police:** An organization authorized by its country to use force, usually including use of weapons, in defending its country (or by attacking other countries) by combating actual or perceived threats. Also includes an individual or a group of individuals who are members of or are employed by the military or police.
- **(10) Private individual (person or property):** A private individual's person or property is the focus of the attack.
- **(11) Land Transport:** Actual buses/trains/taxis/trucks and/or the terminals.

- **(12) Maritime transport:** Inland (e.g., Great Lakes) and coastal ships, including ports and harbours.
- **(13) Natural Resources.** A material source of wealth, such as timber, fresh water, or a mineral deposit, that occurs in a natural state and has economic value.
- **(14) Public:** An area or place that is open and accessible to all citizens. These include Monuments, Public Space, Parks, climate, etc.
- **(15) Not applicable:** There is no specific target involved in the incident. This usually occurs for support activities.
- **(16) Unknown:** The target is unknown.
- **(17) Medical:** An institution or organization that provides medical services. Also includes an individual or a group of individuals who are members of, are stakeholders in, or are employed by the institution.

Perpetrator Type: The type of perpetrator (individual or group) that was involved in the event. Based upon the data collected from, and descriptions provided by, GTD, WITS, ERTA, and Kellet 1990, perpetrators have been classified into 10 possible kinds of groups and/or individuals. This variable can have more than one entry.

- **(1) Lone wolf:** An individual or group who was involved in an event and who (a) operated individually; (b) does not belong to an organized terrorist/radical group or network; (c) acted without the direct influence of a leader or hierarchy; (d) employed tactics and methods conceived and directed by the individual without any direct outside command or direction.
- **(2) Anti-abortion group:** A group or an individual who belongs to a group or network that expresses/demonstrates the idea, belief, or emotion in support of or against anti-abortion and pro-life/pro-choice movement (the two opposing beliefs are aggregated for convenience of analysis).
- **(3) Ecology/environmental group:** A group or individual who belongs to a group or network that addresses environmental problems on a not-for-profit basis and argues for sustainable management of resources and stewardship of the environment through changes in public policy and individual behaviour.
- **(4) Religious group:** A group or individual who belongs to, or is affiliated with/influenced by a subgroup within a religion that operates under a common name, tradition, and identity (e.g., Sons of Freedom, Muslim sects).

- **(5) Political/anti-government group:** A group or individual who belongs to a group or network that argues to bring about social, political, or economic change. This action is in support of, or opposition to, one side of an often controversial argument. Also includes opposition to an existing government or political party (e.g., Direct Action, Armenian Secret Army for the Liberation of Armenia (ASALA)).
- **(6) Xenophobic group:** A group or individual who belongs to a group or network that dislike and/or fear a group (e.g., ethnic) different from themselves (e.g., KKK, skinheads).
- **(7) Animal rights group:** A group or individual who belongs to a group or network that argues for greater protection for animals, particularly those used in laboratories or in entertainment, as well as domestic animals such as those used for food, labour, or as companions (pets).
- **(8) Nationalist-Separatist group:** A group or individual who belongs to a group or network that argues to establish a new political order or state based on ethnic dominance or homogeneity (e.g., Front Liberation de Quebec (FLQ), Native interest groups; Irish Republican Army (IRA), Tamil Tigers).
- **(9) Social-revolutionary group:** A group or individual who belongs to a group or network that advocates for the need for fundamental social change through revolution by mass movements of the vast majority, as a strategy to achieve a socialist society.
- **(10) Unknown:** An unknown individual or group that was involved in the incident.

Perpetrator name: The name of the individual perpetrator and/or associated group that perpetrated the event. Suspected perpetrators that have not been convicted of the incident are also included.

Proven/Unproven incident:

- **(1) Proven.** A proven incident is an event that has been demonstrated or verified by various sources (e.g., successful/attempted attack, arrest for support activities, official declaration of being a member of a terrorist/radical group, threatening letter received, etc.).
- **(0) Unproven:** Unproven incidences are events that have not been established as true by evidence or demonstration (e.g., anecdotal reports, report of suspicious activity without arrest, unsubstantiated confessions, etc.).

Incident Details: A short summary of the incident and any additional information relevant to the incident that is not covered in one of the categories.

Relation to another incident: If applicable, the incident ID of any related incident.

Weapon/Tactic: This indicates the different types of weapons that were used or implicated in the incident (e.g., bomb/explosives, firebomb, knife, etc.). In the case of hoax events, although an event does not actually take place, the weapon was categorized as whatever the perpetrators claimed it would be (e.g., if there was a threat of arson, then the weapon would be coded as arson). Weapons have been classified into 13 possible kinds of categories. This variable can have more than one entry.

- **(1) Bomb/explosive;**
- **(2) Letter with razor blades;**
- **(3) Firebomb/arson;**
- **(4) Firearm/Gun (all types);**
- **(5) Acid;**
- **(6) Chemical/Biological;**
- **(7) Gas bomb (e.g., Molotov cocktail);**
- **(8) Letter bomb;**
- **(9) Knife;**
- **(10) Blunt object;**
- **(11) Melee;**
- **(12) No weapon; and,**
- **(13) Unknown.**

Potential motive/objective: The idea, belief, or emotion that impelled an individual or group of individuals to perpetrate or be involved in the incident. This conclusion is based on the qualitative information provided about the incident (i.e., the target(s), perpetrator(s), and details of the event itself). Potential motives/objectives have been classified into 9 possible kinds of categories. This variable can have more than one entry.

- **(1) Animal rights:** The incident was perpetrated as a means to express/demonstrate the idea, belief, or emotion for or against the rights of non-human animals, particularly those used in laboratories or in entertainment, as well as domestic animals such as those used for food, labour, or as companions (pets).
- **(2) Anti-abortion:** The incident was perpetrated as a means to express/demonstrate the idea, belief, or emotion in support of or against anti-abortion and pro-life/pro-

choice movement (the two opposing beliefs are aggregated for convenience of analysis).

- **(3) Ecology/environmental:** The incident was perpetrated as a means to express/demonstrate the idea, belief, or emotion in support of or against environmental issues/problems.
- **(4) Religious:** The incident was perpetrated as a means to express/ demonstrate the idea, belief, or emotion in support of or against a particular religion.
- **(5) Political/anti-government:** The incident was perpetrated as a means to express/demonstrate the idea, belief, or emotion in support of social, political, or economic change. Also includes anti-government views.
- **(6) Nationalist-separatist:** The incident was perpetrated as a means to express/demonstrate the idea, belief, or emotion in support of a new political order or state based on ethnic dominance or homogeneity.
- **(7) Ethnic/racial:** The incident was perpetrated as a means to express/ demonstrate the idea, belief, or emotion of ethnic or racial views
- **(8) Socialist-revolutionary:** The incident was perpetrated as a means to express/demonstrate the need for fundamental social change through revolution by mass movements of the vast majority, as a strategy to achieve a socialist society.
- **(9) Unknown:** The motive/objective of the incident is unknown.
- **(10) Personal:** The incident was perpetrated for personal reasons.
- **(11) Labour:** The incident was perpetrated for labour-related reasons.

Injuries/Fatalities: Number of injuries and fatalities that occurred as a result of the event. These data are reported in separate columns.

Infrastructure damage: The terrorist or radical resulted in infrastructure damages.

- **(0) No damage**
- **(1) Damaged infrastructure** (in the cases of arson, damage was assumed, unless otherwise stated).
- **(2) Unknown**

ERTA, Kellett et al. (1991), GTD and WITS columns: There are separate columns for each source. A “1” in the column indicates that the incident was found in that particular database/list. Events that appear in more than one database are coded with a “1” in more than one column.

3.6 Comprehensive Database of Canadian Socio-Economic and Radical, Violent Extreme, and Terrorist Data

Once the databases related to socio-economic data and radical, violent extreme and terrorist events were compiled, selected variables from the two databases were merged into a single database using a time-series approach. This database was used to perform the quantitative analyses detailed in Section 4.

It is important to note that the following data categories are not restricted to a single entry per incident: Canadian location, nationality of target, nationality of perpetrator, target type, target location, type of perpetrator, type of weapon and potential motive. For instance, a perpetrator could possess both a Canadian citizenship and a citizenship from another country. Thus, the sum of a category (i.e., perpetrator type) may be greater than the sum of all incidents.

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4 ANALYSIS AND RESULTS

4.1 Analyses Performed

The objective of this work was to perform quantitative analyses on the data compiled to describe socio-political, socio-economic and radicalization conditions. All analysis was performed in the Statistical Package for Social Sciences (SPSS) version 15.

It was decided that the analysis should proceed in a deliberate fashion to make interpretation of the results easier. Accordingly, the first analysis was performed to obtain an overview of the story told by the data and to determine what variables are most amenable for further, more comprehensive analysis. Specifically, this descriptive statistical analysis involved the creation of charts and summary data (i.e., averages, per year) for selected radical event data and selected socio-political and socio-economic variables. These data were then plotted against each other to visually inspect relationships. Results from these analyses are presented in Sections 4.2 and 4.3.

Following the generation of descriptive statistics, bivariate correlational analyses were performed. Correlations were generated among all variables (i.e., radical event data, socio-political and socio-economic). The data set were also reduced in accordance with specific subsets known to comprise different parts of the data. The first reduction was to look only at those incidents provided by Kellet et al (1991). The second reduction was to look only at those incidents provided by ERTA (2005). These reductions were made in case there were systematic differences in the way the two studies determined inclusion of radical events. Finally, only data between 1960 and 2007 were considered, because there were no radical events data prior to 1960. These analyses are reported in Section 4.4.

Following the correlational analysis, cross-correlations were calculated and plotted against lag time (one year increments). The results from the time series analysis are reported in Section 4.5.

Finally, a multiple regression analysis was performed on data that would intuitively seem to hold some relationship to radicalization. These analyses are reported in section 4.6.

4.2 Patterns of Radicalization, Violent Extremism and Terrorism related to Canada 1960-2007

The following descriptive statistical analysis aggregates radical, violent extreme and terrorist incidents documented in the four selected databases (i.e., Kellet, ERTA, GTD and WITS), related to Canada from 1960 to 2007. Nine variables are described: date, location, type of incident, target type, perpetrator type, casualties, motive, and weapon, using the definitions provided in Section 3.5.1.1 of this report.

It is important to note that the following data categories are not restricted to a single entry per incident: Canadian location, nationality of target, nationality of perpetrator, target type, target location, type of perpetrator, type of weapon, and potential motive. For instance, a perpetrator could possess both a Canadian citizenship and a citizenship from another country. Thus, the sum of a category (i.e., perpetrator type) may be greater than the sum of all incidents.

4.2.1 General

A total of 1217 incidents were identified between 1960-2007 of which 1159 (94.9%) occurred in Canada and 62 (5.1% of cases) occurred outside of Canada. As indicated in Figure 4-1, the majority of incidents occurred in the provinces of Quebec (45.99%), Ontario (18.29%), and British Columbia (30.11%). Only 2.07 percent of incidents occurred in Alberta, and less than 1% of incidents occurred in the Yukon, Saskatchewan, Prince Edward Island, Nova Scotia, Northwest Territories, Newfoundland, New Brunswick and Manitoba. No incidents were reported to have occurred within Nunavut. Less than 1% of the incident provincial locations are unknown.

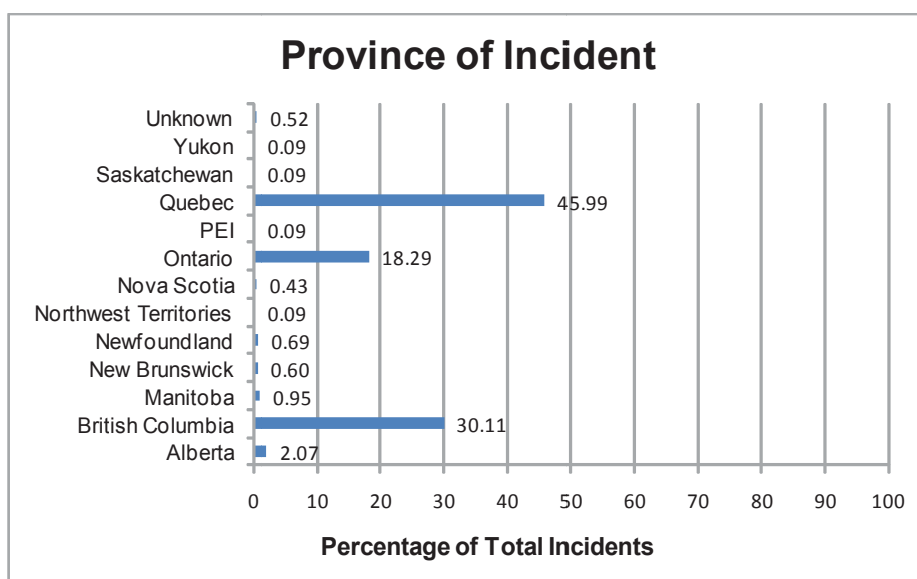


Figure 4-1 Percentage of All Incidents that Occurred within each Province

Acts of vandalism and destruction accounted for 44.95% of the total number of incidents, followed by failed or foiled plots (16.76%), support activities (13.64%), hoaxes (11.42%), individual attacks (7.89%) and threats (5.34%) (see Figure 4-2). Of the events that occurred within Canada, it can be seen in Table 4-1 that acts of vandalism were mostly limited to British Columbia and Quebec. Meanwhile 50% of threats occurred in Quebec, followed by Ontario (26.7%) and the rest almost equally distributed among Alberta, British Columbia, Manitoba, New Brunswick, and Newfoundland. A

large proportion of support activities originate in Quebec (61.7%), while individual attacks occurred largely in Ontario (38.1%) and British Columbia (27.4%). The proportion of failed/foiled incidents in Quebec was 51.8%, followed by British Columbia (35%) and Ontario (11.7%). Finally, hoaxes mostly occurred in Quebec (48.9%) but the rest were more spread out throughout the rest of the country with Ontario accounting for 27.2% of events. These data have not been controlled for population, although it may be useful to extend the database to include provincial population data in the future for this purpose.

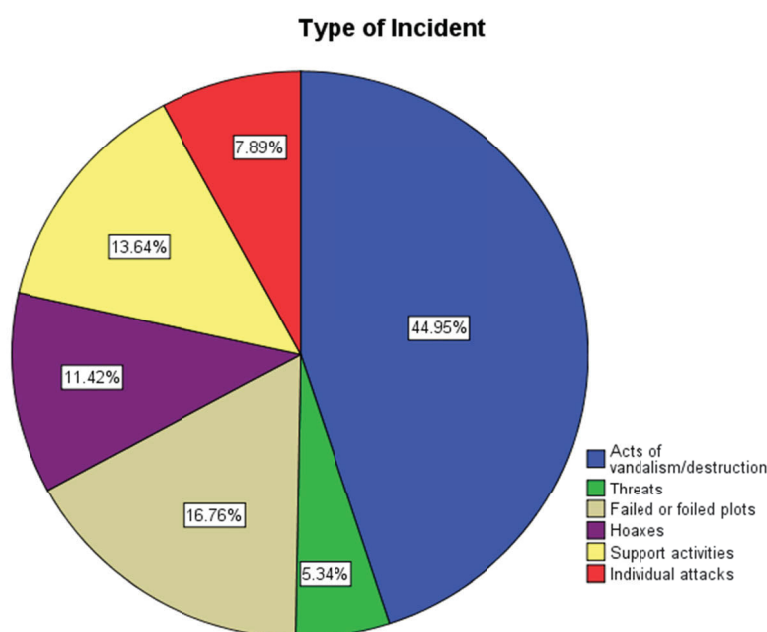


Figure 4-2 Percentage of Incident Type that Occurred of the Total Number of Incidents

Table 4-1 Percentage of Incident Type Accounted for by Each Province

	Acts of vandalism / destruction	Threats	Failed or foiled plots	Hoaxes	Support activities	Individual attacks
Alberta	1.84	3.33	1.02	3.76	1.42	3.57
British Columbia	40.26	6.67	35.03	9.77	14.89	27.38
Manitoba	0.18	3.33		1.50		7.14
New Brunswick	0.55	3.33	0.51	0.75		
Newfoundland	0.18	3.33		3.01		1.19
Northwest				0.75		

Territories						
Nova Scotia	0.18			2.26		1.19
Ontario	13.79	26.67	11.68	27.07	21.28	38.10
PEI				0.75		
Quebec	42.83	50.00	51.78	48.87	61.70	19.05
Saskatchewan				0.75		
Unknown	0.18	1.67		0.75	0.71	2.38
Yukon		1.67				
TOTAL	100	100	100	100	100	100

4.2.2 Incident trend

Figure 4-3 provides an overall pattern of the frequency of incidents occurring between 1960 and 2007. It appears that the total number of events has declined dramatically in the last decades, after peaking in the 1960s and 1980s. A similar trend is observed for each type of events over time (see Table 4-4).

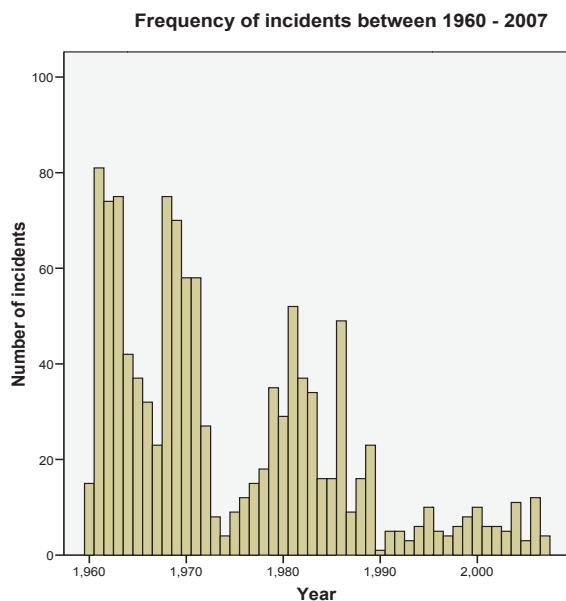


Figure 4-3 Frequency of Incidents Occurring between 1960 - 2007

There appear to be four main trends of radical, violent extreme and terrorist events since 1960. As was observed by Kellett et al. (1991), incidents rise sharply in 1961 and then decline steadily through to 1967 (see Figure 4-3). The second wave appears to have started with an outbreak of attacks in 1968 then declining sharply in 1972. The third wave developed more gradually than those in the 1960s. It begins in 1975 and

peaks in 1981 then gradually declines to almost no events in 1990. From 1991 onwards, the trend of events is fairly steady with no great peaks or declines. One must interpret these results with caution as the incident date recorded in the radical/terrorist database includes either the date that the actual incident happened or when the incident was reported in the sources. While we can be reasonably sure that most events were reported in the same year that they occurred, it is possible that an event was reported in a different year than its occurrence (see Incident year in Section 3.5.1).

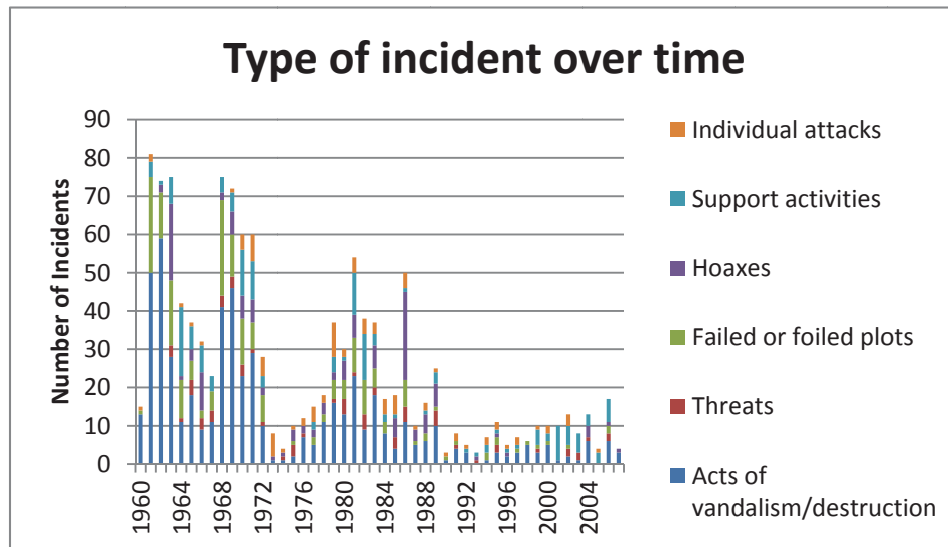


Figure 4-4 Type of Incidents Occurring from 1960 to 2007

Also of interest is the source that incidents were reported. It is important to know the origin of the incidents as each source has their own methodology and criteria for including an event in their database (see Section 3.2). This knowledge can contribute to a greater understanding of the nature of the data compiled within the database. As can be seen in Table 4-5, all of the incidents are reported by Kellett et al. (1991) until 1970 whereby a small percentage of the incidents are also found in the GTD. From 1973 until 1989, all of the incidents are reported both by Kellett et al. (1991) and the ERTA, with the GTD and the ERTA accounting for a small fraction of additional incidents. From 1990 onwards, most incidents are found in the ERTA while the GTD and WITS add little data to the total number of incidents.

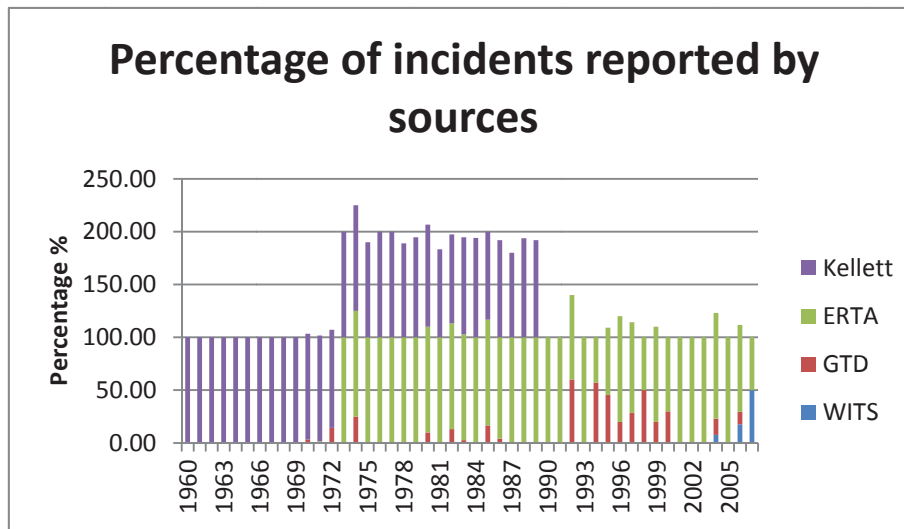


Figure 4-5 Percentage of Incidents Reported by each Source from 1960 to 2007

4.2.3 Targets and Perpetrators of Radical, Violent Extreme and Terrorist Events

Perpetrators of these events have a broad range of potential target types. This is reflected in the number of categories of targets outlined in this database (i.e., 15). Business was by far the most frequent target type, followed by government (see Table 4-6). Medical, natural resources, maritime transport and abortion targets were targeted least. Since incidents cover events other than successful attacks such as hoaxes, support activities and unsuccessful attacks or plots, the target of such activities are difficult or impossible to ascertain or there may not actually be any particular target involved (i.e., support activities for a particular group). These incidents are labelled as either unknown or not applicable and account for 58 (unknown) and 47 (not applicable) of total incidents respectively.

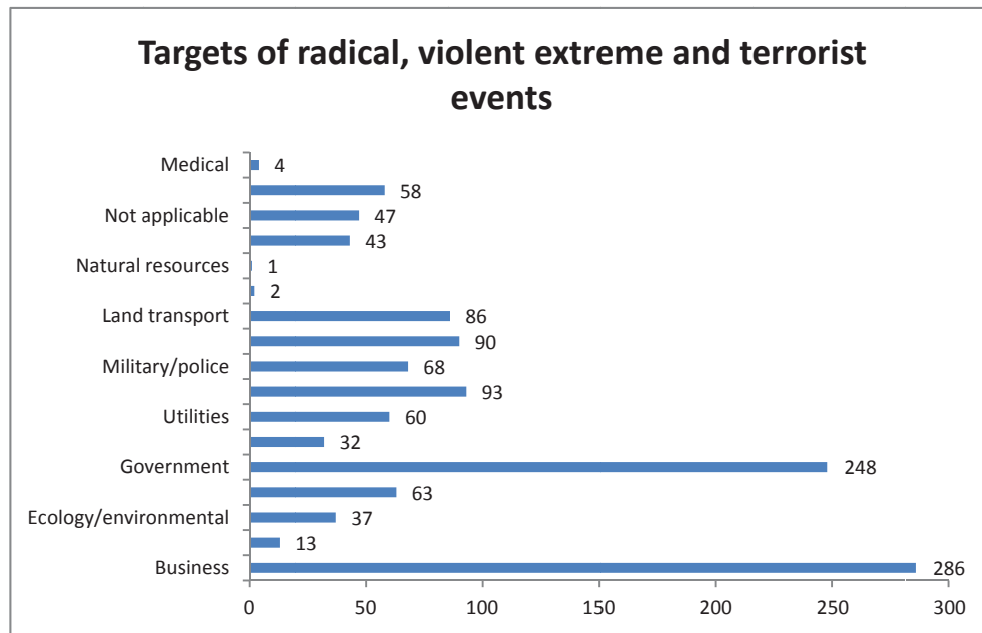


Figure 4-6 Frequency of Type of Incident Target Selected

Table 4-2 clearly shows that acts of vandalism targeted mostly businesses and government while individual attacks were more likely to target private citizens followed by government and air transport. Many of the failed or foiled plots involved government while air transport was the target of the most hoax incidents. These data are amenable to Chi Square analysis (i.e., to find out whether the rate of hoax incidents for air transport is significantly different from what one would expect if hoaxes for air transport are independent), which was not performed during this contract since the emphasis was on time series and regression analysis.

Table 4-2 Targets of the Six Different Types of Radical, Violent Extreme and Terrorist Events

Target Type	Acts of vandalism / destruction	Threats	Failed or foiled plots	Hoaxes	Support activities	Individual attacks
Business	154	9	43	21	54	5
Abortion	6	0	0	1	0	6
Ecology/environmental	23	1	2	7	3	1
Religious	39	2	12	3	4	3
Government	102	27	58	30	8	23
Journalist/media	15	3	5	5	3	1
Utilities	50	0	7	2	1	0
Air transport	6	5	6	54	2	20
Military/police	36	3	14	3	7	5
Private citizen	33	4	11	0	13	29
Land transport	39	4	25	12	4	2
Maritime transport	2	0	0	0	0	0
Natural resources	1	0	0	0	0	0
Public	12	5	10	1	14	1
Not applicable	0	2	0	0	43	2
Unknown	31	1	12	2	11	1
Medical	3	0	0	0	1	0
TOTAL	547	65	204	139	166	96

A large proportion of perpetrators were unknown (705 out of 1217). Of the known perpetrators, nationalists/separatists were the most frequent perpetrators (215), largely targeting businesses, followed by government, military/police, land transport and public areas. The second highest proportion of perpetrators were religious individuals/groups (131) targeting mostly religious figures and institutions, followed by private citizens, land transport, utility institutions and members, businesses and government figures and institutions. Lone wolves (67), political/anti-government individual/groups (46), animal rights groups (24), xenophobes (17), and social-revolutionary groups (14) make up most of the rest of the type of perpetrators. Ecology/ environmental and abortion groups are the least frequent perpetrators.

As can be seen in Table 4-3, the majority of incidents were committed or suspected of being committed by the FLQ, mostly conducting acts of vandalism/destruction and support activities from the mid 1960s to the early 1970s. The Sons of Freedom are the second most common perpetrator committing or suspected of committing mostly acts of

vandalism/destruction and failed or foiled plots in the early 1960s and again later in the late 1970s and 80s. The other main perpetrators are the Animal Liberation Front (ALF), Armee de Liberation du Quebec (ALQ), Direct Action, and the interestingly, the Klu Klux Klan (KKK). Most perpetrators were unknown, however, accounting for 57% of all incidents from 1960 to 2007. The remaining known perpetrators are numerous and originate from an assortment of organizations and factions and collectively make up less than 12% of all incidents.

Table 4-3 Perpetrators Committing or Suspected of Committing a Type of Incident

Type of Incident	Animal Liberation Front (ALF)	Armee de Liberation du Quebec (ALQ)	Direct Action	FLQ	KKK (Alberta)	Sons of Freedom
Acts of vandalism/destruction	18	0	8	94	2	82
Threats	0	0	0	4	0	1
Failed or foiled plots	0	2	4	34	2	33
Hoaxes	0	0	1	1	0	0
Support activities	5	9	14	48	5	2
Individual attacks	0	1	0	5	2	0
TOTAL	23	12	27	186	11	118

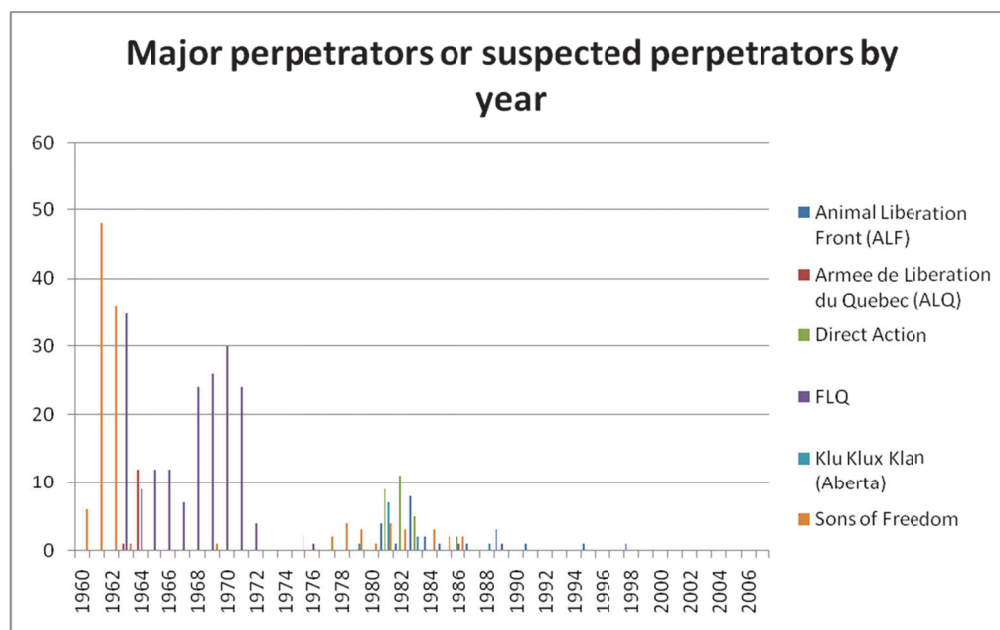


Figure 4-7 Perpetrators Committing or Suspected of Committing Incidents each Year

4.2.4 Casualties of incidents

Since 1960, 405 people have been killed and 281 people have been injured as a result of radical, violent extreme and terrorist events in and outside of Canada (see Figure 4-8). The majority of the casualties occurred within Canada. As illustrated in Table 4-4 acts of vandalism/destruction, individual attacks and support activities account for most of the injuries.

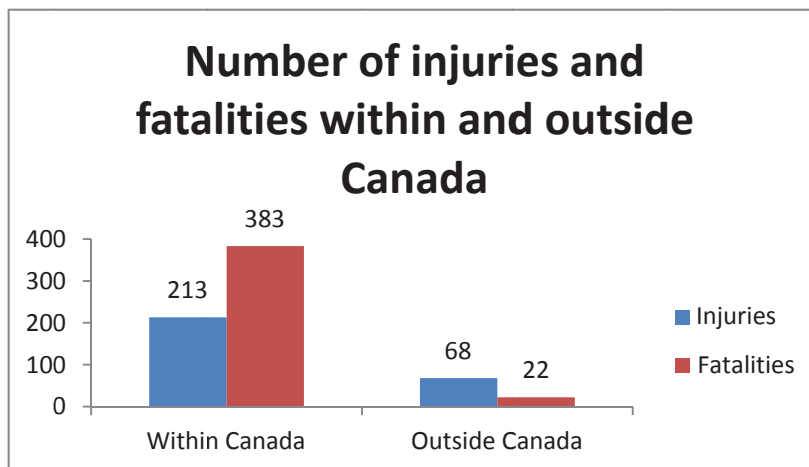


Figure 4-8 Number of Injuries and Fatalities Within and Outside Canada between 1960 and 2007

The largest proportion of fatalities occurred as a result of acts of vandalism/destruction. The bulk of these deaths (329) were a result of the Air India bombing (an act of vandalism/destruction). Interestingly, hoaxes resulted in almost 4% (10) of the injuries, and .25% (1) fatality. The series of events leading to the fatality was as follows: An anonymous caller lead police to believe a bomb would explode at the National building on Rideau Street. No bomb was found. A man died when an elevator stalled during the evacuation. The man had climbed out of the elevator when it was stopped and was crushed when it moved (Incident ID - 1963-05-23-353).

Table 4-4 Casualties of Racism, Violent Extremism and Terrorism by Type of Incident

	Injuries	Fatalities
Acts of vandalism/destruction	39.15%	85.43%
Threats	0.00	0.00
Failed or foiled plots	2.49%	1.23%
Hoaxes	3.56%	0.25%
Support activities	24.56%	5.93%
Individual attacks	30.25%	7.16%

4.2.5 Weapons involved in incidents

Bombings and explosives were the most common type of weapon involved, constituting 48% of all weapons, followed by firebombs and arson at 15%. Bombs and/or explosives were the main weapon implicated in acts of vandalism/destruction (52%), in threats (60%), in failed or foiled plots (66%) and in hoaxes (85%). 54% of support activities and 28% of threats involved no weapons. Note that rounding results in a total greater than 100% in Table 4-5, but no incident was coded as having involved more than one type of weapon.

Table 4-5 Type of Weapon Involved in Incidents

Weapon	Incidents	Percent of Cases
Bomb/explosive	589	48.4
Letter with blades	2	0.2
Firebomb/arson	184	15.2
Firearms/gun	49	4.0
Acid	1	0.1
Chemical/biological	4	0.4
Gas bomb	66	5.4
Letter bomb	9	0.7
Knife	23	1.9
Blunt object	13	1.1
Melee	1	0.1
No weapon	168	13.8
Unknown	125	10.3
Total	1234	101.6

While unknown perpetrators were responsible for the bulk of the bombing/explosives incidents, 17% of incidents involving bombs/explosives were perpetrated by the FLQ, and the FLQ were suspected of a further 2% of the bombing/explosives incidents. Five percent of incidents involving bombs/explosives were perpetrated by the Sons of Freedom, while the remaining small percentage of incidents involved the Armenian Secret Army for the Liberation of Armenia (ASALA), Shining Path, Direct Action, Nationalist Revolutionary Army and Cuban Action.

Suspected or actual responsibility for firebombs and/or arson was documented as follows: Sons of Freedom: 46%, the FLQ: 4%, the Brigade d'Autodefence du Francais (BAF): 4% and the Doukhobors: 2%. The remaining small percentage of incidents

involved the Wimmins Fire Brigade, Direct Action, Earth Liberation Front (ELF), Animal Liberation Front (ALF), among others.

4.2.6 Potential motive

Table 4-6 documents the frequency of potential motives underlying the incident. A motive refers to an idea, belief, or emotion that impelled an individual or group of individuals to perpetrate or be involved in an incident. A relatively large proportion of incidents were motivated or potentially motivated by nationalist/separatist ideas and beliefs (27%). These incidents occurred mostly between 1963 and 1972 (see Figure 4-9) and most were perpetrated by the FLQ.

Table 4-6 Potential Motive of Incidents

Motive	Frequency	Percent
Animal rights	34	2.8
Anti-abortion	12	1.0
Ecology/environment	10	0.8
Religious	231	18.7
Political/anti-government	123	9.9
Nationalist/separatist	309	25.3
Ethical/racial	34	2.8
Social-revolutionary	38	3.1
Unknown	381	31.3
Personal	43	3.1
Labour-related	14	1.2

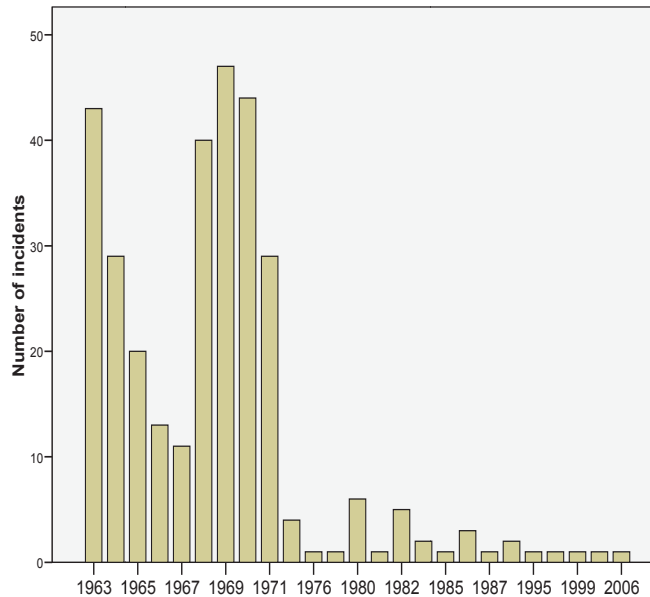


Figure 4-9 Nationalist/Separatist Motivated Incidents

As can be seen in Figure 4-10, religiously-motivated events mostly occurred between 1960 and 1962 with slight rises in occurrences in the 1980s. The Sons of Freedom are believed responsible for most incidents. There is again a slight rise in 2001 which mostly involve individuals who are charged, arrested or convicted of terrorist activities with proven or suspected links to extreme Islamist groups. Interestingly, 42% of the events that occurred since 2001 involved suspects that are yet to be convicted of performing any terrorist activities or have even been cleared of any involvement (i.e., unproven incidents). For instance, Mahar Arar, a Canadian citizen, was deported by the United States government to Syria on terrorist charges. Arar claimed he was tortured while in Syria and was later cleared of any involvement.

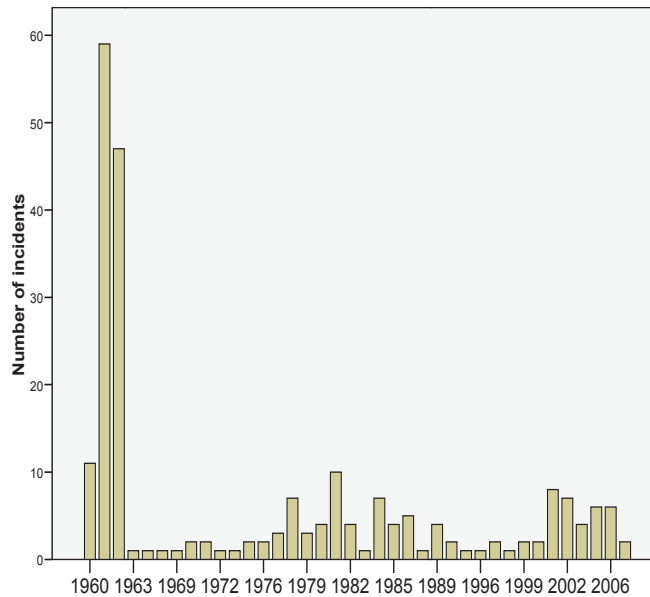


Figure 4-10 Religiously-Motivated Incidents

Figure 4-11 shows incidents that were perpetrated as a means to express/demonstrate the idea, belief, or emotion in support of social, political, or economic change or motivated by anti-government views. In 1968, there was a spike in these types of incidents, largely related to one event. Thirteen executives and former executives of a Hawker Siddeley Canada Limited and De Havilland Aircraft of Canada Limited were bombed on the same morning. Victims received leaflets accusing them of complicity in the Vietnam War.

Between 1981 and 1983, a spike in the number of events is apparent in British Columbia and Ontario, with 25 incidents being attributed to Direct Action. There also appears to be evidence of another less pronounced spike in 1988 and 1989 but there appears to be no trend regarding the perpetrator identified as responsible for the events.

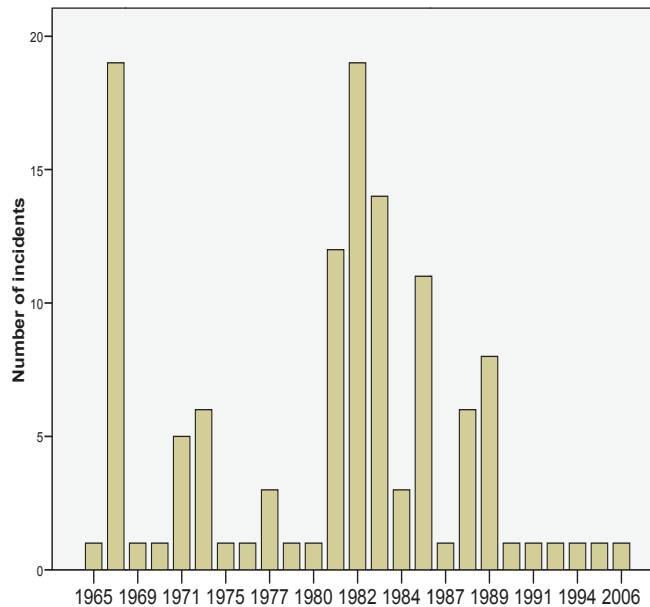


Figure 4-11 Incidents Motivated by political/Anti-Government Ideas or Beliefs

4.2.7 Unproven Incidents

Figure 4-12 shows the numbers of events that have not been established as true by evidence or demonstration (e.g., anecdotal reports, report of suspicious activity without arrest, unsubstantiated confessions, etc.). Unproven incidents were consistently low (between 1 and 2 events per year) until 2001 when a significant spike in number of unproven events appears. As mentioned previously in Section 3.5.1.1, most of these events involve individuals who are charged and arrested for terrorist activities.

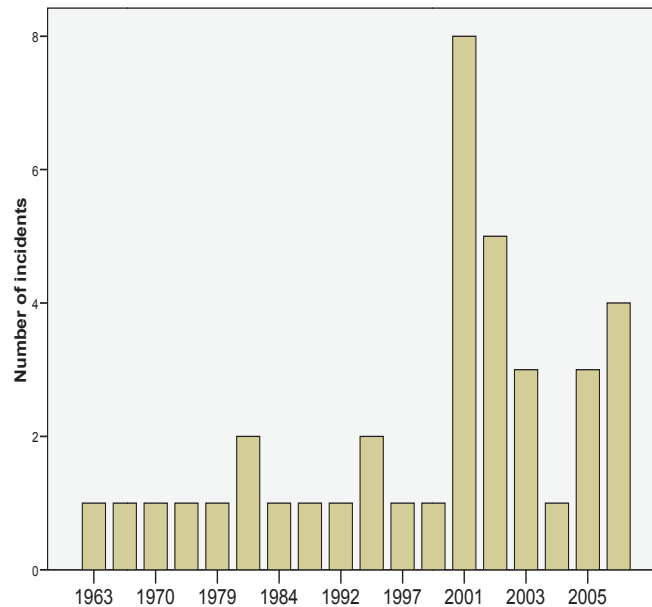


Figure 4-12 Incidents that have not been Established as True by Evidence or Demonstration

4.2.8 Comparison of Incident and Socio-Economic Trends

To obtain a preliminary and superficial view of the relationship between radical incidents and the socio-economic data, yearly data were plotted comparing total numbers of radical events and selected socio-economic data (specifically a combined economic growth and GDP per capita measure, inflation rate, unemployment rate per capita economic growth, and economic growth). Figure 4-13 to Figure 4-17 show these relationships, with the associated trendline for each variable.

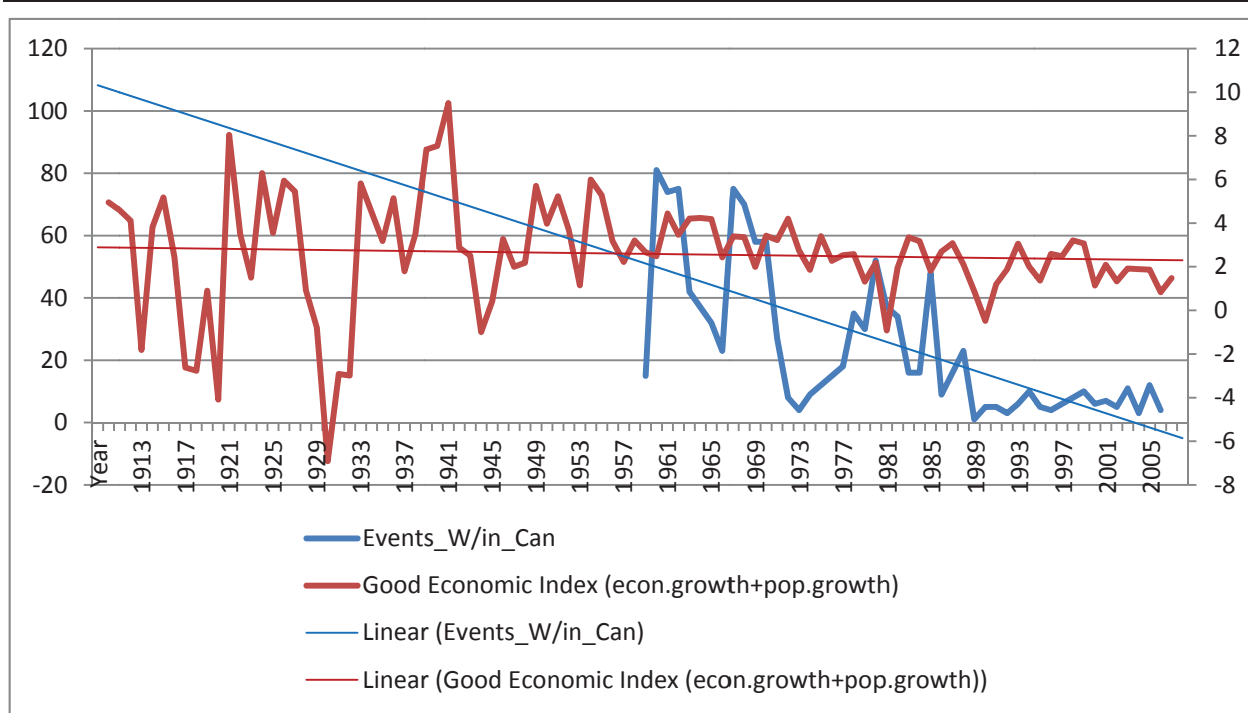


Figure 4-13: Radical Events versus Economic Index (with trendlines)

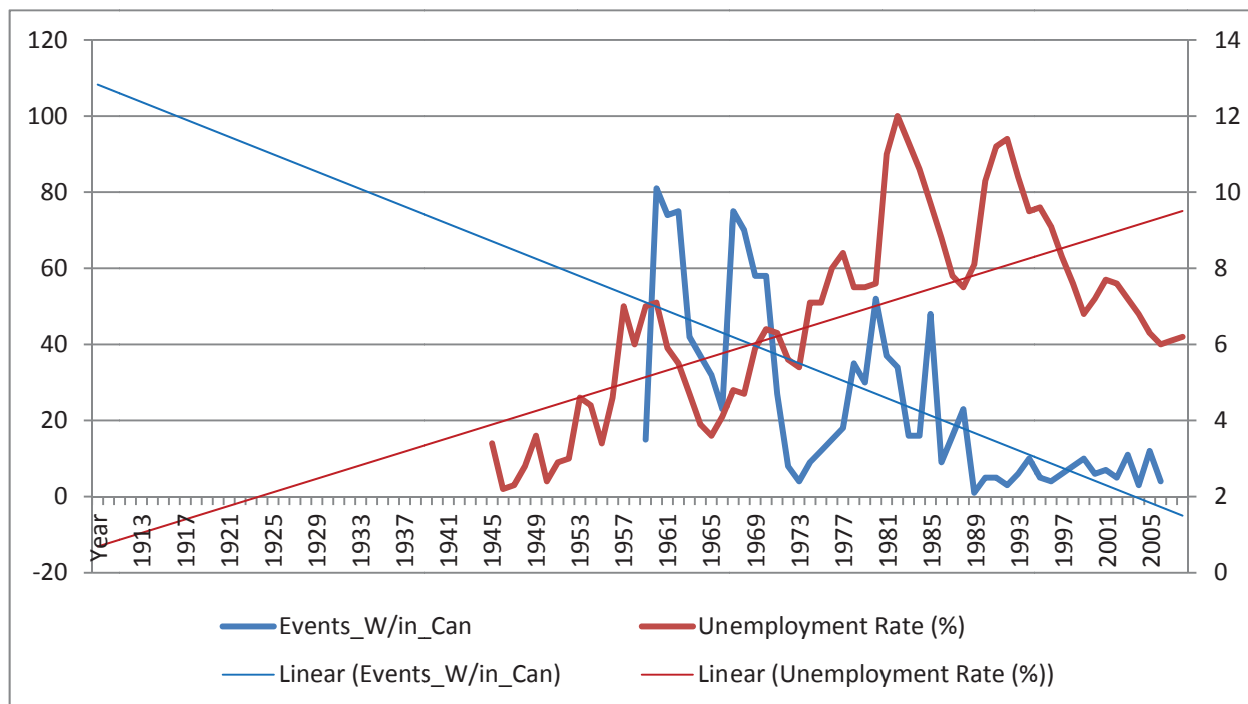


Figure 4-14: Radical Events versus Unemployment Rate

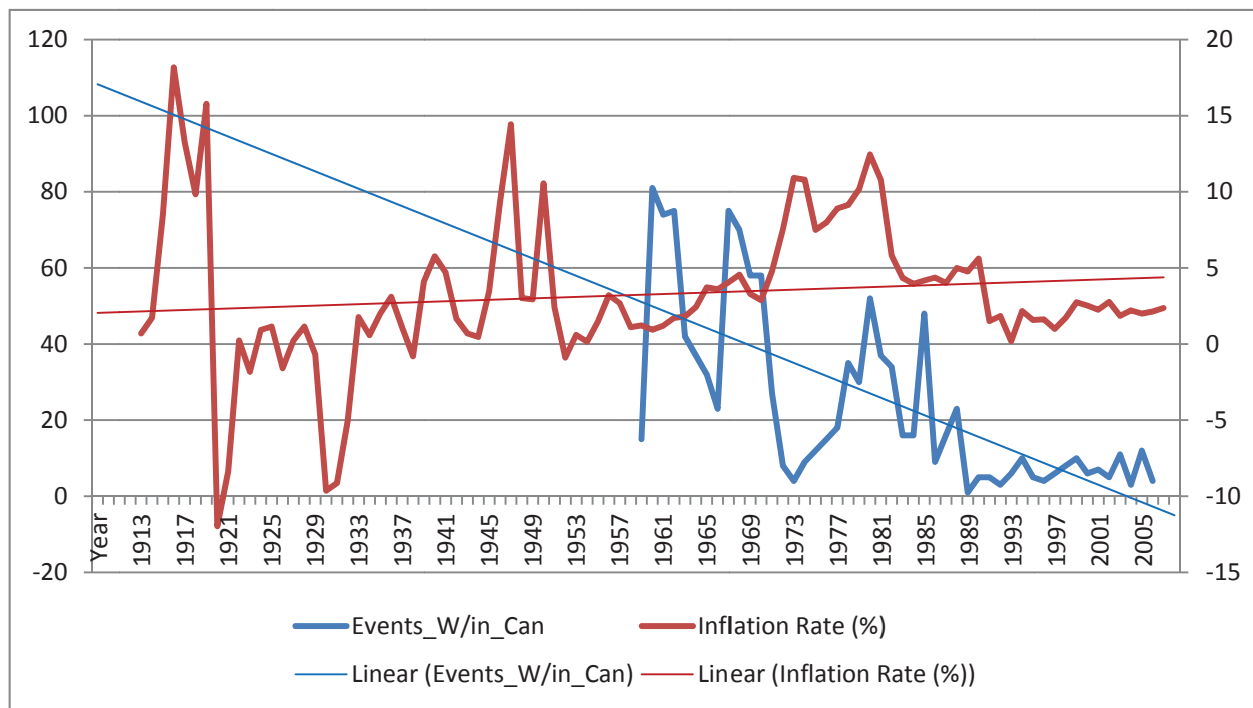


Figure 4-15: Radical Events versus Inflation Rate

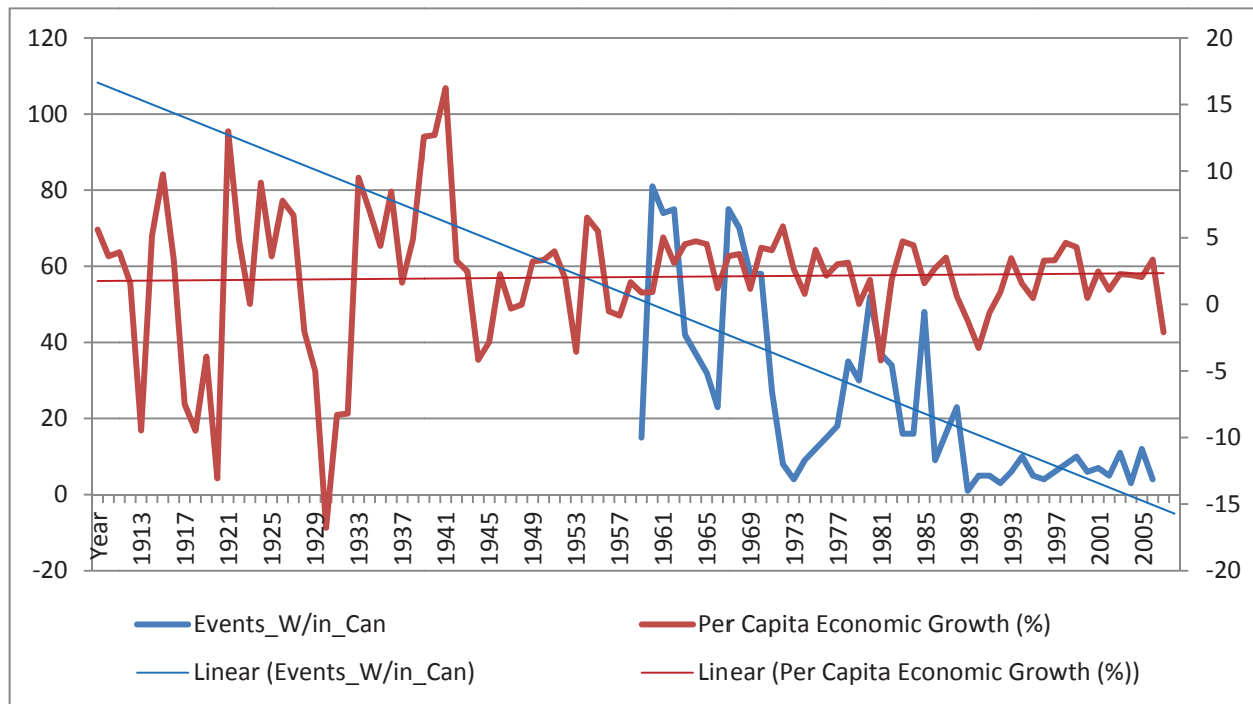


Figure 4-16: Radical Events versus Per Capita Economic Growth

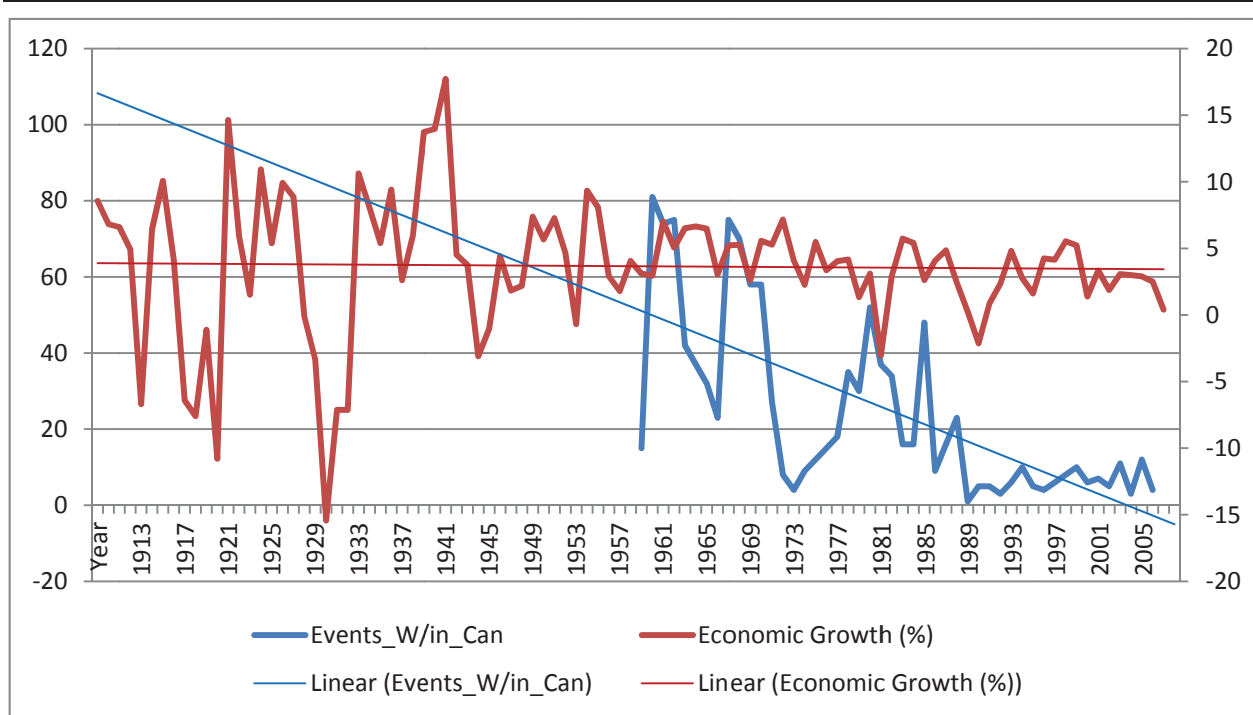


Figure 4-17: Radical Events versus Economic Growth

The trend for radical events since 1960 has been down, although the numbers are sufficiently low that any transient increase in the number of events in one year may result in a reversal of the trend line. The socio-economic data shows little in the way of trends: the economic index of population growth combined with economic growth shows a marginal downward trend, as does economic growth when considered on its own. Per capita economic growth shows a minor upward trend, while inflation shows a steeper upward trend and the unemployment rates shows the steepest upward trend (note that the scales used in each graph for the socio-economic variables are not the same and add slope to the trendline).

Looking closely at the data, there are a few points where one might be tempted to posit a link between radical incident data and the socio-economic data. For instance, in Figure 4-14 there are two peak-and-trough combinations that seem to vary together. However, there is little else to indicate that there is a relationship between these two variables. This is the case for all of these comparisons, therefore a more detailed qualitative analysis of the correlations between variables was necessary.

4.3 Preliminary Quantitative Data Analysis

The preliminary analysis conducted using the databases that were constructed covers the period 1960-2007 and uses annual data at the country level. Our objective was to examine whether there were some significant relationships between economic and

socio-political variables (as independent variables) and radical/violent extreme/terrorist events (as the dependent variable).

This preliminary analysis was meant to provide some clues to the following questions: for example, to what extent do economic factors measured by variables such as income per capita, unemployment, inflation or openness to international trade (which proxies for integration with the rest of the world) correlate with terrorist/radical events? Are political factors such as government "type" (e.g., Conservative, Liberal) more important? It is believed that the existing research on the causal factors behind terrorism/radicalization is at best inconclusive and that there is potentially a multiplicity of factors at work. As such, the current research is exploratory in trying to verify the existence of significant relationships between economic and socio-political variables on the one hand, and terrorist/radical events on the other.

Data for some of the economic and socio-political variables are available since the early 20th century but terrorist/radical events are only available as of 1960. Using different data sources, 1217 events were recorded in total over that period. These events are further divided into six categories, namely, vandalism, threats, failed plots, hoaxes, support activities and individual attacks. It is interesting to note that the spread is quite uneven across categories, with acts of vandalism representing 45% of events, followed by failed plots and support activities at 17% and 14% respectively. Furthermore, the total number of events has declined dramatically in the last decades, after peaking in the 1960s and 1980s. A similar trend can be observed when one examines the types of events over time.

Time graphs of the socio-economic data were created to describe how the data move over time. As can be seen in the series of figures below, the economic and socio-political variables tend to behave quite differently from one another over time. For example, there are clear upward trends in "domestic" factors such as the level of income per capita, the extent of urbanization, and "international" ones such as the degree of openness of the Canadian economy in the past five decades (see Figure 4-18 to Figure 4-20).

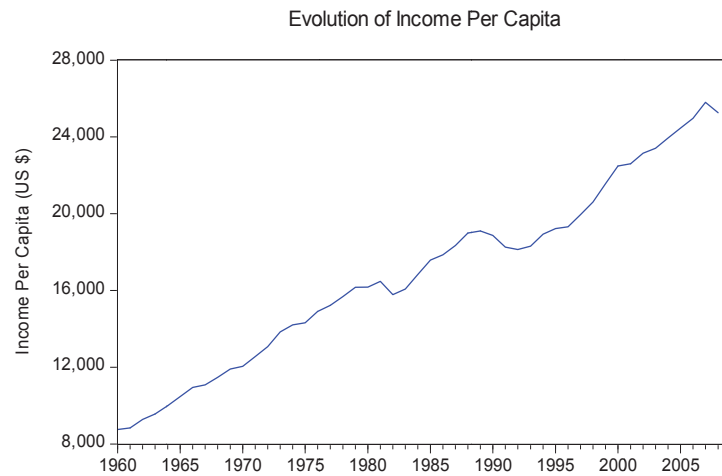


Figure 4-18 Evolution of Income Per Capita from 1960 to 2007

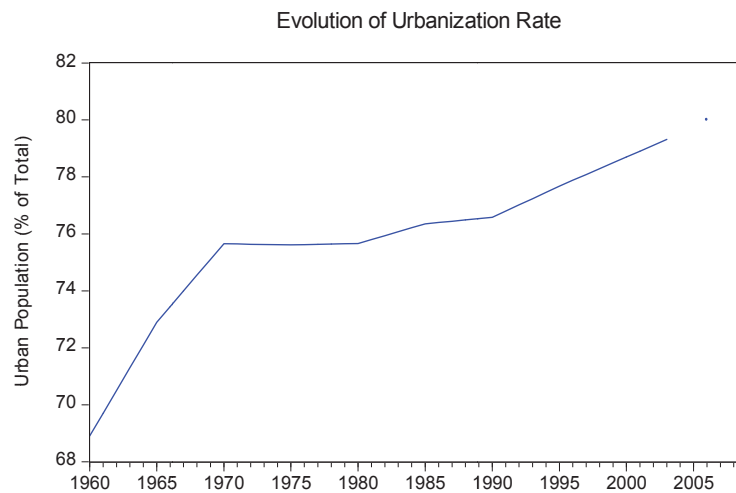


Figure 4-19 Evolution of Urbanization Rate from 1960 to 2007

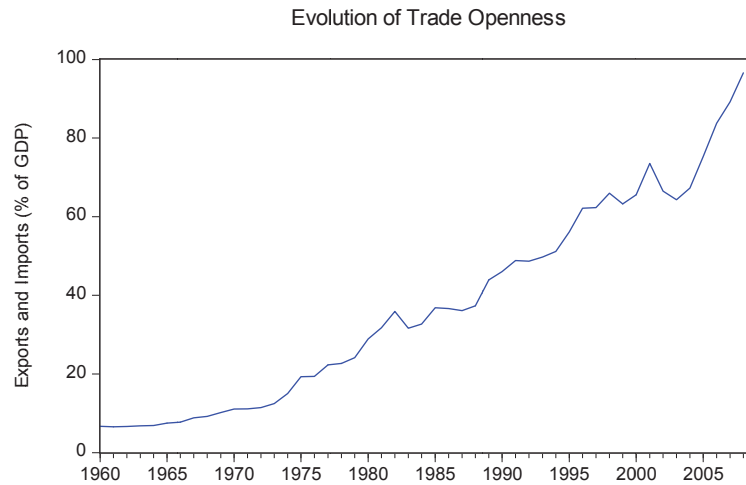


Figure 4-20 Evolution of Trade Openness from 1960 to 2007

There are also some clear declining trends in the case of infant mortality (which is a proxy for the country's physical well being), and in poverty since the mid-1990s (see Figure 4-21 and Figure 4-22).

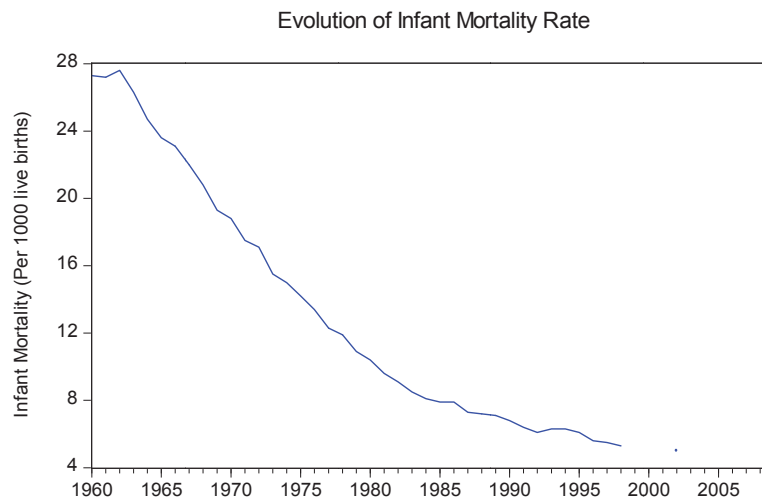


Figure 4-21 Evolution of Infant Mortality Rate from 1960 to 2007

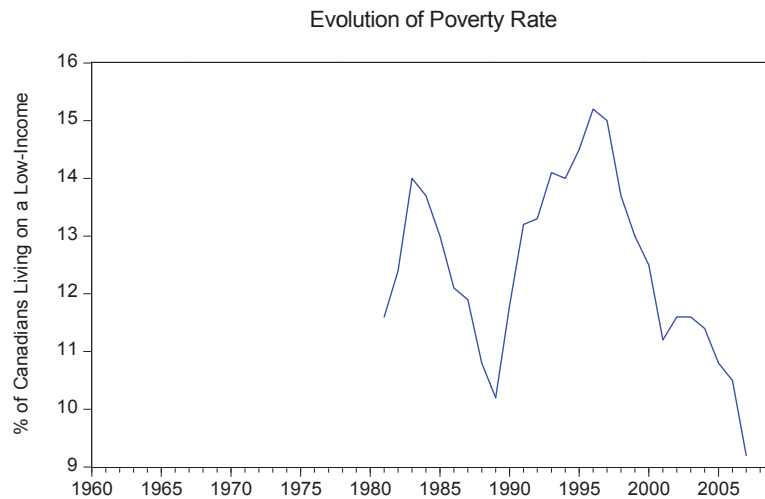


Figure 4-22 Evolution of Poverty Rate from 1960 to 2007

However, in the case of the unemployment rate and the rate of inflation, after reaching a peak in the early to mid 80s, they have both declined in more recent years (see Figure 4-23 and Figure 4-24). The “misery” index, which combines unemployment rate and inflation, displays a similar pattern as a result.

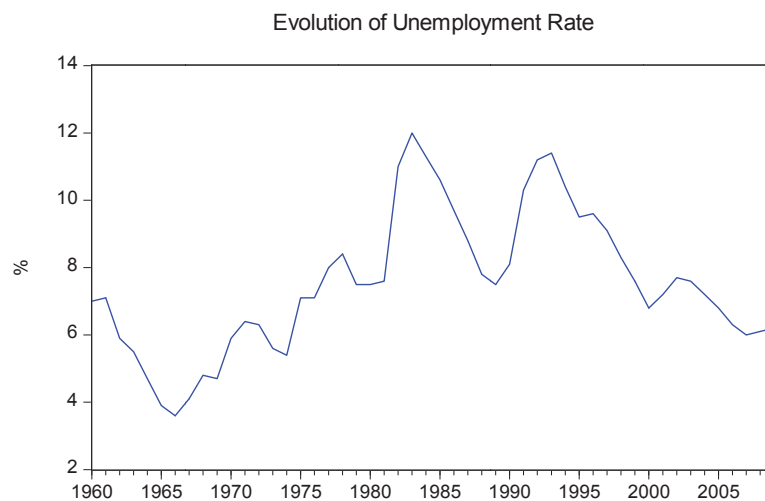


Figure 4-23 Evolution of Unemployment Rate from 1960 to 2007

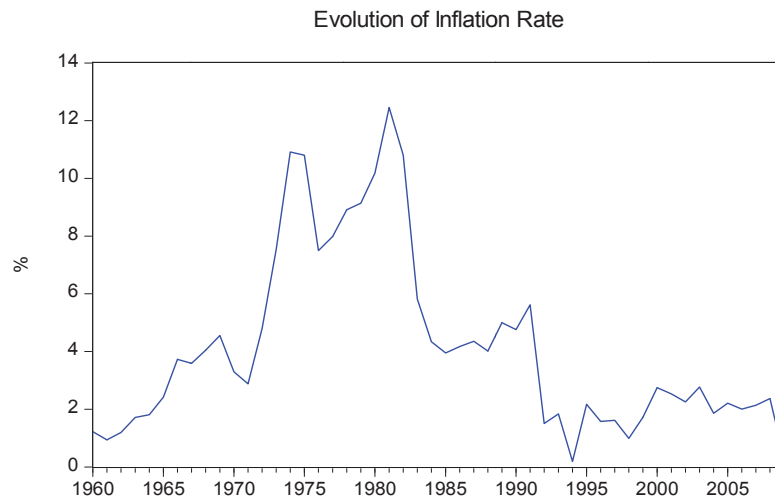


Figure 4-24 Evolution of Inflation Rate from 1960 to 2007

In the current analysis, the number of radical/violent extreme/terrorist events was used as the primary variable of interest. However, the events related to radicalization, violent extremism and terrorism compiled in this database can be extremely helpful for future work in terms of the *qualitative* information that they contain and/or that can be derived from them, namely where the events took place, the actors involved, their motivations and objectives, and so on. Such an analysis can yield a lot of important insights compared to the empirical analysis attempted here.

Table 4-7 below shows the summary statistics for the variables that we have considered in our preliminary analysis. Since this is yearly data at the national level, the number of observations is relatively small and even smaller for some such as poverty and inequality because they are based on census data which are collected every 5 years. Some variables such as an indicator of political dissatisfaction, voter turnout or variables related to ethnic composition had to be excluded from the analysis as there were not enough observations for meaningful trend and statistical analysis.

Table 4-7 Summary Statistics (all years)

Variable Name	Number of Observations (i.e., Years)	Mean Per Year	Median Per Year	Standard Deviation Per Year
Terrorist/radical events	48	25.35	15.5	23.01
Income per capita	49	16875	16836	4780
Income inequality	31	30.52	30.09	1.84
Poverty	27	12.46	12.4	1.54
Infant mortality	40	13.28	10.65	7.42
Economic growth	49	2.23	2.47	2.14
Unemployment	50	7.52	7.35	2.09
Inflation	50	4.15	3.09	3.14
Trade Openness	49	37.43	35.89	25.64

4.4 Correlational Analyses

An exploratory approach was taken to the data in that Pearson correlation coefficients were calculated between all 36 variables resulting in 1296 correlations. The correlation analysis output are provided in an annex to this report.

To summarise the results, there were many significant correlations within *subsets* of variables. For instance, variables concerned with population (e.g., population, population growth, urban and rural populations) were highly correlated with each other, as were variables concerned with financial performance (e.g., GDP, inflation, economic growth). Within the radical event data the pattern was repeated: there were a number of significant correlations, especially with the total number of radical events.

Between the subsets there were also a number of significant correlations. However, these correlations should be considered carefully. For instance, population was negatively correlated with total number of events, Pearson's $r(48) = -.67$, $p < .001$, and population growth was positively correlated with total number of events, Pearson's $r(48) = .44$, $p < .002$. Descriptively, these correlations say that as population rises, the number of radical events falls, but as the rate of population growth increases the number of radical events rises. Correlations between variables in different subsets, significant at $p < .001$, are presented in Table 4-8.

Table 4-8: Correlations Between Socio-Economic and Radicalization Variables

	Total Events	Vandalism	Failed Plots	Events W/in Can	Events o/side Can	Hoaxes	Individual Attacks
Population	$r(48)=-.69$	$r(48)=-.64$	$r(48)=-.61$	$r(48)=-.69$	$r(48)=.48$		
Pop Growth	$r(48)=.44$	$r(48)=.43$	$r(48)=.42$	$r(48)=.45$			
Urban Pop	$r(48)=-.60$	$r(48)=-.64$	$r(48)=-.58$	$r(48)=-.63$	$r(48)=.55$		
Rural Pop	$r(48)=.60$	$r(48)=.64$	$r(48)=.58$	$r(48)=.63$	$r(48)=-.55$		
GDP/Capita	$r(48)=-.66$	$r(48)=-.64$	$r(48)=-.61$	$r(48)=-.68$	$r(48)=.49$		
Immigrant Arrivals	$r(48)=-.61$	$r(48)=-.55$	$r(48)=-.50$	$r(48)=-.62$		$r(48)=-.40$	$r(48)=-.46$
Urban/Rural Ratio	$r(48)=-.61$	$r(48)=-.63$	$r(48)=-.57$	$r(48)=-.64$	$r(48)=.59$	$r(48)=-.69$	
Infant Mortality	$r(48)=.64$	$r(48)=.66$	$r(48)=.61$	$r(48)=.67$	$r(48)=-.44$	$r(48)=-.69$	
Inflation Rate							$r(48)=.41$
Unemployment				$r(48)=-.37$			
Economic Index					$r(48)=-.38$		

Results of the correlational analyses remained the same when the dataset was partitioned to show only the Kellet data, the ERTA data, or data between 1960 and 2007.

4.5 Time Series Analysis

Time series investigates the data looking for “lags” where the impact of one variable on another is delayed by a defined period of time, or whether any effect exists in the other direction (i.e., the “other” variable impacts the one variable).

A crucial assumption for a time series analysis is to make sure the time series data are stationary. Non-stationary data have means, variances and covariances that change over time, and it is impossible to conduct meaningful statistical analysis with them. Depending on how the initial series behaves over time, it may be trend stationary or difference stationary. If it is trend stationary, then the series needs to be de-trended. There are several approaches to detrending data; the chosen approach for this study was the application of the “ratio-to-moving-average method”. In this work, the average for total radical events across the whole dataset was taken, and the yearly total expressed as a ratio to the average. The yearly total was then multiplied by the ratio to adjust the figure upward or downward.

If the series is difference stationary, then it needs to be first-differenced by calculating the change from one period to the next. In particular, the first difference of a series Y at period t, that is, $Y(t)$, is equal to $Y(t) - Y(t-1)$. This approach was also used in the

analysis, although trend differencing was only applied to the regression analysis by including a time trend variable as an independent variable.

Autocorrelations were calculated for all socio-political and economic data to establish stationarity, and the data for all variables were transformed into z scores to assess normality of the distributions. A general rule of thumb states that a distribution is normally distributed if 68% of the data falls within one standard deviation from the mean, 95% of the data falls within two standard deviations of the mean, and 99.7% of the data falls within three standard deviations of the mean. The z scores for each variable were then described according to their maximum and minimum values, their mean, and their standard deviation. Assuming the maximum value was in the region of 3, the assumption of normality was considered satisfied. All autocorrelation and z score results are presented in an annex to this report.

Following these tests, cross correlations between all socio-political and economic variables and radical event variables were calculated. These cross correlations were plotted against lags of 7 years before to 7 years after the data point of interest. Also on this plot were the confidence intervals. The confidence intervals provide a measure of how reliable the effect being reported actually is. The complete results are presented in an annex to this report.

Each variable combination is reported in the annex as follows: a table containing the actual correlation coefficient and standard error data for each lag period, and a plot showing the coefficient and the upper and lower confidence limits. When interpreting the data, the reader is looking for a high coefficient and low standard error. The high coefficient should extend beyond the confidence limit on the plot. The plot should also display a “pattern” of results; that is to say, it should be apparent that there is an effect that (probably) diminishes gradually as the lag becomes larger. This pattern is easiest to identify when the radical event data is compared to urban or rural population data. For urban population, the coefficient is negative, then approaches zero, then builds in the positive direction to a point (lag of 1 year) where it is highest before reducing to zero and becoming negative again. The opposite pattern is seen for rural population.

When examining the cross correlation data, the reader will see some individual coefficients that exceed the confident limits; this does not imply a significant relationship. The analysis shows that there are no significant time series effects between socio-political data and radicalization data, and even less evidence of these effects between the economic data and radicalization data.

4.6 Regression Analysis

Multiple regression was performed on variables that were thought to represent different aspects of the relationship between socio-economic factors and the incidence of radicalization. To manage the complexity of the results, one variable was selected from

any set of variables that correlated highly with each other and showed similar correlation values with the radical event data. This was done to maintain the orthogonality of the variables used.

Table 4-9 presents the results of the multiple regression. Only one of the independent variables (trade openness) is significant in the multiple regression. The constant term (i.e., the intercept) was associated with a large standard error, and the coefficient for each independent variable had marginal effect on the slope of the line and was also associated with a relatively large standard error. This is reflected in the low variance accounted for (approximately 41%). The overall model was significant at the 99% level.

Table 4-9: Multiple Regression of Selected Socio-Economic Variables to Predict Total Numbers of Radical Events

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637	.406	.315	19.048

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	6450.103	4	1612.526	4.444	.007
Residual	9433.926	26	362.843		
Total	15884.029	30			

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig
	B	Std Error	Beta	T	
(Constant)	89.546	65.841		1.360	.185
Unemployment Rate (%)	-.363	1.646	-.039	-.221	.827
Inflation Rate (%)	.295	.734	.063	.402	.691
Inequality	-1.627	2.103	-.130	-.774	.446
Trade Openness	-.617	.180	-.654	-3.431	.002

In terms of future work, once specific models of socio-economic cause on radicalization effects are posited (which may require additional data collection), additional specific multiple regressions can be performed.

Overall, thus far no compelling evidence was found of a significant relationship between the number of terrorist/radical events on the one hand, and economic and socio-political variables on the other. Further analysis of the correlations in the data should consider the underlying properties of the different time series and test more complete or formal models of terrorism/radicalization.

5 DISCUSSION AND RECOMMENDATIONS FOR FUTURE WORK

The current research is exploratory in trying to verify the existence of significant relationships between economic and socio-political variables and terrorist/radical events. Since there is no known strong theoretical model of how these variables may be related, the current study had to take a very general approach and then use a combination of intuition regarding what relationships may exist, and the picture of significant relationships that emerged from analysis. This approach is as systematic as possible and many possible relationships in the data have been investigated.

Significant relationships were found between several socio-economic variables and the total number of radical events. Similar significant relationships were found between the same socio-economic variables and vandalism, failed plots, and events within Canada (which was a similar number to total events, so is not surprising). However, variables that may intuitively been linked to radical events (e.g., inflation, unemployment) were not significantly related to the total incidence of radical events. Time series analysis of all the variables and multiple regressions of selected variables found no significant relationships. Ultimately, the results of the preliminary analysis found no compelling evidence of a significant relationship between the number of radical/violent extreme/terrorist events on the one hand, and economic and socio-political variables on the other.

It is recommended that future work involving this database identifies specific models in advance to guide the data analysis. As a starting point, a proper survey of the literature on radicalization and terrorism and their relationship with economic variables, including papers that have tried to establish causality, should be performed to identify the most likely predictor variables and generate expectations regarding the relationship. This would guide subsequent analyses. The databases compiled in this work could then be used to validate the models of radicalization developed, answer questions proposed by these models, and suggest what additional data needs to be collected to enhance our understanding of the issue.

This last point may prove the most difficult: suitable data for this work proved surprisingly difficult to obtain. In retrospect, a more fine-grained analysis may have been advisable. This type of analysis would have looked at data at a regional level to identify why one area or another may have exhibited elevated levels of radical activity. For instance, British Columbia, Ontario and Quebec exhibited the highest levels of radical activity. Was this purely because of the populations of these provinces? Or is there something more endemic to the regional populations in those provinces. Within Toronto alone, there are significant densities of different ethnic groups, each of which experience different economic conditions at different times. Specific data regarding the regional differences within a single city may, combined with more sensitive data from the security services, tell a different story to that of the current project. Of course, the

numbers of radical events in Canada are so low that such an analysis is unlikely to generate any statistically significant results.

The analysis should also be more fine-grained with respect to fatalities versus injuries. This may assist in the development of a measure of 'seriousness' of the event. It would also be useful to track the incident data to key events in history, such as the 9/11 attacks. Such markers could provide alternative explanations to socio-economic factors, or may point to a more global mechanism at work.

Related to the issue of regional data is the use made in this analysis of specific radicalization data. The database contains a wealth of information pertaining to the type of attack, the victim, the perpetrator, etc. This analysis did very little with these data, but it may serve to direct future detailed statistical analyses, or as a basis for further development of the database to suit the needs of the user. Future work should involve a detailed check on the nature of the data, specifically whether it is normally distributed, linear, and homoscedastic. If any of these common attributes of data are contravened, then appropriate transformations should be considered (e.g., logarithmic, first-differenced, trend-differenced).

A further difficulty in doing this work concerns the number of radical events associated with Canada. This number is, happily, small and seems to be insensitive to potential predictor variables. Changes observed in the economic data, even significant changes such as the global recession of 2007 onwards have not resulted in increased radical activity. Of course, the methodologies used by the primary databases in this project (i.e., GTD, WITS, ERTA and Kellet's database) had a tendency to rely on radical events that had actually occurred and therefore were known to the public at large. These databases do not account for those radical events that were undetected (for whatever reason), nor do they account for the ebb and flow of membership of radical groups. Again, performing this analysis on data provided by the security services, at the national, provincial or municipal level, may lead to the discovery of some statistically significant predictor variables. In this sense, the database compiled for this work is a success, since it could be provided wholesale to the security services for use by their own analysts.

Returning to the subject of models of radicalization, and specifically the relationship between economic factors and radicalization, there is some recent work on this topic. Specifically, the literature review of Keizer, Hagen, Lamoureux and Suedfeld (2010) has investigated this problem. Unfortunately their work also failed to uncover work that posited a relationship between economic factors and radicalization. Rather, their work suggests that radicalization is a much longer personal process involving the education and upbringing of the individual involved. The evidence presented in this work, based on case studies of radicals, extremists and terrorists, indicates that those involved in radical activities tend to be well-educated and relatively affluent. Again, this suggests that a more fine-grained analysis, concentrating on particular populations, may uncover

some statistically significant outcomes, although they may not be as simple as “poverty causes terrorism”.

The other issue that would be desirable to address is that of database verification. The database used in this work was compiled primarily by two individuals, but little verification of the databases was undertaken. The ideal situation would involve multiple blind coding of the same data where any inconsistencies are immediately apparent and used to calibrate the efforts of the individuals involved. If the dataset is to be extended by finding additional radical data, this should be undertaken.

Returning to the general flavour of the findings: that there is no significant causal relationship between economic factors and radicalization suggested by the data analyzed; this should not be considered a failure. It is important to establish whether a relationship does or (in this case) does not exist in order to begin to persuade decision makers to look elsewhere for solutions. This belief seems to be a truism and is a popular refrain amongst the developed West, but this analysis has shown this not to be the case. If policy-makers take account of this finding, then future effort may be redirected toward issues that may prove more effective at guarding Canada from an increase in radical activity. Thus, the current work should be considered a success.

Nevertheless, it seems clear that the data compiled to for this analysis do not support the belief that there is a link between economic factors and radicalization. However, the database does not, therefore, become an artefact. Rather, the database is an important starting point for further analyses of the sort described above, for instance fine-grained regional analyses of economic conditions or specific population groups in the urban centres. DRDC Toronto owns a comprehensive Canadian database of socio-political, economic and radical event data that is also amenable to statistical analysis. This can be very attractive to potential collaborators, including universities but also the security services. Following this line, there is still much work to be done, including the verification of the dataset, the collection of additional data, and the development of psychological models to be validated against the database.

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7 LIST OF ABBREVIATIONS

ADM S&T	Assistant Deputy Minister, Science and Technology
AIS	Adversarial Intent Section
CAE PS	CAE Professional Services
CANSIM	Canadian Socio-Economic Information Management System
CES	Canadian Elections Study
CORA	Canadian Opinion Research Archive
CPI	Consumer Price Index
DRDC	Defence Research and Development Canada
GDF	Global Development Finance
GDP	Gross Domestic Product
GTD	Global Terrorism Database
SMEs	Subject Matter Experts
WDI	World Development Indicators
WIID	World Income Inequality Database
WITS	Worldwide Incidents Tracking System

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APPENDIX A DATABASES FOR ECONOMIC, SOCIO-POLITICAL AND RADICAL/TERRORIST DATA

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
Terrorism-related Databases						
International Terrorism: Attributes of Terrorist Events (ITERATE), 1968-2007	The ITERATE project is an attempt to quantify data on the characteristics of transnational terrorist groups, their activities which have international impact, and the environment in which they operate.	http://dvn.iq.harvard.edu/dvn/dv/nd/s/faces/study/StudyPage.xhtml?studyId=36333	<u>Yes</u>	Medium	The GTD is based on ITERATE	Need a Harvard affiliation
Study of Terrorism and Responses to Terrorism (START)	The National Consortium for the Study of Terrorism and Responses to Terrorism (START) is a U.S. Department of Homeland Security Center of Excellence, tasked by the Department of Homeland Security's Science and Technology Directorate with using state-of-the-art theories, methods, and data from the social and behavioral sciences to improve understanding of the origins, dynamics, and social and psychological impacts of terrorism.	http://www.start.umd.edu/start/	<u>No</u>	Low	Good for lit review	Open source
Global Terrorism Database (GTD)	The Global Terrorism Database (GTD) is an open-source database presenting	http://www.start.umd.edu/gtd/	<u>Yes</u>	Medium - High	need to create own database with these	Open source

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
Inter-University Consortium for Political and Social Research (ICPSR)	information on terrorist events around the world since 1970 (currently updated through 2007), including data on where, when, and how each of over 80,000 terrorist events occurred. NOTE: Different results between GTD and WTIS.				numbers. Based on strict definition of terrorist act, therefore not all encompassing. 1970 - 1997 has different criteria from 1998 - 2007. Data originally collected by PGIS and CETIS	
	ICPSR offers more than 500,000 digital files containing social science research data. Disciplines represented include political science, sociology, demography, economics, history, gerontology, criminal justice, public health, foreign policy, terrorism, health and medical care, early education, education, racial and ethnic minorities, psychology, law, substance abuse and mental health, and more.	http://www.icpsr.umich.edu/icpsrweb/ICPSR/access/index.jsp	<u>No</u>	Medium	Mostly holds articles and study results. Some databases however (ex. ITERATE 2). Must use right keywords to identify study/databases.	Need a university account.
Global Terrorism Resource Database	This site was developed to inform research into the	http://people.haverford.edu/bmendels/index.html	<u>No</u>	Medium	Links to other databases.	

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
	phenomenon of global terrorism. The project was completed by Nicholas Lotito, Haverford College class of 2010, and updated by Katie Drooyan, Haverford College class of 2011, under the direction of Assistant Professor of Political Science Barak Mendelsohn. This research was undertaken in support of Prof. Mendelsohn's courses, particularly Pols. 358: The War on Terrorism and Pols. 244: The Evolution of the Jihadi Movement.					
Political Constraint Index (POLCON) Dataset	Dataset containing various terrorism-relevant variables.	http://www-management.wharton.upenn.edu/henisz/	<u>Yes</u>	Low	Not very applicable to this research in terms of data that it provides.	
The United Nations Interregional Crime and Justice Research Institute		http://www.unicri.it/	<u>No</u>	Low	Not very applicable to this research in terms of data that it provides.	
Center for Nonproliferation Studies	Provides access to the Monterey WMD Terrorism Database. The Monterey WMD Terrorism Database is	http://cns.miis.edu/wmdt/	<u>Yes</u>	Medium	Database related only to the use of chemical,	Got an account through registration

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
	the largest open-source catalog of worldwide incidents involving the acquisition, possession, threat and use of weapons of mass destruction (WMD) by sub-state actors. Users must first register for an account.				biological, radiological and nuclear (CBRN) materials as possible weapons. A search for Canada has found 66 indexes dating back to 1985.	
Integrated Network for Societal Conflict Research (INSCR)	Contains several times-series datasets containing variables related to conflict. INSCR was established to coordinate and integrate information resources produced and used by the Center for Systemic Peace.	http://www.systemicpeace.org/inscr/inscr.htm	Yes	Low - Medium	The database on Major Episodes of Political Violence may be useful. Coding needs to be verified. List goes back to 1946.	
The Worldwide Incidents Tracking System (WITS)	National Counterterrorism Center's database of terrorist incidents	https://wits.nctc.gov/FederalDiscoverWITS/index.do?N=0	-	Medium	Database only goes back to 2004. Only 7 events were found.	
Country Reports on Terrorism	One of the most comprehensive databases available, along with GTD and ITERATE, but not valuable for empirical analysis due to its	http://www.state.gov/s/ct/rls/crt/	-	Medium	No database. Only reports. Text based list would require tabulation of	Open source

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
	chronological narrative format. Reports only go back to 1996.				data. Better to rely on Canadian sources and the WITS, GTD, and Monterey WMD.	
ERTA: Listes de groupes terroristes	List of Terrorist groups in Canada, US, EU and ONU updated to 2006	http://erta-tcrg.org/groupe/groupe.htm	-	Low	Not a time series approach	Open source
Regulations Establishing a List of Entities	Published by Department of Justice Canada under the Criminal Code. A list of entities that "has knowingly carried out, attempted to carry out, participated in or facilitated a terrorist activity or is knowingly acting on behalf of, at the direction of or in association with an entity that has knowingly carried out, attempted to carry out, participated in or facilitated a terrorist activity".	http://laws-lois.justice.gc.ca/eng/SOR-2002-284/page-1.htm#anchorbo-ga:s_1	No	Medium	Updated every year. List only started in 2002. Applies to global terrorists, not specific to Canada.	Open source
Patterns of Global Terrorism	An annual report which began in 1996 contains a global list of terrorist organizations (not comprehensive).	http://www.state.gov/www/global/terrorism/annual_reports.html	-	Low	Relevant only in so much that the list is not exclusive to Canada. May still be used for	Open source

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
ERTA: Listes of terrorist incidents					analysis. In text format only - would have to create a numerical database from each report.	
Current list of entities: Public Safety Canada	Répertoire des incidents liés au terrorisme ou à des violences politiques au Canada, 1973-2007. Only available in text format.	http://lerta-tcrg.org/incidents/repertoire_incidents.htm	-	High	Very relevant but only available in text format.	Open source
Terrorism in Canada, 1960-1989	Current list of known terrorist groups or organizations.	http://www.publicsafety.gc.ca/prg/nsl/e/cle-eng.aspx	-	Low	Not a time series approach	Open source
Political Events Project, 1948-1965 Feterabends	Anthony Kellett, Bruce Beanlands et James Deacon (1991), <i>Terrorism in Canada, 1960-1989</i> , Ottawa, Minister of the Solicitor General of Canada. This study contains data on 6,754 political instability events in 84 selected nations in the period 1948-1965. These data, which permit measurement of political instability and the correlates of internal conflict behavior, are concerned with conflict directed by groups and individuals in the prevailing	Original print available at Public Safety Library Downloaded code book.	- Yes	High Low	Very relevant. But only available in text format. Some data on terrorism, political unrest	Available

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
	political system against other groups or persons, and with uncovering the determinants of stability within all national political systems.					
RAND Terrorism Database (Research And Development)	The RAND Corporation is a global think tank founded in 1946 by the United States armed forces. Covers global terrorism incident data dating back to 1968.		Yes	Low	The information gleaned from this dataset did not add to the current datasets (GTD, WITS, ERTA, Kellett et. Al. 1991)	Need an account
MIPT	The MIPT Terrorism Knowledge Base (TKB) is an online portal containing information on terrorist incidents, leaders, groups, and related court cases. The TKB contains two separate terrorist incident databases, the RAND Terrorism Chronology 1968-1997 and the RAND-MIPT Terrorism Incident database (1998-Present). While the former component tracked international incidents, the latter database includes both domestic and international attacks. The RAND	http://www.strategypage.com/militaryforums/410-343.aspx	Yes	Low		Cannot access. Most probably need an account or pay for access. I believe it is accessible through RAND.

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
Terror Suspect Database (Nixon Centre)	Corporation is a global think tank founded in 1946 by the United States armed forces. Dataset for terrorist suspects arrested under Security Certificate worldwide. Updated to 2006	Excel file available at http://www.nixoncenter.org/index.cfm?action=showpage&page=immigratNatlSecur	Yes	Low	not relevant as it did not hold information on a time series approach.	Open source
The Attributes of Terrorism in Canada IV (ATIC IV)	The Attributes of Terrorism in Canada IV (ATIC IV) data base is the most comprehensive data base built upon publicly available documents. It covers the years 1960-1990, includes both a chronology and coded data of close to 500 incidents.	It is only available for purchase.	Yes	Unsure	Very relevant but there are other databases that cover similar information that are available for free. May still be worth comparing the DRDC dataset with the ATIC IV)	Available for purchase.
Tweed Data	The TWEED data set contains information on events related to internal (or domestic) terrorism in 18 West European countries for the 1950 through 2004 period.	http://folk.uib.no/sspje/tweed.htm . Database downloaded	Yes	Unsure	Only relevant if going outside Canada.	
Economic Databases						
Statistics Canada	This is probably your best bet for Canadian Economic	http://www.statcan.gc.ca/start-debut-eng.html	Yes	High	Need to verify how far back	\$\$ per output

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
	data. Statistics Canada, a member of the Industry Portfolio, produces statistics that help Canadians better understand their country—its population, resources, economy, society and culture.				stats go ('til 1910?'). LOOK AT CANSIM (http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=Eng&Dir=Rep=CII/&RegTkt=&C2Sub=&CNSM-Fi=CII/CII_1-eng.htm)	
Organization for Economic Co-operation and Development	For more than 40 years, OECD has been one of the world's largest and most reliable sources of comparable statistics and economic and social data. As well as collecting data, OECD monitors trends, analyses and forecasts economic developments and researches social changes or evolving patterns in trade, environment, agriculture, technology, taxation and more. 1950 - Present.	http://www.oecd.org/home/0,3305,en_2649_201185_1_1_1_1_1,00.html	<u>Yes</u>	Medium	Only goes back 50 years for several countries including Canada. Has a lot of economic stats (population, GDP, trade, interest rate, etc). Easier to use than Stats Can. Puts all data in one table that can be exported.	

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
UNESCO Institute for Statistics	The UIS collects the data for more than 200 countries from Member States and international organizations. Only has stats for years 1975-Present	http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?Repo rtId=143&IF_Language	<u>Yes</u>	Low	Has stats on demographics and education.	Open source
Economic Intelligence Unit World Data	The EIU DataServices portfolio comprises six global databases. Subscription may be required. 1980 - Present	https://ei.u.bvdep.com/frame.html	<u>Yes</u>	Low		Need subscription
Expanded Trade and GDP data	Provides GDP and Trade Data. 1950 - 2000	http://privatewww.essex.ac.uk/~ksg/exptradegdp.html	<u>Yes</u>	low	Other database are more appropriate (Stats Can, Maddison, OECD)	open
2010 Index of Economic Freedom	Provides Canadian Economic Data for the years 1995-2010.	http://www.heritage.org/index/	<u>No</u>	Low	Not a database - only goes back to 1995.	open
LABORSTA Internet	Provides Canadian Economic Data for the years 1980-2008.	http://laborsta.ilo.org/default.html	<u>Yes</u>	Low	Only goes back to 1980.	open
Institute for Management Development	The IMD World Competitiveness Yearbook measures 57 countries on the basis of 329 criteria.	http://www.imd.ch/research/publications/wcy/index.cfm	<u>No</u>	Low		May need to buy \$\$
World Institute for Development Economics	Provides the Gini coefficient (commonly used as a measure of inequality of income or	http://www.wider.unu.edu/research/Database/en_GB/wiid/	<u>Yes</u>	High	For data on inequality	Open

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
The World Bank	wealth) for Canada for the years 1951-2000. Provides Canadian Economic data, but may not provided times seriesl data. Has data going back to 1960. Many ways to vizual data. Has many different types of databases.	http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.ht ml	Yes	Medium	Provides data for the World Development Indicators Online (WDI)	Open
Angus Maddison	He has done a lot of work on reconstructing historical data that goes back centuries.	http://www.ggdc.net/maddison/	Yes	High	Historical Statistics of the World Economy: 1-2008 AD. Statistics include Population levels, GDP going back to 1800s, PerCapitaGDP to 1800s,	open
Sociological-related databases						
Canadian Opinion Research Archive	The Canadian Opinion Research Archive makes available commercial and independent surveys to the academic, research and journalistic communities. Founded in 1992, CORA contains hundreds of surveys including thousands of discrete	http://www.queensu.ca/cora/	Database and text	High	Must create own database for each year (very time consuming). Used to create Political Dissaffection Index	Need University affiliation

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
Canadian Election Study	items collected by major commercial Canadian firms dating back to the 1970s. Canadian elections are the primary focus of the Canadian Election Study (CES). The main objective is to explain what makes people decide to vote (or not to vote), and, if they do, what makes them decide to support a given party or candidate, and why parties gain or lose ground from one election to another.	Accessed through CORA. SPSS files available for download.	Yes	High	Used for political data (voter turnout, political party in power)	Need University affiliation
Canadian Gallop Poll	This Gallup poll seeks to collect the opinions of Canadians. The majority of questions either deal directly with politics or the Federal election that was held in the month before this poll. Questions also inquire about voting patterns and issues that affect how respondents vote. Goes back at least 50 years.	Accessed through CORA	No	High	Used for data to create Political Dissaffection	Need University affiliation
ipsos-reid census poll	A Canadian public opinion poll conducted by Ipsos Reid Public Affairs.	Accessed through CORA	No	Low	only covers very narrow range of years, questions are not consistent	Need University affiliation
Census Data Stats	The census provides a	http://www12.statcan.ca/census-	No	High	Used for data	Need

Database	Description	Website	Database ?	Useful?	Relevance to research	Accessibility
Can	statistical portrait of Canada and its people. It is conducted every 5 years.	recensement/2006/db-pd/index-eng.cfm			to create Political Dissaffection and other sociological data	University affiliation
Decima Quarterly	The Decima Quarterly is a survey of public attitudes of Canadians on a wide range of matters related to public affairs, which was conducted every three months from the first quarter of 1980 until the first quarter of 1995.	Accessed through CORA	No	High	Used for data to create Political Dissaffection	Need University affiliation

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A contract was awarded to perform a statistical time series analysis on readily available open-source data concerning economic indicators and radicalization over the past 100 years. Upon commencing this work, it became clear that it was difficult to obtain comprehensive radicalization data going back 100 years, although there were good data from 1960 onwards. It also became clear that these data were not in electronic form and therefore needed to be manually entered into a brand new database. This database, combining socio-political, economic and radicalization data, was duly compiled and used to perform several statistical analyses, including simple descriptive statistics, bivariate correlations, time series analysis, and simple and multiple linear regression. Although one might intuitively assume that poverty or economic hardship are inexorably linked with radicalization, violent extremism and terrorism, the statistical analyses performed for this contract do not support this assumption. Of the 31 socio-political and economic variables, only those pertaining to urban and rural population ratios were statistically significantly related to total number of radical events. The database nevertheless provides a basis for future detailed analyses of open-source regional economic and radicalization data, or classified versions of the same.

Un contrat a été attribué en vue de l'analyse de séries statistiques chronologiques à partir de données d'accès libre et facile portant sur les indicateurs économiques et la radicalisation des cent dernières années. Dès le début de la recherche, il a fallu reconnaître qu'il était difficile d'obtenir des données complètes sur la radicalisation qui remontaient à cent ans, mais il a été possible de compiler des données intéressantes et utiles à partir de 1960. Toutefois, ces données n'étaient pas sous forme électronique et il a fallu les inscrire manuellement dans une toute nouvelle base de données. Nous avons donc constitué cette base de données, avec des données à caractère sociopolitique et économique ainsi que des données sur la radicalisation, et l'avons utilisée pour effectuer plusieurs analyses statistiques, dont des analyses de statistiques descriptives, des corrélations bidimensionnelles, des analyses de séries chronologiques ainsi que des régressions linéaires simples et multiples. Force est de constater que la pauvreté ou les difficultés économiques ne sont pas inexorablement liées à la radicalisation, à l'extrémisme violent et au terrorisme, comme les analyses statistiques exécutées dans le cadre du contrat l'ont révélé et contrairement à ce qu'on aurait pu imaginer. Des 31 variables sociopolitiques et économiques étudiées, seules celles qui avaient trait aux ratios de population urbaine et rurale présentaient un lien statistiquement significatif avec le nombre d'actes radicaux. La base de données servira néanmoins de fondement à d'autres analyses détaillées de données économiques régionales et de données sur la radicalisation libres d'accès, ainsi que de données protégées.

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economic conditions; radicalization; events database; violent extremism