Developing and Applying an Organized Crime Harm Index: A Scoping and Feasibility Study

by

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1 EXECUTIVE SUMMARY

The over-arching goal of this study is to produce a report that assesses the feasibility and utility of developing and applying rigorous methodological and analytical models that can reliably measure the harm of organized crime in Canada. Within the context of exploring the development of an Organized Crime Harm Index, this study mandated the team to:

- determine if harm assessment research can produce accurate and reliable findings;
- analyze the utility of harm assessment research and indices in contributing to the larger goal of organized crime control; and
- assess the feasibility and cost-effectiveness of implementing an Organized Crime Harm Index in Canada.

1.1 Research Findings and Analysis

Accurately and reliably assessing the harm of organized crime in Canada

Do reliable data and data sources exist within Canada for research that measure the scope of and harm caused by organized crime generally and for the development of an Organized Crime Harm Index specifically?

This study concludes that, in general, there are insufficient existing sources of quantifiable data in Canada that could be used to reliably measure the scope and harm of the organized criminal activities prioritized in this report. This problem is epitomized by the shortcomings of police-recorded data, which is critical for harm assessment research into organized crime. The only national source of police-recorded data is collected through the Uniform Crime Reporting survey, which under-estimates the scope of criminal activities, is not representative of the population of criminal occurrences, and does not isolate incidents committed as part of organized criminal conspiracies. Outside of the UCR survey data; there is no national, centralized database of relevant, representative police-recorded data that can be sampled for quantitative research

purposes. In short, much of the existing data that can be used to measure the scope and impact of organized criminal activities suffers from reliability issues in the sense that precise and accurate estimate of the scope of the problem are difficult to produce.

Do rigorous data collection methods exist that can facilitate the production of reliable estimates of the scope and harms of organized crime in Canada? To what extent can data collection methods offset the inherent weaknesses of the data? To what extent can foreign models be replicated in Canada?

Most quantitative studies that measure the scope and impact of organized crime rely on traditional criminological research methods, such as household surveys (to estimate the extent and impact of victimization or consumption of illegal goods and services) or surveys of police-recorded data (in particular the Uniform Crime Reporting survey).

Canadian researchers have implemented a number of rigorous methodologies and sophisticated analytical models that can serve as a partial foundation to estimate the scope and impact of at least some of the organized crime activities examined in this report. This can be augmented by methods and analytical models used in other countries.

While these rigorous research designs and analytical models can help offset some of the weaknesses of the data, they cannot completely overcome the shortcomings as far as producing precise, accurate, nationally representative estimates of the scope and impact of organized criminal activities.

The data collection and analytical models are also fraught with limitations that undermine the reliability of a harm index. Moreover, the methods employed in Canada to date have not produced comprehensive estimates of the scope and impact of the prioritized criminal activities. To produce the harm estimates required of a comprehensive OCHI, new data collection methods will have to be developed for most of the criminal activities or existing ones expanded to ensure comprehensiveness in terms of fully measuring the scope and impact of the prioritized criminal activities.

The contribution of harm assessments to the larger goal of organized crime control in Canada

Can an OCHI and supporting research contribute to the larger goal of organized crime control in Canada? Can such models assess whether enforcement initiatives have had some effect?

This study found that harm assessment research, and harm indices specifically, can contribute to criminal justice policy-making. The literature review revealed studies that advocate the utility of harm assessment research in guiding public policy and programs, especially which respect to drug trafficking and illegal drug abuse.

The growing importance of evidence-based policy-making, combined with the ostensible harm reduction purpose of the criminal justice system, underlies the utility of research that measures the scope and impact of crime. Some countries, such as the U.K., Australia, and New Zealand, have attempted to measure the harm of illegal drugs and integrate these measurements into a broader policy initiative. The U.K. has developed a Drug Harm Index to capture the harms generated by the problematic use of any illegal drug and is used as an analytical tool to monitor the success of national drug strategy policies in reducing harms.

Interviews and focus groups with criminal justice policy-makers and operational personnel in Canada also revealed strong support for research that measures the harms caused by organized crime. Such research would nurture a better understanding of organized crime, which in turn, can serve numerous purposes at the intelligence, operational and public policy levels. This includes identifying specific and serious harms that need to be addressed through public policy and programs; prioritizing organized crime groups and activities operational targeting; and expanding the repertoire of approaches to dealing with organized crime and its aftermath, which includes a harm reduction approach. As in the U.K., a harm index can also be used to help evaluate organized crime control strategies and, as such, may contribute to more effective and cost-effective control strategies. However, this study concludes that it is unlikely that a harm index potentially could be used to evaluate tactical law enforcement operations.

The feasibility and cost-effectiveness of conducting harm assessment research

Is an OCHI feasible? Are studies that measure the scope and harms of organized criminal activities feasible? Are they cost-effective? Can such models be implemented in a feasible and cost-effective manner in Canada?

A national, comprehensive OCHI will be costly due, in part, to the necessity of measuring a wide range of criminal activities and the complexity of any research that attempts to measure the scope and impact of organized crime. The cost-effectiveness of implementing an OCHI is undermined by the lack of a reliable centralized national repository of relevant, quantifiable police-recorded data and the significant challenges that may be encountered in convincing law enforcement agencies to share information. An increase in the cost-effectiveness of the research may be realized by using the same instrument to collect information on different organized criminal activities (e.g., a comprehensive household victimization survey). The rigour of the research methodology and reliability of the findings positively correlates with the budget provided. Thus, inadequate funding (and other half measures) will undermine the rigour of the research and the reliability of the findings.

1.2 Conclusion

This research identified numerous benefits of an OCHI in informing and assessing organized crime control strategies. All future considerations of an OCHI, however, are contingent upon the ability of the supporting research and analysis to produce reasonably precise and reliable estimates. In general, the results of any research that measures the scope and impact of organized crime must be treated as broad estimates; it is unlikely that the scope of or harms caused by organized crime can be measured with exacting precision or accuracy. This is due to the inherently hidden and secretive nature of organized crime and the significant limitations of existing data sources, data collection methods, and analytical models.

Governments in other developed countries have funded research that measures the harm

caused by organized crime activities, in particular illegal drugs, and have pledged to use the results to inform public policy decisions. The indices that result from the research (e.g. the U.K. Drug Harm Index) take into consideration the shortcomings and limitations of the data. Doing so, however, undermines and narrows the public policy utility of the index.

Canada does boast a number of experts, rigorous research designs, sophisticated analytical models, and existing harm assessment studies that can form the basis of an OCHI. However, there are significant weaknesses in existing data sources in this country, which is compounded by shortcomings in data collection methodologies and analytical models. Because of these weaknesses and shortcomings, it is unlikely that precise and rigorous data can be inputted into and reliable and precise estimates produced from an OCHI.

The development and implementation of a rigorous, comprehensive, and national OCHI in Canada is a highly ambitious and complex endeavour that will require a nation-wide criminological/criminal justice research strategy that will be unprecedented in this country. It will also be costly, reaching into the millions of dollars, with no guarantee as to the degree of precision, reliability, and accuracy of the findings or its use or utility by government policy makers.

The extent to which governments and other key partners are willing to undertake the development and implementation of an OCHI will be contingent upon their willingness to invest in an ambitious, complex, and costly research project, while assuming the risks that it may not yield accurate or reliable results.

1.3 Recommendations

Pilot Project: Drug Harm Index (DHI)

From an exploratory perspective, it is recommended that a harm index that focuses on measuring the impact of illegal drug trafficking and use on Canadian society be piloted. The goal of this pilot Drug Harm Index (DHI) would be to test such critical factors as

cost-effectiveness, whether sufficient data sources exist (and the potential to develop new ones), the reliability and accuracy of the results, and the utility of the index in informing and measuring the effectiveness of illegal drug control policy, including the National Drug Strategy.

More in-depth scoping and feasibility research is required

In addition to, or in lieu of the Canadian DHI pilot project, more in-depth research into the development and implementation of an OCHI should be considered. Given its limited resources, this study should be considered as only a first step in series of exploratory research projects that are necessary given the ambitiousness, complexity, and extensive costs of developing a national OCHI. Future exploratory research would build upon:

- the findings and recommendations of this study by identifying and examining the full range of the organized criminal activities that would make up the index;
- exploring different options as to how the data measuring the scope and harm of each criminal activity can be collected and how the methodological limitations identified in this report can be overcome;
- determining the scope of the harm variables to be measured (i.e., will intangible harms be included?);
- estimating in more precise terms the costs of conducting such harm assessment research; and
- developing different conceptual OCHI models; and determining precisely how a composite OCHI would be used to inform (and benefit) policies and programs.

In effect, what is being proposed as a next step beyond this research is a study that entails the actual conceptual development of the OCHI, which provides more detailed recommendations on the data sources, data collection methods, analytical models, and

impact variables to be used.

Implement OCHIs at the provincial/territorial level

Some of the most significant challenges to developing and implementing an OCHI are rooted in the proposed national scope of the index. In particular, there is a dearth of relevant and reliable police-recorded data at the national level. Implementing an OCHI at the national level also increases its complexity and costs. Consideration should be given to implementing an OCHI at the provincial/territorial level. This would make the development of an index far more manageable. It would also facilitate a more rigorous collection of reliable data from police agencies and other sources within each province. The development of a provincial OCHI could be implemented in a few select provinces as pilot projects. Alternatively, a national OCHI could be made up of a composite of indices developed within each of the provinces and territories.

Improvements to government data sources

Any attempt to develop and implement rigorous prevalence and harm assessment research into organized criminal activities in Canada must be preceded by efforts to improve basic data sources, in particular, police-recorded data. There is a great need to explore ways to create a national, centralized, quantifiable, reliable, and representative repository of police-recorded data that can that can be used to inform that OCHI (and other research, operational, and policy initiatives) and which can overcome the significant limitations of the only national source of police-recorded crime data – the Uniform Crime Reporting survey.

Broader research into the scope and impact of all types of crime

If government officials are intent on developing and applying an OCHI, then consideration should be given to placing future research into the prevalence and harm of organized criminal activities within the context of research that measures and estimates the prevalence and harm of *all* types of crime (e.g., all criminal code offences). This may facilitate prevalence and harm research into organized criminal activities because some of

these criminal activities are also carried out on a less organized basis (e.g., theft, fraud, prostitution, gun-related violence). Comprehensive crime prevalence and impact assessment research would result in an overall estimate of the prevalence and impact of a criminal activity (and crime in Canada). Adjustments could then be made to separate the organized from the unorganized activity.

Explore more viable, reliable, and useful organized crime research options

Information on the scope and impact of organized crime are two ways to understand this problem. However, as detailed in this report, the methodological shortcomings inherent in developing an OCHI significantly limit the utility of such research. The NCC may want to consider other more viable and useful research options that can address significant voids in the knowledge and understanding of organized crime in Canada, while producing results that can be considered more reliable. In particular, there is a need to foster a greater understanding of the factors that cause and compound organized criminal activity in Canada. Such research has the potential to contribute to policies and programs that can help better control the problem (including more proactive, preventative and fundamental measures that address the causes and not just the symptoms of the problem).

There is also a need for more evaluative information on organized crime control strategies, as well as effective, alternative and innovative approaches to combating organized crime.

2 INTRODUCTION

This report provides the findings, analysis, conclusions, and recommendations of research conducted for Public Safety Canada to assist the Research Working Group of the National Coordinating Committee on Organized Crime in assessing the feasibility of developing and applying a methodological and analytical framework for measuring and estimating the harm of organized crime on Canadian society.

This report is as follows:

Main body – The main body of the report consists of the executive summary, a discussion as to the scope and limitations of the study, an overview of this research project, the research design (research objectives, questions, methods, data sources, assumptions and scope and limitations of the study), as well as the conclusions and recommendations of the study.

Annex A: Measuring the scope and impact of organized crime

This annex documents the findings and analysis of the literature review, focusing on the methodological and analytical models used to measure the scope and nature of various (organized) criminal activities and the extent to which these models are rigorous, reliable, cost-effective and can contribute to organized crime control strategies.

Annex B: Organized crime prevalence and harm assessment research in Canada

This annex provides an analysis of the research findings with a view to assessing the current state of crime prevalence and impact research in Canada.

Annex C: Selective bibliography of quantitative studies measuring the scope and/or harm of organized crime in Canada.

Annex D: Detailed research findings and analysis for each organized criminal priority

This annex provides detailed research findings, analysis, conclusions, and recommendations for each of the criminal activities prioritized in this report. For each criminal activity, the following information is addressed:

(1) a list of the "impacts" (both positive and negative) stemming from the criminal activity,

(2) a bibliography of studies that have attempted to quantitatively measure the scope and/or impact of particular criminal activity,

(3) a list of organizations and agencies in Canada that can potentially be involved in prevalence and harm assessment research for that criminal activity,

(4) the findings of the literature review for each criminal activity,

(5) an analysis of the application of identified research designs and analytical models to Canada in terms of whether reliable data sources, rigorous research methods and analytical models exist, and

(6) potential options for future research to measure the scope and impact of the criminal activity in Canada.

Annex E: Works Cited

3 PROJECT OVERVIEW

3.1 Historical Background

The federal government has identified organized crime as one of the most pressing and complex crime problems facing Canada today (Public Safety Canada, 2006). Since the late 1980s, there has also been a flurry of new federal laws targeting organized crime, including separate pieces of legislation that have updated Canada's drug laws, targeted the proceeds of crime, enhanced the search powers of police, introduced "criminal organization offences" into the *Criminal Code,* eliminated the eligibility of individuals convicted of organized crime-related offences for accelerated parole review, and created

new offences related to deceptive telemarketing as well as human smuggling and trafficking. At the time of this report, bills have been introduced by the government to create identity theft offences, establish a separate offence for motor vehicle theft, and to set minimum sentencing guidelines for drug trafficking and violent crimes. At the operational level, emphasis has been on funding integrated, joint force enforcement units such as the Combined Forces Special Enforcement Units, the Integrated Proceeds of Crime Units, Integrated Border Enforcement Units, and the Integrated Market Enforcement Units, among others.

Recent inter-governmental initiatives include the 1996 National Forum on Organized Crime, hosted by Solicitor General Canada and Justice Canada, the 1997 Regional and National Coordinating Committees on Organized Crime, made up of senior members of police and provincial and federal government officials, and the 1998 Joint Statement on Organized Crime between federal, provincial, and territorial governments.

In 2000, Federal-Provincial-Territorial Ministers Responsible for Justice endorsed the National Agenda to Combat Organized Crime, which asserted that "the fight against organized crime is a national priority that requires all levels of government, the law enforcement community and other partners to work together." The National Committee identifies four main pillars that must be addressed in the fight against organized crime: national and regional coordination; legislative and regulatory tools; research and analysis; and, communications and public education" (Public Safety Canada, 2006). As noted in the Request for Proposal, a Ministerial Forum on Organized Crime was held in 2007, which was followed up by a Summit on Organized Crime, held in Ottawa in the spring of 2008.

3.2 Need for Research

Most of the organized forums for understanding and addressing organized crime acknowledge the need for more research that contributes to a better understanding of the nature and scope of organized crime and its impact on Canadian society.

Historically, little scientific research has been conducted into organized crime in Canada.

Much of what has been written and published are journalistic and/or biographical accounts that are often highly sensationalized and self-serving (especially for the criminal who is the subject of the biography). Collectively, the body of research produced by law enforcement, journalists, and scholars in Canada has led to a better understanding of the nature of the organized crime, but much applied research is still required to establish a foundation for effective public policies and programs targeting organized crime.

What is particularly lacking are comprehensive estimates, empirically developed through rigorous quantitative research, of the scope and impact of organized criminal activities on Canadian society. This lack of estimates is a major void as far as understanding and controlling this problem. For as Donald Liddick (1999, 62) points out, organized criminality can have a substantial negative impact on any society:

> Organized crime in its many forms is at least partly responsible for over-priced goods, unsafe products, an unclean environment, the corruption of public officials at all levels of government, the exploitation of women and children for illicit sex, massive thefts, the evasion of income and excise taxes, the poisoning of men, women, and children with harmful drugs, the proliferation of arms trafficking and the subsequent exacerbation of regional conflicts, capital flight from developing nations, and the outright number of brave and honest people who oppose all of this.

The Royal Canadian Mounted Police (2009) illuminate the wide-ranging social (and monetary) costs of organized crime:

> In terms of economic-related crimes, it is estimated that organized crime costs Canadians $5 billion every year; that is $600 a year for a family of four. This amount, however, does not include costs related to the many other crimes (i.e. drugs, counterfeit goods) that organized crime groups are involved in ... Organized crime affects our basic Canadian rights to peace, order and good government. Acts of violence and intimidation in our communities, potential corruption in our political systems and government greatly diminish quality of life, compromise our personal security and

disrupt our private life.

The detrimental impact of illegal drug trafficking and use on societies have long been known. Rhodes, Layne and Hohnson, for example, have stated that:

> Drug use fosters crime; facilitates the spread of catastrophic health problems, such as hepatitis, endocarditic, and AIDS; and disrupts personal, familial, and legitimate economic relationships. The public bears much of the burden of these indirect costs because it finances the criminal justice response to drug-related crime, a public drug-treatment system, and anti-drug prevention programs (Rhodes, Layne & Johnson, 2000, 3).

3.3 Measuring the Impact of Organized Crime

The ultimate goal of the criminal justice system is to reduce the harms inflicted on society by criminal incidents and offenders. As such, it seems logical that an exhaustive understanding of such harms requires rigours scientific research, which can then form the basis of an empirically based policy-making that fosters more effective means to control this problem and the harms it inflicts on Canadian society.

There is a growing body of literature that documents conceptual models and empirical research that identifies, measures, and estimates the impact of organized crime activities, and groups in Canada and abroad.

One of the first efforts is assessing the impact of organized crime on Canadian society was conducted by Sam Porteous Consulting for the Ministry of the Solicitor General (Porteous, 1996). The report provided estimates of the impact of a wide range of organized crime activities, including illicit drugs, environmental crime, contraband, economic crime, migrant trafficking, counterfeiting, motor vehicle theft, and money laundering. The report also ranked each of these activities in terms of different categories of impacts (socio-political, economic-commercial, health and safety, violence generation, and environmental). Moreover, the study attempted to quantify the impact of the various organized crime activities in monetary terms. However, this report was criticized for relying too heavily on qualitative methodologies that were not particularly rigorous and

for producing cost estimates that were mere "guesstimates."

More recently, the RCMP developed the Criminal Activity Harm Prioritization Scale. The goal of this measurement tool is to help identify the most harmful criminal activities undertaken by organized crime groups, in part to facilitate the ability of police to prioritize enforcement actions against organized crime groups that are causing the most harm to society (RCMP, 2008).

Perhaps the most rigorous Canadian research into the prevalence and costs of crime pertains to illegal drugs. This research includes estimates of the scope of drug production and trafficking (Plecas et al., 2002, 2005; Easton, 2004; Bouchard & Tremblay, 2005; Bouchard, 2007) as well as measurement of the scope of illegal substance use and abuse (Eliany, Giesbrecht & Nelson, 1990; MacNeil & Webster, 1997, Adalf et al., 2005) and estimates on the costs of substance abuse on Canadian society (Single et al., 1996; Rehm et al., 2006). Research has also been conducted that measure, in quantitative terms, the scope and/or impact of identity theft (Sproule and Archer, 2008), currency counterfeiting (Chant, 2004), and contraband smuggling and trafficking (Canadian Convenience Stores Association, 2008; GfK Research Dynamics, 2008; Leger Marketing, 2008). A number of studies have used rigorous and sophisticated econometric modeling to estimate the size of the underground economy (Éthier, 1985, Gervais, 1994; Mirus and Smith, 1997; Smith, 1997; Schneider, 1997; Giles et al., 1999).

Despite the contributions of these important and precedent-setting studies, they only scratch the surface as far as comprehensively measuring and estimating the scope and impact of the full range of organized criminal activities. Moreover, empirical research that measures the scope and impact of organized crime is also fraught with numerous limitations and shortcomings that can undermine the reliability of the findings. Some of the weaknesses and shortcomings identified can be overcome through methodologies that are more rigorous. However, there are inherent limitations in any research that estimates the scope and impact of organized crime that are unavoidable and will automatically render the resulting figures as broad estimates only.

Indeed, within the field of criminal justice and criminology, there is arguably no subject

matter that is more difficult to empirically study than organized crime. This challenge is not a conceptual problem that is restricted to academia; difficulties in collecting accurate and reliable information on the nature, scope, and impacts of organized crime diminishes the ability of a government and the larger society to control this problem.

Perhaps, the greatest challenge in conducting research into organized crime is collecting valid and reliable data. By its very nature, organized crime is secretive, which greatly inhibits the collection of empirical data that can be used for basic research, the formation of public policies, and the enforcement of federal and provincial laws. Donald Cressey, a principal investigator in the 1967 Presidential Commission on Organized Crime, wrote that the

> basic methodological problems stem from the fact that the society of organized criminals, if it is a society, is a secret society. The ongoing activities of organized criminals are not accessible to observation by the ordinary citizen or the ordinary social scientist (Cressey, 1967, 102).

Traditional social scientific research methods are often not applicable to or are unreliable when studying organized crime. In addition to legal and ethical concerns, interviews with organized crime figures or informants are problematic due to the above-mentioned secrecy, the reluctance of law enforcement or correctional officials to grant external researchers access to these individuals, and the unreliable nature of such research subjects. Victimization surveys are largely inadequate, as the most profitable organized crimes are consensual, and hence few consumers of illicit products and services identify themselves as victims. Population surveys that measure illegal drug use have been criticized for under-reporting consumption. The utility of quantitative data from police and other law enforcement agencies in measuring the scope of organized crime is limited because such data under-reports crime occurrences, is not representative of the "population" of criminal incidents, and does not isolate criminal activities carried out by organized groups.

These problems are aggravated by a relative dearth of scholarly and operational literature that advances rigorous research methodologies with respect to the study of organized

crime and its impact on society. Government-funded evaluations of organized crime enforcement illustrate the difficulties in collecting reliable and valid primary data. Reports from the U.S. General Accounting Office on tobacco smuggling, for example, consist primarily of testimony from enforcement officials (Robinson, 1998). Assessments of smuggling enforcement by the Office of the Auditor General of Canada relied primarily on aggregate tax revenue data or spurious performance indicators, such as contraband seizures (Auditor General of Canada, 1996).

In sum, one of the greatest challenges in organized crime research is to assess its scope and impact on society in a comprehensive and accurate manner. The challenges to producing reliable harm estimates of the impact of organized crime stem from its inherently hidden nature, the plethora of organized criminal activities, the wide-ranging impact these criminal activities have on society, the difficulty in isolating crimes carried out by organized groups (as opposed to those individuals and groups acting alone), and the lack of reliable quantitative data.

While the challenges are great, the potential contributions that researchers can make to a better understanding of this complex problem – for both basic and applied purposes – necessitates that continued efforts be made to fashion rigorous research methodologies and analytical models that produce reliable estimates of the scope and impact of organized crime.

3.4 Recent Context

Government officials have supported efforts to carry out research that measures the impact of organized crime. The need for such research was expressed in the 2007 Ministerial Forum on Organized Crime and in the subsequent 2008 Summit on Organized Crime. From these meetings directives were issued to explore the development of a comprehensive OCHI to capture and permit a more accurate analysis of the activities and impacts of organized crime groups. Ostensibly, the goal of the OCHI would be provide decision-makers at all levels of government with a foundation for making informed decisions in relation to enforcement, prevention, and support activities. To this end, a research-working group that reports to the inter-governmental National Coordinating

Committee has identified an expert scoping and feasibility report on the development and implementation of an OCHI as a necessary first step. The purpose of this report is not to detail the construction of the OCHI, but to examine whether such an index is feasible, cost-effective and can ultimately contribute to a better understanding and control of organized crime in Canada.

This project explored the feasibility of developing a multidisciplinary harm index that would measure the levels of harm and associated trends in Canadian society caused by organized crime. The intent of this study was to determine what may be feasible to serve as objective markers, what tangible goals could be set, and whether or not such a measurement is possible based on currently available tools and data.

The project conducted structured interviews and focus groups with subject matter experts from three general camps:

1) scholars and other researchers who have developed or applied relevant data collection methods and analytical models;
2) personnel working in the criminal justice sector and in the area of organized crime policy, intelligence, and enforcement, further broken down by:
    a. those who have expertise in and can provide input on measuring the scope and impact of a particular organized criminal activity and;
    b. those who have expertise in the criminal intelligence function (the assumption being that any future efforts to gather and analyze information on the scope and impact of organized crime must entail the involvement of criminal intelligence agencies and units in Canada); and
3) subject matter experts from government, private sector, and non-governmental organizations that are knowledgeable about a particular organized criminal activity and the extent to which research has been conducted, and/or data exists that can facilitate current and future impact assessment research into this criminal activity.

The project conducted research in a number of areas including:

1) Nature and Scope of Organized Crime;

2) Literature review from international and national subject matter experts in Harm Index;
3) National Agenda on Organized Crime;
4) Law Enforcement and other policing organizations;
5) Legal documentation;
6) Current law enforcement programs/policies/strategies; and
7) Results of stakeholder interviews and focus groups.

4 RESEARCH DESIGN

4.1 Over-arching Goal

The over-arching goal of this study is to produce a report that assesses the feasibility and utility of developing and applying rigorous methodological and analytical models that can reliably measure the impact (harms) of organized crime on Canadian society at the national, regional and local levels.

To accomplish this goal, the research identifies, describes, analyzes, and assesses existing theoretical and applied methodological and analytical models, techniques, instruments, impact variables to be measured, as well as the necessary data and data sources. Within the context of exploring the development of a rigorous OCHI, this feasibility study was mandated to:

- examine the field of (organized) crime harm assessment research, with a view to assessing the rigour of existing models and methods and their capacity to produce reliable findings;
- assess the utility of such models – and organized crime harm assessments generally – in contributing to the larger goal of organized crime control;
- determine the feasibility and cost-effectiveness of adapting these models to, and conducting organized crime harm assessment research in Canada; and
- determine the feasibility and cost-effectiveness of developing and applying a comprehensive, national Organized Crime Harm Index.

A guiding purpose behind this study is to determine if an organized crime harm index can produce reliable and accurate measures that can: (a) be used to help measure the scope and impact of the problem of organized crime, (b) nurture a better understanding of organized crime in Canadian society, and (c) contribute to efforts to combat organized crime, which includes using a harm index to determine the effectiveness of policies, programs, and law enforcement operations.

4.2 Specific Objectives

Specifically, the objectives of this project are to accomplish the following:

a) Identify, analyze and summarize empirical studies and theoretical models that have measured or proposed to measure the scope and impact of crime generally and organized crime specifically, with particular emphasis on identifying and examining models, methods, techniques, instruments, impact indicators, and data and data sources that can be used and are most useful in developing an organized crime harm index including an assessment of their methodological and analytical rigour and applicability to the Canadian context;

b) Identify and examine the types of organized crime harm assessment models in place in other countries including:

    i. an analysis of the strengths and weaknesses of each;

    ii. an analysis of the rigour of the methodology and reliability of the data collected and produced through these models, including best practices; and

    iii. an assessment of their possible replication in Canada.

c) Identify and assess existing and potential data and data sources, both within and outside the Canadian criminal justice system, that can be researched and analyzed as part of a rigorous and reliable organized crime harm index:

    i. identify and assess the availability of relevant, meaningful, and reliable data on organized crime, taking into consideration such important data gathering issues as cost, security classifications, privacy, and the independence of information

sources;

ii. identify and examine the manner in which organized crime data are currently collected in Canada; and

iii. ascertain what type of data relevant to organized crime are being collected.

d) Assess the contributions that a harm index can make to organized crime control in Canada, with particular emphasis on assessing its contribution to informing federal policy and programs as well as the operational and intelligence needs of enforcement agencies;

e) Provide a detailed analysis and synthesis of the findings of this study, which includes an assessment of:

i. the availability of rigorous data that can be collected, collated, quantified, and analyzed by researchers to accurately assess the impact (harms) of organized crime on Canadian society;

ii. the existence of methodological and analytical models, methods, techniques, instruments, impact indicators, data and data sources that can be used to rigorously and reliably assess the impact of organized crime on Canadian society; and

iii. the feasibility of adapting such models in the development and application of a comprehensive, national organized crime harm assessment model.

f) Provide recommendations with respect to the next steps that federal officials can take with respect to:

i. the use, adaptation and/or possible enhancement of existing organized crime harm assessment models, methods, techniques, instruments, impact indicators, data and data sources and/or the development of new models; and

ii. the utility of different models in producing a harm index for policy-makers and operational agencies and units that can produce reliable and accurate measures that can (a) be used to help measure the scope and impact of the problem, (b) contribute to organized crime control policy and program decisions, and (c)

assess whether enforcement initiatives have had some effect.

g) Document all of the above in a written scoping and feasibility report that will comprehensively detail the research findings, analyses, and recommendations (and summarized in a communications package in the form of Microsoft PowerPoint).

4.3 Terminology

For this report, and within the context of quantitative research into organized crime, the term "scope" refers to the size of a criminal market (e.g., as measured by volume or number of transactions) or population (e.g., as measured by number of groups, operations, or participants). Research that estimates the scope of a criminal activity is often referred to as "prevalence" studies." As such, the terms "scope" and "prevalence" are used interchangeably in this report.

For the purposes of this study, the word "impact" refers to any consequence, positive or negative rendered to society because of organized criminal activities.

The word "harm" is more precise in that it refers specifically to *negative* impacts or consequences. As defined by the RCMP in a summary of their Criminal Activity Harm Prioritization Scale (RCMP, 2008, 1), harm "can be defined as the result of an act that damages something or someone, causing a change for the worse. Within the context of crime, harm can be direct and tangible (e.g., when a person incurs physical pain from an assault) or indirect and less quantifiable (e.g., when a person's overall quality of life is weakened by a break and enter)."[1]

The term "cost" is even more precise in that it refers specifically to a monetary amount that has been applied to estimate the extent of a particular harm. The application of economic costs to the harms that have resulted from criminal acts is used to ensure a

[1] Within the context of criminal intelligence, the term "harm" is differentiated from the term "threat." A criminal threat assessment is predicated on a harm assessment. As Black (2001) notes, "...determination of threat relies upon the assessment of the level of harm." In other words, while a criminal group may be assessed to pose a considerable threat to society, the full extent of the harm that emanates from this threat may not be realized.

consistent and uniform measurement (and index ranking) across different criminal activities.

The term “organized crime harm index” (OCHI) refers to a systematic metric that ranks the harm, in both relative and absolute terms, of various organized criminal activities, which involves assigning a numerical (monetary cost) value to each activity for a relative comparison. Implicit in the development and use of such an index in Canada is the implementation of a comprehensive (an ambitious) research agenda and analytical models to collect and analyze the scope and harms of organized criminal activities.

An organized crime “harm index model” or “impact assessment model” assesses, in quantitative terms, the harm (gross costs) or impact (net costs) of various organized criminal activities in a manner that facilitates both an absolute estimate of the harm/impact of each criminal activity as well as a comparative analysis across criminal activities. Such frameworks or models incorporate a clearly defined data collection, collation and analytical (modelling) component (which includes applying monetary costs to harms)

The term “research methodology” refers to the collection of data while the term “analytical model” refers to how the collected information is analyzed to arrive at measurements and estimates of the scope or impact of a criminal activity (through statistical or econometric modelling). The term “instrument” generally refers to specific data collection tools, such as a survey questionnaire.

The word “techniques” refers to specific analytical approaches used within a broad conceptual or applied analytical model.

“Impact indicators” or “harm indicators” are specific examples of impacts or harms that stem from organized criminal activity and which can be operationalized so they are amenable to being measured quantitatively (e.g., for drug trafficking, these impact indicators or variables would include mortality, morbidity, health care costs for treatment, lost wages or productivity due to addictions, etc.).

"Data" refers to information that can be collected through standardized research instruments and which can then be "fed" into analytical models to determine impacts.

4.4 Assumptions

Three influential assumptions underlie this study. The first is that any research that attempts to estimate the scope and impact of organized crime on Canadian society must focus on distinguishable criminal activities. As the literature reveals, studies that estimate the scope and cost of crime overwhelmingly focus on specific types of crime, such as property crime, violence against women, drug trafficking, identity theft, etc..

The second assumption is that any research that rigorously measures the impact/harm of criminal activities and behaviour must be constructed using quantitative data. In particular, quantitative data is essential to measuring the scope of a criminal activity, which may entail such measurements as the number of criminal offences, the number of criminal offenders, the number of crime groups, the volume of illegal drugs or contraband being trafficked, the size of an illegal market measured in monetary terms, etc.). Implicit in this assumption is that rigorous assessments of the harm imposed by a criminal activity must be quantitative in nature (as mentioned, often calculated into and expressed in monetary terms – costs). Indeed, the harms or costs imposed by a criminal activity cannot be estimated unless the scope of the criminal activity has been measured. As such, the research findings, discussion, and analysis in this report place as much emphasis on examining the *scope* of criminal activities as it places on the *harm* of criminal activities.

The final assumption for this study is that any research that rigorously measures the impact/harm of criminal activities and behaviour needs to consider intangible harms/qualitative data such emotional damage, reputational costs, time expended in repairing damage, legal fees etc. To ensure that a complete understanding of the impact of organized crime, one must consider both quantitative and qualitative data in research on organized crime impacts, to ensure it is as comprehensive as possible. It must also be supported by factual evidence and benchmarking and by avoiding subjective information

or interpretation that could lead to erroneous findings.

4.5 Research Methods

Research for this project relied on qualitative methods that incorporated both secondary and primary data. The overall approach was to combine a broad survey of the subject area with an in-depth case study approach that examined selective conceptual and applied data collection and harm assessment models that fall within and outside the field of organized crime.

This project entailed national and international comparative research in selective regions and countries. The international case study research examined relevant data collection designs and harm assessment models that have been developed and implemented in different jurisdictions.

The research methods used for this study were a review of electronic and printed literature, structured interviews and focus groups, site visits, and observations.

Literature and Internet Review

This study reviewed domestic and international research that assesses the impact of crime in general and organized crime specifically, identifying the various impact indicators and methodologies used.

A review of printed and electronic literature was undertaken to identify conceptual and applied organized crime research and harm assessment models. The literature review was also used as an empirical foundation for the primary research by identifying case studies that would be the subject of in-depth examination, as well as agencies and experts to be interviewed. The focus of the secondary research was academic sources, criminal intelligence reports, government reports, and private sector studies that involved the design and implementation of statistical data collection and harm assessment research in the criminal justice field.

The literature review concentrated primarily on research methods and sources used to

conduct quantitative studies and harm assessments of organized and major crime. Because of the lack of organized crime harm assessment studies, the focus was broadened to include harm assessment research addressing all types of crime.

Structured Interviews and Focus Groups

The primary research consisted of interviews with, and a questionnaire survey of research and policy experts in the academic, government, non-governmental and law enforcement communities.

4.6 Scope and Limitations

Organized crime is an ill-defined term both conceptually and in legal terms, (no meaningful *Criminal Code* definition of organized crime or criminal organization exists for Canada).[2] Thus, for the purposes of this organized crime harm assessment scoping and feasibility report, some parameters are placed around the subject of analysis. In particular, to facilitate an examination of existing harm assessment models, techniques, tools, data, and data sources, this study will focus on organized criminal *activities* (as opposed to organized crime genres or specific criminal organizations).[3] In particular, this report will rely on the following organized criminal activities:

[2] Section 467.1 of the *Criminal Code of Canada* defines a "criminal organization," as "a group that a) is composed of three or more persons in or outside of Canada; and b) has one of its main purposes or main activities the facilitation or commission or one or more serious offences, that, if committed, would likely result in the direct or indirect receipt of a material benefit, including a financial benefit, by the group or by any of the persons who constitute the group. It does not include a group of persons that forms randomly for the immediate commission of a single offence." This definition is deliberately broad for prosecutorial purposes and, because of this vagueness; it does not adequately capture the complexities and nuances of modern organized criminality.

[3] Using an organized crime group as the unit of analysis for a harm index model is problematic given the recent trends whereby modern organized crime can best be characterized as a fluid network of many autonomous buyers, brokers, financiers, middlemen, and distributors from different groups, ethnicities, nationalities, and countries that come together to make deals by capitalizing on each other's specialties and strengths. Given the fluid nature of criminal networks, combined with the observation that most networks come together around a criminal activity, using organized criminal activities as the unit of analysis provides a more sound foundation for reliable and rigorous harm assessments. Moreover, the vast majority of crime harm assessments

- Arms trafficking (including cross-border smuggling)
- Contraband products (smuggling and trafficking in contraband tobacco products and liquor)
- Currency counterfeiting
- Drug trafficking (including the domestic production of marijuana and chemical drugs)
- Gambling and bookmaking
- Identity theft/fraud
- Product piracy (copyright infringement, in particular illegal reproduction of films)
- Credit card fraud
- Telemarketing fraud
- Theft (organized auto theft) [4]

This study identifies methodological and analytical models within and outside of Canada. the international component is important given that much of this research has been conducted outside of Canada (particularly in the United States). One goal of this study is to assess whether models developed in foreign jurisdictions can be applied in Canada.

While the focus of this study is on the impact of organized criminal activities, the research will also refer to models that assess the impact of criminal activities in general, including those that are not generally considered "organized" such as residential property crimes, violence, etc.

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revolve around criminal activities. Finally, using criminal activities as the basis for a harm index also lays the foundation to conduct a harm index of individual criminal groups and networks, given that it can be argued that they are generally a sum of their criminal activities, including profit-focused activities (drug trafficking, fraud, smuggling, extortion, etc.) and tactical activities (violence, corruption, money laundering, etc.).

[4] This list is only a fraction of the types of criminal activities associated with organized crime (The 2008 annual report of the Criminal Intelligence Service Canada lists no less than nine categories of organized crime activities with sub-activities in each category). While selective, this list emphasizes those organized criminal activities that have been deemed a priority by Canadian government and law enforcement agencies.

The number of criminal activities prioritized for this project, multiplied by the large volume of published literature for each priority, means that not all the relevant literature could be reviewed. Emphasis has been placed on more recent studies (after 2000) and those that are considered to be the most rigorous (i.e., have set the standard for research in a particular area). Particular emphasis is placed on exhaustively identifying public studies and data sources in Canada, in order to fulfill a key objective of this study, which is to assess the state of Canadian research (including its strengths and weaknesses, capacities and voids).

All of the studies and data sources identified through this research are public. Any classified studies and intelligence products that measure the scope or impact of the prioritized organized criminal activities have not been reviewed, because this project was not designated as classified. The absence of classified studies and intelligence products from the literature review may affect the findings and analysis of this study, especially if there is a body of classified research that has focused on measuring the scope and impact of organized crime in Canada.

A review of the quantitative research literature covering youth/street gangs was beyond the scope of this study. It is recommended that a separate review of such literature be conducted given the extent to which quantitative research has been undertaken in this area). Literature dealing with commercial crime was also not reviewed as part of this study.

Finally, this study encountered one of the most significant obstacles that confront research into organized crime: the unwillingness of individuals and agencies – including both public and private sector agencies – to participate in the research. Some prospective research participants did not respond to requests to participate in this study, while others refused to be interviewed after being contacted. One provincial securities regulatory agency refused to participate because, in their view, this involvement may create the perception that organized crime was active in the securities market and hence, could negatively affect the market. Moreover, some stakeholders were cautious in providing information for fear of disclosing confidential data or operational procedures. Many of

the stakeholders slated to be interviewed for this study are active members of various national committees and participate in various initiatives and national committees relating to organized crime. Some represent federal or provincial departments, agencies and institutions that, unfortunately, did not respond when contacted and asked to participate in the study.

These obstacles are significant, because not only do they limit the collection of important information for this study, but they also portend to similar obstacles that may be encountered in soliciting the participation of agencies that can provide data necessary for the development and implementation of an OCHI.

5 MEASURING THE SCOPE AND IMPACT OF ORGANIZED CRIME: RESEARCH FINDINGS, DISCUSSION AND ANALYSIS

This part of the report describes and examines the various data collection methodologies and analytical models that measure and estimate the scope and impact of organized criminal activities. Information for this section has been gleaned primarily from the literature review. In an attempt to keep the main body of the report focused and as concise as possible, this detailed portion of the report is attached as Annex "A."

6 ORGANIZED CRIME PREVALENCE AND HARM ASSESSMENT RESEARCH IN CANADA: FINDINGS, DISCUSSIONS AND ANALYSIS

This section of the report describes and analyzes empirical studies as well as conceptual models that measure the prevalence and impact of organized crime and substance abuse in Canada. The principal research question that guides this part of the report is: "Can the necessary research methods and analytical models be applied in Canada in such a way as to produce reliable results that can be used to contribute to efforts to combat organized crime?" The detailed research findings for this part of the report are contained in Annex "B." In addition, Annex "C" contains a bibliography of selective studies that measure the scope and impact of organized criminal activities in Canada.

7 CONCLUSION

Studies that measure the costs of organized crime are unanimous in their conclusion that this problem exacts a heavy toll on Canada. The direct costs of organized crime on the Canadian society include personal financial losses, criminal justice expenditures, health care costs and insurance, to name just a few, and this translates into billions of dollar losses and costs every year. The economic costs of crime are only one part of the equation; the most deleterious impacts of organized crime – drug abuse, pain and suffering, violence, death, environmental degradation, the undermining of democratic institutions through corruption and so forth – can never truly be captured accurately by applying monetary values. In recent years, Canada has also been increasingly saddled with a negative reputation internationally as a centre for drug production, telemarketing fraud, and product piracy.

There is a growing body of scientific research that identifies, measures, and estimates the impacts of organized crime activities and groups. One of the most contentious issues in the debate over the utility of this research is whether precise, accurate, and reliable findings and conclusions can be produced.

All future considerations of an Organized Crime Harm Index in Canada – whether it is to further explore the conceptual development of a harm index, to fund the design and implementation of a composite index, or to base policy or operational decisions on the measures generated by an index – is contingent upon the ability of these models to produce reasonably precise and reliable estimates.

One of the principal conclusions that can be drawn from this exploratory study is that the results of any attempt to quantitatively measure and assess the scope and the impact of organized crime on society must be treated as broad estimates. Regardless of the scientific rigour of the research design or the extent of the data sources, it is unlikely that the characteristics, scope, impact, or costs of organized criminal activities can be measured comprehensively or with exacting precision. Indeed, in measuring the harm and calculating the social cost of a criminal activity, one must accept that the three essential

inputs of a cost of crime assessment – the scope of a criminal activity, the extent and nature of the impacts of the criminal activity, and the monetary value applied to the social costs of each impact stemming from a criminal activity – are themselves estimates that are replete with subjective assumptions and fraught with uncertainties. There are other intervening factors that compound the difficulties in conducting such research and which limit the precision, accuracy, and reliability of the estimates. These factors include:

- the inherently hidden nature of organized crime;
- the lack of reliable data at a national level;
- the sheer diversity and wide-ranging impacts of organized crime on Canadian society;
- the difficulty in isolating offences committed by criminal organizations;
- the difficulty in quantifying indirect and intangible impacts of organized criminal activities, and
- the necessity of invoking highly subjective assumptions during analysis of the data to produce econometric harm estimates.

Even the most sophisticated statistical or econometric models cannot completely overcome these aforementioned shortcomings.

The ultimate goal of the criminal justice system is to reduce the harms inflicted on society by criminal incidents and offenders. As such, it seems logical that in order to both prioritize the most harmful criminal activities and to assess whether harm is being reduced, indices should be used to measure the harm of criminal activities and offenders on society. Moreover, the use of scientifically-developed harm assessment studies and indices are part of a growing reliance on evidence-based policy-making within the criminal justice system and government in general. Some may argue that even broad and flawed estimates of the scope and impact of a problem are a better foundation for policy-making, especially in illegal drug and organized crime enforcement, compared to no scientifically-derived data at all.

Despite the acknowledged lack of precision or reliability of crime cost estimates, this

study identified numerous potential benefits of an OCHI in informing and assessing organized crime control strategies. Governments in other developed countries have funded the design and implementation of such research and have pledged to use the results to inform public policy decisions. Most notably, the British Government has funded the creation of a Drug Harm Index and the accompanying research to estimate the social costs of drug use as a means to determine if its national drug strategy is meeting its annual harm reduction targets. What is telling about the British Drug Harm Index is that it is used to inform and evaluate policy even though it is recognized that the index does not truly measure all the harms associated with drug use.

As Yih-Ing Hser (1993) argues in her analysis of the feasibility and utility of quantitative estimates of crime for public policy purposes, there no doubt are "gaps and flaws in the existing data systems, including inadequate coverage, non-response, inconsistency, lack of comparability, quality assurance, and so on." Further, the "complete amelioration of all these systemic and procedural deficiencies is unlikely – and *probably unnecessary. What can be done and should be done is to ensure the comparability of data across sources, time periods, and geographical areas"* (emphasis added).

The implication is that crime harm indices are being adapted by governments to guide and evaluate policy and programs in a fashion that takes into consideration their shortcomings and limitations. As Hser implies, for public policy purposes, the decision to adopt an OCHI in Canada should not solely be based on its ability to comprehensively identify and measure every impact. Instead, it should be based on how the index is to be used within a policy context, as long as there is consistency in how the scope and costs of each of the organized criminal activities/groups are measured. A long as the prevalence and cost estimates are required to be considered alongside their associated confidence intervals, an index can be utilized to track changes in harm figures, which can help evaluate policies and programs over time (Hay et al., 2006). If this is the case, however, then a drug harm index or organized crime harm index can only be used for only one limited purpose: (to assess the impact of policies and programs) and, generally speaking, cannot serve the numerous other functions uncovered in this report (See Annexes A & B

for the many functions identified through this research).

Despite the limitations and weaknesses inherent in any organized crime harm index, there have been great advances made in the science involved in measuring the scope and impact of crime, as well as substance abuse and problem gambling. Canada boasts a number of experts who have developed and applied rigorous and internationally influential methodologies to measure the scope and impact of drug production, trafficking, and abuse; problem gambling; counterfeit currency; the consumption of contraband tobacco; and identify theft. Moreover, numerous other rigorous models and methodologies have been designed and applied in other countries that can potentially be replicated in Canada.

Even with the rigorous prevalence and impact assessment research currently being conducted in Canada, the new methodological and analytical models that can be introduced in this country, or the potential to develop data sources, any future research that attempts to assess the scope and impact of a largely hidden problem that is intrinsically resistant to accurate measurement, will be greatly limited in its ability to produce precise, accurate, and reliable estimates. As mentioned, there are significant weaknesses in existing data sources in this country, which are compounded by shortcomings in data collection methodologies and analytical models. Because of these weaknesses and shortcomings, it is unlikely that precise and rigorous data can be inputted into and reliable and precise estimates produced from an OCHI.

There are ways to conduct research for an OCHI that can maximize its cost-effectiveness, such as collecting national (victimization) data through one instrument. The costs of the research can also be spread across the spectrum of those actors with a vested interest in such research – federal and provincial governments including numerous government organizations and agencies that have a stake in such research, private sector industries vulnerable to organized crime, as well as universities, researchers, and research centres. However, there still will be substantial costs associated with this research, especially given the need to implement new or extensively modify existing national surveys as well as the need to create a national, centralized, and comprehensive database of police-

recorded information that can overcome the significant shortcomings of the Uniform Crime Reporting survey.

Indeed, the development and implementation of a rigorous and comprehensive OCHI, and all this entails as far as the accompanying research and analysis is concerned, will be costly, reaching into the millions of dollars in expenditures,[5] with no guarantee as to the degree of precision, reliability, and accuracy of the findings or their use or utility by government policy makers. The extent to which governments and other key partners in Canada are willing to invest in the development and application of an Organized Crime Harm Index will be contingent upon their willingness to assume the risks that the money invested in this highly ambitious endeavour may not yield accurate or reliable results or that such results will be of little utility to governments for policy, program, and operational purposes.

In order to pursue the development of a Canadian OCHI, and all the accompanying research and analytical work, at minimum the following will be necessary:

- considerable research resources will have to be harnessed from a number of governmental, private sector, academic, and non-governmental agencies;
- an unprecedented national research strategy will need to be undertaken, which will involve extensive primary research involving numerous quantitative methods and dozens of studies undertaken on a national level examining a wide range of organized criminal activities;
- a large number of researchers and analysts will have to be mobilized to undertake the work necessary to develop and implement the OCHI;

[5] One way to break down the costs is to divide them into the different stages required in the development and implementation of an OCHI: (1) development of the conceptual model, (2) prevalence and impact assessment research planning (which will inevitably modifying existing data sources and initiating new ones), (3) implementation of the research, and (4) synthesizing and analyzing the data for harm output estimates.

- there will need to be extensive coordination between key actors – governments, universities, clinical and epidemiological research centres, non-governmental organizations and the private sector.

- a number of existing data sources will need to be modified to increase reliability and coverage and existing national surveys will need to be modified and new ones introduced;

- extensive preparation and planning will have to be undertaken, including the launching of modest pilot projects;

- patience will be a virtue, as a fully operational OCHI may be years in the making; and

- law enforcement and other government and private sector agencies will have to be convinced of the utility of this research, in order to secure their participation and access to their data.

This report represents only a preliminary step in what will inevitably be a complex and controversial effort to scope out the utility and feasibility of developing an OCHI and implementing the necessary research. One of the principal recommendations of this study is that a more in-depth feasibility study be conducted for each of the organized crime activities that would presumably make up this index. These studies, undertaken by experts in each criminal activity and guided by a central coordinating project authority, need to examine in more depth all the critical questions relating to the development of an OCHI: Do reliable data and data sources exist? How can we ensure more reliable data and data sources? Can rigorous research methods and analytical models be implemented in this country to support a comprehensive OCHI? Can this be accomplished in a cost-effective manner? Will policy makers and others actually use the OCHI? Can an OCHI actually contribute to organized crime control measures in this country?

8 RECOMMENDATIONS

Based on the findings and conclusions of this study, a number of recommendations have been made. These recommendations are detailed below.

8.1 Pilot project: Drug Harm Index

An Organized Crime Harm Index is a highly ambitious and complex venture, if only because of the wide-range of criminal activities that would have to be included.

From an exploratory perspective, a realistic and prudent approach would be to pilot a harm index that focuses on measuring the impact of illegal drug trafficking (including drug use) on Canadian society. The goal of this pilot Drug Harm Index (DHI) would be to test such critical factors as data sources, data collection methods, analytical models and the harm indicators to be measured, the reliability and accuracy of the resulting estimates, and the utility of the index in informing and assessing the effectiveness of drug control policies and National Drug Strategy in particular. Rigorous evaluation research should accompany this pilot DHI and test whether it has reached its goals.

A Drug Harm Index can be seen as a focused preliminary step towards creating a more ambitious and complex Organized Crime Harm Index. At the same time, a DHI addresses the most dominant profit-oriented organized criminal activity, not to mention one that causes highly detrimental and wide-ranging harms to Canadian society.

Drug trafficking and illegal drug use have also been subjected to considerable prevalence and harm assessment research domestically, which can be used as a strong methodological and empirical basis for the development of a Drug Harm Index. Rigorous methodologies, expertise, and resources exist in Canada to measure and estimate the scope and social costs of illegal drug use and abuse.

A Canadian Drug Harm Index could be based on models that have been implemented in the U.K., Australia and New Zealand. In these countries, the indices contribute to national crime reduction policies and programs by assessing the effectiveness of drug

strategies through the measurement of harm reduction.

In the long term, a Canadian Drug Harm Index can be used for similar purposes; it can be integrated into the National Drug Strategy as a means to measure harm reduction (if any) that has been realized by the strategy and would also facilitate a more scientifically-developed and empirically-based approach to combating illegal drug trafficking and use.

An important first step in exploring the utility and feasibility of developing a DHI in Canada is to study those in place in the U.K., Australia, and New Zealand. This research would include examining the nature, scope, strengths, weaknesses and utility of these indexes. Particular emphasis should be placed on assessing their rigour and reliability as well as whether they are reaching their goals (i.e., accurately measuring harm reduction goals) and contributing to public policy and programs.

8.2 More exploratory research

The limited scope, resources, and time allocated to this study, combined with the sheer number of organized criminal activities and the inherent complexity of the "cost of crime" field, precludes any exhaustive identification and examination of the literature and the salient issues. This study should be considered as a first step in a series of exploratory research projects that will be necessary given the ambitiousness, complexity, and extensive costs of developing a national OCHI.

Because of the number of criminal activities examined in this research report, hundreds of empirical studies, conceptual models, and other literature exploring the scope and impact of organized crime have been uncovered. Admittedly, only a fraction of this total has been reviewed and distilled. Moreover, this study was not mandated to provide specific financial estimates of the resources and expenditures required to carry out rigorous harm assessment research into organized crime (and for each of the prioritized criminal activities).

Thus, in addition to, or in lieu of the Canadian Drug Harm Index pilot project, it is recommended that more in-depth research into the feasibility of developing and

implementing an OCHI be conducted. Future exploratory research would build upon the findings and recommendations of this study by identifying and examining the full range of the organized criminal activities that would make up the index; exploring different options as to how the data measuring the scope and harm of each criminal activity can be collected and how the methodological limitations identified in this report can be overcome; determining the scope of the harm variables to be measured (i.e., will intangible harms be included?); estimating in more precise terms the costs of conducting such harm assessment research; developing different conceptual OCHI models; and determining precisely how a composite OCHI would be used to inform (and benefit) policies and programs.

In effect what is being proposed as a next step beyond this research is a study that entails the actual conceptual development of the OCHI, which provides more detailed recommendations on the data sources, data collection methods, analytical models, and impact variables to be used.

To this end, study teams made up of researchers and others with relevant expertise should be formed for each criminal activity. At the core of each team, it is recommended that researchers be used who have expertise in the criminal activity and in quantitative research methodologies and statistical modelling. Researchers should be required a possess a "Secret" government security clearance to access classified studies that have been conducted into the scope and impact of organized crime and to examine law enforcement databases that could be of potential value to any future OCHI. Ideally, these researchers should have experience in the prevalence and harm assessment studies identified in this report. These study teams can also be made up individuals from those sectors of society (e.g., law enforcement and private sector industries) that would be the principal sources of the data collected for the OCHI.

A central project authority that governs, administers, and leads the research exercise across all criminal priorities should also be established. This central project authority would be responsible for coordinating the overall effort, and for collating and synthesizing all the information, which ultimately should lead to developing, assessing,

and costing out a comprehensive conceptual OCHI. Other responsibilities of the central project authority would include:

- developing cost-effective research methods that could collect data on a range of criminal activities from the same source using the same instruments (e.g., one victimization survey of the general population can be used to measure the scope and impact of a range of criminal activities, such as auto theft, telemarketing fraud, credit card fraud, identify theft, etc.);

- ensuring there is consistency in the assumptions used in the modelling of each criminal activity's harms and that consistent parameters be placed around the harm indicators to be used for all criminal activities (e.g., Will intangible costs be measured? Will the benefits of the criminal activity be included?);

- developing the conceptual framework of the OCHI, based on a collation and synthesis of the findings and recommendations of the study teams to ensure it is rigorous, comprehensive, and measures all criminal activities in a consistent and uniform manner so that the relative harm of each can be measured and compared to one another.

In order to accomplish the above goals, there is a need for each study team, individually and in collaboration with the central project authority and other study teams to:

1) Undertake an exhaustive and in-depth review of the relevant literature for their respective organized criminal priority. This may include a scientific meta-analysis[6] of the quantitative literature to identify the studies and conceptual models that use the most rigorous research methods and produce the most reliable findings;

[6] In the context of literature reviews, a meta-analysis is a rigorous review of numerous studies in which the findings from these studies are analyzed quantitatively to determine general findings. In the pursuit of developing the framework for an organized crime harm index, the meta-analysis would be focused on methodologies used to measure and estimate the scope and impact of organized criminal activities.

2) Conduct a more in-depth analysis into the strengths and weaknesses of Canada's capacity to accommodate organized crime prevalence and harm assessment research, including a more exhaustive and in-depth review of necessary existing and potential data sources in Canada;

3) Critically analyze the data collection methods, sources, analytical models, and harm indices that have been applied in other countries and which are not currently available in Canada, such as the Arrestee Survey conducted in the U.S., U.K. and Australia or the Drug Harm Index in the U.K. and New Zealand;

4) Examine and learn from other relevant harm impact metric models in efforts to construct a rigorous OCHI.[7]

5) Critically analyze the research methodologies and analytical models that have been and can be used for each criminal activity, focusing on rigour, reliability, accuracy of estimates, types of internal and external validity measures in place, obstacles to collecting reliable data, and the feasibility and cost-effectiveness of each. The research teams should be mandated to explore those methodological issues that present particular challenges to collecting reliable and accurate prevalence and harm

[7] For example, in his comments on the draft OCHI report, Cameron McIntosh recommends that, "the burden of disease approach (loss of money, life, and functional health) would provide much value-added" to the development of an OCHI. "This body of work has made significant advances in the construction of indexes and has addressed numerous technical issues, using advanced econometric methods. I think that work in this area could help inform all stages of the development of an OCHI, and that consultation with experts from this field would be necessary. There are many parallel methodological issues: lack of reliable data, figuring out how to quantify both psychological and physical harm in addition to monetary loss, statistical models for dealing with the common problem of "comorbidity" or co-occurence of health conditions (an example in the organized crime context would be how counterfeiting rackets fund and facilitate other criminal activities such as illicit drug and contraband firearms trades). Parallel objectives in the use of such indexes are to: measure and monitor the societal burden of disease (OC) across time, determine if innovations in both public health policy and medical technology (law enforcement legislation and police operations) are effective in reducing the burden of disease (OC), and establish priorities for the allocation of scarce resources to prevention and intervention strategies." Some references to this body of work provided by Mr. McIntosh include: Murray, et al., 2002; Ezzati et al., 2004; Boswell-Purdy et al., 2007; McIntosh, et al., 2007).

assessment data. This mandate includes examining in more detail those methodological challenges identified in this report, in particular:

a) Identifying and collecting reliable and representative raw data (which will involve identifying what relevant data currently exists in Canada, what data sources should be used, rigorous data collection methods, and what impacts should be included in harm estimates);

b) Ensuring that realistic and reliable assumptions are invoked and monetary (cost) valuations are applied with respect to the impacts being measured, and

c) Use of rigorous statistical and econometric modelling to analyze the data, which incorporates meticulous internal and external validity measures.

6) Provide options and make recommendations on the data, methodological, and analytical parameters of organized crime prevalence and harm assessment research (including work plans and timelines);

7) Determine the most cost-effective way to carry out research (which would include determining how new or existing methods can be used to collected data to measure the scope and impact of multiple criminal activities);

8) Provide recommendations as to the structure of the OCHI; and

9) Provide concrete estimates of the costs of carrying out organized crime prevalence and harm assessment research and to develop the OCHI.

8.3 Implement OCHIs at the provincial/territorial level

Some of the most significant challenges to developing and implementing an OCHI are rooted in the proposed national scope of the index. In particular, there is a dearth of relevant and reliable police-recorded data at the national level. Implementing an OCHI at the national level also increases its complexity and costs. Consideration should be given to implementing an OCHI at the provincial/territorial level. This would make the

development of an index far more manageable. It would also facilitate a more rigorous collection of reliable data from police agencies and other sources within each province. The development of a provincial OCHI could be implemented in a few select provinces as pilot projects. Alternatively, a national OCHI could be made up of a composite of indices developed within each of the provinces and territories.

8.4 Improvements to law enforcement data sources

As discussed throughout this report, weaknesses in law enforcement-recorded quantifiable data undermine the capacity to conduct rigorous research into the scope and impact of organized criminal activities.

The only national quantifiable data source on crime in this country is produced from the Uniform Crime Reporting Survey. However, the resulting data has a number of significant shortcomings as far as providing reliable and representative quantitative data that can be used as a foundation for the prevalence and impact assessment estimates required to construct an OCHI.

Any attempt to develop and implement rigorous prevalence and harm assessment research into organized criminal activities in Canada must be preceded by efforts to improve basic data sources and in particular, police-recorded data. In particular, there is a great need to explore ways to create a national, centralized, quantifiable, reliable, and representative source of police-recorded data that can that can be used for research purposes (and strategic and tactical policy-making, and operational purposes) which can overcome the limitations of the UCR data. This research may include introducing new centralized data sources (e.g., a centralized, quantifiable police database on organized crime) or modifying existing ones (e.g., re-orientating the ACIIS database maintained by the CISC to include relevant, quantifiable data).

A more ambitious database would be one made up of different, but complimentary sources of data, and which is primarily geared toward informing the OCHI (but which could be used for other purposes). This comprehensive OCHI database would include:

- police-recorded data
- intelligence information (inputted in such a way as to be quantifiable)
- data from other criminal justice and government sources
- data from household victimization surveys
- data from private sector victimization surveys
- offender-derived primary data (e.g., through a national arrestee survey)
- data from other sources (e.g., Canadian Banker Association credit card fraud statistics).

The broader context of this research is to explore alternative data sources that can be used as the empirical basis for the OCHI.

8.5 Explore more viable, reliable, and useful organized crime research options

The paucity of reliable and comprehensive information and knowledge on the prevalence and impact of most organized criminal activities in Canada is indicative of the continuing overall lack of empirical data and theoretical deliberations concerning organized crime in Canada. While the state of knowledge in Canada and abroad has increased in recent years, there are still large gaps.

Information on the scope and impact of organized crime are two ways to understand this problem. However, as detailed in this report, the methodological shortcomings inherent in gathering data that reliably and accurately measures the scope and impact of organized criminality significantly limits the utility of such research. In terms of addressing significant voids in the knowledge and understanding of organized crime in Canada, while carrying out research that can be considered more reliable, the NCC may want to consider other more viable and useful research options. In particular, there is a significant need to foster a greater understanding of the factors that cause and compound organized criminal activity in Canada. This would include identifying factors that place individuals at risk of becoming involved in organized criminal groups and activities as well as the development of etiological theories, specific to Canada that can help explain the causes of

organized criminality in this country. This empirical research and theory development has the potential to contribute significantly to policies and programs that can help better control the problem (including more proactive, preventative and fundamental measures that address the causes and not just the symptoms of the problem).

There is also a need for more evaluative information needed on organized crime control strategies, as well as effective, alternative and innovative approaches to combating organized crime.

8.6 Conduct research into the harm of all crime categories

If government officials are intent on developing and applying an OCHI, then consideration should be given to placing future research into the prevalence and harm of organized criminal activities within the context of research that measures and estimates the prevalence and harm of *all* types of crime (e.g., all criminal code offences). This may facilitate prevalence and harm research into organized criminal activities because some of these criminal activities are also carried out on a less organized basis (e.g., theft, prostitution, gun-related violence). As such, comprehensive crime prevalence and impact assessment research would develop an overall estimate of the prevalence and impact of a particular criminal activity. Adjustments could then be made to separate the organized from the unorganized incidents.

9 LIST OF ANNEXES

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ANNEX A - MEASURING THE SCOPE AND IMPACT OF ORGANIZED CRIME: RESEARCH FINDINGS, DISCUSSION AND ANALYSIS

Introduction

This part of the report describes and examines the various data collection methodologies and analytical approaches that have been employed to measure and estimate the scope and impact/harm of (organized) criminal activities. The information used for this summary is gleaned primarily from the literature review. The goal of this part of the report is to describe and analyze the field of research concerned with quantitatively measuring the scope and impact of (organized) criminal activities. The focus of this discussion and analysis are the research designs, including data collection methods and analytical models, used to produce criminal prevalence and impact estimates. Many of the case studies used as examples are from countries other than Canada (an in-depth review of Canadian research, which includes a comparison to other countries, is provided in the following part of the report). While case studies include research that measures various types of crimes, emphasis has been placed on methodologies and models that focus on organized crime specifically (with particular emphasis on the organized crime activities prioritized in this report). A description and analysis of the methodological findings for each of the prioritized organized criminal activities is presented in Annex C.

In examining the field of organized crime prevalence and harm assessment research, this part is broken down into the following sections:

1. the agencies, organizations, and professionals involved in the collection and analysis of quantitative data on (organized) crime,
2. the data and data sources used to measure the scope and impact of (organized) criminal activities.
3. the research (data collection) methods used in studies that measure the scope and impact of (organized) criminal activities
4. the methods, models and techniques used to analyze the data (i.e., convert raw data into meaningful information that measures the scope and impact of crime), and
5. an analysis of the findings into these data, data sources, methodologies and models which will include: (i) an analysis of the rigour of the methodologies and reliability of the resulting prevalence and impact estimates, (ii) an analysis of the feasibility and cost-effectiveness of the various methods and models, (iii) obstacles to implementing the methods and models (in particular the challenges to producing reliable estimates), and (iv) the contribution that the various methods and models make to the goal of organized crime control from a public policy and enforcement perspective.

-Agencies, Organizations, and Professionals Measuring the Scope and Impact of (Organized) Crime

What organizations, agencies, and professionals are involved in collecting quantitative

data that measures or can facilitate the measurement of the scope and impact of (organized) crime?

The agencies, organizations, and professionals involved in collecting quantitative data on organized crime can be divided into the following categories: (1) government statistical (census) data collection agencies, (2) criminal justice agencies, (3) other government agencies, (4) clinical and epidemiological research centres (dedicated to substance abuse and problem gambling), (5) industry bodies and professional associations, (6) private sector consulting and research firms, and (7) university research centres and scholars.

(1) Government statistical data collection agencies – The majority of countries in the developed world have national agencies that are responsible for collecting, storing, and analyzing statistical data on numerous aspects of a country (population characteristics, economic indicators, social indicators and trends, etc.). These agencies are relevant to the collection of quantitative data that measures the scope of (organized) crime in at least two ways: (i) they house divisions specifically dedicated to collecting and analyzing crime and criminal justice data, and/or (ii) they design and administer (national) surveys that collect general population data that includes information that is of potential value to measuring the scope of criminal activities.

In Canada and Australia, the national statistical data collection agencies (Statistics Canada and the Australian Bureau of Statistics respectively) collect crime and justice statistics through various methods. Through the National Centre for Justice Statistics, the Australian Bureau for Statistics collects quantitative data on crime and justice issues through the Crime and Safety Survey, crimes recorded by police, cases heard before criminal courts, and information on offenders managed by correctional services agencies. The Australian Bureau for Statistics also administers the Multi-Purpose Household Survey, which periodically includes "modules" that collect crime victimization data, such as the Personal Fraud Survey, which was administered in 2007.

The United States and Great Britain also have national statistical (census) agencies; however, they do not house centres that focus on crime and justice issues. Instead, crime and justice statistical data collection agencies are housed in national criminal justice departments.

In the United States, the central criminal justice statistical research agency is the Bureau of Justice Statistics, which is located in the Department of Justice. While the mandate of the BJS is to "collect, analyze, publish, and disseminate information on crime, criminal offenders, victims of crime, and the operation of justice systems at all levels of government" most of the surveys that collect the data are administered by the U.S. Bureau of Justice Statistics. The types of crime and criminal justice data collected and studies produced by the Bureau are extensive and include annual published statistical reports (criminal victimization, populations under correctional supervision, and federal criminal offenders and case processing) as well as periodic data series (such as administration of law enforcement agencies and correctional facilities, state court case processing, felony convictions, characteristics of correctional populations, criminal

justice expenditure and employment, and special studies on a wide range of criminal justice topics). The National Crime Victimization Survey is administered by the Bureau of the Census, but is coordinated by Bureau of Justice Statistics (which includes determining what information is to be collected). [8]

In the U.K., it is the Home Office, and more specifically the Research and Statistics Directorate, which has the primary responsibility for collecting, analyzing, and disseminating crime and justice statistics on a national basis. The quantitative data collection of the Directorate can be broken down into four areas: the British Crime Survey (a national victimization survey), recorded crime statistics (police-recorded crime data), drugs and crime (research into the link between drugs and crime), and police statistics (other enforcement statistics that fall outside of crime).

Within the context of measuring the scope and impact of (organized) crime the Research and Statistics Directorate conducts such relevant surveys as the Arrestee Survey, which is meant to help explore the relationship between drug use and crime (Boreham et al., 2007). The Home Office has also been central to coordinating research and funding numerous studies that measure the scope and economic costs of illegal drug use (Godfrey et al., 2002; MacDonald, 2005; Singleton, Murray, & Tinsley, 2006). This research is meant to contribute to the national Drug Harm Index, which is an analytical tool that is used to monitor the success of drug strategy policies in reducing harms. Other relevant studies funded by the Home Office include those measuring the economic and social costs of crime in general (Brand & Price, 2000; Dubourg, Hamed & Thorns, 2005); fraud (Home Office, 2006), and human trafficking (Kelly & Regan, 2000).

(2) Criminal justice agencies – In addition to studies funded or carried out by national criminal justice departments, various sectors and agencies within a country's criminal justice system collect data, or are the source of data, that can potentially be used to quantify the scope of and impact of (organized) crimes. This includes law enforcement agencies (police, customs, immigration), stand-alone criminal intelligence agencies, justice (prosecutorial) departments and agencies, correctional services, probation agencies, and parole agencies. Of this list, police agencies are the prime source of quantitative data that can be used to measure the scope and impact of crime. Police agencies keep track of various crime-related incidents, such as calls for service or charges laid. This information is inputted into the agency's central records management system, which in turn is used as a basis for national Uniform Crime Reporting surveys (which in the U.S. is coordinated by the Federal Bureau of Investigation and, in Canada, by Statistics Canada). In addition, central record management systems that maintain information on cases are a prime source of data for other researchers who often survey a representative sample of cases (Finckenauer & Waring, 1998; Schneider, 2003, Plecas, Malm & Kinney, 2005). Police also maintain intelligence data banks that include a vast array on information, mostly pertaining to serious and major crimes. Some police forces

[8] Bureau of Justice Statistics web site: http://www.ojp.usdoj.gov/bjs/aboutbjs.htm

also publish quantitative data that measures the scope of criminal problems, such as the U.S. Drug Enforcement Administration or the RCMP which both publish statistics related to the drug trade (e.g., estimates of drug supply) and the enforcement thereof (seizures, arrests, etc.). A few police forces have developed threat and harm assessment scales, including the New Zealand police, which was the driving force behind the New Zealand Drug Harm Index (Slack, et al., 2008). While police have produced or commissioned studies that estimate the scope and impact of criminal activities, their optimal role in this area is as a repository of information that can be collected and analyzed by (external) researchers.

As previously mentioned, some national law enforcement agencies, such as the FBI, are responsible for coordinating the collection of national police-recorded crime statistics. Indeed, the Department of Justice is the central agency for the collection and publication of criminal justice statistical data (although as mentioned it works closely with the U.S. Census Bureau to administer surveys and tabulate survey data). The National Institute of Justice, also located in the Department of Justice, undertakes national crime victimization surveys (Titus, Heinzelmann & Boyle, 1995). Stand alone criminal intelligence agencies, such as the Criminal Intelligence Service Canada, the National Drug Intelligence Center in the U.S., or the National Criminal Intelligence Service in the U.K. can also play an important role in collecting and supplying data that can be used in studies that estimate the scope and impact of (organized) criminal activities. Many countries now have what are called financial intelligence units, which are central agencies mandated to process reports of money laundering at private sector financial institutions. These agencies are well-placed to provide data to measure the scope of money laundering; the Australian Transaction Reports and Analysis Centre has gone so far to commission estimates of the scope of money laundering in that country (Walker, 1995). Federal and state/provincial correctional agencies often have intelligence and research sections and have direct and easy access to offenders to conduct quantitative prevalence research (e.g., the impact of drug use on criminal offending, offenders with ties to criminal organizations).

(3) Other government agencies – In addition to criminal justice agencies, other government departments and agencies are involved in collecting, analyzing, and disseminating information of relevance to estimating the scope and impact of (organized) criminal activities. For example, the federal Substance Abuse and Mental Health Services Administration administers the annual National Household Survey on Drug Abuse. The Federal Treasury Department and the Bank of Canada collect statistical data on the extent of counterfeit currency in circulation. The U.S. Federal Trade Commission maintains databases on fraud complaints while the Liquor Control Board of Ontario has commissioned studies that estimate the size of the contraband liquor market in that province. Government regulatory agencies also collect quantitative data that can be used to measure the scope and impact of organized criminality in the sectors they regulate (e.g., securities market, financial services industry).

(4) Clinical and epidemiological research centres dedicated to substance abuse – These research centres are central to the collection and/or analysis of data that measures the use and abuse of illegal drugs. This work represents an essential foundation for

understanding the scope and impact of illegal drug use, which in turn can provide an empirical foundation to estimate the volume and impact of illegal drug markets and drug trafficking. In Canada, the leading national research centres in this regard are the Canadian Centre for Substance Abuse and the Centre for Addiction and Mental Health (affiliated with the University of Toronto). Research centres such as these also conducted research into gambling addictions, which can be used to estimate the scope and impact of illegal gambling operations.

(5) Private sector industry bodies and companies – Numerous companies, private sector industry bodies, and professional agencies are involved in collecting data that can facilitate an analysis of the scope and impact of criminal activities. These data are typically concerned with crimes that impact on their industry. For example, the American Bankers Association collects and publishes statistics on the scope of payment card fraud, cheque kiting, mortgage fraud, identity theft, and robberies. The Insurance Bureau of Canada collects and publishes information on auto theft and automobile insurance fraud. Companies are also a key source of information since they are also the target of (organized) crime. In the United Kingdom, for example, several national victimization surveys of retail businesses have been undertaken (Association of British Insurers, 1998; British Retail Consortium, 1999; Audit Commission, 1999; Jones, Lewis, & Maggs, 2000).

(**6) Private sector consulting and research firms –** A number of studies have been conducted by private sector consulting firms, especially those that market security, forensic accounting, and loss prevention services. The RAND corporation is perhaps the best known of consulting firms that conduct research in the criminal justice area; this corporation has published hundreds of studies in the realm of criminal justice, including many that estimate the scope and impact of criminal activities or advance conceptual models that do so (Reuter, 1997). Private consulting firms will often conduct (quantitative) research into crime and security issues for industry groups. For example, PriceWaterhouseCoopers conducted the 2008 Canadian Retail Security Survey on behalf of the Retail Council of Canada, while FIA Specialist Investigations Group Inc. (1997) conducted research that estimated the scope and impact of liquor smuggling. Large consulting firms have also conducted relevant research for federal agencies (e.g., KPMG, 1999a, 1999b, 1999c) or to market their company and services (KPMG, 1999d, 2001a, 2001b). At the international level, the professional services firm Ernst and Young has funded multi-national corporate fraud surveys, involving large sample sizes (Levi and Sherwin, 2000). Private sector research and polling companies are well placed to undertake population surveys that can measure crime victimization or the consumption of illegal or contraband goods. For example, the Ipsos-Reid polling company helped conduct a population survey examining the scope of problem gambling in British Columbia (Volberg and Ipsos-Reid), while GfK Research Dynamics (2008) conducted a nationally-representative survey that measured the consumption of contraband cigarettes in Canada. Relying on prevalence data already collected, the Lewin Group developed estimates of the costs of drug and alcohol abuse in America (National Institute on Drug Abuse, 1993).

(7) University research centres and faculty – Scholars, professional researchers, and research centres within universities and colleges are a leading source of conceptual and applied models that estimate the scope and impact of crime. In the context of this work, research centres and researchers are usually located in one of two departments: criminology/criminal justice and economics. University-based scholars are particularly critical in developing methods and models to measure and estimate the scope/prevalence and impact/harm of criminal activities.

Data, Data Sources, and Data Collection Methods

What are the data used to measure and estimate the scope of (organized) crime. What are the sources of these data? What methods are typically used to collect the data from their sources?

Given the great diversity of organized criminal activities, combined with the wide-ranging impact of each, the data and data sources that can be used to measure such criminal activities is equally diverse. With that said, data that can be used to help estimate the scope and impact of organized criminal activities can be grouped into the following categories: (1) police-recorded data, (2) victim- or consumer-reported data, (3) offender-reported data (including suppliers within illegal markets), (4) other criminal justice agency data (court system, corrections, parole), and (5) private sector data.

As the literature review revealed, the vast majority of data that is used to measure the scope and impact of organized crime is police-recorded and victim/consumer-reported data.
Each of these categories of data is described below. This includes a description of the source of the data, methods used to collect the data, as well as the strengths and weaknesses of the data in research that estimates the scope and impact of organized crime.

1) Police-recorded data

This category includes data not only from police, but also from other law enforcement agencies, such as a customs or immigration agency. While most crime prevalence or impact studies access data from municipal, provincial/state, or federal police forces, certain federal law enforcement agencies, such as those with jurisdiction over such organized criminality as smuggling (border enforcement agencies) and passport counterfeiting or human smuggling (immigration enforcement agencies) are also highly relevant.

The main form of data available from police and other law enforcement agencies that is used for crime prevalence and harm assessment research is descriptive information surrounding the circumstances of a criminal incident (or call for service), including information on the offender (if caught), the victim (if known), and the criminal incident itself. Another commonly used type of police-recorded data is enforcement statistics, which include arrests (number of people arrested) charges (number and types of charges

laid), the number of counts of a charge laid, and seizures (such as drugs or contraband). The third type of relevant police-recorded data is administrative information, in particular the resources expended by a police agency.

The data sources within police and other law enforcement agencies that are surveyed for organized crime prevalence and harm assessment research include record management systems (criminal offence records and administrative data), crime analysis/criminal intelligence databases, and police officers. Police record management systems are the main source of information for crime prevalence and harm assessment research because they house data on criminal incidents and enforcement information. They also house enforcement statistics (charges laid, seizures, etc.) that are often used as part of crime prevalence and impact research.

The principal data collection methods are the Uniform Crime Reporting surveys, survey of police cases (police record management systems), survey of criminal intelligence databases, and survey of police members.

In the United States and Canada, the main source of police-recorded data for crime prevalence and harm assessment research are the Uniform Crime Reports. The UCR data are collected from the records of police agencies through a survey coordinated by the FBI and the Bureau for Justice Statistics in the U.S. and by the Centre for Justice Statistics at Statistics Canada. The UCR survey data forms the basis for the development of local, regional, and national crime rates, which are published on an annual basis. It can also be combined with other information to produce in-depth analyses of crime issues, such as violence, property crimes, sexual assault, auto theft – in fact, any type of crime or category of crime that is covered by the survey. The survey data are used to help measure the scope and impact of organized criminal activities because they estimate the frequency with which all criminal offences are committed, including those commonly associated with organized crime. In the United States, the UCR program is a nation-wide, cooperative effort of over 17,000 city, county, and state law enforcement agencies that report data on crimes brought to their attention (U.S. Department of Justice, 2000).

To a lesser extent, surveys of police cases have been undertaken by researchers to estimate the scope (as well as the nature) of organized criminal activities and groups (although the literature review turned up only a few examples of studies where this method was used to estimate the scope of a criminal problem). In their examination of the nature, scope, and level of organization of "Soviet emigre organized criminal networks," Finckenauer and Waring (1998) surveyed every investigative report or other document produced by the Tri-State Joint Soviet-Emigre Organized Crime Project from 1992 through 1995. These reports and documents included undercover observation and surveillance reports, informant interviews, telephone records, intelligence files from other law enforcement agencies, indictments, and various materials from the former Soviet Union.

Another abundant area of relevant statistics is aggregate data on enforcement actions against organized crime activities, such as seizures, arrests, charges laid, etc. These data

are generally the easiest to collect and report upon because they are the most overt of all criminal justice information that can potentially measure organized criminal activities. In fact, these data are often used to assess the effectiveness of organized crime enforcement efforts or to measure the supply of a particular illegal commodity. The enforcement-related statistical data that are perhaps of most benefit to assessing the scope and impact of organized crime activities are seizures (of drugs, contraband, proceeds of crime, etc.) because this can help measure the volume of a particular illegal commodity or the size of a criminal market (in terms of volume and dollar value) (Fishman et al., 1986; Easton, 2004; Wilkins et al., 2005).

The main strength of surveying police databases is that police agencies are societies' main institution in combating crime and as such are in a position to collect a wealth of relevant and quantifiable information. Police agencies are also located in every legal jurisdiction within most countries, and therefore data on a nationally representative level can be collected (facilitating crime prevalence and impact studies that are national in scope).

The main weakness of police data for use in prevalence and harm assessment research is that not all crimes are reported to police; in other words, police-recorded data undercount the actual level of crime. A further methodological problem is that police-recorded crimes are usually not representative of the actual "population" of offences or criminal incidents that take place. Moreover, the record for each offence or criminal incident is often lacking relevant data that may be necessary for organized crime prevalence or harm assessment research, because that information is not known at the time of the offence (or is not gathered during a subsequent investigation). In particular, UCR survey data (and the police occurrence reports that constitute the source of national police-recorded statistical data) do not analyze individual criminal occurrences or incidents in such a way as to delineate between those that are committed by criminal organizations and those committed by individuals acting alone. Such data may also be hampered by erroneous information provided by offenders and witnesses and collected by police."Inconsistencies in reporting standards and practices must also be considered," according to Hser (1993) in her review of sources of quantitative criminal justice. "For example, lack of consistency in local reporting systems and regional variations in law enforcement may degrade the usefulness of the Uniform Crime Reports maintained by the FBI as a primary indicator used in prevalence estimation." Police agencies have also been criticized for inadequate and even sloppy data inputting and database maintenance (a problem compounded by inadequate or sloppy investigations).

Enforcement statistics can provide some indication of the nature and scope of organized crime activities, although the direction of the data may be more a reflection of the particular focus or efficacy of police operations than an indication of the nature or scope of organized crime activities. Indeed, whether it is enforcement statistics, police-recorded (UCR) data, police databases, or surveys of case files, there is a subjective bias in these sources that reflects the strengths, weaknesses, or priorities of the law enforcement agency. This dilemma was most succinctly articulated by Tremblay and Kedzier (1986: 78) as such: "What documentary sources are pertinent for the analysis of the organization

of crime? It is generally agreed that police statistics, while now standardized and fairly reliable, tell us more about the organizational qualities of the police than about crime as such."

Conducting studies that are based on police-recorded data are also hampered by the lack of access that researchers are allowed to raw data, especially data concerning organized crime and its enforcement, due to the confidential nature of such information.

Criminal intelligence information gathered and maintained by police can be a major source of empirical data for organized crime researchers, because such data often focuses on major, serious, and ongoing criminal conspiracies. According to Ogrodnik (2002):

> In general terms, police intelligence units collect strategic information concerning the activities of organized crime individuals and groups. Intelligence units attempt to anticipate, monitor and prevent criminal activities with respect to an identifiable person or group involved in organized crime by investigating source information and collecting, analyzing and disseminating intelligence information ... Intelligence information systems go well beyond simply counting offences committed by organized crime. A host of different types of intelligence information about individuals, their movements, relationships, offences, suspected involvement, communications through wiretaps, photographs, etc. are stored.

The main weakness of using criminal intelligence data for quantitative research is that the data is usually stored in qualitative form, and as such, is difficult to quantify for the purposes of measurement.

There is a body of quantitative research into organized crime that has involved surveys of police forces (e.g., Sauvé, 1999; Kelly & Regan, 2000). What undermines the reliability of these surveys is that they rely on the general knowledge and subjective opinions of police members.

(2) Victim- or consumer-reported data

A significant source of data for studies measuring the scope and impact of (organized) criminal activities are victims (of "predatory" crimes like theft or fraud) and consumers of illegal goods (e.g., illegal drugs, counterfeit goods, and contraband tobacco, etc.) and services (such as gambling, prostitution, human smuggling).

Crime victimization surveys are a well accepted and frequently used method to estimate the scope of crime in general as well as specific criminal activities. Canada, the U.S., Great Britain, and Australia all conduct crime victimization surveys at the national level. Victimization data is also collected as part of broader surveys, such as the General Social Survey in Canada. If rigorously conducted, the data from these "household" surveys can be extrapolated to estimate the scope of a crime problem at a national level. For example, in the U.S., Baum (2006) used the results from the National Crime Victimization Survey to estimate the level of identity theft in the country.

Specialized household surveys have also been administered to measure victimization to particular types of crimes, including fraud (Titus, Heinzelmann & Boyle, 1995; Kane & Wall, 2006) and identity theft (United States Federal Trade Commission, 2003; Sproule and Archer, 2008).

Victimization surveys are not confined to individuals; they are also conducted on an increasingly regular basis among companies that are victimized by crime, such as the international survey of companies, conducted every two years by consulting firm Ernst & Young, which solicits information on the respondent's exposure to fraud as well as its control and prevention measures (Levi & Sherwin, 2000). In Canada, the consulting firm KPMG also conducted annual fraud surveys of companies (KPMG, 1999d) and has also conducted a survey measuring the exposure of financial service companies to money laundering (KPMG, 2001a).

Another type of survey that is central to estimating the scope and impact of organized crime are those that measure the consumption of illegal goods and services. Most notably, a number of household surveys have been conducted to estimate illegal drug use, such as the National Survey on Drug Use and Health conducted in the U.S. by the Substance Abuse and Mental Health Services Administration or the National Drug Strategy Household Survey in Australia. Surveys that measure drug use are often part of larger surveys that measure substance abuse (including legal products, such as tobacco and liquor). They may also be part of general health surveys or general social surveys.

While measuring the scope of drug use, these surveys also form the basis for research that estimates the harms and social costs of drug abuse (Single et al., 1996; Harwood and Bouchery, 2004; MacDonald et al., 2005, Hay et al., 2006) and have been used to help develop supply-side estimates (that is, to measure the size of illegal drug markets) (Rhodes et. al., 2000; Easton, 2004). Crime victimization and drug use surveys are conducted among the general population (at the national level), but they can also be conducted among specific populations, such as youth (Adalf, Ivis & Paglia, 1999) or offenders (such as the "arrestee surveys" conducted in the U.S., the U.K. and Australia). Population surveys are also a common method to measure gambling and compulsive gambling (Volberg, Nysse-Carris, & Gerstein, 2006). Surveys that measure the consumption of illegal products or services have also been extended to legal, but contraband (smuggled) products, in particular cigarettes (GfK Research Dynamics, 2008; Canadian Convenience Stores Association, 2008).

Within the context of means to measure the scope and impact of organized criminal activities, victimization surveys greatly complement police-recorded data and are believed to represent a more accurate level of crime. As importantly, victimization and consumption surveys also facilitate research that measures the costs of crime; the prevalence data resulting from such national surveys can be used as a basis to estimate the costs of crime (Mayhew, 2003) or these surveys can directly solicit information on the harms of crime from (victim) respondents (Baum, 2006; Sproule and Archer, 2008).

Household victimization or consumption surveys have also been criticized for under-reporting victimization and illegal drug use respectively. As the Australian Bureau of

Statistics (2007) notes when discussing a fraud victimization survey conducted in that country, the accuracy of victimization surveys "can be affected by factors such as the ability of people to recall incidents that have occurred in the past. The longer the elapsed time period, the less likely it is that an incident will be recalled accurately."

> Other factors affecting accuracy include the ability of people to make judgements about whether some of their experiences have been legitimate or fraudulent; and a willingness to reveal if they have been deceived, or have incurred significant financial loss. In addition, victimisation surveys require that the respondent has an awareness of an incident to be able to report it to an interviewer. As personal frauds are aimed to deceive their victims, they may never discover frauds that have been perpetrated against them, or may discover such events long after they have taken place (Australian Bureau of Statistics, 2007).

Also, most large-scale surveys of drug use are based on probability sampling techniques, which partially or completely miss certain high-risk groups because of non-coverage or non-response. Inadequate coverage of high-risk groups is a potential source of bias and the general population of substance abuse surveys likely under-samples groups with chronic drug use.[9]

(3) Offender-reported data (including suppliers within illegal markets)

Although not as frequent as victimization surveys, quantitative research, including surveys, have been conducted among the offender population. The goal of much of this research – such as the ground-breaking ethnographic research into Chicago youth gangs conducted in the 1920s by Frederick Thrasher (1927) – is to describe and analyze the nature or causes of criminal or delinquent behaviour. Fewer studies have used this method to measure the scope of a criminal problem or the size of an offender population or criminal market. This is due to the inherent difficulty in conducting research among offenders, and more specifically, obtaining a sample that can be generalized to the larger population. The literature review identified a limited number of survey-based studies of offenders that use this data to construct prevalence estimates. Most of these studies were based on offenders who had been arrested and/or incarcerated.

Most notable are the so-called "arrestee surveys" which are conducted in the United States., Great Britain, and Australia. In the U.S., "The Arrestee Drug Abuse Monitoring program (ADAM) measures the extent of drug use in the high-risk population of people who have been arrested and booked. The data are collected in participating counties through probability-based sampling of adult male arrestees and purposive sampling of adult female arrestees. Information comes from interviews and urinalyses obtained voluntarily and recorded confidentially in booking facilities, usually on the day of arrest

[9] Although Hser (1993) reports, "with assured confidentiality and respondent anonymity, the accuracy of self-reported drug use among samples of the general population is believed quite high (70% to 90%) based on checks for internal validity (e.g., estimates of friends' drug use closely parallel cumulative estimates of overall drug use)."

and always within 48 hours of arrest." Surveys among offenders can be useful for estimating the size of the offender population, (in general and for specific criminal activities), which in turn can be used to help measure the scope of a particular criminal activity. Moreover, as intimated in the description of ADAM, such surveys which include questions and urine samples to test for drug use, are useful for studies examining the social harms of drug trafficking and abuse because they help estimate the extent to which violent offenders, property crime offenders, prostitutes, or even drug traffickers are offending to support their habit.

Another relevant study that collects information from offenders is the quantitative research among inmates conducted by Correctional Service Canada (n.d.) to identify the extent to which inmates had ties to criminal organizations.

Obtaining quantifiable data from a sample of offenders is obstructed by the difficulty and dangers of surveying this population (especially outside of custodial facilities) as well as the numerous internal validity problems that stem from dishonest and duplicitous answers to survey questions by offenders (hence the use of urine samples in ADAM). Research, such as surveys of arrestees or prison populations in a safe enforcement, represents one way to overcome the difficulties and dangers of accessing offenders. However, there are legitimate questions as to how representative samples of arrestees or prison inmates are of overall offender populations. Police may also be reluctant to have arrestee surveys conducted because it may represent an unwelcome nuisance during booking and remand and it may contaminate their own investigations and/or interrogations. Arrestee surveys are also resource intensive, especially if urine samples are being taken.

(4) Other criminal justice agency data (court system, corrections, parole)

Data that can quantify the scope and impact of organized criminal activities may also come from other criminal justice agencies and institutions, such as prosecutorial services, the courts, correctional facilities, parole and probation agencies. This may include surveys of court transcripts or decisions as well as prosecutorial records. The literature review identified only a limited number of studies that used data from criminal justice agencies other than police to estimate the scope of a criminal problem. In one Australian study examining the extent to which compulsive gamblers commit fraud to help finance their habit, Warfield (2008) conducted an extensive review of court judgements. As mentioned above, quantifiable data on organized crime has also been collected by the Correctional Service Canada.

(5) Private sector data

In addition to collecting victimization data from companies to measure the scope and impact of certain (organized) criminal activities, many private sector companies and associations also collect quantitative victimization data. For example, as previously mentioned, the American and Canadian bankers associations collect and publish quantitative data on the scope of payment card fraud, cheque kiting, mortgage fraud, identity theft, and robberies while the Insurance Bureau of Canada collects and publishes information on auto theft and automobile insurance fraud. Industry-generated data may be considered more reliable than survey data, because it is not a sample of the population of offences, but the population itself (i.e., the Canadian Bankers Association collects data on all known credit card offences, not just a sample of offences). On the other hand, the scope and impact of criminal offences on an industry may be over-stated as such data is often used to advocate or lobby governments for increased enforcement.

Summary: Data, data sources, and data collection methods used to estimate the scope and impact of organized criminal activities

Data that can be used to estimate the scope/prevalence and impact/harm of organized criminal activities can be collected from a number of sources using different methods. With that said, the two main sources of such data are from law enforcement (police) agencies and from victims of crimes or consumers of illegal goods and services. Data is extracted from these sources primarily through survey methods, whether it is the Uniform Crime Report survey in the U.S. and Canada, survey of police cases, victimization surveys, or substance abuse surveys. In the context of rigorous research that produces reliable and generalizeable findings on the scope and impact of organized criminal activities, these different data and data sources should not be seen as mutually exclusive, but complimentary. That is, data from the different sources and methods should be "triangulated" to help overcome the internal and external validity errors in each source and method. Moreover, studies that measure the costs of crime, and drug trafficking and use in particular, inevitably must extract data from a number of different sources. For example, in their national estimates of the prevalence of opiate and crack cocaine use, Hay et al. (2006) relied on four main sources of data on problem drug use: the National Drug Treatment Monitoring System, the National Offender Management Service Offender Assessment System, the Police National Computer (for convicted drug users), and the Counselling, Assessment, Referral, Advice and Throughcare service data for drug users in prison. Surveys of offenders are another important source of data, especially with respect to measuring the social costs of drug abuse (i.e., the correlation between drug use, on the one hand, and crime and violence, on the other).

The different categories of data that can be used in studies that estimate the scope and impact of organized criminal activities are summarized in Table 1 below.

Table 1: Data that can be used in organized crime prevalence and impact studies

Data Category	Prevalence and Impact Data	Data source	Data collection method
Police-recorded data	Frequency of (organized) criminal incidents; number of (organized) offenders; frequency of organized crime occurrences; size of criminal markets; number of criminal groups	Police agencies: police record management systems, crime analysis/criminal intelligence databases; enforcement data (arrests, seizures); administrative data	Uniform Crime Reporting Survey, survey of police record management systems, survey of criminal intelligence databases; survey of police members
Victim- or consumer-reported data	Frequency of a crime occurrence; costs of crime; costs of drug trafficking and abuse; scope of illegal substance abuse; size of illegal drug market	Civilian population (including special segments of the population, such as youth, chronic drug users, problem gamblers)	Surveys, epidemiological research,
Offender-reported data	Costs of drug abuse (links between drugs and offending); size of (organized) offender population; size of criminal markets	The offender population	Surveys, urine and blood testing,
Other criminal justice agency data	Frequency of (organized) criminal incidents; number of (organized) offenders; size of criminal markets; number of criminal groups; scope of illegal substance abuse; size of illegal drug market; costs of organized crime groups & activities	Prosecutorial services courts, corrections, parole	Survey of court prosecutorial data, survey of court data, survey of prison inmates, survey of offenders on parole

Other government agency data	Frequency of (organized) criminal incidents; size of criminal markets; scope and costs of illegal substance abuse; size of illegal drug market; costs of organized crime groups & activities	Government departments and agencies that regulate industries vulnerable to organized crime	Examination of government databases (e.g., drug-related hospital admissions)
Private sector data	Frequency of (organized) criminal incidents; size of criminal markets; scope and costs of organized crime activities	Private Sector companies (primary) and industry groups (secondary)	Survey of companies; use of statistical crime and loss data collected by industry

Measuring and Estimating the Scope and Impact of (Organized) Criminal Activity

How is the scope of a criminal activity or behaviour measured? How are these estimates expressed?

As discussed, research and the resulting statistical data that measures the scope of crimes and criminal activity (e.g., crime rates, victimization rates, etc.) form a critical foundation to estimates of the harm of crime, especially estimates that are quantitative in nature, and more specifically, involve the application of a monetary value to such harms. In general, the scope of organized crime can be, and has been, quantitatively measured in four basic ways:

- The number of criminal incidents, measuring by the frequency of such incidents (Wallace, 2004; Sproule and Archer, 2008; Canadian Centre for Justice Statistics, 2008; PriceWaterhouseCoopers and Retail Council of Canada, 2008;
- The number of criminal groups (RCMP "E" Division, 2005) or operations (Plecas et al,, 2002, 2005; Bouchard, 2007);
- The size of the offender population (Correctional Service Canada, n.d.; Collins and Wilson, 1990; Bouchard & Tremblay, 2005);
- The number of victims (Levi and Sherwin, 2000; Shury et al., 2003; Australian Bureau of Statistics, 2007; Sproule and Archer, 2008);
- The income generated by a criminal activity or criminal group (Fishman et al., 1986);
- The size of a criminal market or supply of a criminal product or service, measured in:
    - volume of supply (FIA Specialist Investigations Group Inc., 1997; Plecas et

al,, 2002, 2005; Chant, 2004; Royal Canadian Mounted Police, 2006; Bouchard, 2007; National Drug Intelligence Center, 2008)

- monetary worth of the supply or market at the wholesale or retail level (Walker, 1995; Rhodes et al., 2000; Easton, 2004; Chant, 2004; Royal Canadian Mounted Police, 2006; National Drug Intelligence Center. 2008);
- the size of the consumer market (number of consumers and amount consumed) (Ferris, and Wynne, 2000; Bramley-Harker, 2001; Adalf, 2005; Rehm, et al., 2006; Adalf et al., 2005; Poulin and Elliott, 2007; Department of Health and Human Services, 2007; Canadian Convenience Stores Association, 2008; GfK Research Dynamics, 2008; Leger Marketing, 2008; Roberts & Brewer, 2006).

Specialized quantitative crime prevalence research methods and data analysis techniques

What specialized data collection research methods and analytical techniques are used to measure and estimate the scope of organized crime activities?

Studies that measure the scope of (organized) criminal activities use specific methodological or modelling techniques to provide estimates and to maximize the reliability of these estimates. Eykhoff (1974) defines a mathematical model as "a representation of the essential aspects of an existing system (or a system to be constructed) which presents knowledge of that system in usable form." The analytical process of developing such a model is termed "mathematical modelling" (or just modelling).

Jack Homer, in a 1993 study that uses quantitative models to estimate cocaine consumption, argues that modelling is critical when estimating the scope of any phenomenon where the reliability of the data is uncertain (as in organized crime):

> Regardless of the specific approach taken, the synthesis of multiple indicators for making inferences about prevalence requires some sort of modeling of cause-and-effect relationships. Models may be characterized as formal or informal, simple or complex, static or dynamic, and narrow or broad in scope. Formal mathematical models are unambiguous in their assumptions and produce results reliably consistent with these assumptions...

One methodological/modelling technique that has increasingly been used to estimate the prevalence of a criminal activity – and more specifically the size of a "hidden" offender population or criminal market – is called "capture-recapture" (also called "multiple-capture" or "mark-recapture").

This methodology originated in the field of biological science to estimate the population of certain species. As Hay et al. (2006) describe in the introduction of their study estimating the size of the illegal drug using population in the U.K.:

> Capture-recapture methods were first developed over a century ago to estimate the size of animal or fish populations. In its basic form the method involves capturing a sample of animals, marking and then releasing them. A second sample is then captured; the proportion of marked animals in this second sample is assumed to be equivalent to the proportion of animals in the population that were captured in the first sample, hence the population size can be estimated. For example, if 100 fish are caught, marked and released and a second sample of fish is caught, of which ten per cent are found to be marked, then the 100 fish in the first sample is equivalent to ten per cent of the population, hence the population size is 1,000.

When applied to the social sciences, "Classic two-sample capture–recapture methods are based on individuals that are captured in two separate samples. The total number of individuals observed in the two samples and the proportion who appear in both samples can be used to estimate the number who are unobserved in either sample. (This approach can also be extended to more than two samples.) In the social sciences, two or more incomplete lists of population members may function as the samples" (Roberts and Brewer, 2006). In other words, in the social sciences, the capture-recapture method uses information on the overlap between different data sources (that is, information on the number of individuals appearing in more than one data source) to provide estimates of the size of the hidden population that is difficult to estimate from any one data source (e.g., the homeless, illegal immigrants, illegal drug users, drug dealers).

Within the field of criminology, the capture-recapture methodology estimates the size of a hidden population, most frequently, the size of criminal or drug-using population. Because such populations are generally "hidden" from, and difficult to enumerate using traditional social scientific methods such as surveys, the capture-recapture method appears to be a suitable and rigorous approach to estimating the size of certain "criminal" populations. According to Hay et al., (2006), when a classic two sample capture-recapture methodology is applied to estimating the size of a drug-using population:

> ... the two samples are replaced with lists of individuals constructed from sources such as drug treatment services, police data, probation data and so on. The number of individuals in each data source is equivalent to the size of the animal samples in the example above and the number appearing in both sources is equivalent to the number of recaptured, marked, animals. Hence the size of the population can be estimated, as above. In drug misuse prevalence estimation, samples are typically drawn from health (e.g. client lists supplied by drug treatment agencies) and/or criminal justice (e.g. police records or probation data) sources."

Capture–recapture methods offer a significant potential advantage over the sole use of UCR or crime victimization survey data because these surveys are known to underreport criminal occurrences. "The multiple-capture models are also attractive because their statistical basis is clear and because they give specific numerical estimates with associated standard errors" (Roberts and Brewer, 2006).

Criminological researchers have used capture–recapture methods to estimate the number of: prostitutes (Rossmo and Routledge, 1990; Bloor et al., 1991), male clients of

prostitutes (Roberts and Brewer, 2006), drug users (Hser, 1993; Brecht, and Wickens, 1993; Hay et al., 2006), drug dealers (Bouchard and Tremblay, 2005); marijuana cultivation sites (Bouchard, 2007), serious criminal offenders (Greene and Stollmack, 1981), car thieves (Collins and Wilson, 1990), and burglars (Riccio and Finkelstein, 1985).

Organized crime impact/harm research: Analytical models and impact indicators

How has the impact (costs) of crime been conceptualized, categorized, measured, and estimated?

In general, there are two ways in which the harms of (organized) criminal activity have traditionally been measured and estimated. What these methods have in common is the important requisite of using a uniform scale of measurement that allows for comparison of harm/cost across different criminal activities and/or groups (which, in turn, can be used as a basis for policy and program decisions or to help prioritize scarce law enforcement resources).

The first method entails the application of a weighted numerical harm value to each criminal activity (or criminal group) which can then be used to judge the relative harm of a criminal activity (or criminal group). One example of this metric is the Criminal Activity Harm Prioritization Scale, in which weighted numerical harm values are applied to 53 different criminal activities to determine the relative harm of each. This model was developed and applied by the RCMP (2008) and is discussed in more detail below.[10]

More commonly, the impact of crime on society has been measured by estimating the economic costs to society of specific crimes. These costs are developed by applying monetary values to the various types of direct and indirect (tangible and intangible) impacts of a crime. Some of these impacts already have a dollar value assigned to it, such as the value of property stolen, the costs of security equipment, or income lost due to incapacitation because of a drug dependency). Most of the impacts measured by this cost of crime approach do not have an intrinsic monetary value and need to have one developed and applied. Applying monetary (cost) values to indirect impacts (e.g., time spent dealing with the aftermath of a criminal incident) or intangible impacts (e.g., pain and suffering) is one of the more difficult and controversial aspects of the cost of crime field.

The monetary values are then applied to prevalence estimates of the criminal phenomenon being measured. (As discussed earlier, the typical expressions of crime

[10] A conceptually similar threat assessment model (Project Sleipnir) was also developed by the RCMP; a weighted numerical value is applied to measure the extent of different attributes of criminal groups (e.g., Corruption, Violence, Infiltration, Expertise, Sophistication, Subversion, etc.) and when aggregated, these values form an assessment of the threat of this group to society (RCMP, 2000b).

prevalence studies are the number of criminal incidents; the number of individuals in the offender population or a substance abusing population; or the size of the criminal market or supply of a criminal product or service, as measured by volume).

Each unit of the criminal phenomenon being estimated (e.g., each criminal incident) is then multiplied by the monetary values for each impact resulting from the criminal incident. For estimates of the cost of drug trafficking (and drug abuse), a monetary value is applied to each of the identified harms resulting from substance abuse (e.g., health care costs stemming from treatment of an overdose, all the costs associated with property crimes attributed to drug-dependent offenders, etc.). The per capita dollar cost figure that is applied to the harms resulting from a criminal incident or drug-dependent individual may be developed as part of a cost of crime study or it may be borrowed from existing (and commonly accepted) estimates.

As the cost of crime research field matures, guidelines and commonly accepted valuations have emerged and which have become the norm for different areas of crime being measured. For instance, the *International Guidelines for Estimating the Costs of Substance Abuse* (Single et al., 2003), which is published by the World Health Organization, is rapidly becoming the international standard in its field. The Canadian Problem Gambling Index (Ferris and Wynne, 2001) is also being used by researchers in Canada and abroad to identify and measure the personal and societal harms stemming from compulsive gambling.[11]

Using the definitions and concepts of economists, the economic cost figures applied to the different impacts of crime can be divided into several categories. One way to broadly classify the costs of crime is to divide them into the social costs of criminal activity and expenditures for protection and/or deterrence. The second category is relatively straightforward (compared to estimating and valuing the social costs). It includes the direct and indirect monetary costs incurred by private actors to protect themselves from crime (e.g., the cost of a burglar alarm, opportunity costs in participating in a Block Watch group) as well as the direct costs incurred by governments (in particular costs of the criminal justice system).

The social costs are more diverse and complex and include all those direct and indirect costs incurred by society – including victims, their family, communities, businesses, and the state (excluding the cost of the criminal justice system and other relevant agencies) – as a result of crime. Most studies measure the tangible and direct social costs of crime (such as the dollar amount of property losses, medical bills, insurance deductibles, etc.).

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[11] As discussed earlier, cost of crime studies are also dependent on existing crime or drug abuse prevalence research. For example, in his estimates of the size and economic value of marijuana production in British Columbia, Stephen Easton (2004) used estimates of the number of marijuana users and daily consumption levels from drug, tobacco, and alcohol surveys conducted in Canada by Single et al. (1996) and in the U.S. by Rhodes et al. (2000).

The more comprehensive studies also attempt to measure impacts that are less tangible and more difficult to quantify in economic terms, such as emotional suffering, loss of faith or trust, or precautionary behaviour and evasive action.

The more comprehensive studies also attempt to take into consideration both the direct and indirect costs of specific crimes. For example, the direct costs of drug abuse to society include morbidity, mortality, health care costs, lost productivity, and criminal justice costs. In addition, there are a number of social costs indirectly stemming from drug abuse, such as property crimes or prostitution to finance the purchase of drugs, higher insurance rates as a result of drug-related property crime, violence stemming from drug use, vehicular accidents, etc. Given that other forms of crime (property crime, prostitution, money laundering) are often a by-product of abuse, to comprehensively gauge the costs of drug trafficking one must also taken into consideration the direct and indirect costs of the by-product crimes (although one must be careful to ensure that only a fraction of these costs are attributed to drug trafficking as property crime and prostitution are not always linked to drug use).

In their study estimating the costs of drug abuse in New Zealand, Slack et al. (2008) view tangible costs as relating to

> ... resources used (or diverted) due to the presence of illicit drugs in New Zealand. Tangible costs can be divided into direct costs and indirect costs. ... Direct costs relate to resources directed away from an alternative use as a result of illicit drugs. Direct costs relate to the immediate impacts of illicit drug use borne by the individual, community and government. The most important direct costs in dollar terms ... are crime costs caused by illicit drugs; resources diverted to drug production from beneficial consumption or investment; road accidents; health care costs. At a conceptual level, direct costs also include the unpaid time given up by family and friends to take care of those who are ill as a result of illicit drugs, as well as time spent seeking or participating in treatment by persons affected by illicit drugs. Estimation of these costs would require information on the quantum and value of time involved, for example, whether such care displaces productive activities or leisure. This study does not estimate these impacts.

In contrast to direct costs (which are borne by the drug user and immediate family and friends) "indirect costs are borne by the wider society." Specifically, the "primary indirect costs of illicit drugs are: production lost to the economy as a result of premature death of users of illicit drugs; reduced production by those who fall ill as a result of illicit drug abuse; reduced production by those who stay home to care for those who fall ill as a result of illicit drug abuse. These costs may be borne by the individuals or may be externalities, that is, costs borne by third parties such as employers rather than the individual" (Slack et al., 2008).

In addition to the direct and indirect *tangible* costs of crime, there are the *intangible* costs, which, according to Slack et al. (2008), "can only be borne by individuals and do not have (productive) resource implications for society." That is, reductions in intangible costs only benefit the individual. In the case of illicit drugs, intangible costs include

premature death as a result of illicit drugs and reductions in the quality of life due to pain, suffering and loss of life caused by illicit drugs. These costs are borne by individual drug abusers and other individuals who experience pain, suffering, and loss of life through their association with the drug abuser. A decrease in the quality of life of one individual cannot be transferred to another individual; hence, intangible benefits cannot be bought or sold.

The following presents a more detailed list of some of common tangible and intangible, direct and indirect costs of crime that have been included in studies identified as part of the literature review.

Direct monetary loss to victims – The most obvious cost of crime is the direct loss of money or property by victims. If stolen property is uninsured, the victim bears the replacement costs of the property in full, but if the victim has insurance, the only cost to the victim is the deductible payable on the insurance claim and the insurer bears the remainder of the costs. Property damaged in the course of a criminal act (through a forced entry or vandalism) involves the destruction, rather than the transfer, of value, and must also be counted as a cost of crime. Placing a direct value on cash that is stolen or defrauded from someone is relatively straightforward; the property that is stolen or damaged can be measured using the replacement value or repair costs of the asset. Direct monetary losses to victims can best obtained through general population surveys or crime victimization surveys. The British Crime Survey asks victims of crime about the value of property stolen or damaged. It also asks if property is subsequently returned or if any insurance payments were received for the loss of the property. The latter monetary amount is deducted from the value of stolen and damaged property.

Intangible costs, including injury, pain, suffering, etc. – The implicit costs of crime, especially violent crime, impact significantly on the quality of life. These costs include fear, bereavement, anger associated with the inability to behave as desired, and the physical, emotional and psychological suffering experienced by victims. The intangible costs of crime can be divided into two categories. The first is the impact of the *threat* of crime on life and health, the most obvious result being fear, which in turn can have a debilitating impact on individuals, families, and entire communities. The second category of intangible costs associated with crime is the physical, emotional, and psychological suffering that results from victimization or abuse of criminal goods or services, in particular illegal drugs. The reduced quality of life of victims is perhaps the most nebulous cost of crime and is the most difficult to define and measure. However, these intangible impacts may also be the costliest to the victim and society as a whole. The emotional and physical impact and reduced quality of life for victims of crime can be substantial. Victims may feel shocked, insecure, distrustful, and vulnerable for many weeks or months afterwards. They may be unable to sleep properly, experience a decrease in productivity at work, fail to enjoy leisure or social activities, and experience a legacy of increased fear or interpersonal problems. Property stolen or destroyed may have sentimental value over and above its replacement value. Various techniques have been developed to estimate the value that can be applied to pain and suffering because of crime. In Great Britain, one method of valuing the impacts of violent crime is to use the

amounts given to victims by the Criminal Injuries Compensation Scheme, which reflect the type of injuries sustained in the crime. Similarly, the value of compensation provided in civil suits involving wrongful injury or death has also been used to place a value on pain and suffering (Brand and Price, 2000). The major intangible costs of death, pain, suffering, and bereavement caused by substance abuse are also very difficult to estimate. Some studies place a dollar value on the life-years lost due to death from drug use. This is generally achieved by estimating lost future earnings. Productivity losses to the private sector and the economy as a whole as a result of victimization or substance abuse must also be counted.

Transfers - One result of fraud and theft is a transfer of assets from the victim to a criminal or another third party. If the criminal sells a stolen item to a third party for its value, the transfer is still from the victim to the criminal. If the third-party purchaser pays less for the item than its value, part of the transfer is to the purchaser. Although the purchase of stolen goods often substitutes for the purchase of legal goods, it is also likely that the antecedent theft will lead to an equivalent purchase of legal goods by the victims who seek to replace what they have lost. Thus, it is likely that replacement purchases by victims in the legal market balance legal purchases foregone due to the availability of stolen goods. In other words, the transfer of stolen goods does not necessitate additional production of similar items. (Replacement purchases by the victim, however, may not be made. It will depend on the type of goods stolen and the resources of the victim. Discretionary items, for example, may not be replaced by victims with lower levels of economic resources.) On the other hand, if low prices on stolen merchandise entice some people to buy items they would otherwise forego, some of these "transfers" may necessitate additional production.

Opportunity costs – Opportunity cost is a central concept in economics. Economists agree that the actual costs of the utilization of resources in some fashion are the foregone opportunities of using these resources in some other fashion. Measuring the opportunity costs of crime is an essential part of valuing the economic cost of crime to society. The concept of opportunity cost allows one to value the human, physical, and financial resources that will be 'freed up' for potential alternative uses when a crime is prevented. Opportunity costs are present in all aspects of offending, victimization, and enforcement. Generally, the best measure of the opportunity cost of a resource is its market value, or price. For example, the opportunity cost of a burglar alarm costing $100 is equal to the $100 that could have been used to purchase books. Lost output resulting from a victim's absence from work due to victimization is measured by the opportunity cost of the person-hours lost as a result of the crime. It is difficult to place a value on the amount of leisure time spent dealing with a crime, but the opportunity cost of work time spent can be measured by the wage rate of the victim. The National Crime Victimization Survey in the U.S. asks victims about the amount of time taken off work as a consequence of crime. This can be multiplied by the average wage rate to estimate the lost productivity due to crime. Employers face costs when their employees are victims of crime. The most obvious is paid time off work; the employer pays the wage of the victim, but receives no productive input as a result. In addition, it is possible that the employer will face further costs through disruption to the work of other employees, because of the unexpected

nature of the absence. The victim incurs time costs through dealing with the consequences of a crime, such as time spent reporting the crime, making an insurance claim, buying replacement items, organizing repairs, and unpaid time off work. The time spent dealing with the crime would otherwise have been spent as work or leisure time – and therefore has an opportunity cost. Opportunity costs due to crime can be very difficult to estimate because not all resources have a market value. The emotional suffering of a person staying indoors at night because of the fear of crime is not traded on the market, but still represents an opportunity cost to the extent that that person values going out. There are also the opportunity costs of criminals' time, both in committing crimes and while in prison. Finally, there are the opportunity costs in relation to society's scarce resources that must be consumed in dealing with crime, such as criminal justice, regulatory, social welfare, and health care resources.

Public (government) costs – Substantial resources are consumed by society in protecting itself from, and responding to, crime. Crime results in substantial public spending on the criminal justice system. There is a wide range of public expenditures incurred because of crime, including policing, prosecution agencies, the court system, the judiciary, legal aid, the prison system and probation and parole services. Other costs of crime incurred as part of the criminal justice system include the emotional, financial and opportunity cost to witnesses and jurors of attending court. The vast majority of resources devoted to criminal justice systems come from the public purse. Measuring the costs of the criminal justice system involve accessing public account records of federal, provincial and municipal governments and/or budgets of specific criminal justice agencies. Estimates of average criminal justice resource costs for different types of crime in the United Kingdom are available in a computer model of flows and costs through the criminal justice process developed in the Home Office, in collaboration with the Crown Prosecution Service. This model has drawn on data from a sample of cases processed through the criminal justice system to provide resource cost estimates (Harries, 1999). In addition to traditional criminal justice agencies, the costs of quasi-law enforcement and regulatory agencies, such as securities regulators, should also be taken into consideration. State policy and administrative bodies that are connected to the state's criminal justice and regulatory systems should also be factored into these estimates. Moreover, other public expenditures stemming from criminal behaviour – including the public costs associated with drug trafficking and use, such as welfare costs, public health care expenditures, treatment, and preventative and educational programs – should also be included.[12]

Private costs of protection - In order to defend themselves against crime, people do not rely entirely upon protection provided by the state. Private costs of protection include the purchase of security measures such as door locks, burglar alarms, fencing, lighting, and

[12] Paradoxically, if one includes public and private protection costs as part of "the costs of crime," then the less that is done about the crime, the lower the costs of crime (Levi and Burrows, 2008).

guards. Also included in this category is theft insurance as well as collective crime prevention measures, such as Block Watch, which may not necessarily involve a direct monetary outlay, but does necessitate an investment of time (and hence opportunity cost) by participants. At the organizational level, both governmental and private sector businesses spend considerable funds on security and loss prevention. This is especially true of financial service providers, such as banks and credit card companies, which are particularly vulnerable to a wide range of organized theft and fraud. Quantifying the costs of private crime prevention and security measures involves estimating annual private expenditures that target the crime(s) in question. Security industry associations generally maintain annual sales data that can be used for aggregate estimates. The cost of insurance administration, in a competitive market, equals premiums paid (a cost to potential victims) less claims paid out (a benefit for insured victims). Measurement of the cost of insurance is complicated by the fact that insurers receive income from premiums at the start of or during a year, and pay out claims later on in the year. At any time therefore, insurance companies have a significant amount of capital with which to earn additional investment income, which should be factored into any cost of crime equation involving insurance claims.

In sum, one method of categorizing the impact of crime is by who bears the costs – victims, those at risk of becoming victims, governments, etc. Victims face costs as a consequence of crime, through having property stolen, damaged or destroyed, from the opportunity costs of time spent dealing with the crime, through the emotional and physical impacts of crime, or through the costs of protection and security to reduce victimization. The state – and by extension, society as a whole – bears the costs of resources devoted to bringing offenders to justice and, in countries with public health care systems, bears the significant health care costs associated with drug abuse and violent crimes. The private sector and the environment are two other relatively distinct categories that bear the brunt of certain types of organized crimes.

In addition to breaking down the costs of crime by who pays, Davidson (1999) also categorizes the costs in relation to when the costs are incurred. In one typology he developed, the costs of crime are incurred: (1) in anticipation of crimes occurring (mostly falling on potential victims), (2) as a consequence of criminal events (falling mainly on victims, but also on services dealing with the consequences, such as health services), and (3) in response to crime (falling mainly on the criminal justice system). Brand and Price (2000) use the anticipation/consequence/response typology to categorize the cost of crime in Great Britain, which, by way of example, is applied to property crime in Table 2below.

Table 2 - A temporal categorization of the impact of crime

In anticipation of crime	As a consequence of crime	In response to crime
Security expenditures	Property stolen and damaged	Police
Insurance resources	Lost output	Prosecution
Community defensive expenditures	Emotional and physical impact	Legal aid
Government crime prevention	Health services	Non-aided defence costs
Insurance premiums	Victim support services	Magistrates and Crown Courts
Precautionary behaviour	**Insurance claims**	Probation Service
Fear of crime/Quality of life of potential victims	**Quality of life of victims**	Prison Service
		Jury Service
		Criminal injuries compensation payouts
		Miscarriages of justice
		Witness costs

What are the major impacts of organized crime on society? How have these impacts been conceptualized, categorized, and measured?

The impact of organized crime on society must be put into perspective, first by examining it as part of the overall impact of crime on society, and then comparing the impact of organized crime activities to that of traditionally "unorganized" crimes. Criminal incidents that are committed by organized groups are generally believed to make up only a small portion of the total number of all criminal offences in Canada. However, the impact and costs of organized criminal activities, such as drug trafficking, fraud, or human trafficking, tend to have more severe impacts on the victim or consumer of illegal drugs and on society as a whole. This is especially true given that organized crimes like drug trafficking impact on a far greater number of sectors of society compared to opportunistic or situational crimes carried out by individuals acting alone, such as the most predominate form of crime – property crime. Given the wide range of organized criminal activities (including both predatory and consensual crimes), combined with the tactics used by crime groups to support their activities (such as violence, money laundering, and corruption), organized criminality impacts on a number of sectors of society.

In recent years there has been numerous conceptual models developed and empirical studies implemented that measure the scope and impact of organized criminal activities, including drug trafficking (which must entail the costs of illegal abuse), telemarketing

fraud, payment card fraud, insurance fraud, currency counterfeiting, product piracy (copyright infringement), identity theft/fraud, and organized auto theft (See Appendix A). Within the cost of crime field, no (organized) criminal activity has been subjected to more cost estimates than drug trafficking (as measured by illegal drug use). While there are dozens of studies that measure and estimate the scope and cost of drug use and abuse, there are far fewer studies that estimate the cost of drug trafficking beyond the harms associated with drug abuse (such as inter-gang violence, government corruption, money laundering, the funding of criminal groups and other activities, etc.).

Most of the conceptual models and studies that measure and estimate the costs of organized crime focus on measuring a specific criminal activity, such as drug trafficking, fraud, currency counterfeiting, etc. Few studies were identified that measured the costs of the entire range of organized criminal activities.[13] One Canadian exception to this rule was the 1998 *Organized Crime Impact Study*, carried out by Sam Porteous for the Ministry of the Solicitor General Canada. This study estimated the costs to society of a wide range of organized crime activities, including illicit drugs, environmental crime, contraband smuggling, economic crime, migrant trafficking, counterfeiting, motor vehicle theft, and money laundering. In addition to its attempt to quantify the impact of the various organized crime activities in statistical and monetary terms, this report was unique, when it was first released, for its (qualitative) ranking of organized crime activities in terms of impact on different aspects of society. In particular, Porteous classifies the impact of organized crime into five categories: socio-political, economic-commercial, health and safety, violence generation, and environmental. He argues that the pursuit of illicit profit has a number of consequences, which range from readily recognized violence and economic loss to the less easily quantifiable environmental, social, and health and safety implications. His summary of the relative impact of a number of organized criminal offences on each of these broad categories is presented below.

Table 3: Impact of organized crime activities on different segments of Canadian society (Porteous, 1998)

	Social-Political	Economic-Commercial	Health & Safety	Violence Generation	Environmental
Organized crime Activity					
Money Laundering	***	*	_	_	_

[13] Some studies, however, have boldly attempted to measure and estimate the overall impact of crime on society (Canada: Brantingham and Easton, 1998; U.K.: Brand and Price, 2000; Dubourg, Hamed and Thorns, 2005; U.S.: Klaus, 1994; Australia: Walker, 1996; Mayhew, 2003).

Illicit Drugs	***	***	**	***	*
Environmental Crime	*	***	***	_	***
Contraband	***	**	**	*	_
Economic Crime	**	***	_	*	_
Migrant Trafficking	**	*	*	*	_
Counterfeiting	*	**	*	*	_
Motor Vehicle Theft	_	**	_	*	_

Legend: - Little or no impact * Some impact ** Significant Impact *** Very Significant Impact

Despite the ambitious nature of this project, no original primary research that measured the scope costs was carried out; the author mostly relied on previously published estimates of the scope and costs of the (organized) criminal activities included in the report. It can also be criticized for a lack of rigour in identifying and applying costs estimates.

In 2001, the Ministry of the Attorney General in B.C. published *The Nature, Scope, and Impact of Organized Crime in British Columbia: A Preliminary Assessment and Review,* which also relied primarily on applying previously published estimates to measure the scope and costs of organized crime in the province.

What is also rarely encountered in the literature is conceptual or applied analytical models that attempt to assess the impact of criminal *groups*. The exception to this rule can be found in the criminal intelligence community, where strategic models have been developed to identify and rank the attributes of different criminal organizations in order to measure and grade their potential and real impact on society. Constructing and applying these ratings makes it possible to develop a systematic overview of the relative threat posed by a crime group to society, which can then be used to strategically prioritize tactical law enforcement resources.

Klerks (2000) constructs a methodology to estimate a criminal group's impact and potential threat to society on multiple levels. Using a complex scoring system, Klerks identifies 31 dimensions to define the character, threat, and impact of organized crime groups on society. Each of these dimensions has its own unique weight and scale, the sum of which, when placed against other groups, provides a relative threat ranking.

A similar threat assessment model, entitled Project Sleipnir, has been developed by the Royal Canadian Mounted Police (2000b). This model identifies 19 attributes of a criminal organization, each of which is defined, weighted, and has a set of values that together are used to judge the relative threat to Canadian society posed by a specific organized crime group. Each attribute has five possible values: High, Medium, Low, Nil, or Unknown. A value is defined for each attribute (except "Unknown"). For example, the attribute of violence has the following four defined values:

High: Violence used as an offensive tactic, an integral part of strategy, applied in a measured premeditated manner;

Medium: Violence used spontaneously as an offensive tactic for short-term gain, without regard for strategic implications;

Low: Violence used as a defensive tactic only; and
Nil: Violence never used.

The risk and impact attributes for assessing and ranking organized crime groups developed by Klerks and Project Sleipnir are summarized below:

Table 4 – Criminal organization threat assessment attributes from two studies Klerks	**RCMP**
Local or global Purposes and ambitions Output Diversity Sophistication Innovative capacities Violence and deadly violence Intensity and variety in the use of weapons Level of finances (gross) Possessions (consolidated) Size of group Working with other groups Dependence on a larger group Political affiliations Presence and influence in the "upperworld" Accessibility for law enforcement Use of defensive counter-strategies Use of offensive counter-strategies Dominance & dominance over non-criminals Access to scarce knowledge and means	Corruption Violence Infiltration Expertise Sophistication Subversion Strategy Discipline Insulation Intelligence gathering Multiple enterprises Mobility Stability Scope Monopoly Group cohesiveness Continuity Links to other organized crime groups Lings to criminal extremist groups

Social Impact, Risk, and Damage Threat to public health and the environment Economic damage Physical damage Psychological damage Damage to local community Damage to society as a whole	

Black, Vander Beken, and DeRuyver (2000) loosely adopt the attributes of a criminal organization developed by Project Sleipnir in constructing his own four point qualitative scale for each attribute. The authors divide the threats posed by criminal groups into two broad categories: intent and capability. Under these two headings, he further divides a number of attributes into four mutually exclusive categories (desire, resources, confidence, and knowledge), as shown in Table 5 below:

Table 5 – Examples of possible organized crime group attributes list based on risk assessment methodology (Black et al., 2000)

Intent	**Capability**
Desire Discipline Intelligence gathering Deadly violence Violence Monopoly	*Resources* Corruption Size of group Working with other groups Local or global Scope Level of finances Mobility
Confidence Sophistication Risk attitude Accessibility for law enforcement Strategy Insulation	*Knowledge* Expertise Infiltration Continuity Multiple Enterprises

Maltz (1990) classifies the harm inflicted on society by organized crime into five categories: physical, economic, psychological, community and societal. The most typical physical harms associated with organized crime are murder and assault. Maltz suggests that two distinct measures of economic harm be calculated: the economic losses to the victims of organized crime and the economic gains to the organized crime enterprises. Psychological harm includes intimidation, coercion, and fear, which are fundamental

imperatives of criminal organizations. Organized crime activities, such as drug trafficking, prostitution, illegal gambling and extortion/protection rackets, can also disrupt many aspects of a community. Finally, Maltz defines societal harm primarily as the loss of confidence in government (including law enforcement and the criminal justice system) or in the economic system. Moreover, wide-scale consumption of illegal products or services, and the resulting disregard for certain laws, may also undermine respect for government and laws.

As mentioned above, the 1998 *Organized Crime Impact Study* by Samuel Porteous also categorizes and ranks the scope and harm of various organized crime activities into five categories: socio-political, economic-commercial, health and safety, violence generation, and environmental. He argues that the pursuit of illicit profit has a number of consequences, which range from violence and economic loss to the less easily quantifiable environmental, social, health and safety implications.

The RCMP took Project Sleipnir a step further through its development of the Criminal Activity Harm Prioritization Scale (RCMP, 2008), which was developed "to address the harm component resulting from the commission of criminal activities. Simply stated, the scale "is a model which identifies the harm(s) of each known criminal activity." Specifically, it is a harm measurement technique for criminal activities undertaken by organized groups. As an analytical tool, the ultimate goal of the HPS is to facilitate the ability of police to prioritize enforcement actions against the organized crime groups that are causing the most harm to society. The "Criminal Harms Inventory" that forms the backbone of the scale is made up of five main categories: (1) environmental harms (2) personal harms (3) health and safety harms (4) financial harms – personal and business and (5) economic and financial harms – government. Each category contains further subcategories of harm and each is assigned a numerical value based on the severity of the harm it entails. Table 6 below provides the outcome of the application of the harm scale when applied to a list of 53 separate criminal offences.

CRIMINAL ACTIVITY	HARM SCORE
Homicide	43.6
Child Pornography	41.1
Procuring	37.7
Illicit Drug Trafficking	37.6
Assault with a Weapon	36.0
Production of Illicit Drugs	35.1
Threats / Criminal Harassment	34.2
Assault	33.8
Sexual Assault *	33.2
Attempt to Commit Murder	31.6
Possession of Illicit / Licit Drugs	30.8
Intimidation	30.4
Human Trafficking	28.4
Import / Export of Illicit Drugs	28.3
Abduction **	28.2
Kidnapping	28.2
Licit Drug Trafficking	28.1
Extortion	27.0
Keeping Common Bawdy-House	27.0
Robbery	26.8
Break and Enter	26.4
Hate Crime	26.1
Possession of Illegal Firearms / Weapons for purpose of trafficking	25.9
Arson	25.3
Firearms / Weapons Trafficking	24.7
General Fraud	23.3
Import / Export of Licit Drugs	22.0
Human Smuggling	21.1
Production of Licit Drugs	20.9
Loansharking (Criminal Interest Rate)	19.7
Corruption (Bribery)	19.0
Illegal Import / Export of Firearms	18.8
Theft	18.5
Credit Card Fraud / Theft	18.1
Personation (Identity Fraud)	18.1

In sum, there is growing body of literature wherein cost of crime estimate models have been developed and applied to what can be considered organized criminal activities.

Based on these models, the impact of organized crime (activities) on society can be assessed along three broad dimensions: (1) the different areas of a society that are affected (e.g., individual, community, private sector, government), (2) the types of impact (e.g., physical, psychological, economic, environmental), and (3) the severity of the impact of a criminal activity within each of these dimensions (as measured by a relative weighted harm value or a monetary cost applied to each criminal activity).

Table 7 below summarizes five models that conceptualize, categorize, and measure, in comprehensive terms, the threat or harm of organized crime activities and groups. For each model, information is provided on the scope of the respective analysis, the major harm or threat variables included in the model, and the rating scale that is used to measure the severity of the impact.

Table 7 – Summary of comprehensive organized crime threat and harm assessment models

	Maltz (1990)	**Porteous (1998)**	**Klerks (2000)**	**RCMP (2000b)**	**RCMP (2008)**
Scope of analysis	Harm of organized crime groups and activities	Harm of organized crime activities	Threat and harm assessment of organized crime groups	Threat posed by criminal groups	Harms realized by different criminal activities
Harm (or threat) categories or indicators	Physical, Economic, Psychological, Community, Societal,	Social-Political, Economic-Commercial, Health & Safety, Violence Generation Environmental,	Threat to public health and the environment, Economic, Physical, Psychological, Local, Community, Society as a whole	Violence, Infiltration, Expertise, Sophistication, Subversion, Strategy, Discipline, Insulation, Intelligence use, Multiple enterprises, Mobility, Stability, Scope, Monopoly, Group cohesive-ness, Continuity, Links to other criminal groups, Links to terrorist groups	Environmental harms, Personal harms, Health and safety harms, Financial harms – personal and business, Economic and financial harms – government.

Rating of severity of impact	No rating scale	Qualitative: Little or no impact Some impact Significant Impact Very Significant Impact	Quantitative: Numeric rating scale that varies in range for each major attribute and harm	Quantitative: Numeric rating scale that ranks the threat of criminal groups based on weighted values assigned to each organized crime attribute	Quantitative: Numeric rating scale that ranks the harm realized by specific criminal activities

Notwithstanding the above threat and harm assessment models specific to organized crime, for the most part, studies assessing the impact of organized criminal activities use a similar approach and impact categories as those studies measuring the impact of "unorganized" crime. That is, direct and indirect as well as tangible and intangible, impacts are identified for a respective criminal activity, these impacts are demarcated by individuals, groups, and institutions that bear the impact (victims, users, the state, etc.) and then monetary values are applied to the costs and an overall estimate is derived through calculation and econometric modelling. Interestingly, none of the afore-mentioned organized crime harm assessment models uses the economic cost of crime approach, which involves applying monetary values to identified harms.

Based upon a review of existing harm assessment models and studies, and the broader literature describing organized crime in society, a summary of the harms (direct and indirect, tangible and intangible) of the organized criminal activities examined in this report is provided in Table 8 on the following pages. This matrix categorizes the harms of organized criminal activities according to the individual or sector of society that experiences the harm: (1) victim and family (or consumer and family in the case of illegal drugs), (2) local community/general population/society at large, (3) government (including the criminal justice system and other government agencies/institutions and (4) the private sector/economy.

An even more detailed list of the wide array of impacts for each of the organized crime priorities is provided in Annex C. This appendix also includes information not incorporated into most (organized) crime harm assessments: how the harms of criminal activities should be multiplied because they contribute directly and indirectly to other harms (e.g., revenue from identity fraud is reinvested into drug trafficking).

Table 8 – Summary of major harms of organized criminal priorities

	Victim/Consumer and Family	Local communities/General Population/ Society	Government	Private Sector/Economy
Arms trafficking and smuggling	Morbidity and mortality (from gun-related violence); Loss of productivity, immediate & future employment, income due to morbidity and mortality; Health care costs (not covered by provincial or employment plans) to victims & family of gun-related violence; Monetary losses & opportunity costs dealing with aftermath of gun-related violence; Emotional & psychological pain and suffering to victims and families of gun-related violence	Fear within communities (including fear of victimization); Taxes to pay for criminal justice costs, health, and welfare costs attributed to gun-related violence; Monetary and opportunity costs dealing with preventing and/or responding to local gun-related violence	*Criminal justice costs*: directly related to enforcement of arms smuggling trafficking; directly related to gun-related violence; indirectly related to enforcement of organized serious crimes financed by the revenue from arms smuggling & trafficking (including terrorism); Costs of gun control (including national gun registry); Loss of tax revenue from legitimate sales of firearms in Canada; *Other government costs*: Public health care costs directly related to gun-related violence; Government assistance (employment benefits, welfare payments, worker's compensation etc.) to victims and others impacted by gun-related violence; Loss of tax revenue from decreased income of victims as well as decreased revenues of companies employing victim (from decrease in productivity); Costs of government research Corruption of government officials from arms smuggling & trafficking revenues	Costs to employer due to loss of or decreased productivity of employee impacted by gun-related violence; Decrease in GDP due to employer productivity and revenue losses (including that from employees sitting on juries for arms trafficking and gun-related criminal court trials); Taxes to pay for criminal justice and other relevant government expenditures; Loss of revenue for legitimate firearms sales
Drug Trafficking	Morbidity (from drug abuse, violence associated with drug trafficking	Monetary costs of drug-related property crime (financial losses,	*Criminal justice costs:* directly related to drug enforcement (policing, custody,	Costs to employer and loss of revenue due to loss of or

	organizations & drug abusers, including drug-related family violence and automobile accidents); Mortality (death from illicit drug use or associated with violence by drug trafficking groups); Drug dependency and other physiological, cognitive, and behavioural impacts passed on to children (including future health care & social welfare costs, lost productivity); Loss to family of drug abusers from (property) theft by drug abusers; Loss of immediate and future employment and earnings from work absence, unemployment, death, injuries, dealing with drug abuser and drug-dependent children, etc.; Health care costs (not covered by provincial or employment plans) to drug abuser & family (prescriptions, treatment, etc.); Monetary losses & opportunity costs dealing to drug abuser & family dealing with problem; Emotional and psychological pain and suffering for drug abuser and family;	costs of security, increased insurance premiums, costs of dealing with aftermath, drop in property values due to property crimes); Impact of other drug-related crimes (violence, homicide, prostitution) such as drop in property value, physical deterioration, economic decline, fear, financial costs of greater security, opportunity cost of prevention and vigilance measures; Local physical dangers due to local drug production (e.g., electrical fires related to hydroponic grow operations); Emotional pain and suffering from fear within communities (including fear of victimization); Impact of accidents caused by drug users (e.g., vehicular accidents); Taxes paid to cover relevant criminal justice, health and welfare expenditures; Monetary & opportunity costs to individuals who are called to jury duty for court trials	legal aid, prosecution, court costs, corrections, parole); indirectly stemming from drug abuse (enforcement of property crime, violent crime, prostitution, vehicular accidents); indirectly related to enforcement of organized serious crimes financed by drug profits, including terrorism; Corruption of criminal justice officials (and the criminal justice system) from drug trafficking revenue; *Other government costs:* Public health care expenditures directly related to drug use, including addiction and diseases transmitted through drug use (e.g., HIV): emergency calls, hospitalization, medical fees, treatment, education, paramedic & ambulatory services, physician fees, out-patient services, prescription drugs, training for physicians, nurses, social workers, addiction counsellors Public health care expenditures indirectly related to drug trade and abuse: violence, treatment of drug-dependent children, treatment of vehicular and other drug-related accidents; Costs of government funded drug prevention and education (e.g., school-based); Costs of government funded research; Government social assistance expenditures stemming from drug abuse (welfare/unemployment insurance payments to drug users); Workers compensation expenditures for drug-related accidents at work;	decreased productivity of drug-dependent employee; Revenue losses from drug-related crimes and disorder problems affecting businesses (e.g., property crime, street-level prostitution, panhandling); Costs of security and loss prevention programs to businesses; Health care insurance premiums for drug dependent employees; Decrease in GDP from lost productivity, directly due to drug abuse and indirectly due to time spent by family and community dealing with dependency, drug-dependent children, drug-related property crimes, vehicular accidents, etc.; Taxes to pay for criminal justice and other relevant government expenditures

			Corruption of non-criminal justice government officials from drug trafficking revenue	
Payment (debit and credit card fraud)	Monetary losses to victim (banks and credit card companies, and to a lesser extent consumers); Opportunity cost stemming from monetary losses and time spent addressing the problem; Costs of security and loss prevention programs; Impact on businesses because of less frequent use of credit and debit cards and electronic purchasing; Cost of insurance & deductibles	Higher credit card interest rates and service charges; Taxes paid to cover criminal justice and other relevant government expenditures	*Criminal justice costs*: directly related to organized payment card fraud; related to enforcement of other organized criminal activities funded by payment card fraud (including terrorism); Corruption of criminal justice officials (and the criminal justice system); *Other government costs*: Loss of tax revenue due to decreased revenue from private sector victims; Costs of government regulation and prevention; Costs of government funded research Public (mental) health care costs for victims dealing with aftermath of victimization; Corruption of government officials	Decrease in GDP due to private sector revenue losses from payment card fraud Taxes to pay for criminal justice and other relevant government expenditures
Currency Counterfeiting	Loss of revenue to federal treasury, including opportunity costs to federal government in dealing with the problem; Cost to Bank of Canada to provide security features to currency; Monetary loss to private sector businesses (banks, retail businesses), including opportunity costs dealing with victimization	Costs borne by individuals to protect themselves from counterfeiting Implications of loss of government tax revenue, jobs, and wealth from product piracy and copyright infringement (e.g., decreased government services); Taxes to pay for criminal justice and other	*Criminal justice costs:* directly related to enforcement of currency counterfeiting; indirectly related to other criminal activities funded by counterfeit currency and revenue generated by counterfeit currency trafficking (including terrorism); Corruption of criminal justice officials	(Note: these do not include monetary losses to private business holding forged bank notes): Decrease in GDP due to private section losses from counterfeit currency; Decrease in GDP (private sector productivity declines due to employees sitting on juries for

	(costs of prevention programs, technology, etc.); Monetary loss to consumers, including opportunity cost dealing with victimization	relevant government expenditures; higher prices due to currency counterfeiting costs incurred by retailers	(and the criminal justice system); *Other government costs* (Note: these government losses do not include those suffered by the Treasury Dept directly from counterfeit currency): Loss of tax revenue from businesses and consumers victimized by counterfeit currency; Costs of government funded prevention and education programs; Costs of government funded research Corruption of government officials	court trials); Taxes to pay for criminal justice and other relevant government expenditures
Product piracy (illegal reproduction of films)	Loss of revenue to companies whose products are forged; Opportunity costs to companies whose products are forged; financial cost to legitimate retailers; financial costs to implement security	Implications of loss of government tax revenue, jobs, and wealth from product piracy and copyright infringement (e.g., decreased government services) Taxes to pay for criminal justice and other relevant government expenditures	*Criminal justice costs*: directly related to product piracy/copyright infringement enforcement; indirectly related to enforcement of other criminal activities funded by product piracy revenues, including terrorism; Corruption of criminal justice officials (and the criminal justice system); *Other government costs*: Loss of tax revenue from companies whose sales & revenue have been negatively impacted by counterfeit goods and copyright infringement	Loss of jobs within legitimate sectors, due to product piracy & copyright infringement Decreased revenue to invest in innovation in the high-tech and entertainment sectors; loss of jobs in legitimate industries
Identity theft/fraud	Monetary losses to victims (consumers and to a lesser extent the financial services sector) directly from identify theft (e.g., payment of credit card debts); Monetary losses	Higher credit card interest rates and service charges; Taxes paid to cover criminal justice and other relevant government expenditures	*Criminal justice costs*: directly related to identify theft/fraud; related to enforcement of other organized	Costs for implementation of security; Financial costs to financial institutions to cover victim losses; Costs of insurance premiums and

	and other costs from negative impact on victim's credit rating Opportunity cost stemming from theft of identity and monetary losses, and time spent addressing the problem; Emotional & psychological pain and suffering of victims; Costs of security and loss prevention programs in private sector; Impact on businesses because of less frequent use of credit and debit cards and electronic purchasing; Cost to consumers and businesses for (identity theft) insurance & deductibles		criminal activities linked to identify fraud (including credit card fraud, mortgage fraud); related to enforcement of other major and serious criminal activities funded by identify fraud (drug trafficking, terrorism); Corruption of criminal justice officials (and the criminal justice system) *Other government costs*: Costs to governments to protect data from theft; Costs to governments to deal with breaches of data security; Loss of tax revenue due to decreased revenue from private sector victims; Costs of government regulation and prevention; Costs of government funded research; Corruption of government officials; Public (mental) health care costs for victims dealing with aftermath of victimization	deductible; Taxes to pay for criminal justice and other relevant government expenditures; Decrease in GDP due to private sector revenue losses from identity fraud/theft ;
Illegal gaming	Money lost to illegal gambling Promotion/furtherance of addictive gambling, including: personal and family impacts: loss of family savings, loss of employment and family revenue, family debts, bankruptcy, bailout costs (such as money provided to indebted gambler from parent or spouse); suicide; opportunity costs for time	Impact of gambling-related crimes, such as loansharking as well as theft or fraud to support gambling addiction; Taxes for criminal justice system to deal with illegal gambling and crimes committed by compulsive gamblers Taxes for health care and social welfare costs to deal	*Criminal justice costs*: directly related to enforcement of illegal gambling operations; related to enforcement of crimes associated with illegal gambling (loansharking); related to enforcement of crimes and other problems caused by problem gamblers, (e.g. embezzlement, fraud, theft, violence, suicide, etc.);	Lost revenue to legitimate gambling operations (casinos) from illegal gaming; Theft from companies due to gambling addictions; Foregone revenue to charity-run gambling operations (e.g., Bingo) from illegal gambling; Decrease in GDP due to employer productivity and

	and money gambled illegally, cost to individual and family as well as losses to businesses and economy from money spent on illegal gambling, income which would have been earned by pathological gamblers who lost their jobs; pain and suffering of problem gamblers and family members (psychological problems including stress, loss of trust and depression, relationship breakdown and violence in the home, divorce and separation, depression and suicide); crimes related to gambling, such as theft, robbery, etc.	with problem gambling	Corruption of criminal justice officials from the proceeds of illegal gambling *Other government costs*: Lost tax revenue from illegal gambling; Foregone tax revenue for legal gambling; Foregone revenue to government-run lotteries from illegal gambling; Loss of tax revenue from decreased income of compulsive gamblers who have lost their job because of the addiction; Health care costs for treating gambling addictions; Costs of government funded research into illegal gambling and gambling addictions; Government social assistance (employment benefits, welfare payments, etc) expenditures to compulsive gamblers; Public (mental) health care costs for victims dealing with aftermath of victimization;	revenue losses from gambling-addicted employee or from employees sitting on juries for court trials); Taxes to pay for criminal justice and other relevant government expenditures;
Smuggling of & trafficking in contraband tobacco	Mortality and morbidity from the consumption of cigarettes; Mortality and morbidity stemming from unsafe, unregulated (counterfeit) tobacco products;	Higher taxes due to loss of tax revenue from contraband Taxes to pay for criminal justice and other relevant government expenditures; Violence within	*Criminal justice costs*: directly related to contraband tobacco enforcement; indirectly related to other crimes stemming from contraband tobacco (e.g., inter-gang violence, hijackings);	Loss of revenue (and jobs) to cigarette producers, wholesalers, & legitimate retailers (refusing to sell contraband)

	Loss of income (productivity) or immediate and future employment due to morbidity and mortality; Health care costs (not covered by provincial or employment plans) to smoker & family; Emotional & psychological pain and suffering from mortality and morbidity due to smoking; Monetary losses & opportunity costs dealing with smoking-related morbidity and illness (and health impacts of unsafe tobacco products)	communities and corruption in local governments (esp. first nations communities) stemming from contraband tobacco trade; Promotion of widespread lawlessness ((lack of respect for the law) due to widespread consumption of contraband tobacco; contribution to criminality within high risk (e.g., first nations) communities	indirectly related to enforcement of organized serious crimes financed by contraband tobacco profits, including terrorism; Corruption of criminal justice officials (and the criminal justice system) funded by contraband tobacco and liquor sales *Other government* costs: Loss of tax revenue due to contraband sales Public health care costs directly related to smoking of (contraband) cigarettes (including emergency transport and services; emergency and other medical care); Government social assistance (employment benefits, welfare payments, etc) expenditures to smokers and family impacted by smoking-related morbidity and mortality; Loss of tax revenue from decreased income of smokers & family as well as decreased revenues of companies employing victim (from decrease in productivity); Government funded substance abuse prevention and education (e.g., school-based); Government funded substance abuse research (including cancer-research); Corruption of non-criminal justice government officials (including corruption of local and first nation governments)	Corruption (collusion) in legitimate industries (tobacco manufacturers & wholesalers, transportation industry, & retail (convenience) stores Harm to the reputation of tobacco producers from fake, fraudulent, lower quality products that consumers assume are legitimate Taxes to pay for criminal justice and other relevant government expenditures
Theft (Organized	Direct monetary losses to victim	Higher automobile insurance premiums; Taxes paid to cover	*Criminal justice costs* associated with stolen cars, costs of auto theft campaigns	Direct monetary losses to businesses (esp. car rental

Auto Theft)	Cost of insurance deductible to victim due to organized auto theft; incremental cost of higher insurance premium; Opportunity cost stemming from monetary losses and time spent dealing with problem; Emotional & psychological pain and suffering	relevant criminal justice costs; Taxes paid to cover public automobile insurance costs associated with stolen cars, prevention campaigns, etc.; Mortality and morbidity of innocent people from automobile theft (e.g., death of injury as a result of high speed chases between auto thieves and police); Increase in number and severity of chronic (young) offending (young offenders are often recruited to steal automobiles)	undertaken by police; insurance payouts from provincial public insurance companies; costs of car theft prevention campaigns undertaken by public insurance companies *Other government costs*: Provincial public insurance companies: Insurance payouts, costs of car theft prevention campaigns, associated policy, administrative and investigative costs; Public health care costs stemming from mortality and morbidity due to automobile theft	companies) from organized auto theft (outside of insurance coverage); Opportunity cost stemming from monetary losses and time spent dealing with problem; Private insurance companies: insurance payouts, car theft prevention campaigns, administrative costs, investigative costs; Costs to employer and loss of revenue due to decreased productivity of employee dealing with aftermath of personal auto theft
Telemarketing Fraud	Monetary losses to victims Opportunity cost to victim stemming from monetary losses and time spent dealing with the aftermath of victimization; Emotional & psychological pain and suffering (Note: Many victims of deceitful & fraudulent telemarketers based in Canada live in other countries)	Implications of loss of government tax revenue, jobs, and wealth from product piracy and copyright infringement (e.g., decreased government services); Taxes to pay criminal justice costs, health, and welfare costs; Monetary & opportunity costs to individuals who are called to jury duty for court trials Impact on reputation of this country (due to allegations it is as an international epicentre for telemarketing fraud) – this can include loss of foreign investment in the country	*Criminal justice costs:* directly related to fraudulent telemarketing enforcement indirectly related to enforcement of organized serious crimes financed by telemarketing profits (including terrorism) Corruption of criminal justice officials (and the criminal justice system) *Other government costs*: Government regulatory, policy, administrative expenditures dealing with deceitful telemarketing; Loss of tax revenue from citizens and businesses that have lost money to fraud; Public (mental) health care costs for victims dealing with aftermath of victimization; Government social assistance (employment benefits, welfare payments, etc) expenditures to victims and others impacted; Costs of	Negative impact on reputation of legitimate telemarketers (resulting in lost business) Lost jobs in legitimate telemarketing firms Decrease in GDP due to losses stemming from fraud Education and prevention expenditures

			government funded education and prevention programs (including telemarketing complaint call centres); Costs of government funded research	

Analysis: Assessing the Strengths and Weaknesses of Prevalence/Scope and Impact/Harm Assessment Methodologies

What are the strengths and weaknesses of impact/harm assessment models and research, especially when applied to organized crime? In general, how reliable are the impact/harm assessment studies in terms of measuring the true scope and impact of (organized) crime activities?

Like any social scientific field, there is a great variance in the rigour of the different conceptual and applied models that attempt to measure and estimate the scope and impact of (organized) crime. In turn, this results in a great variance in the reliability of the results produced by studies.

It is difficult enough to conduct research in the field of organized crime, due to the its inherently hidden nature and the confidentiality that surrounds police data. The challenge is even more daunting when the task is to measure and estimate the scope and/or impact of this largely veiled criminal activity.

As (Ogrodnik, 2002) notes in her study investigating the feasibility of collecting police-recorded data on organized crime in Canada, "Quantifying organized criminal activity presents a great challenge. Factors impeding a precise statistical assessment of organized crime are diverse. A combination of factors ranging from the lack of standard definitions and guidelines, the under-reporting of organized crime, the current design of intelligence databases and security of the information sought, all place challenges on efforts to quantify organized crime...."

The United States' General Accounting Office (1977) once reported that "complete and reliable data is not available on the number of organized crime figures in particular areas, their position within the organization, and the extent of their criminal activity." More bluntly, Beare and Schneider (1990) assert, "There is no verifiable method for determining the size of the illicit economy. Estimated figures in this area of illicit proceeds, however carefully calculated, are only guesses. Once stated they take on a reality they do not deserve."

There are a number of significant shortcomings with respect to the rigour, reliability, and accuracy of studies that estimate the scope and impact of organized crime. For the sake of analysis, these shortcomings can be divided into two broad categories: (1) those that are inherent in quantitative research that measures organized crime, and (2) those that have been identified in the design and execution of the studies through a critical analysis conducted as a part of this research project.

Inherent Challenges in Measuring the Scope and Harms of Organized Crime

The most significant challenge presented to researchers who attempt to estimate the scope and impact of organized criminal activities – indeed in researching organized crime in general – stems from the inherently hidden and secretive nature of organized

crime, which makes accurate measurement extremely difficult. As the U.S. National Drug Intelligence Center (2008) state in the introduction to their 2009 national drug threat assessment report, "The cost to society from drug production, trafficking, and abuse is difficult to fully measure or convey." A review of the literature underlines the uncertainty inherent in measuring illegal markets and supply. In his review of strategies for estimating the size of the global drugs market, Reuter (2005) notes that even in the United States, which has the most comprehensive and sophisticated data on drug use and prices, expenditure estimates could range between $40 billion and $100 billion" (as cited in Singleton et al., 2006).

In addition to the innately hidden nature of organized criminal activity, there are other considerable challenges to measuring the scope and costs of organized crime that stem from the nature of this criminal problem.

One of the first problems is the lack of a coherent and uniform definition of "organized crime." As Levi (2002) notes, "very few academics would defend the analytical utility of the term organised crime, with its crude binary organised/unorganised distinction which means that there is more variation within the category of organised than there is between organised and unorganised." Ogrodnik (2002) found that this vague conceptualization constitutes a major obstacle to collecting data on organized crime from police agencies, "there is still a significant problem in terms of an accepted uniform definition of what constitutes 'organized crime'. In order to determine if an incident was related to 'organized crime', most [police] forces found the Criminal Code definition to be too broad and use supplementary criteria." Some scholars believe that organized criminality is so diverse, and so resistant to a uniform definition, that different variations of the phenomenon deserve their own labels, such as "syndicate(d) crime," "enterprise crime," or "market-based crime" (which conceptually are supposed to be different from organized crime) (Levi, 2002).

This problem of precisely conceptualizing and defining organized crime is highly significant for research that estimates the scope of organized criminal activities because researchers must isolate the frequency of criminal incidents that are carried out as part of an ongoing organized criminal conspiracy (as opposed to individuals acting alone or however one defines "unorganized" crime). In the context of isolating the involvement of organized crime in a criminal offence, the epistemological question remains: what exactly constitutes "organized crime." Should a deceitful telemarketing, marketing or currency counterfeiting operation be considered "organized crime" because it involved two or more people conspiring together on a continuing basis to commit crimes? Should youth gangs be considered organized crime since they largely satisfy the vague and expansive *Criminal Code* definition of a criminal organization? This problem is not rooted in the lack of detailed record keeping by police. It is a reflection of the inherent difficulty that police encounter in determining if a criminal offence is being committed by an individual acting alone or as part of an organized criminal conspiracy. It is not just a matter of police recording whether a crime was committed as part of a criminal conspiracy; the fact is that this information is often unknown by police and frequently cannot be discovered through traditional investigative or intelligence gathering techniques.

Determining whether a criminal offence has been carried out by a group is made even more difficult by recent trends whereby modern organized crime can best be characterized as a fluid network of many autonomous buyers, brokers, financiers, middlemen, and distributors from different groups, ethnicities, nationalities, and countries that come together to make deals by capitalizing on each other's specialties and strengths. In a 2005 article, James Finckenauer of Rutgers University writes that the most contemporary organized crime conspiracies are "loosely affiliated networks of criminals who coalesce around certain criminal opportunities. The structure of these groups is much more amorphous, free floating and flatter, and thus lacking in a rigid hierarchy." As a result, according to Ogrodnik (2002, 5) "distinguishing between organized crime groups is becoming more difficult. In some instances, organized crime groups are forging new alliances and are working collaboratively together. In addition, there is an increasing number of multi-cultural criminal organizations." Van Duyne (1996:207) concurs that the ephemeral nature of contemporary organized crime means it is "not a quantifiable phenomenon" at least when it comes to measuring the number of criminal groups in existence:

> ... any operational definition for counting the number of crime-enterprises is bound to be invalidated by the fluidity of reality. During my research it sometimes happened that I thought to analyse one enterprise which split into two or more while doing my research. The reverse also happened: different crime-enterprises cooperated so closely that the police thought they were investigating one organization. Counting organized crime is like counting sandbanks in the North Sea…there is a constant shift in composition, shape, and size.

Finally, enumerating the number of criminal offences traditionally carried out on an organized basis is obstructed by another characteristic of traditional organized criminal activities, such as drug trafficking, gambling, prostitution, loansharking, human smuggling – they are consensual in nature. As such, according to Tom Gabor (2003, 16), "Measuring the harms produced by OC is more complex than in the case of conventional crimes such as robbery. Victims frequently report such conventional crimes to the police or mention them in victimization surveys. By contrast, the recipients of the illicit goods and services furnished by criminal organizations act voluntarily and, hence, do not view themselves as victims. Furthermore, the victims of non-consensual OC activities (e.g., extortion) often stay quiet due to intimidation."

Challenges facing, and shortcomings in the design and application of organized crime prevalence and impact studies

In addition to the challenges facing researchers that stem from the inherent nature of organized crime, there are significant and inevitable methodological limitations that are omnipresent in efforts to quantitatively measure the scope and precisely estimate the impact of organized crime. These inherent limitations can prove fatal to research that attempts to produce reliable and precise findings. These research design challenges can be grouped into three categories:

1) Identifying and collecting reliable and representative raw data (which involves

identifying reliable data sources, using rigorous data collection methods – including sampling methods that can reliably generalize data to the population – and the identification of the full range of impacts of the criminal activity);

2) Ensuring that realistic and reliable assumptions are invoked and monetary (cost) valuations are applied with respect to the impacts being measured, and

3) Use of rigorous statistical modelling to analyze the data, which incorporates meticulous internal and external validity measures.

Collecting reliable and representative raw data: Data, data sources and data collection methods

There are a number of problems in relation to the data used for organized crime prevalence and harm assessment studies that undermine their reliability in terms of achieving accurate estimates. Many of these problems were identified in Annex A and can be summarized for the two main sources of data as follows:

Police-recorded data

- police-recorded crime data, such as UCR survey data, under-estimates the true scope of crime; as a research "sample," police-recorded data is not representative of the "population" of actual offences, police-recorded data also does not sufficiently isolate crimes committed by organized groups;
- enforcement statistics, are also not considered representative of the population of criminal activities or groups and are more a reflection of police policies and priorities, than the universe of organized criminality;
- there are a number of problems in the maintenance and access of police-recorded data (inadequate record keeping, lack of relevant details, intelligence data stored in qualitative formats, lack of consistency in how data is inputted and stored among different agencies; confidentiality issues which obstructs access by researchers).

Victim/consumer-reported data

- Victimization surveys have also been criticized for under-reporting (due to fear, embarrassment or apathy), inaccurate reporting (due to a victim's problems remembering exact details), and for under-representing certain populations most at risk of victimization (young people, homeless, substance abusers, and criminals themselves);
- Victimization surveys suffer from the same problems as police-recorded data; victims often may have no idea as to the extent to which a crime is attributable to an organized group;
- Surveys soliciting information on the consumption of illegal goods and services have also been criticized for under-reporting the problem, either because respondents are not honest or because such surveys miss hard-to-find substance abusing populations (e.g., the homeless)

In short, for most crimes, whether property, violent, economic, domestic, or organized,

it is generally acknowledged that both police- and victim-reported statistics are generally inaccurate (primarily due to under-reporting). Indeed, the accurate measurement and estimation of the impact of (organized) crime is undermined from the start because the empirical basis for these harm assessments – crime rate or victimization data – are themselves unreliable estimates of the scope of crime.

Identifying and quantifying the full range of the impacts of organized criminal activities

Another methodological challenge facing research that attempt to estimate the impact of crime is identifying and measuring the full range of impacts of a criminal activity.

Most cost of crime studies are not comprehensive in that they do not take into consideration the full gamut of impacts. This is particularly true with respect to the identification, measurement, and quantification of those impacts that are:

- *intangible* (e.g., emotional pain and suffering, fear),
- *indirect* (loss of revenue to companies due to the impairment of drug-addicted employees), and
- *positive* (criminal activities that deliver benefits, such as job or wealth creation).

A key question when conducting crime harm assessments is whether an impact can be measured in quantitative terms and, more specifically, is amenable to having a monetary value applied. This is relatively straightforward when measuring the direct, tangible impacts of crime, for instance, calculating the monetary losses to victims from property theft, credit card fraud, or deceitful telemarketing. Similarly, there are some indirect costs that are relatively easy to identify and measure because they already have a price tag, such as criminal justice expenditures, the costs of installing a security system, or the costs of identity theft insurance premiums. However, there are certain intangible harms that are inherently difficult to measure, quantify, and valuate such as the physical, emotional, and psychological distress caused by criminal acts or substance abuse.

Moreover, whether it is a physical injury directly incurred from a crime, a physical or psychological incapacitation derived from chronic drug addiction, or emotional pain and suffering from any of the above, there are multiplier effects that reverberate from the victim of crime or consumer of illegal drugs that affect other people, organizations, and institutions that ideally should be factored into the cost estimates. For example, serious victimization can cause severe emotional stress, which in turn can affect employment (and therefore income), which in turn can negatively impact on the employee's company (loss of productivity and hence decreased revenues), which in turn can negatively impact on the local economy (and GDP), which, in turn, can negatively impact on government tax revenue, which in turn can negatively impact on government operations and social services to the public. The question is: Where does one draw the line? Researchers must determine the extent to which they factor in the intangible impacts and the extent to which they factor in the other indirect impacts that

are caused by the original direct impact. For most criminal activities, there are no commonly-agreed upon guidelines as to what impacts should be included, let alone what monetary value should be arrived at to estimate the cost of the harm.

A number of studies have avoided the complications and controversies of attempting to estimate all the social costs of crime. Instead, they have restricted their analysis to the direct, tangible impact of crime on victims. Other studies are explicit that intangible costs must be taken into account "even if they cannot be estimated in dollar terms" (Single et al., 1996).

MacDonald and colleagues (2005) summarizes some of the challenges they encountered with attempting to measure the full range of harms on society as a result of drug abuse:

> ... the academic literature suggests a strong association between problematic drug use and certain adverse labour market outcomes such as unemployment. Unfortunately, not only is this association directionally ambiguous (does drug use lead to unemployment or vice versa?), it is virtually impossible to isolate from official figures the proportion of unemployment that is drug-related. ... For similar reasons, the impact of illegal drug use on educational attainment, financial stability and homelessness have not been captured. In addition, it has not been possible to isolate the impact of illicit drug use on productivity, absenteeism, social care services, and the children of drug users. In all these cases there is clearly an association between illegal drug use and the harm, but there does not exist a consistent time-series dataset that directly captures these harms.

The problem is not just accurately identifying and measuring these harms, but also placing a monetary value on these harms. Godfrey et al. (2002) provides one indication of the inherent complexity in trying to apply values to the indirect impacts and multiplier effects of drug abuse, "productivity losses frequently account for a large proportion of estimated social costs of drugs, but it is unclear how to estimate and value lower productivity associated with health or drug problems. In the short-term, the loss of productivity may be partially compensated by other workers and in the longer-term the labour market may adjust to these impacts especially from general recreational use."

Other examples of the impacts of organized crime that have either not been taken into consideration in past studies and/or are difficult to identify, measure, and quantify include: the contribution the criminal activity makes to a crime group and other criminal activities; impacts that a criminal activity have on a local community; and the benefits (positive impacts) that derive from an organized criminal activity.

The contribution the criminal activity makes to a crime group and other criminal activities – The impact of crimes is usually measured in terms of how they affect the victim or, at the broadest level, society. Few studies that measure the impacts of organized criminal activities take into consideration the contribution – and hence impact – that the criminal activities make to the sponsoring criminal group and its

other illegal and legal activities. In other words, the current research does not factor in, for example, how revenue from drug trafficking bolsters the criminal group (sustaining or increasing their power, sophistication, and reach), which, in turn, can further other negative impacts of the group, such as violence, government corruption, money laundering etc. Moreover, research shows that revenue from one criminal activity (e.g., cigarette smuggling) is invested into other criminal ventures (e.g., drug trafficking). This raises the following question: should some of the impacts of drug trafficking be factored into the cost of crime estimates of tobacco smuggling? Certain organized crimes – fraud, auto theft, drug trafficking – are also known to help fund terrorist groups, yet this has not been factored into studies measuring the impact of these criminal activities.

Impacts that a criminal activity have on a local community – One of the goals of cost of crime studies is to examine the indirect and multiplier effects of a crime (i.e., how the impact of a crime reverberates throughout a community or a society). However, cost of crime studies into organized criminal activities do not take into effect their impact on local communities, such as how it may raise levels of fear, contribute to economic decline, or contribute to the delinquent and criminal behaviour of impressionable and at-risk youth (what Lyman and Potter [2000, 219] call "interfactional" impacts or what Edwin Sutherland theorized as "differential association").

Benefits (positive impacts) of organized criminal activity – Most crime harm assessment models only take into consideration the costs of crime and do not factor in the benefits that may be delivered by criminal activities, and profit-oriented criminal enterprises in particular. A truly comprehensive and accurate assessment of the impact of organized criminal activities should take into consideration both the costs and the benefits of these activities. In fact, the ostensible goal of any "impact assessment" exercise is to identify the net impact (net benefits or net costs) of the phenomenon or project being examined. Only a partial and thus inaccurate assessment emerges when just the costs (or benefits) of a phenomenon or project are taken into consideration. This is especially true in the field of project planning, whether it is in relation to planning a for-profit business (which must compare projected expenses to revenues to determine if a sufficient net return can be achieved)[14] or a non-profit (development-based) project (to ensure that the social benefits accruing from a project outweigh the project expenditures or at least can be implemented in a cost-effective manner).[15]

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[14] Dwight Smith, in his 1975 book *The Mafia Mystique*, argues that organized crime is nothing more than an extension of the legitimate economy and, as such, follows the same laws of supply and demand (a consensual relationship between a supplier and a consumer) while incurring both expenses and revenues. While organized crime is also characterized by predatory activities, more consensual crimes like drug trafficking, gambling, bookmaking, loansharking, illegal migration, etc. exist and thrive because they respond to a societal demand.

[15] Ideally, the same cost-benefit project planning rules should also be applied to evaluating criminal justice policies (i.e., a cost-benefit analysis should be undertaken into different

Accordingly, within the context of an organized crime harm assessment, when only the costs of criminal activities or groups are taken into consideration, any resulting analysis provides a skewed conclusion as to its overall (net) impact. For example, any local jobs created through local crack cocaine trafficking must be weighed against the deleterious impact that this trade has on consumers and the neighbourhood. Indeed, a net impact assessment approach is not meant to infer that the social benefits of organized crime outweigh the social costs; it is a safe assumption that for the majority of organized criminal activities, the costs do outweigh the benefits. In other words, any benefits must be balanced against (and, as many would argue, are clearly outweighed by) the deleterious local impacts of organized criminal activities, such as the ravages of illegal drug or gambling addictions, the corruption of government agencies, or inter-gang violence. In a 1972 study in the Brooklyn community of Bedford-Stuyvesant, illegal lottery operations were cited as the single largest provider of local jobs; however, researchers balanced this against the large amount of money lost by local residents to gambling (Laswell and McKenna, 1972). The marijuana industry has also generated billions of dollars in revenue in Canada in recent years, which in turn is invested in both negative enterprises (such as cocaine) as well as positive enterprises (the purchase of real estate in depressed rural areas). In short, incorporating the benefits as well as costs of organized crime may provide a more rigorous and accurate assessment of the overall (net) impact of a particular criminal activity or group compared to when the harm of an activity or group alone is being measured.

It may be heterodox to state that (organized) criminal activities can deliver benefits to society, but there are a number of empirical studies that corroborate this heterodoxy. As Donald Liddick (1999, 61) writes the "case can be made that organized crime is a 'community social institution,' and is in many ways functional. Providing highly demanded products and services like sex, gambling, and drugs provides jobs for the unemployed, capital for re-investment in the community, and a non-violent alternative to more predatory crimes like robbery and burglary." In their textbook on organized crime, Lyman and Potter (2000, 88) write, "Relative to a community's production-distribution-consumption function, organized crime often provides services that the legitimate world cannot or will not supply, as well as jobs for community residents. This is particularly important in depressed or economically declining areas." In his study examining illegal lotteries in poor, African-American neighbourhoods, Ivan Light (1977) observed that because legitimate financial institutions have generally failed to provide adequate services in poor, African-American neighbourhoods, the residents responded to the "service vacuum by inventing the numbers game, which framed an "alternative institutional system for the savings-investment cycle in the slum." For Lyman and Potter (2000, 199), "Organized crime often supplies investment capital that would otherwise not be available from other sources. Developments in cities such as Las Vegas, Miami, Newport, and Saratoga Springs illustrate the power of organized crime's investment

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approaches (such as prohibition vs. legalization) to determine which delivers the greatest net benefits or minimizes net costs.

capital." Gambling syndicates in Morrisburg, Pennsylvania "served to enhance the survivability of small businesses that ultimately assisted in the revitalization of a sagging economy." Opium and cocaine production have produced thousands of jobs in developing countries where jobs are scarce, while marijuana cultivation is considered to be the economic mainstay in many rural farming communities in America (Potter, and Gaines, 1992).

Studies conducted by Grosse (1990) and Mackrell (1996) are worth noting for their efforts to acknowledge the potential benefits that crime may bring to society. Referring specifically to money laundering, both acknowledge that this crime has either no real impact or at least makes a modest positive contribution to the economy. Mackrell argues that from a purely economic point of view, there are few significant economic consequences of money laundering over and above its support of organized crime. Grosse intimates that the infusion of drug money into society may have some positive economic benefits (although he also acknowledges that the costs of cocaine abuse greatly outweigh any benefits).

While the inclusion of positive impacts of organized criminal activities may help to produce a more reliable and representative net-cost estimate, the studies that do acknowledge certain benefits of illegal criminal activities are explicit in why such estimates are not counted. For example, in their estimates of the costs of substance abuse in Canada Single et al. (1996) make it clear that their estimates generally refer "to gross rather than net costs of substance abuse."

> The authors acknowledge that the use of alcohol, tobacco, and illicit drugs involves benefits as well as costs. In some instances, the use of a particular psychoactive substance will result in both an increase as well as a decrease in the incidence of an adverse consequence. Thus, for example, the use of alcohol is associated with decreased levels of coronary heart disease at low consumption levels. Indeed, the net number of deaths from coronary heart disease attributable to alcohol is negative; that is, more deaths are prevented than caused by alcohol. For causes of disease and death where a psychoactive substance is associated with both beneficial and adverse effects, the researchers do not subtract the number of cases prevented by alcohol use from the total number attributed to alcohol. Instead, they present the gross figures in the cost tabulations. *This is done to avoid contaminating estimates of the costs of alcohol, tobacco, and illicit drugs with partial consideration of benefits. For causes of disease where the use of alcohol, tobacco or illicit drugs has both beneficial and adverse effects, the study presents the number of cases prevented by the use of a particular substance so that comparisons may be made to the results of studies which report net rather than gross costs* (Single et al., 1996; emphasis added).

Using realistic and reliable assumptions, statistical models and monetary valuations

Another related challenge in crime prevalence and harm assessment studies is the inevitable invocation of certain assumptions; assumptions that at times can be very subjective, and even questionable, but nonetheless can have a significant effect on the

resulting estimates and the reliability thereof. Similarly, the statistical models used to calculate estimates, as well as the monetary values applied to harms, can also greatly affect the final estimates.

A cursory review of the literature shows that these crime prevalence and harm assessment studies are replete with numerous assumptions, often about the nature of the criminal phenomenon being studied (Hser, 1993).

Often the assumptions used are not adequately justified or grounded in empirical research. For example, the estimates of the street value of the marijuana produced in British Columbia derived by Plecas et al., (2005) are extrapolated from police data on how many cultivation operations are dismantled by police. They assume that police dismantle 20 percent of all grow operations in B.C. annually, which "would therefore imply the existence of 11,700 such operations (70% or 8,190 in private homes), yielding an annualized retail return of close to $6 billion CAD." There is no empirical evidence to indicate that this assumption is correct, and as such, other estimates will result in different results as to the number of marijuana cultivation operations in B.C., which in turn affects the estimated annual report.

Most studies into the scope and impact of organized criminal activities in Canada will inevitably incorporate at least one common assumption, especially if UCR or victimization data is used. That assumption is the proportion of criminal incidents reported by police or victims that are attributable to an organized group. This assumption is necessary because, as discussed, information on the number of reported criminal incidents that are carried out by organized groups is generally not available through the UCR survey or victimization surveys. Thus, there is a critical need for greater empirical research into criminal activities that will be included in the OCHI in order to develop reasonable and reliable estimates as to the proportion carried out by organized groups, which can then be used as an assumption in the prevalence and harm assessment estimates.

As discussed earlier, decisions also have to be made about what impacts are to be included in a cost of crime estimate. Godfrey et al., (2002) illustrate how two radically different sets of assumptions (positive and normative) can influence whether a particular impact of drug abuse is included in the costing estimates:

> To start estimating costs, decisions need to be taken on the type of consequences that will be included or excluded. Economists in any study can take either a positive or normative viewpoint. The normative viewpoint involves value judgments about what "ought to be." For example, one viewpoint could be that drug users make a choice as to whether to take or not to take drugs. If users are economically rational in this sense it could be assumed that they take potential individual costs and benefits of the drug use into account when making their decisions. This would imply, in the normative framework, that governments should not concern themselves with private individual costs of drug use but only be concerned about those consequences that impact on the rest of society ... A positive viewpoint by economists starts from the premise that economists can enumerate all costs and

> consequences from a neutral standpoint and present these data to the decisionmaker in order that they can make a decision based on their values (or democratically reflected values). In costing frameworks, however, it is difficult to maintain an entirely "normative" free framework as all items identified have to be assigned a value and this process of assigning values to concepts such as the loss of life will involve some value judgments (Godfrey et al., 2002).

The reliability and rigour of cost of crime models is also influenced by the subjective interpretation of costs associated with certain impacts. This is particularly apparent with respect to intangible costs of criminal activities, such as pain and suffering.

Assumptions are also frequently made about the multiplier impacts of crime. This is illustrated by the following excerpt from a cost of substance abuse study in Canada (Single et al., 1996) explaining one assumption that affects how the drug-related death or illness of an unemployed individual is measured:

> This study assumes that people of working age not in the workforce (that is, employed or seeking employment) are providing non-market services to the rest of the community. This implies that the sickness or death of such people will involve withdrawal of others from the workforce to maintain the supply of non-market services. For example, the death of a non-working mother of school-age children means those children must be looked after by someone else, who in turn becomes unavailable for employment. The productive value lost due to the death or illness of working-age people not in the workforce is estimated from Statistics Canada figures for the value of home-workers of similar age and gender.

The statistical models used to calculate the scope or impact of a criminal activity can also influence estimates. In their review of the empirical literature that approximates the size of criminal populations, Collins and Wilson (1990) recall two quantitative studies on the population of offenders, which produced different findings because of differing assumptions and the different statistical models used: "For example, assuming a single homogeneous population of offenders, Greene and Stollmack estimate the size of the 1974 Washington, D.C., index offender population as 16,119. However, using a heterogeneous Poisson model, they obtain an estimate of 29,493. Similarly, Sandland (1984) found that a Poisson population model, allowing for different arrest probabilities for those previously captured versus those not previously captured, gave an estimate of 44,270 heroin users in NSW, compared with an estimate of only 6621 from the indicator dilution technique."

In sum, the reliability of estimates of the scope or impact of a criminal activity can be greatly influenced by assumptions about the criminal phenomenon studied, decisions about what impacts to include, and the statistical models that ultimately produce the estimates. As Godfrey et al., (2002) state as a caveat to their estimates of the cost of drug use in the U.K. "As with any modelling exercise, the cost estimates reported in this study are far from perfect, but the key assumptions used and gaps in evidence have been made explicit."

Indeed, why certain assumptions and decisions are made and statistical models used, should be fully explained and justified by the authors of the study. More importantly, to increase methodological rigour and maximize the reliability of the estimates, assumptions and decisions should be solidly grounded in empirical studies or in theory. Moreover, diverse assumptions should be used – such as the use of conservative and liberal estimates of the size of an unknown quantity – and any resulting estimates of the scope or social costs of criminal activities must be considered alongside their associated confidence intervals. The more rigorous and "upfront" studies are explicit about the *a priori* assumptions that had to be made to deal with limitations in the data, and the error margins that are calculated include the uncertainty associated with these assumptions (see Pudney et. al., 2006). Social costing guidelines have also been created, such as the *International Guidelines for Estimating the Costs of Substance Abuse* (Single et al., 2003). There is a need to develop such guidelines in other areas that are subject to cost of crime estimates.

The use of rigorous research methodologies and statistical models, which incorporates a number of internal validity measures

Studies that measure the prevalence and scope of crime must deal with a number of shortcomings in such areas as the reliability of data, identifying and measuring the full range of impacts, and the use of subjective and simulated assumptions. Researchers working in this field recognize these challenges and shortcomings and some have not only used rigorous statistical and econometric models and techniques, but have sought to introduce new models, data collection methods, validity tests, and universal guidelines to maximize the reliability of the findings and ensure consistency across studies.

Many of the research methodologies identified in the literature review are quite rigorous due to the incorporation of a number of economic theories and sophisticated statistical modelling techniques that take into consideration the obstacles to reliable and accurate data and data sources. "State-of-the-art" research and statistical techniques are used to ensure representative samples, while minimising internal and external validity errors. According to the 1996 *Costs of Substance Abuse in Canada* study, "It is important to note that estimating social costs is not a simple accounting exercise. We do not look at actual dollars spent or at a literal body count in cases where death results in a cost to society. Rather, cost studies are based on well-documented economic theories and assumptions. For this study, in all cases where we could have used different assumptions to estimate costs, we routinely adopted the most conservative approach" (Rehm et al., 2006).

Some examples of measures to maximize rigour, reliability, and generalizeability of the data include the following:

- the ongoing development of detailed guidelines, such as the *International Guidelines for Estimating the Costs of Substance Abuse* (Single et al., 2003) and the Canadian Problem Gambling Index (Ferris and Wynne, 2001) which can be used to identify the harms associated with such organized criminal by-products as illegal drug abuse and problem gambling respectively. In their national substance abuse surveys, the Canadian Centre on Substance Abuse uses the detailed and commonly-accepted

"cost-of-illness framework" and along with the cost estimation guidelines established by the *International Guidelines for Estimating the Costs of Substance Abuse*, which have been praised for their rigour (and which were developed initially by the CCSA and then published by the World Health Organization);

- using different, but complimentary sources of data, and then triangulating the different data sets to maximize reliability;
- basing assumptions on well-accepted theories or rigorous empirical studies;
- applying multipliers to police-recorded crime rate data to compensate for under-reporting of crime and to ensure greater empirical accuracy for estimating costs;
- putting into place measures and taking corrective action to minimize sampling errors (such as placing greater emphasis on nationally representative samples and ensuring that hard-to-find populations are included in surveys);
- putting into place measures and taking corrective action to minimize non-sampling errors during the data collection process (such as improved collection tools for interviewers and efforts to verify self-reported information through other sources, such as criminal justice data, response rate evaluation, reported and non-reported data evaluation, on site observation of interviews);
- the use of such traditional internal validity and reliability measures as confidence intervals, statistically based margin of error calculations, variation coefficients, and goodness of fit analyses;
- the use of sensitivity analyses on alternative estimates to see how they are affected by critical parameters and assumptions. This analysis provides "a measure of confidence in how robust the results are to the changes in inputs used to calculate them" (Slack et al., 2008);
- internal validity checks using a selection of dummy scenarios to generate index numbers, which are scrutinized to ensure that the calculated values satisfy the 'common sense' tests and are in line with expectations (Slack, et al, 2008); and
- external validity checks of methodologies and resulting estimates, such as peer review (which includes the establishment of panels of experts to review the methodology and the results or a comparison of a study's results with other studies and estimates); and comparisons with findings from other studies.

Despite the sophisticated data collection methods, analytical modelling techniques, empirically-grounded assumptions, and internal and external validity measures used, there is still no guarantee as to the reliability of the resulting estimates. As Roberts and Brewer (2006) conclude, "Although one can discuss the theoretical implications of certain decisions in the estimation process and even empirically illustrate the impact of these choices on resulting estimates, there usually is no clear way of empirically validating the estimates or comparing them to the actual prevalence." Notwithstanding this observation, work continues to be done to contribute to the rigour of the methods used. Recent literature has proposed and implemented refinements to data collection methods and analytical models to better ensure methodological rigour and the reliability

of the resulting estimates.

For example, focusing on the problem of calculating the intangible costs of violence against a person, Loomes, Peasgood, and Tsuchiya (2005) set out three different strategies for estimating the intangible victim costs of crime: "(1) the use of direct values from revealed and stated preference studies; (2) taking willingness-to-pay (WTP) values to avoid a statistical death or injury in non-criminal contexts, applying them to the criminal context, and modifying and reallocating them to the offense categories; and (3) estimating a quality-adjusted life years (QALY) loss for each offense and then converting it into monetary values."

A 2004 study by French and colleagues examined the incremental cost of crimes associated with a sample of chronic drug users both as victims and perpetrators. For this study, the "Health Services Research Instrument was developed in order to collect information regarding demographics, health status, morbidity, health care utilization, barriers to health care, drug use, and other lifestyle behaviors. Two models estimated: (1) the probability of being either a victim or a perpetrator of crime, and (2) the cost of crime in both cases." This study filled a void in the cost of drug use research, which has not developed rigorous methods to estimate the involvement of chronic drug users in crime and has ignored drug users as victims of crime.

Contribution to the goal of organized crime control from a public policy and enforcement perspective

To what extent has information generated from prevalence and harm assessment research been used to inform public policy and programs? To what extent can it be used for evaluative purposes; that is, to measure the impact of specific government policies, programs, or tactical law enforcement operations.

The ultimate goal of the criminal justice system is to reduce the harms inflicted on society by criminal incidents and criminal offenders.[16] As such, it seems logical that in order to both prioritize the most harmful criminal activities, and to assess whether harm is being reduced through policies, programs, and operations indices should be produced that measure the harm of criminal activities and incidents on society.

However, the use of such indices hinges on one key question: Are the harm estimates produced through the research sufficiently reliable for policy purposes? The literature does not directly provide an answer to this question, however a number of studies implicitly make the case that even with the inherent shortcomings of these harm indices and the broad estimates they produce, scientifically-derived information is better than no

[16] By way of example, the United Kingdom's Serious and Organised Crime Agency, established up in 2006, is explicitly justified as a "harm reduction" rather than merely a "law enforcement" body.

information at all when making policy decisions (the alternatives are policy decisions based on ideology, appeasement of the public, "gut feelings," or "common sense").

Indeed, the use of scientifically-derived harm studies and indices are part of a growing reliance on evidence-based policy-making within the criminal justice system and government in general (Sherman et al., 2006). Nowhere has this evidence-based criminal justice policy-making been more embraced than in Great Britain. As Homel et al. (2004) write in their review of the U.K. Crime Reduction Programme:

> In April 1999, the United Kingdom Government began to roll-out the most ambitious, best resourced and most comprehensive effort for driving down crime ever attempted in a Western developed country. While other countries across Europe, North America and Australasia were still largely focusing on pilot projects and often-fragmented crime reduction efforts, the UK turned to 25 years of accumulated crime research and experience to develop and implement a new and highly innovative programme. This was based on a commitment to turning research-based evidence into mainstream practice – a systematic research and evaluation-driven approach known as an evidence-based policy programme (EBPP).

The growing importance of evidence-based policy-making, combined with the harm reduction goal of the criminal justice system, underlies the potential utility of research that measures the scope and harm of crime and organized crime specifically, which can then be fed into a harm index that allows for a relative ranking of different crimes. In turn, this information can be used in a number of ways to help combat crime or other social problems. As Hay and colleagues (2006) assert in their study that develops cost estimates for drug use in the U.K.:

> Information about the number of people who use illicit drugs such as heroin, other opiates or cocaine is a key element of the evidence base used to formulate policy and inform service provision and provides a context in which to understand the population impact of interventions to reduce drug-related harm. To direct resources effectively, it is desirable to know about the prevalence of drug use at the local level. To determine the extent to which treatment may reduce harm to communities, it is necessary to know what proportion of the number of drug users in any given area is engaging with treatment.

The International Guidelines for Estimating the Costs of Substance Abuse – developed in a series of meetings of world experts hosted by the Canadian Centre on Substance Abuse between 1994 and 2002 – spell out four reasons for estimating the social costs of substance abuse: "(1) Economic estimates are often used to argue that policies on alcohol, tobacco and other drugs should be given a high priority on the public policy agenda. (2) Cost estimates help to appropriately target specific problems and policies. (3) Cost studies help to identify information gaps, research needs and desirable refinements to national statistical reporting systems. (4) The development of improved substance abuse cost estimates can provide baseline measures to determine the effectiveness of drug policies and programs" (Rehm et al., 2006).

In their 2004 study entitled *Economic Costs of Drug Abuse in the United States*, Harwood and Bouchery employ a methodology to estimate the economic costs of drug abuse in the United States that was adopted from guidelines developed by the U.S. Public Health Service for cost of illness studies. "Consequently, the estimates presented in this analysis can be compared to the costs of cancer, stroke, and heart disease among other illnesses." The International Guidelines for Estimating the Costs of Substance Abuse also recommend the use of the "cost of illness" framework. Use of this framework to measure the social costs of illegal drugs and other abused substances allows the personal and social harms of illegal drugs (and illegal drug trafficking) to be compared, not simply against those of other organized criminal activities, but against the personal and social harms of other health concerns, which can greatly facilitate policy-making (especially when illegal drug abuse is viewed as a health issue and not strictly a criminal justice issue).

Some countries, such as the U.K., Australia, and New Zealand, have attempted to measure the harm of illegal drugs and integrate these measurements into a broader policy initiative as a planning and evaluative tool to reduce harm. In the UK, the Government's success in reaching the goals set out in the national drug strategy is measured by a set of targets. This newest target, which came into effect in 2005, requires the Government to "reduce the harm caused by illegal drugs including substantially increasing the number of drug misusing offenders entering treatment through the criminal justice system." As part of this strategy, a Drug Harm Index was created. The Drug Harm Index was developed "in order to capture the harms generated by the problematic use of any illegal drug" and, as such, to determine if the national target has been met. The Index "combines robust national indicators of the harms generated by illegal drugs into a single figure time-series index. To enable a single index to be constructed the harms are measured consistently according to their relative cost to individuals and society." As such, "the Drug Harm Index is an analytical tool that can be used to monitor the success of the Drug Strategy policies in reducing harms" (McDonald et al., 2005). Given the controversy surrounding the methodological components behind these indices, what is telling about the Drug Harm Index is that "it does not capture all the harms that illegal drug use generates, but rather a subset of harms for which robust data (or information) are available. It is therefore an index indicating change over time, rather than an estimate of the absolute level of harm at any one time" (MacDonald et al., 2005). This is significant for it means that such harm indices are being adapted by government to inform and evaluate policy and programs in such a fashion that the shortcomings and limitations of such indices are taken into consideration.

According to the creators of the New Zealand Drug Harm Index (NZDHI), its objectives are to:

- "Quantify drug related costs, which will not just identify how expensive the problem is, but also identify where the avoidable costs lie, and what could be done to minimise them."
- Help to answer questions about the benefit-to-cost ratio of current illicit drug strategies and policies, in particular the effectiveness of supply reduction efforts by

enforcement agencies.

- "Offer insights into the impact of supply side interventions. The NZDHI will contribute significantly to current understandings about the balance of investment between drug demand reduction and drug supply reduction initiatives. Using the Index will assist key decision makers and enforcement agencies to better gauge the cost-effectiveness of drug supply reduction efforts. It will enable improvements to be made to multi-agency and cross-sector approaches, encourage consensus about the value of certain types of interventions, and identify opportunities for synergies between interventions."
- "Provide a means to potentially benchmark our performance in this area against overseas jurisdictions, particularly Australia, and, having set the benchmark, begin to track New Zealand's progress over time" (Slack, 2008).

A 2004 working paper for the Bank of Canada by Simon Fraser University economics professor John Chant provides an analysis of the costs to society of currency counterfeiting and proposes a method for estimating the quantity of counterfeit Canadian currency in circulation in 2001. In this paper, he argues that his method "can make a significant contribution to public policy by providing a basis, through international comparisons, for assessing the effectiveness of different currency features in combating counterfeiting."

In sum, the use of scientifically-derived estimates of the scope and costs of various criminal activities, as well as the use and abuse of illegal goods and services, reflects the almost universal refrain of social scientists that public policies should be based on a deliberative understanding of the issue targeted by the policy that is derived from rigorous research. More specifically, policies dealing with criminal matters that are highly stubborn to traditional enforcement approaches, such as illegal drug trafficking and use, should be at least partially based on scientifically-derived estimates of the scope and nature of the harms of such criminal offences, activities, and behaviours. As Jack Homer argues in his 1993 article that uses statistical modeling to arrive at estimates of cocaine consumption in the U.S.: "decisionmakers confronted by a phenomenon as dynamically complex as illicit drug use would benefit from formal models that are not only unambiguous and reliable, but also as realistic in detail and as broad in scope as their own intuitive perceptions."

ANNEX B - ORGANIZED CRIME PREVALENCE AND HARM ASSESSMENT RESEARCH IN CANADA: FINDINGS, DISCUSSION, & ANALYSIS

Introduction

This part of the report describes and analyzes empirical studies as well as conceptual models that measure the prevalence and impact of organized crime and substance abuse in Canada. The ultimate goal is to assess the potential of implementing an Organized Crime Harm Index in Canada and, more specifically, the potential within Canada to undertake the ambitious prevalence and harm assessment research that will provide information for the Index.

The principal research question that guides this part of the report is: Can the necessary research methods and analytical models be applied in Canada in such a way as to produce reliable results that can be used to contribute to efforts to combat organized crime?

Specifically, this part attempts to answer whether:

- reliable data and data sources exist within Canada,
- reliable results (in terms of accurately assessing the scope and impact of organized criminal activities) can be achieved for the Canadian environment,
- an Organized Crime Harm Index, and the accompanying crime prevalence and harm assessment research methods and models, can be applied in Canada in a feasible and cost-effective manner, and
- the Index and accompanying research can contribute to the larger goal of organized crime control.

This part is structured as follows:

- an overview of quantitative research studies that measure the scope/prevalence and impact/harm of (organized) criminal activities in Canada,
- the contribution of harm assessment research and models to organized crime control policies and programs in Canada,
- organizations and agencies involved in organized crime prevalence and harm assessment research in Canada,
- data, data sources, and data collection methods used (and potentially used) for crime prevalence and harm assessment research in Canada, and
- analysis.

The first four sections summarize the research findings and the final section analyzes these findings, with the view to answering the afore-mentioned research questions.

Quantitative Studies that Measure the Scope/Prevalence and Impact/Harm of (Organized) Criminal Activities in Canada: An Overview

To what extent have prevalence and harm assessment research been conducted into (organized) crime in Canada? What aspects of organized crime have been the subject of this research? To what extent has this research been conducted into the organized crime priorities identified in this report?

In recent years, government agencies, non-governmental research centres, private sector organizations, and scholarly researchers in Canada have developed conceptual models and guidelines and conducted research that attempts to measure the scope and impact of crime, including organized criminal activities and related harms, in particular substance abuse and compulsive gambling. The number of organized crime studies utilizing *quantitative* research methods continues to be a small proportion of the ever-increasing body of research examining organized crime in this country. However, this is not unusual for the field of criminology where qualitative research that examines the causes and nature of crime and criminal behaviour greatly outnumbers quantitative research that examines the scope and impact of crime.

The literature review identified four studies that attempt to measure the impact of organized crime generally (Porteous, 1998; British Columbia Ministry of the Attorney General, 2001; Royal Canadian Mounted Police, "E" Division, 2005; Royal Canadian Mounted Police, 2008). All four studies rely on a limited range of data sources (with perhaps too much emphasis on data from law enforcement sources) and none of these studies utilize particularly rigorous research methods or analytical models to collect and analyze the data. In only one of these studies (RCMP, 2008) was a "harm index" developed wherein a weighted numerical value was applied to different criminal activities to facilitate a comparative measurement (and ranking) of the criminal activities according to the harm they inflicted on society. This harm index was based solely on the subjective opinion of law enforcement personnel and other "experts."

Other studies that examined the scope and impact of individual organized criminal activities in Canada were also identified. Annex D provides a detailed, albeit selective list of published Canadian studies that measure either the scope or impact of the organized criminal activities prioritized in this report. A summary of the Canadian prevalence and harm assessment research, broken down by each prioritized criminal activity, is provided below. Included in each summary is the:

- scope of the coverage of the body of research;
- the data and data sources used in the research;
- the data collection and analytical models use;
- a commentary on the rigor of the methodology;
- the extent to which this body of literature can be used for future prevalence/impact research;
- gaps in the literature (in terms of comprehensively estimating the scope and impact of the criminal activity); and

- recommendations on how these gaps can be filled through future research.

Arms Smuggling and Trafficking

The literature review did not identify any studies that comprehensively or quantitatively measured the scope or impact of illegally smuggled and trafficked firearms in Canada.

One publication that uses quantitative methods to examine the source and smuggling of illicit firearms in Canada (Francis, 1995) was identified. This article was specific to a joint forces undercover (enforcement and intelligence) operation designed to determine the extent of the illicit firearms trade in the "Golden Horseshoe" area of southern Ontario. Much of the data was from criminal intelligence and law enforcement operational sources. The research included the establishment of an illicit firearms database. Although limited in geographic scope, this study does suggest that law enforcement intelligence and operational information be considered as important sources of any national research that estimates the scope of illegal firearms smuggling and trafficking (including the origins of illegal firearms).

There are studies that have measured the impact of firearms violence in Canada, but these are mostly qualitative in nature (see Gabor, 1994). In his 1998 literature review Firearms, Accidental Deaths, Suicides and Violent Crime: An Updated Review of the Literature With Special Reference to the Canadian Situation, Yvon Dandurand (1998) notes "significant progress" in research on firearms and their social impact during the period covered by his review (1994 to 1997). "Several Canadian studies were designed to assess the feasibility and advisability of using certain data or methods to conduct more comprehensive studies."

Two national studies were published that quantitatively measured and estimated the scope and social costs of legal firearms in Canada (Hung, 1996, 1997). These studies are significant for the various sources of information and methodologies used to arrive at social cost figures, including Statistics Canada (homicide survey, hospital morbidity survey, imports by commodity, UCR survey, causes of death statistics), the RCMP (Annual Firearms Report to the Solicitor General of Canada), and a 1991 firearms survey of the Canadian population by the Angus Reid Group for the Department of Justice.

The RCMP also publishes quantitative data on legal firearms; in the past this has included the *Annual Firearms Report to the Solicitor General of Canada*. Currently, the RCMP publishes, on a quarterly basis, quantitative information related to firearms licenses for individuals in Canada (RCMP, 2009). The source of this information is the Canada Firearms Centre.

The Canadian Centre for Justice Statistics at Statistics Canada has also published studies on the social costs of firearms, such as the 2008 *Juristat* article, "Firearms and violent crime 1975 to 2006." The purpose of this study is "to examine the prevalence of firearm-related violent crime in Canada at the national, provincial and census metropolitan area levels. It presents the incidence and trends in overall firearm violence and the characteristics of those offences most often committed with a firearm. It also compares

Canada's firearm-related homicide rate with those of other countries." The source of information for these studies are the Uniform Crime Reporting Survey, Homicide Survey, and the Integrated Criminal Courts Survey ("used to compare court processing and sentencing outcomes between firearm and non-firearm violent offences") (Canadian Centre for Justice Statistics, 2008).

At least three studies have been identified that measure the complete or selective harms stemming from firearms in Canada (Miller, 1995; Injury Prevention Centre Edmonton, 1996; Leenaars and Lester, 2001).

In sum, no quantitative studies were identified that measured, on a national basis, the scope and/or impact of *illegally* smuggled and trafficked firearms in Canada. However, there is a body of literature that can form the basis for such research. This includes statistical data that has been published with respect to legal firearms (Hung, 1996, 1997; RCMP, 2009), which, in combination with other data, may be used to facilitate an estimation of illegal firearms in circulation in Canada. There also exists a methodology that may be replicated to examine the sources and smuggling of illegal firearms (Francis, 1995).

Methodologies and estimates also exist that measure the impact of illegal firearms (Miller, 1995; Injury Prevention Centre Edmonton. 1996; Leenaars and Lester, 2001). These estimates can be used as a basis to measure the social harms delivered exclusively by illegal firearms. However, according to Dandurand (1998) studies of firearm availability have met with methodological and conceptual problems that are difficult to resolve. There is no way to measure precisely how many people own firearms, let alone illegal firearms.

This is a significant observation since the basis of any quantitative research into the scope and harm of illegal firearms smuggling and trafficking would be based on the number of illegal firearms in circulation.

Dandurand (1998) argues, "survey research, usually measuring the number of firearms in a household, is still the best way to estimate the prevalence of firearms in a country or region. However, it may not be adequate because it may neglect to account for stolen and otherwise illegally owned firearms that are not likely to be reported in a survey. "The fact that survey respondents may systematically understate the number of firearms they own may also be an issue."

The current gaps in the research are the lack of comprehensive data on the number of illegal firearms in circulation in Canada, the source of these firearms, the extent to which firearms are smuggled into Canada, the extent to which illegal firearms are smuggled and trafficked by organized crime groups, the extent to which firearms smuggling and trafficking contribute to the scope and impact of organized crime in Canada, and the social costs that can be attributed solely to illegal firearms (smuggled and trafficked by criminal groups).

As far as prevalence and harm assessment research is concerned, the greatest need is data

on the extent of illegal firearms (and their source) in Canada and the development of rigorous methodologies to collect such data. One rigorous method that can be used to estimate the "hidden" population of illegal firearms in Canada is the capture-recapture method. Once this data has been collected, the social cost estimates developed from the afore-mentioned studies can potentially be applied to illegal firearms.

This represents a particularly cost-effective approach to estimating the scope and costs of illegal firearms, but as mentioned, there is a clear need for more encompassing research into the illegal firearms in this country.

While there have been a sufficient number of studies into the social costs of firearms that can be applied to the prevalence estimate of illegal guns, these studies generally do not take into consideration the direct and indirect social harms of those criminal groups and operations involved in supplying and using illegal firearms.

Illegal Drug Trafficking

Canadian research that estimates the scope and impact of illegal drug trafficking can be divided into that which focuses on the demand side (illegal drug consumption) and studies that collect information on the supply side (illegal drug trafficking, including importation and domestic production).

On the demand side, a number of studies have been carried out that estimate both the scope and impact of illegal drug use. These studies include those that are comprehensive in terms of national coverage of the general population (Eliany, Giesbrecht & Nelson, 1990; MacNeil and Webster, 1997; Single et al., 1996; 1998; Adalf et al., 2005; Rehm, et al., 2006) and those that provide quantitative data for youth (Adalf and Paglia, 1999; Poulin and Elliott, 2007). Much of the published data on the prevalence and impact of drug abuse are within the context of larger surveys measuring substance abuse. The exceptions are drug use surveys of students.

The main sources of published studies on the *scope* of substance (drug) use and abuse are the General Social Survey, National Population Health Survey, the Canadian Community Health Survey, and the National Longitudinal Survey of Children and Youth, all of which are conducted by Statistics Canada. In addition, other national and population-specific surveys that focus entirely on substance abuse have been conducted (Eliany, Giesbrecht and Nelson, 1990; MacNeil Webster, 1997; Adalf and Paglia, 1999; Adalf, 2005; Rehm, et al., 2006; Poulin and Elliott, 2007). The methodologies for these surveys should be considered as rigorous and the data reliable and generalizeable.

Studies have also been conducted that estimate the social costs of illegal drug use and abuse in Canada (Single et al., 1996; 1998; Adalf, 2005; Rehm, et al., 2006). These social cost estimates are based on the prevalence data collected through the afore-mentioned surveys and published studies. While suffering from the same shortcomings and limitations that plague drug abuse harm assessments generally, these studies do utilize rigorous research methods and analytical models. This includes use of the "cost of illness" framework and *The International Guidelines for Estimating the Costs of*

Substance Abuse (Single et al., 2003), as the basis for identifying harms, applying values to these harms, and developing estimates of the economic costs of drug use and abuse in Canada.

The existing drug use prevalence and harm research can be used as basis for ongoing research into the scope and costs of organized drug trafficking in this country. Extensive and reliable sources of primary data exist, including data collected through general population surveys, national population health surveys, and surveys specific to substance abuse and drug use. Rigorous research methodologies and data also exist in relation to estimating the social costs of drug abuse. Canada boasts a number of experts capable of developing and carrying out rigorous methodologies that estimate the scope and impact of illegal drug use, including Dr. Eric Single who is the principal author behind *The International Guidelines for Estimating the Costs of Substance Abuse.*

The literature review also identified a number of published studies that estimate the scope of illegal drug trafficking in Canada, including estimates on the quantity of drugs in the country, the volume that is imported and produced, and the number of production operations and traffickers. There is one main source of published information that provides comprehensive data on drug trafficking affecting Canada: the RCMP's drug situation reports, which are published on an annual basis. Information contained in these reports that are relevant to estimating the scope of the supply of drugs and the trafficking thereof include: Canadian drug seizures (number and amount seized broken down by substance), persons charged with drug-related offences, number of drug traffickers investigated by the RCMP (broken down by substance), and domestic drug production. Much of this information comes from law enforcement sources, both domestically (including police and Statistics Canada data) and internationally. These annual reports provide important quantitative and qualitative data on contemporary trends in illicit drug smuggling, production and trafficking as well as drug enforcement in Canada.

Canada Customs has also published studies on the supply of illegal drugs (Revenue Canada. Customs and Trade Administration Branch, 1999) and it is assumed that the Canada Border Services Agency continues to produce useful periodic reports on illegal drug importation that are classified.

Empirical studies that estimate the scope of illegal drug production and trafficking have also been conducted by Canadian scholars. This includes estimates of the size of the marijuana industry in British Columbia – including the number of illegal cultivation operations and volume and value of the crops produced (Chin et al., 2001; Plecas et al., 2002; 2005; Easton, 2004). Rigorous quantitative studies have also been conducted that estimate the scope of the marijuana industry in Quebec (Bouchard, 2007) as well as the number of drug traffickers operating in that province (Bouchard and Tremblay, 2005). While these studies are not national in scope, they are significant for the methodological precedence they set for future studies that estimate the scope of illegal drug production and trafficking in this country. The studies conducted into the B.C. marijuana industry by faculty at the University College of the Fraser Valley (Chin et al., 2001; Plecas et al., 2002; 2005) are notable for their survey of police cases. This is complimented by rigorous statistical modeling used by Easton (2004) to estimate the size of the B.C.

marijuana industry as well as the sophisticated capture-recapture quantitative analysis used by Bouchard and Tremblay (2005) and Bouchard (2007).

In sum, no studies or research projects were identified that comprehensively or quantitatively measure the scope or impact of organized drug trafficking in Canada. However, there are separate bodies of literature that entail reliable data sources and rigorous methodologies to estimate the scope of the demand and supply sides of the equation. This body of literature can form the basis for the design of future research that comprehensively measures, in quantitative terms and on a national level, the scope and impact of illegal drug trafficking in this country.

The goal would be to pull together this existing demand and supply-side research, identify any voids in data and knowledge that may exist as far as a comprehensive estimate of the supply and consumption of drugs, and address these voids. The agencies and researchers currently working in the areas of illegal drug supply and consumption prevalence and cost estimates can be brought together to integrate their research data (as well as methodologies) and to develop a methodology that more comprehensively estimates the scope and net harms of illegal drug supply and consumption.

This future research can access similar sources of data used in past studies and rigorous methodologies can be replicated to produce prevalence estimates. These prevalence studies can then be used as a basis for comprehensive cost estimates. Sufficient expertise exists in Canada to conduct both demand and supply-side prevalence and social cost estimates in the area of illegal drugs.

The most significant gap in this area of research is a comprehensive study that pulls together the demand and supply prevalence and social cost data for a more exhaustive national estimate of the scope and impact of the illegal drug trade in this country. No studies have been identified in Canada that comprehensively and rigorously estimate, in quantitative terms, the harms (social costs) of drug trafficking in its totality, although some studies have been published that qualitatively estimate the impact of marijuana growing operations generally (Richter, 1998), while another has examined the local impact of marijuana grow operations (Tyakoff, 2000). The greatest research need is comprehensive data on the supply side – that is, the scope of illegal drug importation, production and trafficking – which brings together UCR and other police-recorded data, enforcement statistics from the RCMP and the Canada Border Services Agency, and original data through, for example, a national survey of police drug cases. This data can then be analyzed using statistical modeling techniques, such as that used by Easton (2004), Bouchard and Tremblay (2005) and Bouchard (2007) (not to mention models used by studies from the U.S. and other countries).

Research that comprehensively estimates the scope and impact of the illegal drug trade in Canada can be conducted in a cost-effective manner given the existing expertise, studies, data source and replicable research methods and statistical models. However, research that attempts to provide accurate and comprehensive estimates of the scope and impact of the supply side of the illegal drug equation will require the development of nationally-representative data sources and data collection methods. Moreover, estimates of the

social costs of drug abuse may benefit from a national "arrestee survey," such as those conducted in the U.S., Britain and Australia, and which contribute to a greater understanding of the relationship between illegal drugs, crime, and criminal behaviour. These surveys are costly to administer, however, and may not be cost-effective in terms of contributing to existing social costs of drug use estimates.

Illegal Gambling

The literature review did not identify any studies that quantitatively measured and estimated the prevalence and impact of illegal gambling in Canada. A 1996 classified report by the Criminal Intelligence Service Ontario did provide estimates of the amount of money generated by illegal gambling in that province, although there are no indications as to how these figures were derived.

However, a number of prevalence and social cost studies have been conducted into legal gambling at the national level (Ferris and Wynne, 1999; 2000; 2001) and at the provincial level (Baseline Market Research, 1996; Wiebe, Single, and Falkowski-Ham, 2001; Wynne, 2002; Smith and Wynne, 2002; Volberg and Ipsos-Reid, 2003; Volberg, 2003; Wiebe, Mun and Kaufman, 2006; Schrans and Schellinck, 2008).

The data for these prevalence and cost studies are primarily from general population surveys. The data collection methods for these studies are rigorous and, at least at the national level, the studies utilize the Canadian Problem Gambling Index as a guide to identify and measure the harms realized from problem gambling.

The most significant gap in the current research is the absence of any studies that estimate the scope of illegal gambling and gambling operations in this country.

Beginning in 2005, questions were added to the UCR2 survey as to whether a particular criminal event was carried out by an organized crime group. This would produce data to isolate illegal gambling provided by organized crime. At the time of this report, this question is not part of the national UCR survey questionnaire (it is currently being tested with 20 percent of police agencies participating in the UCR2 Survey). Moreover, according to one official at the Canadian Centre for Justice Statistics, the number of positive responses to this question is quite low, which indicates under-reporting.

There is some potential that estimates of the scope of illegal gambling can be estimated using a combination of UCR survey, other original data from law enforcement (such as a survey of police cases), as well as existing population surveys that solicit information on gambling. A capture-recapture methodology can also potentially be used to estimate the hidden number of illegal gambling and bookmaking operations.

It is possible that the social costs of illegal gambling can then be estimated from the social cost data developed in the afore-mentioned studies that examine the impact of legal gambling. However, these estimates do not include the harms and social costs stemming from the contribution illegal gaming makes to organized crime groups (and other criminal activities).

Between those researchers who have estimated the scope and impact of legal gambling, as well as law enforcement officials and scholars with expertise in illegal gambling, there is sufficient expertise in Canada to conduct more comprehensive prevalence and harm assessment research into illegal gambling in this country. Research that comprehensively estimates the scope and impact of illegal gambling in Canada can be conducted in a cost-effective manner given the existing expertise, studies, data source and replicable research methods and statistical models. However, national research into the scope of illegal gambling operations should be undertaken, which will require the development of nationally-representative data sources and data collection methods.

Contraband Markets

A number of quantitative studies have been conducted to measure the size of the underground economy, and more specifically, criminal (contraband) markets. While the objective of most of these studies has been to estimate the size of the underground economy as a whole, there are others that have collected quantitative data on, and measured the size (monetary value) of specific markets associated with legal goods that are traded on the black market (primarily through smuggling or illegal production). Some examples of the studies that have attempted to quantitatively measure contraband supply and size of contraband markets in Canada include:

- liquor (FIA Specialist Investigations Group Inc. 1997; Liquor Control Board of Ontario, 1997; KPMG, 1999c);
- tobacco (Revenue Canada, 1997b; KPMG, 1999b; Canadian Convenience Stores Association**,** 2008; GfK Research Dynamics**,** 2008**;** Leger Marketing**,** 2008);
- jewellery (Department of Finance, 1993; Revenue Canada, 1997b);

Canada has benefited from twenty years of research into the underground economy generally (Mirus and Smith, 1981; Frey and Weck-Hanneman, 1984; Ethiér, 1985; Karoleff et al., 1993; Gervais, 1994; Mirus and Smith, 1997; Smith, 1997). A question that is of most relevance to this study is the extent to which criminal markets make up the underground economy.

With respect to contraband tobacco specifically, the literature review identified three recent studies that measure the size of the illegal market in Canada (Canadian Convenience Stores Association, 2008; GfK Research Dynamics, 2008; Leger Marketing, 2008).

GfK Research Dynamics (2008) boasts that their study is the "only national study that measures just how big the problem of illegal tobacco sales is in Canada." The methodology entailed a nationally representative sample of Canadians who were interviewed in their home. After the initial part of the in-home interview, respondents were invited to allow interviewers to take with them their current cigarette pack and product for analysis. The *Youth Contraband Tobacco Study* conducted by the Canadian Convenience Stores Association (2008) also used an innovative design: the anonymous collection of cigarette butts at smoking locations on public lands around high schools. The findings of the research are based on a count of the legal, illegal and unknown butts.

Leger Marketing (2008) conducted a web-based survey of a random sample of adult residents in Ontario and Quebec to measure consumption of contraband cigarettes while Researchology (2007) surveyed convenience stores on their perception of contraband tobacco sales (but did not include questions as to whether they sold contraband tobacco).

In addition to the traditional population surveys, the contraband tobacco studies used innovative research designs, in particular the sampling of tobacco products (and butts) to identify the proportion which is contraband. Although somewhat unorthodox, the methodology for these studies should be considered as rigorous. These data can be used as a basis for social cost estimates for contraband tobacco. In particular, the social costs of tobacco use that is generated from substance abuse studies (e.g., Rehm et al., 2006) can be applied to the contraband tobacco consumption estimates generated from the afore-mentioned studies.

The literature review did not identify any study that comprehensively estimated the impact of the organized contraband tobacco trade in this country. Important research has been conducted that estimates the consumption of contraband tobacco (see above) and the social costs associated with smoking (Single et al., 1996; Rehm et al. 2006). These two bodies of research can be combined to produce estimates of the social costs of the consumption of contraband tobacco. The most significant gap in the current research is the absence of any studies that quantitatively estimate the scope of the supply side of the contraband tobacco market, such as the volume of cigarettes smuggled into the country, the volume produced by unregulated manufacturers, and the number of groups (and individuals) involved in the smuggling, production, wholesaling, etc. This information would be an important foundation to develop estimates of the harms associated with the supply-side of the contraband tobacco trade.

Studies like those conducted by GfK Research Dynamics (2008) and the Convenience Stores Association (2008) in which tobacco products (and refuse) are examined and tested can provide some indication as to their (illegal) source (i.e. smuggled into the country or unregulated domestic production). This data can be complemented by police, customs, and excise enforcement data as well as surveys among retailers to estimate the volume of contraband tobacco products sold through legitimate outlets (which would be complemented by data that estimates the proportion sold by "street-reported" vendors).

Another related research gap, also on the supply side, is the lack of estimates of the direct and indirect social harms of those criminal groups and operations involved in supplying contraband tobacco that is outside of the social harms realized through consumption of tobacco (e.g., the impact of violence by these groups, impact of contraband smuggling and illegal production on first nations' communities, impact of lawlessness and corruption within communities brought about by tobacco smuggling and production, etc.).

Research that comprehensively estimates the scope and impact of the contraband tobacco trade in Canada can be conducted in a cost-effective manner given the existing expertise, studies, data sources and replicable research methods and statistical models. However, research that attempts to provide accurate and comprehensive estimates of the scope and

impact of the supply side of contraband tobacco will require the development of nationally-representative data sources and data collection methods.

Product Piracy (Copyright infringement)

Little quantitative research into the scope or impact of product piracy (copyright infringement) has been conducted in this country. One RCMP (2000a) study uses a case study approach to qualitatively assess the impact on Canadian companies. This case study was a complainant in a relevant RCMP copyright infringement investigation.

The International Anti-Counterfeiting Coalition has provided estimates of the size of the Canadian market in forged products in terms of dollar amount. It also provides estimates for other countries. However, this study was not able to ascertain the source of these estimates and how they were derived. The IACC also provides information on how product piracy affects societies, including the impact on legitimate manufacturers and safety risks for consumers of contraband. However, the information, presented on its web site, is only presented in qualitative terms.

An Australian study by Malik (2008) is the one study identified in the literature review that attempts to provide comprehensive estimates of the impact of product piracy. This methodology can be used as a basis for similar costs estimates in Canada; however, this can only proceed once more reliable estimates of the scope of product piracy in this country are made. Further, prevalence estimates should also take into consideration the extent to which Canada produces counterfeit products (especially given the evidence that Canada is home to many product counterfeiting operations).

The challenges of estimating the scope and impact of product piracy are significant. This is due to its inherently hidden nature and the vast array of copyrighted products that are counterfeited and/or sold in Canada. Any research in this area would have to include data on the scope of domestic production, counterfeit goods smuggled into the country, the domestic consumption of counterfeit goods, as well as the foreign consumption of counterfeit goods produced in Canada. (The domestic counterfeiting of computer software, video games, digital entertainment products, and designer clothing or handbags has a significant impact on manufacturers and copyright holders that are outside of Canada. This raises a larger question: should studies that estimate the social costs of organized crime in Canada factor in harm that occurs to foreign actors outside the country?). As with other criminal activities, estimates of the scope and impact have to take into consideration both the supply and demand sides of the equation.

The methodological challenges presented by the inherent nature of product piracy and copyright infringement are complicated by the lack of research or research methods that have been implemented in Canada. However, the research conducted by the IACC is a starting point and can be complemented by original research in Canada that includes use of UCR data, a survey of police cases, and a survey of the general population. Research into this area also benefits from the expertise and methodologies that have measured the scope of other contraband in this country.

Credit Card Fraud

The literature review did not identify any comprehensive studies that measured the scope and/or impact of credit card fraud in Canada. However, reliable statistical data that can help facilitate measurements into the scope and impact of credit card fraud are collected by the Canadian Bankers Association (and have been collected since 1983) and include statistics on the total number of "fraudulently used" cards and the financial losses to banks and credit card issuers (although the sources of this information are the credit card companies). The CBA has recently established a new intelligence unit to help track credit card fraud.

Future studies into organized credit card fraud would benefit greatly from the CBA data. Any study that examines the scope and impact of predatory crimes such as credit card fraud should also include information that is gleaned directly from victims, other than those in the financial services sector (i.e., credit card holders). In Canada this information can be collected through a victimization survey. To increase cost-effectiveness, a national survey could be undertaken that solicits victimization information from a variety of victim-based fraud offences (or, more broadly, victim-based organized crimes in general). The results of a national victimization survey can be extrapolated to the national level to estimate the overall scope of the problem. Such a survey can solicit information that includes the impact of the crime on victims. In addition to the direct monetary losses resulting from victimization, cost estimates could be applied to more intangible impacts, such as emotional and psychological pain and suffering or time spent dealing with the aftermath of the problem. The information could also be extrapolated to the national level.

In addition to estimating the scope and impact of victimization, efforts should also be undertaken to estimate the scope (number) of credit card counterfeiting operations in the country. Examining, quantifying, and extrapolating UCR2 survey data is one option to estimate the number of such operations. Beginning in 2005, questions were added to the UCR2 survey as to whether a particular criminal event was carried out by an organized crime group. This would produce data to isolate credit card fraud committed by organized crime. At the time of this report, this question is not part of the national UCR survey questionnaire (it is currently being tested with 20 percent of police agencies participating in the UCR2 Survey). According to one official at the Canadian Centre for Justice Statistics, the number of positive responses to this question is quite low, which indicates under-reporting.

Another potential option is to conduct a survey of police cases. However, this would have to entail a survey of different police agencies, as there is no centralized database of police cases. Moreover, such a survey would be plagued by the weaknesses inherent in surveying police databases for prevalence surveys: in particular the under-reporting and lack of representative samples of actual criminal incidents. A rigorous methodology that can potentially facilitate a reliable estimate of the number of deceptive and fraudulent credit card counterfeiting operations and even the number of fraudulent credit cards is capture-recapture. There is also the potential that the methodology used by John Chant

(2004) to measure the amount of counterfeit currency in circulation can be applied to credit cards.

Based on the prevalence estimates of counterfeiting operations, cost estimates can be applied to the impact of such operations beyond the harms experienced by victims, such as how credit card fraud contributes to organized criminality and other major and serious crimes. Examples of such impacts include how the revenues from credit card fraud contribute to the continuation of the criminal group (which in turn gives rise to other harms, such as violence). Similarly, the estimates could factor in harms from other criminal activities (such as drug trafficking) or other forms of major serious crimes (such as terrorism) that are funded by the revenues from telemarketing fraud.

Important guidelines for designing a methodology to measure the scope and impact of credit card fraud can be obtained from numerous studies into the problem conducted by Michael Levi (see: Levi et al., 2007; Levi and Burrows, 2008).

Currency Counterfeiting

A 2004 working paper published by the Bank of Canada by economics professor John Chant of Simon Fraser University provides an analysis of the economic costs of currency counterfeiting and proposes a method for estimating the quantity of counterfeit Canadian currency in circulation in 2001. This "alternative composite (COMP) approach" is proposed as a more accurate alternative that overcomes some of the limitations of existing methods used in the United States.

The Retail Council of Canada, along with PriceWaterhouseCoopers conduct the Canadian Retail Security Survey which conducts an annual survey of large retailers and captures some relevant information on the extent to which retailers are passed counterfeit currency (PriceWaterhouseCoopers and Retail Council of Canada, 2008)

As the central authority over currency, the Bank of Canada publishes, on a monthly basis, the number and value of counterfeit bank notes detected. As John Chant (2004) notes, "the detection data have economic significance in that they indicate those losses realized by the public through the acceptance of counterfeit currency. But these costs are only a part of the economic cost of counterfeiting. This measure also provides an indication of the level of counterfeiting activity, albeit with an uncertain lag."

The RCMP house the National Anti Counterfeiting Bureau (NACB), which includes as its mandate the forensic examinations of suspect currency (as well as government travel documents and credit cards, to determine if they are genuine). The NACB also is tasked with classifying and recording information pertaining to banknotes (and counterfeit travel documents) and disseminates this information to Canadian law enforcement and to foreign partner agencies on a bilateral basis.

In sum, the COMP approach appears to be a rigorous approach to estimate the value of counterfeit currency in circulation. Based on the prevalence data produced by this research, estimates can be constructed as to the costs of counterfeit currency to different

actors (the Bank of Canada, individuals and businesses left holding fake bank notes, etc.). This is complimented somewhat by the Canadian Retail Security Survey, which estimates the extent to which large retail stores are victimized by counterfeit currency. This study has its limitations because it only surveys large retail outlets and collects only minimal data on their exposure to counterfeit currency (including no information on the impact of this victimization).

One alternative option is to undertake a victimization survey of companies that specifically focuses on counterfeit currency. To increase cost-effectiveness a survey could be administered that solicits information on a variety of organized criminal activities that victimizes private sector firms (financial instruments fraud, credit card fraud, theft, cheque kiting, etc.). Regardless, the results of a national private sector victimization survey can be extrapolated to the national level to estimate the overall scope of the problem. Such as survey can solicit information that includes the impact of the crime on victim-companies. The information could also be extrapolated to the national level.

No data exists nor has a method been implemented to estimate the number of currency counterfeiting operations in effect and/or the number of criminal groups or individuals. Nor has existing cost estimates, such as that developed by John Chant, factored in the harms and social costs associated with organized crime's involvement in currency counterfeiting, such as how it contributes to organized criminality and funds other major and serious crimes, such as drug trafficking or terrorism. The NACB does not appear to be of much utility in helping to supply these estimates, as it operates primarily as a forensic support unit. A survey of RCMP cases may be used to provide prevalence estimates concerning the role of organized crime in currency counterfeiting.

Identity Theft/Fraud

It does not appear that existing population surveys conducted in Canada, such as the General Social Survey, or the National Crime Victimization Survey, gather information on identity theft (unlike the National Crime Victimization Survey in the U.S. which added relevant questions in 2004).

One Canadian study that focused specifically on estimating the scope and impact of identity theft/fraud was identified as part of the literature review (Sproule and Archer, 2008). One of the goals of the study was to determine the nature, extent and impact of identity theft and fraud. A survey of 3550 adult Canadians was conducted asking them if they had ever been a victim of identity theft. This research should be considered rigorous and provides a strong basis for national estimates of the social costs stemming from identity theft/fraud victimization.

Future surveys concerning identity theft could be integrated into a broader survey that solicits victimization information for a variety of victim-based fraud offences (or, more broadly, victim-based organized crimes in general). The results of a national (organized crime) victimization survey can be extrapolated to the national level to estimate the overall scope of the problem. Such as survey could also solicit information that includes

the impact of the crime on victims. In addition to the direct monetary losses resulting from victimization, cost estimates could be applied to more intangible impacts, such as emotional and psychological pain and suffering or time spent dealing with the aftermath of the problem. The information could also be extrapolated to the national level.

As with other organized crime activities, the most glaring gap in the research concerning the scope of identity/theft fraud is with respect to the criminal groups that perpetrate such crimes. In order to provide a comprehensive estimate of the social costs of identity theft, research needs to be undertaken to examine the number of criminal groups perpetrating such crimes as well as the social harms arising from such groups (beyond the impact on the victim of identity theft/fraud), such as the use of violence by these groups, how the proceeds from identity theft/fraud are used to fund other criminal or terrorist activities, etc.

In order to estimate the scope of identity theft/fraud operations, police-recorded data can be used. At present, UCR data is not helpful because there is no separate offence for identity fraud. (A bill to create such an offence is before Parliament and is expected to pass. As such future UCR data specific to identity fraud should be available.) Another potential option is to conduct a survey of police cases. However, this would have to entail a survey of different police agencies, as there is no centralized database of police cases. Moreover, such a survey would be plagued by the weaknesses inherent in surveying police databases for prevalence surveys: in particular the under-reporting and lack of representative sample of actual criminal incidents.

An important source of information that can that can complement consumer surveys and police-recorded data comes from Equifax, a credit rating agency. Equifax does tabulate identity fraud statistics and maintains identity fraud statistics dating from 1998.

Deceitful and Fraudulent Telemarketing

No rigorous studies measuring the scope and/or impact of telemarketing fraud in Canada was identified by the literature review. A Canadian Press article from 2002 quoted Toronto police as saying there were about 150 telemarketing boiler rooms in the city. The RCMP in Montreal stated that at least fifty were located there, collectively generating around $60 million in revenue annually. No further information was provided as to the how these figures were derived.

As far as availability of data in Canada is concerned, there is one specialized government database of victim-reports of deceitful telemarketing: Project PhoneBusters, a national call centre operated under the shared management of the Ontario Provincial Police, the Royal Canadian Mounted Police and the Competition Bureau Canada. PhoneBusters receives and responds to complaints and requests for information from the public on deceptive telemarketing, advanced fee fraud letters, and identity theft complaints. It also maintains a database of reports and publishes periodic statistical data based on reports filed by victims and others. Phonebusters publishes quantitative data on complaints reported to them, but there does not appear to have been any research that extrapolates this data to estimate the overall scope or impact of the problem in Canada as a whole.

On October 3, 2003 the Federal Solicitor and RCMP Commissioner launched a new Internet-based tool for reporting economic crimes online (or RECOL). RECOL is a web-based (www.recol.ca) crime reporting centre for individuals wishing to make a complaint concerning suspected frauds and other white-collar crimes. The complaints are then directed to the appropriate law enforcement agency or other relevant organization. According to the web site, "RECOL is an initiative that involves an integrated partnership between International, Federal and Provincial Law Enforcement agencies, as well as, with regulators and private commercial organizations that have a legitimate investigative interest in receiving a copy of complaints of economic crime." RECOL receives, collects and publishes statistics on a number of activities that may involve organized crime. These include: advance fee fraud, corruption (bribery), counterfeiting, fraudulent bankruptcy, property fraud, identity fraud, investment fraud, on-line auction fraud, and health care insurance fraud among others.

Any study that examines the scope and impact of predatory crimes such as telemarketing fraud should entail information that is gleaned directly from victims. Within Canada this information can be collected from a number of sources. The databases maintained by Phonebusters and RECOL are two potential sources of data for prevalence and harm assessment research into telemarketing fraud (as well as other forms of fraud). However, national population surveys, such as the General Social Survey or the national crime victimization survey would ensure a more representative sample.

To increase cost-effectiveness, a national survey could be undertaken that solicits victimization information from a variety of fraud offences (or, more broadly, victim-based organized crimes in general). The results of a national victimization survey can be extrapolated to the national level to estimate the overall scope of the problem. Such as survey can solicit information that includes the impact of the crime on victims. In addition to the direct monetary losses resulting from victimization, cost estimates could be applied to more intangible impacts, such as emotional and psychological pain and suffering or time spent dealing with the aftermath of the problem. The information could also be extrapolated to the national level.

As with other organized crime activities, the most glaring gap in the research concerning the scope and impact of telemarketing fraud is with respect to the criminal groups that perpetrate such crimes. In addition to estimating the scope and impact of victimization, efforts should also be undertaken to estimate the scope (number) of deceitful and fraudulent telemarketing operations in the country. Examining, quantifying, and extrapolating police-recorded data is one option to estimate the number of such operations. However, there are significant shortcomings in this approach. In particular, there are no Criminal Code offences specifically related to *telemarketing* fraud in Canada (offenders are generally charged with the omnibus *Criminal Code* Section 380 fraud offence). Statistics Canada's UCR surveys group all fraud cases into one general category precluding any analyses specific to telemarketing fraud. Thus, UCR data would be insufficient to estimate the scope of telemarketing fraud in Canada.

A survey of misleading advertising and deceptive marketing cases as charged and prosecuted under the *Competition Act* should be explored as an option to estimate the

number of deceitful telemarketing operations.

Another potential option is to conduct a survey of police cases. This would circumvent the problem with the non-specific nature of the UCR data because only cases involved telemarketing operations could be selected and surveyed (or a general survey of fraud cases could be surveyed). However, this would have to entail a survey of different police agencies, as there is no centralized database of police cases. Moreover, such a survey would be plagued by the weaknesses inherent in surveying police data bases for prevalence surveys: in particular the under-reporting and lack of representative samples of actual criminal incidents.

A rigorous methodology that can potentially facilitate a reliable estimate of the number of deceptive and fraudulent telemarketing operations is capture-recapture.

Based on the prevalence estimates of telemarketing operations, cost estimates can be applied to the impact of such operations beyond the harms experienced by victims, such as how telemarketing fraud contributes to organized criminality and other major and serious crimes. Examples of such impacts include how the revenues from telemarketing contribute to the continuation of the criminal group (which in turn gives rise to other harms, such as violence). Similarly, the estimates could factor in harms from other criminal activities (such as drug trafficking) or other forms of major serious crimes (such as terrorism) that are funded by the revenues from telemarketing fraud.

Using both victim-reported data (from population or victimization surveys) and police-recorded data (from surveys of police cases specifically dealing with telemarketing offences) also facilitates external validity tests by comparing and contrasting the results of each.

One issue that needs to be resolved when developing a methodology to estimate the scope and impact of telemarketing fraud is whether residents of other countries who have been victimized by Canadian-based operations should be included in the estimates. This gives rise to a larger question: Should the “foreign” impacts of Canadian-based organized crime be incorporated into harm estimates.

Organized Motor Vehicle Theft

In Canada, there are two surveys that collect nationally representative data on motor vehicle theft. One is the Uniform Crime Reporting Survey, which gathers information on all motor vehicle thefts that are reported to, and substantiated by, police services. The other is the General Social Survey, which collects information from Canadians who self-report criminal victimizations. Through its UCR2 survey, Statistics Canada collects data on the scope of motor vehicle theft in Canada. This statistical data is published on an annual basis and can be broken down in a number of ways, including a provincial breakdown as well as the age of the offender. Beginning in 2005, questions were added to the UCR2 survey as to whether a particular criminal event was carried out by an organized crime group. This would produce data to isolate organized auto theft from the unorganized variety. At the time of this report, this question is not part of the national

UCR survey questionnaire (it is currently being tested with 20 percent of police agencies participating in the UCR2 Survey). Moreover, according to one official at the Canadian Centre for Justice Statistics, the number of positive responses to this question is quite low, which indicates under-reporting.

Statistics Canada has also published statistics and other research on automobile theft (Wallace, 2004). Outside of the UCR2 survey, neither the police nor Statistics Canada, however, collect or analyze quantitative data that focuses on organized auto theft. As Stats Canada reports, "the extent to which organized crime groups are responsible for motor vehicle theft is difficult to measure." Instead, the Canadian Centre for Justice Statistics relies on estimates of the number of cars stolen by organized crime which have been developed by other government agencies.

In addition to Statistics Canada, the RCMP has published studies on organized auto theft (Mogck and Therrien, 1998). Specific operational and intelligence gathering projects also collected potentially relevant information. For example, in Halifax in 2008 an initiative by the RCMP and Canada Border Services Agency involved the search of departing marine containers, which resulted in the seizure of 347 stolen vehicles with a value of $10 million.

As an alternative to measuring the number of cars stolen, Collins and Wallace (1990) estimate the number of car thieves in the Australian Capital Territory. The source of their data is arrest records and they use different statistical modeling techniques to arrive at an estimate. To measure internal validity, they use goodness of fit techniques and to measure external validity they compare their findings against other reliable estimates.

The Insurance Bureau of Canada (IBC) also collects and publishes information on (organized) automobile theft. According to one representative of the IBC interviewed for this study, the Bureau works with the CCJS conducting auto theft surveys. Insurance industry impact statements are prepared for auto thefts and resulting injuries. These are used by Crown counsel and police at sentencing and bail hearings to show the financial and social impacts of auto theft. The IBC provided the Department of Justice with a report on auto theft across Canada, which formed the basis for a judicial study on organized auto theft for Justice Ministers. The IBC relies on staff working in the area of auto theft and injuries to identify trends and provide information to insurance companies. (To track insurance fraud, the IBC has proposed that every insurance claim in Ontario be entered into a data base; modeling tools would then be used to identify trends. The IBC representative suggested this approach could be used for other types of fraud, such as mortgage fraud.)

There is no comprehensive reporting system that captures and links incidents involving stolen vehicles and related injuries and deaths. The Insurance Bureau of Canada has published estimates of the cost of auto theft. For example, in a five-page 2004 circular entitled "Impact of Auto Theft," the IBC wrote:

> "IBC's data indicates that auto theft costs insurers, and therefore insured Canadians, over $600 million a year. This translates to $43 per premium annually.[17] Further, analyses of IBC's data, together with an independent Standard and Poor's study commissioned in 2000 by IBC, show that auto theft costs Canadians more than $1 billion in total, if one also considers non-insured vehicle theft, health care, court, policing, legal and out-of-pocket costs, such as deductibles".

No details were provided on the methodology used to estimate the costs of automobile theft and no specific estimates were provided for the organized variety.

At present there are reliable and accurate data and data sources to estimate the scope of auto theft in Canada; Statistics Canada collects statistical data from police-recorded and victim-reported surveys. This data is complimented by information collected and analyzed by the Insurance Bureau of Canada, provincial automobile insurance companies, and the RCMP. This information is collected in a cost-effective manner through the mandated functions of the afore-mentioned agencies.

However, there are no rigorous methods to isolate motor vehicles stolen by well organized criminal groups. Using the number of stolen autos not recovered (and presumably exported) as a proxy for organized auto theft has become a commonly accepted and cost-effective estimation approach in Canada and other countries, although the use of this proxy is not necessarily based on science.

This research did not identify any rigorous methodology or analytical models in Canada or elsewhere that can accurately estimate the impact of organized auto theft. This stems in part from the absence of reporting systems, data bases, and research that collects and analyzes information on the social costs of auto theft (losses to victims, insurance companies, injuries due to "joyriding") as well as the absence of information on impacts specific to organized auto theft (e.g., impact of autos leaving the country, subsequent revenues used to fund other criminal or terrorist activities, etc.). The IBC has provided estimates of the costs of auto theft, and they appear to be fairly comprehensive in that they take into consideration "non-insured vehicle theft, health care, court, policing, legal and out-of-pocket costs, such as deductibles." Moreover, like almost all organized criminal activities that are the subject of harm estimates, there does not appear to be any accounting of how auto theft contributes to organized criminality and other major and serious crimes. In other words, the estimates do not take into account how the revenues from auto theft contribute to the continuation of the criminal group (which in turn gives rise to other negative impacts, such as violence). Similarly, the estimates do not factor in impacts from other criminal activities (such as drug trafficking) or other forms of major serious crimes (such as terrorism) that are funded by the revenues from automobile theft.

The convention of tracking (organized) auto theft by the number of cars stolen is perhaps the most reliable (and cost-effective) technique to measure this criminal problem (as

[17] This figure based on the total dollar amount of losses ($610.6 million) divided by the number of vehicles (14,184,339) which are insured for theft in Canada.

opposed to measuring and estimating the number of individuals involved in car theft). Despite the lack of scientifically-derived estimates that isolate the involvement of organized crime, the UCR2 data should be considered as a reliable and cost-effective measure of organized auto theft. This data should be supplemented with crime victimization data (collected through the GSS or specific crime victimization surveys). Any enhancements to this data collection should revolve around developing more scientific models of the proportion of motor vehicles stolen by criminal organizations (which would include maximizing the reliability of criminal organization data collected through the UCR2 survey).

As far as measuring the impact of (organized) auto theft, government authorities can (1) use data collected by the Insurance Bureau of Canada; and (2) work with the IBC to develop more scientific methods to estimate the costs of auto theft and organized auto theft in particular. While the IBC has only provided cost estimates for auto theft in general, costs specific to organized auto theft can be estimated by using the proportion of non-recovered cars that is used to estimate the number of cars stolen by organized groups.

Contribution of Harm Assessment Research and Models to Organized Crime Control Policies and Programs in Canada

To what extent has the impact/harm research informed organized crime control policies, programs, and operations?

Despite the availability of data and studies that measure the scope and estimate the costs of various (organized) criminal activities, primary research conducted for this project revealed that this information is generally not used for policy, program, or police operational purposes. Interviews with federal and provincial criminal justice policy makers and researchers as well as law enforcement management, operational personnel and criminal intelligence personnel generally agreed that there has been a reluctance to use such research to inform policy or, within police departments, to use such data for strategic purposes. This is due, in part, because of the criticism over the reliability of the results of such data, which stems in part from criticism of the rigor of the methodology (this is especially true of the RCMP's HPS, which has been criticized as relying too heavily on the subjective interpretations of law enforcement officials).[18]

[18] In contrast, the RCMP and other law enforcement agencies have utilized threat assessment models to prioritize targeting of crime groups. "Although the harm component has yet to find its place within Canadian law enforcement, the threat element of criminal organizations has been in place since 2000. Developed using the Delphi methodology, the Sleipnir model is a threat measurement technique used to rank order criminal groups according to a set of attributes as the basis of a criminal picture (RCMP, 2000b). For eight years, this tool has allowed the prioritization of known organized crime groups thus enabling the RCMP to make more informed decisions to effectively deploy resources to the highest threats" (RCMP, 2008, 1-2).

Interview participants working in Canadian criminal justice sector lamented a broader problem: the lack of measures that law enforcement agencies and integrated units can use to measure their effectiveness. Most individuals in the criminal justice sector interviewed for this study acknowledged that they do a poor job of monitoring and evaluating their policies, programs, and enforcement strategies and operations. In many cases, police managers are only able to provide anecdotal and subjective evidence about the impact of a policy, program, enforcement strategy, or outcome of a tactical operation. Moreover, any (quantitative) evaluative data, whether it is anecdotal or the product of rigorous evaluation studies, tend to focus on outputs (e.g., seizures, arrests, increased inter-agency partnerships etc.) and not on outcomes (i.e., harm reduction).

Officials with the OPP and the Toronto Police Service indicated that they are effective in measuring results when it comes to reducing the impact of organized crime. The OPP employs both a tactical and strategic intelligence component which effectively measures the scope of organized crime activities in the province, the threats posed by different criminal groups (through Criminal Intelligence Service Ontario's Integrated Provincial Threat Assessment), as well as the impact of enforcement efforts on disrupting organized crime groups. Through this information, they are able to better understand the crime group being targeted. After enforcement action is taken, they are then able to assess the effectiveness of their efforts in terms of disrupting or dismantling the organized crime group or activity through the continued monitoring of those involved, as well as the continued evaluation of source information in the impacted area of operation. Despite this, resources are not allocated and operations evaluated according to the level of harm that is present and/or lessened by enforcement actions. According to the senior OPP official interviewed for this research, the agency's intelligence and statistical information does not comprehensively measure the harm to communities caused by organized crime.

The Toronto Police Service has implemented a measurable harm index for organized crime which is specific to crime groups within the GTA. In general, however, police do not measure the impact of their investigations based on whether it has reduced harm. Law enforcement officials interviewed for this project admit their agencies lack the resources, expertise, and, data to conduct such assessments.

Police officials, and others interviewed for this research, acknowledge the need for more rigorous, scientific, and meaningful indicators as to the effectiveness of police operations and specific strategies, as well as broader government control efforts. Two sets of quantitative indicators that police and other government agencies can use to better assess whether control strategies are effective are: (1) the scope of a criminal group or size of illicit market supply (contraband tobacco, drugs, pirated movies, etc. and (2) the harm that is delivered by criminal groups, activities, and markets.

For the most part, because so little research is conducted that collects data on the scope and impact of organized criminal activities, groups, and markets, there is little empirical data available to help develop, guide, and/or evaluate policies and programs. The one prominent exception is the findings from substance abuse prevalence surveys and costs of drug abuse studies that have helped guide the national drug strategy (as well as other provincial and local drug control initiatives). Government officials interviewed for this

study, however, suggest that if more data of this kind were available, it could potentially be of value to a wide range of organized crime policies and programs.

Organizations and Agencies Involved in Organized Crime Prevalence and Harm Assessment Research in Canada

What organizations and agencies have been involved in (organized) crime prevalence and harm assessment research in Canada? What are the foci of these studies?

The agencies, organizations, and professionals involved in collecting quantitative data on organized crime in Canada can be divided into the following categories:

1. governmental statistical (census) data collection agency;
2. criminal justice agencies;
3. other government agencies;
4. clinical and epidemiological research centres dedicated to substance abuse,
5. industry bodies and professional associations,
6. private sector consulting and research firms, and
7. university-based researchers and research centres

Statistics Canada and the Canadian Centre for Justice Statistics

A section within Statistics Canada – the Centre for Justice Statistics – is responsible for administering a number of crime and justice surveys, including the Uniform Crime Reporting (UCR/UCR2) Survey,[19] which includes data on the frequency of criminal occurrences commonly associated with organized crime. Other surveys administered by the CCJS that could potentially yield information of relevance to measuring the scope and impact of organized crime are the Homicide Survey, the Police Administration Survey, the Crime Victimization Survey, the Adult Court Survey, and Youth Court Survey.

Statistics Canada is also responsible for the General Social Survey, which is administered to a nationally-representative sample of Canadians and includes questions on crime victimization. In addition, it administers the National Population Health Survey, the Canadian Community Health Survey, and the National Longitudinal Survey of Children and Youth, which include questions that can solicit information that measures the scope and impact of illegal drug use in the country.

While none of these surveys address organized crime specifically, the UCR/UCR2 data does track criminal offences associated with organized criminality, such as drug

[19] The Uniform Crime Reporting (UCR) Survey reflects data reported by police services covering virtually 100% of the population of Canada. The incident-based UCR2 survey captures more detailed information on individual criminal incidents, including characteristics of incidents, victims and accused persons. However, this survey is administered to a smaller proportion of police agencies (Dauvergne, 2008).

trafficking, fraud, gambling, trafficking in people, and money laundering, to name just a few. CCJS also periodically conducts special studies that examine organized crime issues. Of particular relevance is a special survey of police forces on organized crime that was undertaken by the CCJS (Suavé, 1999) as part of an international pilot survey coordinated by the United Nations Centre for International Crime Prevention. More recently, it has issued a report examining the role of organized crime in automobile theft (Canadian Center for Justice Statistics, 2004).

The CCJS also publishes reports that combine its statistical data with other empirical information for a more in-depth examination of selective crime issues. One report issued by CCJS indicates that the collation of data from different surveys can be used to track a significant social harm related to drug trafficking and use: violence. A Juristat report entitled "Trends in Drug Offences and the Role of Alcohol and Drugs in Crime" from 2002 summarizes such police-recorded drug crime data as the overall "drug crime rate," (which includes a demarcation by individual drugs, such as heroin, cocaine, cannabis), possession offences, trafficking offences, importation and production offences, and drug related homicides. According to a synopsis of the study, "From 1992 to 2002, about one in 10 homicides involved activities such as trafficking or the settling of drug-related accounts. Cocaine was involved in 60% of these drug-related homicides ... 684 homicide incidents in Canada were reported to be drug-related, representing 11% of all incidents during that period. Cocaine was involved in 60% of drug-related homicide incidents, while cannabis was involved in 20%, heroin in 5% and other unspecified drugs in 15%. In addition, 26% of all drug-related homicides were also gang-related" (Statistics Canada, 2004).

Finally, Statistics Canada has been involved in examining ways in which more robust and reliable information on organized crime can be collected in this country. The most notable initiative in this area was a 2002 study that examined the feasibility of collecting police-recorded data on organized crime. Based on its research findings, this report examined a number of options. One recommended option – modification of the UCR2 survey in which police indicate if a criminal offence was committed by an organized crime group – was implemented in 2005.

In short, Statistics Canada, and CCJS in particular, plays an important role in helping to measure the scope and impact of organized crime in this country. Through the Canadian Centre for Justice Statistics, it is responsible for the Uniform Crime Reporting surveys. Statistics Canada also administers other surveys that can help measure victimization and the scope and impact of drug consumption. It periodically issues reports and publishes articles that provide an in-depth quantitative analysis of organized crime issues and has the capacity (albeit limited by finite resources) to conduct special surveys of organized crime-related issues, including research design issues, on a national basis.

Criminal Justice Agencies

Within Canada's criminal justice community, law enforcement agencies are the main sources of quantitative information on (organized) crime. Apart from their role in

providing data for the UCR/UCR2 surveys, these agencies maintain databases from which samples of police cases or criminal occurrence reports can be drawn and then surveyed for quantitative research purposes.

Police agencies in Canada, in particular the RCMP, are also actively involved in collecting and analyzing quantitative data to produce reports (including those for public consumption) that measure the scope of certain criminal activities. The quantitative information presented in these reports is largely based on enforcement data (e.g., arrests, seizures, etc.). As far as measuring the scope of organized criminal activities, the most notable public report is the RCMP's annual drug situation reports. The RCMP, the Canada Border Services Agency, and other federal enforcement agencies also periodically produce classified threat assessments and other intelligence reports, although the information in such reports are usually qualitative in nature. In addition to law enforcement agencies, the Canadian Correctional Services has conducted quantitative research related to organized crime, including one study that estimated the number of offenders in federal custody (either in prison or some type of community supervision) with ties to a criminal organization (Correctional Service Canada, n.d.). Although technically not a criminal justice agency, the Canadian Security Intelligence Service has conducted studies into organized crime, with particular emphasis on assessing the national security threats posed by transnational crime groups (Canadian Security Intelligence Service, 1998). Like most criminal and national security intelligence products, information presented in these reports on the scope of, and threat posed by criminal groups are qualitative in nature.

Criminal intelligence units and agencies also maintain databases and produce tactical and strategic research reports dealing with organized crime. However, the information contained in these databases and reports are primarily qualitative in nature. With that said, national agencies, such as the Criminal Intelligence Service Canada, can potentially play an important role in facilitating the collection and analysis of quantitative information on of organized crime through its bureaux located in each of the province. In its annual reports, the CISC has also begun to describe the impacts of organized crime on society (Criminal Intelligence Service Canada, 2004), but again this information is presented qualitatively and with minimal detail.

Finally, some police agencies have been involved in the development of both threat assessment and harm indices, which are used to facilitate a strategic analysis and, ultimately, prioritize scarce organized crime enforcement resources. The most notable of these threat and harm assessment models have been developed by the RCMP: Project Sleipnir, a numerically based cumulative ranking metric, which can be used to assess the threats posed by criminal groups, and the Criminal Activity Harm Prioritization Scale, which ranks the extent of harm of a number of different criminal activities.

In British Columbia, the Attorney General's department and the RCMP have both produced reports that measure the scope and impact of organized crime on the province (British Columbia, Ministry of the Attorney General, 2001; RCMP "E" Division, 2005). The impetus for these reports was the 1998 Organized Crime Independent Review Committee report - *British Columbia's Response to Organized Crime* - which

recommended that a detailed quantification of the magnitude of the organized crime problem in B.C. be undertaken and updated at least annually.

Other government agencies

Other government departments and agencies are involved in collecting, analyzing, and disseminating information that can estimate the scope and impact of (organized) criminal activities in Canada. These efforts are specifically related to issues over which the respective agency has jurisdiction. For example, the Bank of Canada collects statistical data on the extent of counterfeit currency in circulation while the Liquor Control Board of Ontario has commissioned studies that estimate the size of the contraband liquor market in that province. Federal and provincial regulatory agencies also collect quantitative data that can be used to measure the scope and impact of organized criminality in the sectors they regulate (e.g., provincial securities regulators). In general, however, government agencies outside the criminal justice field collect little quantitative information that can be used to measure the scope and impact of organized criminal activities.

Clinical and epidemiological research centres

Clinical and epidemiological research centres that focus on substance abuse and addictions are central to the collection and/or analysis of data that measures the scope and impact of illegal drugs in Canada. Numerous studies that measure the scope and impact of illegal drug use at the national level have been sponsored by the Canadian Centre for Substance Abuse and the Centre for Addiction and Mental Health (see Single et al, 1996, Adlaf, Begin, and Sawka, 2005; Rehm et al., 2006; Adalf and Boak, 2007). Numerous other similar research centres exist at the provincial level, such as the Centre for Addictions Research of British Columbia. In addition to substance abuse, research centres have also been established that are dedicated to problem gambling, such as the Ontario Problem Gambling Research Centre.

Industry bodies and professional associations

Industry associations have been involved in collecting data that can facilitate an analysis of the scope and impact of organized criminal activities. These data are typically concerned with crimes that affect the association's industry. For example, the Canadian Bankers Association collects and publishes statistics on the scope of payment card fraud, cheque kiting, mortgage fraud, identity theft, and robberies. The Insurance Bureau of Canada collects and publishes information on auto theft (Insurance Bureau of Canada, 2004) and insurance fraud (Insurance Bureau of Canada, 1993). Associations representing the tobacco and liquor industries have commissioned studies examining the scope and impact of smuggling and contraband markets for their products (FIA Specialist Investigations Group Inc., 1997; GfK Research Dynamics, 2008) while the Canadian Convenience Store Association has also commissioned research on the consumption of contraband tobacco (Canadian Convenience Stores Association, 2008; Leger Marketing, 2008).

Private sector consulting and research firms

Private sector firms offering consulting and research/polling services have been active in conducting quantitative research into organized and economic crime in Canada. This includes research that is used for marketing purposes or that which has been conducted on contract for government agencies or private sector clients vulnerable to organized crime. The accounting and consulting firm KPMG has undertaken research that includes: a national fraud victimization survey of corporations which examined the involvement of criminal organizations in corporate fraud (KPMG, 1999d), a national money laundering "victimization" survey of the Canadian financial services sector (KPMG, 2001a), quantitative studies estimating the size of the contraband liquor markets (KPMG, 1999a), and an international survey of companies regarding e-commerce fraud (KPMG, 2001b). PriceWaterhouseCoopers conducted the 2008 Canadian Retail Security Survey on behalf of the Retail Council of Canada, while FIA Specialist Investigations Group Inc. (1997) undertook research that estimated the scope and impact of liquor smuggling.

Private sector research firms have also collected quantitative data that measures the scope and impact of (organized) criminal activities. The polling/research firm Ipsos-Reid helped undertake survey research in British Columba that measured the extent of problem gambling in that province. GfK Research Dynamics (2008), an international research and consulting firm, was contracted by the Canadian Tobacco Manufacturers' Council to conduct a survey to measure the consumption of illegal tobacco while Leger Marketing (2008) conducted a survey of convenience store owners on their perceptions of opinions and perceptions regarding the purchase and consumption of contraband tobacco. This survey was carried out on behalf of the Canadian Convenience Store Association.

University-based scholars

University-based scholars in Canada have conducted a number of quantitative research projects that estimate the scope and impact of organized crime in Canada. This is summarized in Table 1 (note: this is not meant to be an exhaustive list).

Table 1: University-based scholars who have undertaken prevalence and harm assessment research in areas relevant to organized crime

Name	Affiliation	Subject area
Edward Adlaf	University of Toronto (Public Health)	Costs of substance abuse
Martin Bouchard	Simon Fraser University (Criminology)	Illegal drug production and trafficking in Quebec
John Chant	Simon Fraser University (Economics)	Currency counterfeiting
Stephen Easton	Simon Fraser University (Economics)	Marijuana production in British Columbia

Name	Affiliation	Subject area
Daryl Plecas, Vivienne Chin, Yvon Dandurand	University College of the Fraser Valley (Criminology)	Marijuana production in British Columbia
Christiane Poulin, David Elliot	Dalhousie University (Community Health & Epidemiology)	Scope and impact of illegal drug use
Jürgen Rehm	University of Toronto (Public Health Sciences)	Costs of substance abuse
Eric Single	University of Toronto (Public Health Sciences)	Costs of substance abuse and problem gambling
Susan Sproule	McMaster University (Commerce – ebusiness Research Centre)	Identity theft
Pierre Tremblay	University of Montreal (Criminology)	Illegal drug production and trafficking in Quebec

As can be seen in this table, most of the scholars conducting quantitative research relevant to organized crime prevalence and harm assessments work in the fields of criminology, economics, and the health sciences. Economists are particularly central to econometric research that provides monetary values to social costs of crime estimates.

Data, data sources, and data collection methods

What are the data, data sources, and data collection methods that have been used to conduct organized crime prevalence and impact research in Canada? What is the extent of the data on the organized crime priorities that can be quantified and used to assess their scope and impact? Are there sufficient quantifiable data and data sources to estimate the scope and impact of organized crime in Canada? What are the gaps in the available data and data sources?

As with other countries, given the diversity of organized criminal activities in Canada, combined with the wide-ranging impact of each, the data and data sources that have and can be used to measure such criminal activities is equally diverse.

A description and analysis of the quantitative data, data sources, and data collection methods used in Canada to measure the scope and impact of organized criminal activities can be broken down into the following categories:

1. police-recorded data;
2. victim- or consumer-reported data;
3. offender-reported data;
4. other criminal justice agency data;
5. other government (non-criminal justice sector) data; and
6. private sector data.

Each of these categories of data is described below. This includes a description of the sources of the data, methods used to collect the data, as well as the strengths and weaknesses of the data source *vis a vis* their use for research that estimates the scope and impact of organized crime.

As the literature review reveals, the majority of studies that quantitatively measure the scope and impact of organized crime is based on a survey of police- and victim/consumer-reported data.

Police-recorded data

This category includes data not only from police, but also from other law enforcement agencies, such as the Canada Border Service Agency, as well as criminal intelligence agencies. The main form of quantifiable data available from Canadian police and other law enforcement agencies that is mostly used in crime prevalence and impact research in this country is descriptive information surrounding the circumstances of a criminal incident (or call for service), including information on the offender (if caught), the victim (if known), and the criminal incident itself. Quantitative data from these sources are extracted through survey methods.

The UCR/UCR2 surveys provide the main source of police-recorded data for quantitative studies into organized crime in Canada, although researchers have also conducted their own surveys of police cases, usually with a particular criminal activity in mind (e.g., money laundering, drug trafficking, etc.) (see: Plecas et al., 2005).

In Canada, the primary source of quantitative police-recorded data for crime prevalence and impact research comes from the UCR/UCR2 surveys, which are coordinated by the Canadian Centre for Justice Statistics at Statistics Canada. The UCR survey data forms the basis for the development of local, regional, and national crime rates in Canada and are relevant to analyses of the scope and prevalence of organized criminal activities because they estimate the frequency with which all criminal offences are committed, including those associated with organized crime.

As detailed in Table 2 below, the UCR survey conducted in Canada measures the frequency of occurrences of *Criminal Code* and some federal offences traditionally committed by criminal organizations, including those prioritized by this study.

Table 2 – Organized crime priorities and associated criminal offences: Relevant statutes and specific offences subject to UCR data collection

Organized Crime Activity	Relevant Statutes and Sections
Arms smuggling & trafficking	*Criminal Code,* Section 99 (illegal manufacture & trafficking), Sections 103 & 104 (import & export)

Drug trafficking	*Controlled Drugs And Substances Act (CCSA):* Section 4 (possession)*;* Section 5 (trafficking), Section 6 (importing/exporting),Section 7 (domestic production)
Currency counterfeiting	*Criminal Code,* Section 449, Section 380 (fraud)
Product piracy (movie piracy - copyright infringement)	*Copyright Act:* Section 27 (producing and exporting goods that infringe on a copyright)
Credit card offences	*Criminal Code*: Section 342 (theft, forgery of credit card and possession, use & trafficking thereof; Section 380 (fraud)
Identity theft	*Criminal Code:* Not yet in force, Bill S-4 (formerly C-27, tabled in 2007), An Act to amend the Criminal Code (identity theft and related misconduct) received 3rd reading in the Senate on June 11, 2009, Section 380 (fraud)
Illegal gaming	*Criminal Code*: Sections 201 & 202
Contraband (tobacco) products: smuggling, production & trafficking	*Excise Act (2001):* Section 25 (illegal production of tobacco products & spirits)
Deceitful and fraudulent telemarketing	*Criminal Code*, Section 380 (fraud); *Competition Act:* Misleading advertising and deceptive marketing
Theft (organized auto theft)	*Criminal Code*: Section 322 (theft), Bill currently before Parliament to create separate offence for motor vehicle theft; *Customs Act*: Illegal export of motor vehicle

There are advantages and disadvantages to using UCR data to measure the prevalence and scope of organized crime.

The strengths of the UCR survey are that it produces a commonly-accepted form of data that measures the scope (prevalence) of a criminal offence and it covers most offences committed by criminal organizations. Within the context of collecting data for a national Organized Crime Harm Index, it is also cost-effective in the sense that no new data collection system need be implemented. Also, there are no significant obstacles to the collection of this data (such as privacy issues).

The most commonly-cited weakness of the UCR data is that it under-reports the actual level of crime and frequency of most criminal offences. The Canadian Centre for Justice Statistics acknowledges the reliability issues that undermine police-recorded UCR data when it states, "many factors could influence official crime statistics. These include: reporting by the public to the police; reporting by police to the CCJS; and, the impact of new initiatives such as changes in legislation, policies or enforcement practices" (Kong, 1997, 1). In addition, the UCR survey data does not constitute a representative sample of the population of actual criminal offences, primarily because of the under-reporting issue.

Moreover, in Canada, the UCR2 survey "does not have full national coverage. The data are not representative of any region in Canada, or of Canada as a whole" (Ogrodnik, 2002). Another weakness in terms of measuring the scope of organized criminal activities is that the police-recorded data used for the UCR/UCR2 surveys generally does not make a distinction between offences committed by individuals acting alone and those committed by organized groups. In other words, most police-recorded quantitative crime data in Canada is not collected or stored or annotated in such a way as to isolate the frequency of criminal occurrences committed by organized groups.

This can be potentially overcome through the addition of new criminal organization offences to the *Criminal Code of Canada*. Specifically, the following four sections have been added to the *Criminal Code*:

- Section 467.13 (1) Instruct the commission of an offence for a criminal organization
- Section 467.12 (1) Commit an offence for a criminal organization
- Section 467.11 (3) Participate in activities of a criminal organization
- Section 423.1 (3) Intimidation of justice system participant

Beginning in 2002, police forces providing data as part of the incident-based UCR2 survey began reporting on the number of occurrences of these criminal organization offences. The UCR2 captures up to four of these criminal violations per incident, as well as details about the accused and the victim (Ogrodnik, 2002). The addition of these criminal organization offences to the UCR2 thereby provide the basis to conduct a cross-tabulation between a police-recorded "criminal activity" offence (e.g., fraud, money laundering, theft, etc.) and a "criminal organization" offence which potentially can isolate criminal activity offences committed by criminal organizations. However, this statistical analysis will not yield particularly reliable estimates, primarily because police are not required to lay the criminal organization offence charges (and such charges are not frequently laid by police). In other words, even if police believe a criminal offence was perpetrated by an organized crime group, this does not require them to lay a charge under Criminal Code Sections 467 or 423.

One of the recommendations of the CCJS study that investigated different options to collect data on organized crime from police was that "to generate useful and reliable organized crime statistics" the "UCR2 survey could be modified to capture additional detail on organized criminal offences coming to the attention of the police." In particular, a new variable would be added, "essentially, to ask whether or not an incident is 'suspected' to be related to organized crime. If so, police would then be asked to specify which major criminal group is responsible (e.g. outlaw motorcycle gang, Asian-based organized crime group, Italian-based crime group, etc.) (Ogrodnik, 2002). This recommendation was adopted and, starting in 2005, a pilot project was implemented where a small sample of police forces began furnishing this information (for applicable criminal incidents). However, according to a senior CCJS official interviewed for this project, the data is unreliable in the sense that police are most likely under-reporting the involvement of criminal groups in a criminal incident, in part because there is insufficient information available to police to make that determination.

Because of the afore-mentioned limitations of the UCR/UCR2 survey data, its utility in unilaterally furthering a reliable quantitative assessment of the scope and impact of organized crime is limited. If UCR or UCR2 data is to be used in organized crime prevalence research, there is a need to compensate for its four main weaknesses:

- the under-reporting of actual criminal occurrences,
- the lack of representativeness of this data to the population of actual criminal occurrences,
- the lack of representativeness of the UCR2 data at the national level, and
- the inability to isolate criminal offences and incidents committed by organized groups.

In addition to the UCR/UCR2 surveys, police-recorded data that measures the prevalence of organized criminal activities have been gathered through surveys of police cases. In ongoing research into the scope and nature of marijuana grow-ops in British Columbia (Chin, et al, 2001; Plecas et al., 2002, Plecas et al., 2005), a team of criminologists conducted a survey of police cases of alleged marijuana cultivation coming to the attention of the police in British Columbia from January 1, 1997 to December 31, 2003. Site visits to the offices of police agencies to conduct the review of files were carried out by a team of nine researchers. In total, 11,733 case files for the second study were reviewed (encompassing a four-year period) while, collectively, all three studies examined 25,014 cases (over a seven-year period). Using a similar technique Schneider (2003) drew a sample of proceeds of crime cases from the centralized RCMP records management system and then, armed with a standardized questionnaire, conducted site visits to all the RCMP proceeds of crime units to collect the data from police, prosecutorial, and court documents (and to a lesser extent interviews with police and prosecutors).

The in-depth research that accompanies this method can collect detailed information that can facilitate, for example, the ability to determine if a criminal incident was carried out by an organized group. The main disadvantage of this police case survey method is that it suffers from the same problems intrinsic to the UCR data (under-reporting, cases in a database are not representative of the population of cases). Another problem is that there is no centralized, national data base of police cases that can be used as a sampling frame. In addition, it is a very resource-intensive method and, as such, may not be cost-effective in the context of the OCHI (especially given that a different national survey would have to be carried out for each criminal activity and data collected from numerous police agencies). Police may also be reluctant to allow external researchers to pour through their files (due to the possibility of encountering sensitive information).

Enforcement data is also a potential source of information that can facilitate research that measures the scope of organized criminal activities. However, enforcement statistics suffer from the same problem as other police-recorded statistics: the statistics are skewed by police policies, priorities, and resources. Yet, this information can potentially be useful to measuring the scope of certain criminal activities, when coupled with data from other sources. Collecting enforcement data is also cost-effective, in that such data is somewhat readily available through police databases. There are also no significant

obstacles to accessing such data, such as privacy concerns, as the data is largely available in aggregate form.

As discussed earlier, criminal intelligence information gathered and maintained by police can be a major source of empirical data for organized crime researchers because such data often focuses on major, serious, and ongoing criminal conspiracies. However, as Ogrodnik (2002) notes in her study investigating the feasibility of collecting police-recorded data on organized crime:

> "The data collected by intelligence units are stored in a qualitative, text format rather than in a quantitative format, which makes it difficult to analyze and collect statistics. The intelligence information is also stored in separate systems from the Records Management Systems which feed crime statistics ... Police Intelligence files contain information that has not been verified and may not be accurate. Sources of the information include informants/agents. This causes additional sensitivity to the release of any information that may put investigations or undercover officers at risk"

In sum, within the context of measuring the scope and impact of organized crime, police-recorded data are primarily used for estimating scope (prevalence). Yet, police-recorded data is inherently flawed when used to quantitatively measure the scope of organized criminal activities, due to its under-reporting of criminal occurrences, its lack of representativeness of the hidden population it is measuring, the difficulty in isolating criminal occurrences perpetrated by organized groups. Issues of confidentiality and the amount of resources required to conduct surveys of police cases are also potential obstacles. However, police-recorded data, and UCR2 survey data, will continue to form a significant core of any research that measures the scope of organized crime, which in turn is the basis for harm assessment research. The UCR2 survey is a cost-effective approach to collecting data and its reliability for organized crime prevalence studies can be increased (in part through the recommendations made above) and by combining this data with other relevant sources.

Victim or consumer-reported data

A significant source of data for studies measuring the scope and impact of (organized) criminal activities in Canada are victims (of "predatory" crimes like theft or fraud) and consumers of illegal products or services (such as drug users or gamblers). Crime victimization surveys are a commonly accepted and frequently used research method to estimate the scope of crime in general and different criminal activities in Canada as well as other countries.

In Canada, according to Ogrodnik (2002):

> "household victimization surveys are undertaken by Statistics Canada on a cyclical basis through the General Social Survey (GSS). The GSS collects information on the nature and extent of criminal victimization in Canada, as well as its impact and consequences on the victim, and reasons why victims reported or did not report the incident to police. The target population includes all persons aged 15 years and

older residing in the 10 provinces. The GSS does not capture information on crimes where the victim is a business or institution. The GSS contacts approximately 25,000 respondents by telephone".

Questions on victimization are just one part of the GSS, which is broadly mandated to "gather data on social trends in order to monitor changes in the living conditions and well being of Canadians over time; and to provide information on specific social policy issues of current or emerging interest" (Statistics Canada, 2006).

In general, the GSS victimization survey collects such information as respondents' experiences of victimization, perceptions of crime and the criminal justice system, as well as characteristics of the victim, the incident, and the perpetrator. The survey measures eight types of crimes (which can be broken down into two broad categories: "Personal Victimizations" (violent victimizations: sexual assault, robbery, and physical assault; as well as theft of personal property) and "Household Victimizations" (break and enter, motor vehicle/parts theft, theft or attempted theft of household property, and vandalism).

In addition to the GSS, a stand-alone national victimization survey is also administered in Canada, as part of the International Crime Victimization Survey (ICVS), which was initiated in 1987 by a group of European criminologists with expertise in national crime surveys (Van Dijk, Mayhew & Killias, 1990). The survey, which was set up to produce estimates of victimization that can be used for international comparison, collects data on victims' experiences with crime, fear, policing, and crime prevention from a number of different countries. (There were two main reasons for setting up the ICVS. The first was the inadequacy of the information on offences recorded by the police for comparing crime in different countries. The second was the absence of any alternative international, standardized measure of crime and victimization.)

Thus far, there has been five main sweeps of the ICVS. The first sweep took place in 1989 and was repeated in 1992, 1996, and 2000 and 2004/2005. By the end of 2005 over 140 surveys had been administered in over 78 different countries. Canada is one of only a handful of countries to have participated in all five "sweeps" conducted between 1987 and 2000.

In 1996, a random sample of people aged 16 years and older was asked for detailed information on 11 offences. The offences were: (1) robbery/attempted robbery, (2) sexual assault (ranging from unwanted sexual touching to rape - asked of women only), (3) assault/threats, (4) theft of personal property (other than robbery, such as pick pocketing), (5) residential burglary, (6) attempted residential burglary (7) theft of an automobile (attempts offences not included), (8) theft from automobile, (9) vandalism to an automobile, (10) theft of a motorcycle/moped/scooter, and (11) theft of a bicycle. The 2000 ICVS collected data on victimization for seven household crimes (theft of car, theft from car, car vandalism, theft of motorcycle, theft of bicycle, burglary with entry, attempted burglary) and four personal crimes (robbery, theft of personal property, sexual incident, assault or threat).

Canada's participation in the 2000 survey was coordinated by the Department of Justice,

which provided funding along with the Canadian Centre for Justice Statistics. A total of 2,078 persons aged 16 or older were selected at random from across Canada for interviews. The sample was allocated according to population size within different regions. All interviews were conducted by telephone. The language of the interview was either English or French, depending on the region of the interview and the language choice of the respondent. All initial and follow-up interviews were completed between January 25 and March 17 2000 (Hung, 2000).

Specialized household surveys have also been administered in Canada that measure victimization from specific types of crimes, although such surveys are fairly limited. The literature review identified one household survey that questioned respondents on their exposure to identity theft (Sproule and Archer, 2008).

Victimization surveys are not confined to individuals; they are also conducted on an increasingly regular basis among companies that have been victimized by crime. For example, the Retail Council of Canada sponsors a survey of retail businesses that solicits information on the types of crimes they encounter (PriceWaterhouseCoopers and Retail Council of Canada, 2008). The Toronto-based consulting firm KPMG also undertakes, on an annual basis, a national fraud victimization survey of corporations, which includes questions on the respondent's knowledge of the involvement of criminal organizations in corporate fraud (KPMG, 1999d). KPMG also conducted a national money laundering "victimization" survey of the Canadian financial services sector (KPMG, 2001a).

As far as collecting information that can measure the scope and impact of organized criminal activities, the main strengths of a victimization survey can be summarized as follows:

- because the surveys asks a sample of the population about their personal crime experiences, they are an important complement to officially recorded crime rates in that they capture information on crimes that have been reported to the police, as well as those that have gone unreported;
- they can solicit information that helps measure both the scope and impact of a crime problem (e.g. respondents can be asked to identify harms – including intangible impacts, like fear or pain and suffering – and can even be asked to provide the direct and indirect monetary costs stemming from the crime; and
- victimization surveys can be conducted among households and organizations (companies, government agencies) that are victims of (organized) crime,

Within the context of collecting quantitative data on organized crime, the victimization surveys conducted in Canada are not without their weaknesses. According to Ogrodnik (2002):

> The periodic crime victimization data collected by Statistics Canada are also greatly limited in their ability to examine organized crime. These victimization surveys collect data on a small range of property and violent crimes from the general population. As such the surveys miss many types of crimes committed by criminal organizations (e.g., counterfeiting, contraband smuggling, etc.), do not identify if reported crimes are committed by a criminal group or network, and fail

to solicit information from institutional (i.e., corporate or government) victims."

Other weaknesses of crime victimization surveys in relation to measuring the scope and impact of organized crime is that "most victims of crime may not be aware that they were victimized by organized crime" and "victimization surveys do not capture information on crimes that have no obvious victim (e.g. prostitution)" (Ogrodnik, 2002).

These weaknesses are in addition to those criticisms that have long been levelled at victimization surveys: they also under-report victimization and the information provided by respondents can be inaccurate due to factors such as the inability of people to precisely recall incidents that have occurred in the past. In addition, most large-scale victimization surveys are known to partially or completely miss certain high-risk groups because of non-coverage or non-response, including individuals who are more susceptible to victimization (such as youth, prostitutes, the homeless, chronic drug users, etc.)

Canada also boasts a number of "consumption" surveys that have collected information that can help measure the scope and impact of drug trafficking. The main sources of information on drug use and abuse in Canada are surveys conducted among the general public including the General Social Survey, National Population Health Survey, the Canadian Community Health Survey, and the National Longitudinal Survey of Children and Youth, all of which are conducted by Statistics Canada. In addition, other national and population-specific surveys have been conducted that are specific to substance abuse (Eliany, Giesbrecht and Nelson, 1990; MacNeil Webster, 1997; Adalf, 2005; Rehm, et al., 2006; Adalf and Paglia, 1999; Adalf, 2005; Rehm, et al., 2006, Poulin and Elliott, 2007). While measuring the scope of drug use, these surveys also form the basis for research that estimates the harms and social costs of drug abuse in Canada (Single et al., 1996; 1998; Adalf, 2005; Rehm, et al., 2006) and have also been used as supply-side estimates (to measure the size of illegal drug markets) (Easton, 2004). The methodologies for these surveys should be considered as rigorous and the data reliable and generalizeable. As mentioned, data collected through such surveys are critical to estimates of the social costs of drug abuse in this country.

These demand-side consumption surveys have also been conducted to measure the scope of the contraband cigarette market (GfK Research Dynamics, 2008; Leger Marketing, 2008). Numerous population surveys among Canadians at the national and provincial level have also been conducted to measure gambling and compulsive gambling (Wynne, H. J. 2002; Volberg, 2003; Volberg, Nysse-Carris, and Gerstein, 2006; Schrans and Schellinck, 2008).

Surveys that attempt to measure consumption, and hence the scope of illegal drug use or the purchase of contraband cigarettes, are critical to research that measures the scope and impact of organized crime in Canada. The data solicited from these surveys are generally not available anywhere else in this country, they can be used to estimate both prevalence and impact (and in this sense they are cost-effective), and can greatly complement supply-side estimates gleaned from law enforcement or other government sources. The

weaknesses of such surveys are that they may under-represent the scope of actual consumption.

In sum, central to any future quantitative research that measures the scope and impact of organized criminal activities are victimization and "consumption" surveys.

Offender-reported data (including suppliers within illegal markets)

The literature review identified only a limited number of quantitative studies intended to measure the scope and impact of (organized) crime that collected information directly from the offender population. Correctional Services Canada has conducted numerous studies and intelligence projects among its population and at least one quantitative study identified in the literature review contributed to an estimation of the scope of organized crime in Canada by identifying offenders with ties to criminal gangs (Correctional Services Canada, n.d.). While there are questions as to how representative samples of inmates within correctional facilitates are of overall offender populations, they can potentially make a contribution to a greater understanding of organized crime given the unprecedented access that researchers have to offenders (which cannot be replicated in other non-custodial circumstances). Such surveys can also be considered quite cost-effective.

One noticeable gap in the offender-based research conducted in Canada is the absence of an "arrestee survey" in this country. These surveys can contribute to a greater understanding between illegal drugs, crime, and criminal behaviour and, as such, can contribute to the quantification of a significant social harm realized through illegal drug use. A principal disadvantage of arrestee surveys are that they are quite costly to administer.

In short, the collection of quantifiable data from offenders is an under-utilized form of research as far as measuring the scope and impact of organized criminal activities in Canada is concerned. Consideration should be given to how research can elicit data directly from offenders in a rigorous, safe, and cost-effective manner in order to contribute to understanding the causes, nature, scope, and impact of (organized) crime and violence in Canadian society.

Other Criminal Justice Data

Data that can quantify the scope and impact of organized criminal activities may also come from other Canadian criminal justice agencies and institutions, such as prosecutorial services, the courts, correctional facilities, as well as parole and probation agencies. This research may include surveys of court transcripts as well as prosecutorial records. Correctional Services of Canada collects detailed information about their offender population, including current offences, criminal history, prior sentences, etc. As noted, the agency also collects information on offenders with ties to criminal gangs. This information can possibly be cross-tabulated with the offence(s) they committed to help estimate the extent to which organized crime groups are involved with certain criminal offences. However, the utility of such data in organized crime prevalence and impact

studies are limited beyond this. This research would also not necessarily be representative of the offender population.

As Lucie Ogrodnick (2002) notes, the "Adult Criminal Court Survey (ACCS) conducted by the CCJS is another possible source of data on organized crime."

> Specifically, the ACCS collects information on federal statue charges dealt with in provincial/territorial adult criminal courts and three Superior Court jurisdictions. In addition to identifying specific criminal organization charges heard before the courts, the ACCS collects the age and sex of persons appearing in court, the median elapsed time from first to last court appearance, the case outcome (e.g., conviction, dismissed, acquittal) and sentence type (e.g., fine, probation, restitution, prison, other). The individuals included in the ACCS are persons 18 years or older at the time of the offence, youths who have been transferred to adult criminal court and companies. In terms of coverage, the adult criminal courts in seven provinces and one territory currently report to the ACCS. These eight jurisdictions represent approximately 80% of the national adult criminal court caseload. British Columbia and New Brunswick will be reporting data for the 2001-2002 reference period.

The strength of the ACCS or other surveys of court records is that there are minimal confidentiality concerns. The weaknesses of the ACCS in producing reliable quantitative data on organized crime, according to Ogrodnik (2002) is that it "does not as yet have full national coverage... the use of the 'most serious offence' rule generally masks the presence of less serious offences; (however, special tabulations can be requested which generate counts of all charges within a case)..." Moreover, "offences committed by members of organized crime groups are not necessarily charged with 'criminal organization' offences." In lieu of a court survey, a more cost-effective approach would be a review of online law judgments (using such databases as Quicklaw and Westlaw). The advantage of this method is that it would be cost-effective and would provide insights into the type of organized crime activities that are prosecuted, the rate of increase over time, and the impacts that result from these criminal activities, including economic consequences and harms to victims. In Canada, the electronic databases contain reported provincial Superior Court and Court of Appeal judgments, as well as those of the Supreme Court and Federal Court of Canada. Since 1970, over 800 cases relating to organized crime have been reported. Referring to Australia, Warfield notes that the main disadvantage is that many cases are not "reported electronically and there would appear to be selective reporting of judgments even in the higher courts such as the Supreme Courts and Criminal Courts of Appeal" (Warfield, 2008).

Using statistical data on the criminal justice resources expended on organized crime-related cases is another option, according to Ogrodnick (2002):

> The notion of tracking the resources expended on organized criminal investigations, particularly the long-term, complex cases, is another way of viewing the impact of organized crime on the police sector. The CCJS currently collects information on police personnel and expenditures from all municipal and provincial police forces, as well as the RCMP on an annual basis through The Police Administration Annual Survey. One option may be to enhance this survey by

adding a field(s) to capture the number of resources expended on organized crime (personnel and days/ hours) on an annual basis.

One strength of using the Police Administration Annual Survey to collect quantitative data on organized crime is it "provides an indication of the total police resources expended to fight organized crime." The weaknesses are that it is "difficult to isolate resources unless they were 100% 'dedicated' to organized crime," it "would require time and funding to re-design the survey" for such purposes (Ogrodnik, 2002).

Other Government Data

Given the wide-ranging scope of organized criminal activities, it is not simply the Canadian criminal justice agencies and institutions that are involved in combating this problem. It is the regulatory system of government that largely carries the burden for monitoring legitimate industries and transactions that are vulnerable to criminal activity. As such, regulatory agencies have a potentially significant role to play in combating organized criminal activity in specific sectors of the Canadian economy and society as a whole. Given this role, regulatory agencies can also be a significant source of information. Examples of key government agencies that can provide data on the scope and impact of organized criminal activities are provincial securities regulators (securities fraud, money laundering), Industry Canada (telemarketing fraud, product piracy/copyright infringement), provincial liquor commissions (contraband liquor), the federal Office of the Superintendent of Financial Institutions and its provincial counterparts (financial instrument fraud, identify theft/fraud, mortgage fraud, insurance fraud, and money laundering).

Research for this project did not identify any major studies that collected quantitative information from government regulatory bodies that could measure the scope and impact of organized crime. Further research should be conducted that identifies a role, if any, that such regulatory agencies can play in providing relevant data.

Private Sector Data

In addition to collecting victimization data from companies to measure the scope and impact of certain (organized) criminal activities, many private sector companies and associations also collect quantitative victimization data. For example, as previously mentioned, the Canadian Bankers Association collects and publish statistics on the scope of payment card fraud, cheque kiting, mortgage fraud, identity theft, and robberies while the Insurance Bureau of Canada collects and publishes information on auto theft and automobile insurance fraud. Industry-generated data may be considered more reliable than survey data, because it is not a sample of the population of offences, but the population itself (i.e., the Canadian Bankers Association collects data on all known credit card offences, not just a sample of offences).

Industry bodies representing sectors vulnerable to organized criminal activities (in particular the financial services sector) should be considered as key sources of information that can help measure the scope and impact of organized criminal activities,

especially those that revolve around financial instrument fraud, insurance fraud, mortgage fraud, securities fraud, identify/theft fraud, etc.

This information can be collected for organized crime prevalence and harm assessment research on a very cost-effective basis, because much of the data is already being collected by industry bodies (or at the very least they can be enticed to do so because of their vested interest in collecting such data). However, in interviews with some industry officials, they have expressed great frustration that the data they do collect does not result in any appreciable government action to address the problems being reported.

Analysis

The goal of this section is to analyze the research findings, with a view to addressing the overarching research question that has guided this project: Can a rigorous OCHI index be cost-effectively implemented in Canada in such a manner that it will benefit organized crime control measures in this country? More specifically, this analysis will be broken down into four main questions that collectively address the main research question posed above:

- Can a rigorous Organized Crime Harm Index be implemented in Canada that reliably assesses the scope and impact of organized crime?
    - Do reliable data and data sources exist within Canada to measure the scope and impact of organized crime generally and for the development of an Organized Crime Harm Index specifically?
    - Can rigorous data collection methods and analytical models that facilitate the production of reliable estimates of the scope and impact of organized crime be implemented in Canada?
- Can these research findings, and the Organized Crime Harm Index specifically, contribute to the larger goal of organized crime control?
- Is the implementation of these models in Canada feasible? Can such research be implemented in a cost-effective fashion?
- What are the obstacles to a rigorous and cost-effective development and implementation of a reliable OCHI? Can these obstacles be overcome? If so, how?

Accurately assessing the impact (costs) of organized crime in Canada

Do reliable data and data sources exist within Canada that can be used for research that measures the scope and impact of organized crime generally and for the development of an Organized Crime Harm Index specifically?

Measuring the scope and impact of (organized) criminal activities is critically dependent on quantifiable data. Quantifiable data that estimates the scope of a criminal activity is the necessary empirical basis to valuate impacts in monetary (cost) terms. Regardless of how sophisticated and rigorous the data collection methods and analytical models are, research that attempts to estimate the scope and impact of organized crime is, generally speaking, only as good as the raw data that is gathered and examined.

There are a number of potential forms and sources of quantifiable raw data that can be used for research that estimates the scope and impact of organized crime in Canada. As already described, these data and data sources can be divided into six categories: (1) police-recorded data, (2) victim- or consumer-reported data, (3) offender-reported data, (4) other criminal justice agency data, (5) other government data, and (6) private sector data.

For the purposes of this analysis, within each of these categories, the data that can be used for organized crime prevalence and harm assessment studies in Canada can be further broken down into three groups: (i) raw data, (ii) processed data, and (iii) empirical studies.

The "raw" data is that which has not been collected or used for research purposes. The main sources of raw data for quantitative research into organized crime are police agencies (through record management systems, police cases, criminal intelligence data, enforcement statistics), the general population (primarily gathered through surveys), and organizations that are directly or indirectly victimized by organized criminal activities (in particular private sector companies, but also government).

"Processed data" entails that which has already been collected for research purposes, and which can be used for studies estimating the scope and impact of organized criminal activities. This category includes police-recorded data collected through the UCR surveys or victim/consumer-reported data that has been collected through, for example, the General Social Survey, the Crime Victimization Survey, the Canadian Community Health Survey, or specialized surveys that measure the consumption of drugs or contraband.

The category of "quantitative studies" refers to data that has been collected, analyzed, and published in a report, book, or article that is directly concerned with measuring the scope and/or impact of organized criminal activities in Canada.

Table 3 below provides a list of currently-used and potential data for each of the criminal activities prioritized for this report (further broken down by "raw data," "processed data" and "empirical studies").

Table 3: Potential data sources for research estimating the scope and impact of selective organized criminal activities

Organized Crime Activity	Canadian Data Sources
Arms smuggling and trafficking	***Raw data***: RCMP, CISC, Canada Border Services Agency (CBSA), Ontario/Quebec Provincial Police, Canadian Firearms Centre, CISC; households (victims & consumers); health care system (firearms morbidity & mortality). ***Processed data***: Statistics Canada (Uniform Crime Reporting Survey, General Social Survey, Homicide Survey, Hospital Morbidity Survey, causes of death statistics); crime victimization survey; RCMP (legal firearm licensing data). ***Quantitative Studies* measuring and estimating the social costs of *legal* firearms in Canada**: Hung, 1996, 1997; Canadian Centre for Justice Statistics, 2008; Miller, 1995; Injury Prevention Centre Edmonton. 1996; Leenaars and Lester, 2001. ***Quantitative Studies measuring the number and source of firearms smuggled into Canada***: Francis, 1995.
Drug trafficking	***Raw data***: RCMP, CISC, CBSA, provincial and municipal police; households (consumers); health care system (morbidity & mortality from drug abuse); Canadian Centre on Substance Abuse, Centre for Addiction and Mental Health, Centre for Addictions Research of British Columbia; Ontario Federation of Community Mental Health and Addiction Programs. ***Processed data***: Statistics Canada (Uniform Crime Reporting Survey, General Social Survey, National Population Health Survey, Canadian Community Health Survey, Hospital Morbidity Survey, causes of death statistics); crime victimization survey. ***Quantitative studies measuring the scope of drug use:*** Eliany, Giesbrecht and Nelson, 1990; MacNeil Webster, 1997; Adalf et al., 2005; Rehm, et al., 2006; Adalf and Paglia, 1999; Adalf, 2005; Rehm, et al., 2006, Poulin and Elliott, 2007; ***Quantitative studies measuring the harms and costs of drug use:*** Single et al., 1996; 1998; Adalf, 2005; Rehm, et al., 2006. ***Quantitative studies assessing the scope of drug supply:*** Chin et al., 2001; Plecas et al., 2002; 2005; Easton, 2004; Bouchard and Tremblay, 2005; Bouchard, 2007**,** RCMP drug situation reports
Currency counterfeiting	***Raw data***: RCMP, CISC, provincial/municipal police, Bank of Canada, Canadian Banking Association, Canadian financial (deposit) institutions; retail businesses. ***Processed data***: Uniform Crime Reporting Survey (Statistics Canada), monthly figures on the number and value of counterfeit bank notes detected (Bank of Canada). ***Quantitative studies* estimating volume and value of counterfeit bills in circulation:** Chant ,2004.
Product piracy (movie piracy – copyright infringement)	***Raw data***: RCMP, CISC, Canada Border Services Agency, provincial/municipal police, International Anti-Counterfeiting Coalition, Industry Canada (Competition Bureau). ***Processed data***: Uniform Crime Reporting Survey. ***Quantitative studies*:** none identified
Payment (credit & debit) card fraud	***Raw data***: RCMP, CISC, provincial/municipal police services, Canadian Bankers Association, financial (deposit) services companies, credit card companies , Equifax, Advanced Card Technology Association of Canada. ***Processed data***: Statistics Canada (Uniform Crime Reporting Survey, General Social Survey), crime victimization survey, Canadian Bankers Association credit card fraud statistics. ***Quantitative studies:*** PriceWaterhouseCoopers and Retail Council of Canada**,** 2008.

Identity theft	***Raw data***: RCMP, CISC, provincial/municipal police services, Canadian Bankers Association, Equifax, financial (deposit) services companies, credit card companies, Reporting Economic Crime Online (RECOL), Canadian Anti-Fraud Call Centre (Phonebusters). ***Processed data***: Uniform Crime Reporting Survey, General Social Survey, crime victimization survey, Canadian Anti-Fraud Call Centre monthly statistics report, McMaster eBusiness Research Centre. ***Quantitative Studies:*** Sproule and Archer, 2008
Illegal gaming	***Raw data***: RCMP, CISC, provincial/municipal police services, Centre for Addiction and Mental Health, provincial gaming authorities, Ontario Problem Gambling Research Centre; Canadian Foundation on Compulsive Gambling, Gamblers Anonymous. ***Processed data***: Uniform Crime Reporting Survey, Centre for Addiction and Mental Health, provincial gaming authorities, Ontario Problem Gambling Research Centre, Canadian Foundation on Compulsive Gambling, Gemini Research. **Quantitative Studies into the scope and impact of (legal) gambling and gambling problems:** Ferris and Wynne, 1999; 2000; 2001; Baseline Market Research, 1996; Wiebe, Single, and Falkowski-Ham, 2001; Wynne, 2002; Smith and Wynne, 2002; Volberg and Ipsos-Reid, 2003; Volberg, 2003; Wiebe, Mun and Kaufman, 2006; Schrans and Schellinck, 2008
Contraband tobacco (smuggling, production & trafficking)	***Raw data***: RCMP, CISC, CBSA, provincial/municipal police services, Canadian Convenience Stores Association, Canadian Tobacco Manufacturer's Council , Canadian Centre for Substance Abuse, Centre for Addiction and Mental Health Consumers, convenience stores and other tobacco retailers. ***Processed data***: General Social Survey, National Population Health Survey, Canadian Community Health Survey. **Quantitative Studies measuring the scope of contraband tobacco consumption**: Canadian Convenience Stores Association, 2008; GfK Research Dynamics, 2008; Leger Marketing, 2008. **Quantitative Studies measuring the scope and social costs of tobacco consumption:** Eliany, Giesbrecht and Nelson, 1990; MacNeil Webster, 1997; Adalf et al., 2005; Rehm, et al., 2006; Adalf and Paglia, 1999; Adalf, 2005; Rehm, et al., 2006.
Telemarketing fraud	***Raw data***: RCMP, CISC, provincial/municipal police, Industry Canada, Reporting Economic Crime Online (RECOL), Canadian Anti-Fraud Call Centre (Phonebusters), Canadian Marketing Association, Direct Sellers Association of Canada. ***Processed data***: Uniform Crime Reporting Survey, General Social Survey, crime victimization survey, Canadian Anti-Fraud Call Centre monthly statistics report. ***Quantitative studies:*** none identified
Theft (organized auto theft)	***Raw data***: RCMP, CBSA, CISC, provincial/municipal police, Insurance Bureau of Canada, Insurance Corporation of British Colombia, Insurance companies and brokers, Insurance Information Centre of Canada, Association of Canadian Insurers, Canadian Coalition Against Insurance Fraud, Manitoba Public Insurance Corporation, Societe de l'assurance du Quebec, Vehicle Information Centre of Canada. ***Processed data****:* Uniform Crime Reporting Survey, crime victimization survey, Insurance Bureau of Canada auto theft insurance claims. **Quantitative studies**: Insurance Bureau of Canada, 2004; Wallace, 2004; Dauvergne, 2008;

As this table indicates, the number of sources of "raw" and "processed data," as well as analyzed data from published studies, varies with the criminal activity. In general, however, there a number of existing and potential sources of data to measure the scope and impact of the prioritized criminal activities.

The majority of studies that have measured the scope of (organized) criminal activities have relied on raw or processed data from law enforcement agencies or from the general population. The police-recorded data that has been used comes primarily from record management systems (including enforcement data) and from police cases. The UCR surveys conducted by Statistics Canada are the main source of police-recorded data used to estimate the scope and harm of organized criminal activities. To a lesser extent, data have been derived from surveys of police cases or from enforcement statistics (e.g. seizures, arrests, etc.). The victims of (organized) crime or the consumers of illegal goods and services traditionally supplied by organized groups (drugs, contraband, illegal gambling) are also an important source of information. The victims include both individuals and organizations (in particular, companies and government).

In order to estimate the wide-ranging impact of crime on society, and to convert such impacts into monetary terms, a number of other sources outside of the criminal justice sector must be consulted. This includes public account records (in order to measure the public expenditures for enforcement, regulation, and other protection), medical, rehabilitative, morbidity and mortality data from the health care system, and industry data (e.g., money lost to banks from credit card fraud, retail sales of contraband tobacco) to name just a few.

The extent and reliability of the data varies with each organized crime activity, but as discussed throughout this report, the data have a number of limitations as far as accurately estimating the scope and impact of the activity:

- the data, regardless of the source, generally under-estimates the actual scope of criminal activities;
- the data does not isolate criminal incidents committed by organized groups (however defined);
- in addition to under-reporting the actual level of crime, police-recorded data are not representative of the population of actual criminal occurrences (they are in fact more reflective of police policies, programs, priorities, resources, etc.);
- outside of the UCR survey data, there is no national, centralized database of relevant, quantifiable police-recorded data that can be cost-effectively sampled for quantitative research purposes; moreover, among the different police agencies relevant information is not collected or maintained in standardized or uniform manner
- data derived from surveys that measure the usage or consumption of consensual illicit goods or services, such as drugs, contraband liquor, gambling, or prostitution (which is critical to measuring harm), also tend to underestimate the true level of consumption because, in general, survey participants under report usage or because surveys miss high-risk (e.g., chronic drug abusing) populations.

In short, much of the data that can be used to measure the scope and impact of organized criminal activities suffers from reliability issues in the sense that precise and accurate estimate of the scope of the problem are difficult to produce.

Depending on the criminal activity, these shortcomings may be compounded by a lack of sources of raw or processed data as well as a dearth of existing quantitative studies.

Table 4 provides a subjective assessment of the existing and potential availability of primary and secondary quantifiable data for each prioritized criminal activity. This ranking is based on the following criteria: (i) the extent to which quantitative estimates of the scope and harm of a criminal activity have already been produced (including the application of monetary costs) through rigorous research; (ii) the extent to which "processed" data are available from reliable sources; (iii) the extent to which "raw" data can be collected from different sources to maximize reliability, and (iv) the extent to which organized crime involvement in the activity can be isolated and estimated.

Table 4 - Ranking of reliable data availability for quantitative research on organized crime activities

Prioritized Criminal Activity	Extent of data currently or potential available in Canada
Arms smuggling & trafficking	Poor
Drug trafficking	Good
Currency counterfeiting	Fair
Product piracy (movie piracy - copyright infringement)	Poor
Credit card counterfeiting / fraud	Fair
Identity theft	Fair
Illegal gaming	Fair
Contraband tobacco products (smuggling & illegal production)	Fair
Telemarketing fraud	Poor
Auto theft	Good

Key: Extent of reliable quantifiable data available

Poor: No rigorous prevalence studies exist, no rigorous harm assessment studies exists, little "processed" quantitative data exist; few "raw" data sources exist;

Fair: Rigorous prevalence studies exist, but no rigorous and/or comprehensive harm assessment research has been conducted; "raw" and "processed" data are available from different reliable sources; but it is not suitable for quantification to measure scope or harm

Good: Rigorous national prevalence and harm assessment research exists, but is not comprehensive; reliable "raw" and "processed" quantitative data is available from a number of different sources and is suitable for harm measurement

Excellent: Rigorous prevalence studies exist that are comprehensive and national in scope; reliable "raw" and "processed" quantitative data are available from a number of different sources and suitable for harm measurement.

Using this rating scale, no criminal activity can be ranked as "Excellent" in terms of the availability of reliable data. This is because none of the criminal activities have had

national, rigorous research conducted that is comprehensive in terms of considering its full range of impacts.

Notwithstanding the lack of existing comprehensive impact assessment studies for each of the prioritized criminal activities, and ignoring for the moment the inherent and inevitable difficulties in collecting reliable data on organized crime, this study concludes that in general, there are sufficient existing or potential sources of quantifiable data in Canada that can be used for research that measures the scope and harm of the organized criminal activities prioritized in this report. However, this conclusion is based on a number of qualifications:

- data will need to be collected from multiple sources and the accumulated data will need to be triangulated to offset the inherent limitations of each data source; this includes collecting and triangulating data from both supply (i.e., police-recorded) and demand (victim/consumer-reported);
- rigorous research methods and modeling (e.g., the capture-recapture method) will be necessary to offset the inherent limitations of the data; and
- any estimates of the scope or social costs of criminal activities produced by these research methods and statistical models must be considered alongside their associated confidence intervals.

For some of these priorities, both the existing and potential sources will facilitate a relatively cost-effective approach to gathering statistical data, because much of the data is readily available, centralized, and accessible in quantifiable form (e.g., through existing databases). In contrast, statistical research will be more difficult and expensive to conduct, in such areas as arms smuggling and trafficking and product piracy, where there currently exist no studies, little quantitative data is available, and there are a limited number of sources that can produce reliable and nationally-representative data.

In general, for most criminal activities, data sources that have never or rarely been used for quantitative research will have to be identified, made accessible to researchers, and "primed" for the collection of reliable data. The development of a rigorous, comprehensive, and national OCHI will require further exploratory research into the potential data and data sources that can be used for each criminal activity included in the Index (See the report's recommendations for further details).

Do rigorous data collection methods exist that can facilitate the production of reliable estimates of the scope and impact of organized crime in Canada? To what extent can data collection methods offset the inherent weaknesses of the data? To what extent can foreign models be replicated in Canada?

In Canada, the methods used to quantitatively research organized crime vary from study to study. In general, however, most of the studies relied on traditional (criminological) research methods, such as conducting household surveys (to estimate the extent and impact of victimization or consumption of illegal goods and services) or surveys of police data (such as the UCR2 survey or a survey of police case files).

The critiques of the methods used to collect data to measure the scope and impact of organized crime are similar to those levelled against the data itself; indeed, the dominant methods do not overcome the weaknesses of the raw data. Most notably, the UCR surveys do not compensate for the well-known problem of the public's under reporting of crime to police nor does it make any attempt to ensure the data that is collected is representative of the actual population of criminal incidents the survey attempts to measure.

With that said, Canada boasts a number of rigorous conceptual data collection models and applied research methodologies that can and have been used to measure and estimate the scope and impact of at least some of the organized crime activities examined in this report. In the area of drug trafficking, a number of studies using rigorous research methods have been carried out that estimate the scope and impact of illegal drug use. These studies include those that are comprehensive in terms of national coverage of the general population (Eliany, Giesbrecht and Nelson, 1990; MacNeil Webster, 1997; Single et al., 1996; 1998; Adalf, 2005; Rehm, et al., 2006) and those that provide quantitative data for youth populations (Adalf and Paglia, 1999; Poulin and Elliott, 2007). Empirical studies that estimate the scope of illegal drug production and trafficking have also been conducted by Canadian researchers, mostly from the scholarly community. This includes estimates of the size of the marijuana industry in British Columbia – including the number of illegal cultivation operations and volume and value of marijuana produced (Chin et al., 2001; Plecas et al., 2002; 2005; Easton, 2004). Rigorous quantitative studies have also been conducted that estimate the scope of the marijuana industry in Quebec (Bouchard, 2007) as well as the number of drug traffickers operating in that province (Bouchard and Tremblay, 2005). While these studies are not national in scope, they are significant for the methodological precedence they set for future studies that estimate the scope of illegal drug production and trafficking in this country. The studies conducted into the B.C. marijuana industry by faculty at the University College of the Fraser Valley (Chin et al., 2001; Plecas et al., 2002; 2005) are notable for their survey of police cases which is complimented by the sophisticated capture-recapture methods used by Bouchard (2007) and Bouchard and Tremblay (2005) to estimate hidden criminal populations.

The literature review did not identify any study that quantitatively measured and estimated the prevalence and impact of illegal gambling in Canada. With that said, a number of prevalence and social cost studies have been conducted into legal gambling (and compulsive gambling) at the national level (Ferris and Wynne, 1999; 2000; 2001) and at the provincial level (Baseline Market Research, 1996; Wiebe, Single, and Falkowski-Ham, 2001; Wynne, 2002; Smith and Wynne, 2002; Volberg and Ipsos-Reid, 2003; Volberg, 2003; Wiebe, Mun and Kaufman, 2006; Schrans and Schellinck, 2008).

A rigorous quantitative methodology was used by Sproule and Archer (2008) to estimate the scope and impact of identity/theft and fraud. A survey asked more than 3,500 adult Canadians if they had ever been a victim of identity theft. This research should be considered rigorous and provides a strong basis to measure the harms stemming from identity theft.

A 2004 working paper for the Bank of Canada by Simon Fraser University economics

professor John Chant provides an analysis of the costs to society of currency counterfeiting and proposes a method for estimating the quantity of counterfeit Canadian currency in circulation in 2001.

Rigorous and innovative data collection methods have been used to help estimate the scope of contraband tobacco consumption in Canada (Canadian Convenience Stores Association, 2008; GfK Research Dynamics, 2008; Leger Marketing, 2008). Not only did these studies employ a rigorous survey methodology, they also collected a sample of cigarettes to determine what proportion was contraband. A number of studies have used sophisticated econometric modeling to estimate the size of the Canadian underground economy (Gervais, 1994; Mirus and Smith, 1997; Smith, 1997; Schneider, 1997; Giles et al., 1999; Tedds, 2005).

Table 5 below identifies the criminal activities where rigorous research methods have been used to collect data to measure and estimate the scope and social costs of the criminal activity. This matrix measures the extent to which rigorous methods have and can potentially be applied in Canada to this end.

Table 5: Assessment of the rigour of research methods used to collect and analyze data on the scope and impact of organized criminal activities in Canada

Criminal Activity	Rigorous methods to estimate scope/prevalence	Rigorous methods to estimate harm/impact
Arms smuggling & trafficking	Poor	Poor
Drug trafficking	Good	Good
Currency counterfeiting	Good	Fair
Product piracy (movie piracy - copyright infringement)	Poor	Fair
Credit card counterfeiting / fraud	Fair	Fair
Identity theft	Good	Good
Illegal gaming	Fair	Good
Contraband tobacco products	Good	Good
Telemarketing fraud	Fair	Fair
Auto theft	Fair	Good

Key:

Poor – No rigorous methods have been implemented in Canada

Fair – No rigorous methods have been implemented in Canada, but conceptual models exist and/or have been applied in other countries and can be replicated in Canada

Good – At least one method has been implemented in Canada, but has not captured the scope or harm of the criminal activity in its entirety (i.e., is not national in scope or does not identify and measure all the impacts of the criminal activity);

Excellent – At least one rigorous method has been implemented in Canada, and has captured the scope or harm of the criminal activity in its entirety (i.e., is national in scope and does identify and measure all the impacts of the criminal activity);

As can be seen in the above table, most criminal activities receive at least a "fair" rating, because, even for those criminal activities where research has not been conducted in Canada, rigorous models have been applied in other countries. The absence of an "Excellent" rating for any of the criminal activities derives from the lack of rigorous quantitative data collection methods in Canada that have captured the scope or harms of the criminal activity in its entirety (i.e., is national in scope and does measure all the impacts of the criminal activity).

As mentioned, a number of rigorous research designs have been developed and applied to measure the scope and impact of organized criminal activities in Canada, which can help offset some of the weaknesses of the raw data that is being collected. However, these research designs cannot completely overcome the shortcomings of the data as far as producing precise, accurate, nationally-representative estimates of the impact of organized criminal activities.

Moreover, as discussed earlier, the data collection and analytical models are also fraught with limitations that undermine the reliability of the resulting estimates. In particular:

- The over-riding challenge inherent in estimating the scope and impact of organized criminal activities – indeed in researching organized crime in general – is its hidden and secretive nature, which makes accurate measurement extremely difficult.
- No single survey can measure the scope of a criminal activity comprehensively and accurately, in part because of the complexity and widespread nature of the criminal activity, the limitations of the data, and the incomplete coverage and non-response problems that plague surveys that attempt to measure criminal activities or the consumption of illegal goods and services.
- There are few, if any, rigorous methods or techniques that can isolate criminal activities perpetrated by organized groups or networks (as opposed to individual criminals acting alone).
- Most crime harm assessment studies are not comprehensive in that they do not take into consideration the full gamut of the impacts. This is particularly true with respect to the identification, measurement, and quantification of those impacts that are intangible (e.g., pain and suffering), indirect (loss of revenue to companies where the

work by employees who have been victimized or are addicted to drugs has been impaired), and positive (criminal activities that deliver benefits, such as job or wealth creation).

- Cost of crime studies are replete with numerous assumptions that can have a significant impact on the results (and reliability) of the study. Different statistical models can also produce widely different results.

Researchers working in this field have recognized these challenges and shortcomings and some have sought to introduce new data collection methods, validity tests, and universal guidelines to maximize the reliability of the findings and to ensure consistency across studies. Indeed, a chronological analysis of the literature (from both Canada and other countries) reveals that quantitative research examining organized crime is growing, not only in terms of published studies, but also in the number of different methods and models as well as the sophistication and rigor of these models. The sophistication and rigor of statistical modeling have progressed and this bodes well for future efforts to measure the scope and impact of criminal activities.

In sum, there is a great variance in the use of rigorous prevalence and harm assessment methods and models for each criminal activity. However, in general, the methods that have been employed in Canada have not produced comprehensive estimates of the scope and impact of the prioritized criminal activities. To produce the harm estimates required of a comprehensive OCHI, new data collection methods will have to be developed for most of the criminal activities or existing ones expanded to ensure comprehensiveness in terms of fully measuring the scope of the criminal activities (in particular, the number of criminal groups, size of criminal markets, etc.) and to ensure a nationally-representative sample. The development of a rigorous, comprehensive, and national OCHI will require further exploratory research into the methods that need to be developed and implemented for each criminal activity included in the Index.

Is it possible to develop and implement a rigorous quantitative research and analytical design that comprehensively and reliably assesses the impact (costs) of organized crime in Canada?

Despite the advances made in research and analytical designs, there will continue to be a number of limitations and shortcomings that will undermine their ability to rigorously collect and analyze data that can produce prevalence and harm estimates that are precise, accurate, and reliable. In other words, there are inherent limitations in any research that estimates the scope and impact of (organized) crime that are unavoidable, cannot be completely overcome by rigorous data collection methods and analytical models, and will automatically render the resulting figures as broad estimates only.

At the core of the problem is the lack of data and data sources that can reliably, accurately, and comprehensively measure the scope of organized criminal activities at the national level. As discussed, the lack of reliable data is the product of both the inherent nature of contemporary organized crime (e.g., its inherently hidden nature), but is also a product to the limitations and shortcomings of the traditional data collection methods

(e.g., the UCR2 survey does not overcome the limitations of the data).

With the goal of maximizing methodological rigor – and ultimately the accuracy of the estimates – the greatest challenge in assessing the costs of crime is developing data collection methodologies and analytical models that overcome the following weaknesses and challenges: (1) the lack of inclusion of the full range of direct, indirect and intangible impacts stemming from the criminal activities in question, (2) the difficulty involved in applying appropriate monetary costs to these impacts (including the indirect and intangible costs, such as emotional or psychological suffering); and (3) statistical models and assumptions used for statistical modeling that can produce widely varying estimates based on the models and assumptions used.

Estimating the scope of organized criminal activity is complex enough, with no guarantees that the results are anything more than broad estimates. Measuring the *impacts* of organized criminal activity is even more complex and tenuous, not only because of the afore-mentioned challenges in conducting such research, but because these impacts estimates are built on a foundation of generally weak prevalence estimates.

Regardless of the scientific rigor used in the research, it is unlikely that the full impact and costs of organized crime on society can be measured comprehensively, precisely, or accurately. The wide-ranging impact of organized crime on society, the need to quantify indirect and intangible impacts, the lack of reliable data, the difficulty in isolating offences committed by criminal organizations, and the necessity of invoking highly subjective assumptions, renders the resulting quantitative data as broad estimates only. As such, the development of a rigorous OCHI, complete with equally rigorous and sophisticated data collection and analytical modeling techniques, do not guarantee reliable, accurate or precise findings with respect to the scope and impact of a particular crime category or criminal incident; they can only produce broad estimates.

The contribution of harm assessments to the larger goal of organized crime control in Canada

Can an OCHI and supporting research contribute to the larger goal of organized crime control in Canada? Can such models assess whether enforcement initiatives have had some effect?

As documented in Annex A, the literature review revealed a number of studies and other literature that advocated for the utility of crime prevalence and harm assessment research in guiding public policy and programs, and in organized crime control measures specifically.

Interviews and focus groups conducted with federal and provincial government officials, including those in law enforcement and/or those on the Research Working Group, also were supportive of any efforts to rigorously identify and measure the impact of organized crime on society (although some law enforcement officials acknowledged the great challenge in trying to use these estimates to evaluate police operations). Through primary

research, this study identified a number of uses of data that estimates the harm of organized crime Canadian society. According to research participants, such information can:

- nurture a better understanding of organized crime, which can serve numerous purposes at the intelligence, operational and public policy levels;
- facilitate the identification and understanding of the causal factors underlying organized crime and its growth in recent years;
- identify specific and serious harms that need to be addressed through public policy and programs
- prioritize organized crime groups and activities for policy, program and strategic operational (law enforcement) resource allocation and targeting purposes (which supports the movement of police and other government agencies to operate on an evidence-based and intelligence-led foundation);
- provide more and better information to keep senior government officials informed;
- through a deeper understanding of the harms of organized crime, expand the repertoire of approaches to dealing with organized crime and its aftermath;
- help focus more proactive, preventative initiatives
- promote a shift toward and help inform a harm reduction approach to combating organized crime activities;
- through a deeper understanding of the wide-spread nature of the harms of organized crime, promote more partnerships and coordination within government and between government and other sectors of society impacted by organized crime (e.g., the private sector);
    - promote greater coordination and dialogue between the public safety and public health sectors;
    - help identify potential partners who can combat the problem of organized crime by focusing on specific areas of harm that fall within each partner's expertise and/or jurisdiction;
- facilitate additional and more thorough performance targeting and program evaluations, especially those that go beyond traditional "output" measures (such as arrests, seizures, prosecutions, etc.) and include "outcome" measures (such as the impact on a criminal organization, the size of an illicit market or supply source, or the various harms that result from organized crime). This, in turn, can potentially increase the effectiveness and cost-effectiveness of control strategies and law enforcement operations;
- help address the demand for more accountability in how public funds are being spent, and ensuring they are being spent in the most effective way; Ministers and senior government officials are requesting more reliable data on the impact of control strategies from police and civil servants;
- facilitate a comparison of the harms of organized crime under different control models (e.g., prohibition/enforcement vs. legalization/regulation) within the context of pursuing the most effective and efficient harm-reducing model; and
- help raise public awareness of the scope and impact of organized crime on Canadian society; help government better and more accurately communicate the harms of

organized crime to the public.

As a conclusion to their document that summarizes the design of the Criminal Activity Harm Prioritization Scale, the RCMP (2008) confidently extols the benefits of this tool for law enforcement purposes:

> While the Sleipnir model has assisted in identifying the highest criminal threats, there is a renewed vigour to identify the harm(s) of criminal activities. As important as it is to understand and assess criminal groups, in and of themselves, it is equally important to know the harm(s) of the criminal activities they undertake .... Within the Canadian public safety context, this tool provides law enforcement agencies with an understanding of the harmful effects and impacts of criminal activities, and, ultimately, with another layer of intelligence analysis ... It is suggested that the HPS be used in parallel with other intelligence assessment tools to provide a more inclusive picture of criminality. For example, by using Sleipnir, law enforcement agencies are able to identify the overall threat of criminal groups; by adopting the HPS, law enforcement agencies will be able to identify the harm of criminal groups as identified through the criminal activities they undertake. The use of these two tools simultaneously will provide law enforcement agencies with a more in-depth analysis of criminal groups in Canada and will allow for more informed decisions in the targeting of criminality.

In this report, the RCMP also describes how a committee of academics assembled to review the HPS and its design and methodology "were in agreement with the methodology and research design of the HPS and hence have endorsed it as 'an extremely valuable tool' that 'could be extremely effective for law enforcement.'"

Research participants interviewed for this project agreed that, not only can an Organized Crime Harm Index be used to help inform policy and set priorities, but it can help satisfy the need for sound, measurable, realistic, and empirically-based benchmarks against which progress in organized crime control policies, programs, and operations can be measured. Indeed, this is the case in Great Britain where a Drug Harm Index has been developed to measure various harms associated with drug use, and which is used as a measurement tool to evaluate progress toward specific harm reduction targets.

While, harm assessment research can be used to help evaluate policy at a strategic level, it is unlikely that one could be used with any precision to evaluate the effectiveness of a tactical law enforcement operation. First, as mentioned numerous times, any harm index must be considered as broad estimate of the problem being measured and, thus, they do not have the precision or accuracy to constitute a reliable measurement tool at the tactical operational level. A harm index would also have a difficult time measuring the possible intangible impacts of a particular enforcement strategy or operation, such as deterrence. Second, because of the scope, flexibility, and resilience of organized crime, especially in the face of limited police resources, law enforcement generally has little control over the problem. This was an assumption used by Bouchard and Tremblay (2005) in developing the parameters of their study that measures the number of drug dealers in Quebec: "It is assumed that arrests, or incapacitation, have no significant impacts on the flow of active

dealers. As such, the assumption is made that dealers arrested, convicted, and incarcerated are all replaced and that the replacement process is fairly instantaneous."

Similarly, even the seizure of a multi-kilo shipment of illegal drugs generally has little impact on supply, as there are often various other sources. The same can be said for the dismantling of a criminal organization. In British Columbia alone, the estimated number of organized crime gangs more than doubled — from fifty-two in 2003 to 108 in 2005. In a public speech, the assistant commissioner in charge of the RCMP in the province said that limited law enforcement resources mean "only 30 percent of known organized crime groups can be targeted every year" (Royal Canadian Mounted Police, "E" Division, 2005).

Thus, even at a province-wide level, it would be difficult to discern any impact of law enforcement, or other crime control approaches, on the overall extent of organized crime because the problem is so large. With that said, an OCHI may be used to determine if the targeting of a major province-wide crime group – such as the Hells Angels in British Columbia, Quebec, or Ontario – would be reflected statistically in both the size of illicit (drug) markets and harm reduction figures for that province.

In sum, this study found that crime harm assessment research can make a number of contributions to public policies and efforts to combat organized crime specifically. However, the utility of the information produced from research is critically (and obviously) contingent on the accuracy and reliability of the information. As mentioned, harm indices are capable of only producing broad estimates, with no guarantee of precision or even accuracy. Thus, there is the danger that policies may be based on unreliable and inaccurate data. In short, given the inherent limitations on the reliability of harm assessment data, policy makers, strategists, and criminal justice system operational managers must be extremely prudent when relying on such data for policy, program, or operational decisions.

Despite questions about the reliability of quantitative research into organized crime, Ogrodnik (2002) nonetheless argues that such information is necessary:

> Quantifying organized criminal activity presents a great challenge. Factors impeding a precise statistical assessment of organized crime are diverse. A combination of factors ranging from the lack of standard definitions and guidelines, the under-reporting of organized crime, the current design of intelligence databases and security of the information sought, all place challenges on efforts to quantify organized crime.... Nevertheless, sound statistics are necessary to provide quality information to governments, the police community and the general public about the extent and impact of organized crime in Canada. Without ongoing data to update Canadians on the state of organized crime in Canada, it will be difficult for government, policy makers, and the police to set priorities, and make policy decisions regarding the fight against organized crime.

The application of assessment models, methods, and instruments in a feasible and

cost-effective manner in Canada

Are studies that measure the scope and impact of organized criminal activities feasible? Are they cost-effective? Can an OCHI, and all it entails, be implemented in a feasible and cost-effective manner in Canada?

For the purposes of this study, one way to frame the issue of the feasibility and cost-effectiveness of organized crime prevalence and harm assessment research, and ultimately the development of an Organized Crime Harm Index, is to juxtapose the necessary expenditures and other resources necessary for rigorous research against the anticipated reliability of such research in producing accurate estimates.

In other words, an OCHI may be considered cost-effective if it can produce reliable measurements. As documented in this report, the reliability of such estimates is in question. As such, given the substantial investment necessary to develop, test, and implement such a model, a decision to undertake such a project is a risky one. In their study of the economic costs of illegal drug abuse, Godfrey et al. (2002) succinctly ask: "Is it really feasible (or realistic) to measure the harm of activities that, by their nature, do not lend themselves to measurement?"

However, producing reliable results that contribute to a better understanding of the scope and impact of organized crime may be an insufficient justification for the costly expenditures that will be necessary to develop and implement a national OCHI.

A more important criterion to assess the cost-effectiveness of a national OCHI is whether it can contribute to controlling organized crime and whether the hefty price tag that inevitably accompanies the Index justifies its contributions. As mentioned, there are a number of arguments that justify the implementation of a harm index for policy and program purposes. Whether the contribution that such an index makes to controlling organized crime justifies its costs is beyond the scope of this project.

Regardless of whether such an OCHI is cost-effective, it must be acknowledged that the development and implementation of a national and comprehensive OCHI – complete with all the research required to estimate the scope of impact of the organized crime activities – is complex, labour- and time-intensive, and expensive. This is especially true given the wide range of criminal activities that must be measured and the rigorous methodological work that must be done to rigorously collect and analyze the data. A fundamental assumption of this review has been that an organized crime harm index must focus on criminal activities. This complicates matters because there is no single methodology, data source, or analytical model that can be universally used to collect reliable quantitative data on the scope of and harm caused by organized criminal activities.

Indeed, as already argued in this report arriving at reliable estimates of the scope and impact of even just one criminal activity – drug trafficking, for instance – requires multiple sources and multiple methods. At least two new national surveys would need to be implemented; a victimization survey specific to organized criminal activities that

would be conducted among households and among organizations.

To minimize costs, the OCHI can simply use existing data that has already been collected and analyzed. This is true for such priorities as drug trafficking, credit card fraud, currency counterfeiting, identity theft, contraband tobacco products, and organized automobile theft. The harms caused by illegal gambling can also be measured in a cost-effective manner by estimating the scope of illegal gaming and then the social cost estimates developed to this figure. (In contrast, statistical research will be more difficult and expensive to conduct with respect to such priorities as arms smuggling and trafficking and product piracy. There is relatively little quantitative data available for these priorities and the data that do exist are not centralized, nor do they delineate between offences committed by groups and those committed by individuals acting alone.). However, much of the existing data sources have significant limitations as far as their reliability or comprehensiveness in measuring harms is concerned.

The reason that much of the existing cost of organized crime data lacks comprehensiveness is that there are no measurements of the negative impact of the criminal organization beyond the harms inflicted by the product or service they market (i.e., drug addiction, compulsive gambling, loss of tax revenue due to contraband tobacco, etc.). In other words, the existing costs of crime research fails to take into consideration the harms of the criminal organizations themselves, including the use of violence, corruption, the use of illegally-derived revenue to fund other criminal or terrorist activities, etc. Thus, a comprehensive OCHI should require original research that measures these harms. Much of these data would come from police and other law enforcement agencies.

As far as collecting original police-recorded data is concerned, the most cost-effective approach would be to use UCR and/or UCR2 data. The data already exists, is collected on an annual basis from police departments, is maintained by Statistics Canada, and could be used as a partial basis for measuring the harms of both the criminal activities and sponsoring organizations. As mentioned, however, the UCR data suffers from a number of reliability issues, most significantly it under-estimates the actual frequency of criminal events, and the data is not representative of the actual population of criminal events. The first weakness can be overcome by adding "multipliers" to the crime data. The second weakness is more difficult to overcome (i.e., if the sample is not representative of the population it is supposed to be measuring, then the results cannot be considered an accurate reflection of the population). With that said, it may be possible to triangulate the police-recorded data with data collected from other sources (in particular victims) to address this sampling problem.

The cost-effectiveness of the research can be maximized by using one household survey to collect a wide range of relevant data, including victimization from a range of (organized) criminal offences (identity theft, telemarketing fraud, credit card fraud, automobile theft, etc.) , as well as data on the consumption of illegal goods and services (drugs, contraband, counterfeit products, illegal gambling, etc.). In addition to helping to estimate the scope of criminal activities, these "victimization" or "consumption" surveys can provide information that help measure the negative impact of criminal activities,

which increases their utility and cost-effectiveness even more. The implementation of such a survey can be carried out by one of many national research/polling firms. To reduce public costs, the federal government can also collaborate with key partners in provincial governments, the private sector, and the research community.

In sum, undertaking the research required to compile an OCHI will be resource-intensive and expensive, with no guarantee that the findings will be at a level of reliability or precision that it will be of value to the broader efforts to control organized crime. The rigour of the research methodology and reliability of the findings positively correlate with the amount of money invested into the research. In other words, inadequate funding (or other half measures) will undermine the rigour of the research and the reliability of the findings, which in turn can lead to ineffectual policies. There must be a commitment to ensuring the most rigorous methodology possible by the federal government and other key partners; if this commitment cannot be met, then thoughts of implementing a comprehensive Organized Crime Harm Index should be abandoned (or replaced with a less ambitious index).

Obstacles to the effective implementation of harm assessment models

What are the obstacles to implementing an OCHI? What are the obstacles to collecting necessary data for assessing the scope and impact of organized crime in Canada? What legal or confidentiality issues can obstruct the gathering of data? How can these obstacles be overcome or at least limited?

There are a number of obstacles to implementing a rigorous and effective OCHI. These obstacles can be broken into two categories: those that relate to the collection of rigorous data and the production of reliable estimates and those involved in the development and implementation of this ambitious index.

Paramount in the first group is the obstacles to the rigorous collection of data and the production of reliable estimates. These include obstacles of a legal nature as well as those relating to the lack of coordination between multiple data bases. The former includes the privacy provisions of the federal *Personal Information and Electronics Documents Act* (PIPEDA), and its provincial counterparts, which restrict the disclosure of personal information collected by an organization in the course of commercial activities. These are significant obstacles because to overcome them will require costly expenditures as well as the need to align and coordinate existing data sources (such as police data bases) to generate raw data that can reliably be used to estimate the scope and impact of organized crime. This can be framed, not so much as an obstacle that needs to be overcome, but a challenge to develop and implement a highly ambitious research agenda that can make significant contributions to a better understanding of, and more effective control measures against, organized criminality. As mentioned, for the most part there appears to be sufficient data sources and replicable data collection methods and analytical tools to inform an Organized Crime Harm Index. What is required is the will and resources among all the key players to ensure the development of the most rigorous research framework possible.

There is also the argument that the methodological challenges cannot be completely

overcome and, as such, one has to proceed with imperfect research methods and analytical models. Some studies have placed intentional limits on the impacts measured, which increases the rigor of the model and the reliability of the findings (within the context of the parameters set by the study), but minimizes the accuracy of the findings as far as a full accounting of the impacts are concerned. A number of studies have avoided the complications and controversies of attempting to estimate all the social costs of crime. Instead, they have restricted their analysis to the impact of crime on victims (Klaus, 1994; Cohen, Miller, and Rossman, 1994; Miller, Cohen, and Wiersema, 1996). Other studies restrict themselves to collecting and analyzing only assessable data. In their study that estimates the costs of drug use in the U.S., Hay et al. (2006) only "considers drug use measures that are readily available in data that can systematically be collated across the country." Perhaps the best example of an applied model where its scope is deliberately limited (to maximize rigor and to control costs) is the British Drug Harm Index, which "does not capture all the harms that illegal drug use generates, but rather a subset of harms for which robust data (or information) are available. It is therefore an index indicating change over time, rather than an estimate of the absolute level of harm at any one time" (MacDonald et al., 2005).

Maltz (1990) supports the limitation placed on the British Drug Harm Index when he speaks to the use of organized crime indices as time-series models that can track changes in key variables over time: "We may not be able to estimate the magnitude of an activity, but must be content with knowing whether it is increasing or decreasing, or what its targets are, such as which businesses are being infiltrated."

Another obstacle that invariably confronts those researching organized crime is their lack of access to police data. This is due in part to the sensitive nature of the data, although some research participants in the law enforcement community interviewed for this project admit that there are numerous other reasons why police don't share information with researchers or other police agencies for that matter. These reasons range from the technological (the lack of interoperability between police databases) to the pedantic (police create their own silos, which limits their willingness to cooperate with other law enforcement agencies). One of the most glaring voids in law enforcement efforts to combat organized crime is the absence of a truly national database that is universally valued by police as a strategic and tactical tool. This void is a great detriment to any effort to conduct quantitative research into organized crime at a national level.

The other group of obstacles relate to the implementation and utility of an OCHI. The costs of developing and implementing this ambitious index can certainly become an obstacle. The lengthy, multi-stage process that will be inevitable in the development of the index can also be seen as an obstacle. Finally, the utility of the index may not be fully realized even when implemented; senior management and policy-makers – especially politicians – may simply ignore the index and make policy decisions based on other influential factors, such as ideology or political opportunism. Indeed, some law enforcement officials interviewed for this project admitted that there was great scepticism, especially among senior management, about using some sterile, inert, scientific model to guide policy and operational decisions.

ANNEX C - SELECTIVE BIBLIOGRAPHY OF QUANTITATIVE STUDIES MEASURING THE SCOPE AND/OR HARM OF ORGANIZED CRIME IN CANADA

The following table is a selective bibliography of quantitative research measuring the scope of and/or the harm caused by organized criminal activities in Canada. This list is broken down mostly by subject matter (the criminal activities prioritized in this report) and includes references to the relevant studies and, in the subsequent column, an indication as to whether the study measured the prevalence (scope), harm, or both. Within each subject category, the studies are presented in chronological order by year of publication.

This list is not meant to be exhaustive (although it strives to be comprehensive). It consists mostly of leading studies that have undertaken original primary research or have brought together large amounts of existing data to inform their analysis. Articles that summarize data already published in primary research reports, books or articles are not included. Only the most recent studies of provincial gambling surveys and student substance/drug use surveys are included.

Quantitative research measuring the scope and harms of organized crime generally (including harm rating indices)	**Prevalence (P) Harm (H)**
Porteous, S. 1998. *Organized Crime Impact Study*. Ottawa: Public Works and Government Services of Canada.	H
Royal Canadian Mounted Police. 2008. *Criminal Activity Harm Prioritization Scale*. Ottawa: RCMP.	H
British Columbia. Ministry of the Attorney General. Public Safety and Regulatory Branch Police Services Division. 2001. *The Nature, Scope, and Impact of Organized Crime in British Columbia: A Preliminary Assessment and Review*. Victoria, B.C: Ministry of the Attorney General. March.	P, H
Royal Canadian Mounted Police, "E" Division, Criminal Analysis Section. 2005. *The Scope and Impact of Organized Crime in British Columbia.* Prepared for CISBC/YT Provincial Executive Committee and British Columbia Policing Operations Council.	P, H
Quantitative research measuring the scope and impact of illegal drug consumption	
Eliany, M., Giesbrecht, N., & Nelson, M. (Eds.). 1990. *National Alcohol and Other Drugs Survey*. Ottawa: Health and Welfare Canada.	P
P. MacNeil and H. Webster (Eds.). 1997. *Canada's Alcohol and Other Drugs Survey 1994: A Discussion of the Findings*. Ottawa: Ministry of Supply and Services.	P
Single, E., Brewster, J.P., MacNeil, P., and Hatcher, J. 1994. *General Social Survey*. Ottawa: Canadian Centre on Substance Abuse.	P
Single, E., Robson, L., Xie, X., and Rehm, J., 1996. *The Costs of Substance Abuse in Canada.* Ottawa: Canadian Centre on Substance Abuse.	H
Edward M. Adlaf, Patricia Begin, and Edward Sawka (Eds.). 2005. *Canadian Addiction Survey (CAS): A National Survey of Canadians' Use of Alcohol and Other Drugs: Prevalence of Use and Related Harms*. Ottawa: Canadian Centre on Substance Abuse.	P, H

Rehm, J., Baliunas, D., Brochu, S., Fischer, B., Gnam, W., Patra, J., Popova, S., Sarnocinska-Hart, A., Taylor, B. in collaboration with Adlaf, E., Recel, M. Single, E. 2006. *The Costs of Substance Abuse in Canada, 2002. Highlights.* Ottawa: Canadian Centre for Substance Abuse.	H
Youth drug use surveys Adlaf, E., and Paglia-Boak, A. 2007. Drug Use among Ontario Students, 1977-2007. Toronto: Centre for Addiction and Mental Health. Poulin, C. and Elliott, D. 2007. Student Drug Use Survey in the Atlantic Provinces, 2007. Halifax: Department of Community Health and Epidemiology, Dalhousie University. The above are just two examples of provincial youth drug use surveys. Almost all provinces and territories conduct surveys of youth to measure the scope of drug use. For links to the survey reports, go to: www.ccsa.ca/Eng/Statistics/Canada/Pages/StudentStatistics.aspx	P, H
Quantitative research measuring the scope and impact of illegal drug supply	
Royal Canadian Mounted Police Drug Intelligence Estimates & Drug Situation Reports	P
Revenue Canada. Customs and Trade Administration Branch. 1999. *National Cocaine Threat Assessment*. Ottawa: Revenue Canada.	P
Chin, V., Dandurand, Y., Plecas, D., and Segger, T. 2001. *The Criminal Justice Response to Marihuana Growing Operations in B.C.,* Abbotsford/Vancouver: The Department of Criminology and Criminal Justice, University College of the Fraser Valley, and the International Centre for Criminal Law Reform and Criminal Justice Policy. Plecas, D., Dandurand, Y., Chin, V., and Segger, T. 2002. *Marihuana Growing Operations in British Columbia: An Empirical Survey (1997-2000).* Abbotsford, B.C.: University College of the Fraser Valley and the International Centre for Criminal Law Reform and Criminal Justice Police. Plecas, D., Malm, A. and Kinney, B., 2005. *Marihuana Growing Operations in British Columbia Revisited, 1997-2003.* Abbotsford, B.C.: University College of the Fraser Valley and the International Centre for Criminal Law Reform and Criminal Justice Police.	P
Easton, S. 2004. *Marijuana Growth in British Columbia*. Vancouver: Fraser Institute. Public Policy Sources. Number 74. A Fraser Institute Occasional Paper.	P
Bouchard, M., 2007. "A capture–recapture model to estimate the size of criminal populations and the risks of detection in a marijuana cultivation industry." *Journal of Quantitative Criminology*. 23: 221–241 Bouchard, M., and Tremblay, P. 2005. "Risks of arrest across markets: A capture–recapture analysis of 'hidden' dealer and user populations. *Journal of Drug Issues*. 34:733–754	P
Quantitative research measuring the scope and impact of (problem) gambling	

Ferris, J., Wynne, H. & Single, E. 1999. *Measuring Problem Gambling in Canada. Phase I Final Report to the Canadian Inter-Provincial Task Force on Problem Gambling*. Ferris, J. & Wynne, H. 2000. *Validating the Canadian Problem Gambling Index: Report on the Pilot Phase of Testing, January 10, 2000*. Canadian Centre on Substance Abuse. Ferris, J. & Wynne, H. 2001. *The Canadian Problem Gambling Index: Final Report*. Ottawa: Canadian Centre on Substance Abuse.	P, H
Selective provincial studies measuring the scope and impact of (problem) gambling Baseline Market Research. 1996. *1996 Prevalence Study on Problem Gambling in Nova Scotia*. Report to the Nova Scotia Department of Health. Wiebe, J., Single, E. & Falkowski-Ham, A. 2001. *Measuring Gambling and Problem Gambling in Ontario*. Toronto: Canadian Centre on Substance Abuse and Responsible Gaming Council (Ontario). Wynne, H. J. 2002. *Gambling and Problem Gambling in Saskatchewan*. Report prepared for Saskatchewan Health. Regina, SK: Saskatchewan Health. Smith, G. J. & Wynne, H.J. 2002. *Measuring Gambling and Problem Gambling in Alberta Using the Canadian Problem Gambling Index (CPGI)*. Alberta Gaming Research Institute. Volberg, Rachel (Gemini Research). 2003. *Gambling and Problem Gambling in British Columbia: Results from Three Surveys, 1993 to 2003.* Report submitted to the Province of British Columbia. Wiebe, J., Mun, P., & Kaufman, N. 2006. *Gambling and Problem Gambling in Ontario 2005*. Toronto: Responsible Gambling Council. Schrans, T. and Schellinck, T. 2008. *2007 Adult Gambling Prevalence Study.* Halifax: Nova Scotia Department of Health Promotion and Protection Addiction Services.	P, H
Quantitative research measuring the scope and impact of (illegal) firearms	
Francis, G. 1995. "Illicit firearms in Canada: Sources, smuggling and trends." *Gazette* [RCMP] 57 (2), February: 22-24	P
Miller, T.R. 1995. "Costs associated with gunshot wounds in Canada in 1991." *Canadian Medical Association Journal*. 153: 1261-1268.	H
Injury Prevention Centre Edmonton. 1996. *Medical Costs of Firearm-Related Injuries: A Pilot Project in Alberta*. Ottawa: Department of Justice Canada.	H
Hung, K. 1996. *Firearms Crimes, Canada vs. U.S.* Ottawa: Department of Justice Canada. Hung, K. 1997. *Firearms Statistics*. Ottawa: Department of Justice Canada	P, H
Gabor, T. 1994. *The Impact of the Availability of Firearms on Violent Crime, Suicide, and Accidental Death: A Review of the Literature with Special Reference to the Canadian Situation.* Ottawa: Department of Justice.	P,H (lit review)
Dandurand, Y. 1998. Firearms, Accidental Deaths, Suicides and Violent Crime: An Updated Review of the Literature With Special Reference to the Canadian Situation. Ottawa: Department of Justice	P,H (lit review)

Leenaars, A.A. and Lester, D. 2001. "Impact of gun control (Bill C-51) on homicide in Canada." *Journal of Criminal Justice*. 29(4), July/August, 287-294	H
Canadian Centre for Justice Statistics. 2008. "Firearms and Violent Crime," 1975 to 2006, *Juristat* [Statistics Canada] 28(2), February 20.	P
Royal Canadian Mounted Police. 2009. *Canadian Firearms Program: Facts and Figures* (April to June, 2009). http://www.rcmp-grc.gc.ca/cfp-pcaf/facts-faits/index-eng.htm	P
Quantitative research measuring the scope of the contraband tobacco markets	
Researchology. 2007. *CCSA Contraband Tobacco Merchant Study*. Presentation to "No to illegal Sale of Tobacco Products Forum" November 2.	P
Canadian Convenience Stores Association. 2008. *Youth Contraband Tobacco Study, 2008*. Oakville, ON: Canadian Convenience Stores Association.	P
GfK Research Dynamics. 2008. *Illegal Tobacco Sales: A Crisis for Canadians*. National Study conducted for the Canadian Tobacco Manufacturers' Council	P
Leger Marketing. 2008. *Study on Contraband Cigarettes*. Report submitted to the Canadian Convenience Store Association.	P
Quantitative research measuring the scope and impact of product piracy (copyright infringement)	
Royal Canadian Mounted Police. Criminal Intelligence Directorate. 2000. *Assessment of Commercial Scale Copyright Piracy and Trade-mark Counterfeiting in Canada*. October. Unpublished.	H
Quantitative research measuring the scope of payment (credit and debit) card offences	
Canadian Bankers Association. 2009. *Credit Card Fraud Statistics - Canadian Issued Cards, For the Year Ending December 2008* http://www.cba.ca/eng/Statistics/FastFacts/credit_card_fraud.htm	P, H
RCMP. 2006. *Counterfeiting and Credit Card Fraud.* July 10, http://www.rcmp-grc.gc.ca/scams-fraudes/cccf-ccp-eng.htm	P, H
PriceWaterhouseCoopers and Retail Council of Canada. 2008. *Canadian Retail Security Survey, 2007*. Toronto: PriceWaterhouseCoopers.	P, H
Quantitative research measuring the scope and impact of fraud	
KPMG. 1999. *National Fraud Survey, 1999*. Toronto: KPMG Investigation and Security Inc.	P, H
PriceWaterhouseCoopers and Retail Council of Canada. 2008. *Canadian Retail Security Survey, 2007*. Toronto: PriceWaterhouseCoopers.	P
Canadian Anti-Fraud Call Centre (Phonebusters). February 2009. "Monthly Summary Report." www.phonebusters.com	P
Quantitative research measuring the scope of identity theft/fraud	
Sproule, S. and Archer, N. 2008. *Measuring Identity Theft in Canada: 2008 Consumer Survey – Working Paper /23*. McMaster eBusiness Research Centre. Hamilton: McMaster University.	P

Quantitative research measuring the scope and impact of currency counterfeiting	
Chant, J. 2004. *Counterfeiting: A Canadian Perspective.* Bank of Canada Working Paper 2004-33, Ottawa: Bank of Canada. September.	P
Quantitative research measuring the scope and impact of (organized) motor vehicle theft	
Insurance Bureau of Canada. 2004. *Impact of Auto Theft*. Toronto: IBC	P, H
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