



The Economics of Canadian Policing

FIVE YEARS INTO THE GREAT RECESSION

Prepared by:

Rick Ruddell, Ph.D.

Nicholas A. Jones, Ph.D.

Department of Justice Studies

University of Regina

3737 Wascana Parkway

Regina, Saskatchewan S4S 0A2

CCJS

Collaborative Centre for
Justice and Safety

University
of Regina

**The Economics of Canadian Policing Five Years
Into The Great Recession**

Rick Ruddell, Ph.D.

Nicholas A. Jones, Ph.D.

**Collaborative Centre for
Justice and Safety**

March 31, 2014

Acknowledgments: This study was funded by the “F” Division, Royal Canadian Mounted Police and the authors gratefully acknowledge their support for policing research. We also thank the Collaborative Centre for Justice and Safety for their support of our research, and in particular Heather Holtlander for her work in copyediting this manuscript. Dianne Olmstead is also thanked for her work on the cover.

CONTENTS		
I.	Executive Summary	1
II.	Background: Short-Term Economic Trends	4
	• Global Economic Trends	4
	• American Economic Trends: Impacts on Canada	8
	• Canada: Current Economic Conditions	9
	• Summary	13
III.	Austerity Policing	14
	• Global Policing Trends Since the Great Recession	14
	• Austerity Measures	17
	• Impacts of Austerity Policing	20
	• Summary	24
IV.	Recessions, Crime and Policing	25
	• Economic Downturns and Crime	25
	• The Impact of Policing on Crime	30
	• Summary	35
V.	Contemporary Canadian Policing	36
	• Police Costs and Crime	36
	• Summary	43
VI.	Canadian Cost of Crime Calculator	45
	• Components of the RAND Cost of Crime Calculator	45
	• Applying the RAND Calculator to Canadian Policing	47
	• Methodology	51
	• Structure and Use of the Cost of Crime Calculator	56
	• Summary	57
VII.	Reimagining Canadian Policing	58
	• The Expanding Role of Private Security	58
	• The Civilianization of the Police	63
	• Police-Community Partnerships	67

The Economics of Canadian Policing Five Years Into The Great Recession

	<ul style="list-style-type: none">• Traffic Safety and Enforcement• Summary	69 71
VIII.	Conclusions	75
IX.	References	77
X.	Author Biographies	93

I. Executive Summary

Since the start of the Great Recession in 2008 there has been a growing interest in applying business models and cost-benefit analyses to policing, especially in terms of holding police services more accountable for their performance as publically funded agencies. A review of the policing literature reveals an increased number of references to value for money (Barton & Barton, 2011) and return on investment from dollars spent on policing (Boyd, Geoghegan & Gibbs, 2011; Her Majesty's Inspectorate of Constabulary [HMIC], 2013). Police and political leaders, as well as academics have used the economic crisis as an opportunity to advance the issues of reimagining or re-envisioning policing.

While Canada has weathered the worst of the economic crisis that started in 2008 with fewer negative effects than our counterparts in the United Kingdom, the euro zone, and the United States, there has been a growing concern about the increasing costs of policing, which has been called unsustainable by the Federation of Canadian Municipalities (2013). Every Canadian municipality is grappling with increasing demands for civic services, including policing, and few local politicians want to increase taxes. With respect to the Ontario Provincial Police, for instance, changes in the manner in which their costs are recovered from municipalities have led to a growing concern from rural community leaders: Brennan (2014, n.p.) noted that "prior to 1998 rural municipalities did not pay for policing." These debates are not isolated to Ontario, and city counselors throughout the nation are trying to balance public safety and their ability to pay for policing.

Containing policing costs while ensuring that core policing services (e.g., those related to emergency response, criminal investigations and enforcing laws) are of key importance to policymakers and members of the Canadian policing industry. This is evidenced by an increased focus on the "economics of policing" in the research literature (see Griffiths & Stamatakis, 2012; Leuprecht, 2014; Ruddell & Jones, 2013), and several conferences and summits held throughout 2013-2014 (Charlottetown in January and September, 2013 and Vancouver in March 2014). Topics related to the economics of policing have been addressed at the Canadian Association of Chiefs of Police 2013 annual meeting and were a key subject addressed by the Standing Committee on Public Safety and National Security throughout 2013.

In many respects, funding for Canadian policing is more stable than in other English-speaking common-law nations. Police services throughout the United States have been

experiencing funding cutbacks and some jurisdictions disbanded their police services in favour of contract policing (U.S. Department of Justice, 2012), while other municipalities have replaced publically operated police with private police agencies. In the United Kingdom, policing budgets are projected to be cut by as much as one-third. Given these funding shortfalls, police leaders in these nations are being forced to rethink the manner in which services are delivered, who will deliver them, and how to best manage cuts to police budgets without threatening core policing services.

Canadian police services have the luxury of time to scan the environment for threats as well as opportunities for change, and learn what the police in other nations are doing in response to budget cutbacks. It is possible that the lessons learned from our counterparts will enable Canadian police services to better leverage their resources. Former Public Safety Minister Vic Toews, speaking at the Economics of Policing Summit in January 2013, observed that, “Police services face two options — they can do nothing and eventually be forced to cut drastically, as we have seen in some countries; or they can be proactive, get ahead of the curve, and have greater flexibility in designing and implementing both incremental and meaningful structural reforms.”

As part of a proactive strategy that examines the economics of policing in the Canadian context, a key goal of this study is to review the economics, management, and policing literatures to identify current trends in respect to the relationships between economics and policing, including how police services in other nations have managed austerity. The main findings from this review are that:

- There were 11 recessions between 1948 and 2011 and each one had a different set of causes, economic consequences, as well as recovery times and these three factors influence crime rates in an inconsistent manner.
- The global economic recovery has been slow and another downturn could have a significant impact upon the Canadian economy, and in turn, police funding.
- Police services in the United Kingdom and the United States have responded to the latest recession by streamlining operations and attempting to reduce demand.
- While police services in other nations have been successful in preserving core functions after budget cuts there is some question as to whether these strategies are sustainable over the long-term.

- Long-term austerity policing may negatively influence citizen perceptions of the police and has been shown to reduce the morale of police service staff in the United Kingdom.
- Cost-benefit analyses consistently reveal that investing in policing is a cost-effective public policy.
- Recent research demonstrates that officer effectiveness can be enhanced through directed patrol or “hot spots” policing.
- The RAND cost of crime calculator shows that adding police officers in jurisdictions with high crime rates is a good investment in public safety.
- Applying the RAND calculator to Saskatchewan policing shows a return of \$1.70 for every additional dollar spent on police officers.
- Deploying officers in traffic enforcement roles demonstrates a greater cost saving benefit to society than in general duty policing.
- Crime reduction strategies must be developed at the local level, as an approach that is effective in one jurisdiction may be unsuccessful when exported to another community.
- The current recession has led to many scholars calling for a “reengineering” or “re-making” of police operations although there is little consensus on what those changes should entail or who should decide what changes should occur.
- Most policing studies focus upon big city policing and there is almost no published research on best practices, cost effectiveness or measuring the performance of rural police services.

With respect to the structure of this report, the first section provides a short overview of global, U.S., and Canadian economic conditions at the start of 2014. That section is followed by a review of strategies police services in other nations have used to respond to economic downturns. The results of our examination of the costs and value of policing in Canada are then presented. Prior U.S. research that has examined the costs and benefits of policing is reported, including a description of the RAND cost of crime calculator and how it was adapted to the Canadian context and a discussion of the methodology involved. The report ends with a discussion of reimagining Canadian policing in light of current economic conditions.

II. Background: Short-Term Economic Trends

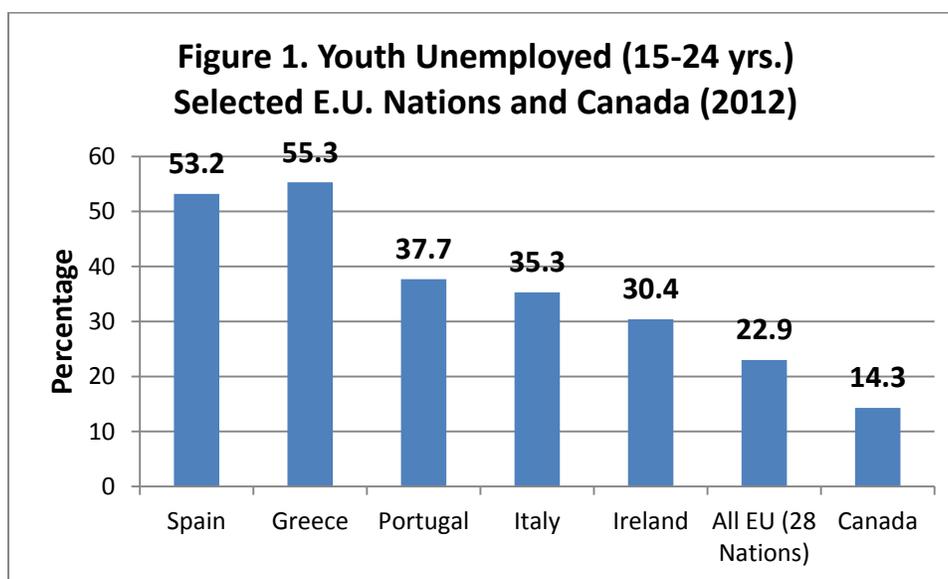
Although Canada is a member of the G7, our nation is a relatively minor player in a global economy and is vulnerable to larger external trends due to the interrelatedness of all developed economies. Moreover, given that the United States is Canada's largest trading partner, the economic conditions in that nation have a profound influence on our prosperity. One challenge confronting all human service agencies is that long-term downturns in the business cycle result in pressure to limit government spending. In addition to having a direct impact on police budgets, lower government spending on municipal and provincial services, such as reductions in health, education or social service spending, may contribute to higher levels of crime over the long-term (Gascon & Fogelson, 2011). While crime has increased during some economic downturns, there is no clear and consistent global pattern: crime is stable during some recessions, but increases in others.

Although the causes and length of these economic downturns have differed over time, they have occurred about every six years since the 1940s, and thus are fairly predictable. As a result, senior police leaders are likely to confront at least one of these downturns during their tenure. The predictability of these downturns enables agency leaders to develop plans to ameliorate the worst effects of these events. What distinguishes the recession that started in 2008 from other downturns is that policymakers, police service leaders and academic researchers are documenting the steps taken to reduce the negative impact of recessions and develop a research-based understanding of best practices to confront these downturns. In the pages that follow, global, U.S. and Canadian economic trends are identified and forecasts for the short-term future are described.

Global Economic Trends

The environmental scan conducted by the Royal Canadian Mounted Police (RCMP) in 2007 correctly identified the possibility of a hard economic landing due to a cooling in the U.S. housing market (RCMP, 2007) but few could have foreseen the global economic decline that has persisted years after the start of the recession. The financial crisis that started in 2008 had a significant impact upon the health of western economies. A key lesson from the global financial crisis is that all first-world economies are interconnected and a recession in one nation can have profound ripple effects in others. The impact of the recession varied between nations and

Jovanovic (2013, p. 1) observed that countries that were more vulnerable (e.g., had the weakest economies) before the crisis were hardest hit. In many western nations the recovery from the financial crisis has been slow and there is little consensus on how much longer it will continue. There is widespread agreement among academics and policymakers that the recovery would last about a decade, but there is less agreement on when that decade would actually start, or if it has started. The National Intelligence Council (2012, p. vi) has identified the “crisis-prone global economy” as a game changer stating that, “The key question is whether the divergences and increased volatility will result in a global breakdown and collapse or whether the development of multiple growth centers will lead to resiliency.”



While we tend to think of recessions in abstract terms, these downturns have profound impacts on the lives of many individuals and there is concern that the size of the middle class in many developing nations is eroding. Eurostat (2014, pp.1-2) reported that in January 2014 the average unemployment rate in the 28 nation euro area was 10.8%. For persons under 25 years the average unemployment rate in 2012 was over twice as much (22.9%). As shown in Figure 1, the highest youth unemployment rates were in Greece (55.3%), Spain (53.2%) and Portugal (37.7%). Canada, by contrast, had a youth unemployment rate of 14.3% (Bernard, 2013). Not only is youth unemployment harmful to the long-term prospects for this population, but a number of scholars have reported that high rates of youth unemployment are also associated with increased crime (see for instance: Aaltonen, MacDonald, Martikainen & Kivivuori, 2013).

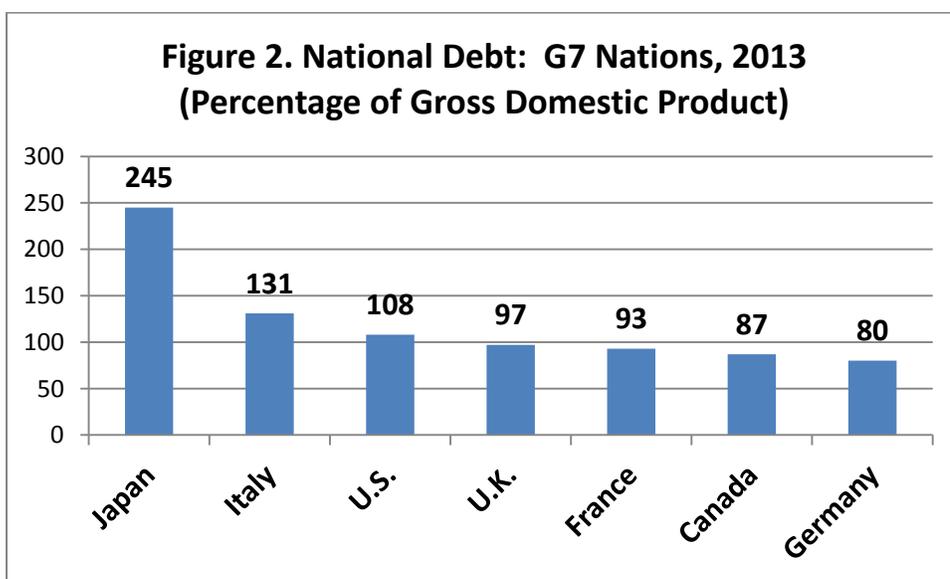
Global Economies: Fragile Recovery

Most of our attention in 2012 and 2013 was on the economic well-being of the European Union; and whether nations in economic distress, such as Cyprus, Greece, Portugal, and Spain would remain in that union. The Toronto Dominion Bank (2014) analyzed the recovery in the euro zone and they found that the crisis that had dominated the news throughout 2012-2013 had calmed somewhat in the last six months of 2013. The investigators projected a 1% gross domestic product (GDP – the total value of all goods and services produced in a year) growth for 2014 and 1.5% for 2015 in the euro zone, but they questioned whether those nations would experience decades of lost growth, much like the long-term downturn in Japan. Their analysis was cautiously optimistic although they expressed concern over “weak economic growth, low inflation, large net external liabilities, and high and still rising government debt” (Toronto Dominion Bank, 2014, p. 7).

In their forecasts of Canadian economic performance, Toronto Dominion (2014b) noted that, “The number one risk to the global economy is the upheaval that has occurred in many emerging market economies as interest rates rose and many of their currencies depreciated.” While the economic uncertainty in the euro zone has stabilized somewhat, Scotiabank (2014, p. 1) noted that “Job cuts and layoffs, and in some cases plant closures, are still being implemented in many countries as businesses continue to operate in a world challenged by over-capacity in many sectors.” These impacts are more pronounced in some emerging Latin American economies and China (Toronto Dominion Bank, 2014a). With respect to Latin America, the two largest economies, Argentina and Brazil, were slowing and projections for GDP growth were revised downward. There has also been concern that the growth in the Chinese economy was also cooling and that their housing markets were unstable. Bloomberg News (2014, n.p.) noted that manufacturing in China had been dropping for the six months prior to April 2014, and that their GDP growth “would be the weakest annual pace since 1990.”

Unforeseen events can also contribute to economic uncertainty and the long-term outcomes of the annexation of Crimea to the Russian Federation in March 2014 are yet to be seen. A number of nations, including Canada, members of the European Union and the United States have levied a number of economic sanctions on Russia.

Although there has been some short-term uncertainty in China's economic performance, the National Intelligence Council (2012, p. vi) observed that the "world's economic prospects will increasingly depend on the fortunes of the East and South" and they forecast that China would have the world's strongest economy by 2030. Consequently, there may be significant shifts in economic influence in the next decade although the short- and long-term impacts of these shifts on North American economies are uncertain. China is, for instance, the largest holder of U.S. sovereign debt and at the end of January 2014, they held \$1.273 trillion dollars in treasury securities (U.S. Department of the Treasury, 2014).



Many developed countries increased their national debt in order to stimulate their economies, and this has resulted in increasing indebtedness. The Bank for International Settlements reported that global public debt increased \$30 trillion between mid-2007 and mid-2013 and now exceeds \$100 trillion (Glover, 2014). Figure 2 shows the national debt of the G7 nations. Like family debt, there are a number of long-term consequences to high levels of national debt including reneging on promises made to the electorate, including the ability to pay government pensions and maintain public services (Chorafas, 2014). There is some debate about the effectiveness of different strategies and some governments have instituted austerity programs while others have increased public debt to stimulate their economies. Japan, for example, has used stimulus policies for two decades, yet their economy has yet to fully recover, and as shown

in Figure 2, they now have levels of indebtedness that range from two to three times that of their G7 counterparts.

American Economic Trends: Impacts on Canada

America's economic prosperity is of special interest to Canadians as that nation is our largest trading partner. When the U.S. economy is strong, prosperity in Canada also rises. There is an emerging sense of optimism as the value of U.S. equities has surpassed 2009 levels and the U.S. housing market is recovering. Also, new methods of resource extraction have lessened reliance on foreign oil (Krauss & Lipton, 2012). In a recent quarterly forecast, Toronto Dominion (2014b) observed that "The theme of an accelerating U.S. economy helping to lift Canada's growth trajectory from 2.0% in 2013 to 2.3% this year and 2.5% in 2015, remains intact."

Like the global recovery, the U.S. recovery from the 2008 crisis has been very modest and there are a number of indicators, such as debt, unemployment and inflation that suggest that America's financial health is still uncertain. Similar to other developed nations, the U.S. public debt was high and Glover (2014) reported that debt had almost tripled between mid-2007 and mid-2013 (from \$4.5 to \$12 trillion). This growth in debt has been called "unsustainable" and will lead to "fiscal challenges that will have a profound effect on government over the coming decades" (U.S. Government Accountability Office, 2014). As public debt grows, governments are forced to spend an increasing amount of revenue to pay the interest to creditors. The U.S. Government Accountability Office (2014, n.p.) reports that "deficits matter in the long run because they consume savings that otherwise could be productively invested [and] could reduce economic growth and the standard of living." In response to the high public debt levels, the U.S. lost its AAA credit rating in 2011 as global financial markets lost confidence in that nation's ability to manage their deficit.

Rates of U.S. unemployment also remain high, and averaged 8.6% between January 1, 2009 and Feb. 28, 2014 (U.S. Bureau of Labor Statistics, 2014). The Royal Bank of Canada (2014, p. 1) has analyzed U.S. unemployment trends and they reported that if discouraged workers who had dropped out of the workforce were counted, the January 2014 unemployment rate would be almost 11%. As a result, the U.S. rate might be closer to the euro zone rate of 10.8% reported above. It is important to note that national averages mask the fact that some

populations, such as African Americans, have rates of unemployment that are twice those of Whites (Desilver, 2013). Not only are high rates of unemployment a drain on economic growth and demoralizing to those without work, but they are also criminogenic and a cross-national study carried out by Buonanno, Drago and Galbiati (2014, p. 31) found that a “one percentage point increase in unemployment increases total crime by 1.3% and homicide rate by 1.7%.”

Other economic forces influence both crime and police budgets. High rates of inflation, for instance, may also have a criminogenic impact on the persons living on the margins of society as these individuals have less ability to increase their salaries or government transfer payments. In the United States, inflation increased by 10.8% between January 1, 2009 and Feb. 28, 2014 (U.S. Bureau of Labor Statistics, 2014a, Table 24). Moreover, between 2004 and 2014, the number of Americans on food stamps has almost doubled (Paletta, 2014) and the U.S. Department of Agriculture (2014) reported that there were 46.8 million persons receiving this aid in December 2013.

In summary, while the global and U.S. economies have stabilized since the worst of the economic crisis that started in 2008, the recovery is still somewhat fragile and high sovereign debt, unemployment, inflation and shrinking global markets pose threats to a speedy recovery. These economic factors influence the policy-making agenda and many nations have cut government spending. Some of the programs that were cut targeted at-risk or marginalized populations. The long-term effects on crime of these cuts in government spending are uncertain. Griffiths and Stamatakis (2012, p. 26) noted that “when governments cut the numbers of social workers, mental health workers, funding for shelter beds and for specialized facilities for the mentally ill, there is a direct impact on the demands placed on the police resources.” One challenge is that conditions are poised such that crime will increase at the same time that police agencies are faced with cutbacks that take officers off the streets.

Canada: Current Economic Conditions

A number of Canadian police organizations have conducted environmental scans to better understand how demographic, legal, social, economic, and political trends will impact their operations. At least 22 provincial, regional and municipal police organizations have conducted such research (Malatest & Associates, 2009). A number of police-related environmental scans have been published, including ones conducted by the RCMP (2004; 2007) and for the Police

Sector Council (Malatest & Associates, 2009). All of these reports included analyses of economic conditions and their influence on policing. The 2007 RCMP environmental scan, for example, predated the 2008 economic crisis and the authors observed that Canada had strong economic prospects compared with other developed nations. Moreover the RCMP (2007, pp. 46-53) researchers correctly identified potential trouble spots in terms of the national economy, including; (a) the repercussions of a slowdown in the U.S., (b) a tight labour market, (c) uneven growth between the provinces (e.g., a slowdown in Ontario and rapid growth in Alberta's economy), (d) declines in the manufacturing sector, (e) an overreliance upon U.S. markets for trade, and; (f) the dominance of the resource and energy sectors in the Canadian economy.

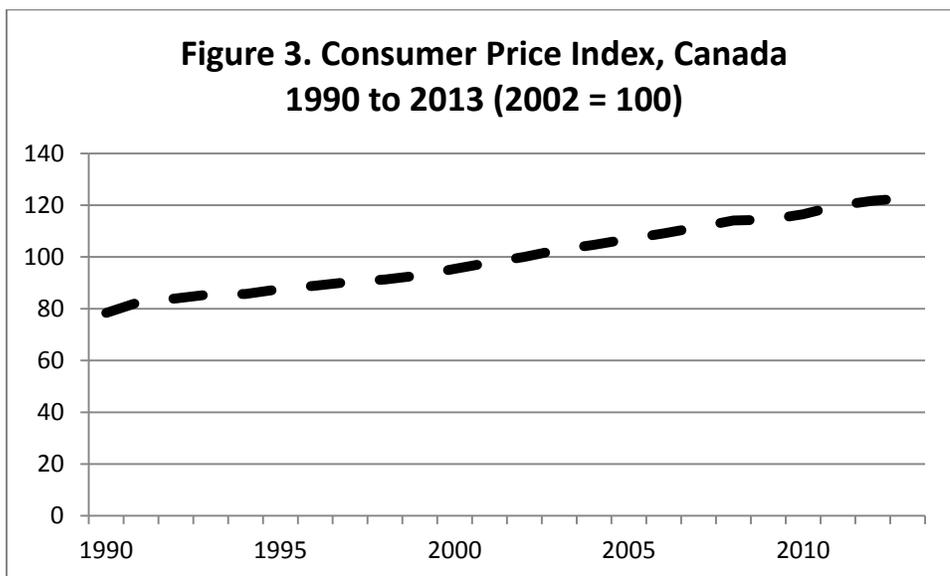
Canada's Economic Performance

Economic analyses conducted in 2013 and reported by the major banks were generally positive as they projected modest growth and identified a number of threats, such as a cooling housing market, public sector restraint, and high rates of personal indebtedness (Canadian Imperial Bank of Commerce, 2013; Royal Bank of Canada, 2013; Scotiabank, 2013; Toronto Dominion, 2013). Moreover, Canadian stock markets have been underperforming compared with U.S. markets since 2012. Part of this decline has been a result of softening commodities prices, and the Bank of Canada's (2013, p. s106) Commodity Price Index showed a decrease from 703 in May 2011 to 652.3 on June 15, 2013. With respect to the outlook through to 2015, Scotiabank (2014, p. 1) reported that, "the Canadian outlook remains challenged by continued sluggishness in investment and exports, the sectors expected to lead growth going forward in the transition from overextended households and selected overbuilt housing markets." While acknowledging a number of threats to the Canadian economy they observed that, "On balance, however, Canada's economy is starting 2014 in a stronger position than expected three months ago, and looks poised to build on that strength over the next two years" (Scotiabank, 2014).

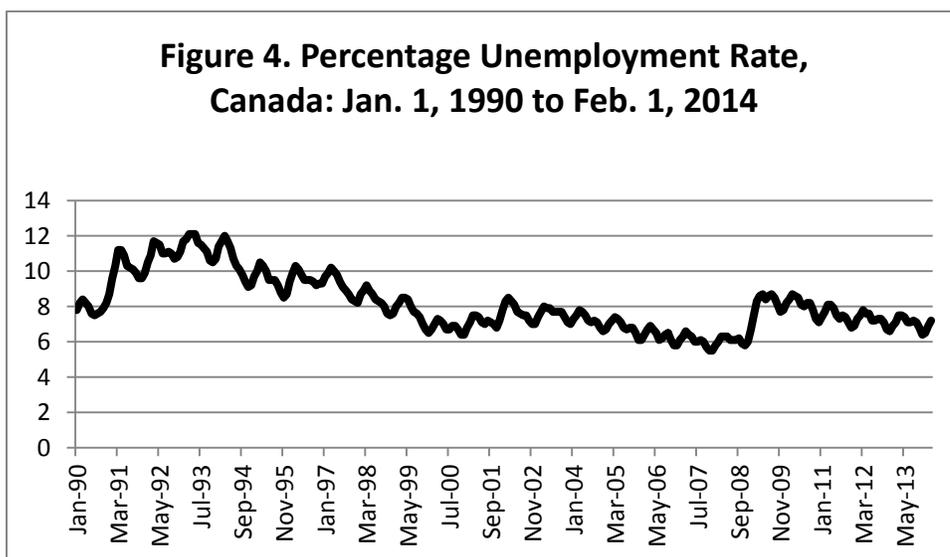
In an analysis conducted for *The Globe and Mail*, Hodgson (2014, n.p.) reported that "we expect Canada to underperform on economic growth compared with the U.S., both in the near term and over the longer term. This reality will have implications for governments, businesses and individuals, and will increase the pressure to consider different policy and business pathways that could unlock growth potential. Doing the same old things and expecting better results is not realistic."

In terms of economic conditions, the environmental scan conducted for the Police Sector Council occurred while Canada was experiencing the lowest levels of GDP growth since 1991, elevated unemployment rates and increasing government debt (Malatest & Associates, 2009). The recession had different impacts across the nation, and while Alberta had high rates of economic growth in 2006 and 2007, the recession had a severe impact on their economy and their budget deficit will be almost \$2 billion in 2013 (von Loon, 2013). Malatest & Associates (2009, pp. 17-18) predicted that the economic downturn would result in decreased tax revenues placing stress on police budgets. The authors of that report also speculated that cuts in health and social spending might have an indirect impact upon the police through higher rates of crime.

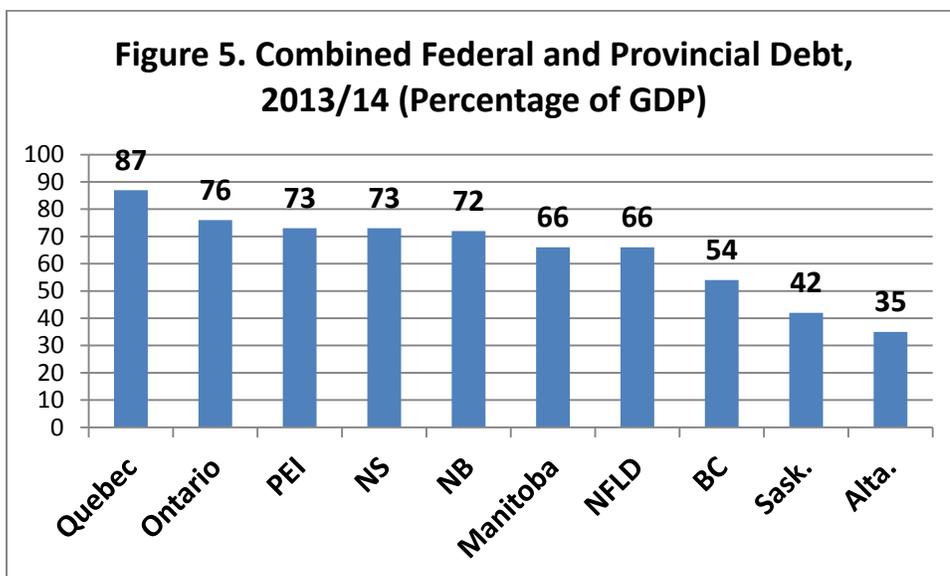
As noted above, the global recovery has been slow which has implications for a nation that relies upon global trade. There are a number of economic conditions in Canada that deserve attention. First, inflation in the first months of 2013 increased substantially, although that growth had slowed by mid-year (Statistics Canada, 2013). Put another way, a “basket of goods and services” that cost \$100 in 2007, the year before the financial crisis, would cost \$112.61 in 2014. While the officially reported annual inflation rate was 1.71% during those years (calculated using the Bank of Canada inflation calculator), most Canadians would probably report that the costs of essential goods and services, such as food, have increased at a higher rate.



Job creation in Canada was disappointing in 2013 although there is some regional variation. Writing for the *Globe and Mail*, Grant (2014) reported that nine out of ten new jobs were created in Alberta. This job creation reverses the economic setbacks experienced in that province in 2012-2013. Figure 4 shows that the unemployment rate for the nation is still much higher than it was prior to the 2008 recession, and Grant (2014) noted that the entire economy is only creating 3,000 new jobs a month. Similar to what is occurring in other developed nations, youth unemployment is high. The Canadian Labour Congress (2014) also reports that there are a large number of persons “at the margins of the labour force” such as discouraged workers no longer looking for a job or under-employed workers, who hold part-time jobs but want to work full-time.



As illustrated in Figure 2, Canadians carry higher levels of government debt than some other nations. Like other economic issues addressed in this report, there is some inter-provincial variation and Quebecers have the highest combined federal and provincial debt and that is shown in Figure 5. In addition to sovereign debt, Canadians also have comparatively high levels of personal debt. TransUnion (2013) reported that the average consumer debt increased from \$22,347 in 2008 and is projected to grow to \$28,853 (29.1%) by the end of 2014. Hodgson (2014) reported that high personal debt levels weighs on consumers and inhibits their spending.



Summary

Altogether, the economic forecasts reported above show that Canada’s recovery from the crisis has been modest and few economists are predicting a speedy return to pre-2008 conditions. Police expenditures, as well as funding for other health, educational and social services are tied to the health of the national and provincial economies. One of the challenges, identified in a number of studies, is that government austerity programs that reduce social spending may contribute to increased levels of antisocial behaviour, disorder and crime although the magnitude of the crime change often depends on specific conditions (e.g., the type of economic stress, such as unemployment, lower salaries, or both combined), the duration of the downturn and recovery period, and the resiliency of communities to respond to these conditions. The impact of the recession may have long-term implications for police organizations engaging in contract policing as in some jurisdictions crime will increase, while others may remain stable or decrease. Because these changes are difficult to predict, the police in some jurisdictions may find themselves with fewer resources and increased demand for services—especially if the length of the recovery persists.

III. Austerity Policing

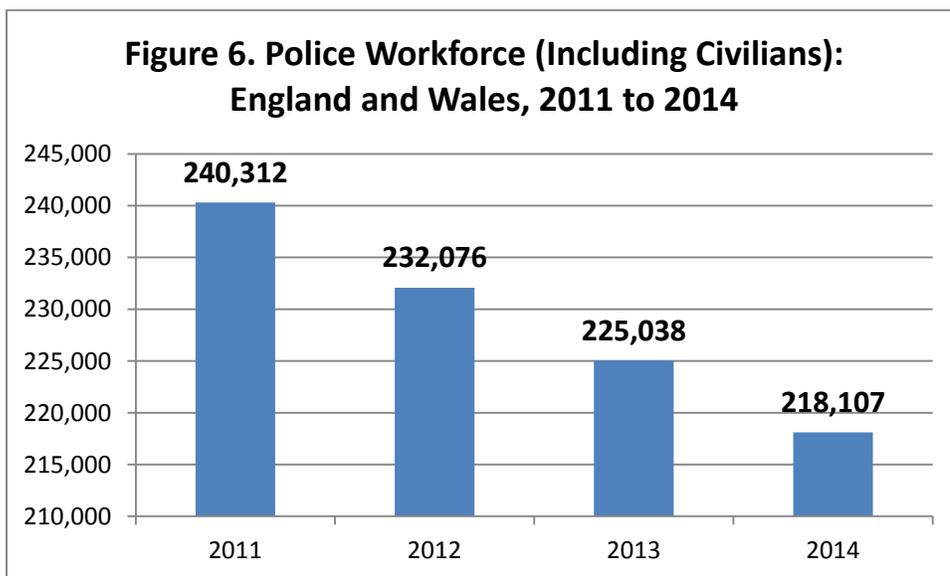
There are a number of potential external threats to the health of the Canadian economy, and it is unlikely that we will soon return to pre-2008 prosperity. There are few steps that federal or provincial governments can take to forestall or mitigate these global economic changes. Nevertheless, Canadian police services can use the lessons learned by law enforcement agencies in other nations to best manage financial adversity while maintaining public safety. In the following pages, a number of global policing trends are described, and in particular, how police organizations are responding to austerity. Most of the research on austerity programs has centered on the steps that agencies have taken to manage the downturn (Police Executive Research Forum, 2013). One of the most significant gaps in our knowledge is a lack of scholarship on the impacts of austerity on agency effectiveness, public perceptions of the police, or perceptions of the police workforce, although some preliminary research has been conducted in England and Wales (HMIC, 2012; Hoggett, Redford, Toher & White, 2014).

Global Policing Trends Since the Great Recession

Rogers and Gravelle (2013, p. 116) observed that, “The economic framework in which policing must operate is constantly changing and is becoming increasingly difficult to predict. This fluid and dynamic financial situation combined with societal and political pressures make the task of policing even more complex.” Police services have not been immune to funding reductions and this has resulted in significant decreases in capital investments, discretionary spending and workforce cutbacks. Perhaps one of the best indicators of these changes is the reduction in the number of officers deployed by police services. Eurostat (2014a) reports the size of police services in 35 European and Nordic nations and a review of their data revealed that the total number of officers in these countries had increased by 1.7% between 2009 and 2012. Yet, once individual nations were considered, 21 of the 35 nations included in their report had *decreased* the number of officers in the same time period (while populations continued to increase during those years).

In order to garner a better understanding of global policing trends, a review of newspaper articles, press releases and annual reports related to the economics of policing in English-speaking common law nations was conducted. A review of the Her Majesty’s Inspectorate of Constabulary (2014a) data show that the number of police workforce positions has decreased

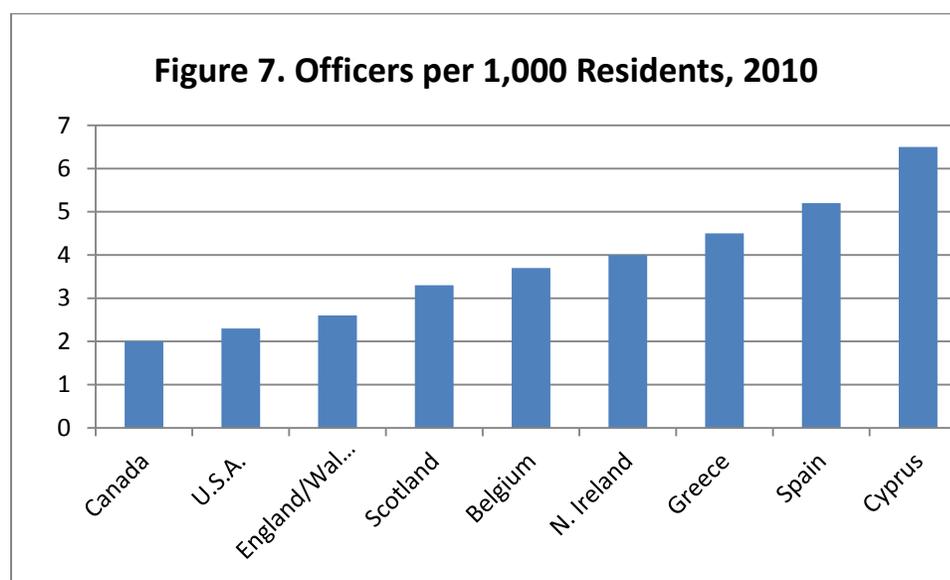
from 240,312 in March 2011 to 218,107 positions in the 12 months that ended in March 2014, a loss of over 22,000 positions, or 9.24% of the police workforce. Of those positions, 9,515 were police officers and an additional 1,921 police community support officer (PCSO) positions—the equivalent of a uniformed special constable—were cut.



Police service budgets in Australia and New Zealand have also been cut since the start of the economic downturn. Funding for the South Australia police will be cut by \$150 million over the next four years (Conlin, Rice & Hyde, 2013). Knaus (2014) reported that 480 protective service officers (members of the Australian Federal Police who provided security at government facilities) were notified that their jobs were to be cut in favour of guards employed by private security firms. The New Zealand Police Association (2013) observed that the number of non-sworn officers had decreased by 181 employees (about 6%) between December 2011 and December 2012. In addition to losing staff positions, police budgets in that nation were frozen and further cuts were needed to respond to inflation. A review of documents from the Police Service of Northern Ireland (PSNI) shows that the number of officers decreased from 7,500 in 2008/9 to 6,776 on Feb., 2014 or approximately 9.6% (PSNI, 2013; 2014).

Despite the fact that many nations have implemented austerity programs that reduced police funding, many countries have higher levels of police strength (officers per 1,000 residents in the population) than Canada. Figure 7 shows police strength in nine nations for 2010 (the most

recent that was available for the European nations that reported the rate per 1,000 residents – see Eurostat, 2013b) and in this group Canada had the lowest ratio of officers to residents, although many first-world nations deploy about two officers per 1,000 residents. These cross-national comparisons should be viewed with some caution as some nations classify police officers differently (e.g., whether border guards are considered as officers).



In the United States, austerity programs have resulted in a loss of officer positions although the impact of budget cuts has moderated in the past few years. A review of the Federal Bureau of Investigation's (FBI) annual *Crime in the United States* reports shows that the number of municipal police and sheriff's officers dropped by 4.2% between 2007 and 2012, while the number of civilian employees decreased by 10.1% during that same era (see FBI, 2012, Table 74). This decrease in jobs was part of a massive cut in government employees: Caranci (2013, p. 1) reported that 777,000 state and local government jobs were lost and only 104,000 of those positions have been filled.

In addition to staff cutbacks, police agencies have developed a number of strategies to confront budget cutbacks. The Police Executive Research Forum (PERF, 2013, p. 1) compared survey results of police departments conducted in 2010 and 2012 and found that 78% of agencies had experienced budget cuts in 2010 although that proportion decreased to 51% in 2012. Of the agencies that participated in their study (including over 700 in 2012), almost one-quarter (23%) had reduced officer positions. Furthermore, while 61% of these organizations were anticipating

budget cuts in 2010, that total had decreased to 40% in the 2012 survey. PERF (2013) also reported that 17% of the departments who responded to their 2012 survey had fewer officers compared to the previous year. Some of these staffing cuts have been severe: the city of Camden, New Jersey decreased the number of sworn officers from 310 positions in 2010 to 162 in 2011 (PERF, 2013, p. 15). Budget cuts in Camden ultimately led to the disbanding of their 142-year old department on May 1, 2013 and that city is now policed by a newly formed county-wide police service. While police services across the globe have been engaging in regionalization for decades (where smaller agencies amalgamate into larger ones) the current financial crisis might result in more of this consolidation in order to benefit from economies of scale.

Altogether, a review of the current policing literature shows that there have been significant reductions in the size of many police services in English speaking common-law countries and this practice has been mirrored in European nations as well. Law enforcement organizations have also cut civilian positions and reduced spending not associated with core policing functions. The following section provides an overview of the strategies undertaken to mitigate the harmful effects of these financial cuts.

Austerity Measures

In response to austerity, police services have developed a number of strategies, and these are reported in Tables 1 through 5. For the most part, these strategies fall into two categories: managing demand and increasing operational effectiveness. Tables 1 and 2 report the strategies used in the United Kingdom and were obtained by a study conducted by Her Majesty's Inspectorate of Constabulary (2014). Their findings were summarized into two groups: (a) Increasing efficiency and managing demand (Table 1), and (b) Developing technology, leadership, and partnerships (Table 2). The subsequent three tables report the findings from the Police Executive Research Forum (2013) study of over 700 U.S. participating law enforcement agencies (see PERF, 2013). These results are built on an earlier study that PERF conducted in 2010. Table 3 shows that more than one-half of responding agencies cut overtime hours, eliminated pay raises or reduced training, while 45% of respondents implemented hiring freezes or discontinued and/or reduced speciality units.

Table 1. Austerity Measures (U.K.): Increasing Efficiency and Managing Demand
<ul style="list-style-type: none"> • Maximize workforce resources <ul style="list-style-type: none"> - Organizational restructuring and deploying officers, including changing shift patterns
<ul style="list-style-type: none"> • Managing and reducing demand <ul style="list-style-type: none"> - Emergency call management - Expanding online services - Targeted preventative activity
<ul style="list-style-type: none"> • Maximizing non-workforce resources <ul style="list-style-type: none"> - Changes to front offices and police stations (including closures) - Income generation
<ul style="list-style-type: none"> • Maximizing efficiency <ul style="list-style-type: none"> - Reducing bureaucracy - Performance and development review - Introducing self service systems - Streamlining custody processes - Streamlining processes and digital file/digitization - Attendance at court (e.g., virtual courts)

Table 2. Austerity Measures (U.K.): Technology, Leadership and Partnerships
<ul style="list-style-type: none"> • Improving technology <ul style="list-style-type: none"> - Updating and collaborating on information technology products - Handheld and vehicle based mobile devices - Body worn cameras
<ul style="list-style-type: none"> • Collaboration <ul style="list-style-type: none"> - Collaboration within the police service - Joint procurement with other agencies - Collaborating with public and private sector partners
<ul style="list-style-type: none"> • Service delivery, performance and outcomes <ul style="list-style-type: none"> - Service delivery
<ul style="list-style-type: none"> • Benchmarking, cost comparison and demand analysis <ul style="list-style-type: none"> - Demand analysis
<ul style="list-style-type: none"> • Business improvement methodologies, governance and resources <ul style="list-style-type: none"> - Governance - Business improvement methodologies - Priority based budgeting
<ul style="list-style-type: none"> • Leadership, culture, engagement and communication <ul style="list-style-type: none"> - Cultural change - Engaging and communicating
<ul style="list-style-type: none"> • Workforce development, health and welfare <ul style="list-style-type: none"> - Increasing health and welfare - Utilizing special constables, apprentices, cadets and volunteers - Degrees in policing

• Reducing overtime spending	68%
• Eliminating officer pay raises	57%
• Reducing training programs	55%
• Hiring freezes	45%
• Discontinue/significantly reducing speciality units	45%
• Delaying or reducing the size of recruit classes	29%
• Consolidating units	25%
• Layoffs	23%
• Consolidating services with other departments	22%
• Reducing public access hours at district stations	18%
• Recruiting (discontinued)	15%
• Closing/consolidating district services	8%
• Contracting out for services	7%
• Demoting staff in certain ranks	4%
• Privatizing some police services	3%

A number of scholars have observed that the size of police agencies has increased due to a growing number of civilian employees. While some of these positions have been allocated to administrative tasks, there are a greater number of civilian employees doing tasks previously undertaken by sworn officers (Gascon & Foglesong, 2011). The 2012 PERF survey showed that almost one-third of agencies had placed civilians in duties formerly done by officers while one-quarter of respondents placed more civilian staff members in dispatch or crime analyst roles. Of greater concern is the increased use of volunteers to fill either non-enforcement roles (39% of agencies) or police officer functions (24%).

Table 4. Civilianization in 700 U.S. Agencies, 2012	
Civilianization	
• Greater reliance on civilian staff members for desk work	32%
• Greater reliance on civilian staff members for dispatch	25%
• Greater reliance on civilian staff members for crime analysis	18%
• Use of civilian staff members to “free up” officer time	8%
Volunteers	
• Use of volunteers to fill non-enforcement functions	39%
• Use of volunteers to fill some sworn officer functions	24%
Source: Police Executive Research Forum (2013)	

The PERF (2013) survey results shown in Table 3 reveal that slightly less than one-half of agencies had altered shift times (44%) or reduced police services (44%). Approximately one-third of agencies had reduced patrol (34%) or redeployed patrol officers to process crime scenes (32%). Other service cutbacks included changing the ways to handle calls for service (e.g., not sending investigators to some non-violent offences) or getting property crime victims to file reports over the phone or on the internet.

Table 5. Officer Redeployment in 700 U.S. Agencies, 2012	
• Altering shift times/patterns	44%
• Reducing police services	44%
• Changing patrol levels in defined areas	34%
• Handling crime scene processing with patrol officers	32%
• No longer sending investigators immediately for certain crimes	30%
• Alternative call handling strategies (phone or internet)	25%
• Changing investigative priorities	24%
• Changing response policies for calls for service	19%

Impacts of Austerity Policing

One of the most significant gaps in our knowledge is the lack of published research identifying the impacts of funding cutbacks on police services and how those policies impact

crime, fear of crime, officer morale or perceptions of the police. HMIC (2012, p. 3) reported some broad findings from their reviews of policing in Britain:

- Forces are balancing their books by cutting the workforce and reducing their spending on goods and services;
- The front line is being protected, although not preserved;
- The nature of the front line is changing;
- Service to the public has largely been maintained, but;
- There are some concerns around sustainability.

British police services, like their American counterparts, have focused on protecting front line policing in recent years by redeploying staff and restructuring services. While the overall number of officers will be lower, a greater proportion of the remaining officers are being reassigned to front-line roles (from approximately two-thirds to three-quarters of officers). The results of these initiatives, so far, appear to be positive and a review of the crime statistics reported by HMIC (2014a) reported that police-reported crimes per 1,000 residents has decreased from 71.6 to 61.4 (10.2%) between 2010 and 2013, although there were variations as crime in some jurisdictions increased. Furthermore, persons who had contact with the police and crime victims reported positive levels of satisfaction with the services provided by the police and the HMIC (2014a) data show that in the 12 months to September 2013, the average satisfaction was about 85%.

Police visibility is important to the public. Respondents to surveys reported that they did not notice a change in the number of times in which they saw the police on a day-to-day basis nor did they perceive that police response times were longer (HMIC, 2012). In their study of perceptions of the police in England, Sindall and Sturgis (2013, p. 148) found that “substantial cuts in police numbers are likely to reduce public confidence in policing.” By placing administrative and plainclothes officers in uniform, some services have attempted to maintain visibility but we don’t know whether there are long-term consequences when re-deploying these officers (e.g., administrative tasks go undone or fewer specialized investigations conducted).

Austerity Policing in the Countryside

The prosperity of many rural communities, because of their limited development and tax bases, is often vulnerable to economic downturns. A review of news accounts from different English-speaking common law nations suggests that cutbacks have resulted in the closing of many rural police detachments. In Scotland, for instance, “60% of police stations have been shut down or closed to the public since 2007” (Herald Scotland, 2014, n.p.). In England, Ensor (2012) reported that “A third of police stations have closed or are set to close, most of them in small towns and villages.” Smith and Somerville (2013, p. 353) reported that “since 2000, approximately 1,017 police stations have been closed in the U.K., the majority of which have been in rural areas.” Regionalization, where police operations are consolidated, has also been occurring in Canada and the United States for decades as smaller detachments and offices are closed and rural residents served by officers who travel increasingly large distances from larger centres.

The HMIC (2012) research was published shortly after austerity programs were introduced, and their follow up research conducted in 2013 did not focus on changes in officer morale since the onset of austerity programs. A recent study conducted by Hoggett, Redford, Toher and White (2014) sheds some light on the long-term implications of austerity programs. The austerity reforms included changes to officer pensions and retirement ages as well as the privatization of some police duties.

These investigators received survey responses from 13,951 officers from 43 police services in England and Wales about their perceptions of the current state of the policing profession. Officers overwhelmingly reported a lack of confidence in the government and that austerity programs had a harmful impact on their profession. Hoggett et al. (2014, p. 5) summarized their main findings:

- Only 1.6% of respondents agree the current government supports the police and only 1.1% positively report confidence in long-term government plans for policing.
- Almost all officers (95.8%) agreed that cuts affected police resilience and 89.8% believed that the police were under-resourced.

The Economics of Canadian Policing Five Years Into The Great Recession

- Only 6.4% of officers agreed that budget cuts would not impact their ability to do their jobs.
- Over four-fifths (80.4%) of officers agreed or strongly agreed that austerity policing measures would give criminals the ‘upper hand.’
- Most officers (83.8%) believed that proposed austerity measures would have a negative impact upon their jobs, and 92.6% believed that the motivation for these changes was not a movement toward efficient and productive services.
- Officers overwhelmingly (81.2%) believed that austerity programs would have a negative impact upon the public’s relationship with the police and only 1.7% of respondents agreed that changes in policing were in the public’s best interest.

Altogether, the officers perceived the austerity measures as harmful to their agency’s effectiveness and felt that morale had decreased. Many respondents expressed doubts about their choice of careers given the changes that were underway.

Hoggett and colleagues (2014, p. 55) also reported that despite those generally pessimistic sentiments about austerity measures, most of these officers (84%) believed that some reforms to policing were needed., but over three-quarters (75.6%) strongly or somewhat disagreed that such changes should be driven by people outside the police. Respondents also overwhelmingly (92.5%) believed that changes to policing should be independent of politics. These investigators also found that most officers (89.2%) agreed or strongly agreed that policing was being eroded into a “political numbers game.”

The present financial conditions of the nation are acute, and substantially all parts of the economy – the public and private sectors – must make savings. Many of these reforms have been devised or designed in that light, to facilitate the improvement in the efficiency and effectiveness of police, to ensure that the safety of the public is not compromised.

Thomas P. Winsor, Her Majesty’s Chief Inspector of Constabulary, Speech on April 29, 2013

Summary

For the most part, austerity strategies fall into two broad categories: managing public demand for services and increasing operational effectiveness. In order to carry out these strategies, police services have exercised considerable creativity and introduced a wide variety of measures. There are risks to either strategy. Managing demand could reduce favourable opinion toward the police, especially if these strategies involve cutting services such as sending officers to respond to minor crimes. Alternatively, the police are being asked to “do more with less” and while this approach might work in the short-term, this could have devastating effects on the morale of police personnel. The long-term impacts of these changes are yet to be determined, although evidence from England and Wales suggest that austerity programs have already had a corrosive effect on officer morale, and officers believe that these initiatives will harm their relationships with the public (Hoggett et al., 2014).

One factor that distinguishes the recession that started in 2008 is that researchers are collecting information about the impacts of austerity measures on police services, officer morale and public perceptions of the police. While researchers should be commended on their efforts to better understand the impact of austerity measures on police services, their efforts will not be fully effective unless they take steps to disseminate their information to police services. One of the limitations of most policing research is that it takes years before it appears in peer-reviewed journals, and once published, is almost incomprehensible to most practitioners given the reliance on complicated statistical models, the unnecessary use of jargon and the lengthy format of most journal articles. In their U.S. study, Rojek, Smith and Alpert (2012) found that only about one-third of the police agencies they surveyed used academic journals as a source of research findings, while a much greater proportion of respondents (84.7%) accessed professional journals (such as *Police Chief*), publications from the International Association of Chiefs of Police and government publications. As a result, Canadian police researchers should reach out to police organizations by disseminating their findings in professional journals such as the *Canadian Police Chief Magazine* and *RCMP Gazette*.

IV. Recessions, Crime and Policing

Economic downturns are a predictable element of the business cycle and the global recession that started in 2008 has led to a growing amount of scholarship that has examined the relationships between economic conditions and crime. Of special interest is whether factors such as unemployment, rising inflation or foreclosures contribute to higher levels of crime, and whether these effects vary in different nations or these factors have a more significant impact upon crime during different types of downturns. In addition, the increasing focus on the costs of policing has led researchers to study the crime control benefits of the police. Most of those studies examine the costs and benefits of policing. In the pages that follow, we report on current scholarship, and in particular, the impact of recessions on crime and the policing industry.

Economic Downturns and Crime

One issue of special interest to police services is the relationship between economic crises and crime. Economic disruptions are recurring events. Bordo and Haubrich (2012) reported that between 1948 and 2011 there were 11 recessions and each of these events had slightly different causes or combination of factors leading to the recession (e.g., banking crises, credit crunches and housing busts). As a result, these recessions had different economic consequences and recovery times that ranged from months to years. Despite the frequency of those events, we have very little evidence about the relationships between economic downturns and crime. It is possible that the diverse circumstances of these economic crises exert a differential impact upon crime and that the type of recession and recovery times will influence whether crime increases or decreases.

There is a common-sense appeal to the notion that economic conditions and crime are related. As unemployment and inflation increase or salaries fall, the economic stressors on at-risk or vulnerable populations such as the poor or working poor intensifies and their motivation to commit property crimes such as thefts or break and enters may also increase. In addition, the financial stress that is created for many families during a downturn might also result in higher rates of domestic violence (PERF, 2013). Yet, a review of the literature suggests that no two recessions are the same when it comes to their impact upon crime. The relationships between

economic stress and crime might also vary within and between nations as some countries may be more resilient to the effects of recessions.

Malby and Davis (2012) examined the impact of the 2008 economic downturn in crime in 15 nations. They found a relationship between indicators of economic distress (such as lower share prices, Treasury bill rates or income, or higher male and youth unemployment) and crime. The results were not consistent across this group of nations and other factors (e.g., the population structure and existence of social programs) also interact with economic conditions to influence crime. In Canada, for instance, the current recession was reported to have no significant impact upon crime rates, while in Brazil, El Salvador and Jamaica homicide rates increased. Brazil, Italy, Jamaica and Mexico all experienced increased rates of robbery, and motor vehicle theft increased in Brazil, Italy, Mexico and Thailand. Thus, there is some cross-national variation in the effects of economic crises. Baker (2008) observed that some populations, such as the urban poor, may be particularly vulnerable when confronted with increases in the costs of food and fuel, especially in developing nations.

Scheider, Spence and Mansourian (2012) examined the research literature on the relationships between economic crises and crime dating back to the 1960s. These investigators reported that there was seldom a straight-forward relationship between economic conditions and crime (e.g., an increase in unemployment will result in a direct increase in crime). They found that it was more likely that when two economic hardships occurred at the same time, the effects on crime were intensified. Scheider and colleagues noted that increased unemployment is associated with higher levels of property crime, but only when accompanied with high inflation. Phillips and Land (2012) found high unemployment rates were associated with property offences such as break and enter, larceny and vehicle thefts. Moreover, these investigators found that sustained unemployment had a stronger effect upon crime.

Most of the researchers examining the unemployment-crime relationship have used U.S. data. Andresen (2012), by contrast, examined the relationships between unemployment and crimes reported to the police in Vancouver, B.C. neighbourhoods using data from 1991, 1996 and 2001. Consistent with the Phillips and Land (2012) study, Andresen found that unemployment does not have a short-term impact upon property crime, although there is a consistent relationship between these variables when high unemployment rates are sustained. Andresen (2012, p. 1626) summarized the research by noting that, "In the long-run,

neighborhoods with relatively higher rates of unemployment have higher rates of crime.”

Andresen (2013) conducted a follow-up study that examined crime changes in all ten provinces from 1981 to 2009 and he found that unemployment was a consistent predictor of violent crime and that the proportion of low-income residents was associated with property crime. Like other studies, Andresen found that multiple indicators (e.g., considering the effects of inflation and unemployment at the same time) might result in researchers better understanding the relationships between economic conditions and crime.

Foreclosures and Crime

Between January 2007 and December 2011 there were more than four million foreclosures in the U.S. and about twice that many homeowners were at-risk of foreclosure (Blomquist, 2012). The unprecedented number of foreclosures led to a number of researchers examining how those conditions influenced crime. Baumer, Wolff and Arnio (2012) found that cities with more foreclosures also had more robberies, but only in places that already had high rates of poverty. These investigators also found that break and enters increased along with home foreclosures, but only in communities with declining police services and decreased new home construction. Ellen, Lacoé and Sharygin (2013, p. 59) reported that more foreclosures in a neighbourhood “lead to additional total crimes, violent crimes and public order crimes” and that the effects increased in places with high crime rates. Williams, Galster and Verma (2013) also found that an increased number of foreclosures contributed to higher levels of property crime. While all of these researchers found relationships between foreclosures and crime, the negative impacts of foreclosures were stronger when neighbourhoods or cities were already experiencing distress.

Wallace, Hedberg and Katz (2012, p. 631) studied the relationships between physical disorder (e.g., abandoned vehicles, graffiti, loose animals, down stop signs and traffic hazards) and acts of social disorder, which they defined as, “disturbing, drunk individuals, fights, incorrigible or disturbing juveniles, unknown trouble, disturbing or harassing individuals, loud music, soliciting, speeding or racing, unwanted guests, and drug paraphernalia” reported to the police. These investigators found that there were increased calls for service to the police for the indicators of social disorder and overall disorder (physical and social disorder combined) in the months preceding home foreclosures.

In some places, rates of crime have not increased since the start of the recession. A number of criminologists have speculated that unemployed people, who are more likely to be at home during the day, act as a deterrent to property crimes such as residential break and enter offences as they are watching over the neighbourhood. Andresen's (2012, p. 1626) study of crime in Vancouver found that a one percent increase in unemployment had a modest although short-term reduction in property crimes such as break and enters (3.82%), auto theft (4.01%) and theft (5.06%). It is also possible that the individuals affected by the recent recession (e.g., a higher proportion of middle-class employees losing their jobs) and extending unemployment insurance benefits up to 99 weeks in the U.S. have moderated the effects of the unemployment-crime relationship.

Recessions and Domestic Violence

The PERF (2013) survey of U.S. police departments revealed that over one-half (56%) had reported that they were responding to more domestic violence incidents since the onset of the 2008 recession. These observations are consistent with the findings from survey research conducted with domestic violence shelters and information from the National Domestic Violence Hotline that showed a significantly higher number of calls for assistance (Buzawa & Buzawa, 2013). Weissman (2013, p. 24) also reported that while some cities had decreased rates of violence, domestic violence homicides in those places increased and she attributed this to "families fraying at the seams as a result of strained relationships brought about by economic uncertainty and hardship." Research conducted in England supports the proposition that increases in female unemployment contribute to higher incidents of domestic violence, but that higher levels of male unemployment actually decrease intimate partner violence (Anderberg, Rainer, Wadsworth & Wilson, 2013).

There is a lack of information about whether the recession in Canada contributed to higher rates of domestic violence as no government or private agency collects such data. Anecdotal accounts of persons working in domestic violence shelters suggest that demand increased at the same time that funding was cut (Ubelacker, 2009). Goar (2013) observed that Canadians cannot make meaningful steps toward violence reduction without having information about these offences.

It is difficult to summarize the relationships between economic conditions and crime because a different set of circumstances led to each of the 11 recessions since 1948, and the consequences have been different. The length of the recovery as well as the economic stressors and groups most impacted by these economic conditions (e.g., the urban poor or those living on the economic margins of society) also influence the rates of crime, as do social supports for these populations, such as increasing the length of time individuals could receive unemployment benefits. In an influential statement, Rosenfeld and Messner (2013, p. 115) noted that the economy-crime relationship:

Varies by the type of crime (e.g., street crime, white-collar crime) and the aspect of the economy (e.g., unemployment, economic growth, inflation) under consideration; mediating and moderating conditions (e.g., social disorganization, criminal subcultures, underground markets); state regulatory schemes (e.g., drug prohibition, deregulation or financial markets); and the degree to which the market economy is embedded in the broader institutional environment.

Thus, not only are a broad range of factors involved in the economy-crime relationship, but it is also possible that there is a time lag between economic distress and when rates of crime increase, making it more difficult to study those relationships.

The evidence from cross-national studies as well as research conducted within U.S. cities and counties suggests that some communities are more vulnerable to crime than others. A number of scholars have observed that crime is a local event and that local conditions play a powerful role in determining how much crime will occur (Scheider et al., 2012). We have less knowledge, however, of why some communities are more resilient or resistant to crime. Lee and Thomas (2010) found that smaller communities with a stronger social fabric can resist crime, although we don't know whether that relationship also applies to cities or whether such factors operate at the neighbourhood level in cities. Altogether, these findings make it difficult to provide any definitive statements about the relationships between economic conditions and crime.

Organized Crime and Economic Downturns

Organized crime offenders are increasingly engaging in offences that transcend national borders. The *Financial Times* reported there are currently 3,600 criminal networks throughout Europe and that these networks have expanded in response to the economic crisis (Warrell, 2013). These criminal organizations are involved in a broad range of illegal activities. Police agencies reported that the number of counterfeit or sub-standard items seized (including foods, medications and aircraft parts) had doubled (Warrell, 2013). Kego, Leijonmarck and Molcean (2011) found that the black market expands in response to downturns in the legitimate economy. Warrell (2013) noted that tolerance for the underground economy might increase in response to declining spending power. As these criminal networks prosper, it is unlikely that they will contract when the economy improves and they may become involved in the legitimate economy. While European economies have been harder hit by the current recession, one question is whether Canada will experience a similar growth in organized crime and how can Canadian police services anticipate these trends?

The Impact of Policing on Crime

One negative consequence to an economic crisis is that if crime rates do increase, they do so at the same time that police budgets are cut, which reduces public safety. In the past, there had been much pessimism about the ability of the police to control crime. David Bayley (1994) started his book on the futures of police with the provocative and pessimistic statement that:

The police do not prevent crime. This is one of the best kept secrets of modern life. Experts know it, the police know it, but the public does not know it. Yet the police pretend that they are society's best defense against crime and continually argue that if they are given enough resources, particularly personnel, they will be able to protect communities against crime. This is a myth. (p. 3)

Two decades later, the evidence on the police-crime relationship shows that Bayley was mistaken. At the time when Bayley made this observation there was little to be optimistic about as the U.S. was experiencing the peak of a murder and violent crime epidemic that had started in the mid-1980s with the introduction and spread of crack cocaine (violent crime in Canada also peaked at about the same time). Moreover, the traditional policing models of the 1980s, based

almost entirely on reactive patrol, were not always the most effective use of resources. Since that time, police services have taken steps to work more closely with communities, changing tactics from a reactive to proactive approach and incorporating evidence-based interventions—which are strategies that research has shown to be effective in reducing or controlling crime—to target places with the highest rates of crime (e.g., ‘hot spots’) or the highest risk persons (e.g., focused deterrence).

A number of scholars have found that a significant component of the U.S. crime decline since 1994 was the result of increases in police strength (Chalfin & McCrary, 2012; Levitt, 2004, Lin, 2009) in combination with changing police strategies (Lum, Koper & Telep 2011; Telep & Weisburd 2012; Zimring 2012). It is difficult to make generalizations about these studies because reductions in crime occurred as a result of other factors (e.g., high incarceration rates and favourable economic conditions). Policing strategies also differed from city to city: while Los Angeles was known for a *laissez-faire* approach to policing, New York had a much more aggressive policing style, yet levels of reported crime decreased in both places (see Zimring’s 2012 study of the crime drop in New York).

Studies of increased police activity in South America and Europe have also shown the crime control benefits of adding additional officers. Di Tella and Schargrotsky (2004) found that an increased police presence after a terrorist attack in Argentina resulted in a 75% reduction in motor vehicle thefts. These scholars applied cost-benefit analyses (examining only auto theft and no other crimes) to the police-auto theft relationship and found that it was not a cost effective strategy. Yet, Di Tella and Schargrotsky (2004) also attributed an increased police visibility to less social disorder, fewer burglaries and enhanced public confidence. Draca, Machin and Witt (2010) also examined the relationship between increased police presence and crime after the July 2005 terrorist attacks in London. These investigators found that rates of reported crime dropped by 13% in neighbourhoods with an increased police presence, compared to neighbourhoods in which police deployment stayed the same. Perhaps more importantly, Draca and colleagues did not find a displacement effect in surrounding neighbourhoods: in other words, offenders did not commit crimes in neighbourhoods with fewer officers.

Weighing the economic costs and benefits of different policy choices is not without challenges as it is relatively easy to calculate the costs of an intervention (e.g., adding an officer for a year) but difficult to accurately estimate the crime control benefit of adding that officer. A

number of scholars have examined the relationships between police and crime and their findings are summarized in Table 6.

Table 6. Policing Cost-Benefit Analyses	
For every dollar spent on policing, there is a return of:	
Dollar values:	
Donohue and Ludwig (2007)	\$4.28-\$8.57
Keefe (2011)	\$3.30-\$12.80
Chalfin and McCrary (2012)	\$0.20 to \$14.00 (Avg. = \$1.63)
Aos and Drake (2013)	\$6.50 -\$7.50
Crime Reduction Benefits:	
Zhao, Scheider and Thurman (2002)	\$1 on policing resulted in 5.26 fewer violent and 12.63 fewer property offences per 100,000 residents.
Levitt (2004)	10% increase in police expenditures result in a 4% reduction in violent and a 5% reduction in property crimes
U.S. Govt. Accountability Office (2005)	1% increase in police strength resulted in a 0.25% reduction in property crime and a 1% reduction in violent crime.

Donohue and Ludwig (2007, p. 6) estimated that for every \$1 invested in hiring additional officers through the U.S. Community Oriented Policing grants resulted in \$4.28 to \$8.57 in reduced victimization costs. Three cost-benefit analyses of the police-crime relationship were also reported in the Scheider, Spence and Mansourian (2012, p. 9) review and they are reported as follows: Zhao, Scheider and Thurman (2002) found that each additional dollar spent on policing resulted in 5.26 fewer violent and 21.63 fewer property crimes per 100,000 residents in the population. A U.S. government study also found that a one percent increase in the size of a police service resulted in a .25 percent reduction in property crime and one percent decrease in violent crime (U.S. Government Accountability Office, 2005). Evans and Owens’ (2007) research also showed that jurisdictions that received grant funding to add additional officer positions resulted in reductions in auto theft, break and enters, robbery, homicide and aggravated

assault. Levitt (2004) estimated that a 10% increase in police expenditures will result in a reduction in violent and property crimes by 4% and 5% respectively.

Keefe (2011) examined the costs of cutting officer positions in five New Jersey cities and projected crime increases. Layoff in these cities ranged from 13% to 36% and saved \$28.5 million. Keefe projected that the crimes that occurred as a result of these layoffs would result in \$94.5 million in tangible costs, which are direct costs to individuals, businesses and governments—such as hospitalization expenses when someone is shot. If intangible costs, such as the psychological effects of being harmed or lost opportunities were considered then that cost increased to \$364.4 million. As a result, for every additional dollar invested in law enforcement spending the savings to the community ranged from \$3.30 to \$12.80, depending on how the costs of crime are calculated.

Are Canadian Cities Under-Policed?

Chalfin and McCrary (2013) found that many U.S. cities were under-policed, contributing to higher levels of crime and victimization. Chalfin and McCrary (2013, p. 36) observed that, “From 2008 to 2011, nearly three quarters of our sample of 242 cities saw a shrinking number of officers per capita. Half saw reductions of 5 percent or more, a third saw reductions of 10 percent or more, and a tenth saw reductions of 20 percent or more. Our analyses suggest that while these staffing reductions certainly save money in a budgetary sense, they are more costly than they seem.” Since Canada has fewer officers per capita than in the U.S., does that suggest that Canadian cities are similarly under-policed?

Chalfin and McCrary (2012) investigated the impact of policing in medium and large U.S. cities between 1960 and 2010. They examined costs of crime and the officers per 100,000 residents in the population, and found that every additional dollar spent on policing would return a crime reduction benefit of \$1.63 (p. 37). That average did not apply equally across police departments and in the 30 cities with lower crime rates (and fewer serious offences) the economic benefit of adding an officer was \$0.20 to \$0.60 for every additional \$1 spent on additional officers. Yet, in the 30 cities with the most crime, every additional dollar resulted in benefits ranging from \$2.80 to \$14.00. By adding police officers to high-crime communities larger returns on investment are realized.

Aos and Drake (2013) examined the costs and benefits of policing in a Washington State Institute of Public Policy study. They found that adding an additional officer would result in a benefit of \$573,700, or about \$6.50 for each additional dollar spent on policing. Their study also controlled for police practices. Aos and Drake (2013) found that deploying those additional officers in directed or hot spot patrols (e.g., focusing on places with high rates of crime) would result in an additional 11% to 19% benefit, thus raising the benefit to \$7.00 for each additional dollar spent on policing. Unlike most studies that examined only “big city” practices, these investigators used state-wide data and therefore both urban and rural jurisdictions were included in their analyses.

One of the challenges of interpreting these cost-benefit analyses is that they are almost exclusively based on policing in large urban areas and we have less knowledge about what occurs in smaller cities or in rural areas. While not directly examining the costs and benefits of policing, a study conducted by Nelligan and Bourns (2011) examined contract policing in California. These investigators noted that there has been greater interest in contracting since the start of the recession and some smaller towns and cities are questioning whether they can afford their own municipal police services. A key finding in their study was that, on average, cities receiving contract policing services had significantly higher clearance rates for violent crimes than similar sized cities policed by municipal agencies and that clearance rates for property crime were about the same when looking at the statewide results.

Nelligan and Bourns also found that contract policing was cheaper than maintaining municipal police services. Of the California cities they studied, the average per capita policing cost for contract cities was \$144.60 compared to \$235.44 for communities with police departments (Nelligan & Bourns, 2011, p. 84). As a result, the communities that received contracted services not only had a lower per capita cost but the clearance rates were generally the same or better than cities with their own departments. Similar research might inform contract policing in Canada. Lunney (2012, p. 436) identified a number of benefits of RCMP contract policing including their flexibility to respond to investigations and emergencies that transcend provincial borders, the seamless sharing of intelligence as well as ensuring that national standards and policies are upheld in the provinces and territories they serve.

Summary

Most practitioners have observed that economic conditions and crime are closely related, although academic researchers have been unable to find a clear and consistent relationship between these factors. Instead the relationship between crime and economic factors depends on where the recession occurs, the economic impacts of the downturn (e.g., unemployment, inflation, foreclosures or bankruptcies), and the length of the recovery. A six month recession would have a profoundly different impact than the current downturn, where the recovery period will persist for a decade. While most of the research on economic conditions and crime has focused on conventional crimes, investigators have been slow to examine whether organized crime has expanded since 2008, and whether the public becomes more tolerant of crime during tough times. Moreover, while U.S. police practitioners have identified an increase in the prevalence of domestic violence since the start of the recession, there is a lack of Canadian scholarship on this issue.

The growing concern over the costs of policing has led to a large number of cost-benefit analyses that estimate the impact of policing on crime. While some police scholars in the past were pessimistic about the ability of the police to control crime, the research reviewed in this section suggests that investing in policing is a cost-effective public policy that shows a substantial crime control benefit for every additional dollar spent. The greatest benefits of additional police spending occur in cities that have the highest volume of serious and violent crimes. There is, however, a gap in our knowledge of cost-benefit analyses of policing in rural or remote communities, which is of interest to services responsible for regional, provincial or territorial policing, as well as self-administered Aboriginal police services.

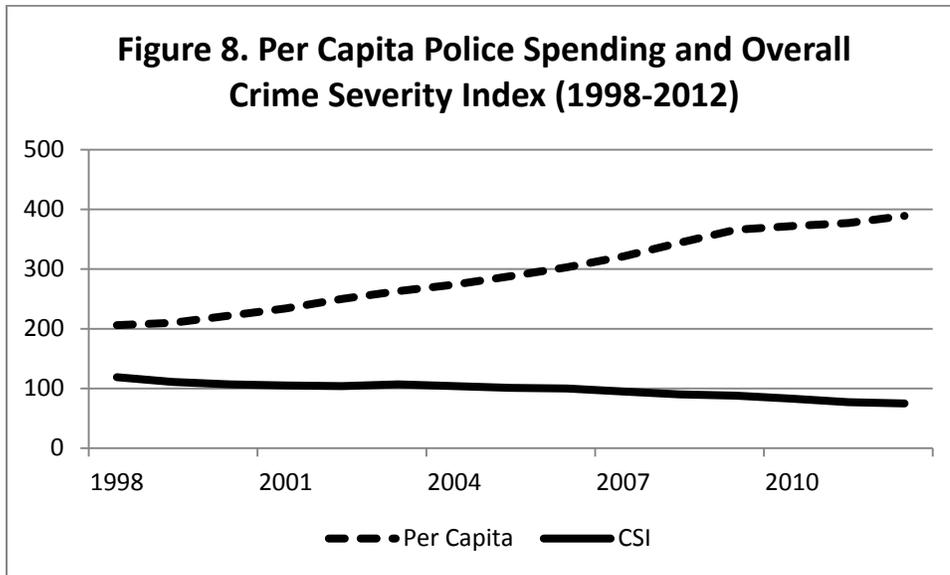
V. Contemporary Canadian Policing

It is difficult to make general statements about Canadian policing given the diversity in communities and the organizations that provide police services that range from small stand-alone agencies of fewer than ten officers to large municipal or networked services such as the Ontario Provincial Police (OPP) or RCMP. One factor that is of increasing concern is the growing cost of policing. Griffiths and Stamatakis (2012, p. 1) observed that, “discussions of the economics and sustainability of policing have been characterized by a considerable amount of speculation and untested and unsubstantiated assertions and assumptions.” In this section we examine the costs of policing and in particular the changes in these costs over time.

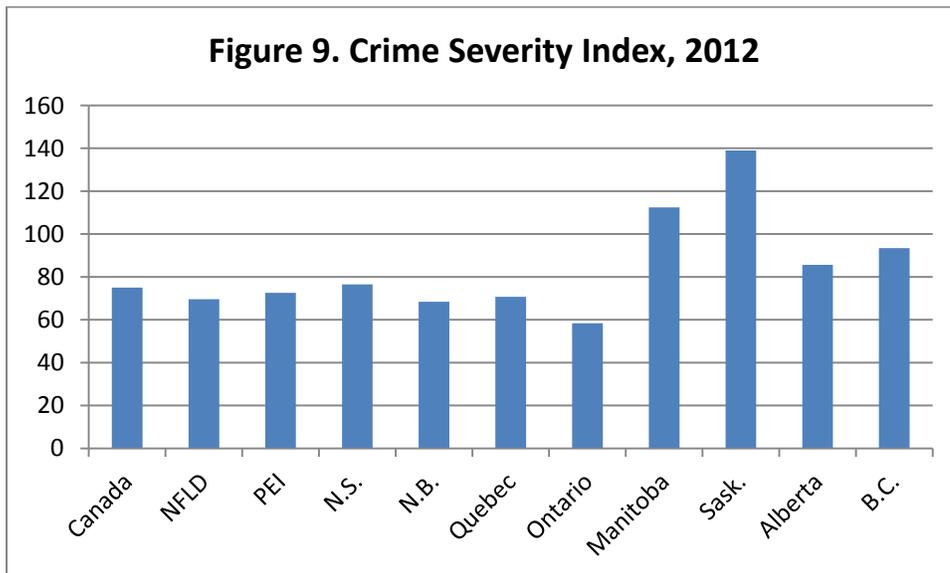
We also examine the changes in crime over time. Political leaders have pointed out that crime rates are decreasing at the same time that police costs are rising. Official crime statistics show that the volume and seriousness of crime has been decreasing since its peak in 1991 (see Perreault, 2013). Police practitioners, however, are not convinced, and Christmas (2013) observed that crimes that were once rare, such as gang-related shootings, are common today. While a discussion of the validity of crime statistics is beyond the scope of this report, there are a growing number of critics who suggest that the current method of counting crimes lacks precision (Moulton, 2013; Newark, 2013). The validity of statistics related to policing and crime is a key concern as policymakers, police leaders and the public need accurate information in order to make informed decisions about our responses to crime.

Police Costs and Crime

One of the challenges confronting Canadian police leaders is that while their services have had a role in decreasing crime, their costs have increased substantially. Statistics Canada (2013a) reported that between 1998 and 2012 the national volume and severity of crime, as measured by the Crime Severity Index (CSI), decreased from 118.8 to 75. During that time frame, the per capita cost of policing increased from \$226 to \$320 in constant 2002 dollars, although if calculated using current dollars, that range changes from \$206 to \$389 (Hutchins, 2014, p. 33). Figure 8 shows this relationship using the national average CSI.

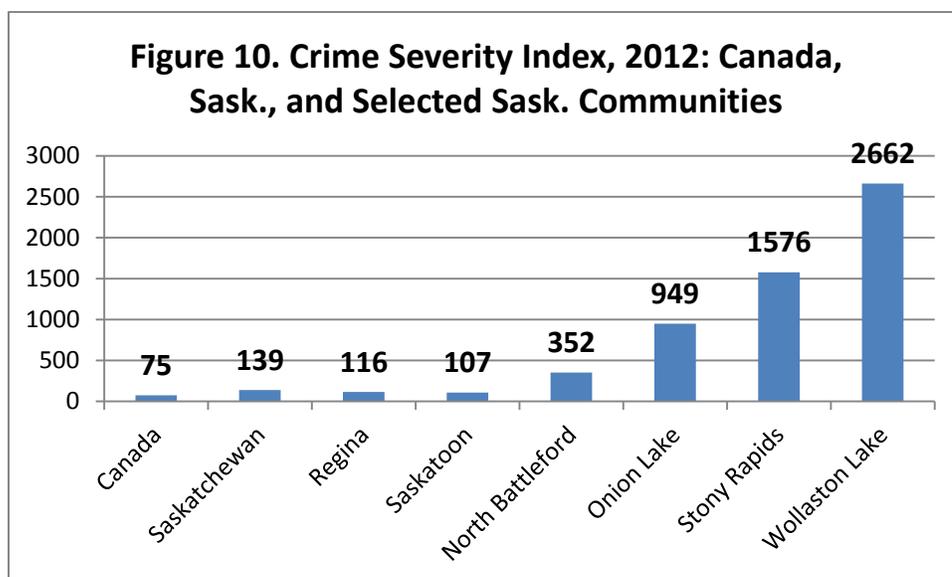


It is important to note that the national CSI masks variation both *between* and *within* different provinces and territories in respect to the severity and volume of crime, as well as the per capita costs of policing. Increases in the volume and severity of crime will result in a higher demand for policing services and costs. Figure 9 reveals that Saskatchewan had the highest provincial CSI although rates in the Northwest Territories, Nunavut and Yukon were all higher.

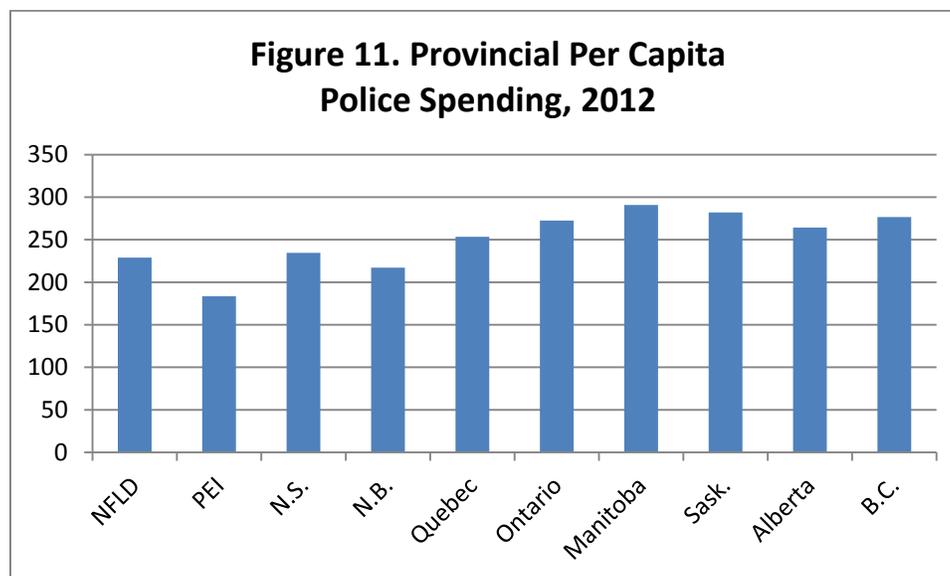


Yet, there is also considerable variation within each province and there will be places with higher levels of police-reported crime. Figure 10 shows the CSI for the nation, the province

of Saskatchewan as well as selected Saskatchewan municipalities and First Nations for 2012. The three jurisdictions with the highest rates for the province—Onion Lake, Stony Rapids and Wollaston Lake—are also reported to show the degree of variation. It must be noted that in locations with small populations, the CSI may lack precision as a small number of offences can drastically increase the CSI (see Babyak, Alavi, Collins, Halladay & Tapper, 2009).



Crime, police strength (e.g., the number of officers per 1,000 residents) and spending are typically related, as places with a greater amount of crime typically deploy more officers (although this is not always the case). Figure 11 shows the interprovincial differences in per capita police spending for 2012 (Hutchins, 2014, p. 36). These statistics are calculated somewhat differently than in previous years as over \$2 billion in RCMP costs are not assigned to specific provinces. Nevertheless, like the differences in the CSI reported in Figure 9, the per capita police spending shows considerable variation. This figure did not include the three territories, where the per capita costs of policing are several times the national average (\$641 in Yukon; \$1,051 in the Northwest Territories, and \$1,221 in Nunavut). Costs of policing rural and remote areas are higher due to economies of scale (e.g., it is more cost efficient to police large urban areas) as well as staffing expenditures (e.g., allowances for staff working in remote locations) as well as the high costs of goods, services, and travel in rural and remote communities.



Researchers have long known that there is a gap between the number of crimes that occur and those actually reported to the police: what criminologists call the “dark figure of crime.” Crime victims have a number of reasons for not reporting their victimization, including fear of retribution, the belief that the police are unable to do anything about the offence, embarrassment about their role in an incident (e.g., a person who is assaulted when they are soliciting a sex trade worker), or their engagement in crimes themselves (such as a drug dealer who is robbed). Justice systems and data collection agencies also play a role in how crimes are reported. Newark (2013, p. 1) notes that the CSI only counts the most serious offence and observed that, “in a case involving drug dealing, weapons, assault and flight from police by an offender on bail and probation, only what was deemed to be the ‘most serious’ offence would be reported.” Moreover, some agencies may be guilty of “massaging” their crime statistics (e.g., by making it difficult for a victim to report a minor crime: see Moulton, 2013). Interestingly, police services that have higher levels of public trust and confidence may actually receive more reports of crime because the public believes that these crimes will be taken more seriously.

The location of some isolated and Northern locations also contributes to higher policing costs. Lithopoulos (2013) calculated the costs of policing Aboriginal communities by geographic zone (an indicator of distance from the nearest urban centre and whether a community can be accessed by year-round roads (Geozones of 4 are the most isolated). The results of his analyses

are presented in Figure 12, and show that costs in the most remote places are over three times the national average of \$375 in 2011.

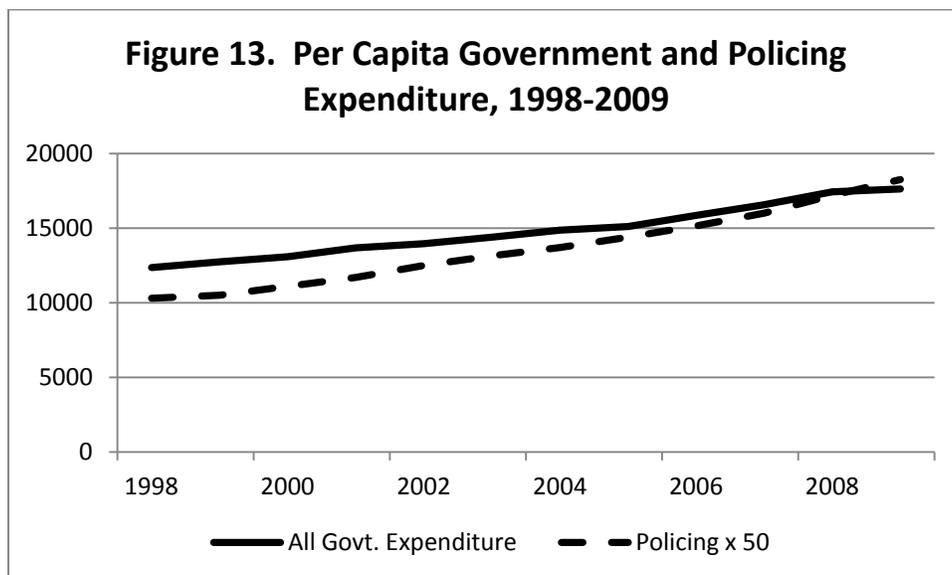
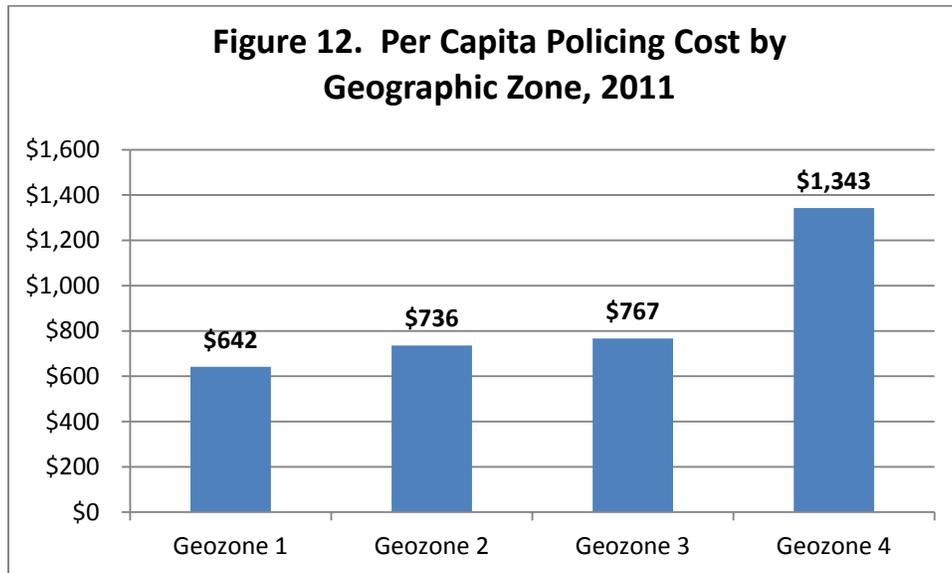
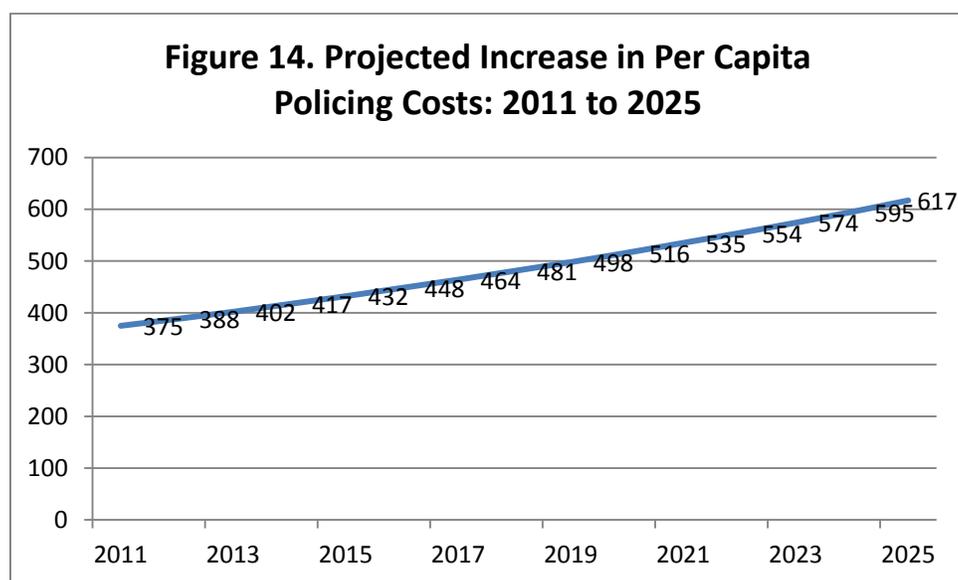


Figure 8 showed that police spending has increased over time, but it is important to note that per capita expenditures for all governments also grew. Figure 13 shows both the policing and the consolidated government expenditures from 1998 to 2009 (the most recent year for which data was available in March 2014). Consolidated government spending includes all three

levels of government (federal, provincial and municipal) in current dollars and this increased by 43% from \$12,359 in 1998 to \$ 17,629 in 2009. Police per capita spending, by contrast, increased by almost three quarters during the same era, from \$206 to \$365, outpacing total government per capita expenditures by a significant margin during that era (In order to better show the trends, policing expenditures were multiplied by 50).

While police services in other nations have struggled with cutbacks, the per capita expenditures for policing in Canada were \$389 in 2012 (current dollars) which represented a 3.1% increase from the previous year (Hutchins, 2014, p. 33). In the ten years between 2002 and 2012 policing costs (in constant 2002 dollars) increased 42%. Using that average we projected per capita police spending from 2011 to 2025 and found that costs would increase by over 61% (see Figure 14). Some would question whether this growth is sustainable, although Griffiths and Stamatakis (2012, p. 2) observed that this is a function of “what the police are being asked to do, who would do the work if the police were not doing it, and at what cost.”



It is doubtful that increases of that magnitude are sustainable given the projected annual GDP growth of approximately two percent for the next five years (Royal Bank of Canada, 2013). In fact, the federal government reduced police funding through the elimination of the Police Officer Recruitment Fund in March, 2013. This fund was established to support the hiring of 2,500 additional officers. Police services used these positions to aide in gang suppression, target drug trafficking and investigate cases of child exploitation (Canadian Broadcasting Corporation,

2013). As that funding has been eliminated, the burden of paying for these services falls upon the shoulders of provincial, regional and municipal police services.

Based on these economic trends, we can make a number of statements about funding for Canadian policing. First, there is considerable variation within the nation and between police services that deliver municipal and rural or contract policing. Communities in the far North are very expensive to police, while larger municipalities can take advantage of economies of scale. Second, levels of economic distress vary throughout the nation and economic prosperity can change rapidly: Alberta had a strong economy in 2007, a \$2 billion deficit in 2013, but also led the nation in job creation throughout 2013. Third, there is a strong possibility that economic distress over the long term will result in more crime, and in turn, place an increased demand for police services.

Our analyses revealed that the per capita costs of policing have outpaced total government expenditures from 1998 to 2009. The change in the costs of policing is not a function of more officers per capita on the streets. Hutchins (2014, pp. 21-22) reported that there were 2.01 officers for every 1,000 residents in 1982 and 1.97 officers in 2013. As a result, the number of officers has generally kept pace with population growth over the past three decades. One of the most important drivers in these increased costs was that police salaries increased by 40% between 2000 and 2011 (in agencies with more than 50 officers) while the average for all Canadians in non-policing occupations increased by only 11% (Public Safety Canada, 2012). Public Safety Canada (2012) identified the following causes of increased policing costs:

- Increased overtime expenditures;
- Health services costs and occupational health and safety costs (e.g., health care, benefits, dental plans and pensions) have risen;
- Travel and transportation are more costly (the complexity of investigations has increased the need for officer travel);
- Fewer schedulable hours are available due to increased leave and training requirements, and;
- Corporate functions have expanded due to increased reporting requirements, as well as greater expectations from governments, the courts, and the public.

Many of these salary-related costs are difficult to contain as they are associated with collective agreements or legal requirements (see Malm et al., 2005). A number of U.S. jurisdictions have managed to control overtime costs (see PERF, 2013) although it is too early to tell whether those practices are sustainable over the long-term (e.g., whether those practices will harm investigations).

Summary

There is no disputing the fact that the costs of police are rising and in this section we highlighted some of the reasons for these costs. The public, who are being asked to “tighten their belts” often express frustration about the high costs of policing, especially when salary increases for officers (which are usually a product of arbitration) are publicized. Although the per capita cost of policing now approaches \$400 per year, most of us would consider that a bargain compared to the high costs of crime: Prior research has shown that diverting one youth from a life of crime will save society between \$2.6 and \$3.5 million in direct costs to society of victimization as well as lost opportunities (Cohen & Piquero, 2009). Piquero, Jennings and Farrington (2013) estimated that one male chronic offender costs the United Kingdom \$29 per person each year.

We have to acknowledge that many of the duties that the police undertake are not related to enforcement and officers are expected to carry out a number of social service roles. Gradually adding additional duties, especially ones not originally envisioned, is called mission creep, or what Millie (2013) called “wide policing.” Research has shown that only a very small percentage of an officer’s time—approximately one-fifth to one-quarter—is devoted to actual crime fighting (Marnoch, Boyd & Topping, 2010). Most calls for service are in response to social or neighbourhood problems, as well as about people with mental illnesses or other special needs. Robertson (2012, p. 351) called the police a social service agency that “responds to a variety of emergencies and all manner of personal crises, including crimes in progress, domestic disputes, disturbances, motor vehicle collisions, injuries from accidents, sudden deaths (including suicides), psychotic episodes of mental illness, and locating lost children and vulnerable adults.”

Millie (2013) argues that while the police currently carry out these service-oriented duties, other organizations, professions and volunteers may be better able to undertake these tasks and free the police to focus on their crime-fighting expertise. Police scholarship is now

focusing on identifying the core policing duties and placing operational priorities on those tasks. If the police relinquish those service-oriented duties, an important question is: Who will do them? Because the police are working “24/7” they are often the only government agency available to respond to social problems outside regular working hours.

The Economics of Rural Policing

According to Statistics Canada (2013b) 6.3 million Canadians (19% of the total population) live in rural areas. Most Canadian policing research overlooks what is happening in the countryside in favour of big city research. This focus on urban policing has led to significant gaps in our knowledge. Costs of policing rural areas are typically higher than in cities but there has been very little research conducted on “what works” or how to contain the costs of rural and remote policing. We do know that the conditions in rural Canada are changing: the population is aging in some places, but younger in others; traditional rural values are challenged by the influences of the urban culture and shifting economic conditions; some regions are booming while others are in decline. These challenges are often increased in policing Aboriginal communities and some First Nations have the highest rates of crime in Canada (Brzozowski, Taylor-Butts & Johnson, 2006).

Of special interest to law enforcement agencies serving rural areas are the crime patterns associated with resource-based boom communities. The rapid population and economic growth in these communities contributes to a number of social ills that have been called boomtown effects (Government of New Brunswick, 2012). Prior research has demonstrated that calls for service, arrests, officer workload and traffic accidents increased in Canadian and U.S. boomtowns (Archbold, 2013; Ruddell, 2011; Ruddell & Ortiz, 2014). Police officers and sheriff’s deputies in boom counties revealed that they are overworked and stretched thin (Archbold, 2013), which is similar to the findings reported in Canadian research (Ruddell, 2011). Given that resource exploration and extraction will continue for the foreseeable future, policing in boom communities will be an ongoing challenge for rural police services.

VI. Canadian Cost of Crime Calculator

For the most part, in the previous sections we highlighted the costs of policing, but have paid relatively less attention to the benefits of policing. In 2010 the Center for Quality Policing, a division of the RAND Corporation (a non-profit U.S. research organization) developed a Cost of Crime Indicator that can be used to measure how changes in the number of officers within a jurisdiction will affect crime (Heaton, 2010). This indicator is intended to help policy-makers make objective decisions about deploying the police. Interest in evaluating the impacts of government spending has led to cost-benefit analyses that help agencies make informed decisions about the services they deliver. Health, education and social service agencies have extensively used these analyses. The Washington State Institute for Public Policy has been at the forefront of researching the returns on investment for different criminal justice policies.

The cost of crime calculator is a research-based tool that produces an estimate of the financial benefits of adding an additional officer to a police service given that jurisdiction's rates of crimes and existing complement of officers. The calculator has a number of strengths:

- It focuses on the value of a police officer (rather than just the cost) enabling users to demonstrate the return on policing investments to stakeholders.
- It can be used by laypersons with no statistical training.
- It is based on empirical research.
- It is able to account for different crime rates and police services of different sizes.

The calculator is available free of cost online (at: <http://www.rand.org/jie/centers/quality-policing/cost-of-crime.html>) and has been used by U.S. police services to explain the relationships between cutting officers and changing levels of crime (Heaton & Jackson, 2012).

Components of the RAND Calculator

In calculating policing costs and benefits the calculator considers three factors; (a) levels of police-reported crimes; (b) the costs of these offences to society, and; (c) the effectiveness of the police in reducing crime.

(a) Crimes Reported to the Police

In order to develop the calculator, Heaton (2010) included five of the seven index crimes reported by the Federal Bureau of Investigation Uniform Crime Report (homicide, robbery, aggravated assault, break and enter offences, and vehicle theft). One strength of using only index offences is that they are consistently reported for nearly every U.S. jurisdiction, whereas crimes that are not as serious (e.g., wilful damage, disorderly conduct or trespassing) are not consistently reported. Two U.S. Uniform Crime Report offences are not considered in the cost-benefit analyses (sexual assault and larceny/theft). There are a number of difficulties in calculating crime-reduction benefits of some offences such as sexual assault and larceny/theft and research has not shown a clear and consistent relationship between changes in officer strength and statistically significant decreases in those crimes (Heaton, 2010).

(b) Costs of Crime

The costs of crime to society are assigned to each of the offences included in the RAND calculator. These estimates were developed using prior empirical research and Heaton (2010) averaged these costs based on three previous studies (Cohen & Piquero, 2009; Cohen, Rust, Steen & Tidd; 2004; French, McCollister & Reznik, 2004). There are a number of different ways of calculating the costs of crime. The three studies that were included in the compilation were based on two approaches (accounting and contingent-valuation methods). Accounting-based methods include a number of direct costs (such as the costs of investigating an offence) and indirect costs (including pain and suffering for the victim and costs to society). Contingent-valuation methods, by contrast, are based on willingness of the public to pay additional taxes to pay for crime reduction programs. These contingent methods often result in estimates that are higher than accounting based methods. Thus, the economic cost to society for a homicide established by Cohen and Piquero (2009), who used an accounting method, were \$5 million, but that estimate was less than one-half of Cohen and colleagues (2004) estimate of \$11.6 million using a contingent-valuation method.

It is difficult to accurately estimate the true costs of a crime to the individual and society. Using homicide as an example, all researchers assess the actual or tangible costs of providing transportation and medical care to a victim (prior to their death and the funeral costs afterward) as well as criminal justice processing (e.g., investigations, court costs and imprisonment if a suspect is convicted). Complex investigations can be very costly and OPP Commissioner Lewis

reported that the Tori Stafford investigation cost the OPP more than \$24 million dollars before the trial was over (O'Brien, 2014). Once a person is convicted of a homicide, their imprisonment could cost several million dollars, as Public Safety Canada (2013) estimated the annual cost of imprisonment in 2011-2012 at \$117,788 and an individual convicted of homicide will be under correctional supervision for the remainder of their lives.

The intangible costs of crime are also difficult to quantify. Most researchers have considered lost productivity of the victim as well as the offender (since they would be imprisoned if convicted and not contributing to the economy) as well as the costs to society. A homicide will reduce the quality of life in a community and increase fear, and murders prompt residents to move elsewhere (Chalfin & McCrary, 2013). Fear of victimization can also have a substantial impact upon a citizen's quality of life. Decisions such as whether to go for a walk after dark or say "hi" to a stranger on that walk may be influenced by fears. In a survey conducted by Jones and Ruddell (2014) almost ten percent of Regina residents said that they did not walk alone in their neighbourhoods after dark and about the same percentage strongly agreed that the possibility of crime kept them from "doing things I'd like to do." Business owners also make decisions based on crime rates: the Canadian Broadcasting Corporation (2011) reported that Air Canada would no longer lodge employees in inner-city Winnipeg hotels because of high rates of antisocial behaviour in that district.

(c) Crime Reduction Benefits of the Police

The third component of the calculator is the crime reduction effect of adding additional officers. Heaton (2010) averaged the results from five studies that examined the impact of increased police personnel on crime (Corman & Mocan, 2000; Di Tella & Schargrodsky, 2004; Evans & Owens, 2007; Levitt, 2004). Using those estimates, Heaton (2010) found that increasing the size of a police force by one percent would reduce homicides by slightly less than one percent (-0.927%) and vehicle thefts by less than one-half percent (-0.440%). The studies Heaton used in the development of the calculator were peer-reviewed, are well-regarded and cited, and are consistent with our current knowledge of the crime control benefits of a police officer.

Applying the RAND Calculator to Canadian Policing

Despite the fact that the Cost of Crime Calculator was developed for U.S. jurisdictions, this tool can be used to estimate the value of Canadian policing. Adding one officer to the Regina Police Service, for example, would result in a crime reduction benefit of \$290,215 based on their 2013 staffing compliment and rates of reported crime. By contrast, adding one officer to the entire province of Saskatchewan using 2012 data (including municipal and provincial policing) results in a crime reduction benefit of \$200,618. These results are shown in Table 7. The data to calculate these estimates were obtained from the Regina Police Service and the Province of Saskatchewan for crimes reported to the police. These estimates must be interpreted with some caution as the offences are reported in a slightly different manner in Canada than in the United States (e.g., definitions of aggravated assaults differ somewhat).

Table 7. Applying the RAND Cost of Crime Calculator to Saskatchewan Policing	
Regina Police Service (2013)	All Municipal and Provincial Policing, Sask. (2012)
Officers: 392	Officers: 2,298
Value of adding one additional officer: \$290,215	Value of adding one additional officer: \$200,618

The calculator produces a higher benefit of adding additional officers in locations with a greater number of serious offences. That observation is consistent with the findings of recent research showing a higher return on policing investment after placing additional officers in high-crime jurisdictions (Chalfin & McCrary, 2012). While the calculator has a number of strengths, it also suffers from a number of limitations when applied to Canadian policing including:

- Estimates are based on crimes that are officially reported to the police, which reflect only a proportion of all offences.
- The model includes only seven serious crimes and does not include less serious violent offences (e.g., common assault).
- It does not account for non-enforcement calls for service, which represent over two-thirds of all calls.

- The costs of crime in the U.S. might not be valid in Canada (e.g., there may be differences in the direct as well as intangible costs of crime in Canada, such as fear of crime and how the fear of crime prevents citizens from engaging in activities).
- Officer effectiveness was based on a relatively small number of studies, and newer data has been published since the calculator was introduced in 2010.
- The calculator does not account for the economic loss that is prevented from traffic enforcement (e.g., fewer collisions).

Given those limitations, the calculator might actually *undervalue* the true benefits of adding additional officers. The following paragraphs highlight some additional benefits that might be considered.

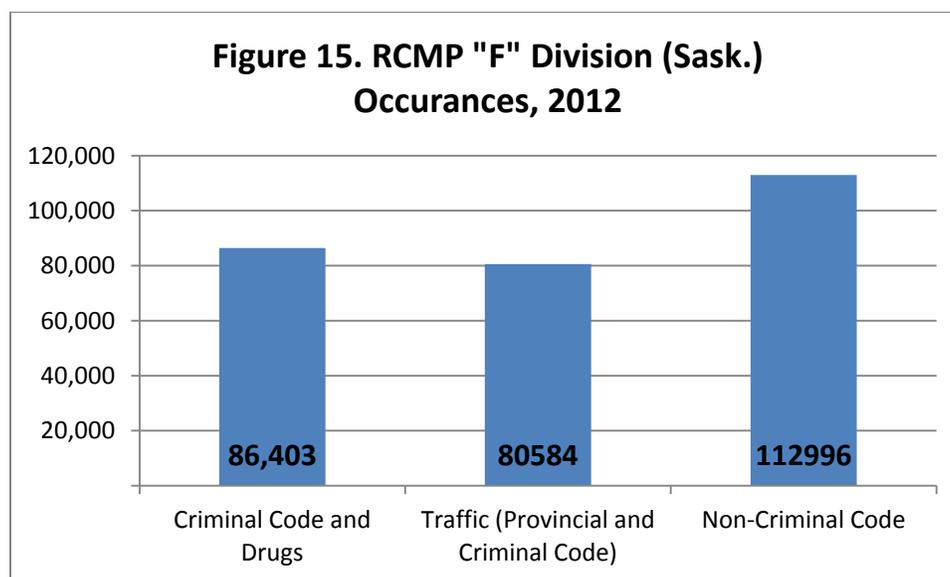
First, in terms of officer effectiveness, a number of peer-reviewed studies have been published since Heaton (2010) developed the calculator. Research conducted by Lin (2009), Chalfin & McCrary (2012), and Aos and Drake (2013) also identified the impact of officers to crime reduction and these estimates could be incorporated into an updated calculator. Aos and Drake (2013) developed the most comprehensive indicator in their meta-analysis of police studies. This new information could be incorporated in a Canadian version of the calculator.

Second, a number of researchers have produced estimates of the costs of crime to society since the RAND calculator was developed in 2010 (see Andresen, 2012; McCollister, French & Fang, 2010). Using these newer findings would make the calculator more accurate. In addition, a number of Canadian government studies on the costs of crime have been published that would inform the development of a Canadian calculator (Zhang, 2011; Zhang, Hoddenbagh, McDonald & Scrim, 2013). One challenge, however, is that the Canadian data are based on accounting methods rather than the contingent-valuation method, which will produce lower estimates.

A third limitation of the RAND approach is that it does not account for an officer's influence on reducing traffic crashes, a limitation acknowledged by Heaton (2010).

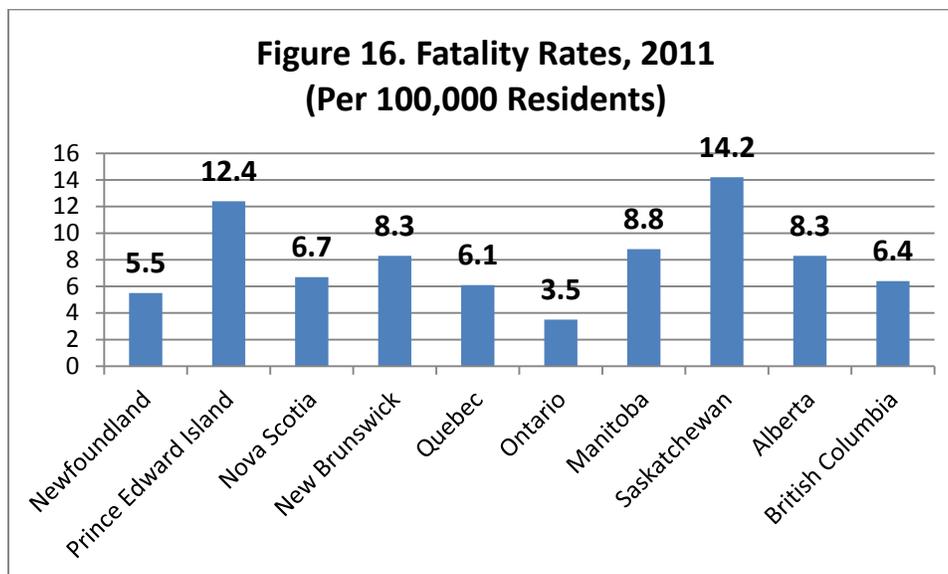
Approximately two-thirds of Canadian officers are deployed in patrol activities and they play an important role in ensuring traffic safety, as prior empirical work has shown that traffic enforcement reduces the number of traffic crashes (Bates, Soole & Watson, 2012; DeAngelo & Hansen, 2014; Factor, 2014; Makowsky & Stratmann, 2011; Tay, 2009).

In order to demonstrate officer workload, Figure 15 shows the occurrences for 2012 for the province of Saskatchewan. These represent all 279,983 responses by the Mounted Police. This serves as an indicator (albeit imprecise) of the distribution of officer activities, with 29.8% of duties related to criminal code or drug offences, 28.8% of duties devoted to traffic-related issues (including criminal code offences such as impaired or dangerous driving) and 40.4% of duties relating to non-criminal code incidents.



The number of traffic crashes and resulting deaths in Canada is not trivial. Transport Canada (2013, pp. 3-4) reported that in 2011 there were 121,159 collisions that resulted in personal injuries, 10,443 persons were seriously injured and 2,006 individuals were killed. Figure 16 shows the provincial death rates, which are about four times the homicide rate. Western provinces had the highest fatality and injury rates and Saskatchewan led the provinces with respect to fatalities, but Manitoba had the highest injury rate per 100,000 residents in the population and per 100,000 licensed drivers. Vodden, Smith, Eaton and Mayhew (2007, p. iii) estimated that the social cost of motor vehicle collisions in Ontario alone was \$18 billion in 2004 and that the average social cost of a collision was \$77,000 (Social costs include direct losses as well as pain, suffering and lost productivity). Newer data reported by de Leur, Thue and Ladd (2010) reported that the costs of Alberta crashes in 2007 averaged over \$1.8 million for a fatality, \$81,059 for an injury and \$10,902 for a non-injury collision: those totals are higher if willingness

to pay data were included (see also: Pitel & Solomon, 2013). Given the costs to society, the benefits from traffic enforcement should be considered in any accounting of the benefits of policing.



Methodology

There are a number of methodological considerations for the development of the cost of crime calculator and to a large extent these issues were previously highlighted by Heaton (2010). In developing a revised calculator we have an advantage of being able to use additional scholarship that has been published since the original calculator was introduced in 2010. In the pages that follow the following issues are addressed:

- (a) Costs of crimes and traffic collisions
- (b) Police reported vs. unreported crimes
- (c) Police effectiveness in crime and collision reduction
- (d) Directed policing vs. traditional patrol
- (e) Officer deployment

The rationale for providing these various measures is also described, although given the choice, we utilized the indicators that were based on the most rigorous and recent research and preference went to indicators developed in Canada.

Costs of crimes and traffic collisions

There are a number of different methods used to calculate the cost of a crime, including the direct or tangible costs to society (e.g., the cost to repair a vehicle involved in a collision) although these estimates become more complex and open to interpretation when we include indirect or intangible costs, such as pain or suffering, or lost productivity (e.g., when one misses work or is distracted at work after being physically assaulted). A number of scholars have estimated the direct and indirect costs to society for various crimes. This study uses the estimates produced by McCollister, French and Fang (2010), which were calculated for 2008 and then updated to account for inflation using the Bank of Canada inflation calculator. The study conducted by McCollister and colleagues is methodologically sound as demonstrated by its acceptance across different disciplines and by the fact that it is widely cited.

Crime Type	Tangible Costs	Intangible Costs	Total (2008)	Adjusted for inflation: 2013 dollars
Homicide	1,285,146	8,442,000	8,982,907	9,746,213
Rape/Sexual Assault	41,252	199,642	240,776	261,235
Aggravated Assault	19,472	95,023	107,020	116,113
Robbery	21,373	22,575	42,310	45,905
Arson	16,429	5,133	21,103	22,896
Motor Vehicle Theft	10,534	262	10,772	11,687
Stolen Property	7,974	NA	7,974	8,651
Household Burglary	6,169	321	6,462	7,011
Embezzlement	5,480	NA	5,480	5,945
Forgery/Counterfeit	5,265	NA	5,265	5,712
Fraud	5,032	NA	5,032	5,459
Vandalism	4,860	NA	4,860	5,272
Larceny/Theft	3,523	10	3,532	3,832

With respect to the actual dollar amounts, the tangible and intangible costs were summed, although for homicide offences, the uncorrected risk of homicide costs was cut from the crime victim costs, in order to reduce duplication (so the sum is less than tangible and intangible costs). While these are U.S. amounts, they correlate very highly with Canadian estimates. Zhang and

colleagues (2013) estimated the direct and indirect cost of homicide at \$8,546,263 (adjusted for 2013 dollars). Those investigators did not, however, report data for any other offences.

In terms of the costs of traffic collisions, data from two Canadian studies were used to calculate the average cost per collisions with fatalities, injuries and property damage only (PDO). These studies were conducted by de Leur, Thue and Ladd (2010) using Alberta data and an Ontario study carried out by Vodden, Smith, Eaton and Mayhew (2007). Similar to Heaton’s (2010) approach for cost of crime, the results of these two studies were averaged, and then adjusted for 2013. The methodology for determining the costs of collisions was very similar to the one determined for costs of crime by McCollister, French and Fang (2010).

Table 9. Estimated Costs of Traffic Collisions				
	de Leur et al. (2010) in 2013 dollars	Vodden et al. (2007) in 2013 dollars	Total	Divided/2
Fatality	6,146,819	18,435,721	24,582,540	12,291,270
Injury	149,192	96,288	245,480	122,740
Property Damage Only (PDO)	12,087	9,394	21,481	10,740

Reported and unreported crimes

Only a fraction of crimes are officially reported to the police. In their analysis of victimization data conducted for the Canadian Centre for Justice Statistics, Perreault and Brennan (2010, p. 16) noted that there are a number of reasons why individuals do not report their victimization, including; the offence was not considered important, the perception that the police could not do anything about the offence, the victim dealt with their victimization in another way, the incident was a personal matter, the victim didn’t want the police involved, or victims thought that the police wouldn’t help. A modified calculator of crime can control for these unreported acts. In order to capture those unreported offences, the likelihood of reporting offending is extrapolated using the information in Perreault and Brennan’s (2010, Table 10) percentage of individuals who reported their victimization to the police in 2009. The results, presented in Table 10, showed that less than one-half of robberies are ever reported and about

one-third of assaults. The proportion of property offences officially reported to the police is higher. Based on those reporting rates, a multiplier was developed so that the benefits of adding officers could be based on both reported and unreported acts.

Offence	Percentage reported	Multiplier
Robbery	43	2.326
Physical Assault	34	2.941
Break and Enter	54	1.851
Motor vehicle theft/parts	54	1.851
Household property theft	23	4.347
Theft of personal property	28	3.571

Police effectiveness in reducing crime and traffic collisions

One of the more complex aspects of developing a cost of crime calculator is to develop a measure of police effectiveness. Most scholars who have undertaken this task have based their research on “natural experiments” such as what happens after a police layoff, or after observing the crime control effect of a short-term expansion in policing (e.g., in response to a terrorist act). For the Canadian cost of crime calculator, the estimates developed by Heaton (2010) are used and they are reported in Table 11.

Offence	Percentage reported
Homicide	-0.927
Robbery	-0.592
Serious Assault	-0.292
Break and Enter	-0.404
Motor vehicle theft/parts	-0.440
Theft	-0.103

Since Heaton’s (2010) study was conducted, researchers from the Washington State Institute for Public Policy have developed a methodologically sound approach to measuring the

effectiveness of a police officer based on their work in Washington State (see Aos & Drake, 2013). The only limitation of their approach is that they use a single indicator for all violent crimes and a separate measure of non-violent crime (e.g., they predict that there will be a -0.796 reduction generated by a 1% increase in police for violent offences and -0.513 for a property crime). Given the choice between the two methods, we used Heaton's (2010) estimates as they provide more precision for specific crime categories. Another rationale for using Heaton's estimates is that his work was published four years ago and his scholarship has been well received and regarded; a review of the cost of crime literature did not reveal any critiques of his methodology.

With respect to traffic collisions, one of the most methodologically strong studies was conducted by DeAngelo and Hansen (2014). They analyzed changes in traffic collisions after the numbers of Oregon state highway patrol officers were cut by 35%. They examined changes in the number of collisions prior to the layoffs and afterward, and compared their results with neighbouring states during the same era. They found that a 35% reduction in troopers resulted in a 4% increase in personal damage only collisions, 12% increase in injury accidents and a 17% increase in fatalities. Those estimates were used to construct the indicators of effectiveness of traffic enforcement.

Officer effectiveness

Police leaders have a number of choices in deploying officers. Results of recent studies have consistently shown that the police represent a good return on investment, especially if deployed in the highest crime communities. In addition, studies of policing in urban America have generally shown that police effectiveness can also be enhanced by focusing on high-risk places or populations (Telep & Weisburd, 2012). In a study conducted by the Washington State Institute for Public Policy, Aos and Drake (2013) reported that police effectiveness can be increased by 11% with respect to reducing violent crime by deploying officers in a "hot spots" deployment rather than a traditional random patrol. The increases for property crime are higher, and officers are 19% more effective when using a "hot spot" deployment to respond to property crime. Those estimates of policy effectiveness are used in the Canadian calculator.

Officer deployment

One limitation of indicators of crime control is that factors other than crime were not included in the development of calculators. It is widely known that crime control accounts for a relatively small proportion of officer activities and that most officers also engage in traffic enforcement and service duties. In order to develop an estimate of officer activities, we used the averages for occurrences for Saskatchewan as reported in Figure 15. Using that indicator we find that 29.8% of officer responses were in crime control, whereas 28.8% was devoted to traffic enforcement.

Structure and Use of the Cost of Crime Calculator

The calculator enables the user to estimate the impact of different policing arrangements based on a number of policy choices. The only requirement is that the user has current crime statistics and information about traffic collisions for the same jurisdiction. The application is menu driven and is shown in Illustration 1 (below):

Sheet1							
Crime Type	Crimes/Year	All Crime	Crimes Averted	Policy Multiplier	Cost Per Crime	Projected Savings	Officer Deployment
Murder	34	34	3	3	\$9,746,213	\$29,238,639	
Attempted Murder	28	82	1	1	\$116,113	\$116,113	
Robbery Levels 2 and 3	1,128	2,624	67	74	\$45,905	\$3,396,970	
Assaults	4,058	11,935	118	131	\$116,113	\$15,210,803	
Break and Enter	9,139	16,916	369	439	\$7,011	\$3,077,829	
Motor Vehicle Theft	4,761	8,813	209	249	\$11,687	\$2,910,063	
Crime: Aggregate Savings in Million Dollars - 10% Increase in Police Officers						\$53,950,417	\$16,077,224
Collision Type	Number/Year	Collisions Averted	Cost Accident	Projected Savings			
PDO (Total collisions)	24,355	278	\$10,740	\$2,985,720			
Fatal Collisions (Total)	153	7	\$12,291,270	\$86,038,890			
Injury Collisions (Total)	6,874	235	\$122,740	\$28,843,900			
Traffic: Aggregate Savings in Million Dollars - 10% Increase in Police Officers				\$117,868,510	\$117,868,510	\$33,946,131	
TOTAL AGGREGATE SAVINGS (CRIME AND TRAFFIC) - 10% INCREASE IN POLICE OFFICERS						\$171,818,927	\$50,023,355

Similar to the approach used by Heaton (2010), only six offences are considered. The first trials of the calculator were based on rates of reported crime and traffic collisions for Saskatchewan in 2012 and show the impact of a 10% increase in officer strength in the jurisdiction. Crime data were obtained from the Canadian Centre for Justice Statistics (Perreault, 2013) and collision data were received from Saskatchewan Government Insurance (2013). Estimates for the entire province of Saskatchewan revealed that a 10% increase in officer strength would result in a cost savings of \$50,023,355. Based on officer strength in 2012 (n=2,298), a 10% increase would represent a cost of \$29,210,000 (based on \$127,000 per officer, which is the contract cost for an RCMP officer). As a result, the return on each dollar invested in policing is \$1.71. The calculations are shown in Table 12.

Table 12. Projected Savings With a 10% Increase (n=230 officers) in Police Strength, Saskatchewan, 2012	
Crimes averted	\$16,077,224
Collisions averted	\$33,946,131
Total savings	\$50,023,355
Costs (Officer)	\$29,210,000
Return on each additional dollar spent on policing: \$1.71	

Summary

In this section we reported on the development of a Canadian cost of crime indicator. In order to construct this calculator, we extended the work done by Paul Heaton of the RAND Corporation. The most significant changes to the calculator included updating the costs of crime, adding an indicator of the benefits of traffic enforcement and accounting for officer productivity and deployment based on Canadian statistics. In the development of the calculator we relied upon the most recent and methodologically sound scholarship, which reduces the likelihood of producing biased estimates (e.g., increasing or decreasing either the costs or benefits of crime

and traffic control). The calculator is intended to be used by policymakers, practitioners and members of the public: All that is required for the end user are the current levels of crime and traffic collisions for a jurisdiction.

While acknowledging its strengths, the calculator also has a number of limitations, and one weakness for rural or small town policing is that it is not well suited to provide accurate estimates for very small jurisdictions (e.g., a detachment of two or three officers). As a result, its use should be restricted to larger jurisdictions, such as cities of over 10,000 residents, regional police operations, or provinces. In addition, most of the research on which the calculator was based is U.S., and although there are more similarities than differences between policing in the two nations, there are bound to be factors that might contribute to slight variations in officer effectiveness (e.g., the number of crimes averted might be different in Canada than in the U.S.). Last, the indicators of officer effectiveness established by Heaton (2010) and used in the construction of the Canadian calculator are primarily based on estimates derived from studies in urban areas. Evidence from recent U.S. studies suggest that agencies providing contract policing in rural and small towns are actually more effective than their municipal counterparts (see Nelligan & Bourns, 2011) although there is a lack of similar research for Canadian contract policing.

Altogether, the Canadian cost of crime indicator introduced in this section has laid a foundation for better understanding the relationships between economics and policing, the costs of crime, and the value of a police officer in reducing crime. Admittedly, this is a small step forward in a large undertaking. It is important to note that similar studies are occurring within Canada and abroad, and these efforts have been sponsored by different levels of government, policing organizations as well as within the academic community. This scholarship will help the Canadian policing community to extend our understanding of the economics of policing, and the costs and benefits of deploying police personnel.

VII. Reimagining Canadian Policing

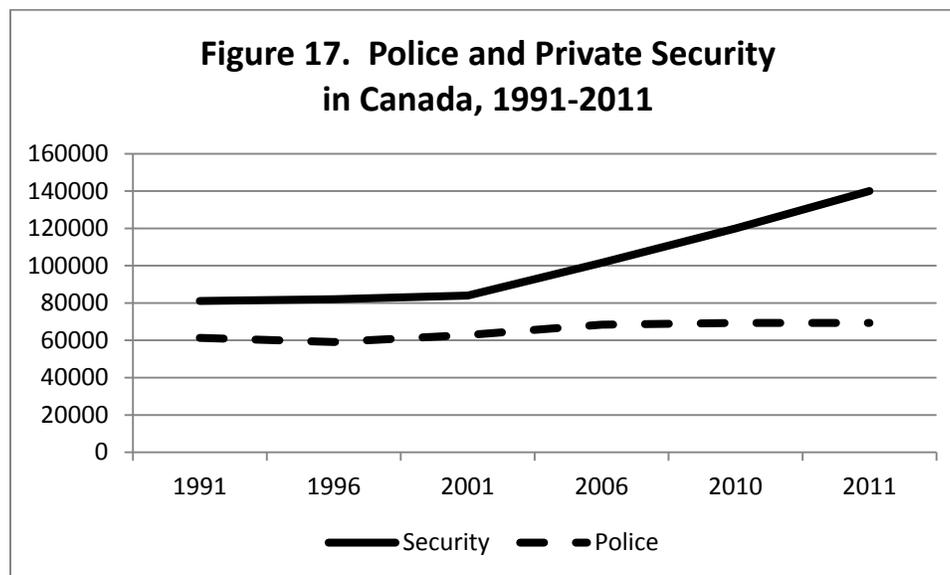
Crank, Kadleck and Koski (2010) argue that the U.S. policing industry is searching for a new guiding philosophy; what they call the “next big thing.” There are similar forces at work in Canada, and throughout this review a key concern is to better understand how economic forces will drive changes in policing. A number of scholars from the U.K. and the U.S. have advocated for the redesign or re-engineering of policing and observed that austerity has motivated policymakers to consider these changes (Gascon & Foglesong, 2011; Rogers & Gravelle, 2013). While a number of Canadian officials, including former Public Safety Minister Toews (2013) have echoed these thoughts about reforming policing, although there is less consensus about the future of policing arrangements and what changes (if any) should occur.

Bayley and Nixon (2010) observed that the public police are losing their traditional monopoly on policing. Duties formerly carried out by sworn officers are now undertaken by civilian employees, volunteers and private security agencies. This is part of a larger global trend and for the most part these changes in Canada have been gradual and not forced by economic crises. The following pages describe how the activities of non-police officials may shape the future of Canadian policing. Moreover, there has been an increasing interest in police-community partnerships that are intended to move policing away from the traditional reactive policing model, and a short description of these crime reduction strategies is provided.

The Expanding Role of Private Security

There has been comparatively little Canadian research conducted on the operations of private security firms. This oversight is especially serious given the fact that there are at least 109,625 security officers in Canada (Statistics Canada, 2013d), and the CBC (2013a) has estimated that this number is closer to 140,000 personnel which means that they outnumber the police by almost 2:1. This pattern exists in most first-world nations and some security firms are large: the Canadian Corps of Commissionaires employs more personnel than any police service in Canada with the exception of the RCMP. Some of these firms span the globe and at year-end 2011, the G4S security corporation had 657,200 employees including almost 60,000 staff members in North America (G4S, 2013). Bayley and Nixon (2010) noted that Canada and the United States had the highest per capita employment of security personnel in the developed world. Private security is growing at a faster pace than the public police, from around 80,000

positions in 1991 to an estimated 140,000 personnel in 2013 (Canadian Broadcasting Corporation, 2013a; Hovbrender, 2011; Li, 2008).

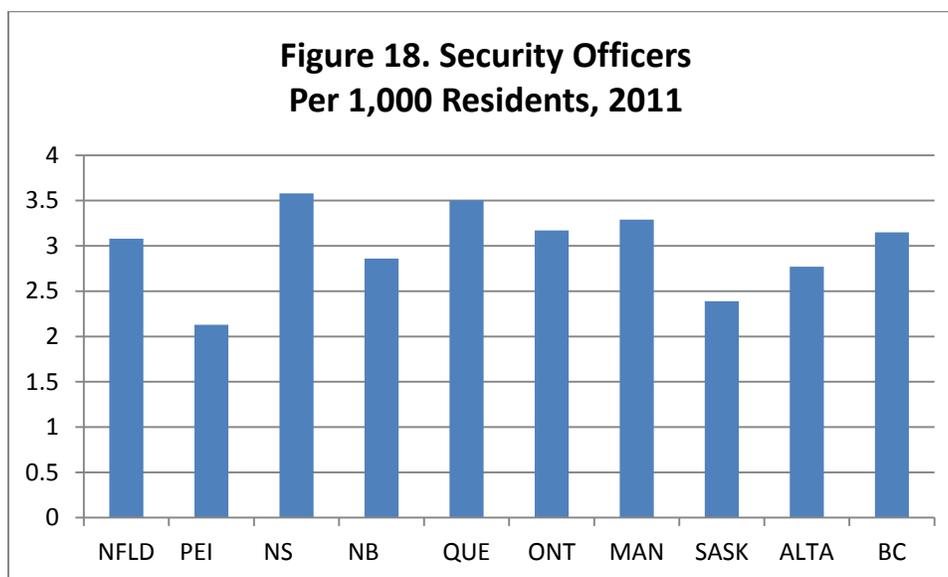


The roles of private security and the police are often complementary, as employees of both sectors work toward preventing and responding to antisocial behavior and crime. Ruddell, Thomas and Patten (2011) found that private security officers augmented the public police in their study of 300 U.S. counties and that more security officers were deployed in counties with the highest rates of property and violent crime. There is consensus in the security literature that the boundaries between the public police and private security are becoming increasingly blurred (Roberts, 2012). In some cases, police services have hired private security firms to support their operations and in the U.K. and the U.S., the police are outsourcing policing, enforcement, and security-related duties to private firms (Gascon & Foglesong, 2011; HMIC, 2012). In Saskatchewan, members of the Corps of Commissionaires are now operating laser radar in highway construction zones (McEachern, 2013).

In their examination of private security in Canada, Ruddell and Winterdyk (under review) found that there was considerable variation of security officer strength in the largest Canadian cities. Unlike the public police agencies that deploy about 2 officers per 1,000 residents, the number of security officers ranged from 1.1 to 6.7 officers per 1,000 residents. Examining statistics from 2006 and 2011, Ruddell and Winterdyk found a relationship between levels of violent crime and the number of security officers deployed, and more officers were employed in

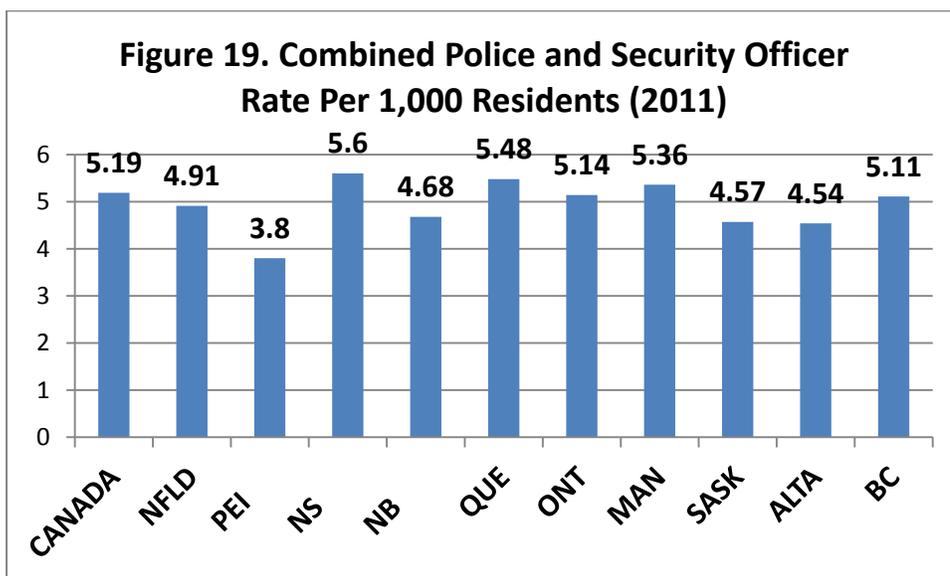
the cities with the most crime. Their analyses revealed, however, that there was not a higher employment of security officers in Canadian cities with higher levels of property crime. In addition, controlling for other factors, richer communities tended to have more security officers.

The findings reported by Ruddell and Winterdyk may be an indication of two-tiered policing where those who can afford a higher degree of safety or security are able to purchase those services, a practice that is occurring more often in U.S. cities experiencing police cutbacks (Blackstone, 2013). Analyses of the Statistics Canada (2013c) data showed that there were 3.18 security officers for every 1,000 Canadians in 2011. Figure 18 shows the variation of security officer strength at the provincial level in 2011, and this ranged from a low of 2.13 in Prince Edward Island to a high of 3.58 in Nova Scotia. Although the three territories are not shown in Figure 18, the rate per 1,000 residents in Yukon and Nunavut were similar to the national average (2.54 and 3.13 officers respectively) while the rate in the Northwest Territories was higher (3.96). One interesting fact is that once security officers and police officers are combined, the levels are fairly consistent across the provinces – in other words, in the absence of the police the number of security officers may increase (see Figure 19 on the next page).



The expansion of private security has been opposed by some stakeholders. Security officers, in most cases, are less carefully screened than their public counterparts, and receive less training (Lippert, Walby & Steckle, 2013). Salaries in this industry are also less than their public counterparts and turnover is high (Li, 2008). As a result there are important questions about what

duties carried out by the public police could (or should) be undertaken by private organizations. The Police Association of Ontario (2012, p. 2) opposes the outsourcing of police duties to private firms and raises the issue that corporations are not subject to civilian governance or oversight and operate with less transparency than the police. Writing about private policing in Canada, Griffiths and Stamatakis (2012, p. 89) observed that “discussions are taking place in the absence of sound, research-based information. The danger is that decisions will be made and policies formulated on the basis of unsubstantiated assertions and untested assumptions.”



As funding for public policing shrinks there will be a greater number of partnerships between the public and private police, what the Law Commission of Canada called a hybrid approach. Hutchinson and O'Connor (2005, p. 131) wrote that, “We stand on the brink of a more complex future in which alliances of (public, parochial and private) agencies and interests are drawn together in intricate networks of policing.” Examples of a hybrid approach are the Canadian Pacific Railway and the Canadian National Railway Police Services who have secured railway properties for over a century. While accounting for less than several hundred officers in the nation, the sworn officers employed by these railways have the same training requirements and police powers as their municipal or provincial counterparts. We can only speculate whether they will serve as a model for other policing agencies operated by corporations.

The provision of services to police forces by private sector organisations, and agencies and organisations in the public sector (such as fire, health and local authorities), is likely to increase markedly, as efficiencies and economies have to be found. That development is likely to have the greatest success for both partners if these joint ventures are well-designed at the outset, and made sufficiently flexible and adaptable to deal with changed circumstances.

Thomas P. Winsor, Her Majesty's Chief Inspector of Constabulary, Speech from April 29, 2013

The market-driven private security industry is also reinventing itself given the contemporary political and economic conditions and the increasing focus on value for money and return on investment (White & Gill, 2013). While the police are guided by the public good, staff members of private security firms answer to the individuals, organizations or corporations that hired them. As a result, employees of these firms may be more concerned with meeting the expectations of their employers rather than just and fair outcomes. The counter argument, however, is that security guards play a role in deterring crime and their actions in resolving minor incidents free the police to focus on more serious offences and offenders.

The Civilianization of the Police

There are an increasing number of civilians working within Canadian police organizations and Burczykca (2013) noted that:

In 2012, police services reported employing 2.5 officers for every one civilian worker, a ratio that has held steady since 2007. The ratio of officers to civilians has decreased substantially since the 1960s, when reported ratios were between 4.6 and 4.1 officers for every civilian staff member. (p. 9)

For the most part, these employees work in supportive roles such as administrative support, crime analysis, information technology, crime prevention, forensic analysis, human resources and media relations (e.g., public information officers). That total does, however, include special constables, security officials, and by-law enforcement officers. Some of those tasks had been carried out by police officers but many argue that it is more cost-effective to use civilians in those roles.

Throughout the U.S. and the U.K., there are an increasing number of non-sworn uniformed (and unarmed) officials employed by police organizations. These officials have limited police powers (e.g., can issue some tickets) and are often called community service officers (CSO) in U.S. jurisdictions and police community support officers (PCSO) in the U.K. In England these positions were first authorized in 2002 and Johnston (2007, p. 128) found that most officers and civilians working within police organizations agreed that PCSOs reduced police workloads (thus releasing officers to work on other duties) and their presence was reassuring to the public. In March 2014 there were 14,442 PCSOs in England and Wales or about one PCSO for every nine police officers (HMIC, 2014) although thousands of those positions are projected to be cut (Barrett, 2012).

Uniformed by-law enforcement officers have been employed in Canadian municipalities for decades and more jurisdictions are using these officials in crime prevention roles or in responding to antisocial behaviour. Other police services employ special constables and, like the PCSO, these unarmed but uniformed officials have limited police powers. In some provinces these special constables provide court security, prisoner transportation or other security services that had once been done by sworn officers. Special constables are also employed by educational institutions, health care facilities and housing or transit authorities. The Ontario Association of Chiefs of Police (2010, p. 4) reported that there were more than 3,000 special constables in that province.

A number of provinces also employ sheriffs, who have limited police powers, to provide court security and prisoner transport. As these sheriff positions are paid less salary than sworn officers, municipalities and provinces can reduce staffing expenditures. The province of Alberta has greatly expanded the role of their Sheriffs and these 700 armed officers carry out a number of non-investigative duties formerly done by sworn officers although they work closely with municipal officers and RCMP members (Henton, 2012). These officials started as court and prisoner transportation workers but their roles expanded to traffic enforcement, fugitive apprehension and the protection of government property and personnel. Their expanded role is a relatively new undertaking and it is likely that other governments might copy this approach if Sheriffs are proven to be a long-term and cost-effective alternative to sworn officers.

Our review demonstrated that investing in additional officers is typically a good investment in public funds, but only if those officers are deployed in a manner consistent with

evidence-based practices, such as targeting hot spots. In some cases, police services might get a better “bang for their buck” if they hire civilian employees. Robertson (2012) noted that:

Excessive deployment of police to frontline positions, putting more “boots on the streets” is expensive and often not the most effective use of police resources. Indeed, police and the public might be better served by using the same funding to employ two records clerks in order to improve police response to Crown disclosure requests, rather than adding a single patrol officer or internet child pornography investigator. But it is hard to get political mileage out of mundane, but important, administrative positions. (p. 358)

Robertson’s observations reinforce the importance of tailoring policing to the unique needs of the community. One of the challenges of policing in a nation as geographically and culturally diverse as Canada is that a strategy that works well in one part of the country might be less effective elsewhere.

The Police Association of Ontario (2012a) observed that, “Policing has changed, along with the world, especially in the last decade since 9-11. There is a need to examine what we do and how we do it, and ensure we’re delivering the best service to our communities. Time is needed to examine how legislation, court decisions and submissions, reporting, regulations, and major international terrorist and crime issues, social services and medical supports, have affected front-line policing.”

Griffiths and Stamatakis (2012, pp. 65-66) highlighted the potential benefits and challenges of civilianization and they are presented (in a slightly modified form) in Table 13 (presented on the following page). Again, they present a balanced analysis and recommend that more research be carried out on the issue of civilianization, especially when it comes to replacing officer positions with civilians. While there may be initial cost savings, the long-term impacts of these practices is yet to be seen. One of the hazards of implementing cost saving initiatives during a financial crisis is that these decisions could have unforeseen impacts years down the road in terms of reduced public confidence in the police, or services that fail to meet professional standards. Last, while filling some senior administrative positions within agencies with civilians

enables us to return officers to the street, they also reduce the ability of potential leaders within the agency to gain administrative experience.

Table 13. Benefits and Challenges of Police Service Civilianization	
Potential Benefits	Challenges
Reducing the costs of policing	Civilians with specialized skills may cost more than a police officer; Challenges of competing for talent with the private sector.
Broadening the talent pool	Potential civilian employee should have knowledge of policing and the unique demands on police services.
Increasing “blue” on the street	For officer positions; Unknown whether civilianization increases the number of officers on the street; If sworn officer retained, additional expense to hire civilians.
More civilianized positions create opportunities for civilian careers in police agencies	Limited potential for upward mobility and limited positions available for lateral movement.
Increased continuity in selected positions	Retention of highly skilled civilians: The lure of the private sector; Possibly less commitment to the police service?
Strengthening the police service	Police service must optimize the skill sets of civilians; Strong police officer culture may undermine the efforts of civilians.
Enhancing learning opportunities for police officers	Functional teams of officers and civilian personnel must be created.
The police service as a learning organization	Police service should have a civilianization policy through which all new employees should be vetted (e.g., criminal record checks).
Increased effectiveness and efficiency in civilianized positions	Lack of measures to assess performance of civilians.
Enhancing community policing	Depends upon role and activities of civilians.
Improve service delivery	Depends on effectiveness of police operations.

Police-Community Partnerships

Graziano, Rosenbaum and Schuck (2013, p. 2) note that, “the capacity of police organizations to respond to public safety issues has improved significantly (with better access to real-time data, better analytic capacity, and increased accountability for crime) yet little has been done to also strengthen community capacity to respond.” There is more interest today in engaging in partnerships between the police and organizations that provide health, education, social and welfare services to at-risk populations. These approaches move away from the traditional reactive model of policing and instead take a proactive crime reduction approach. One such model is the Building Partnerships to Reduce Crime Strategy (BPRC) which is a holistic risk-driven and collaborative approach to community safety that advocates engaging the whole of government in crime reduction strategies (Province of Saskatchewan, 2011).

The BPRC approach acknowledges that many at-risk individuals and families are receiving services from a number of different community-based agencies and there is often a lack of coordination between those services. This results in duplication of services or cases where clients fall through the cracks in the system as agency staff believe that some other organization is taking care of their client’s needs. As a result, better coordination of government services may reduce crime.

Some police services are taking the lead in coordinating inter-agency meetings in a community mobilization approach. Community mobilization programs intervene with high-risk individuals or families before they become involved in crime or after an individual comes to the attention of law enforcement for anti-social or risky behaviour. The police, in partnership with representatives from addictions services, public health and mental health agencies, First Nations, social services and schools are brought together to identify potential solutions to an individual’s unmet needs. While the police have always participated in these types of community-based interventions they were often informal and their activities had a short-term orientation (e.g., interagency groups would meet to discuss a single case and then disband afterwards). By contrast, community mobilization formalizes this approach and takes a long-term orientation.

One community mobilization program was developed by the Prince Albert Police Service (PAPS) in response to increasing community crime rates. While this program was pioneered by the police, it is an intervention that is based on collaborating with a broad range of community organizations. The police and their partners are brought together to identify potential solutions

for at-risk individuals. A manageable number of cases—perhaps only two or three per week—are addressed, but the small number enables more resources to be directed to help these individuals address their problems.

Initial results of the PAPS community mobilization programs are promising. The program was first introduced in 2010 and from 2011 to 2012 violent crimes decreased by 31.9% and property offences by 9.4% (Prince Albert Police Service, 2013). Not only are the number of crimes dropping, but anecdotal information suggests that other forms of community dysfunction have also decreased: fewer assault victims are admitted to hospitals, less children apprehended by social service agencies, and school attendance is up. Altogether, this model draws our attention to the interconnectedness of social problems and shows us that progress in resolving one problem can benefit several different systems. While this collaborative model has yet to be formally evaluated, it represents a step toward crime reduction by solving problems in the community one person or family at a time.

One of the challenges with developing criminal justice interventions is that it takes a while before the success of these efforts can be demonstrated and the strengths and weaknesses of the intervention formally evaluated. Lacking this information, it may be premature to expand these types of programs until the developers of these approaches have a full understanding of “what works,” as well as what community conditions affected its implementation and potential success. Policing tactics are seldom formally evaluated and it is possible that some interventions can fall short of anticipated results or have unforeseen negative outcomes. As a result, it is important that police practitioners and academic researchers collaborate on program evaluation and research that examines the effectiveness of public safety interventions. Few police organizations make those investments in research: Rojek, Smith and Alpert (2012) found that only about one-third of the U.S. agencies they surveyed had engaged in research partnerships in the previous five years. Such findings suggest that law enforcement agencies are missing opportunities to better understand their service delivery models.

Successful police-community collaborations are also built on foundations of trust, goodwill, and agreement on shared goals (e.g., a common ‘vision’ on outcomes). Brewer (2013, p. 20) found that policing partnerships that resulted in a “convergence of goals, values, and mandates between agencies” resulted in “attitudinal and cultural changes” that contributed to successful and productive relationships. These changes required high levels of commitment

amongst the stakeholders. Moreover, successful partnerships must take a long-term outlook that is bolstered by “small victories” and this perspective can be frustrating to politicians who often have a short-term orientation.

An additional challenge of police-community partnerships is that interventions that are successful in one place might fail elsewhere and there are a number of reasons for those failures. Some community and agency stakeholders might be more willing to participate in these arrangements. In other cases, successful programs are exported to new locations, but are not faithful to the original approach and this leads to poor outcomes. Many successful programs are championed by charismatic leaders and if those leaders are absent in new locations the intervention might not flourish. Altogether, there are many potential barriers but they are outweighed by the crime reduction benefits and increased community safety.

Traffic Safety and Enforcement

While most of the focus on policing has been on crime reduction, traffic fatalities in Canada account for about four times as many deaths as homicides. Given the losses to society from a single fatality, as highlighted in our discussion of the cost of crime calculator, we may receive the best return on our policing investment with a greater focus on traffic safety and enforcement. This is especially true for services that police the countryside: Although accounting for about 20% of the population, 57% of fatal vehicle crashes occurred in rural areas (Transport Canada, 2013). Transport Canada (2009, p. 4) reported that compared to city dwellers, the “odds of dying [for rural residents] are 60% to 90% higher for men aged 45 to 64 and 70% to 200% higher for women aged 45 to 64.” Not only are traffic crashes responsible for needless deaths but for every fatal accident in 2011 there were about five collisions that resulted in serious injuries requiring hospitalization and over 80 crashes where the driver or passenger was injured (Transport Canada, 2013). Prior Canadian research has established the high social and economic costs of these collisions (de Leur et al., 2010; Vodden et al., 2007). The estimates of cost savings produced by the Canadian cost of crime calculator suggest that increased traffic enforcement returns a substantial return on our investments in additional officers.

Research has shown that increased traffic enforcement reduces fatalities (Bates, Soole & Watson, 2012; Makowsky & Stratmann, 2011; Tay, 2009). Traffic enforcement is, however, a costly and time consuming proposition. Public Safety Canada (2012) indicated that the

processing time for a single impaired driving offence has increased over 300% in the past three decades, and it now takes over five hours of an officer's time to process a single offence. As a result of the time it takes an officer "off the streets" and responding to other crimes, police leaders may be reluctant to engage in DUI crackdowns, but given the risk that impaired drivers pose to public safety the public might support additional police spending for these initiatives.

Rural Traffic Safety

There are several reasons why serious accidents in rural Canada occur more often and have more serious consequences. First, Perreault (2013a) reported that average rates of impaired driving convictions are about twice as high in the countryside compared to Census Metropolitan Areas. Second, rural residents are less likely to wear seatbelts than their urban counterparts. These law-violating behaviours may be related to the world views of some country people. Focus groups of rural Alberta residents revealed that participants routinely violated traffic laws as they thought that it was a "natural thing to do" and did not see the harm in breaking laws they thought unreasonable (Rothe & Elgert, 2005, p. 273). As a result, any successful long-term traffic enforcement interventions will have to consider and confront these attitudes.

Other non-enforcement factors are also related to higher rates of rural traffic crashes and serious injuries. Collisions that occur on rarely traveled rural roads might not be noticed for some time and medical attention may be an hour or more away. As a result, these accident victims may have a higher risk of dying before they get to a hospital (Capsambelis, 2009). Other factors contributing to traffic crashes are that some secondary paved and gravel roads are poorly maintained and may not receive prompt snow removal in the winter. Last, there are tens of thousands of collisions with wildlife on rural roads and this also results in property damage, injuries and deaths.

There may also be a link between personality traits such as aggression, involvement in property and violent offences, and dangerous and impaired driving. Willett (1964/2001) found a relationship between drivers who had been convicted of property and violent crimes and then later were involved in dangerous driving offences. There has been little contemporary study of the link between criminal behaviour and reckless, aggressive or dangerous driving. There is, however, a common sense appeal to the notion that people who behave aggressively in their

interactions with others will also drive aggressively. As a result, Waller (2014) suggests that the relationship between prior criminal behaviours and involvement in dangerous driving be more closely examined.

Given the high rates of traffic injuries and deaths in rural Canada it is likely that more attention will be placed on driving offences. Some of the solutions may be technology-based: Kaufmann (2014) reported that the RCMP introduced an e-ticket system that replaces hand-written tickets, reducing errors as well as the time to process a ticket. It is also possible that traffic enforcement activities could be augmented by increasing the prevalence of the police, traffic sheriffs, highway traffic officers and private security (such as the Commissionaires, who are using laser radar to capture Saskatchewan speeders in construction zones). While increasing the efficiency of enforcement strategies may deter some traffic offenders, it is unlikely that there will be significant changes until we can change the attitudes of drivers.

Summary

While there is growing consensus amongst senior government officials and police scholars that policing should be transformed, there is less agreement when rank and file officers or the public are consulted. The police are often skeptical when persons external to their industry advocate for sweeping organizational or operational changes (Hoggett et al., 2014). Millie and Bullock (2013, p. 135) observed that, “If there is a case for reimagining the roles and functions of the police service, then the question becomes *who* should decide what they are, and *how*?” Developing crime reduction and community safety strategies will depend upon negotiations between police services, community members, service providers and political stakeholders, and changes must be supported by appropriate levels of funding: a significant obstacle to overcome during times of austerity and uncertainty.

Shearing and Marks (2011, p. 216) speculated that police services have been forced to reinvent themselves since the start of the economic crisis in 2008 and they predicted that the short-term future will be a time of “fluidity, pluralism and uncertainty.” While it is difficult to predict the futures of policing in Canada it is clear that economic factors will play an important role in driving operational priorities.

While there is consensus that police should focus on their core duties, there may be less agreement on who will carry out the social service roles that currently account for much of their

time. In the U.K., for instance, the government greatly expanded the number of uniformed civilian employees a decade ago. In the past few years, however, they are cutting these positions as part of their austerity programs, which suggests that these employees did not live up to the expectations of the funding agencies. It is possible that police organizations will outsource some of their duties to private security firms and this will be opposed by police unions. Although contracted services might be cheaper, there is some question about whether those staff members will be as professional as the public police and the corporations that employ them are less accountable to the public and their operations less transparent.

There is some optimism that community-police partnerships will enable both parties to leverage their resources in responding to at-risk populations. These proactive approaches represent a very promising approach, although many of these programs are in their infancy and will need to demonstrate their efficacy over time. It is also important to acknowledge that while some police services have invested heavily in partnerships with community organizations, these models might not work in all places: Crime reduction strategies that work in The Pas, Manitoba might not be as effective in Atlantic Canada.

Public Safety Canada (2012) identified a number of potential obstacles to reforming police organizations:

- Lack of awareness, information and analysis of efficiency/effectiveness;
- Inadequacy of performance measures;
- Absence of police centers of expertise to coordinate research, assess approaches and catalogue best practices;
- Absence of modern management skills and practices in some police services, and;
- Resistance to change from the public, as well as police leaders and police unions.

The policing and academic communities are making progress in overcoming these barriers including the development of performance measures such as the full circle model (see Ruddell & Jones, 2013). Moreover, the creation of the Collaborative Centre for Justice and Safety at the University of Regina is intended to facilitate policing research. Such research centres supplement research activities already conducted by municipal, regional, and provincial police services and the RCMP. Public Safety Canada and the Police Sector Council also conduct and disseminate policing research. Noteworthy is the recent introduction of an online Index of

Policing Initiatives by Public Safety Canada (2013a) which is intended to disseminate information about innovative policing approaches and best practices.

It is possible that the ideas that will drive changes in the policing industry will come from outside that field. As a result, police practitioners and scholars might find it fruitful to scan the environment in order to identify strategies that could be applied to policing. The field of corrections, for example, is increasingly advocating for justice reinvestment (JR). According to Fox, Albertson and Warburton (2011, p. 122) “JR proposes moving funds spent on punishment of offenders to programs designed to tackle the underlying problems which gave rise to the criminal behavior.” Thus, their approach is similar to police-based interventions such as community mobilization involving partner agencies that target and respond to the conditions that contribute to crime.

The JR approach is based on using innovative approaches to respond to recidivism combined with research and evaluation to measure the effectiveness of those interventions. Dwyer, Neusteter and Lachman (2012, p. 2) note that JR involves a process where agencies:

1. Collect and analyze criminal justice data;
2. Identify cost-saving public safety strategies;
3. Implement cost-saving public safety strategies;
4. Document savings and public safety impact, and;
5. Implement and assess justice reinvestment strategies.

While we noted earlier that police-researcher partnerships are still very much in their infancy in many places, in order for JR and similar initiatives to be successful, researchers must provide information to their police partners in a timely fashion in order for that information to be relevant.

One of the challenges of reforming the police is that the front line officers who are tasked with implementing crime reduction strategies are often directed to engage in practices that are seldom evaluated, and interest in the intervention sometimes disappears with the next funding cycle, after the next election, or after the current Commissioner or Chief leaves the service. As a result, police officers tend to be cynical about reforms and they often adopt a “wait and see” approach until they know whether a reform will persevere. While this is often seen as resistance

to change by outsiders, it is a survival technique for the people working within these organizations.

It is clear that policing is poised for a transformation, but there is little agreement on the direction of those changes. Some see the growing reliance on research and promotion of proactive policing strategies as fundamentally changing the way that officers will carry out their jobs. Others see a larger reliance on police-community partnerships intended to respond to addressing unmet needs and reducing risk. The changes that occur, however, will be shaped by a number of internal and external forces and sometimes our best laid plans to improve service delivery fail. When new innovations are introduced, or practices are reformed, there are sometimes unanticipated or unpredictable consequences (Willis & Mastrofski, 2011). As a result, reimagining policing may be much easier than actually reengineering or reforming the policing industry.

VIII. Conclusions

Hutchins (2014, p. 33) reported that in the ten years between 2002 and 2012 policing expenditures (in constant 2002 dollars) grew by 42%. Not only did per capita policing costs increase at a faster rate than the total per capita government expenditures between 1998 and 2009, a number of stakeholders, including Public Safety Canada (2012) have called this growth unsustainable. Given those financial realities, police leaders, in consultation with community and government stakeholders must re-evaluate their missions and core functions, as well as their operational practices in order to produce the best return on the taxpayer's investments in public safety. This review showed that Canadian police services deliver a good return on investments. Reviews of the ratio of officers to residents consistently show that Canada has fewer officers on the streets per capita than other first-world nations (Eurostat, 2014a; Hutchins, 2014). The volume and seriousness of crime, as reported by the Canadian Centre for Justice Statistics, shows a consistent reduction since 1998, suggesting that police leaders have managed their resources carefully. There are, however, a growing number of voices who maintain that crimes reported to the police do not accurately reflect the true number of offences that are actually occurring (Christmas, 2013; Moulton, 2013; Newark, 2013).

Police research in recent years has revealed that there is much to be optimistic about in examining the crime reduction capabilities of police: a growing number of studies have shown that investing in policing produces significant cost benefits for each additional dollar spent, although that crime control benefit decreases in low-crime communities (Aos & Drake, 2013; Chalfin & McCrary, 2012; Donohue & Ludwig, 2007; Keefe, 2011). It is difficult to make sweeping generalizations about crime control strategies in Canada as there is considerable variation within the nation in terms of levels of crime, the characteristics of communities, as well as the resources available to police services. Some communities have very high rates of crime and the strategies that appear promising in urban areas, such as focused deterrence and hot spots policing, might not be successful in rural areas. Moreover, some communities may be more resilient to crime, even during tough economic times (Lee & Thomas, 2010).

There have been 11 major recessions since the end of World War II and each has different economic causes and consequences in terms of impact upon crime. As a result, researchers have reported mixed results in terms of the economics-crime relationship and some found that crime increases during economic downturns while others have observed that crime

stays stable during other recessions. The challenge is that some recessions have produced more crime and this increased demand on policing services has occurred at the same time as funding cutbacks. The impact of economic conditions in Canada may be different than in the United States or other countries as our “social safety net” may mitigate the harm created by job loss, lower salaries, foreclosures or inflation.

While economic conditions in Canada have been more stable than in other English speaking common law nations, there is considerable uncertainty in the global economy and this will have short- and long-term implications for policing. Economic conditions could drive both the demands on policing and the resources allocated to police services. Other nations have had to confront these challenges and this review showed that police services throughout the European Community, United Kingdom and the United States have had to manage significant funding cutbacks since the start of the global recession in 2008. Many of the cost-containment strategies attempt to balance reducing operational costs and managing demand by reducing non-emergency services (PERF, 2013). The Chicago Police, for example, will no longer send officers to “reports of a vehicle theft, garage burglary, or crime where the victim is safe, secure and not in need of medical attention” (Spielman, 2013, p. 1). While these may be effective short-term strategies, they might not be sustainable for the long-term (HMIC, 2012). Moreover, there may be other consequences attached to austerity policing, including reductions in staff morale and public satisfaction with police services as programs and services are cut, and those consequences might not be apparent in the short-term (see Hoggett et al., 2014).

One advantage that Canadian police services enjoy is that police leaders and policymakers have the opportunity to learn from the successes and failures from law enforcement agencies in other nations. An important step in this enterprise is to build the capacity, within the academic and practitioner communities, to better understand the relationships between economics and policing, managing adversity and austerity, establishing the value of police operations using cost-benefit analyses, as well as developing inventories of evidence-based practices for both urban and rural police services.

IX. References

- Aaltonen, M, MacDonald, J. M., Martikainen, P., & Kivivuori, J. (2013). Examining the generality of the unemployment-crime association. *Criminology*, 51(3), 561-594.
- Anderberg, D., Rainer, H., Wadsworth, J., & Wilson, T. (2013). Unemployment and domestic violence. Retrieved March 21, 2014, from <http://sticerd.lse.ac.uk/seminarpapers/wpa05022014p.pdf>
- Andresen, M. A. (2012). Unemployment and crime: A neighborhood level panel data approach. *Social Science Research*, 41(6), 1615-1628.
- Andresen, M. A. (2013). Unemployment, business cycles, crime and the Canadian provinces. *Journal of Criminal Justice*, 41(4), 220-227.
- Aos, S., & Drake, E. (2013). *Prison, police, and programs: Evidence-based options that reduce crime and save money*. Olympia, WA: Washington State Institute for Public Policy.
- Archbold, C. A. (2013). *"Policing the patch": An examination of the impact of the oil boom on small town policing and crime in western North Dakota*. North Dakota State University: Author.
- Babyak, C., Alavi, A., Collins, K., Halladay, A., & Tapper, D. (2009). *The methodology of the police reported crime severity index*. Presented at the Statistical Society of Canada annual meeting, Vancouver, B.C., May 31-June 3, 2009.
- Baker, J. L. (2008). *Impacts of financial, food and fuel crisis on the urban poor*. Washington, DC: The World Bank, Directions in Urban Development.
- Bank of Canada. (2013). *Bank of Canada banking and financial statistics, June 2013*. Ottawa, ON: Author.
- Barlow, S. (2013, July 10). China puts the brakes on credit-driven growth. *Globe and Mail*. Retrieved July 11, 2013, from <http://www.theglobeandmail.com/report-on-business/international-business/china-puts-the-brakes-on-credit-driven-growth/article13128073/>
- Barrett, D. (2012). Thousands of PCSOs face axe in police cuts. *The Telegraph*. Retrieved July 12, 2013, from <http://www.telegraph.co.uk/news/uknews/law-and-order/9606754/Thousands-of-PCSOs-face-axe-in-police-cuts.html>
- Barton, L. C., & Barton, H. (2011). Challenges, issues and change: What's the future for UK

- policing in the twenty-first century? *International Journal of Public Sector Management*, 24 (2), 146-156.
- Bates, L., Soole, D., & Watson, B. (2012). The effectiveness of traffic policing in reducing car crashes. In T. Prenzler (ed.), *Policing and security in practice: Challenges and achievements* (pp. 90-109). New York: Palgrave Macmillan.
- Baumer, E. P., Wolff, K. T., & Arnio, A. N. (2012). A multicity neighborhood analysis of foreclosure and crime. *Social Science Quarterly*, 93(3), 577-601.
- Bayley, D. H. (1994). *Police for the future*. New York: Oxford University Press.
- Bayley, D. H., & Nixon, C. (2010). *The changing environment for policing, 1985-2008*. Cambridge, MA: Harvard Kennedy School.
- Bernard, A. (2013). *Unemployment dynamics among Canada's youth*. Ottawa, ON: Statistics Canada.
- Blackstone, J. (2013). Violence in Oakland forces residents to seek private security. *CBS Evening News*. Retrieved August 21, 2013, from http://www.cbsnews.com/8301-18563_162-57599011/violence-in-oakland-forces-residents-to-see-private-security/
- Blomquist, D. (2012). *Slideshow: 2012 Foreclosure market outlook*. Retrieved July 12, 2013, from <http://www.realtytrac.com/content/news-and-opinion/slideshow-2012-foreclosure-market-outlook-7021>
- Bloomberg News. (2014). China manufacturing gauge falls as slowdown deepens. Retrieved March 24, 2014, from <http://www.bloomberg.com/news/2014-03-24/china-manufacturing-gauge-unexpectedly-falls-as-slowdown-deepens.html>
- Bordo, M. D., & Haubrich, J. G. (2012). *Deep recessions, fast recoveries, and financial crises: Evidence from the American record*. Cambridge, MA: National Bureau of Economic Research Working Paper 18194.
- Boyd, E., Geoghegan, R., & Gibbs, B. (2011). *Cost of the cops: Manpower and deployment in policing*. London: Policy Exchange.
- Brennan, R. J. (2014). Municipalities pushing back against OPP costs. *The Star*. Retrieved May 12, 2014, from http://www.thestar.com/news/queenspark/2014/03/14/municipalities_pushing_back_against_opp_costs.html
- Brewer, R. (2013). Enhancing crime control partnerships across government: Examining the role

- of trust and social capital on American and Australian waterfronts. *Police Quarterly* published online ahead of print.
- Brzozowski, J., Taylor-Butts, A., & Johnson, S. (2006). *Victimization and offending among the Aboriginal population in Canada*, Ottawa: Canadian Centre for Justice Statistics.
- Buonanno, P., Drago, F., & Galbiati, R. (2014). Response of crime to unemployment: An international comparison. *Journal of Contemporary Criminal Justice*, 30(1), 29-40.
- Burczycka, M. (2013). *Police resources in Canada, 2012*. Ottawa, ON: Statistics Canada.
- Buzawa, E. S., & Buzawa, C. G. (2013). What does research suggest are the primary risk and protective factors for intimate partner violence (IPV) and what is the role of economic factors? *Journal of Policy Analysis and Management*, 32(1), 128-137.
- Canadian Broadcasting Corporation. (2011). *Winnipeg crime prompts Air Canada hotel move*. Retrieved March 28, 2013, from <http://www.cbc.ca/news/canada/manitoba/story/2011/10/01/air-canada-winnipeg-security.html>
- Canadian Broadcasting Corporation. (2013). *Provincial police forces face cuts as federal fund expires*. Retrieved March 2, 2013, from <http://www.cbc.ca/news/canada/ottawa/story/2013/02/18/quebec-federal-fund-cuts-provincial-police.html>
- Canadian Broadcasting Corporation. (2013a). *Surge in private security raises concerns over rights*. Retrieved March 21, 2013, from <http://www.cbc.ca/news/canada/story/2013/01/15/policing-private-security-industry.html>
- Canadian Imperial Bank of Commerce. (2013). *Economic insights*. Retrieved March 24, 2013, from http://research.cibcwm.com/economic_public/download/eimar13.pdf
- Canadian Labour Congress. (2014). Underemployment is Canada's real labour market challenge. Retrieved March 25, 2014, from <http://www.canadianlabour.ca/news-room/publications/underemployment-canadas-real-labour-market-challenge>
- Capsambelis, C. (2009). *Policing in rural America: A handbook for the rural law enforcement officer*. Durham, NC: Carolina Academic Press.
- Caranci, B. (2013). The silent majority: State and local governments talk back. Toronto Dominion Bank Group. Retrieved March 22, 2014 from www.td.com/economics
- Chalfin, A., & McCrary, J. (2012). *The effect of police on crime: New evidence from U.S.*

- cities, 1960-2010*. NBER Working Paper. Retrieved December 29, 2012 from http://emlab.berkeley.edu/~jmccrary/chalfin_mccrary2012.pdf
- Chalfin, A., & McCrary, J. (2013). Are U.S. cities underpoliced? Theory and evidence. Retrieved July 11, 2013 from http://emlab.berkeley.edu/~jmccrary/chalfin_mccrary2013.pdf
- Christmas, R. (2013). *Canadian policing in the 21st century*. Montreal: McGill-Queen's University Press.
- Chorafas, D. N. (2014). *Public debt dynamics of Europe and the U.S.* Waltham, MA: Elsevier.
- Cohen, M. A., & Piquero, A. R. (2009). New evidence on the monetary value of saving a high risk youth. *Journal of Quantitative Criminology*, 25(1), 25-49.
- Cohen, M. A., Rust, R. T., Steen, S., & Tidd, S. T. (2004). Willingness-to-pay for crime control programs. *Criminology*, 42 (1), 89-110.
- Conlin, T., Rice, S., & Hyde, B. (2013). *Job cuts as South Australia Police forced to find \$15 million in savings*. Retrieved March 12, 2013, from <http://www.adelaidenow.com.au/news/south-australia/budget-cuts-could-mean-fewer-police-on-duty/story-e6frea83-1226575351167>
- Cooray, A., & Schneider, F. (2013). How does corruption affect public debt? An empirical analysis. Retrieved March 11, 2014, from <http://www.economics.jku.at/papers/2013/wp1322.pdf>
- Corman, H., & Mocan, H. N. (2000). A time-series analysis of crime, deterrence, and drug abuse in New York City. *American Economic Review*, 90(3), 584-604.
- Crank, J. P., Kadleck, C., & Koski, C. M. (2010). The USA: The next big thing. *Police Practice and Research: An International Journal*, 11(5), 405-422.
- DeAngelo, G., & Hansen, B. (2014). Life and death in the fast lane: Police enforcement and traffic fatalities. *American Economic Journal: Economic Policy*, 6(2), 231-257.
- de Leur, P., Thue, L., & Ladd, B. (2010). *Collision cost study: Final report*. Edmonton, AB: Capital Region Intersection Safety Partnership.
- Desilver, D. (2013). Black unemployment rate is consistently twice that of whites. *Pew Research Center*. Retrieved March 24, 2014, from <http://www.pewresearch.org/fact-tank/2013/08/21/through-good-times-and-bad-black-unemployment-is-consistently-double-that-of-whites/>

- Di Tella, R. & Schargrodsky, E. (2004). Do police reduce crime? Estimates using the allocation of police forces after a terrorist attack. *American Economic Review*, 94(1), 115-133.
- Donohue, J. J., & Ludwig, J. (2007). *More cops. Policy Brief #158*. Washington, DC: The Brookings Institution.
- Draca, M., Machin, S., & Witt, R. (2010). Crime displacement and police interventions: Evidence from London's "Operation Theseus" in R. Di Tella, S. Edwards & E. Schargrodsky (eds.), *The economics of crime: Lessons for and from Latin America* (pp. 359-374). Chicago: University of Chicago Press.
- Dwyer, A. M., Neusteter, S. R., & Lachman, P. (2012). *Data-driven decisionmaking for strategic justice reinvestment*. Washington, DC: Urban InSTITUTE.
- Ellen, I. G., Lacoë, J., & Sharygin, C.A. (2013). Do foreclosures cause crime? *Journal of Urban Economics*, 74(1), 59-70.
- Ensor, J. (2012). End of 'bobby on the beat' as third of police stations close. *The Telegraph*. Retrieved March 23, 2014, from <http://www.telegraph.co.uk/news/uknews/law-and-order/9150425/End-of-bobby-on-the-beat-as-third-of-police-stations-close.html>
- Eurostat. (2013b). *Crime statistics*. Retrieved August 22, 2013, from http://epp.eurostat.ec.europa.eu/statistics_explained/images/a/a1/Police_Officers_new_2000_2010.PNG
- Eurostat. (2014). *Statistics*. Retrieved March 21, 2014, from http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_social_policy_equality/introduction
- Eurostat. (2014a). *Crime statistics (Police officers)*. Retrieved March 21, 2014 from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=crim_plce&lang=enEurostat.
- Evans, W. N., & Owens, E. G. (2007). COPS and crime. *Journal of Public Economics*, 91(1), 181-201.
- Factor, R. (2014). The effect of traffic tickets on road traffic crashes. *Accident Analysis and Prevention*, 64(1), 86-91.
- Federal Bureau of Investigation. (2012). *Crime in the United States, 2011*. Washington, DC: Author.
- Federation of Canadian Municipalities. (2013). *Federal summit on policing positive first step says FCM*. Press release. Retrieved March 22, 2014, from

- <http://www.fcm.ca/home/media/news-releases/2013/federal-summit-on-policing-positive-first-step-says-fcm.htm>
- Fox, C., Albertson, K. & Warburton, F. (2011). Justice reinvestment: Can it deliver more for less? *Howard Journal of Criminal Justice*, 50(2), 119-136.
- French, M. T., McCollister, K. E., & Reznik, D. (2004). *The cost of crime to society: New crime-specific estimates for policy and program evaluation*. Presented at the Addiction Health Services Research Annual Meeting, Philadelphia, PA.
- G4S. (2013). *Our employees*. Retrieved March 24, 2013, from <http://www.g4s.com/en/Who%20we%20are/Our%20people/Our%20employees/>
- Gascon, G., & Foglesong, T. (2011). *Making policing more affordable: Managing costs and measuring value in policing*. Cambridge, MA: Harvard Kennedy School.
- Glover, J. (2014). Global debt exceeds \$100 trillion as governments binge, BIS says. *Bloomberg News*. Retrieved March 24, 2014, from <http://www.bloomberg.com/news/2014-03-09/global-debt-exceeds-100-trillion-as-governments-binge-bis-says.html>
- Goar, C. (2013). Women struggle in information vacuum: Campaign to end violence against women stymied by lack of up-to-date information. *The Star*. Retrieved March 22, 2014, from http://www.thestar.com/opinion/commentary/2013/09/23/women_struggle_in_information_vacuum_goar.html
- Government of New Brunswick. (2012). *Chief medical officer of health's recommendations concerning shale gas development in New Brunswick*. Fredericton, NB: Author.
- Grant, T. (2014). When it comes to jobs, Alberta is in a class of its own. *Globe and Mail*. Retrieved March 27, 2014, from <http://www.theglobeandmail.com/report-on-business/economy/jobs/canada-sheds-7000-jobs-unemployment-stuck-at-7-percent/article17366654/>
- Graziano, L. M., Rosenbaum, D. P., & Schuck, A. M. (2013). Building group capacity for problem-solving and police-community partnerships through survey feedback and training: A randomized control trial within Chicago's community policing program. *Journal of Experimental Criminology*, 1-25 published online ahead of print.
- Griffith, C. T., & Stamatakis, T. (2012). *The economics of policing: A closer look*. Ottawa, ON: Canadian Police Association.

- Heaton, P. (2010). *Hidden in plain sight: What cost-of crime research can tell us about investing in the police*. Santa Monica, CA: RAND.
- Heaton, P., & Jackson, B. (2012). *Short-term savings, long-term losses: When police departments respond to economic pressure by cutting their forces*. Retrieved Jan. 1, 2013 from <http://www.rand.org/commentary/2012/11/12/RAND.html>
- Henton, D. (2012, October 28). Sheriffs share the road. *Regina Sunday Leader Post*, A3.
- Her Majesty's Inspectorate of Constabulary. (2012). *Policing in austerity: one year on*. London, UK: Author.
- Her Majesty's Inspectorate of Constabulary. (2013). *Value for money*. Retrieved Feb. 25, 2013, from <http://www.hmic.gov.uk/programmes/value-for-money/>
- Her Majesty's Inspectorate of Constabulary. (2014). *Policing in austerity: Rising to the challenge*. London, UK: Author.
- Her Majesty's Inspectorate of Constabulary. (2014a). *Crime and policing comparator*. Retrieved July 11, 2013, from <http://www.hmic.gov.uk/crime-and-policing-comparator/#chart4>
- Herald Scotland. (2014). *SNP under fire for police station closures*. Retrieved March 26, 2014, from <http://www.heraldscotland.com/politics/wider-political-news/snp-under-fire-for-police-station-closures.23630196>
- Hodgson, G. (2014). The growth puzzle: Why Canada's economy is lagging the U.S. *The Globe and Mail*. Retrieved March 24, 2014, from <http://www.theglobeandmail.com/report-on-business/economy/economy-lab/the-growth-puzzle-why-canadas-economy-is-lagging-the-us/article17299527/>
- Hoggett, J., Redford, P., Toher, D., & White, P. (2014). *Challenge and change: Police identity, morale and goodwill in an age of austerity*. Bristol, UK: University of the West of England.
- Hovbrender, A. (2011). *Situational analysis of the private security industry and national occupational standards for security guards, private investigators and armoured car guards*. Ottawa, ON: Police Sector Council.
- Hutchins, H. (2014). *Police resources in Canada, 2013*. Ottawa, ON: Canadian Centre for Justice Statistics.
- Hutchinson, S. & O'Conner, D. (2005). Policing in the new commons: Corporate security governance on a mass private property in Canada. *Policing & Society*, 15(2), 125-144.

- Johnson, W. (2012). Coalition's cuts to police budgets 'risking public safety.' *The Telegraph*. Retrieved March 2, 2013, from <http://www.telegraph.co.uk/news/9717739/Coalitions-cuts-to-police-budgets-risking-public-safety.html>
- Johnston, L. (2007). 'Keeping the family together.' Police community support officers and the 'police extended family' in London. *Policing and Society: An International Journal of Research and Policy* 17(2), 119-140.
- Jones, N. A., & Ruddell, R. (2014). *Community perceptions of the Regina Police Service, 2013*. Regina, SK: Collaborative Centre for Justice and Safety.
- Jovanovic, B. (2013). *How are countries recovering from the great recession?* Retrieved March 2, 2013, from <http://regconf.hse.ru/uploads/8029d13cbe00089e0168ed420cc2812ab507b34f.pdf>
- Kaufmann, B. (2014). Cops hail new ticketing system coming to Alberta. *Sun News*. Retrieved Feb. 21, 2014, from <http://www.sunnewsnetwork.ca/sunnews/canada/archives/2014/01/20140107-195337.html>
- Keefe, J. (2011). *False savings: How cutting police budgets and laying off cops in high-crime cities lacks economic, social, and common sense*. Washington, DC: EPI Briefing Paper.
- Kego, W., Leijonmarck, E., & Molcean, A. (2011). *The financial crisis: Recent trends in the Baltic Sea Region*. Stockholm, Sweden: Institute for Security & Development Policy.
- Knaus, C. (2014). Protective service officers face cuts. *Canberra Times*. Retrieved March 21, 2014, from <http://www.canberratimes.com.au/act-news/protective-service-officers-face-cuts-20140114-30tg8.html>
- Krauss, C., & Lipton E. (2012). The U.S. inches toward goal of energy independence. *The New York Times*. March 22, 2012. Retrieved March 20, 2013, from <http://www.nytimes.com/2012/03/23/business/energy-environment/inching-toward->
- Lee, M. R. & Thomas, S. A. (2010). Civic community, population change, and violent crime in rural communities. *Journal of Research in Crime and Delinquency*, 47(1), 118-147.
- Leuprecht, C. (2014). *The blue line or the bottom line of police services in Canada? Arresting runaway growth in costs*. Ottawa, ON: Macdonald-Laurier Institute.
- Levitt, S. D. (2004). Understanding why crime fell in the 1990s: Four factors that explain the decline and six that do not. *Journal of Economic Perspectives*, 18(1), 163-190.

- Li, G. (2008). *Private security and public policing*. Ottawa, ON: Statistics Canada.
- Lin, M. (2009). More police, less crime: Evidence from US state data. *International Review of Law and Economics*, 29(2), 73-80.
- Lippert, R.K., Walby, K. & Steckle, R. (2013). Multiplicities of corporate security: Identifying emerging types, trends and issues. *Security Journal*, 26(3), 206-221.
- Lithopoulos, S. (2013). *First Nations Policing Policy/Program update*. Presented at the University of Regina, Oct. 16, 2013.
- Lum, C., Koper, C. S., & Telep, C. W. (2011). The evidence-based policing matrix. *Journal of Experimental Criminology*, 7(1), 3-26.
- Lunney, R. F. (2012). Galloping off in all directions: An analysis of the new federal-provincial agreement for RCMP contract police services and some implications for the future of Canadian policing. *Canadian Public Administration*, 55(3), 433-450.
- Makowsky, M. D., & Stratmann, T. (2011). More tickets, fewer accidents: How cash-strapped towns make for safer roads. *Journal of Law and Economics*, 54(4), 863-888.
- Malatest & Associates Ltd. (2009). *Environmental scanning labour market information project 2009*. Ottawa, ON: Author.
- Malby, S., & Davis P. (2012). *Monitoring the impact of economic crisis on crime*. Vienna, Austria: United Nations Office on Drugs and Crime.
- Malm, A., Pollard, N., Brantingham, P., Tinsley, P., Plecas, D., Brantingham, P., Cohen, I., & Kinney, B. (2005). *A 30 year analysis of police service delivery and costing: "E" division*. Abbotsford, BC: Centre for Criminal Justice Research.
- Marnoch, G., Boyd, G., & Topping, J. (2010). *Mission creep and the compromising of strategic direction in United Kingdom Police Services. An exploratory study of the evidence*. Paper presented at the European Group for Public Administration, Toulouse, France, Sept. 8 to 10.
- McCollister, K. E., French, M. T., & Fang, H. (2010). The cost of crime to society: New crime-specific estimates for policy and program evaluation. *Drug and Alcohol Dependence*, 108(1), 98-109.
- McEachern, T. (2013). *Province introduces photo speeding enforcement*. Retrieved August 15,

- 2013, from
<http://www.leaderpost.com/news/Province+introduces+photo+speeding+enforcement/8663957/story.html>
- Millie, A. (2013). The policing task and the expansion (and contraction) of British policing. *Criminology & Criminal Justice* 13(2), 143-160.
- Millie, A., & Bullock, K. (2013). Policing in a time of contraction and constraint: Re-imagining the role and function of contemporary policing. *Criminology and Criminal Justice*, 13(2), 133-142.
- Moulton, E. (2013). Myth and reality: Interpreting the dynamics of crime trends: lies, damn lies and (criminal) statistics. *Police Practice and Research: An International Journal*, 14 (3), 219-227.
- National Intelligence Council. (2012). *Global trends 2030: Alternative worlds*. Washington, DC: Author.
- Nelligan, P. J., & Bourns, W. (2011). Municipal contracting with county sheriffs for police services in California: Comparison of cost and effectiveness. *Police Quarterly*, 14(1), 70-95.
- Newark, S. (2013). *Police-reported crime statistics in Canada: Still more questions than answers*. Ottawa, ON: Macdonald-Laurier Institute.
- New Zealand Police Association. (2013). *Press release: Budget constraints underpin staff cuts, stations closures*. Retrieved March 15, 2013, from <http://www.policeassn.org.nz/newsroom/publications/media-releases/budget-constraints-underpin-staff-cuts-stations-closures>
- O'Brien, J. (2014). Q&A with OPP commish on police salaries and policing costs. *The London Free Press*. Retrieved March 21, 2014, from <http://www.intelligencer.ca/2014/02/21/qa-with-opp-commish-on-police-salaries-and-policing-costs>
- Ontario Association of Chiefs of Police. (2010). *Report on special constables in Ontario*. Toronto, ON: Author.
- Paletta, D. (2014). Has food stamp enrollment finally peaked? *Washington Post*. Retrieved March 21, 2014, from <http://blogs.wsj.com/economics/2014/03/17/has-food-stamp-enrollment-finally-peaked/>
- Perreault, S. (2013). *Police-reported crime statistics in Canada, 2012*. Ottawa: Canadian Centre

- for Justice Statistics.
- Perreault, S. (2013a). *Impaired driving in Canada, 2011*. Ottawa: Canadian Centre for Justice Statistics.
- Perreault, S., & Brennan, S. (2010). *Criminal victimization in Canada, 2009*. Ottawa: Canadian Centre for Justice Statistics.
- Phillips, J., & Land, K. C. (2012). The link between unemployment and crime rate fluctuations: An analysis at the county, state, and national levels. *Social Science Research*, 41(3), 681-694.
- Piquero, A. R., Jennings, W. G., & Farrington, D. (2013). The monetary costs of crime to middle adulthood: Findings from the Cambridge study in delinquent development. *Journal of Research in Crime & Delinquency*, 50(1), 53-74.
- Pitel, S., & Solomon, R. (2013). *Estimating the number and cost of impairment-related traffic crashes in Canada: 1999-2010*. Oakville, ON: Mothers Against Drunk Driving.
- Police Association of Ontario. (2012). *You get what you pay for: Professional policing and safe communities*. Mississauga, ON: Author.
- Police Association of Ontario. (2012a). *Value for money – The real issue*. Mississauga, ON: Author.
- Police Executive Research Forum. (2013). *Policing in the economic downturn: Striving for efficiency is the new normal*. Washington, DC: Author.
- Police Service of Northern Ireland. (2009). *Police service Northern Ireland annual budget plan for the year ending 31st March 2009*. Belfast, NI: Author.
- Police Service of Northern Ireland. (2013). *Strength of police service statistics*. Retrieved March 5, 2013, from http://www.psn.police.uk/directory/updates/updates_statistics/updates_strength_of_police_service_statistics.htm
- Police Service of Northern Ireland. (2014). *Strength of police service statistics*. Retrieved March 21, 2014, from http://www.psn.police.uk/index/updates/updates_statistics/updates_strength_of_police_service_statistics.htm
- Prince Albert Police Service. (2013). *Crime Statistics, 2013*. Prince Albert, SK: Author.
- Province of Saskatchewan. (2011). *Building partnerships to reduce crime*. Regina, SK:

- Ministry of Policing , Public Safety and Corrections.
- Public Safety Canada. (2012). *Economics of policing*. Presentation delivered to the ministers responsible for justice and public safety. Charlottetown, PEI: January 25.
- Public Safety Canada. (2013). *Police performance metrics: Research brief no. 31*. Ottawa, ON: Author.
- Public Safety Canada. (2013a). *Index of policing initiatives*. Retrieved August 22, 2013, from <http://www.publicsafety.gc.ca/cnt/cntrng-crm/plcng/cnmcs-plcng/ndx/srch-eng.aspx?sp=true&sp=1,2,3&prov=3>
- RAND. (2012). *Cost of crime calculator*. Retrieved January 3, 2013, from <http://www.rand.org/jie/centers/quality-policing/cost-of-crime.html>
- Roberts, C. (2012). The U.S. Federal Protective Service: A troubled agency—The need for improved contract guard training and oversight. *Journal of Applied Security Research*, 7(4), 478-488.
- Robertson, N. (2012). Policing: Fundamental principles in a Canadian context. *Canadian Public Administration* 55(3), 343-363.
- Rogers, C., & Gravelle, J. (2013). Future of policing in the UK: Understanding the economics. *Review of European Studies*, 5(1), 116-123.
- Rojek, J., Smith, H. P., & Alpert, G. P. (2012). The prevalence and characteristics of police practitioner-researcher partnerships. *Police Quarterly*, 15(3), 241-261.
- Rosenfeld, R., & Messner, S. F. (2013). *Crime and the economy*. Los Angeles, CA: Sage.
- Rothe, J. P., & Elgert, L. J. (2005). *Journal of Agricultural Safety and Health*, 11(2), 273-279.
- Royal Bank of Canada. (2013). *Current trends update – Canada, update March 21, 2013*. Retrieved March 24, 2013, from <http://www.rbc.com/economics/market/pdf/ecotrend.pdf>
- Royal Bank of Canada. (2014). *Why are U.S. workers dropping out of the labour force?* Retrieved March 23, 2014, from www.rbc.com/economics
- Royal Canadian Mounted Police. (2004). *2004 environmental scan*. Ottawa, ON: Author.
- Royal Canadian Mounted Police. (2007). *2007 environmental scan*. Ottawa, ON: Author.
- Ruddell, R. (2011). Boomtown policing: Responding to the dark side of resource development. *Policing*, 5(4), 328-342.
- Ruddell, R., & Jones, N. (2013). *Austerity policing: Responding to crime during economic downturns*. Regina, SK: Collaborative Centre for Justice and Safety.

- Ruddell, R., & Ortiz, N. R. (2014). Boomtown blues: Economic development, crime and decreased quality of life. *American Journal of Criminal Justice*. Published ahead of print: DOI: 10.1007/s12103-014-9237-7.
- Ruddell, R. Thomas, M. O., & Patten, R. (2011). Examining the roles of the police and private security officers in urban social control. *International Journal of Police Science & Management*, 13(1), 54-69.
- Ruddell, R., & Winterdyk, J. (under review). Determinates of security officer strength: An examination of Canadian municipalities. *Security Journal*.
- Saskatchewan Government Insurance. (2013). *2012 TAIS annual report*. Retrieved March 15, 2014, from <http://www.sgi.sk.ca/about/publications/collisionstats/>
- Scheider, M. C., Spence, D. L., & Mansourian, J. (2012). *The relationship between economic conditions, policing and crime trends*. Washington, DC: U.S. Department of Justice.
- Scotiabank. (2013). *Global forecast update*. Retrieved March 24, 2013, from http://www.gbm.scotiabank.com/English/bns_econ/forecast.pdf
- Scotiabank. (2014). *Economic commentary*, Feb. 28, 2014. Retrieved March 23, 2014, from http://www.gbm.scotiabank.com/English/bns_econ/ec_comm.pdf
- Shearing, C., & Marks, M. (2011). Being a new police in the liquid 21st century. *Policing*, 5(3), 210-218.
- Sindall, K., & Sturgis, P. (2013). Austerity policing: Is visibility more important than absolute numbers in determining public confidence in the police? *European Journal of Criminology*, 10(2), 137-153.
- Smith, R., & Somerville, P. (2013). The long goodbye: A note on the closure of rural police-stations and the decline of rural policing in Britain. *Policing*, 7(4), 348-358.
- Spielman, F. (2013). City implements 911 dispatch changes freeing up officers for response. *Chicago Sun Times*. Retrieved August 22, 2013, from <http://www.suntimes.com/news/metro/17955932-418/nothing-but-9-1-1.html>
- Statistics Canada. (2013). *Consumer price index, May 2013*. Retrieved July 11, 2013, from <http://www.statcan.gc.ca/daily-quotidien/130621/dq130621a-eng.htm>
- Statistics Canada. (2013a). *Crime severity index, by province and territory, 2011*. Retrieved March 23, 2013, from <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/legal51a-eng.htm>

Statistics Canada. (2013b). *Population, urban and rural, by province and territory (Canada)*.

Retrieved May 14, 2013, from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/demo62a-eng.htm>

Statistics Canada. (2013c). *National household survey: Data tables (National Occupational Classification)*.

Retrieved August 14, 2013, from <http://www12.statcan.gc.ca>

Statistics Canada. (2014).

Tay, R. (2009). The effectiveness of automated and manned traffic enforcement. *International Journal of Sustainable Transportation*, 3(3), 178-186.

Telep, C. W., & Weisburd, D. (2012). What is known about the effectiveness of police practices in reducing crime and disorder? *Police Quarterly* published ahead of print. DOI:

10.1177/1098611112447611.

Toews, V. (2013, January 16). *Speech for the Honourable Vic Toews, Minister of Public Safety, at the Summit on the Economics of Policing*.

Retrieved March 2, 2013 from:

<http://www.publicsafety.gc.ca/media/sp/2013/sp20130116-eng.aspx>

Toronto Dominion Bank. (2013). *Long-term economic forecast, March 20, 2013*. Retrieved

March 24, 2013, from

http://www.td.com/document/PDF/economics/qef/long_term_mar13.pdf

Toronto Dominion Bank. (2014). *Euro zone: Financial calm should not disguise outstanding*

macroeconomic challenges. Retrieved March 24, 2014, from www.td.com/economics

Toronto Dominion Bank. (2014a). *Advanced economies to drive global growth amid challenges*

in emerging markets. Retrieved March 24, 2014, from www.td.com/economics

Toronto Dominion Bank. (2014b). Canadian outlook: Rotation in the drivers of growth finally

underway. *Quarterly Economic Forecast* (March 20, 2014). Retrieved March 24, 2014,

from www.td.com/economics

Transport Canada. (2009). *Improving travel options in small and rural communities*. Ottawa,

ON: Author.

Transport Canada. (2013). *Canadian motor vehicle traffic collision statistics, 2011*. Ottawa, ON:

Author.

TransUnion. (2013). *TransUnion: Canadian debt levels to rise at faster rate in 2014, though*

delinquency levels to drop. Press Release. Retrieved March 25, 2014, from

<http://newsroom-en.transunion.ca/article/?id=1793258>

- Ubelacker, S. (2009). Domestic abuse on rise as families try to cope with recession. *The Star*. Retrieved March 24, 2014, from http://www.thestar.com/news/canada/2009/04/14/domestic_abuse_on_rise_as_families_try_to_cope_with_recession.html
- U.S. Bureau of Labor Statistics. (2014). *Labor force statistics from the current population survey*. Retrieved March 22, 2014 from <http://data.bls.gov/timeseries/LNS14000000>
- U.S. Bureau of Labor Statistics. (2014a). *CPI detailed report: Data for February 2014*. Washington, DC: Author.
- U.S. Department of Agriculture. (2014). *Supplemental nutrition assistance program*. Retrieved March 21, 2014, from <http://www.fns.usda.gov/pd/34snapmonthly.htm>
- U.S. Department of Justice. (2012). *The impact of the economic downturn on American police agencies*. Washington, DC: Community Oriented Policing Services Office.
- U.S. Department of the Treasury. (2014). *Major foreign holders of treasury securities*. Retrieved March 24, 2014, from <http://www.treasury.gov/resource-center/data-chart-center/tic/Documents/mfh.txt>
- U.S. Government Accountability Office. (2005). *Community policing grants: COPS grants were a modest contributor to declines in crime in the 1990s*. Washington, DC: Author.
- U.S. Government Accountability Office. (2014). *Fiscal outlook & the debt*. Retrieved March 25, 2014, from http://www.gao.gov/fiscal_outlook/overview#t=1
- Vodden, K., Smith, D., Eaton, F., & Mayhew, D. (2007). *Analysis and estimation of the social cost of motor vehicle collisions in Ontario*. Ottawa, ON: Department of Transport Canada.
- von Loon, J. (2013). *Alberta forecasts C\$1.97 billion budget deficit*. Retrieved March 24, 2013, from <http://www.bloomberg.com/news/2013-03-07/alberta-forecasts-c-1-97-billion-budget-deficit.html>
- Wallace, D., Hedberg, E. C., & Katz, C. M. (2012). The impact of foreclosures on neighborhood disorder before and during the housing crisis: Testing the spiral of decay. *Social Science Quarterly*, 93(3), 625-647.
- Waller, I. (2014). *Smarter crime control*. Lanham, MD: Rowman & Littlefield.
- Warrell, H. (2013). Crime gangs look to clean up as Europe's black market balloons. *Financial Times*. Retrieved June 25, 2013, from <http://www.cnbc.com/id/100839622>

- Weissman, D. M. (2013). Law, social movements, and the political economy of domestic violence. *Duke Journal of Gender Law & Policy* published ahead of print.
- White, A., & Gill, M. (2013). The transformation of policing from ratios to rationalities. *British Journal of Criminology*, 53(1), 74-93.
- Willett, T. C. (1964/2001). *Criminal on the road: A study of serious motoring offences and those who commit them*. London, UK: Routledge.
- Williams, S., Galster, G., & Verma, N. (2013). Home foreclosures and neighborhood crime dynamics. *Housing Studies* ahead of print:
<http://dx.doi.org/10.1080/02673037.2013.803041>.
- Willis, J. J. & Mastrofski, S. D. (2011). Innovations in policing: Meanings, structures, and processes. *Annual Review of Law and Social Science*, 7, 309-334.
- Winsor, T. P. (2013). *Policing in the new dynamic environment*. London, UK: Her Majesty's Inspectorate of Constabulary.
- Zhang, T. (2011). *Costs of crime in Canada, 2008*. Ottawa, ON: Department of Justice Canada.
- Zhang, T., Hoddenbagh, J., McDonald, S., & Scrim, K. (2013). *An estimation of the economic impact of spousal violence in Canada, 2009*. Ottawa, ON: Department of Justice Canada.
- Zhao, J., Scheider, M. C., & Thurman, Q. (2002). Funding community policing to reduce crime: Have COPS grants made a difference? *Criminology & Public Policy*, 2(1), 7-32.
- Zimring, F. E. (2012). *The city that became safe: New York's lessons for urban crime and its control*. New York: Oxford University Press.

X. Author Biographies

Dr. Rick Ruddell is Professor and Law Foundation of Saskatchewan Chair in Police Studies at the University of Regina. Prior to this appointment he served as Director of Operational Research with the Correctional Service of Canada and held faculty positions at Eastern Kentucky University and the California State University, Chico. He has authored, co-authored or edited nine books and 75 peer-reviewed articles, technical reports, book chapters, and articles in professional journals. Recent books include, *Do the Crime, Do the Time* (Praeger), *Making Sense of Criminal Justice*, 2nd edition (Oxford University Press) and the forthcoming *Policing Rural Canada* (de Sitter).

Dr. Nicholas (Nick) A. Jones is an Associate Professor in the Department of Justice Studies at the University of Regina. Prior to his academic career he worked with federal parolees and in a youth custody facility. In 2006, he earned a Doctorate in Sociology from the University of Calgary for his work focused on the judicial responses to the Rwandan Genocide. His research interests include restorative justice, genocide, transitional justice, and policing. Nick Jones recently published *The Courts of Genocide: Politics and the Rule of Law in Rwanda* (Routledge).