Extending a Geographic Perspective to the Study of Jurisdictional Consistency in Sentencing Outcomes

Abstract:

Consistency in sentencing has long been regarded a fundamental principle of justice. Yet despite its universal importance, research has been hindered by many theoretical and methodological challenges. This study identifies a new concern with strategies used to measure jurisdictional consistency: direct measures fail to account for sentencing patterns developed at the local level. The objective of this study is to assess the utility of applying a geographic perspective to analyses of sentencing outcomes – one concerned with proportionate comparisons between jurisdictions. This is achieved by proposing a variant of a common metric applied in geographic research: the location quotient. Analyses using the new strategy compare sentence outcomes across provincial/territorial jurisdictions in Canada (2014-15). The technique identifies new patterns of consistency and inconsistency that would otherwise have gone undetected.

Key Words: sentences, consistency, disparity, imprisonment, punishment, location quotient

Introduction

Consistency in sentencing has long been regarded a fundamental principle of justice. Commonly described as the treatment of like cases alike and the treatment of different cases differently, it has been suggested that consistency gives rise to a number of desirable effects.

> For example, consistency promotes the legitimacy of the criminal justice system, fosters public confidence in sentencing (Council of Europe 1993) and helps to establish a common understanding of the consequences of criminal activity, which may be desirable from the point of view of law and order, and to victims of crime. (Pina-Sánchez & Linacre 2013, p. 1118)

Perhaps equally important, consistency helps to protect against undesirable effects such as unwarranted disparities including forms of discrimination.

Yet despite its universal importance, the study of consistency in sentencing has presented many theoretical and methodological challenges. At a fundamental level, researchers have struggled with how to define consistency, and what accounts for a lack of consistency. Regarding the defining of consistency, does it refer to the *approach* taken in order to arrive at a final disposition, or is it reflected in the *outcome* of the final disposition (Hola 2012; Krasnostein & Freiberg 2013)? Further, there are multiple dimensions of consistency. Should we be concerned about the degree of consistency between different *jurisdictions* or different *time periods (*Thomson & Zingraff 1981)? Even after establishing a clear conceptual definition and reaching a decision on the dimension of interest, researchers have developed numerous operational strategies for measuring consistency in sentencing. If inconsistency is found, how can it best be explained?

Explanations of Jurisdictional Inconsistency

In jurisdictions without structured sentencing processes, such as sentencing grids or sentencing guidelines, it is not uncommon to find considerable variation in sentencing practices. The theoretical literature on sentencing that seeks to provide plausible explanations for variations

in sentencing patterns is severely lacking. This was noted by Mears (1998) who claimed the lack of theoretical developments in the area of "The Sociology of Sentencing" was partly responsible for the failure in the literature to develop good descriptions, assessments, or predictions about sentencing decision-making practices. Sentencing theory has tended to focus on philosophical rationales for punishing offenders rather than social theory to explain differences in judicial practices in different courts or jurisdictions.

One key effort to explain differences in sentencing practices focussed on individual-level variables, looking at the judges themselves as being the explanation for variations in sentencing practices. Hogarth's (1971) landmark *Sentencing as a Human Process* is an early example of this approach. After interviewing virtually every full-time lower court judge in the province of Ontario, Hogarth constructed diverse measures of their judicial beliefs and attitudes in hopes of understanding their sentencing practices from the differing perspectives held by the judges. He found that judges relied almost entirely on their own beliefs, attitudes, and perceptions. Judges were found to be selective in their use of information presented to them in court, rendering decisions consistent with their previously held beliefs. Judges tend to seek out information consistent with their preconceptions, and avoid information which is likely to present a picture of the offender which conflicts with their expectations. Knowing something about the judge was found by Hogarth (1971) to help in predicting sentence outcome better than knowing about the facts of the case. However, understanding the social psychology behind judicial sentencing decisions does little to advance our understanding of regional or cross-jurisdictional variations, as opposed to variations among judges within a jurisdiction. In recent years, efforts to fill this explanatory gap have tended to focus on organizational factors.

The pioneering work of Eisenstein and Jacob (1977) in *Felony Justice: An Organizational Analysis of Criminal Courts* drew attention to the idea that individual courts have their own organizational culture that arises from the dynamics played out among the "courtroom work group", the key actors who interact with one another in the courthouse to process criminal cases. This contribution brought attention to organizational level variables, which appears to be a more fruitful level of analysis to begin to understand cross-jurisdictional differences in sentencing patterns. This line of analysis has been picked up on by Johnson and others (Ulmer & Johnson, 2004), who began to offer an organization-based theoretical framework through which sentencing variation could be better understood.

It has been shown that local court cultures determine both formal and informal case processing practices and sentencing norms (Eisenstein et al., 1988). Since local court communities have their own informal and evolving norms that dictate appropriate sentence lengths, this perspective predicts significant interjurisdictional variation in sentence lengths (Ulmer & Johnson, 2004). The local courtroom community produces variations in caseload, case-processing strategies, and judicial expectations, producing variable emphasis and understanding of "key focal concerns" in sentencing across these different courtroom communities (Johnson, 2005, p. 790).

Measuring Consistency in Sentencing

In a recent methodological review that took stock of available quantitative strategies, Pina-Sánchez and Linacre (2016) identified 11 approaches that have been used to study consistency in sentencing outcomes. Of those, three were deemed to be amenable to study the jurisdictional dimension: experimental simulations, conditional comparisons, and exact matching approaches were found to have a comparative advantage. While much of the recent mainstream

research has encouraged the use of advanced quantitative techniques such as multi-level modelling procedures (see Ulmer & Johnson 2004 for an early example), these approaches do a better job of identifying the presence of disparities due to legal and extra-legal factors, rather than making actual across-jurisdiction comparisons. Another barrier to the use of these advanced analytic strategies is that they require complex hierarchical data structures with a comprehensive collection of variables. Most countries do not maintain sentencing databases that provide the level of refinement that is required by such approaches. However, as observed by Pina-Sánchez and Linacre (2016):

> [A]lmost all [Organization for Economic Co-operation and Development] jurisdictions make available observational data covering at least sentence outcome and type of offences. Using this data we can obtain a blunt assessment of consistency by comparing the variability of sentence outcome conditional on the type of offence. (p. 79)

To date, studies employing conditional comparative designs have relied solely on *direct* comparisons. In other words, consistency has only been assessed by comparing measures of sentence outcome for an offence type/category across a series of jurisdictions. As the next section of this article demonstrates, direct measures offer a limited perspective on the issue of jurisdictional consistency. Consequently, important information about the type and extent of consistency may go undetected. The objective of this study is to assess the utility of applying a geographic perspective – one not concerned with direct comparisons, but rather, one focused on proportionate comparisons between jurisdictions. This is achieved by proposing a variant of a common metric employed in geographic research: the location quotient.

A location quotient quantifies the concentration of an activity in a local jurisdiction relative to the combined jurisdiction average. As a result, the measure offers a unique approach to comparative research – one that highlights the specialization of a particular activity in a local setting within the broader, global context. In its standard form, however, the location quotient is

inadequate for comparing sentencing outcomes across jurisdictions. In order to control for factors that affect measures taken at the final stage of case processing, a double-complex fraction is required. This study proposes the Double-complex Relative Utilization Quotient (DRUQ) as an alternative measure of sentence outcome consistency. Using Canada as a case study, the DRUQ is used to assess jurisdictional consistency in sentencing outcomes across provinces and territories for three high-volume offence types. By employing two conventional measures of sentence severity alongside two corresponding measures adopting the DRUQ technique, strengths and weaknesses of the four measures are assessed.

Limitations of Direct Measures

Although measures of dispersion and variability may produce statistically accurate indicators of consistency, their application in direct comparisons renders them limited in two important respects. First, they fail to account for general sentencing practices that may have been adopted in the local jurisdictions under study. It may be the case, for example, that judges in a particular jurisdiction tend to use custody or longer custodial sentences more frequently in general (i.e., across many, or even all, offences). Direct measures of sentencing outcomes for individual offence types will not control for, nor detect those general patterns of sanction use. Direct measures will simply compare jurisdictions by each offence type, individually.

A simple hypothetical example of this is presented in Figure 1 where the percent of cases receiving a custodial sentence is used as the measure of sentence outcome. In this example, data were created to show sentence outcomes for five offences across three jurisdictions. In a direct comparison of sentence outcomes for Offence Type 1 (see Figure 1a), Jurisdiction A may be identified as the most severe (with 30% of its cases receiving a prison sentence), followed by Jurisdiction B (25%), and Jurisdiction C (20%). What this direct comparison masks, however, is

the pattern of sentence outcomes across offence types *within* each jurisdiction. As shown in Figure 1b, Offence Type 1 accounts for the most lenient sentencing outcome in Jurisdiction A. Conversely, Figure 1d reveals that the same offence represents the most severe sentencing outcome for Jurisdiction C. In other words, the sentencing outcomes of Offence Type 1 are uncharacteristic of both Jurisdiction A and C, while they are perfectly characteristic of the general pattern in Jurisdiction B (Figure 1c). Consequently, any conclusions based on direct comparisons of individual offences will be largely dependent on the specific offence types chosen for analyses.

< *Figure 1 here* >

In order to avoid spurious results that may be found by direct comparisons of individual offences, Pina-Sánchez and Linacre (2014) recently proposed a solution. By weighting measures based on the frequency of cases for each offence type, it is possible to aggregate the results to obtain a combined-offence measure. While this approach helps to improve the measurement of general (i.e., overall) sentencing consistency, the strategy foregoes offence-level sentencing results in favour of a single measurement. Consequently, offence-level details which may be of value in explaining patterns of consistency become lost.

A second limitation of direct-comparison strategies is they fail to consider the extent to which sentencing outcomes are proportional between jurisdictions. In other words, they do not assess how the sentencing outcomes for a particular offence type within the context of a local jurisdiction's general sentencing patterns, compare to the sentencing outcomes for the same

offence type in the context of the remaining (comparator) jurisdictions' general sentencing patterns.

A hypothetical example of this is presented in Figure 2 where once again the percent of cases receiving a custodial sentence is used as the measure of sentence outcome. Figure 2a shows that in a direct comparison of Offence Type 1, Jurisdiction A would be considered to be most severe (with 50% of its cases receiving a prison sentence), followed by Jurisdiction B (40%), and Jurisdiction C (20%). In addition to masking the local pattern of sentence outcomes across the offence types in each jurisdiction, the direct comparison also conceals the global pattern of sentence outcomes in *all* jurisdictions. Figure 2b, 2c, and 2d reveal that all three jurisdictions maintain the same proportionate pattern of sentence outcomes across the offence types. Consequently, although it would be accurate to conclude that Jurisdiction A has a more severe sentencing pattern for Offence Type 1, the relative difference between sentencing outcomes for Offence Type 1 and the four other offence types is no different in Jurisdiction A compared to the remaining jurisdictions. In fact, the relationships are perfectly proportionate between Jurisdiction A, B, and C.

The ability to account for local geographic sentencing patterns and identify these alternate forms of consistency would provide additional information beyond what is possible to detect by direct measurement strategies. In order to operationalize such an approach, a geographic perspective offered by a new statistical technique is required.

< Figure 2 here >

The Location Quotient

The location quotient is not a new quantitative approach. In fact, according to Miller et al. (1991), the location quotient "has been widely used by researchers in economic geography and regional economics since the 1940s" (p. 65). For much of the last century, utilization of the technique was confined to these fields. In the early 1990s, however, the location quotient emerged in criminological research as a new way to study geographic concentrations of crime.

First proposed by Barr and Pease (1990) and later employed by Brantingham and Brantingham (1993; 1995; 1998), the crime location quotient was originally used to study victimization patterns in urban areas for crime prevention purposes. Brantingham and Brantingham (1998) compared three measures of victimization (crime counts, crime rates, and crime location quotients) across municipalities in British Columbia, Canada. They found that raw crime counts tended to identify large urban municipalities as the most pronounced hot spots for crime. After accounting for differences in population size, crime rates identified a different set of municipalities – those where the population had the greatest risk for victimization. Interestingly, location quotients produced results greatly different from either of these measures. Crime location quotients identified municipalities where a specific type of crime was disproportionately overrepresented. In some cases, municipalities that had a great risk for violent victimization (by the standard crime rate) maintained their high ranking, while other lower ranking municipalities emerged as relatively overrepresented for violent crime. As a result, Brantingham and Brantingham (1998) concluded that "[crime location quotients] provide a measure that helps identify whether a specific crime pattern is disproportionately high or low in a particular place or location" (p. 280).

Following this initial use in criminology, several researchers have gone on to demonstrate the utility of the crime location quotient. While most have used the metric as a descriptive tool

for identifying crime patterns (Andresen 2009; Andresen et al. 2009; Beauregard et al. 2010; Beconytė et al. 2012; Breetzke & Cohn 2013; Carleton et al. 2014; Groff 2011; Groff & McCord 2012; McCord & Ratcliffe 2007; Pridemore & Grubesic 2012; Ratcliffe & Rengert 2008; Robinson 2008), others have used it to measure association in experimental studies (Caplan et al. 2011) or employ it as a dependent variable in inferential analyses (Andresen 2007; Zhang & Peterson 2007). Still, use of the location quotient has been less than prolific in criminal justice studies. As observed by Andresen (2009):

> [t]hough the location quotient appears to have become somewhat popular in very recent years, its general lack of adoption in criminological research is surprising because the interpretation of the location quotient allows it to measure specialization of an activity, providing a supplement to conventional crime measurements. (p. 37)

The lack of adoption has been particularly pronounced in research that focuses on case processing in the criminal justice system. In fact, a canvass of the extant literature returned only two studies where a relative comparison approach was applied in this realm. Benson et al. (1992) used the location quotient to assess the influence of community context on the prosecution of white-collar offenders. In that study, however, the researchers employed the metric by its original use: to assess the specialization of local economies. In contrast, Selya, (2012) used the location quotient as one method to identify countries that were overrepresented for human rights violations. Most recently, Reid (2017) demonstrated that the location quotient could be adapted for use in non-geographic contexts. Offering a new perspective on the use of criminal sanctions in Canada, Reid (2017) compared the frequency of sanction use for a particular offence category, to the general frequency of sanction use across all offence categories. That approach revealed several interesting patterns including the overrepresentation of lesser-used sanctions for some offences, and the underrepresentation of frequently-used sanctions for other offences.

Although Brantingham and Brantingham (1998) speculated that it could prove useful in sentencing research, the location quotient has never been adapted to study geographic sentencing patterns. Its demonstrated utility in revealing specialization in other contexts, however, lends it as a promising metric for studies of consistency in sentencing. Using this argument as a departure point, the current study introduces a variant of the location quotient – the DRUQ – to employ a variety of context-specific measures of sentence outcome consistency. Using Canada as a case study, the DRUQ is used to advance two measures that offer alternatives to conventional methods adopted in comparative sentencing research.

Methods

Case Study: Canada

Canada represents a valuable case study for research of jurisdictional consistency in sentencing as a broad literature has amassed that documents sentencing variation across its provincial and territorial jurisdictions. In the youth justice system, several studies have found variation in the proportion of cases receiving custodial sentences (Bala 1992; Carrington & Moyer 1994; Corrado & Markwart 1992; Doob 1992; Doob & Sprott 1996). Similarly, inter-provincial variation in sentencing outcomes for cases involving adult offenders has been documented by numerous scholars (Birkenmayer & Besserer 1997; Boyd et al. 1987; Doob & Webster 2008; Roberts 1999; Roberts & Melchers 2003; Scanlon & Beattie 1979; Turner 1993). These findings have led to a longstanding debate concerning the presence of unwarranted sentencing disparity. Following a review of provincial variation in sentencing outcomes, Roberts (1999) observed that

> data remain highly suggestive that unwarranted disparity exists across Canada. They also underscore the necessity of developing a national database that would permit unequivocal attributions about the source of such variations. (p. 154)

Because no such database has yet become available, and Roberts and Reid (2017) recently noted that the issue of disparity remains a pressing concern, it is important that researchers continue to refine measures of consistency to further examine the issue.

It is also important to advance alternative methodologies for studying comparative sentencing patterns as the Canadian public, criminal justice practitioners, and academics rely on the accuracy of metrics used in empirical research. Canada's national statistics agency – Statistics Canada – has historically released annual *Juristat* articles that report on the practices of the criminal courts, yet these have recently become more sporadic. A considerable portion of the reports that do get published is consistently devoted to making provincial/territorial comparisons by employing the (un)conditional comparative approach identified by Pina-Sánchez and Linacre (2016). Despite these periodic publications, information about sentencing patterns in Canada is greatly insufficient. Doob and Webster (2008) articulated a harsh reality about the public's knowledge concerning sentencing. Specifically, they noted that:

> [f]ew people (if any) could have a clear idea of the actual sentences handed down in their region. Indeed, the current reality of sentencing – that is, the difficulty in obtaining actual sentencing data in Canada; their tendency to be incomplete; and the complexity as well as the inconsistent nature of sentencing patterns across measures and offences) – precludes any real 'knowledge' of actual sanctions, particularly in terms of inter-jurisdictional comparisons. (Doob & Webster 2008, p. 22)

From a methodological perspective, Canada also provides a useful case study of jurisdictional consistency as its criminal justice system is structured in such a way that inter-provincial/territorial comparisons may be made with relative ease. While many cross-jurisdictional studies must overcome challenges such as differences between types of national legal systems (e.g., common law vs. civil law), inconsistencies in legal definitions, and variations in available types and quanta of punishments, Canada's substantive and procedural criminal law

applies across the entire country. [1] This alleviates many complications that may arise when making comparisons between offence types, or different forms of punishment because the statutory laws that define them are uniform across the entire country.

Data

Data included in this study were drawn from the adult component of the Integrated Criminal Court Survey (ICCS). The ICCS represents Canada's most comprehensive source of criminal court processing information and the most reliable source of sentencing data across provincial/territorial jurisdictions. For the comparative analyses conducted here, the offence type, case outcome, type of sentence, and length of custodial sentence were retrieved for all cases with a single guilty finding completed in 2014-15. Of these, the three highest-volume criminal offence types were selected for focused analyses: 1) impaired driving; 2) theft; and 3) fail to comply with order.

The data retrieved from the adult component of the ICCS included two important limitations. First, the length of custodial sentences was not available from the province of Manitoba. As a result, it was not included in the current study. This resulted in 12 of Canada's 13 provincial/territorial jurisdictions being maintained in the sample. Second, Superior Court data was not available for Saskatchewan, Ontario, Quebec, and Prince Edward Island. Because Superior Court cases make up less than 1% of Canada's total adult criminal caseload, these provinces were retained in the current sample (Maxwell 2015). The impact of this limitation is that the results presented here are likely to underestimate the severity of sanctions handed down

[1] Sections 91 and 92 of Canada's Constitution Act (1867) delineate the responsibilities of the federal and provincial/territorial governments, respectively. With respect to the criminal justice system, section 91(27) assigns the responsibility for establishing substantive and procedural criminal law to the federal government. As a result, criminal law is consistent throughout all provinces and territories. Section 92 assigns matters of administration of justice (including establishing provincial police, most courts, and some corrections) to each province.

in those provinces because sentences for cases completed in a Superior Court are known to be more severe (Maxwell 2015).

Summary statistics for the data are presented in Table 1. There was considerable variation in the number of completed cases between jurisdictions and offence types. Together, the three selected offences accounted for 44,384 of the total 116,168 single guilty finding cases completed in 2014-15. The proportion of total guilty cases accounted for by the three offences in each jurisdiction ranged between 21% and 53% with a combined-jurisdiction average of 38%.

< Table 1 here >

Measures of Jurisdictional Consistency in Sentence Outcomes

In keeping with the approach taken in recent research on consistency of sentencing in Canada, this study adopts a conditional comparative approach. Consistency is assessed by comparing the variability of sentencing outcomes conditional on the type of offence. Although a case study of one country that has a uniform set of statutory criminal laws may present a relatively simple comparative scenario, there are still many challenges in selecting appropriate measures. Here two measures commonly used in comparative studies of sentence severity in Canada are employed alongside two variations of these measures designed to detect local patterns of relative utilization.

Custody Sanction Rate

In Canada, judges generally have considerable discretion in the type and quanta of sanctions that they may impose, and as a result, outcomes must be distinguished accordingly. As Lynch (1988) observed,

> [s]everity has many dimensions. At minimum, a distinction should be made between incarceration and other sanctions that do not deprive citizens of their liberty. Incarceration is a more severe sanction than non-custodial alternatives. (p.183) [2]

Adopting a metric such as the rate of custody per 100,000 residents, however, may not account for differences attributable to earlier stages of criminal case processing (Blumstein et al. 2005). In all likelihood, regions with higher offending frequencies might also have greater arrest, charge, conviction, and ultimately, sentencing rates. Consequently, such regions might reveal inflated rates of custody use simply because the frequency of crime is greater in those locations. A common solution for this problem is to account for differences in case processing by employing the total number of convictions as the denominator. [3] In the Canadian context, Sprott et al. (2013) recently employed the percentage of all guilty cases that received a prison sentence. When adopting a conditional comparative approach focused on individual offence types, it is essential to further refine that measure to the offence level of analysis. This delineates the first measure of sentence outcome: the percentage of guilty cases that received a prison sentence for a particular offence.

Custody Sanction Length

Using a single metric in studies of outcome consistency might end up leading to spurious results because the use of custody is only one dimension of severity. The length of imprisonment sentences is a related but distinct component. If for example, one jurisdiction uses imprisonment

[2] This is, however, a general statement. It is possible to argue that a very short period of incarceration may be less punitive than a large fine or lengthy non-custodial sentence.

[3] Even the use of convictions to control for earlier case processing differences has considerable limitations. As Frase (2001) noted, differences in screening practices are likely to lead to differences in sentencing outcomes. If for example, a particular jurisdiction used diversion for many of its less-serious offence cases, while another jurisdiction proceeded with litigation, it ought to be expected that the former jurisdiction would have a greater custody-conviction rate. As a solution, Frase (2001) suggested the use of offender-based transaction statistics (OBTS) that follow a case from an early stage through to sentencing. He also cautioned, however, that "even the OBTS 'idea' is based on the largely unverifiable assumption that groups of cases identified by arrest charge are similar in different jurisdictions" (p. 19).

less frequently than another yet the lengths of imprisonment handed down are relatively long, would it be accurate to conclude that the jurisdiction is less punitive? Many would argue 'no'. As a result, multiple measures are generally encouraged to provide the most comprehensive and transparent comparisons.

In the Canadian context, several researchers have recently adopted a metric that accounts for the length of custodial sentences while avoiding shortcomings associated with measures of central tendency.[4] Specifically, Doob and Webster (2008), Reid (2014), and Sprott et al. (2013) employed the proportion of guilty cases that receive a relatively long (greater than six-month) custodial sentence. As explained by Sprott et al. (2013), the metric "largely captures the degree to which judges – across jurisdictions – are willing to impose a relatively long provincial prison sentence on those found guilty" (p. 282). This defines the second conventional metric of consistency for the analyses to follow: the proportion of guilty cases that received a sentence of greater than six months for a particular offence.

Double-Complex Relative Utilization Quotient (DRUQ)

To offer an alternative perspective to these conventional measures, a variant of the location quotient may be employed to detect relative patterns in sentencing outcomes. The standard crime location quotient is calculated by the following equation:[5]

$$LQC = \frac{C_{in}/C_{tn}}{\sum_{n=1}^{N} C_{in} \Big/ \sum_{n=1}^{N} C_{tn}}$$

[4] As noted by Doob and Webster (2008), measures of central tendency are greatly influenced by extreme scores. This is particularly true with respect to the mean. As a result, very short or very long prison sentences may have a great impact on mean scores.

[5] Adapted from Brantingham & Brantingham (1998, p. 269).

Where C_{in} is a count of crime *i* in local area *n*, C_{tn} is the count of all crimes in local area *n*, and *N* is all areas under study. In its standard form, however, the crime location quotient is not suitable for cross-jurisdictional sentencing analyses. Because the quotient comprises just two ratios (the numerator capturing the local context of an activity and the denominator capturing the global context of that same activity), it is not able to control for additional factors such as earlier stages of case processing. By failing to account for these earlier stages, the technique would be largely influenced by differences in offending frequency, arrest rates, charging practices, and so on between jurisdictions. Consequently, a more complex ratio is required. The DRUQ is a double-complex fraction and in the specific context of sentencing consistency, it may be calculated as follows:

$$DRUQ = \frac{\left(\frac{C_{ijpt} \Big/ \sum_i C_{ijpt}}{\sum_j C_{ijpt} \Big/ \sum_{ij} C_{ijpt}} \right)}{\left(\frac{\sum_p C_{ijpt} \Big/ \sum_{ip} C_{ijpt}}{\sum_{jp} C_{ijpt} \Big/ \sum_{ijp} C_{ijpt}} \right)}$$

Where, in the numerator of the double-complex fraction: C_{ijpt} is the count of sanction *i* for offence type *j* in province *p* and time *t;* $\sum_i C_{ijpt}$ is the count of all sanctions in offence type *j* in province *p* and time *t;* $\sum_j C_{ijpt}$ is the count of sanction *i* in all offence types in province *p* and time *t;* $\sum_{ij} C_{ijpt}$ is the count of all sanctions in all offence types in province *p* and time *t*. And, in the denominator of the double-complex fraction: $\sum_p$ is the sum of all provinces.

Although complex in appearance, the DRUQ is simply a series of four successive fractions: two in the numerator that calculate relative sanction use for an offence type in one

jurisdiction (local); and two in the denominator that calculate relative sanction use for the same offence type in all jurisdictions (global). Broken down into each fraction, individually:

a) The numerator in the local portion of the double-complex fraction calculates the proportion of cases that receive a particular sanction out of the total (guilty) cases for an offence type, within a particular province/territory;
b) The denominator in the local portion of the double-complex fraction calculates the proportion of cases that receive a particular sanction out of the total (guilty) cases for all offence types (combined), within a particular province/territory;
c) The numerator in the global portion of the double-complex fraction calculates the proportion of cases that receive a particular sanction out of the total (guilty) cases for an offence type, within all provincial/territorial jurisdictions (combined); and
d) The denominator in the global portion of the double-complex fraction calculates the proportion of cases that receive a particular sanction out of the total (guilty) cases for all offence types (combined), within all provincial/territorial jurisdictions (combined).

This technique produces a measure that quantifies the under or overrepresentation of sanction use in a particular jurisdiction compared to all jurisdictions. In order to offer alternatives to the conventional measures of consistency defined above, this study employs DRUQs that correspond to those same two measures. To summarize, this study employs the following four metrics to assess relative sentence consistency for three high-volume offences across 12 of Canada's provinces/territories:

1) The percent of guilty cases for a particular offence type that receive a custodial sentence;

2) The percent of guilty cases for a particular offence type that receive a custodial sentence of greater than six months;
3) The DRUQ for guilty cases for a particular offence type that receive a custodial sentence; and
4) The DRUQ for guilty cases for a particular offence type that receive a custodial sentence of greater than six months

Results and Discussion

Impaired Driving

Figure 3 presents column charts for the four measures of jurisdictional consistency with impaired driving offences. Considering first, the metric revealing the percent of cases that received a custodial sentence (Figure 3a), it is readily apparent that there is considerable variation among the provincial/territorial jurisdictions. 11 of the jurisdictions vary between 5% and 17%. Prince Edward Island, however, stands out among all others with a custody rate of 87%. The high rate of custody for this particular offence is a well-documented pattern in Prince Edward Island. In fact, annual *Juristat* reports have long attributed the province's high rate of overall custody use to the sentencing practices for impaired driving offences (Maxwell 2015). Turning to the percent of cases that received custodial sentences of greater than six months (Figure 3b), a very different pattern is revealed. By this measure, Saskatchewan exhibits the most severe sentencing outcomes (11%), followed by Yukon (10%), Newfoundland (5%), and Quebec and Nova Scotia (each 3%). Northwest Territories, Nunavut, and Prince Edward Island reveal 0% use of custody because no sentences greater than six months were handed down.

< Figure 3 here >

Considering the two conventional metrics together, it becomes clear why multiple measures of sentence consistency are necessary. By the percent custody measure alone, it would be easy to conclude that Prince Edward Island maintained the most severe sentencing pattern for impaired driving; its custody rate is 70% greater than any other jurisdiction. By percent long custodial sentences, however, Prince Edward Island would be regarded as among the most lenient jurisdictions with a rate of 0%. Together, the two measures provide a more comprehensive understanding about the degree of (in)consistency between jurisdictions but the assessment is still incomplete.

Figure 3c and 3d provide alternative perspectives to the two conventional measures by reporting results using the DRUQ technique. Figure 3c reveals that while Prince Edward Island remains higher (DRUQ = 4.21) than any other jurisdiction for its overall custody use, seven other jurisdictions have DRUQ statistics greater than 1. Similar to the interpretation of standard location quotient statistics, a value of less than 1 indicates underrepresentation while a value of greater than 1 indicates overrepresentation. In other words, a total of eight jurisdictions are found to use custody with impaired driving offences disproportionately more frequently than other offences, compared to the combined 12-jurisdiction average sentencing pattern. More specifically, the relative utilization quotients reveal that Nunavut (DRUQ = 2.13), Newfoundland (DRUQ = 2.06), Saskatchewan (DRUQ = 1.79), Quebec (DRUQ = 1.28), New Brunswick (DRUQ = 1.05), Nova Scotia (DRUQ = 1.03), and Yukon (DRUQ = 1.03) are all found to be overrepresented with respect to their use of custody. This is an important source of inconsistency that was not detected by simply analyzing the percent custody metric alone.

Turning to the DRUQ analyses for longer custodial sentences, Figure 3d reveals a column chart that is quite similar in appearance to that shown in Figure 3b. In fact, the relative ranking of provincial/territorial jurisdictions nearly mimics that detected by the conventional measurement strategy. Nevertheless, the DRUQ technique provides a quantitative measure for the degree of concentration of longer custodial sentences. Specifically, Yukon (DRUQ = 3.76), Newfoundland (DRUQ = 2.77), and Saskatchewan (DRUQ = 2.36) are found to be overrepresented with respect to their use of custodial sentences greater than six months. How overrepresented are they?

Although there is no statistical test that may be used to determine the significance of a relative utilization quotient value, Miller, Gibson, and Wright (1991) note that location quotient values less than 0.70 may be interpreted as very underrepresented, values between 0.70 and 0.90 moderately underrepresented, values between 1.10 and 1.30 moderately overrepresented, and values greater than 1.30 very overrepresented. Because the variant of the standard location quotient proposed here is also comprised of a series of ratios, it may be interpreted in the same manner. In other words, Yukon (DRUQ = 3.76), Newfoundland (DRUQ = 2.77), and Saskatchewan (DRUQ = 2.36) all reveal values that would constitute very overrepresented jurisdictions. In contrast, British Columbia (DRUQ = 0.45), Ontario (DRUQ = 0.52), Quebec (DRUQ = 0.66), and Nova Scotia (DRUQ = 0.68) would all be classified as very underrepresented for their use of longer custodial sentences with impaired driving offences.

Theft

Figure 4 presents results of the conditional comparative analyses for cases of theft completed in 2014-15. By the percent custody measure (Figure 4a), British Columbia is shown to have the greatest use with 43%. Once again, there is considerable provincial/territorial variation with Newfoundland revealing just 7% and Nunavut 0%. Turning to the percent of cases

receiving relatively longer custodial sentences, Figure 4b shows that Prince Edward Island is greatly overrepresented with 11%. The next most frequent use of longer custodial sentences is by Quebec (5%) and British Columbia (3%). Four jurisdictions have rates of 0%. Once again, these direct comparisons provide important information about the relative use of custodial sanctions but they fail to capture the extent to which each jurisdiction's sentencing practices are proportionate to the combined-jurisdiction average.

< Figure 4 here >

The alternative measures of custody use adopting the DRUQ technique are presented in Figure 4c and 4d. Several notable findings are revealed by these calculations. While British Columbia was found to have the greatest use of custody by the direct-comparison strategy (Figure 4a), it is found to be just slightly overrepresented by the DRUQ measure (DRUQ = 1.01). In other words, although British Columbia may use custody more frequently than any other province/territory for theft cases, the difference between British Columbia's use of custody for theft and all other offences, is almost identical to the difference between theft and all other offences in the combined-jurisdiction average. This is an important source of consistency that would have certainly gone undetected if it was not for the alternative measurement technique. In contrast, however, Saskatchewan (DRUQ = 1.15) and Alberta (DRUQ = 1.10) are moderately overrepresented in their use of custody, New Brunswick (DRUQ = 0.79) is moderately underrepresented, and Newfoundland (DRUQ = 0.34), Prince Edward Island (DRUQ = 0.38), Yukon (DRUQ = 0.44) and Quebec (DRUQ = 0.68) are very underrepresented. These are important sources of inconsistency that were not detected by the direct, conventional measures.

Figure 4d presents results of the relative utilization quotient analyses for longer custodial sentences. Once again, the use of the DRUQ technique for this category of custodial sanction reveals a visual pattern that is not too dissimilar from the direct-comparative approach. The quantified measurements, however, are able to precisely identify the extent of relative sentence use. Prince Edward Island (DRUQ = 5.31), British Columbia (DRUQ = 1.85) and Alberta (DRUQ = 1.33) are greatly overrepresented while Ontario (DRUQ = 0.18), Saskatchewan (DRUQ = 0.36), Nova Scotia (DRUQ = 0.46) and New Brunswick (DRUQ = 0.60) are greatly underrepresented. It is important to note that without the DRUQ technique, it would not be possible to discern the relationship between each jurisdiction's local sentencing patterns and the global patterns of the combined jurisdictions; it would only be possible to conclude that there were direct differences in the relative use of longer custodial sentences for this particular offence type.

Fail to Comply with Order

Figure 5 presents the four measures of jurisdictional consistency for fail to comply with order offences. By the standard custody rate (Figure 5a), Yukon is found to have the most frequent use with 78%. The remaining jurisdictions vary from 32% (Nunavut) to 67% (Prince Edward Island). Figure 5b shows that only four jurisdictions registered longer custodial sentences. Saskatchewan had the greatest use with 2.6%, followed by Alberta (1.9%), Ontario (0.8%), and Quebec (0.03%).

< Figure 5 here >

With respect to the relative utilization measure of total custody use, Figure 5c identifies Newfoundland (DRUQ = 2.16), Nova Scotia (DRUQ = 1.69), New Brunswick (DRUQ = 1.52) and Quebec (DRUQ = 1.32) as very overrepresented. Although Yukon was found to have the greatest use of custody in a direct comparison of percentages (Figure 5a), the DRUQ analyses show that it is only moderately overrepresented (DRUQ = 1.13) compared to the combined-jurisdiction sentencing pattern. Consequently, it provides a different conclusion about the extent of consistency found by the conventional measure alone. Also revealing from the DRUQ results is that Prince Edward Island is found to be very underrepresented (DRUQ = 0.67). Even though the province was found to have the second greatest (67%) use of custodial sentences, that figure is well below what ought to be expected when comparing the relative difference between Prince Edward Island's use of custody for that particular offence and all other offences, to the difference between fail to comply with order offences and all other offences in the combined-jurisdiction average. This is not only an important finding that confirms the presence of inconsistency, it in fact contradicts the direction of inconsistency likely to be interpreted by the conventional measure.

Figure 5d shows that Alberta (DRUQ = 3.37) and Saskatchewan (DRUQ = 2.14) are greatly overrepresented, and Ontario (DRUQ = 1.27) is moderately overrepresented for use of custodial sentences greater than six months. On the other hand, Quebec is very underrepresented with an DRUQ of just 0.23. These results once again differ from the direct comparative measure of longer custodial sentences where Saskatchewan (2.6%) was found to have the most severe pattern, followed by Alberta (1.9%), Ontario (0.8%), and Quebec (0.3%). The DRUQ accounts for the local pattern of sentencing in each of the jurisdictions and quantifies its relative relationship to the pattern of sentencing found in the global context.

Conclusions

Approaches to the study of consistency in sentencing have become more sophisticated in recent years. Researchers now encourage the use of advanced quantitative techniques such as fixed effect, random intercept, and random slope prediction models. While these approaches may be useful for identifying sources of disparities in sentencing outcomes, they have not been recognized for their suitability in cross-jurisdictional comparisons (Pina-Sánchez & Linacre 2016). In addition, sophisticated statistical models rely on detailed datasets that maintain hierarchical structures. For nations with simple observational data structures (including Canada), these approaches are far out of reach.

The conditional comparative approach continues to be the most amenable analytic strategy to studying consistency in sentencing outcomes. To date, however, studies employing the conditional comparative approach have been limited to direct comparisons. This study demonstrated that there are more complex patterns of jurisdictional (in)consistency in sentencing outcomes than can be detected by direct comparative measures, alone. Specifically, direct measures mask the local sentencing patterns that may be developed across different offence types in each jurisdiction. In addition, direct measures fail to reveal how those local sentencing patterns compare to the global sentencing patterns that form in the broader combined-jurisdiction average. By failing to detect these alternative forms of (in)consistency, an incomplete assessment of sentencing outcomes is all that may be achieved.

In an attempt to improve upon these stated limitations, this study proposed an alternative statistical technique to detect relative sentencing patterns. Specifically, the DRUQ is a derivative of the location quotient that is able to account for the influence of earlier case processing stages known to influence results of sentencing outcome measures. By employing a double-complex

fraction, the DRUQ technique was shown to detect and highlight geographic specialization in sanction use for a series of individual offences. Importantly, the technique was able to do so without displacing offence-level results. In some cases, the DRUQ technique revealed patterns in sentence outcomes that closely mimicked the visual depiction of conventional measures. In the impaired driving analyses, for example, the DRUQ measurement of longer custodial sentences revealed a similar relative ranking of provinces and territories to that detected by the standard rate of sentences longer than six months. In those analyses, however, the DRUQ technique was able to quantify the extent of sanction concentration. In fact, the DRUQs precisely calculated how under or overrepresented the longer custodial sentences were in each local geographic area.

In other cases, the DRUQ technique detected patterns of sentencing that provided a completely different perspective. In the analyses for completed cases of theft, British Columbia was found to have the highest custody rate (43%). That figure, however, was found to be nearly representative (DRUQ = 1.01) of the combined-jurisdiction average. In other words, the relationship between British Columbia's high rate of custody use for cases of theft and its rate of custody use for other offences, was nearly identical to the relationship between the use of custody in cases of theft and the use of custody in other offences in the remaining (comparator) jurisdictions. This identified an important source of consistency that would otherwise have gone undetected. Even more revealing was the extent of inconsistency that was revealed by the DRUQ technique for the frequency of custody with Fail to Comply with Order offences. In that analysis, Prince Edward Island was found to have the second highest custody rate (67%) yet surprisingly, that figure was deemed to be very underrepresented (DRUQ = 0.67). One might assume that the detection of relative patterns such as in the results above, might be a consequential result of the method by which the DRUQ is calculated; if a jurisdiction reveals a positive coefficient in one

crime category, it will necessarily reveal a negative coefficient in another category. This, however, is not true. Similar to the location quotient, the DRUQ compares the count of a particular activity in one location to all activities *and* all locations. As a result, it is statistically possible for a location to be overrepresented in any or all categories under study (Andresen 2013).

Despite a lack of theoretical development to explain patterns found when comparing sentencing outcomes across jurisdictions, there are some explanations which may be offered for these results. As suggested by Eisenstein and Jacob (1977), there are a variety of organizational level variables that contribute to forming patterns across court jurisdictions. Consequently, due to local court communities having their own norms that dictate appropriate sentences, it is not uncommon to find interjurisdictional inconsistency (Ulmer & Johnson, 2004). This is particularly true for jurisdictions in nations, such as Canada, which maintain sentencing processes that are largely unstructured. It should not be surprising then, that many patterns of inconsistency were found when employing the direct conditional comparative design to compare sentencing outcomes across the Canadian provinces. These patterns of inconsistency lend some support to the organizational-based theoretical framework.

The high custody rate for Prince Edward Island discussed above can perhaps best be understood from an organizational perspective. Prince Edward Island is a very small jurisdiction, both in terms of geographic size and population. There are only three Provincial Court judges in that province. These judges perceived there to be a local problem with the extent of impaired driving on the island. Accordingly, all three of them met together in 2007 and decided to take a unified front on the problem, deciding that the typical sentence for impaired driving should include jail time (Boesveld, 2011). No other courts in the country have adopted this tactic. This

example shows how local court practices can seriously impact sentencing patterns, especially in small jurisdictions.

But were the patterns due to differences in the general sentencing processes that have been adopted in each jurisdiction? Or were the patterns attributable to differences in the sentencing processes that have been adopted for responding to specific offence types in each jurisdiction? Evidence of both sources was found when the geographic perspective was employed to make proportionate comparisons. In other words, evidence of both consistency and inconsistency was found when comparing the relative patterns of sentencing outcomes across jurisdictions. Therefore, the relative comparison approach proposed in this study appears to have identified an important area for future theoretical development. Theories of sentencing must not be limited to explaining direct differences between jurisdictions; they must also account for the proportionate patterns that may be present when comparing sentencing outcomes across jurisdictions.

Together, the results reported in this study demonstrated that, depending on the metric used, a very different picture concerning the type and extent of (in)consistency in sentencing may be revealed. For this reason, the approach prescribed by Doob and Webster (2008) deserves to be echoed here:

> We strongly believe that what is needed to compare sentencing patterns across jurisdictions is a comprehensive picture that does not reduce overall sentencing in a jurisdiction to a single number. Hence we have suggested that there be multiple measures of sentencing patterns and that one should look at *all* available categories of offences. It is natural – and not necessarily inappropriate – to find that there is some variation in sentencing across jurisdictions. After all, under our current law, judges have to decide, within the context of their own jurisdictions, how serious offences are, and what the goals of sentencing should be in determining the sentence. (p. 3)

For this reason, the DRUQ should not be viewed as a replacement for conventional metrics. Consistent with studies that have employed the location quotient to offer a different perspective on the spatial patterns of criminal events (Andresen 2007; Brantingham & Brantingham 1998),

the DRUQ should serve as a supplement to conventional metrics. Only by triangulating all relevant perspectives will we be able to obtain the most comprehensive understanding of the phenomenon under study.

The central goal of this article was to propose a new method for studying jurisdictional consistency in sentencing outcomes and employ it in a case study to assess its utility. Although every attempt was made to ensure the integrity of the analyses, there were some important limitations concerning the methodological approach that deserve to be noted. First, as Pina-Sánchez and Linacre (2016) acknowledged, conditional comparisons are limited in their ability to account for confounding factors such as the severity of cases and socio-demographic characteristics of different jurisdictions. Consequently, inconsistencies detected between the Canadian provinces/territories may not be due to inconsistent sentencing practices, but rather, may be attributable to differences in caseloads. Second, the DRUQ is a descriptive technique that was designed to identify differences in sentencing outcomes between jurisdictions. The technique was not, however, designed to detect whether the differences found were statistically significant. Future research in this area could improve the use of the technique by addressing this concern. For example, it may be possible to assess the significance of differences between DRUQs (or location quotients) by employing T-tests. Third, this study employed data from only one fiscal year. While relative measures are able to detect variation even in the presence of small counts (Andresen 2007), caution should be exercised in interpreting the results. Jurisdictions with low counts may be subject to high variability in the frequencies of events. As a result, a longitudinal approach is recommended for use with methods that detect relative patterns (Andresen 2007). In order to confirm the specific patterns of (in)consistency found by the analyses here, a longitudinal approach should be used in future research.

Finally, it is important to emphasize that while this study compared sentencing outcomes across provincial jurisdictions within a single country, the DRUQ is not limited to this context. The DRUQ may prove useful to researchers conducting comparative cross-national, inter or intra-court, inter or intra-judge, or any other level of spatial/temporal analysis of court processes. Applications of the DRUQ technique should also not be restricted to the fields of spatial crime analysis and legal research. Geographic perspectives offer important ways of studying social phenomena and; therefore, applications of the DRUQ should be considered in other research arenas. It is expected that researchers will find utility in the DRUQ for studying a wide range of issues including remand rates, police clearance rates, correctional release rates, and recidivism rates.

References

Andresen, M. A. (2007). 'Location Quotients, Ambient Populations, and the Spatial Analysis of Crime in Vancouver, Canada', *Environment and Planning A*, 39: 2423-2444.

Andresen, M. A. (2009). 'Crime Specialization across the Canadian Provinces', *Canadian Journal of Criminology and Criminal Justice*, 51: 31-53.

Andresen, M. A. (2013). *The Science of Crime Measurement: Issues for Spatially-referenced Crime Data*. New York, NY: Routledge.

Andresen, M. A., Wuschke, K., Kinney, J. B., Brantingham, P. J., and Brantingham, P. L. (2009). 'Cartograms, crime, and location quotients', *Crime Patterns and Analysis*, 2: 31-46.

Bala, N. (1992). 'The Young Offenders Act: The legal structure', In Corrado, R., Bala, N., Linden, R., and LeBlanc, M. (eds.) *Juvenile Justice in Canada*. Toronto: Butterworths.

Barr, R., and Pease, K. (1990). 'Crime Placement, Displacement, and Deflection', *Crime and Justice*, 12: 277-318.

Beauregard, E., Rebocho, M. F., and Rossmo, D. K. (2010). 'Target Selection Patterns in Rape', *Journal of Investigative Psychology and Offender Profiling*, 7: 137-152.

Beconytė, G., Eismontaitė, A., and Romanovas, D. (2012). 'Analytical Mapping of Registered Criminal Activities in Vilnius City', *Geodesy and Cartography*, 38: 134-140.

Benson, M. L., Cullen, F. T., and Maakestad, W. J. (1992). 'Community Context and the Prosecution of Corporate Crime', *White-collar Crime Reconsidered, Proceedings,* Boston: Northeastern University Press.

Birkenmayer, A. C. and Besserer, S. (1997). *Sentencing in Adult Provincial Courts: A Study of Nine Jurisdictions 1993 and 1994*. Ottawa, ON: Statistics Canada.

Blumstein, A., Tonry, M., and Van Ness, A. (2005). 'Cross-national Measures of Punitiveness', *Crime and Justice*, 33: 347-376.

Boesveld, S. (December 5, 2011). 'P.E.I. Judges Craft Their Own Standards for Sentencing DUIs' *National Post* online: http://nationalpost.com/news/canada/p-e-i-judges-craft-their-own-standards-for-sentencing-duis.

Boyd, N., Lowman, J., and Mosher, C. (1987). 'Case Law and Drug Convictions: Testing the Rhetoric of Equality Rights', *Criminal Law Quarterly*, 29: 487-511.

Brantingham, P. L., and Brantingham, P. J. (1993). 'Location Quotients and Crime Hot Spots in the City', In Block, C.R. and Dabdoub, M. (eds.), *Workshop on Crime Analysis through Computer Mapping, Proceedings*. Chicago, IL: Criminal Justice Information Authority.

Brantingham, P. L., and Brantingham, P. J. (1995). 'Location Quotients and Crime Hot Spots in the City', In Block, C.R., Dabdoub, M., and Fregly, S. (eds.), *Crime Analysis through Computer Mapping*. Washington, D.C.: Police Executive Research Forum.

Brantingham, P. L., and Brantingham, P. J. (1998). 'Mapping Crime for Analytic Purposes: Location Quotients, Counts and Rates', In Weisburd, D. and McEwen, T. (eds.), *Crime Mapping and Crime Prevention*. Monsey, N.Y.: Criminal Justice Press.

Breetzke, G. D., and Cohn, E. G. (2013). 'Burglary in Gated Communities an Empirical Analysis using Routine Activities Theory', *International Criminal Justice Review*, 23: 56-74.

Caplan, J. M., Kennedy, L. W., and Petrossian, G. (2011). 'Police-monitored CCTV Cameras in Newark, NJ: A Quasi-experimental Test of Crime Deterrence', *Journal of Experimental Criminology*, 7: 255-274.

Carleton, R., Brantingham, P. L., and Brantingham, P. J. (2014). 'Crime Specialization in Rural British Columbia, Canada', *Canadian Journal of Criminology and Criminal Justice*, 56: 595-622.

Carrington, P., and Moyer, S. (1994). 'Interprovincial Variations in the Use of Custody for Young Offenders: A Funnel Analysis', *Canadian Journal of Criminology*, 36: 271-290.

Constitution Act, 1867 (UK), 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5.

Corrado, R. R., and Markwart, A. (1992). 'The Eolution and Implementation of a New Era of Juvenile Justice in Canada', In Corrado, R., Bala, N., Linden, R., and LeBlanc, M. (eds.) *Juvenile Justice in Canada*. Toronto: Butterworths.

Doob, A. N. (1992). 'Trends in the Use of Custodial Dispositions for Young Offenders', *Canadian Journal of Criminology*, 34: 75-84.

Doob, A. N., and Sprott, J. B. (1996). 'Interprovincial Variation in the Use of the Youth Court', *Canadian Journal of Criminology*, 38: 401-412.

Doob, A. N. and Webster, C. M. (2008). *Concern with Leniency: An Examination of Sentencing Patterns in British Columbia*. Toronto, ON: University of Toronto.

Eisenstein, J., Fleming, R., and Nardulli, P. (1988). *The Contours of Justice: Communities and Their Courts*. Boston: Little, Brown.

Eisenstein, J., and Jacob, H. (1977). *Felony Justice: An Organizational Analysis of Criminal Courts*. Boston: Little, Brown.

Frase, R. S. (2001). *Sentencing in Germany and the United States: Comparing Äpfel with Apples*. Max-Planck-Institute for Foreign and International Criminal Law.

Groff, E. (2011). 'Exploring 'Near': Characterizing the Spatial Extent of Drinking Place Influence on Crime'. *Australian & New Zealand Journal of Criminology*, 44: 156-179.

Groff, E., and McCord, E. S. (2012). 'The Role of Neighborhood Parks as Crime Generators', *Security Journal*, 25: 1-24.

Hogarth, J. (1971). *Sentencing as a Human Process*. Toronto, ON: University of Toronto Press.

Hola, B. (2012). 'Sentencing of International Crimes: Consistency of Case Law', *Amsterdam Law Forum,* 4: 3-24.

Johnson, B. D. (2005). 'Contextual Disparities in Guidelines Departures: Courtroom Social Contexts, Guidelines Compliance, and Extralegal Disparities in Criminal Sentencing', *Criminology*, 43: 761- 796.

Krasnostein, S., and Freiberg, A., (2013). 'Pursuing Consistency in an Individualistic Sentencing Framework: If You Know Where You're Going, How Do You Know When You've Got There?', *Law & Contemporary Problems,* 76: 265-288.

Lynch, J. P. (1988). 'A Comparison of Prison Use in England, Canada, West Germany, and the United States: A Limited Test of the Punitive Hypothesis', *The Journal of Criminal Law and Criminology*, 79: 180-217.

Maxwell, A. (2015). 'Adult Criminal Court Statistics in Canada, 2013/2014', *Juristat*, Ottawa: Canadian Centre for Justice Statistics.

McCord, E. S., and Ratcliffe, J. H. (2007). 'A Micro-Spatial Analysis of the Demographic and Criminogenic Environment of Drug Markets in Philadelphia', *Australian & New Zealand Journal of Criminology*, 40: 43-63.

Mears, D. P. (1998). 'The Sociology of Sentencing: Reconceptualizing Decisionmaking Processes and Outcomes', *Law & Society Review*, 32: 667-724.

Miller, M. M., Gibson, L. J., and Wright, N. G. (1991). 'Location Quotient: A Basic Tool for Economic Development Studies', *Economic Development Review*, 9: 65-68.

Pina-Sánchez, J., and Linacre, R. (2013). 'Sentence Consistency in England and Wales: Evidence from the Crown Court Sentencing Survey', *British Journal of Criminology*, 53: 1118-1138.

Pina-Sánchez, J., and Linacre, R. (2014). 'Enhancing Consistency in Sentencing: Exploring the Effects of Guidelines in England and Wales', *Journal of Quantitative Criminology*, 30: 731-748.

Pina-Sánchez, J., and Linacre, R. (2016). 'Refining the Measurement of Consistency in Sentencing: A Methodological Review', *International Journal of Law, Crime, & Justice*, 44: 68-87.

Pridemore, W. A., and Grubesic, T. H. (2012). 'A Spatial Analysis of the Moderating Effects of Land Use on the Association between Alcohol Outlet Density and Violence in Urban Areas', *Drug & Alcohol Review*, 31: 385-393.

Ratcliffe, J. H., and Rengert, G. F. (2008). 'Near-Repeat Patterns in Philadelphia Shootings', *Security Journal*, 21: 58-76.

Reid, A. A. (2017). 'The Relative Utilization of Criminal Sanctions in Canada: Toward a Comprehensive Description of Sentencing Outcomes', *Canadian Journal of Criminology and Criminal Justice*, 59: 429-460.

Reid, A. A. (2014). 'Revisiting Leniency: An Intra-provincial Study of Sentencing Variation in British Columbia', *Canadian Criminal Law Review*, 18: 39-56.

Roberts, J. V., and Cole, D. P. (1999). *Making Sense of Sentencing*. Toronto: University of Toronto Press.

Roberts, J., and Melchers, R. (2003). 'The Incarceration of Aboriginal offenders: Trends from 1978 to 2001', *Canadian Journal of Criminology and Criminal Justice*, 45: 211-242.

Roberts, J. V. and Reid, A. A. (2017). 'Aboriginal Incarceration in Canada Since 1978: Every Picture Tells the Same Story', *Canadian Journal of Criminology and Criminal Justice*, 59: 313-345.

Robinson, J. B. (2008). 'Crime and Regeneration in Urban Communities: The Case of the Big Dig in Boston, Massachusetts', *Built Environment*, 34: 46-61.

Scanlon, R. L., and Beattie, R. J. G. (1979). *Incarceration as a Sentencing Disposition*. Communication Division, Ministry of the Solicitor General.

Selya, R. M. (2012). 'A Geography of Human Rights Abuses', *Human Rights Quarterly*, 34: 1045-1083.

Sprott, J. B., Webster, C. M., and Doob, A. N. (2013). 'Punishment Severity and Confidence in the Criminal Justice System', *Canadian Journal of Criminology*, 55: 279-292.

Thomson, R. J., and Zingraff, M. T. (1981). 'Detecting Sentencing Disparity: Some Problems and Evidence', *American Journal of Sociology*, 86: 869-880.

Turner, J. (1993). *Sentencing in Adult Criminal Provincial Courts: A Study of Six Canadian Jurisdictions, 1991 and 1992*. Ottawa: Canadian Centre for Justice Statistics.

Ulmer, J. T., & Johnson, B. (2004). 'Sentencing in Context: A Multilevel Analysis', *Criminology*, 42(1), 137-178.

Zhang, H., and Peterson, M. P. (2007). 'A Spatial Analysis of Neighbourhood Crime in Omaha, Nebraska Using Alternative Measures of Crime Rates', *Internet Journal of Criminology*, 31: 1-31.

Tables and Figures

Table 1. Summary Statistics for Single-Guilty Finding Cases by Provincial/Territorial Jurisdiction, 2014-15.

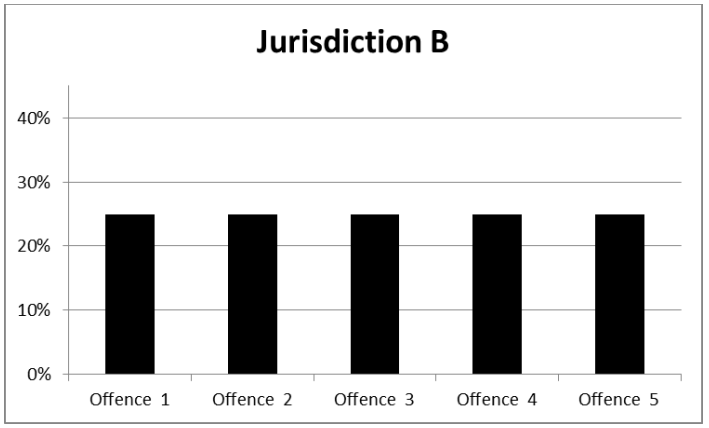
Province/Territory	Impaired Driving	Theft	Fail to Comply with Order	Total Offences
Yukon	110	10	27	362
Northwest Territories	30	9	74	418
Nunavut	69	8	44	573
British Columbia	774	2,311	1,574	15,313
Alberta	4,494	1,279	3,050	17,642
Saskatchewan	2,655	380	677	8,359
Ontario	8,911	3,178	3,359	39,519
Quebec	3,528	1,753	1,394	23,825
New Brunswick	852	291	248	2,993
Nova Scotia	1,195	333	434	4,364
Prince Edward Island	215	87	25	614
Newfoundland	470	350	186	2,186
Combined-Jurisdiction Total	23,303	9,989	11,092	116,168

Figure 1. Hypothetical Example: Direct Measurement of Consistency with Different Local Sentencing Patterns.

a) Cross-jurisdictional comparison of the percent of cases receiving a prison sentence for Offence 1.

b) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction A.

c) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction B.



d) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction C.

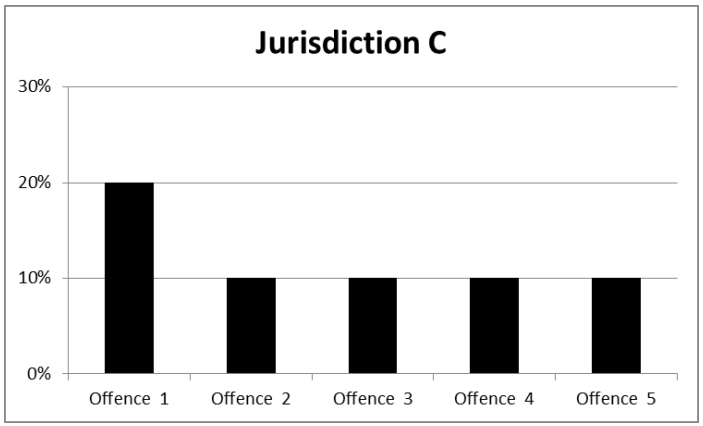
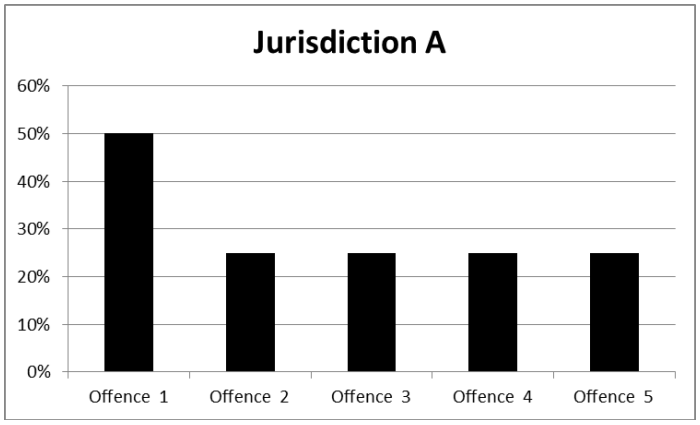


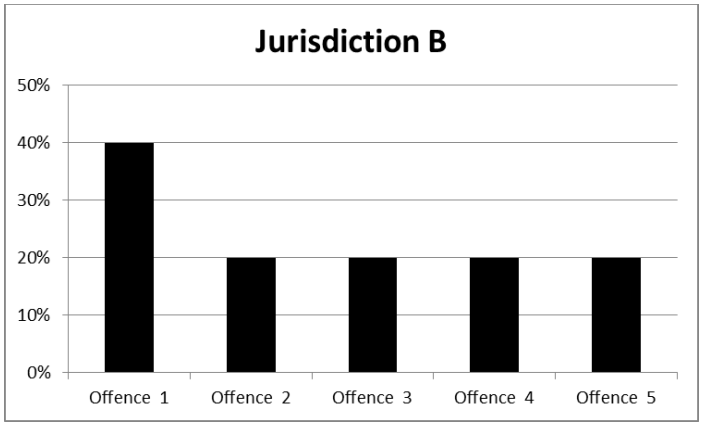
Figure 2. Hypothetical Example: Direct Measurement of Consistency with Proportional Local Sentencing Patterns.

a) Cross-jurisdictional comparison of the percent of cases receiving a prison sentence for Offence 1.

b) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction A.



c) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction B.



d) Cross-offence comparison of the percent of cases receiving a prison sentence for Jurisdiction C.

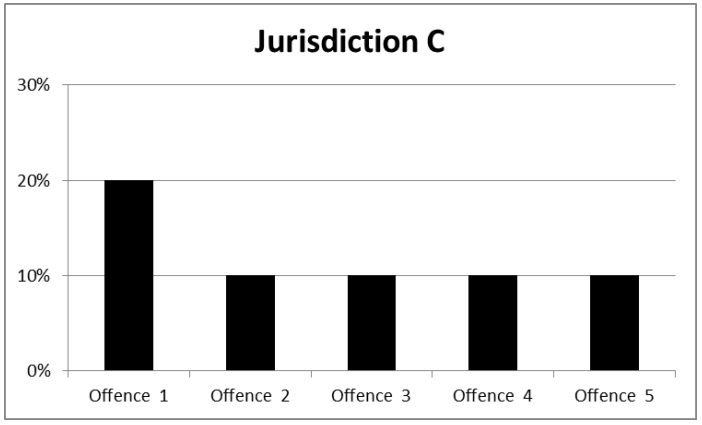
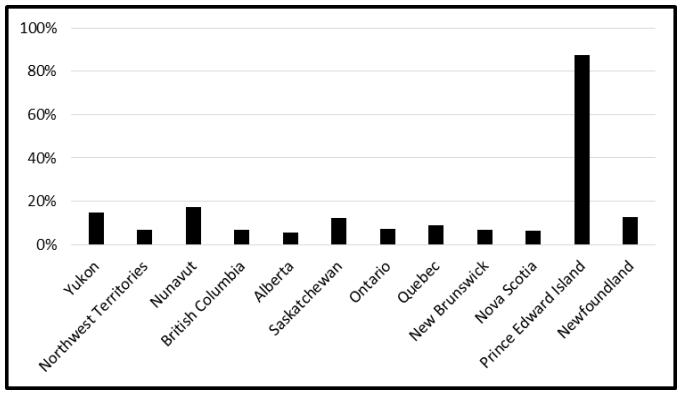
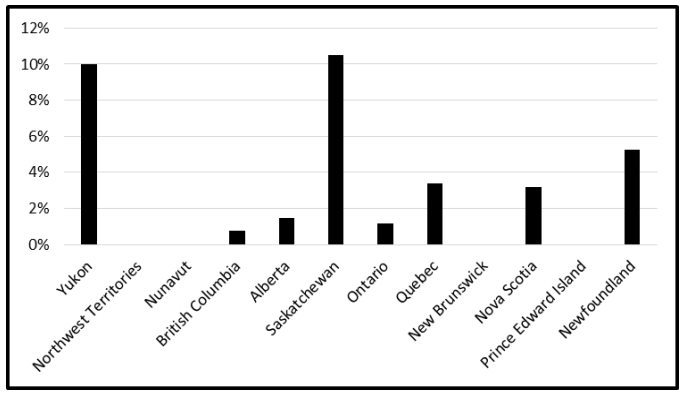


Figure 3. Measures of Jurisdictional Consistency in Sentencing Outcomes, Impaired Driving, 2014-15.

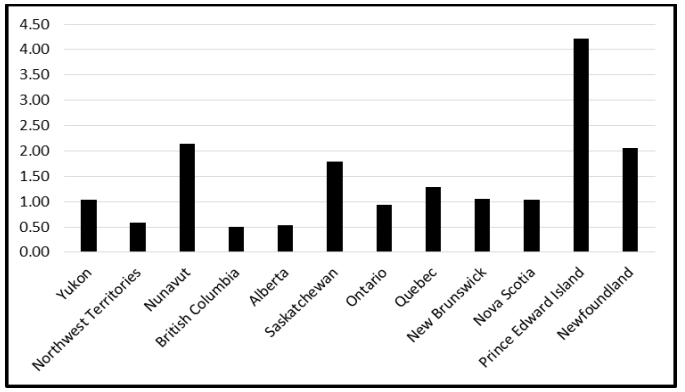
a) Percent custody of total guilty cases.



b) Percent custody longer than 6 months of total guilty cases.



c) Custody specialization quotient.



d) Custody longer than 6 month specialization quotient.

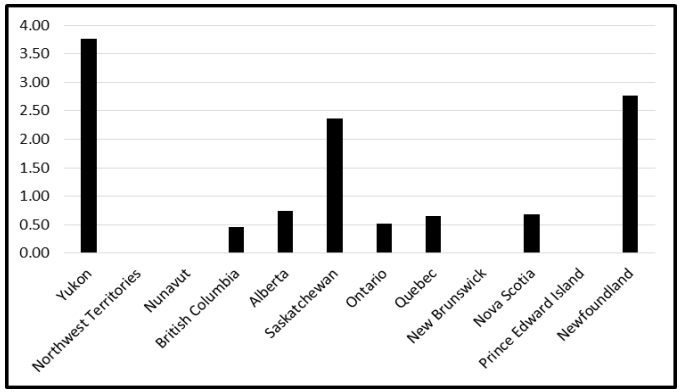
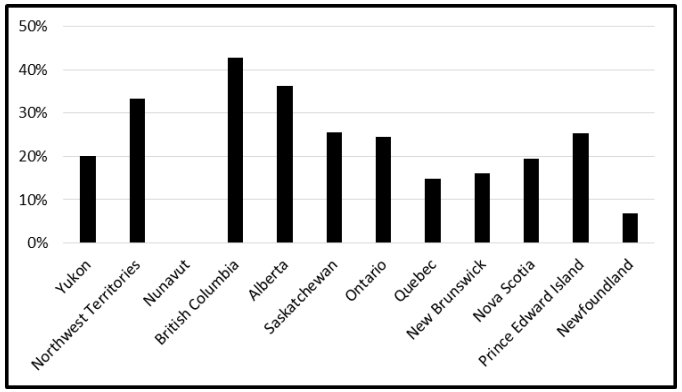
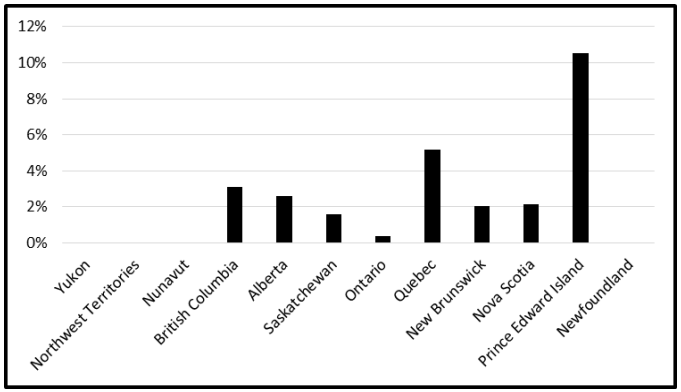


Figure 4. Measures of Jurisdictional Consistency in Sentencing Outcomes, Theft, 2014-15.

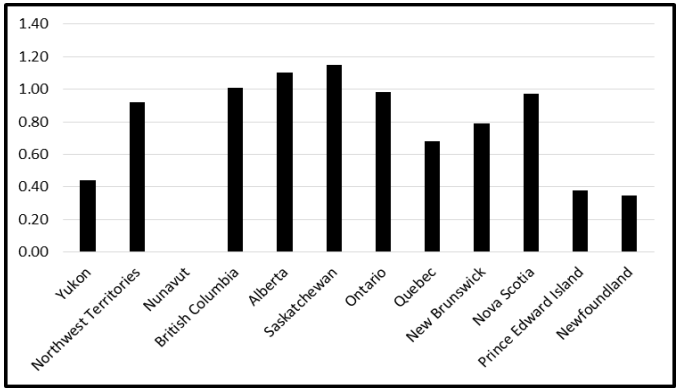
a) Percent custody of total guilty cases.



b) Percent custody longer than 6 months of total guilty cases.



c) Custody specialization quotient.



d) Custody longer than 6 month specialization quotient.

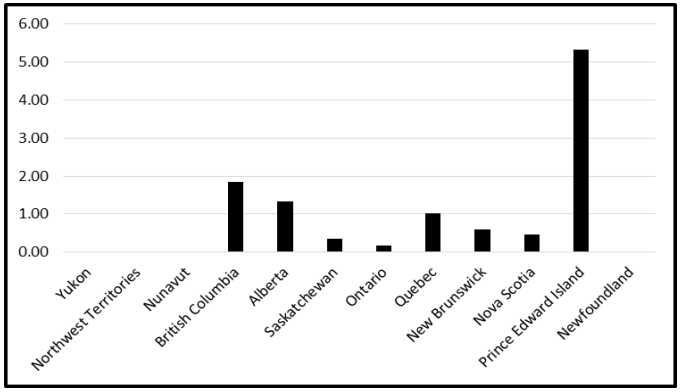
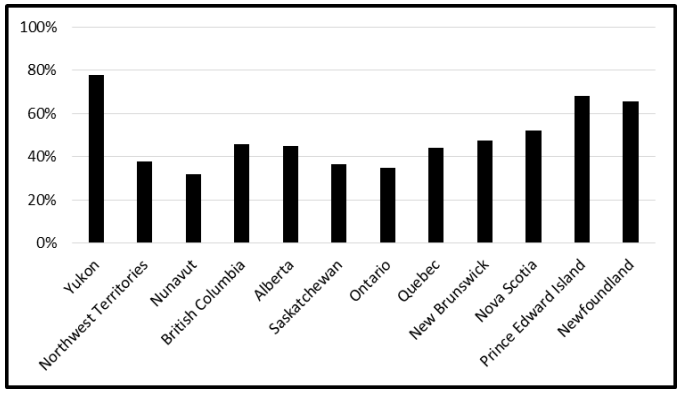
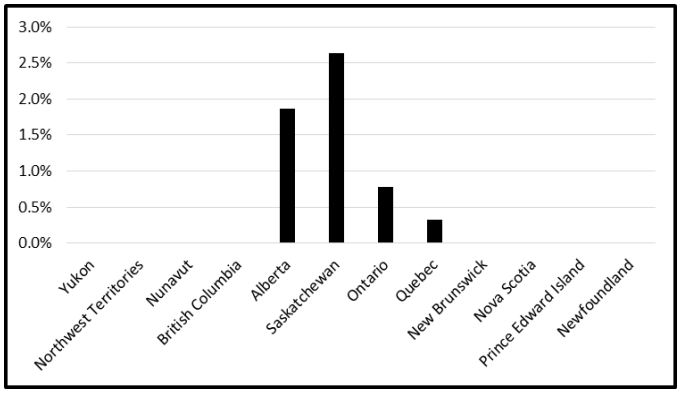


Figure 5. Measures of Jurisdictional Consistency in Sentencing Outcomes, Fail to Comply with Order Cases, 2014-15.

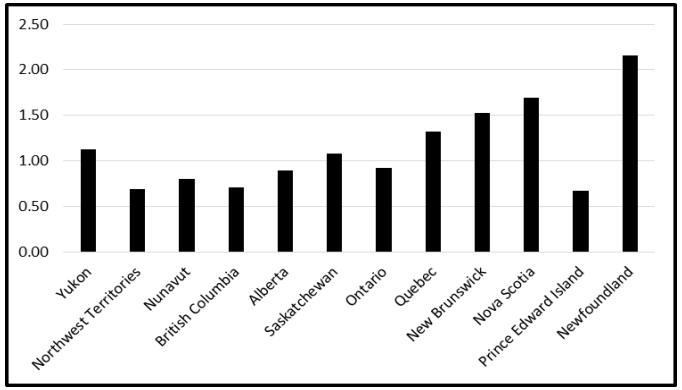
a) Percent custody of total guilty cases.



b) Percent custody longer than 6 months of total guilty cases.



c) Custody specialization quotient.



d) Custody longer than 6 month specialization quotient.