

It's been a long time running: New understandings of crime severity and specialization in Canada's longest running crime capital, North Battleford

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Key Messages

- Crime severity indices can be problematic for understanding crime and victimization in small municipalities.
- North Battleford has been labelled the “crime capital of Canada” for almost a decade, despite having very low specialization in violent crime compared to the province of Saskatchewan.
- The location quotient is an alternative metric that provides practitioners and policymakers with an additional measure of crime specialization.

Until last year, North Battleford, Saskatchewan has held the title for the “crime capital of Canada” with the highest crime severity index in the country. While the crime severity index is considered a better measure of crime seriousness compared to crime rates, it is still largely influenced by population size. As a result, the small municipality of North Battleford, with a population of approximately 14,000 people, may be inappropriately labelled as the crime capital. The current study compares the crime severity index and crime rates against the location quotient: a geographical measure. The location quotient calculates an area's crime specialization, compared to surrounding areas. In the period 2006 to 2018, findings indicate that North Battleford did not specialize in violent crime compared to other municipal police jurisdictions in Saskatchewan. Implications for policy and practice, as well as local narratives and stigmatization, are discussed.

Keywords: location quotient, crime severity index, crime measurement, North Battleford, Canada

Un récit ayant la vie dure : nouveau regard sur les caractéristiques de la criminalité dans la plus ancienne capitale du crime au Canada, North Battleford

Jusqu'à l'an dernier, North Battleford, en Saskatchewan, détenait le titre de « capitale du crime au Canada » selon les statistiques sur la criminalité au pays. Bien que l'indice de gravité de la criminalité soit considéré comme une meilleure mesure de la criminalité que le taux de criminalité, cet indice est encore largement influencé par la taille de la population. En conséquence, la petite municipalité de North Battleford, avec une population approximative de 14 000 personnes, est peut-être faussement étiquetée comme haut-lieu du crime. La présente étude compare l'indice de gravité de la criminalité et les taux de criminalité à l'aide du quotient de localisation, soit une mesure plus précise sur le plan géographique. Le quotient de localisation indique la concentration du crime dans un secteur comparativement aux secteurs environnants. Nos résultats, qui sont reliés à la période de 2006 à 2018, illustrent le fait que la municipalité de North Battleford n'est pas spécialisée dans la criminalité violente comparativement à d'autres

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municipalités de la Saskatchewan. Ces conclusions nous amènent à questionner les politiques publiques, les pratiques policières de même que les récits populaires et la stigmatisation qui en découle.

Mots clés : quotient de localisation, indice de gravité de la criminalité mesure de la criminalité North Battleford, Canada

Introduction

The crime severity index (CSI) in Canada is considered an improvement over crime rates as a measure of crime. The CSI accounts for the seriousness of certain crimes (e.g., homicide, sexual assault, etc.) by weighting them more heavily in its calculation, resulting in a weighted measure of crime for Canadian municipalities (Babyak et al. 2009). Since this index was introduced in 2009, North Battleford, Saskatchewan, has held the highest CSI for a municipality in Canada, based on 305 municipalities with a population of 10,000 or more people, for ten years. In 2018, North Battleford had a CSI of 385, 5% higher than the second-ranked community of Thompson, Manitoba, with a CSI of 367 (Statistics Canada 2019b). In 2019, for the first time in ten years, and since the CSI was released in 2009, North Battleford dropped to second place (CSI: 437) behind Thompson, Manitoba (CSI: 501) (Statistics Canada 2019b). As a result of their longstanding first-place position for crime severity, North Battleford has received its fair share of attention. The residents and service providers of North Battleford have been overrun with journalists attempting to understand what made the small municipality of about 14,000 people so dangerous (Hodgkinson et al. 2020). Newspaper articles and television reports flourished, with one news outlet going as far as to emblazon “Crime Town” across North Battleford’s water tower in an investigative video report on the city (Haines 2018).

Despite these reports, a recent representative victimization survey of North Battleford demonstrated that residents reported relatively little violent victimization (Hodgkinson 2019). Furthermore, local city planners and community safety officers have been working hard to implement crime prevention strategies and build social cohesion and collective efficacy—two known protective factors against crime (Sampson et al. 1997; Hodgkinson et al. 2020). So how do we reconcile these rankings against the on-the-ground experiences of North Battleford’s residents?

The CSI assigns a weighting based on the seriousness of each crime included in the

numerator. Serious crimes, such as violence, are weighted more heavily (Babyak et al. 2009). The result allows for comparison of crime seriousness across the country. However, both crime rates and the CSI are still limited by one problem: the denominator. A small municipality, like North Battleford, is more likely to be impacted by small changes in crime incidents, than a larger municipality like Saskatoon. For example, if we are referencing crime rates, one homicide in a community of 14,000 people (North Battleford) compared to one homicide in a community of 273,000 people (Saskatoon) would produce a homicide rate of 7.14 and 0.37 per 100,000, respectively. While this example may seem extreme, these are typical calculations and would only produce higher CSI values considering that homicide is the highest weighted crime type in the CSI. In addition, because of the population denominator, small municipalities may be unfairly deemed as “crime capitals” because of few, relatively rare, violent events that may not translate to actual risk for residents.

Canada’s small municipalities consistently have higher crime rates and score higher on the CSI. Indeed, as of 2019, Thompson, Manitoba, also with a population of approximately 14,000, has been named the crime capital of Canada, pushing North Battleford into second place (VanReas 2019). This has implications for how we understand crime and safety in these communities, including how these communities understand themselves (Leverentz 2012; Holt and Wilkins 2015). Furthermore, these understandings can impact how we develop crime prevention policy. The following study proposes using an alternative to crime rates and the CSI—the crime location quotient (LQ)—to better understand crime, and crime specialization, in small municipalities like North Battleford.

LQs emerged out of economic geography and have gained traction in criminology to address the limitations of crime rates (Brantingham and Brantingham 1998; Andresen 2007; Wuschke et al. 2021). LQs do not suffer from the population denominator issue. Rather than population counts, the denominator for LQs is total crime for the research

area. This standardizes the metric based on crime, rather than population, and produces a figure for crime specialization. For example, the total crime counts of a crime type like assault for North Battleford, can be compared against the total assault counts for the entire province of Saskatchewan or beyond. The study examines the LQs for North Battleford, Saskatchewan, for all crime (including traffic), property crime, and violent crime against all other municipal police jurisdictions in the province of Saskatchewan. The study assesses if using population-based metrics to label small municipalities as “Canada's Most Dangerous Places” (Markusoff 2017) are appropriate considering the volatile nature of this form of measurement. Furthermore, this study aims to examine if our understandings of crime specialization in small municipalities, and how to shape policy to address crime, may be improved by more appropriate metrics.

Background

The CSI is the first significant change in crime measurement in Canada since the 1960s. It was designed to determine if police-reported crimes were increasing or decreasing in seriousness over time (Babyak et al. 2009). More serious crimes were assigned a weighting based on sentencing surveys of adult and youth criminal courts across Canada. This weighting included both the incarceration rate and the average prison sentence in days for the offence type. These are multiplied in order to determine the final seriousness weight, and these calculations are refreshed every five years based on the most current sentencing data. The CSI not only allowed municipalities to compare crime seriousness over time, but reduced differences in jurisdictional police reporting (Babyak et al. 2009).

Crime rates and crime severity indices have long been critiqued for their susceptibility to fluctuations in population. While both are preferred to crime counts, in that they normalize total counts of crime and allow for comparison across different locations (Brantingham and Brantingham 1998), they are less useful when large portions of a country are regional or rural. In Canada, where 63% of the population does not live in the 15 largest municipalities, crime rates can be problematic when comparing across such a large range of

geographies (Statistics Canada 2019c). Furthermore, crime rates and crime severity indices also fail to account for ambient populations. On any given day, urban centres can dramatically increase in population size, as people from surrounding regional and rural areas enter these centres for work or leisure and create new opportunities or targets for crime (Carcach and Muscat 2002; Andresen 2006). Additionally, the CSI does not use objective sentencing guidelines, but rather sentencing surveys that are affected by criminal history, time served on remand, conditional sentences, and judicial decision making (Sherman et al. 2016). Finally, while the CSI allows some indication of areas that have higher rates of violent crime, they are not particularly useful for policymakers with regard to crime prevention strategies, as they do not provide much information about what is driving crime in high crime areas (Andresen 2007; Carleton et al. 2014). Clearly, the dependency of crime rates and CSIs on a fixed census population creates problems for comparing fluctuating population centres and dramatically different population sizes, while also providing little guidance on how to address these rates.

An LQ offers a useful alternative to crime rates. LQs allow the researcher to examine the specialization of whichever crime type is being measured in comparison to a larger geographical area, such as a region, province, or country (Andresen 2007). LQs have a long history of use in other fields. Extensively used in economics (Feldman and Florida 1994; Isard et al. 1998; Beyene and Moineddin, 2005; Delgado et al. 2014), their adoption in criminological research has increased significantly. First introduced to criminologists by Brantingham and Brantingham (1993), LQs have subsequently been used to explore crime issues in general (Hirschfield and Bowers 1997; Brantingham and Brantingham 1998; Andresen 2007; Robinson 2008), as well as illegal drug crime and drug arrests (Rengert 1996; burglary (Breetzke and Cohn 2013), alcohol density and violence (Pridemore and Grubestic 2012), crime generators and attracters (Caplan et al. 2011), and rural/regional comparisons of crime specialization (Carleton et al. 2014).

LQs aim to answer the question of whether an area has a particular crime problem, such as burglary or domestic violence, or if it is a high crime area more generally (Andresen 2007). LQs

take the percentage of a specific crime type in a municipality (e.g., homicide counts for North Battleford divided by total crime counts in North Battleford), and then divides that by the percentage of that crime type in the area of comparison (e.g., homicide counts for all of Saskatchewan, divided by total crime counts for all of Saskatchewan), producing a figure that represents crime specialization in that given context (Andresen 2007). As such, LQs are arguably more useful than crime rates and crime severity indices in that they are not population dependent, but rather rely on crime counts entirely, using the number of incidents to produce the relative concentration of crime in an area.

The focus on crime counts, rather than population, is important when considering understandings of crime concentration (Weisburd 2015). Crime is not an amorphous concept. Criminal events require a motivated offender, a suitable target, and a lack of capable guardianship (Cohen and Felson 1979). All of these components need to come together in time and space for a criminal event to occur (Sacco and Kennedy 2010). Thus, geography is paramount to the understanding of crime and crime opportunities. Crime is known to concentrate in certain places and not others (Eck and Weisburd 1995). While crime rates and crime severity indices may offer a generalized understanding of the rate of these events in any given area, they provide very little information about how criminal opportunities emerge in this area and how to address these opportunities.

Different crime types also have different aetiologies (Frank et al. 2012). For example, a metropolitan area like Toronto may offer very different criminal opportunities, compared to a farming community in central British Columbia, or a fly-in, fly-out mining town in Alberta. As a result, certain crime types like robbery, stock theft, or illegal drug markets, may exist in some places and not others (Andresen 2007). It is not particularly useful to aggregate dissimilar crime types if specific crime types have unique spatial patterns (de Melo et al. 2015). A geographical measure, like an LQ, provides an alternative for understanding crime in a location- and opportunity-specific way. While the CSI tells us little about the specific crime types that are causing problems in any given community, the LQ identifies areas that are over- or under-represented for certain crime types. This

allows for analysis of the different causes and correlations of that crime type, including social and economic conditions and the opportunity structures of that geographic area (Brantingham and Brantingham 1998).

The current study

The current study compares crime rates, CSIs, and LQs to determine if North Battleford was indeed the most dangerous municipality in 2018. While North Battleford has been labelled the crime capital of Canada, the current study examines North Battleford in the context of the province of Saskatchewan in an attempt to compare the municipality to other municipalities in close proximity and within the province in which it is situated; Saskatchewan leads the country in the highest crime rates and severity indices (Statistics Canada 2019b). The study evaluates the crime rate, CSI, and LQ of 15 municipal police jurisdictions in Saskatchewan in the year 2018. These analyses examine violent and non-violent crime (including traffic), and then compare crime types within these categories—including violent crimes such as assault, sexual assault, robbery, and non-violent crimes, such as break and enter, theft of motor vehicle, theft from motor vehicle (under \$5,000), theft under \$5,000, and mischief. Homicide is not included, as the counts of homicide for the 15 municipalities are generally null. The study also examines the average, range, and standard deviation for LQs for violent crimes (assault, sexual assault, and robbery) for the period 2006 to 2018 in order to illuminate any violent patterns for Canada's allegedly most dangerous municipality, compared to other municipalities in the same province.

The population of Saskatchewan was 1.174 million persons, with a CSI of 140 in 2018 (Statistics Canada 2019b). Located between Alberta and Manitoba and below the North West Territories, the central Canadian province is predominantly populated in its southern regions. The northern areas of Saskatchewan are covered by boreal forest and largely uninhabited. Approximately 71% of the population identifies as European Canadian and 16% of the population identifies as First Nations or Métis (Statistics Canada 2019a). There are 91 police jurisdictions in Saskatchewan, most of which are defined as rural. For the purposes of this study, only

police jurisdictions defined as municipalities, or urban areas, by Statistics Canada—over 1,000 persons and a density of 400 or more persons per km—are included in order to allow for clearer comparison with the area of interest: North Battleford. It should be noted that File Hills First Nations is excluded as the jurisdiction polices a large portion of Saskatchewan representing five First Nations communities with a total population of less than 2,000 people. In addition, municipal jurisdictions were chosen because several rural communities have inconsistent or missing data for the study time frame.

Data

The data for this study were downloaded from the Uniform Crime Reporting 2 survey for Statistics Canada. These data consist of the crime counts for all violent crimes, as well as specific violent crimes including assault (level 1, 2, and 3), sexual assault (level 1, 2, and 3), robbery, and all non-violent crimes (including traffic) and specific non-violent crimes including break and enter, theft of motor vehicle, theft from motor vehicle (under \$5,000), theft under \$5,000, and mischief, for 15 municipalities in Saskatchewan, Canada in 2018. In addition, data for 2006 to 2018 for all violent incidents, assaults, sexual assaults, and robberies was extracted to allow for a longitudinal comparison of violent offences (weighted more heavily in the CSI) across these 15 municipalities. In 2018, the population of the smallest municipality, Dalmeny, was approximately 1,939 people while the population of the largest municipality, Saskatoon, was approximately 268,187 people.

Methods

The LQ was calculated alongside the crime rate and the CSI for 15 municipalities in Saskatchewan to evaluate the crime patterns in these municipalities. Since North Battleford held the highest CSI in Canada from 2009 to 2018, the study uses the LQ to compare North Battleford against 14 other municipal police jurisdictions in the same province to determine if North Battleford is particularly violent, or if this measure is rather a product of population size. The LQ creates a ratio of the percentage of a crime type in one jurisdiction

relative to the percentage of that crime type for all of Saskatchewan. The LQ is calculated as follows:

$$LQ = \frac{C_{in}/C_{tn}}{\sum_{n=1}^N C_{in}/\sum_{n=1}^N C_{tn}}, \quad (1)$$

where C_{in} is the count of crime i in municipality n , C_{tn} is the count of all crimes in municipality n , and N is the total number of municipalities. The LQ is calculated for violent and non-violent (including traffic) crime as well as the eight crime types listed above to determine if there is one particular crime type that is driving the CSI for North Battleford. In order to assess if an area is over or under-represented, Miller et al. (1991) proposes the following criteria for the LQ ratio:

- > 1.30 is a very over-represented area,
- > 1.10 to 1.30 is moderately over-represented,
- > 0.90 to 1.10 is averagely represented,
- > 0.70 to 0.90 is under-represented, and
- 0.00 to 0.70 is a very under-represented area.

The crime rate is calculated by dividing the number of police-reported incidents by the estimated population for each jurisdiction for 2018 and multiplying that figure by 100,000 people. The CSI is calculated by multiplying the number of police-reported incidents for each incident type by the weight of that incident type (e.g., homicide has a weighting of approximately 7,000, sexual assault has a weighting of approximately 1,000, robbery has a weighting of approximately 575, and mischief has a weighting of approximately 30). These weighted offences are added together and divided by the estimated population total for that jurisdiction in 2018, and then standardized by 100 (see Babyak et al. 2009 for original weightings and methodology).

Crime rates and CSIs are calculated for all crime in 2018 (violent and non-violent). Crime rates, CSIs, and LQs are calculated for violent and non-violent crimes in 2018. Crime rates and LQs are then calculated for assault, sexual assault, robbery, break and enter, theft of motor vehicle, theft from motor vehicle (under \$5,000), theft under \$5,000, and mischief.

Finally, the average, range, and standard deviations for LQs for violent crimes and violent crime

Table 1
Crime rate/CSI—total 2018

Rank	Jurisdiction	Rate	Jurisdiction	CSI
1	North Battleford	40,536.05	North Battleford	384.57
2	Meadow Lake	40,380.00	Meadow Lake	343.12
3	Prince Albert	19,519.40	Prince Albert	238.04
4	Yorkton	17,039.52	Yorkton	151.28
5	Moose Jaw	11,719.73	Saskatoon	133.08
6	Regina	10,741.95	Regina	132.49
7	Saskatoon	10,488.54	Moose Jaw	121.16
8	Estevan	8888.51	Weyburn	92.78
9	Weyburn	8780.18	Estevan	86.99
10	Swift Current	8637.99	Swift Current	83.01
11	Melfort	6687.13	Melfort	65.00
12	Humbolt	5849.31	Humbolt	57.93
13	Martensville	3637.89	Martensville	37.83
14	Warman	2811.13	Warman	28.02
15	Dalmeny	2114.49	Dalmeny	23.85

types (assault, sexual assault, and robbery) from 2006 to 2018 are calculated and reported. These crimes are more heavily weighted than non-violent crimes and thus are more likely to impact the CSI. For example, sexual assault level 3 is weighted at 1047 (sexual assault level 2 and 1 are weighted at 678 and 211, respectively), robbery is weighted at 583, and assault level 3 is at weighted 405 (assault level 2 and 1 are weighted at 77 and 23, respectively), while breaking and entering (the highest weighted non-violent crime in this study) is weighted at 187. These calculations are provided for all 15 municipal police jurisdictions in Saskatchewan.

Results

Total crime rates and CSIs for 2018 in the 15 municipalities in Saskatchewan are provided in Table 1. For ease of comparison, each municipality is ranked from highest to lowest for each measurement. Unsurprisingly, North Battleford ranks the highest for both crime rate (40,536.05 per 100,000) and CSI (384.57) in 2018. Meadow Lake (population of approximately 5,400) ranks second for both crime rate (40,380.00 per 100,000) and CSI (343.12). Dalmeny (population of approximately 1,900) ranks the lowest with a crime rate of 2,114.49 per 100,000 and a CSI of 23.85. While a few jurisdictions rank somewhat higher for CSI

than crime rate (or vice versa), most jurisdictions rank equally or within one or two rankings for both crime rates and crime severity indices. North Battleford's crime rate and CSI are approximately 19 and 16 times higher than Dalmeny's, respectively in 2018. However, both measures are less than 1% higher and approximately 12% higher, respectively, than the second place municipality of Meadow Lake.

Crime rates, CSIs, and LQs for all violent crime in 2018 in the 15 municipalities in Saskatchewan can be found in Table 2. While North Battleford maintains the highest CSI (362.11) and crime rate (4896.46) it drops to 12th place out of 15 for LQs (0.77) for violent crime in that year. Furthermore, according to the criteria for LQs, North Battleford is an under-represented area for violent crime in 2018, only exhibiting 0.77 times the expected violence, based on the province as a whole. Estevan is very over-represented (LQ = 1.39) and Dalmeny, Warman, Humbolt, Yorkton, and Swift Current are moderately over-represented areas (1.25, 1.25, 1.23, 1.22, and 1.15, respectively) for violent crime in Saskatchewan in 2018. These areas would be considered to specialize in violent crime.

Table 3 provides the crime rates, CSIs, and LQs for all non-violent crimes (including traffic) in 2018 in the 15 municipalities of Saskatchewan. Again, while North Battleford holds the highest CSI (391.75), it drops to third place for LQs (1.04) for non-violent crime in that year. This ratio shows North Battleford with average representation for non-violent crime. Indeed, all 15 municipalities in the study have average representation for non-violent crime.

Figures 1 and 2 show the crime rates and LQs for 2018 for a variety of violent and non-violent crime types. Each point in each scatterplot represents the value for a municipality's crime rate and LQ, on the horizontal and vertical axes, respectively. The horizontal line on each scatterplot marks a value of 1 for the LQ, identifying average representation. And the vertical line in each scatterplot represents Saskatchewan's average crime rate. The quadrants allow for the easy identification of municipalities with over/under representation (LQs) and above or below average crime rates for each crime type.

Figures 1a, 1b, and 1c provide the crime rate and LQs for 2018 for sexual assault, assault, and robbery, respectively. The CSI is not calculated for specific crime types. When broken down by these

Table 2
2018 crime rate/CSI/LQ—violent

Rank	Jurisdiction	Rate	Rank	Jurisdiction	CSI	Rank	Jurisdiction	LQ
1	North Battleford	4896.46	1	North Battleford	362.11	1	Estevan	1.39
2	Meadow Lake	4648.59	2	Prince Albert	288.87	2	Dalmeny	1.25
3	Yorkton	3244.77	3	Meadow Lake	269.81	3	Warman	1.25
4	Prince Albert	2961.84	4	Yorkton	156.38	3	Humbolt	1.23
5	Estevan	1941.66	5	Saskatoon	126.16	5	Yorkton	1.22
6	Swift Current	1551.15	6	Regina	123.42	6	Swift Current	1.15
7	Moose Jaw	1409.33	7	Moose Jaw	100.47	7	Weyburn	0.99
8	Weyburn	1356.36	8	Swift Current	78.35	8	Prince Albert	0.97
9	Saskatoon	1288.65	9	Estevan	71.09	9	Melfort	0.96
10	Regina	1269.46	10	Melfort	55.66	10	Martensville	0.82
11	Humbolt	1123.60	11	Weyburn	53.72	11	Saskatoon	0.78
12	Melfort	1001.45	12	Humbolt	49.46	12	North Battleford	0.77
13	Warman	550.93	13	Dalmeny	34.23	13	Moose Jaw	0.77
14	Martensville	465.20	14	Martensville	30.47	13	Regina	0.75
15	Dalmeny	412.58	15	Warman	26.39	15	Meadow Lake	0.73

three violent crime types, North Battleford has the second highest crime rate for sexual assaults (207.77), but the lowest LQ (0.59), very under-represented (lower-right quadrant). Conversely, in 2018, Dalmeny has the ninth highest crime rate for sexual assault but has the highest LQ (5.61). Dalmeny is very over-represented, along with Warman (2.02), Humbolt (1.63) Melfort (1.39), Estevan (1.34), and Swift Current (1.31).

Figure 1b shows that North Battleford also has the second highest crime rate for assault (1946.12), but the 12th highest for LQ (0.70). Again, North

Battleford is very under-represented for assault in 2018 (lower-right quadrant). Dalmeny holds the highest LQ (1.26) for 2018 and is over-represented for assault. In Figure 1c, the crime rate and LQ rankings for robbery in North Battleford are more equal, but still in the lower-right quadrant. North Battleford's crime rate for robbery holds second place to Prince Albert with a rate of 263.18. Alternatively, North Battleford's robbery LQ holds fourth place at 0.97. However, this indicates that while North Battleford may experience more robbery, compared to the other 15 municipalities, it is

Table 3
2018 crime rate/CSI/LQ—non-violent

Rank	Jurisdiction	Rate	Rank	Jurisdiction	CSI	Rank	Jurisdiction	LQ
1	Meadow Lake	35,731.41	1	North Battleford	391.75	1	Regina	1.05
2	North Battleford	35,639.59	2	Meadow Lake	368.68	1	Meadow Lake	1.05
3	Prince Albert	16,557.56	3	Prince Albert	219.19	3	Saskatoon	1.04
4	Yorkton	13,794.75	4	Yorkton	149.08	3	Moose Jaw	1.04
5	Moose Jaw	10,310.40	5	Regina	135.44	3	North Battleford	1.04
6	Regina	9472.49	6	Saskatoon	135.25	6	Martensville	1.03
7	Saskatoon	9199.90	7	Moose Jaw	128.31	7	Prince Albert	1.01
8	Weyburn	7423.82	8	Weyburn	106.62	7	Melfort	1.01
9	Swift Current	7086.84	9	Estevan	92.50	9	Weyburn	1.00
10	Estevan	6946.85	10	Swift Current	84.49	10	Swift Current	0.97
11	Melfort	5685.68	11	Melfort	68.20	11	Humbolt	0.96
12	Humbolt	4725.71	12	Humbolt	60.84	11	Yorkton	0.96
13	Martensville	3172.69	13	Martensville	40.38	13	Warman	0.95
14	Warman	2260.21	14	Warman	28.54	13	Dalmeny	0.95
15	Dalmeny	1701.91	15	Dalmeny	20.06	15	Estevan	0.93

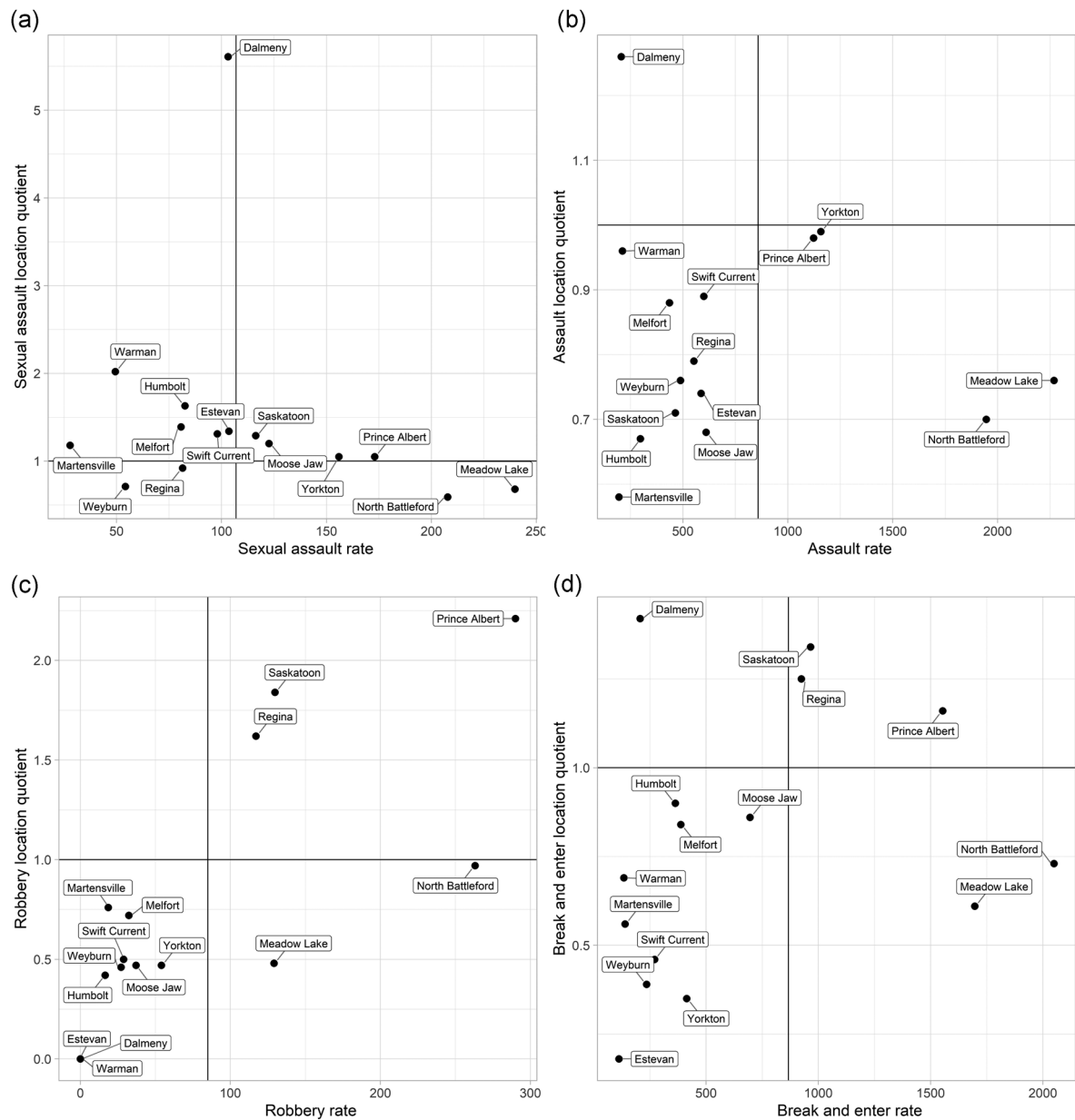


Figure 1 2018 crime rates and location quotients: sexual assault, assault, robbery, break and enter.

still averagely represented. Based on LQs, Prince Albert (2.21), Saskatoon (1.84), and Regina (1.62) are very over-represented for robbery. Figures 1d, 2a, 2b, 2c, and 2d provide the crime rates and LQs for non-violent crime types in 2018.

As this study focuses on the need to better understand crime severity beyond crime rates and the CSI, and the CSI is largely driven by violent crimes, only the key points of these figures are explored. In Figure 1d, North Battleford ranks first

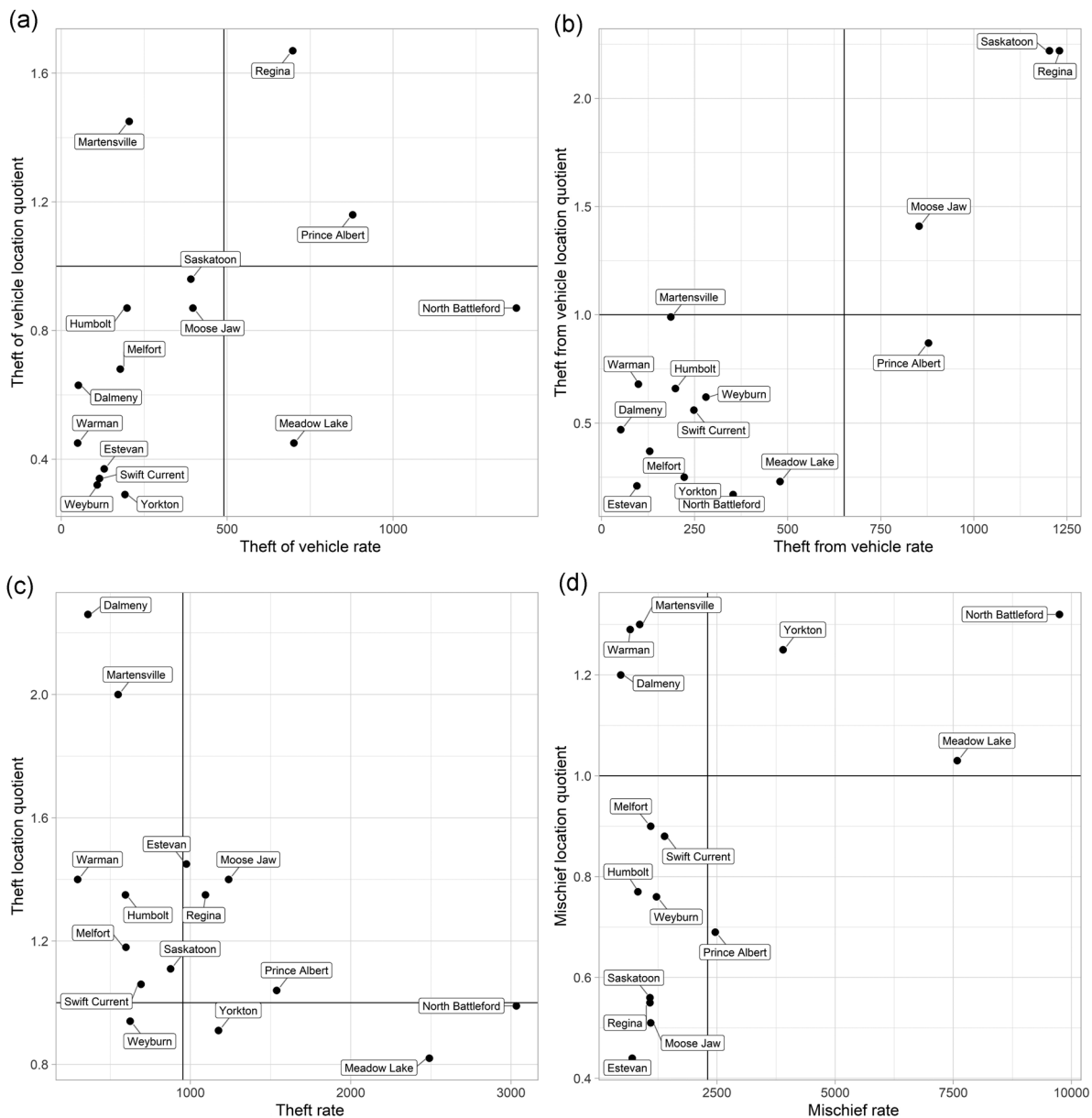


Figure 2 2018 crime rates and location quotients: theft of vehicle, theft from vehicle, theft, mischief.

for break and enter rates (205.00), but eighth for LQs (0.73), indicating that North Battleford is under-represented. Comparatively, Dalmeny ranks 12th in break and enter rates for 2018 (206.29), but holds first place for LQ (1.42) and is very over-represented.

In Figure 2a, North Battleford ranks first for theft of motor vehicle rates (1371.29) but fifth for LQs (0.87) and is under-represented. Regina holds the highest LQ (1.67) and is very over-represented in 2018. Results for theft from motor vehicle (under \$5,000) for 2018 can be found in Figure 2b. North

Battleford ranks sixth in terms of rates (353.21), but 15th for LQ (0.17) and is very under-represented (lower-left quadrant). Regina and Saskatoon hold both the highest rates (1230.00 and 1202.89, respectively) and the highest LQs (both 2.22) and are very over-represented.

Figures 2c and 2d show that North Battleford holds the highest rates of theft (under \$5,000) and mischief in 2018 (3033.45 and 9744.44, respectively). However, North Battleford has an LQ of 0.99 for theft (under \$5,000), indicating average representation in 2018. Mischief is the only crime type, across all the crime types identified in this study, in which North Battleford holds a high rank of first place for its LQ (1.32) and is very over-represented (upper-right quadrant).

Finally, Table 4 provides some context for the violent crime types across the years 2006 to 2018, providing the average, range, and standard deviation for LQs values. As mentioned, the CSI is impacted more dramatically by violent crime types. While this study has attempted to showcase all crime types for comparison, the consistency of the LQs for these violent crime types will matter most for determining the usefulness of the LQ measure. Table 4 examines the three violent crime types in this study across 13 years, to showcase both anomalies and consistencies with the 2018 findings. For each crime type column, (including total violence), the bolded

values correspond with the largest averages—the most specialized area across the 13 years. Equally, in each column, both bolded and italicized values correspond with the lowest averages for the least specialized area.

On average, Estevan has the highest LQ (average 1.16) between 2006 and 2018. Estevan is a moderately over-represented area for violent crime during this time frame. Moose Jaw has the lowest LQ average for this time frame (average 0.70) and is fairly consistent across 13 years. Melfort holds the highest LQ for assault between 2006 and 2018, however this LQ (0.94) indicates an average representation. Dalmeny has the highest LQ for sexual assault (2.69) and is a very over-represented area. However, this value is the most volatile. Moose Jaw holds the lowest average for assault (0.62) and North Battleford holds the lowest average LQ for sexual assault (0.60) from 2006 to 2018. Saskatoon holds the highest average LQ for robbery (2.39), with some volatility over the 13 years. While Dalmeny has an LQ of 0.00 for the 13 years (there were no police-reported robberies in Dalmeny during this time frame), Weyburn has the second lowest average LQ of 0.14. On average, North Battleford does not specialize in violence, or any violent crimes (assault, sexual assault, or robbery) between 2006 and 2018. Indeed, it is an under-represented and very under-represented area in Saskatchewan during this time.

Table 4
Average, standard deviation, and range for LQ violent and violent offences for 2006–2018 for 15 municipalities

Location	Total Violent LQ	Assault LQ	Sexual Assault LQ	Robbery LQ
Saskatoon	0.89 (0.08) 0.78–0.98 (0.20)	0.82 (0.08) 0.70–0.92 (0.23)	1.14 (0.13) 0.97–1.31 (0.34)	2.39 (0.30) 1.84–2.76 (0.92)
Regina	0.79 (0.03) 0.74–0.83 (0.09)	0.83 (0.04) <i>0.75–0.88 (0.14)</i>	0.86 (0.07) <i>0.74–1.00 (0.25)</i>	1.86 (0.27) 1.34–2.25 (0.91)
Prince Albert	0.89 (0.09) 0.75–0.98 (0.22)	0.86 (0.11) 0.68–0.98 (0.30)	1.10 (0.18) 0.90–1.44 (0.53)	1.88 (0.29) 1.41–2.23 (0.82)
Moose Jaw	0.70 (0.09) 0.58–0.80 (0.23)	0.62 (0.13) 0.46–0.83 (0.37)	0.92 (0.20) 0.58–1.20 (0.62)	0.47 (0.17) 0.24–0.82 (0.58)
Swift Current	0.99 (0.19) 0.76–1.32 (0.56)	0.73 (0.18) 0.50–1.06 (0.56)	1.08 (0.43) 0.57–1.72 (1.15)	0.29 (0.18) 0.08–0.68 (0.59)
Yorkton	0.98 (0.19) 0.75–1.25 (0.50)	0.87 (0.14) 0.70–1.09 (0.39)	1.19 (0.57) 0.71–2.51 (1.80)	0.53 (0.28) 0.20–0.99 (0.79)
North Battleford	0.84 (0.05) 0.76–0.93 (0.17)	0.83 (0.08) 0.70–0.94 (0.24)	0.60 (0.14) 0.41–0.89 (0.48)	0.70 (0.22) 0.26–0.98 (0.72)
Warman	0.98 (0.15) 0.79–1.25 (0.46)	0.76 (0.12) 0.61–0.96 (0.35)	0.96 (0.57) 0.31–2.02 (1.72)	0.40 (0.60) 0.00–1.92 (1.92)
Estevan	1.16 (0.11) 1.07–1.39 (0.33)	0.77 (0.10) 0.56–0.89 (0.32)	1.20 (0.36) 0.44–1.58 (1.14)	0.23 (0.18) 0.00–0.60 (0.60)
Weyburn	1.14 (0.20) 0.82–1.49 (0.66)	0.76 (0.18) 0.50–1.04 (0.54)	0.77 (0.35) 0.44–1.66 (1.21)	0.14 (0.19) 0.00–0.46 (0.46)
Martensville	0.90 (0.11) 0.76–1.12 (0.36)	0.73 (0.12) 0.58–0.90 (0.32)	0.72 (0.52) 0.00–1.44 (1.44)	0.15 (0.26) 0.00–0.76 (0.76)
Melfort	1.03 (0.13) 0.82–1.23 (0.41)	0.94 (0.14) 0.76–1.20 (0.44)	0.96 (0.60) 0.27–2.29 (2.02)	0.33 (0.34) 0.00–0.78 (0.78)
Humbolt	0.89 (0.17) 0.71–1.23 (0.51)	0.75 (0.24) 0.39–1.20 (0.81)	1.23 (0.35) 0.41–1.63 (1.22)	0.27 (0.36) 0.00–0.92 (0.92)
Meadow Lake	0.82 (0.10) 0.71–1.04 (0.33)	0.83 (0.12) 0.71–1.09 (0.37)	0.80 (0.24) 0.48–1.27 (0.79)	0.23 (0.15) 0.00–0.48 (0.48)
Dalmeny	0.90 (0.55) 0.28–1.91 (1.63)	0.70 (0.50) 0.00–1.52 (1.52)	2.69 (3.38) 0.00–9.90 (9.90)	0.000.00

Bold—highest average/highest range (volatility).
Bold and italicized—lowest average/lowest range (most consistent).

Discussion

According to the results, in 2018, North Battleford did not specialize in violent crime. In fact, when examining all violent crime, all non-violent crime (including traffic), and eight crime types, North Battleford only specialized in mischief. Although North Battleford has held the record for the highest CSI in Canada since 2009, when using another geographical measure (LQ) that is not population-dependent, North Battleford drops to 12th place for violent crime and third place for non-violent crime in the province of Saskatchewan alone. Furthermore, in 2018, North Battleford is an under-represented area for violent crime, assault, break and enter, theft of motor vehicle, and a very under-represented area for sexual assault and theft from motor vehicle (under \$5,000). It is an average-represented area for non-violent crime, robbery, and theft (under \$5,000). From 2006 to 2018, North Battleford averages as an under-represented area for all violent crime as well as assault and robbery, and a very under-represented area for sexual assault.

The findings indicate that the CSI is an inappropriate measure on its own for understanding crime in municipalities across Canada, as North Battleford in 2018—"Canada's most dangerous place" since 2009 (Markusoff 2017)—does not specialize in any violent crime types, and, in fact, is often an under-represented or very under-represented area for crime in the province of Saskatchewan. The findings also suggest that the dependence on the population as the denominator in calculating both the CSI and crime rates over-inflates these measures in small and less-populated municipalities. This is also true for larger municipalities such as Saskatoon and Regina because their LQ values and corresponding rankings exhibit notable differences from the CSI.

While the CSI was indeed a move forward from crime rates alone in understanding the level of seriousness of crimes in Canadian municipalities over time because it was less affected by un-weighted counts of less serious crime (Babyak et al. 2009), it continues to be easily influenced by population size. Furthermore, it is limited by its reliance on sentencing surveys that are influenced by criminal history, time in remand, judicial discretion, and conditional sentences (Sherman et al. 2016). Alternatives, like the Crime Harm

Index proposed by Sherman and colleagues (2020), use objective sentencing guidelines that are less influenced by these limitations. In addition, the CSI does little to provide policymakers with concrete and applicable information about which types of crimes need to be addressed in any given area. Considering that different crime types have different aetiologies, and concentrate in different geographies, this is an important issue. LQs are more appropriate for understanding crime specialization.

Comparing the LQ to crime rates and CSIs for 15 municipalities in Saskatchewan, this study has demonstrated that North Battleford is not particularly "dangerous," nor does it need to focus directly on violent crime. Rather, policymakers and local stakeholders may want to target their crime prevention efforts at mischief as North Battleford is over-represented for this crime type. This is not to suggest that crime prevention efforts should solely target the crime types in which an area specializes. Indeed, police-recorded crime is known to be problematic and unreliable (Boggs 1965). Rather, the study suggests that LQs illuminate how certain areas can specialize in certain crime types and local policymakers and practitioners can focus their efforts on determining why this is the case and how to best approach these specific issues. This will lead to improvements in both local prevention work and theoretical understandings of why certain areas specialize in certain crime types.

Finally, these findings have implications beyond understandings of crime and crime prevention. The labelling of a small community like North Battleford as the "crime capital" of Canada has real implications for the people who live there. This kind of labelling creates crime narratives for the community and has the ability to both stigmatize and disempower local residents (Howarth 2002; Leverentz 2012). Indeed, the media characterization of North Battleford created a significant amount of concern locally and nationally, as residents and city workers attempted to understand what was going wrong in their community (Hodgkinson 2019; Hodgkinson et al. 2020). This labelling process is being replicated as Thompson, Manitoba recently ranked the highest for CSI in Canada for the first time and the Canadian media descended on this new location and its "violent crime problem" (VanReas 2019). This process of

labelling is particularly concerning considering that North Battleford and Thompson both have large First Nations and Métis populations (29% and 43% combined, respectively) (Statistics Canada 2019a). Identifying a community as a “crime capital” is a sweeping statement and does not address the nuance of crime types or offenders; it could result not only in inappropriate policies, but also in discrimination towards particular groups of people. Some of this discrimination towards particular groups for crime problems, as a consequence of this labelling process, are present in a representative sample of North Battleford residents (see Hodgkinson 2019).

Limitations and future directions

This study has two primary limitations. First, the study does not present all crime types used to determine the CSI. These crime types were still included in the calculations of crime rates and CSI, but are not presented here. For example, homicide and manslaughter are excluded, despite holding the highest CSI weightings. These crime types, and others (firearm-related, fraud, luring, fail to appear, disturb the peace, counterfeiting, traffic uttering threats, cannabis possession) were excluded from tables and figures either as a result of low counts (North Battleford had one homicide in the last ten years) or inapplicability (e.g., cannabis possession is now legal in Canada). The crime types presented were the most common and most applicable to the current study question.

Second, this study did not attempt to theoretically explain why crime specializes in some areas and not others. For example, car-dominated areas, like Regina, will likely have more opportunities for specialization in theft of motor vehicle and this is consistent with the routine activities perspective (Cohen and Felson 1979; Carcach and Muscat 2002). Rather, this study focused on the need for alternative and specific geographic metrics to better understand crime specialization. This study intended to show that the use of the CSI is problematic for low-population areas like North Battleford and should be used with caution in the future.

LQs are also not without limitations. This metric still relies on police-reported data (as do crime rates and the CSI) and does not capture incidents that go unreported. This is problematic considering that violent crimes are less frequently

reported and, therefore, specialization may be a product of greater reporting in some areas compared to others (Perrault 2015). Furthermore, it does not provide a measure of the volume of crime and as such, should not be used in isolation (Andresen 2007). Nonetheless, the LQ provides an additional and practical lens for policymakers and practitioners.

Future research would benefit from further exploring theoretical questions of why certain areas specialize in specific crime types and how to best address and reduce crimes in those areas. Moreover, additional investigation into LQs in other provinces is necessary to better guide policy and practice in these areas. In particular, focus should be given to smaller municipalities such as North Battleford, Saskatchewan and Thompson, Manitoba, where high CSIs have resulted in increased media attention and may affect crime prevention policy. Finally, while this study captured a small portion of these LQs over time, by examining the LQs of violent crime types across Saskatchewan's municipalities for 13 years, further longitudinal research that explores the consistency or volatility of crime type specialization would also help inform theory and practice.

Conclusion

This study compares the CSI for North Battleford, Saskatchewan, to an alternative geographical and specialization measure, the crime location quotient. The findings indicate that while the CSI for the small municipality is the highest in the country, the area of North Battleford does not geographically specialize in violent crime in its own province. Of eight crime types, North Battleford only specialized in mischief. These findings suggest that the CSI is indeed largely influenced by population size. Furthermore, the findings provide more information about crime specialization that is more informative for prevention and theory. Labelling North Battleford as the “crime capital” of Canada is not only detrimental to local residents and local narratives about the community, but also is largely incorrect. Policymakers and practitioners would be wise to consider other measures, such as the LQ when attempting to understand and respond to local crime trends.

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