



Hotspots vs. harmspots: Shifting the focus from counts to harm in the criminology of place



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ABSTRACT

The prevailing pattern in much of the social sciences, including geography and criminology, relies on count data. “Hotspots” — geospatial areas with disproportionately more crime than the rest of the city — are usually identified by the number of events in these areas. Yet no attention is given to their severity, or any other weighting system of harm, despite the common-sense view that not all crimes are created equal. To illustrate the value of focusing on harm in addition to count data, we turn to a spatial analysis of crime by observing crime concentrations (hotspots) against harm concentrations (harmspots), across fifteen councils in the United Kingdom. The definition of “harm” is based on the Sentencing Guidelines for England and Wales, as each crime category ($n = 415$) attracts a different severity weight. Both “hotspots” and “harmspots” are defined as being at least 2 standard deviations from the mean distribution within each city: This procedure creates comparable datasets. The data suggest that half of all crime events are concentrated within 3% of all street segments in the selected councils, yet harm is even more heavily concentrated, with half of all harm located in just 1% of each council [OR = 3.49; 95% CI 3.268–3.728]. The intra-unit variance was also reduced by approximately half — from 0.75% to 0.45%. We discuss the implications of using harm, in addition to counts, for research and policy by arguing that a shift in focus is required both for the development of theories and for cost-effective prevention strategies.

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1. Introduction

Crime is a non-random event, distributed unevenly in space and time. Over the past 25 years, substantial evidence has accumulated demonstrating that the majority of crimes are committed in a small number of places. For example, in Minneapolis, Sherman, Gartin, and Buerger (1989, p. 37) described that “over half (50.4%) of all calls to the police, for which cars were dispatched, went to a mere 3.3% of all addresses and intersections”; in Jersey City, Weisburd and Mazzerolle (2000) reported that 4.4% of the total number of street segments and intersections in the city accounted for almost half (47.8%) of all the arrests for narcotics; in Seattle, Weisburd, Lum, and Yang (2004) found that, over fourteen years, only 4% of the street segments accounted for about 50% of all the incidents

reported in the city; more recently, Ariel (2011) found that 50% of all crimes reported in England and Wales' mass transit systems occur in only 5% of stations. Collectively, these findings are described as the “law of concentration of crime in place” (Weisburd, 2015), or the “power few” of places (Sherman, 2007).

These places with higher concentrations of crime counts are known as crime “hotspots” (Brantingham & Brantingham, 1999; Pierce, Spaar, & Briggs, 1986; Sherman & Weisburd, 1995; Sherman et al., 1989). Many criminologists, geographers, and particularly the police, have shifted their attention from communities and large-area neighbourhoods to focusing on these “micro-spots” of crime, in order to more efficiently address the general problem of crime within cities (Ariel & Partridge, 2016; Brantingham et al., 2009; Sherman et al., 1989; Weisburd, Lum, et al. 2004). The focus on hotspots “provides a more stable target for police activities; has a stronger evidence base; and raises fewer ethical and legal problems” (Weisburd, 2008, p. 2). A meta-analysis of the research evidence on police interventions in these hotspots

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(Braga, Papachristos, & Hureau, 2012; Braga, Papachristos, & Hureau, 2014; see also; Braga, Welsh, et al. 2014), suggests that focusing on these areas is an effective crime-prevention strategy, reducing crimes by 15–25%.

We posit, however, that a major shift of emphasis is required in the study of hotspots, which has theoretical, practical and methodological implications: a developed, yet ignored, line of research has critically argued — for some time now — that focusing merely on counts, rather than on the severity or harm of crime is somewhat crude and imprecise. As posited recently by Sherman et al. (2013, p. 422) “all crimes are not created equal[;] some crimes cause horrible injuries and deaths. Others cause scant harm to anyone.” In an age when resources are scarce, not all crimes can attract (or deserve) the same reaction; a triage approach is required, whereby the most harmful events get treated first, followed by the less harmful events. As we will show in this paper, the geography of crime is no different: the spatial study of crime concentration simply needs fine tuning to develop a greater focus on weights, rather than merely on counts as has been the tendency for more than 25 years since the identification of crime hotspots (see Sherman et al., 1989).

Consider the following scenario: there are two crime hotspots, but only one police vehicle that can conduct any sort of preventative exercise, therefore the local police force must choose which hotspot to target. Hotspot A has experienced 100 crimes in the last 12 months, and Hotspot B has experienced 50 crimes in the last 12 months. However, Hotspot A has seen mostly theft-from-person, cycle theft and anti-social behaviour, while Hotspot B has seen five homicides, gang-related violence and considerable drug dealing. A “simple” count criterion would be likely to direct this local force to target Hotspot A, despite the greater social harm that is attributed to Hotspot B. This scenario clearly demonstrates that weighting the severity of crime when laying out a targeting strategy is likely to be more effective in reducing the overall harm to society than responding solely to the sheer number of events. Such an approach is invariably also likely to produce different maps: the hotspots may not necessarily be the same in terms of location, concentration or dispersion. This approach would enable police to identify what could be referred to as “harmspots”, rather than using the more traditional aggregate crime hotspots. Focusing on harm, rather than only on counts, is hypothesised to have the greatest impact on people’s wellbeing, as well as having the lowest system costs.

1.1. Different harm-weighting methods

Critiquing the use of simple count measures, and instead employing weighted counts that take into account the severity or harm of each offence, is not new. From Sellin and Wolfgang (1964) through Rossi et al. (1974), Wolfgang et al. (1985), and currently Sherman, Neyroud, and Neyroud (2016), sociologists of crime have recognised the pitfalls of using count measures in better understanding the problem of crime. Yet in applied geography and, moreover, for the police, these insights have not been thoroughly addressed. In fact, “neither criminology nor the adjacent social sciences have made a serious effort to systematically identify, evaluate or compare the harms associated with different crimes” (Greenfield & Paoli, 2013, p. 864).

There are different methods of observing the severity or harm of crime. One prominent approach is by assigning weights to crime categories, and observing the distribution of these weighted means across different units of analysis. These techniques range from subjective severity (e.g. Sellin & Wolfgang, 1964; Wolfgang et al., 1985; Akman, Normandeau, & Turner, 1967; Normandeau, 1966; however see critique by; Pease, Ireson, & Thorpe, 1974; Rose, 1966), to focusing the analysis on the cost of crime (Brand & Price, 2000; Cohen & Bowles, 2010; Cohen, 1988), to weighting each offence based on the

actual sentence awarded to an offender — as in the case of the Crime Severity Index (Wallace et al., 2009), to applying gravity score guidelines¹ (e.g., Ratcliffe, 2015), and to the degree of moral culpability of the person who committed the offence (Hall, 1960). A more recent attempt calls for weighting each crime type according to the stated starting point for a first time offender in the available sentencing guidelines, as is the case in the Crime Harm Index (Sherman, 2013).

Reiss (1982) suggested that the most obvious method to assess the seriousness of a crime is to judge it by the punishments or sanctions that the law imposes for their violation. Some scholars have implemented this observation. For instance, Wallace et al. (2009) have created the Canadian Crime Severity Index. The Index weights each type of offence according to the average of the “actual sentence” handed down by courts all over the country (Wallace et al., 2009).² It is now common practice in Canada to look at crime trends using this index, rather than counts, and, as far as we are aware, this is the only nation that does this. In the US, a method was recently suggested by Ratcliffe (2015); using the Philadelphia sentencing guidelines — available to all trial judges — to weight crime types according to each point value depicted in the ‘PA Offence Gravity Score scale’.³

In this paper, we rely on a recent metric developed by Sherman (2007; 2013), and later expanded by Sherman et al. (2016), who suggested assigning weights to each classification of crime according to the sentencing guidelines available.⁴ This conversion of the number of crime counts into crime harm requires multiplying the number of crimes by the minimum number of days in prison that the crime would attract if one offender were to be convicted of committing it. This approach creates a Crime Harm Index (CHI) as a “common currency” which measures the effects of crime (i.e. harm) within and between societies.⁵

To the best of our knowledge, however, Sherman et al. (2016) did not operationalize the Crime Harm Index to account for all crime types, which in some jurisdictions, as in England and Wales, can amount to hundreds, if not thousands, of crime categories and subcategories. In the Sherman et al. (2016) report, only a handful of crime types (homicide, GBH, rape, etc.) were catalogued. Neither has any prior research looked at the spatiotemporal distribution of harm across spaces, not least at such a micro-geographical level⁶ as

¹ Determined by the Pennsylvania Commission on Sentencing. The PA Offence Gravity Score can be retrieved from: <http://www.pacode.com/secure/data/204/chapter303/s303.15.html>.

² On a more pragmatic level, to develop the analysis of harm based on the Canadian model would imply having access not only to police crime data, but also to the judicial system list of sentences awarded — adding tremendous complexity to the analysis of total harm levels.

³ The PA Offence Gravity Score does not represent a ratio metric scale in spite of having scores ranging from 1 (e.g. possession of marijuana) to 15 (e.g. murder), which means that “there are uneven jumps [i.e. penalties associated to each level] in punishment as the offence gravity increases.” (p. 13). These challenges could affect the validity of this instrument.

⁴ As stipulated by the Crown Prosecution Services (CPS; cps.gov.uk/legal/s_to_u/sentencing_manual/), “The CPS Sentencing Manual has been designed as a source of information for advocates to assist them with trial preparation, in particular when addressing the court at the sentencing hearing. It consists of templates, grouped by subject headings, based on the chapter headings in Archbold, and provides sentencing guidance on the most commonly encountered offences. It is intended to complement established texts on sentencing, such as Current Sentencing Practice”.

⁵ We are cognisant that some jurisdictions do not have sentencing guidelines, for instance most Latin American countries. However, as long as they have a standard way to define crime sentences (i.e. Penal Codes), it is possible to use the same method to develop a localised index method to measure harm, such as the one developed in this paper.

⁶ So far, the only study which has incorporated the Crime Harm Index into the analysis of crime types is research by Bland and Ariel (2015) where they used this metric to test for escalation in the severity of domestic abuse cases in England and Wales.

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