RISKY HIGH STREETS? DEVELOPING A SHOP THEFT RISK INDEX AT THE HIGH STREET LEVEL IN NOTTINGHAM

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ABSTRACT

Whilst there is an extensive literature on the spatial concentration of crime at the street level, and the role played by crime attractors and generators in shaping victimisation risk, there has been little application of these perspectives in relation to shop theft. This paper therefore seeks to address the gap within the current retail crime literature in two ways. Firstly, it presents an empirical analysis of the spatial concentration of police recorded shop theft incidents across high street locations within Nottingham. Secondly, having established the uneven distribution of shop theft victimisation across retail spaces within the city, it then develops an innovative shop theft risk index that captures the *materialised* risk-profile (based upon the level of shop theft incidents), and the *potential* risk profile (based upon the number of retailers selling products that are attractive to would be shop theft offenders) of each high street location. The ensuing empirical analysis identifies the presence of different shop theft high street environments: 'over-performing' locations where the extent of shop theft is lower than might be anticipated given their risky retailer – and 'under-performing' high streets which are enduring disproportionally high levels of shop theft victimisation given their retail make-up.

Key words: shop theft, spatial concentration of crime, risk terrain modelling, victimisation risk

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Introduction

The idea that crime is, and remains, spatially concentrated over time is firmly established within the crime and place literature (Weisburd, 2015). Equally embedded are explanations of crime hotspot locations that focus upon the absence of capable guardians (Cohen and Felson, 1979), the assessment of risks and rewards by offenders (Clarke and Cornish, 1985), the presence of crime attractors and generators (Brantingham and Brantingham, 1993), and the role of the physical and built environment (Newman, 1972). However, despite the plethora of empirical studies that have examined the extent and underlying causes of the spatial concentration of crime within different countries and cities at the neighbourhood, block and street level, the application of these perspectives to the issue of shop theft is noticeably absent. To the author's knowledge, the only empirical analyses that directly address the spatial concentration of shop theft are across small retail businesses in Australia (Taylor and Mayhew, 2002), at the street level in Tel Aviv-Yafo by Weisburd et al (2018), and in relation to a shopping centre in Stockholm by Ceccato et al (2018). Similarly, the application of routine activities theory, rational choice theory and crime prevention through environmental design as explanatory frameworks within the study of crime, place and opportunity structures in relation to shop theft remains limited (e.g. Hayes, 1999; Gill, 2007; Taylor, 2016, and Smith, 2018).

In a similar vein, the idea that certain localities may be defined as 'risky places' that generate crime hotspots has proliferated in relation to theft from the person (e.g. Bowers, 2014) and transport hubs (e.g. Newton et al, 2014, Gerell, 2018) – but has received limited attention in relation to retailers (a brief exception is provided in Eck et al, 2007). Theoretical and methodological developments have also witnessed the emergence of risk terrain modelling (Caplan et al, 2011) as a mechanism for encapsulating the interaction of criminogenic features of specific streets and neighbourhoods. However, the application of this approach has remained limited primarily to empirical studies of offences such as gun crime (e.g. Drawve et al, 2018) and homicide (e.g. Dugato et al, 2017). Indeed, with the exception of the development of a non-residential area classification for Merseyside (Bowers et al, 1997), and an in-depth geographical study of shoplifting in the centre of Cardiff (Nelson et al, 1996), no empirical analyses exists of shop theft, risky places and the structure of high streets. In

parallel, official approaches in the United Kingdom to classifying the function of neighbourhoods (e.g. Gale et al, 2016), and the nature and character of high streets (Ordnance Survey, 2019; Dolega and Darras, 2018), have been undertaken without seeking to directly the spatial analysis of shop theft at the micro level.

The aim of this study therefore is to address the gap within the existing literature by presenting a prototype shop theft risk index at the high street level in Nottingham which combines (a) the materialised risk in the form of the scale of shop theft incidents; and (b) the potential risk posed by the presence of certain types of retailer within specific high street locations. Alongside the overall risk score attached to each high street, the index identifies the ratio of materialised to potential shop theft risk. This feature is designed to enable police forces and crime reduction stakeholders to distinguish between high streets registering high incidents of shop theft despite their low retailer risk profile (and hence necessitating some form of intervention) as opposed to high streets that are recording low incidents of shop theft in spite of their high retailer risk profile. The paper commences with a discussion of the concept of risky places as it applies to the analysis of shop theft, and the factors that shape opportunity structures pertaining to theft from retailers by customers. Following an overview of data sources and the geographical scope of the empirical analysis, the discussion moves on to identify the retailer profile and structure of high streets within Nottingham, presents evidence on the spatial concentration of high street shop theft incidents, outlines the methodology employed in order to develop the shop theft risk index, and identifies the high street locations with the highest and lowest incident/retailer risk driven shop theft risk levels. The paper concludes by examining the potential application of the shop theft risk index to approaches to reducing shop theft within specific localities, and identifies future areas of development required to enhance the further evolution of the shop theft risk index as a policy tool.

Risky high streets and the opportunity structures that shape the spatial concentration of shop theft

Are some high street locations riskier than others as places for retailers to locate? Does the proximity of a retailer to other shops with high shop theft risk characteristics create the potential for contagious forms of victimisation? Risky high street locations are not risky per se simply on the basis of a high volume of shop theft incidents. The extent to

which these offences are concentrated with a few specific stores as opposed to being more evenly distributed across retail outlets needs to be identified before a high street, as opposed to a specific retailer on a high street location, can be classified as posing a risk. If shop theft victimisation is concentrated within a specific retailer, what are the opportunity structures embedded within this retail outlet that attract the attention of often prolific shop theft offenders. Evidence from the literature on retail crime has consistently identified a combination of factors relating to the physical infrastructure and store layout (Gill et al, 1999; Carmel-Gilfilen, 2011), the presence of certain forms of physical and human security (Beck and Willis, 1999; Hayes et al, 2011; Sidebottom et al, 2017), the nature and location of products within the store (Ekblom, 1986; Gill, 2007), and the behaviour and motivation of retail owners/shop workers/offenders as crucial components of risk. Studies of the motivation and behaviour of shop theft offenders (Hayes, 1999; Cardone and Hayes, 2012) reveal a group of criminals who share intelligence on both how to overcome physical security and retailers who have offender favourable attitudes towards both retailing and the apprehension of shop theft offenders, are cogent of the shift patterns and behaviour of security staff, have clear preferences for certain products and targeting independent stores rather than retail chains. In the context of what Bowers (2014) describes as facilities which operate as crime radiators, they can also be characterised as either 'generalists' who will steal a wide range of products (and therefore pose a potential threat to neighbouring retailers if they are dissuaded from offending within their preferred target), as opposed to 'specialists' whose mode of offending is shaped by preferences for a limited number of specific products (and whose offending is less likely to be displaced to neighbouring stores operating within a different component of the retail sector) (Hunter et al, 2019).

Empirical analysis

Geographical scope and data sources

The empirical analysis presented here is based upon 11,725 police recorded shop theft offences that occurred between January 1st 2018 and December 31st 2019 in the Greater Nottingham Area. Of these, 7,133 (60.8%) took place in retailers situated on fifty-nine high street locations. This is likely to significantly underestimate the true extent of shop theft experienced by retailers. The Commercial Victimisation Survey 2018 (Home Office 2020) identified that only 42% of retailers had reported the latest theft by

customer incident to the police, with the value of goods taken, the use of violence, or whether the perpetrator was known to the retailer as key factors in determining the decision to report the shop theft incident to the police.

The geographical scope of the study has been extended beyond the official administrative boundaries of the city of Nottingham to include the immediate surrounding urban conurbations in Arnold, Beeston, Carlton, Hucknall, and West Bridgford – but does not include the outlying areas of Breaston, Eastwood, Ilkeston, Kimberley, Long Eaton or Ruddington which are included in the Office for National Statistics definition of the Nottingham Built up Area (ONS, 2013). The City of Nottingham, which is one of the eleven core cities within the United Kingdom[2], has an estimated population of 331,069 as of April, 2019 (ONS, 2020), and is ranked as the eleventh most deprived local authority area in England according to the English Indices of Deprivation, 2019 (MHCLG, 2020) – with 30.7% of neighbourhoods at the Lower Super Output Area being defined as falling within the 10% most deprived localities across England.

High street locations have been identified using the Ordnance Survey 2019 high street classification (Ordnance Survey, 2019a) which identifies clusters of retailers based upon the classification of addresses using their AddressBase Plus dataset. This utilises geocoded data to identify the spatial proximity of retail addresses and buildings occupied by retailers has been employed to identify the extent and boundaries of streets which can be designated as high streets on the basis of a predominant presence of retail outlets. This classification, however, excludes out of town retail parks, industrial parks and isolated shopping centres. In a few instances in the centre of Nottingham, pedestrianised areas which contain a large number of retailers (and are the location of a significant number of shop theft incidents) but which do not form part of a designated Ordnance Survey high street have been attached to the relevant high street location in order to encapsulate the real world extent of these locations based upon the proximity of retailers and high customer volumes.

The retail and socio-economic characteristics of each high street has been identified using four different data sources. Firstly, Points of Interest (POI) data (Ordnance

[2] https://www.corecities.com.

Survey, 2019b) which classifies retailers into sixty-nine different categories was mapped onto the Ordnance Survey High Street locations in order to determine the presence of specific types of retailer – and to capture the retail character of each high street based upon the number of different types of retailer found in each location. A Herfindahl Index[3] has been constructed using this data to capture the extent of retail homogeneity or diversity for each high street location. Secondly, the retail characteristics of the selected high streets has been identified using the Retail Centre typology 2018 (Doleaga and Daras, 2018) which classifies retail locations on the basis of their function, composition, diversity and economic health of high streets and their immediate catchment areas. In order to capture the consumer profile of high streets, data has been gleaned from the Consumer Data Research Centre's Consumer Vulnerability geodemographic classification (Adcock et al, 2018). Whilst developed using Census 2011 data to identify the location of consumers vulnerable to problematic marketing approaches, this classification can also be utilised to determine the predominant type of consumer (e.g. 'On Budget', 'Prosperous Professionals', etc.) within the immediate vicinity of high streets. Finally, the overall level of deprivation of the neighbourhoods in which the high streets are located as a metric for their income and economic deprivation profile has been identified using the English Indices of Deprivation, 2019 (MHCLH, 2020).

High street characteristics and retail structure within study area

For the purposes of identifying the retail structure of high streets within the study area, some initial modification was undertaken in relation to the POI classification of retailers. For example, 'convenience stores' includes both retailers that are in essence off-licenses, e-cigarette and vape stores, and small supermarkets as well as more conventional convenience stores that stock a wide variety of everyday items. These were separated into separate retail categories, as were clothes stores that sold a wide variety of garments including jeans. In addition, chemists and pharmacies were separated into more traditional small outlets as opposed to those which are more appropriately defined as pharmaceutical superstores.

[3] The Herfindahl-Hirschman Index (HHI) is conventionally employed to measure market concentration within specific economic sectors, but provides a statistical means of identifying the extent to which a local authority area, neighbourhood or street is dominated by a single age, ethnic, or social class group. The value of the HHI ranges from 1(complete homogeneity) to 10000 (complete equality of presence of phenomena in question).

Nine hundred and ninety-five separate retail outlets are distributed across the fifty-nine high streets that fall within the study area. The largest proportion of these are conventional convenience stores (12.31%), clothing (8.94%), charity shops (5.83%), and traditional chemists (5.13%) – with large supermarkets and local supermarkets accounting for 3.42% of retailers. The data in Table One (overleaf) identifies considerable levels of diversity in the physical length, number of retail outlets, and presence of offices and residential accommodation across the high street sample. There is also considerable variation in both the homogeneity and diversity of retailer types across the high streets (Herfindahl index), and the level of overall deprivation of surrounding neighbourhoods. In terms of the essential character of these high streets, and the nature of the immediate populations surrounding them, Table Two (below) identifies the presence of leading inner city retail and leisure destinations (28.8%), alongside local retail centres characterised by services and convenience stores (11.7%), and more traditional high streets with a greater proportion of independent retailers catering for lower income households (10.2%). The importance of Nottingham as a centre of higher education is borne out by the presence of a large number of student and young professional neighbourhoods surrounding high street locations within the centre of the city (49.2%) – but the deprived nature of many neighbourhoods within the study area is also illustrated by the 72.9% of surrounding localities that contain households on a budget, vulnerable communities and vulnerable pensions.

Table One: Structure and characteristics of high streets within Greater Nottingham Area (n=59)

Dimension:	Minimum:	Mean:	Maximum:	Standard deviation:
Number of retail outlets	3	16.9	83	14.4
Length of high street (metres)	132	426	132	208.0
Retail to office ratio	0.1	1.1	7.5	1.3
Residential accommodation as % of high street addresses	0	49.3	82.6	24.4
Retailer diversity (Herfindahl Index)	5600	8459.6	9430.6	830.9
Deprivation levels (IMD2019 rank, 1=high, 32844=low)	1188	11791.1	32457	7861.6

(sources of data: Ordnance Survey 2019a; Ordnance Survey, 2019b; MHCLG, 2020)

Table Two: Geodemographic characteristics of high street locations (n=59)

Retail Centre type:	Percentage of high streets:	Consumer vulnerability profile:	Percentage of high streets containing neighbourhood type within close proximity:
Leading comparison and leisure destinations/Premium shopping and leisure destinations of (semi) regional importance	28.8%	Prosperous professionals	10.2%
Local retail and service centres/Diverse urban services centres	6.8%	Well-established	13.6%
Local retail and service centres/Local urban convenience centres	11.9%	Students and young professionals	49.2%
Primary food and secondary comparison/More affluent district destinations	8.5%	On a budget	27.1%
Primary food and secondary comparison/Urban value destinations	3.4%	Vulnerable communities	32.2%
Retail, shopping and leisure parks/Less diverse retail, shopping and leisure parks	1.7%	Vulnerable pensioners	13.6%
Traditional high streets and market towns/Diverse and affluent leisure destinations	3.4%		
Traditional high streets and market towns/Indie and value-orientated high streets	10.2%		
Traditional high streets and market towns/Suburban and market town high streets	3.4%		
Not classified	22.0%		

(sources of data: Adcock et al, 2018; Doleaga and Daras, 2018)

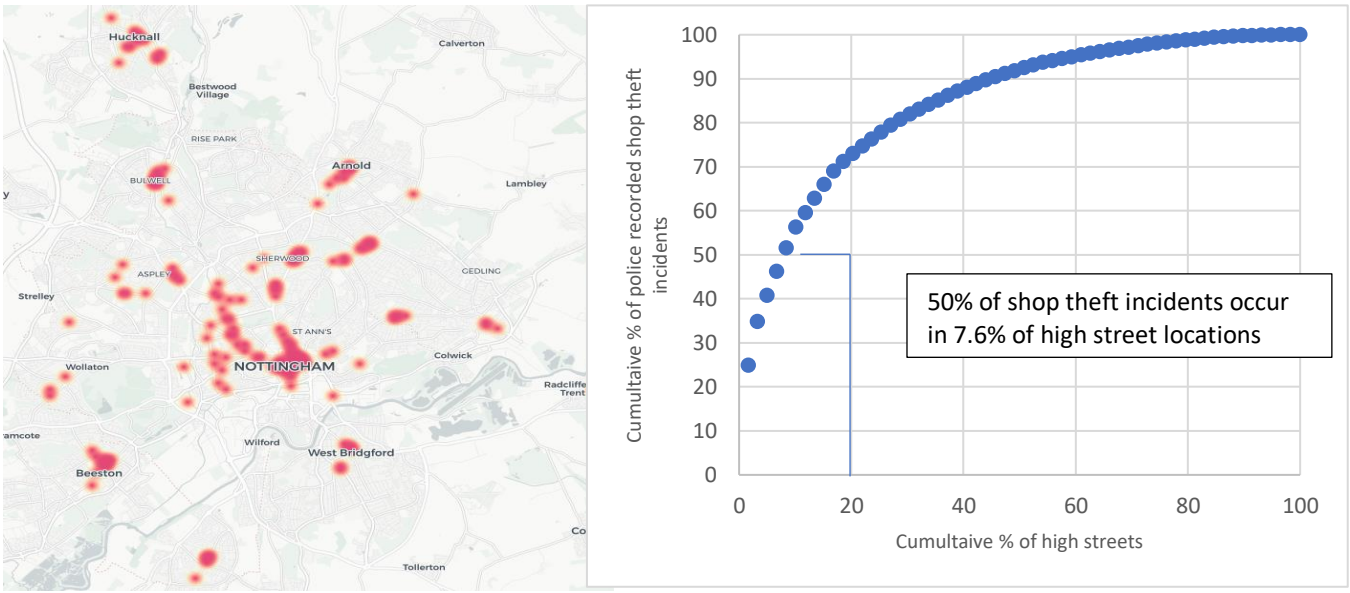
The spatial concentration of shop theft on high streets in Nottingham

It is not possible to identify the actual retailers experiencing shop theft incidents within the publicly available police force level recorded data in England and Wales. In order to match shop theft offences to the relevant high street, the geocoded data values for the official snap points which identify a specific street or facility (e.g. supermarket) by name that are located in the immediate vicinity were used to build up a composite picture of the shop theft profile of the high street in question. Whilst issues of validity of utilising snap points for the analysis of the spatial concentration of crime at the micro level have been raised (Tompson et al, 2014), a degree of confidence was attached to matching shop theft offences to the relevant high street in instances where the snap

point referred to a nearby street which contained no identifiable retailers on the basis of POI data. Within the city centre there were a few instances where a high street with a large number of potentially risky retail outlets appeared to have no shop theft offences on account of containing no official snap point. However, a neighbouring street contained a snap point where the scale of shop theft did not match the number and risk profile of retailers on it. In these circumstances, the relevant shop theft data was attributed to the relevant nearby high street.

Figure One (overleaf) identifies the distribution of police recorded shop theft offences between January 2018 and December 2019 across the fifty-nine high street locations in Nottingham. There is a clear spatial concentration of offences within the city centre, as well as within the retail hubs, and in the small towns located outside the city boundaries to the north (Hucknall and Arnold), south (West Bridgford) and west (Beeston) of Nottingham. The extent of the spatial concentration across these high streets is further illustrated by the accompanying Lorenz curve which identifies that 50% of shop thefts occurred within 7.6% of high street locations. The extent of the unequal distribution of shop theft offences across the fifty-nine high streets can be captured in the form of a Gini coefficient (Bernasco and Steenbeek, 2017) whose value ranges from 0 (an equal number of shop theft offences occurred on each high street) to 1 (all of the shop theft offences occurred on a single high street). In this instance, a Gini Coefficient value of 0.68 indicates a highly unequal distribution of shop theft incidents across the target high street locations. This evidence points to the existence of potentially risky high streets for retailers to be located on, especially if offenders are generalists who do not target a specific type of retailer and a large number of retailers stock a high proportion of hot shop theft products.

Figure One: The spatial concentration of police recorded shop theft incidents in Greater Nottingham, January 2018 to December 2019 (n=6,496)



Development of a high street level shop theft risk index

The approach adopted here is to develop a measure of shop theft risk at the high street level that combines the materialised risk in the form of the scale of shop theft incidents with the potential risk posed by presence of certain types of retailers on specific high streets. A holistic model of shop theft risk in relation to retailer characteristics would include the full range of opportunity structure enhancing factors identified earlier in the paper. In the absence of available data on internal store design, security measures and the place management policies of individual retail outlets, the measurement of retailer-induced shop theft risk focuses upon a specific risk factor: the attractiveness of retailers to potential offenders on the basis of the products they sell – and more specifically the presence of 'hot' or 'craved' items that hold greater monetary and intrinsic value to shop theft offenders (Smith and Clarke, 2015). Interviews undertaken with the most prolific shop theft offenders in Nottingham (Hunter et al, 2018) confirm ideas within the wider shop theft and criminology literature concerning how offenders weigh up the risks relating to security levels alongside attentiveness of shopworkers (Association of Convenience Stores, 2020), store layout and visibility (Armitage et al, 2018), opportunities shaped by new technologies (Taylor, 2016) against the reward potential (both fiscal and utility maximising) of individual products.

Drawing upon the list of current hot products in the UK identified by the Centre for Retail Research (CRC) (2020) (which draws upon the earlier work of Bamfield [2015]), retailers that stock the following are more likely to form the target sites for shop theft offenders: Packed meat, cheese, coffee, alcohol, cosmetics and deodorants, perfumes and fragrances, razor blades, clothing, sportswear, jeans, baby clothes, electrical items (e.g. toothbrushes, shavers, headphones), DVDs, and batteries. Using POI data to identify the specific retailers present in each high street location, all retailers irrespective of their retail sector were initially allocated a score of 1 (based upon their potential status as shop theft victims) – and then an additional risk score was allocated to each retailer based upon the number of types of hot product they stock. In order to take account of the greater desirability of certain products stocked by retailers, the rank order of hot products within the CRC list was employed as weights. Thus, a retailer selling packaged meat received a score of 15 for this product, whilst boxed DVDs attracted only a score of 1. The weighted product profile of the different retail items stocked by each retailer was then summed together in order to allocate each retailer an overall shop theft risk score that ranged from 2 (potential shop theft score of 1 plus 1 for selling boxed DVDs) up to 120 (retailer stocks each of the retail items on the CRC list of hot products) Thus, retailers such as supermarkets who pose a much greater potential risk to a high street in terms of shop theft victimisation levels based upon the multiple number of hot products they sell were allocated an individual risk score of 96, whilst individual music and video retailers were allocated a score of 2. The risk scores for all of the retailers on a specific high street were then summed together in order to create an overall potential shop theft risk score. This was then weighted by the number of police recorded shop theft incidents per retail outlet in order to arrive at an overall shop theft risk index that combines the materialised and potential shop theft risk components of the shop theft environment within each high street location.

Table Three (overleaf) presents the overall shop theft risk index score, and the ratio of materialised shop theft risk (shop theft incidents) to potential shop theft risk (retailers hot products profile) for the top and bottom ten high street locations in Greater Nottingham alongside their respective retail diversity, deprivation, and retail centre/consumer vulnerability profiles. The most problematic high streets in terms of their overall shop theft index risk profile are located in the city centre (Victoria Centre,

Lower Parliament Street), in the former traditional industrial localities that surround the central business district (Ilkeston Road), in retail hubs (Mansfield Road, Sherwood), in the more deprived towns on the outskirts of the north of Nottingham (Main Street, Bulwell), or as main thoroughfares through large social housing estates (Southchurch Drive). Outside of the city centre, they are characterised by surrounding neighbourhoods with high levels of overall deprivation that reflect both the economic decline of these localities in the wake of moves towards service sector employment located within the heart of the city, and the financial precarity of, and limited life opportunities afforded to, vulnerable communities and vulnerable pensioner households. In contrast, the locations found within the bottom ten high streets according to their overall shop theft risk index score are all located within the city centre (with the exception of Main Street, Radcliffe on Trent and Gordon Road in West Bridgford). These high streets are characterised by more independent, high-end, and a slightly less diverse mix of specialised retailers when compared to the top ten risky high streets – but constitute a mix of (a) less deprived neighbourhoods and more affluent consumers on some high street locations; and (b) more deprived profiles that conform to those associated with the high streets with the greatest level of shop theft risk.

Table Three: Top and bottom ten high streets locations based upon overall shop theft risk index score

Rank:	Name of high street	Shop theft risk index score	Ratio of materialised to potential shop theft risk	Retailer diversity (Herfindahl Index)	Overall deprivation, IMD2019 (averaged rank position of LSOAs)	Retail centre typology classification	Consumer vulnerability classification
1	Victoria Centre	9047.6	0.08	9309.0	17137	Leading comparison and leisure destinations/Premium shopping and leisure destinations of (semi) regional importance	Vulnerable pensioners/Students and young professionals
2	Lower Parliament Street	7341.3	0.53	8642.0	13986	Leading comparison and leisure destinations/Premium shopping and leisure destinations of (semi) regional importance	Students and young professionals
3	Ilkeston Road	4399.6	0.10	8750.0	17158	Traditional high streets and market towns/Diverse and affluent leisure destinations	Vulnerable communities/Students and young professionals

4	Southchurch Drive	4285.5	0.05	8900.0	7715	Traditional high streets and market towns/ Indie and value orientated high streets	Vulnerable pensioners/On a budget
5	High Road Beeston	4074.2	0.04	9425.0	20311.5	Primary food and secondary comparison/Urban value destinations	Vulnerable pensioners/Students and young professionals
6	Clumber Street	4000.0	0.03	8828.1	13986	Leading comparison and leisure destinations/Premium shopping and leisure destinations of (semi) regional importance	Students and young professionals
7	Main Street Bulwell	3615.8	0.03	9410.4	1687	Primary food and secondary comparison/Urban value destinations	Vulnerable communities/On a budget
8	Mansfield Road, Sherwood	2732.7	0.02	9342.4	10183	Traditional high streets and market towns/Diverse and affluent leisure destinations	On a budget/Prosperous professionals
9	Portland Road	2390.3	0.23	7777.8	11834	Not classified	On a Budget/Vulnerable pensioners
50	Carlton Road (Lower)	35.0	0.54	8125.0	6975.5	Local retail and service centres/Local urban convenience stores	Vulnerable communities/Vulnerable pensioners
51	Radford Road	22.1	0.01	8826.5	2689.7	Traditional high streets and market towns/ Indie and value orientated high streets	Vulnerable communities/Vulnerable pensioners
52	Main Street, Radcliffe on Trent	19.6	0.14	8925.6	30664	Not classified	Well established/Prosperous professionals
53	Alfreton Road (Lower)	14.0	0.06	8088.9	7715.5	Local retail and service centres/Local urban convenience stores	Vulnerable communities
54	Upper Parliament Street	13.1	0.04	8800.0	13986	Leading comparison and leisure destinations/ Premium shopping and leisure destinations of (semi) regional importance	Students and young professionals
55	Broad Street	12.0	0.33	8000.0	32778	Leading comparison and leisure destinations/ Premium shopping and leisure destinations of (semi) regional importance	Students and young professionals
56	Gordon Road	6.0	0.01	8979.6	28047.5	Traditional high streets and market towns/ Indie and value orientated high streets	Well established/Prosperous professionals
57	Heathcoat Street	3.8	0.01	5600.0	32778	Leading comparison and leisure destinations/ Premium shopping	Students and young professionals

						and leisure destinations of (semi) regional importance	
58	Haydn Road	2	0.08	7200.0	14507	Not classified	Prosperous professionals
59	St James' Street	0	0	6666.7	12841	Leading comparison and leisure destinations/ Premium shopping and leisure destinations of (semi) regional importance	Students and young professionals

(sources of data: Adcock et al, 2018; Doleaga and Daras, 2018; Ordnance Survey 2019a; Ordnance Survey, 2019b; MHCLG, 2020)

However, when the ratio of materialised to potential shop theft risk scores are analysed, no clear picture emerges. The Victoria Centre, which despite accounting for 24.9% of all police recorded high street shop thefts in 2018 and 2019, has a risk profile that is driven more by potential rather than materialised risk. This indicates the presence of a few key retailers that are the primary destination of (often prolific) offenders which are surrounded by a large number of retailers, but which contain factors which dampen down the opportunity structures present within this location (for example as a privately-owned shopping mall with high levels of visible security external to actual retailers). This predominance of potential rather than materialised shop theft risk is also a feature of both high risk (High Road Beeston; Clumber Street) and low risk (Alfreton Road, Upper Parliament Street) high streets. In contrast, the materialised to potential ratio scores for Carlton Road (Lower), Lower Parliament Street, Broad Street and Portland Road suggest that these high streets are relatively suffering a much higher level of shop theft victimisation than their retailer profile might suggest is likely. These locations should form the focus of crime reduction initiatives since their profile points to the absence of the necessary preventative characteristics that are required to attain lower levels of shop theft victimisation.

Conclusion

This paper set out to develop a prototype shop theft risk index at the high street level in order to identify the primary materialised and potential risk drivers of high and low shop theft victimisation levels in Nottingham. The analysis presented here adds to the limited existing retail crime literature by empirically confirming the spatial

concentration of shop theft at the high street level in Nottingham. Furthermore, by using a combination of official data sources to map the retail characteristics of individual high streets, it represents the first attempt to develop an albeit simplified risk terrain model of high street locations based upon the presence of shop theft hotspots and more problematic retailers as defined by the attractiveness of the items they are retailing. An initial examination by the relevant neighbourhood policing teams, local authority officers, or store owners of the results presented here might lead to claims that the position of specific high streets on the shop theft risk index confirms what they already know. However, whilst the presence of high levels of shop victimisation in terms of specific risky facilities may be firmly established within their operational perspectives, the shop theft risk index provides a previously unavailable policy tool to guide their strategies and interventions. The presence of 'over-performing' high streets in terms of their victimisation profile relative to their potential shop theft risk levels affords crime reduction agencies, local economic development officers, and town planners with an opportunity to identify localities which may hold important transferable lessons in relation to street design, management of mixed use spaces, and ideal retail mixes. Equally, the ability to identify 'under-performing' high streets that are suffering high victimisation levels relative to their retailer risk profile, enables the identification of target locations that not only require some form of intervention, but which may constitute ideal test locations for assessing the impact of the adoption of specific retail crime reduction measures.

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