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ORIGINAL ARTICLE

Framing retail crime through an environmental criminological lens: insights from Australia and New Zealand

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Abstract
This article aims to provide insights regarding crime problems affecting the Australian and New Zealand (ANZ) retail sector, focusing primarily on the size and range of criminal behaviours. The research incorporated an online survey of retailers and police statistics. The study finds that the cost of retail crime increased by 28% over the last 4 years, against 25% growth in revenue. It also reveals that shoplifting remains the most significant and costly economic problem facing retailers, followed by employee theft. Additionally, fraud, notably in online channels, will remain a concern for the foreseeable future. We examine potential explanations and interpretations for retail crime through an environmental criminological lens. Increased research and involvement of researchers hold tremendous potential for reducing retail crime and preventing its growth in the future.

Keywords Retail crime · Opportunity reduction · Loss prevention · Environmental criminology

Introduction

Retail crime is estimated to cost more than $USD100bn annually in the USA alone (National Retail Federation 2022). From theft and fraud to vandalism and organised retail crime, the myriad forms of illicit behaviour that plague retail organisations have significant financial and social repercussions. Retailers face multifaceted challenges in combating this issue, including the need to balance customer service with security measures while empowering their employees to play a role in preventing and responding to retail crime.

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Despite the critical importance of retail crime as an issue that affects businesses, employees, and consumers alike, the prevalence of academic research in this area is underrepresented. With the notable exception of Ceccato and Armitage's (2018) edited volume *"Retail Crime: International Evidence and Prevention"* and Bamfield's (2012) monograph *"Shopping and Crime"*, research into retail crime rarely appears in mainstream criminological journals. To illustrate, shoplifting is consistently the pressing concern retailers in both costs and volume, yet only one of the ten most cited peer reviewed articles on this topic has been published in the twenty-first century, according to google scholar. Moreover, after reviewing the empirical evidence of increasing offenders' risk perception in retail settings, Beck (2016a) concludes "that there is a significant paucity of high quality published evidence on what interventions work and why … much of the evidence is really quite old, in many cases dating back 20 and 30 years" (p. 37).

The present article provides a descriptive analysis of the current retail crime landscape. Drawing from the opportunity perspective, we suggest that a deeper understanding of the situational and environmental correlates of criminal behaviour in retail settings can provide insightful guidance for loss prevention and risk management strategies. In our conclusion, we briefly reflect on the contribution that opportunity reduction has played in preventing crime in the retail environment and we hope to inspire environmental criminologists to explore new avenues of research by focusing on the understudied area of retail crime.

Background

Retail organisations employ a variety of measures to conceptualise and measure crime. One widely adopted approach is known as "shrink", defined as a measure of goods that have been lost between the point of manufacture and the point of sale, and does not account for damage or waste that occurs in the normal course of business (Bamfield 2012; Beck 2014; Beck & Peacock 2009; Chapman and Templar 2006). Subcategories have been identified to better understand the sources of theft and to design effective prevention measures. These include external theft, which refers to theft by customers or other third parties, internal theft, which refers to theft by employees or other insiders, vendor fraud, committed by suppliers or other business partners, and administrative loss, which refers to errors in logistics, pricing, and other administrative functions. Despite criticism over the informal and ambiguous nature of the shrink category (Beck 2017, 2018; Gill 2018), it is widely used and understood in the retail sector as a means of evaluating losses and formulating targeted prevention strategies. Beck (2016b, 2019) has proposed an alternative approach to categorising and measuring retail losses—Total Retail Loss—with a recent framework extending this to losses in e-commerce (Beck 2023), but the shrink category remains the principal framework for understanding the impact of crime events on retail operations.

In business settings, the function responsible for addressing retail crime is often referred to as Loss Prevention (LP) and encompasses a range of activities aimed at mitigating the impact of theft, fraud, and other criminal risks on organisational performance (Beck and Peacock 2009; Gill 2018; Hayes 2007). The scope of LP activities can vary depending on the sector, size, and risk profile of the organisation; however, it typically involves a combination of loss monitoring, surveillance, crime analysis, investigation, security, training, and policy development (Beck and Peacock 2009; Hayes 1997). LP is often used interchangeably with terms such as Asset Protection, Risk Management, and Security, reflecting the broad nature of its objectives. In recent years, there has been a trend for LP teams to expand their responsibilities to cover emerging threats such as cybercrime, employee fraud, supply chain security, executive protection, and reputation management. This expansion reflects the increasing recognition of the interconnection between various forms of enterprise risks and the need for coordinated and proactive measures to mitigate them. However, it also presents significant challenges to LP practitioners in terms of upskilling and adapting to new technologies and operational environments.

In routine activity theory, crime is understood to occur when a motivated offender finds a suitable target without adequate guardianship (Cohen and Felson 1979). The *place manager* is responsible for managing environments to reduce crime opportunities. In the context of retail crime, the business owner or executive management team are considered place managers, but the day-to-day responsibility is typically delegated to the Loss Prevention (LP) team. They are tasked with implementing strategies and practices to deter criminal activities, such as theft or fraud, within the retail environment. This includes surveillance, employee training, designing store layouts to reduce theft opportunities, and other crime prevention measures. The concept of place management has been significantly developed and expanded on by John Eck and colleagues (Eck 2015; Eck et al. 2023; Eck and Madensen-Herold 2018; Madensen and Eck 2008).

In practice, however, the realities of the Loss Prevention (LP) role often diverge significantly from its intended purpose, particularly in the context of organisational change within retail businesses. A common issue is the exclusion of LP professionals from the planning stages of changes that could inadvertently increase opportunities for crime. Consider the case of a prominent Australian retailer that decided to introduce Apple products across their stores. This decision was proposed by the electronics purchasing team, received approval from the general manager, and was executed by the head of logistics. However, this was all done without consulting the national head of LP. As a result, a comprehensive range of highly sought-after products was distributed and sold without any corresponding enhancement in security measures or loss prevention strategies. LP was only informed after the stock had already been delivered and made available for sale. The resulting crime harvest (both customer and employee theft) was inevitable.

The actual practice of loss prevention (LP) can be characterised as an exercise in opportunity reduction. This approach aligns closely with the principles of situational crime prevention (SCP), a framework of 25 techniques aimed at making criminal activities more difficult, costly, or risky (Clarke 1997, 2017). Various elements of physical retail environments—such as store layout, lighting, shelf height, display positioning, and the visible presence of CCTV—serve to both deter potential offenders and amplify their perception of being caught (Beck 2016a; Clarke and Petrossian 2003). Anti-theft tags, security cables, and lockable display cases are examples of ways that increase the effort required for a successful theft (Beck 2016a; Clarke and Petrossian 2003). For interested readers, Eck et al. (2023) provide a full table of the 25 SCP techniques tailored to the context of retail environments.

In summary, the role of loss prevention (LP) within retail organisations is fundamentally that of place management, tasked with the responsibilities of crime prevention and risk reduction. This is primarily achieved through the implementation of an opportunity reduction framework.

However, the effectiveness of LP can be significantly undermined by organisational changes that, despite being well intentioned, inadvertently create new opportunities for crime. These unforeseen changes often result in offenders quickly taking advantage of these emerging vulnerabilities. Consequently, LP teams often find themselves reacting, tasked with solving a problem where their expertise and foresight were not sought or utilised.

The COVID-19 pandemic and the public health directives issued in response have had profound effects on the operation of retail businesses (Pantano et al. 2020; Panzone et al. 2021). To comply with social distancing measures and ensure the health and safety of their customers and employees, retailers had to make significant changes to critical aspects of their operations (Pilawa et al. 2022). One major area of change was store layout and design, where retailers had to introduce measures such as one-way shopping aisles, checkout protection screens, and reduced occupancies to limit contact and avoid crowds (Verhoef et al. 2023). In addition, online shopping and delivery grew rapidly, as consumers have shifted their shopping habits to reduce their physical presence in stores (Gupta et al. 2023; Verhoef et al. 2023). Finally, retailers had to implement new health and safety protocols, including the use of personal protective equipment (PPE), enhanced cleaning schedules, and temperature checks (Ceryes et al. 2021).

The COVID-19 pandemic has implications for LP teams, as the changes implemented by retailers have introduced new vulnerabilities and risks, as well as new opportunities to adapt and innovate. The shift towards e-commerce operations, for example, could increase the risk of cybercrime and fraud as retailers are required to store and transmit more sensitive data online (Bodker et al. 2022). Similarly, the increase in delivery volumes has led to increased risk of cargo theft and supply chain disruption (Schleper et al. 2021), necessitating the need for tailored prevention strategies. On the other hand, the changes in store design and occupancy could provide opportunities for LP teams to reassess traditional prevention techniques and identify new, effective ways to detect and respond to criminal events (Taylor 2023). Overall, the COVID-19 pandemic has amplified the need for LP teams to be flexible, agile, and data driven in their approach to prevention and detection, to adapt to the changing retail environment and ensure the security and health of their organisation.

The 2022 ANZ retail crime study

The 2022 ANZ Retail Crime Study was conducted by the authors as a continuation of the 2019 ANZ Retail Crime Survey (PPFF 2019), a shrinkage study commissioned to provide regional insights into retail crime in Australia and New Zealand

(Townsley and Hutchins 2023). Despite being widely used in the retail industry, researchers have criticised shrinkage studies since shrinkage comprises both known and unknown losses. Categorising known loss is a straightforward proposition, but allocating unknown losses to particular shrinkage categories is highly speculative (Beck 2018). These estimates will always have a degree of subjectivity since they are based on impressions and are most likely subject to cognitive biases such as availability and recency biases. This presents challenges for management who use shrinkage estimates to inform business strategies and investment decisions (Chapman and Templar 2006). The aim of the 2022 study was to establish benchmarking metrics for the retail sector and identify overarching trends in the industry. This article represents the key findings of that research and offers criminological perspectives on the underlying causes of retail crime.

Methodology

This study incorporated two primary data sources: an online survey and police-recorded crime data. For the online survey, we invited LP managers of major retailers to participate (sourced from an industry body member list). Additionally, we utilised the LinkedIn social network to recruit additional participants. The survey featured a closed-answer question format and focused on assessing the operational impacts of COVID-19, estimating the prevalence, cost and main methods associated with different types of loss, prevalence of violence and abuse experienced by retail workers and the planned adoption of technological security solutions in the near term.

The survey garnered responses from some of the largest retailers in Australia and New Zealand across most categories. The industry member list for recruitment was 77, which elicited 22 survey participants (28.5% response rate). It is important to point out that it is common for retail companies to consist of several sub-brands under a single corporate structure. This makes it challenging to determine how many businesses might be represented but sample size alone. In terms of dollar value, the sample represented an aggregate of AUD 136 billion in annual revenue, accounting for roughly one-third of the retail economies of both countries. The aggregate workforce in our sample was over 450,000 personnel located in more than 8900 individual stores. In particular, the Australian respondents accounted for 10 of the top 25 retailers by revenue (Dickson 2022).

To gain a broader perspective on retailer experiences and to provide additional contextual information, we sourced recorded crime data from the Australian Bureau of Statistics (ABS). The data allowed for the understanding of the types of thefts from shops and store robberies being most frequently and consistently recorded, giving useful insights into the trends and their frequency. While comparable data from New Zealand were collated, differences in counting and reporting meant that it was challenging to include in the study in a comparable way.

Throughout the forthcoming sections, we present the study's findings for the entire retail sector and several categories (e.g. apparel, department stores, etc.). Because categories differ in size and number of participants, we have ensured that only those categories with an adequate sample size are reported here. For this study, retail crime is calculated as the aggregate of external loss, internal loss, and vendor fraud. These concepts are widely recognised across the sector and routinely measured, thus providing a common ground for meaningful comparison and evaluation of results.

When calculating crime costs, this study excludes incidents of violence and abuse. While there is a growing acknowledgment that violence through customer aggression and robbery has a considerable impact on businesses (icare 2019), it is crucial to note that the reporting and measurement of violent incidents differ from those of other loss types. Injury management and staff welfare systems typically operate independently from inventory management and supply chain databases (from which loss estimates are often derived). This segregation results in a significant challenge when attempting to construct a holistic view of the full economic impact of all forms of retail crime. Furthermore, the methodologies and metrics used to quantify loss are reasonably well established across the retail industry, providing a robust framework for analysis. This is not the case regarding the costs of customer aggression and abuse. We fully acknowledge this does not diminish in any way the significance or the impact of customer aggression for the retail sector.

As a result, the total costs of crime reported in this study will inevitably be an underestimate of the full economic cost of retail crime in the ANZ region. Unless otherwise stated, all monetary values are in Australian dollars. For NZ retailers, domestic dollar amounts were converted into AUD based on the exchange rate on 1 July 2022.

In this article, we compare the results of the online survey with the previous 2019 study, where feasible. The comparative analysis provides valuable insights into the trends and significant occurrence rates of various types of retail crime in the ANZ region. By comparing the 2019 outcomes with this study's findings, we increase the understanding of ongoing changes in retail crime and enable innovative strategies and solutions to combat retail crime in the future.

Results

Survey respondents were asked about their organisation's shrink experienced between 1 July 2021 and 30 June 2022. Three modes of response were possible: (1) the dollar amount; (2) a percentage of revenue; or (3) a percentage range of revenue. Respondents were also asked about annual revenue, to convert all shrink estimates into a common scale, either percentage or monetary. Next, respondents were asked about the relative proportion of different type of loss that comprise shrink (external theft, external fraud, internal theft, vendor fraud and admin loss). The survey logic ensured that responses totalled to 100. Crime-related loss was calculated as shrink less admin loss.

Our study found that estimated losses due to retail crime were 0.88% of revenue in 2021–2022, which translates to AUD 1.2 billion, based on data from participating businesses. When extrapolating the figures to the entire ANZ retail sector, it was found that the sector suffered AUD 4.3 billion in losses due to retail crime, as shown

Table 1 Types of crime-related loss and their economic impact (*Source*: 2022 ANZ Retail Crime Survey)

The cost of retail crime to ANZ (in AUD)	
External theft (shoplifting)	\$2292 million
External fraud (customer fraud)	\$612 million
Total external loss	\$2904 million
Internal loss (employee theft)	\$1044 million
Vendor fraud	\$350 million
TOTAL crime-related loss	\$4298 million

in Table 1. This represents a 28% rise in crime-related loss since 2017–2018 (AUD 3.37 billion, PPFF 2019). The primary concern for most retailers remains external theft. The sector's revenue increased by 25% between 2017–2018 and 2021–2022 (Australian Bureau of Statistics 2022).

When considering the relative proportions of loss types reported in 2021–2022 for the ANZ retail sector, the results reflected similar trends to those seen in previous years. External theft (shoplifting) remained the largest category of retail crime, accounting for 53% of all losses. Internal loss (employee theft) accounts for 24% of crime-related losses. Customer fraud made up 15% of all losses, whereas vendor fraud accounted for just 8% of crime-related losses.

When comparing these proportions in dollar value terms, the picture of retail crime within the ANZ region becomes even more interesting. A 20% increase was observed since 2017–2018 in external theft, resulting in AUD 635 million in losses. Comparatively, internal theft increased by 40% over the examined period and resulted in AUD 318 million in losses. The smallest proportion of all loss categories, vendor fraud, which was reported at 8% of all losses, experienced a 70% increase since 2017–2018. Ultimately, these results reveal that although external theft remains the significant source of retail crime within the ANZ region, both internal theft and vendor fraud have seen drastic increases in dollar losses over the four-year period.

COVID-19

Survey participants were asked the degree of disruption that COVID-related staff shortages had on operations. Using a five-point scale (no impact—severe disruption), 80% of respondents ($N=18$) felt that COVID-related staff shortages created "severe" or "somewhat severe" disruption. While a third of the survey sample ($N=7$) did not suffer from any trading interruptions, two-thirds of the remaining businesses had to suspend trading for more than 30 days during the 2021–2022 financial year due to COVID restrictions. Perhaps the most obvious effect of the pandemic on retail crime was that for those businesses with more than 30 days of non-trading in the last financial year reported more significant internal and external loss decreases than those businesses able to trade continuously, exemplifying a literal example of opportunity reduction.

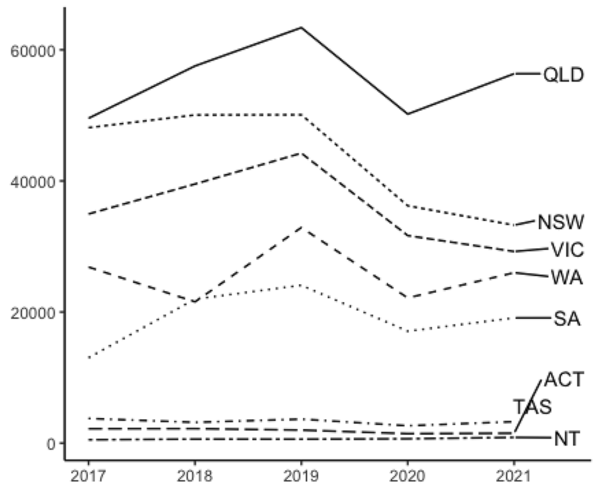

Fig. 1 Police-recorded other theft incidents in a retail location for each Australian State and Territory (*Source*: ABS Victims of Crime 2017–2022)

Police-recorded crime trends provide conclusive evidence of the COVID pandemic's impact on retail crime rates. The Australian Bureau of Statistics (ABS) annually publishes the Victims of Crime report containing police-recorded crime data from all states and territories (Australian Bureau of Statistics 2017, 2018, 2019, 2020, 2021). On average, from 2017 to 2019, 'other theft—retail setting' offences increased by approximately 10% each year. Figure 1 depicts this increase in offences within the retail setting. However, COVID significantly impacted various facets of daily life, including criminal activity. From 2019 to 2020, the total number of 'other theft' incidents significantly reduced by almost 27% in the retail setting, dropping from 220,954 to 162,079.

An analysis of police-recorded crime for the five most populous states in Australia confirmed that there was a noticeable reduction in retail theft during 2020. Three of these states demonstrated a return to their long-term trend in 2021, while New South Wales (NSW) and Victoria observed a continued downward trend of retail theft. Unlike all other Australia states and territories, NSW and Victoria were subjected to multiple and prolonged COVID lockdowns in 2021, which severely impacted retail trading and played a role in suppressing retail crime. Conversely, the states that experienced a return to normalcy in 2021 saw a regression towards the mean in crime numbers, as expected given COVID health directives were relaxed in these states earlier than NSW and Victoria.

Customer theft

Customer theft has historically been the most prominent category of retail crime, accounting for nearly 53% of total crime loss for the surveyed retailers. The retailers surveyed indicated that 43% ($N=9$) estimated the average customer theft incident at \$100–\$500 and an additional 38% ($N=8$) approximating the value to be between \$50.01 and \$100 (full distribution is presented in the Employee Theft section). Most of the survey respondents (76%, $N=16$) indicated that, on average, two to five items

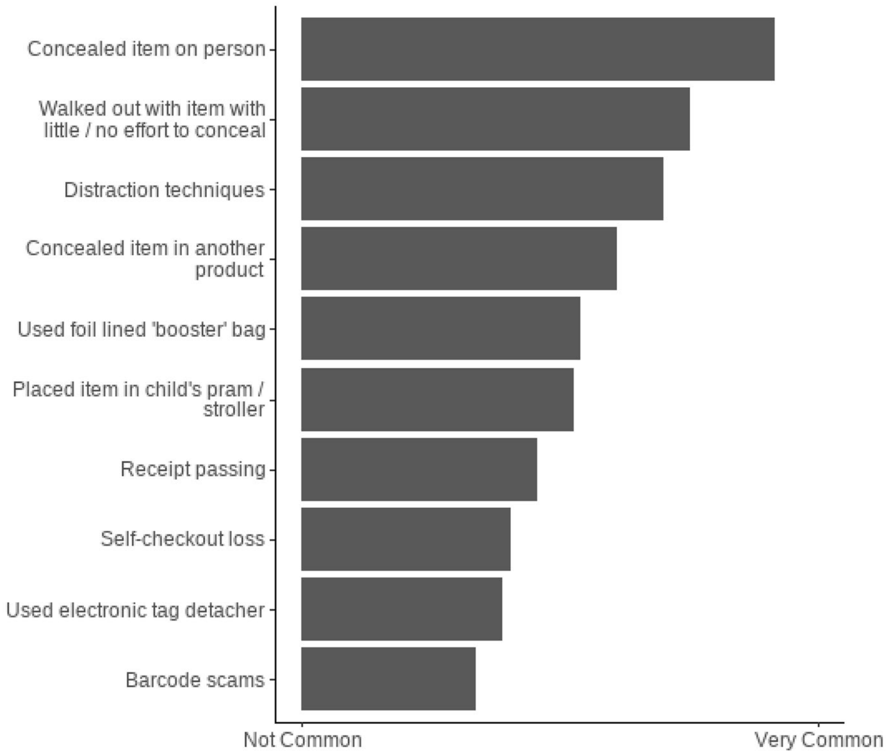

Fig. 2 Customer theft methods experienced in stores. (*Source*: 2022 ANZ Retail Crime Survey)

per incident were stolen. While approximately half of the respondents provided data on customer theft apprehensions, the values differed widely. Nonetheless, the median value of a customer theft apprehension observed by the retailers surveyed was $415.

We asked respondents to rate how common different theft methods were employed against their business in physical stores. Because retail categories experience vastly different levels of customer volume, it is not appropriate to compare counts as the large retailers would skew the results.[1] To account for this, we asked respondents to rate the prevalence of different methods on a 10-point scale (not common–very common). The results are displayed in Fig. 2.

Among various methods available for retail theft, survey respondents most frequently cited methods that we consider to be "low sophistication", in that they require no specialised knowledge, equipment, or significant experience. In contrast, the least common techniques do require some level of planning or experience. This

[1] The grocery/supermarket category is the largest category in many retail sectors. The average revenue of an Australian grocer is more than an order of magnitude greater than the average Australian department store.

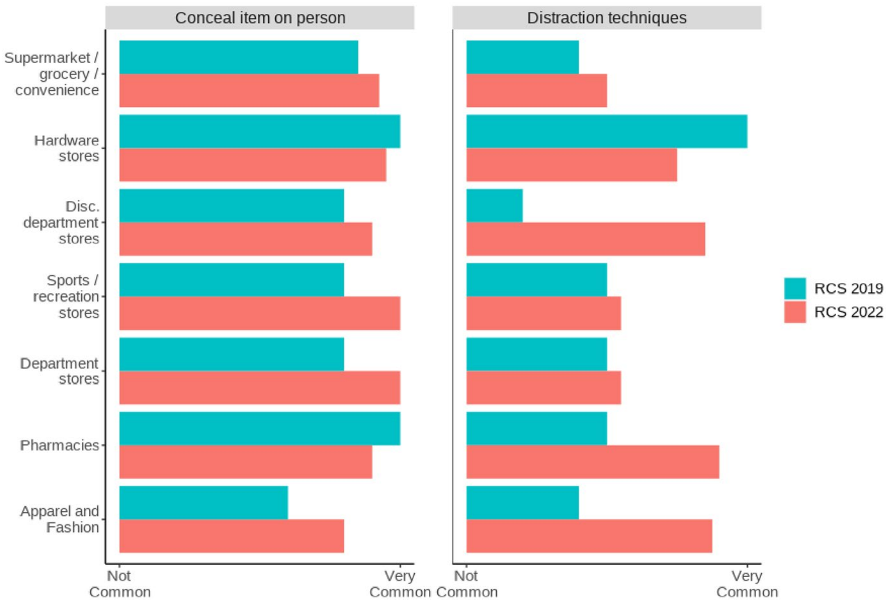

Fig. 3 Changes in low sophistication methods of customer theft (*Source*: 2022 ANZ Retail Crime Survey; 2019 ANZ Retail Crime Study)

result is consistent with offender decision making under a rational choice perspective (Cornish and Clarke 2008). We would expect the offenders to operate under the principle of least effort and favour the easiest means of opportunity exploitation or methods requiring more effort or time. This observation also suggests there remains additional opportunities for retailers to reduce theft and deter shoplifting by targeting these "low sophistication" methods.

The distribution of "low sophistication" methods across categories and time periods is also of interest, as shown in Fig. 3. Respondents reported concealing items on their person across all survey categories as "very common". Moreover, a comparison between the 2022 ANZ Retail Crime Survey responses and those from the 2019 survey, illustrated in Fig. 3, reveals a slight increase in the frequency of this method. However, this increase may be the result of differences in the surveyed retailers between the two surveys, and hence not necessarily generalisable to the overall ANZ retail industry.

The usage of distraction techniques to aid retail theft saw a noticeable increase in frequency within all categories, except for hardware stores. This increase was most prominent within apparel and fashion retailers, discount department stores, and pharmacies.

There were marked contrasts in the variation in methods requiring planning and preparation across different types of retailers, in comparison with those that did not necessitate such preparation. The frequencies of the two least common methods are displayed in Fig. 4. This demonstrates that booster bags were most used in pharmacies, followed by apparel and fashion retailers. In contrast with these, hardware

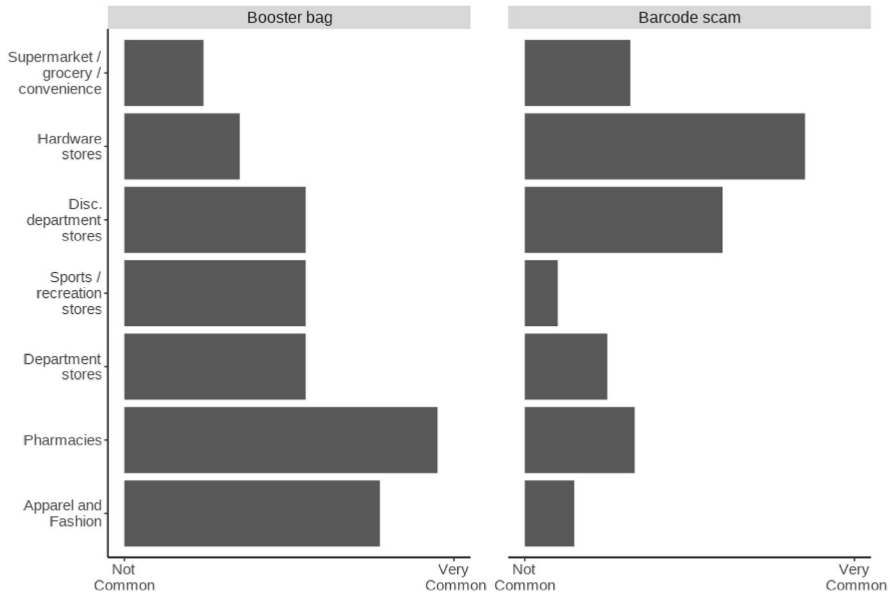

Fig. 4 Specialisation of methods requiring preparation and planning (*Source*: 2022 ANZ Retail Crime Survey)

stores, and to a lesser extent, discount department stores, were affected by barcode scams at significantly higher rates than other retail sectors.

There are some interesting insights into the difference between department stores and discount department stores regarding barcode scams. Despite sharing many similarities in terms of product range and store size, department stores reported significantly fewer barcode scams than discount department stores. From an opportunity perspective, the disparity is likely due to the widespread use (in Australia) of self-checkouts at discounters, making detection by retail staff more difficult. In addition, discounters tend to use high shelving for stock display which reduces line of sight and thereby reducing surveillance relative to the conventional department store layout.

Employee theft

Employee theft is the second most significant category of crime-induced loss for retailers making up 24% of all crime-related loss. Furthermore, despite fewer incidents of employee theft compared to shoplifting, retailers perceive the average employee theft to be of higher value. The survey found that 40% of participating retailers ($N=8$) indicated that the average value of an employee theft was more than \$500, with a further 40% ($N=8$) stating that the average value was between \$100 and \$500. Figure 5 compares the average dollar value of loss for a customer theft compared to an employee theft. While there are larger number of customer thefts,

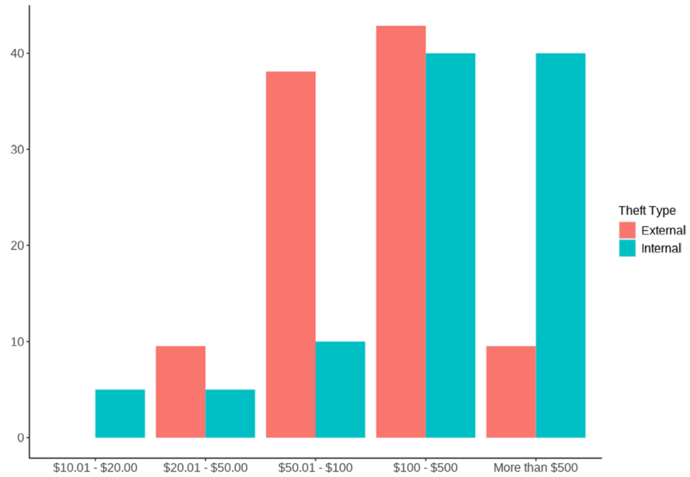

Fig. 5 Percentage of sample reporting average value of external compared to internal theft incidents (*Source*: 2022 ANZ Retail Crime Survey)

incidents of employee theft have a much higher value. We would infer that this disparity is a direct result of the employee's knowledge of system processes, procedures, and operations. Employees can thus benefit from such knowledge to a higher extent compared to customers, resulting in more significant rewards.

The retail sector involves one of the most casualised workforces, which can expose businesses to additional risks. For instance, during the Christmas trading period many retailers significantly increase in their headcount. In an environment where the labour force is transient and job security is low, employees may feel they have less stake in the business and may be more likely to rationalise theft. Moreover, larger retailers frequently implement significant monitoring systems to deter theft among employees. Despite this often being a prominent aspect of onboarding, many employees seem unaware of the extent of the surveillance. As one national LP manager said, "despite all the information provided when they join us, staff seem surprised when we show them [CCTV] footage of them stealing".

Fraud

The growth of online retail, spurred by COVID, has introduced new opportunities for fraudsters, as online shopping has become increasingly prevalent and convenient. While most businesses surveyed reported that most frauds take place in-store, the average cost of an online fraud incident was higher. Nearly three quarters of respondents ($N=16$) estimated the value of an online fraud incident to be between \$100 and \$500. In-store incidents, by contrast, had a value ranging from \$50.01 to \$100 for 37% ($N=8$) of retailers and \$100 to \$500 for 26% ($N=6$) of the sample. While the scale of these losses is still a fraction of the overall crime-related loss, this represents a growing category of loss that is increasingly being exploited by

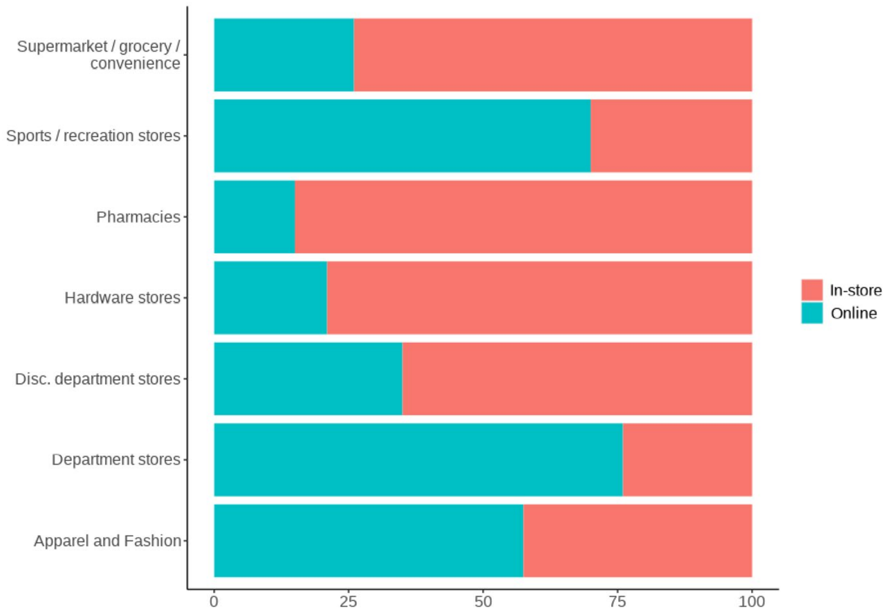

Fig. 6 The mix of fraud costs by channel for each retail category (*Source*: 2022 ANZ Retail Crime Survey)

organised crime groups, with an average reported cost of AUD 7.4 million per business in 2021–22, and a maximum estimate of AUD 50 million.

Respondents were asked about the mix of fraud experienced in physical stores compared to online channels. Figure 6 indicates that businesses that could only trade online due to COVID-19 restrictions, such as department stores, apparel, and sports/recreation retail, experienced a greater share of fraud losses through their online channels. In contrast, businesses that were able to continue trading in-person during the pandemic reported lower proportions of fraud experienced online. These findings highlight the significant impact of the pandemic on the retail industry, where changes in consumer behaviour and shifting patterns of transactional activity have opened new opportunities for fraudsters..

Additional characteristics of businesses can further explain the variation in fraud volume and types observed across different retail industries. Factors that influence the prevalence of fraud within a business include the type of products and services provided, the specific store policies and procedures adopted, as well as the range of detection solutions put in place and the respective retail channels through which these solutions are implemented. Fraudulent activities themselves also demonstrate significant variation depending on the nature of the business, with certain types being unique to specific retail channels. To illustrate the point, when asked about the prevalence of different types of fraud by sales channel, on a 10 point scale identical to the customer theft methods, Fig. 7 indicates that fraudulent delivery claims and

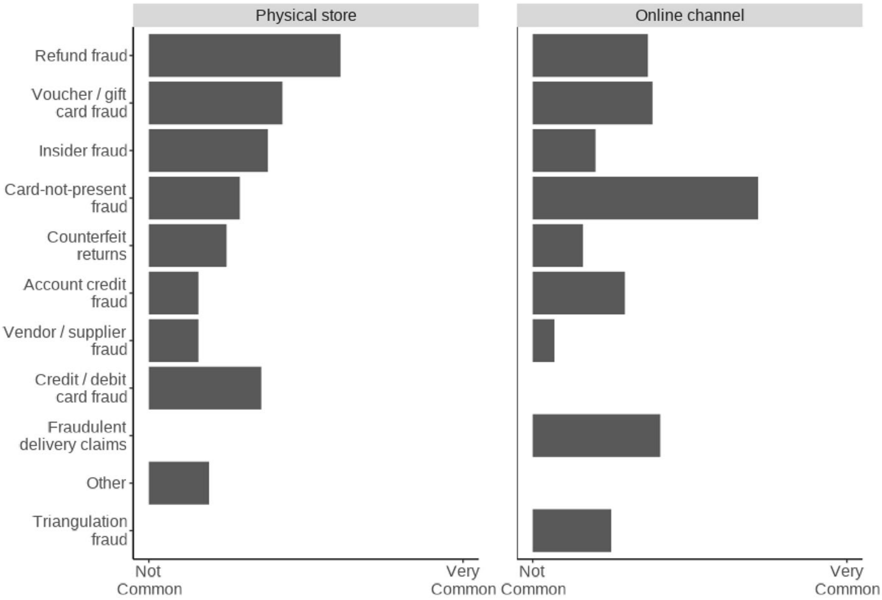

Fig. 7 Prevalence of customer fraud methods by channel (*Source*: 2022 ANZ Retail Crime Survey)

triangulation fraud[2] are primarily online phenomena, while credit/debit card fraud typically occurs only in physical brick-and-mortar stores (although it manifests as card-not-present fraud when transacted online).

Within the online retail space, card-not-present (CNP) fraud surfaced as the most reported type of fraud. CNP fraud, which is characterised by unauthorised use of credit card payment details without a physical card present, has been a persistent challenge for businesses throughout the decade and continues to pose significant risks (Bodker et al. 2022). In contrast, the most frequently cited type of fraud encountered in physical stores was refund fraud, an umbrella term comprising a range of distinct methods of taking advantage of retailers' refund policies. It is critical to acknowledge that each retail business faces idiosyncratic risks in this regard, influenced by the combination of their operational processes and the nature of their inventory. For example, in the case of price tag switching, where high-value items are tagged with prices of lower-value items, retailers can employ radio-frequency identification (RFID) tags and advanced pricing systems at the point of sale to detect price anomalies. This technique, while effective in certain retail environments, must be adapted to the specific inventory and customer interaction patterns of each store. Similarly, the challenge of returning

[2] Triangulation fraud involves a bad actor advertising items at low prices on an online storefront (such as ebay), then purchases the items using stolen credit card details from a legitimate store to fulfill orders. The victim receives the item, unaware of the fraud, while the legitimate store and the card owner become victims of credit card fraud.

stolen merchandise requires a tailored approach; retailers can implement stricter policies requiring proof of purchase for all refunds or exchanges, but this must be balanced with customer service considerations and the type of merchandise being sold. The use of inventory control systems that track item serial numbers can effectively monitor and prevent the return of stolen goods, yet the effectiveness of such systems varies depending on the store's product range and turnover rate. These examples underscore the importance of tailored staff training and operational protocols, designed to reduce opportunities for distinct types of refund fraud while considering the unique vulnerabilities of each retail business.

Violence and verbal abuse

Customer aggression has become an increasingly pronounced issue within the retail industry (icare 2019) and has seen a marked escalation since the onset of the COVID-19 pandemic. Reports from retail businesses during the height of the pandemic revealed a concerning rise in incidents of customer aggression and violence (Townsley and Hutchins 2020). This presents complex management challenges for retailers who must maintain a delicate balance between ensuring customer satisfaction and safety while upholding the integrity of their operations. Identifying the causes of customer aggression represents a key step that can help retailers tailor their approach effectively. Additionally, ensuring that staff members have access to appropriate training and support is essential to developing effective and safe protocols for managing cases of customer aggression and related safety risks in a post-COVID era.

For similar reasons to the customer theft methods, we used a 10-point scale to assess the frequency of several behaviours within their respective businesses, thus controlling for business size and allowing comparison to be made. To compare the results from 2021 to 2022 with those from the 2019 ANZ Retail Crime Survey, we present the results graphically in Fig. 8. Since only a subset of categories was reported in the 2019 study on violence and abuse, we include only those categories in our analysis here. For clarification, department stores and discount department stores were treated as a single category in the 2019 study, so we have collapsed those two categories for the 2021–2022 result.

We observe that both the apparel and fashion, as well as pharmacy categories, have demonstrated relative stability in reported violence and abuse frequencies over the past 4 years. Conversely, both department stores (including discount department stores) and supermarkets have reported recent increases in violence without injury-incidents. Notably, discount department stores have shown considerable growth in verbal abuse and aggression cases, while supermarkets have experienced modest decreases in such incidents. Nonetheless, skepticism has been voiced concerning the latter findings, calling for a more nuanced interpretation. Specifically, the implementation of body-worn cameras in several large Australian grocers (Bakan 2022; Crozier 2021) has not been the subject of a reliable independent evaluation and may have influenced the observed lower incidence rates.

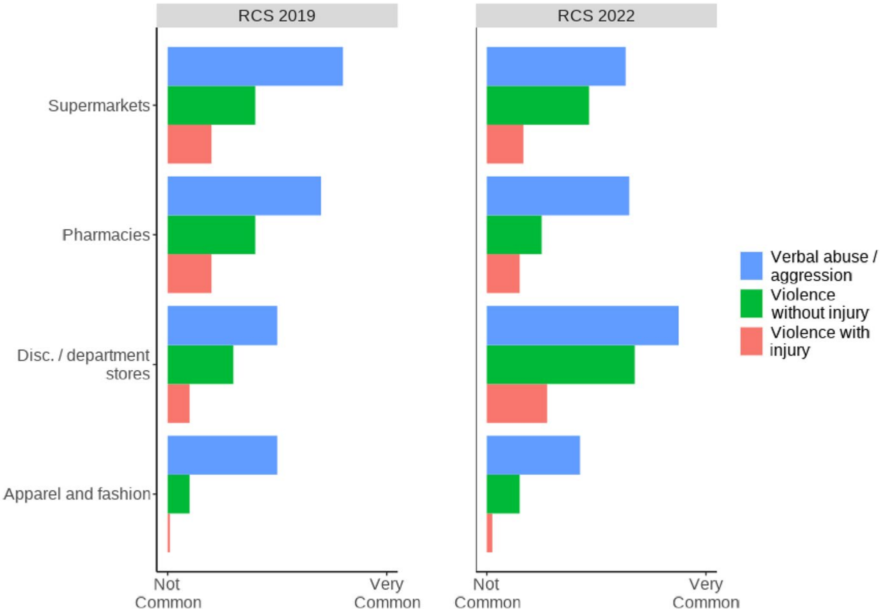

Fig. 8 Changes in frequency of violence and abuse by category (*Source*: ANZ Retail Crime Survey 2019, 2022 ANZ Retail Crime Study). Note: Discount department stores and department stores have been combined into a single category in this figure, to allow a more direct comparison to the ANZ Retail Crime Survey 2019

LP team composition and reporting structures

We asked LP managers about the size of their teams. Almost one-third of our sample ($N=7$) reported having a single individual dedicated to LP for their entire organisation. This finding is particularly unexpected given that our sample comprises large national retailers. This unusual concentration of single-person LP teams reflects a trend of consolidation and downsizing that has been increasingly observed throughout the industry. Furthermore, many businesses have undergone significant pandemic-related restructuring which has likely amplified the phenomenon.

In addition, we have identified two possible business models that could explain the prevalence of single-person LP teams. The first model is observed across franchise-based businesses where, although an LP Manager is present, the individual may only serve as a consultant and lacks the authority to compel a franchisee into acting. The second model involves local store managers who are afforded significant decision-making autonomy while LP services are accessed as a Business Partner arrangement. In this model, the LP manager wields greater influence and is responsible for overseeing a portfolio of 20 or more stores while acting as a liaison between the stores and corporate.

Our findings show that almost all respondents reported facing difficulty in recruiting LP staff with relevant experience and expertise, with 91% ($N=21$) labeling it as somewhat difficult or extremely difficult. The findings also revealed that among those retailers who specified their LP spending, the average percentage of total revenue of LP budget amounted to 0.32%. Surprisingly, only a single respondent confirmed that cyber security falls within the remit of LP. Despite notable growth in online sales and threats in the online space, our results indicate that most retailers in the ANZ region maintain a separation between cyber security and loss prevention functions.

Recruitment difficulties in hiring LP staff with requisite experience and expertise, coupled with relatively modest team size, are likely constraining the efficacy of LP managers in identifying and addressing security concerns within the organisation. The constraints on team size may limit the capacity of LP managers to identify crime issues, leading to prioritisation of tasks and potentially incomplete coverage of all security-related activities. This, combined with hiring difficulties, can lead to a situation where unqualified and inexperienced LP personnel struggle to identify, track, and prevent crimes, thus increasing potential losses. Additionally, limited resources could lead to a reduction in the effectiveness of LP managers in addressing losses, alluding to long-term implications that could impact the business's profitability.

Discussion

This article has explored retail crime within the Australian and New Zealand retail sectors, with an aim to quantify its economic impact and unveil its major patterns. Our research combined data from an online survey of retailers with police-reported statistics. Shoplifting persists as the predominant crime, bearing significant costs for businesses. Concurrently, we have observed a substantial increase in the costs attributed to employee theft, alongside an emerging concern of online fraud, indicative of a shift in criminal focus responsive to the evolving retail landscape.

Our application of an environmental criminological perspective offers a distinct interpretation of these findings, revealing that, like many other types of crimes, the retail environment itself critically shapes opportunities for criminal activities. Considering that the retail sector is one where change is a constant feature, this interplay between retail settings and criminal behaviour highlights an urgent need for innovative and adaptable loss prevention strategies.

The influence of the COVID-19 pandemic on retail crime patterns, notably the rise in online fraud, resonates with findings from Bodker et al. (2022), indicating an environment where cybercrime's prevalence is on the rise (Beck 2023). The pandemic's impact on physical retail operations, including altered store layouts and occupancy, has also been a key factor in these evolving crime patterns, consistent with the principles of environmental criminology and situational crime prevention.

Our study enriches the existing literature by providing contemporary insights into retail crime, particularly within the under-researched context of the Australian and New Zealand sectors. The findings illustrate several crime concentrations that suggest a supply of easy opportunities still exists, despite considerable investment and effort. Interpreting these findings through the lens of opportunity theory, we conclude that a more pronounced focus on the retail environment could significantly disrupt the supply of opportunities for crime, thereby influencing offender decision-making processes. The question arises whether this situation is due to a lack of awareness among LP teams of situational crime prevention techniques, a failure in implementation, or the adaptive capabilities of offenders. Empirical evidence supports all but the first of these notions. For instance, Lasky et al. (2017) illustrate that offenders can effectively circumvent security measures like mirrors, CCTV, and Electronic Article Surveillance systems, but this is contingent on the presence of overlooked vulnerabilities that they can exploit. Clarke (2017) highlights the gap that can exist between the theoretical principles of opportunity reduction and their practical application. To bridge this gap, he emphasises the necessity for thorough and targeted analysis into well-defined crime problems to gain a comprehensive understanding and effectively design out opportunities for crime.

Discussions with LP managers reveal a general familiarity with the principles and concepts of SCP and opportunity reduction. However, if LP teams, serving as place managers, are conversant in opportunity reduction, the critical question is where the disconnect originates. We propose that within the framework of routine activity theory (Cohen and Felson 1979), senior management in a retail context acts as a *super controller* (Sampson et al. 2009) to the LP's role as a place manager. Super controllers are actors that have influence over controllers (handlers, guardians, or place managers) and can either inhibit or facilitate crime through exercising (or not) this influence (Townsley et al. 2016). The lack of prioritisation of crime reduction by super controllers creates a vulnerability in effective place management, making the retail environment more susceptible to criminal activities. Therefore, there is an imperative need for alignment and support from super controllers (senior management) to empower LP teams effectively in their crime prevention roles.

The hesitation of executive management to enable effective place management likely stems from the tension between providing a seamless customer experience and introducing deterrent measures for offenders. For instance, Zidar et al.'s (2018) analysis of a shoplifting issue in a medium-sized US police jurisdiction underscores this dilemma. They describe how a large retailer, responsible for the majority of police calls in a police beat, had inadvertently created policies that facilitated rather than prevented criminal acts. From the perspective of routine activity theory, the retailer's executive team (the super controller), through directives to the LP team (place manager), was enabling criminal activity. This situation illustrates the retailer viewing shoplifting as primarily an *offender* problem, necessitating a criminal justice response, while the police saw it as a *place* problem, implying that environmental modifications could be a more efficacious solution.

LP teams are well versed in what is required for effective crime prevention. However, within retail organisations, there is an overarching cultural emphasis on sales and customer experience. Initiatives designed to prevent crime, albeit potentially effective, are often met with resistance due to perceived impacts on sales. This dynamic highlights the need for a more balanced approach that aligns crime prevention practices with customer experience principles (Beck and Peacock 2009).

This study has implications across several domains, including retail crime prevention, policy development, and theoretical understanding within criminology. For retailers, the escalation in the costs associated with employee theft underscores an urgent need to enhance internal monitoring and loss prevention strategies. This encompasses a critical evaluation of existing capacities in employee training, internal audit systems, and corporate culture. Additionally, the emergence of online fraud calls for strengthening cybersecurity measures, extending beyond technological solutions to include staff training in recognising and responding to online fraud.

Theoretically, this study reinforces the importance of environmental criminology in understanding and preventing crime. The patterns observed suggest that both physical and digital designs of retail environments significantly influence the occurrence of crime, aligning with situational crime prevention principles. This highlights the need for future research to explore how situational factors, influenced by external events like pandemics, shape crime patterns.

Policy-wise, the rapid transition to online shopping during the pandemic, accompanied by a growth in online fraud, necessitates comprehensive cybercrime prevention strategies. This calls for collaboration between policymakers, industry bodies, and retail industry leaders to develop regulatory frameworks tailored to the challenges posed by cybercrime in the retail sector. Such policies should aim to protect consumers and retailers, ensuring a secure online shopping environment.

Our study, while providing significant insights into retail crime in Australia and New Zealand, has limitations that must be acknowledged. The primary reliance on data from an online survey and police-recorded crime statistics may not fully capture the spectrum of retail crime. The survey sample, representative of major retailers, may not encompass the experiences of smaller or independent retailers, potentially leading to a skewed understanding of retail crime dynamics.

The subjectivity inherent in self-reported data poses a risk of bias or inaccuracies in responses, especially in areas like employee theft and online fraud. The regional specificity of the study may limit the generalisability of findings to other contexts, as retail crime dynamics can vary based on cultural, economic, and legal differences. Furthermore, the study did not comprehensively account for all types of retail crime, particularly overlooking aspects such as violence and abuse against staff.

The unique and potentially temporary influence of the COVID-19 pandemic on retail crime patterns also poses a limitation. Future research should expand the sample to include a wider range of retailers and use mixed-method approaches for a more holistic view of retail crime. Monitoring retail crime trends post-pandemic is essential to discern enduring changes and adjust strategies accordingly.

Recognising these limitations provides a framework for understanding the study's context and scope, paving the way for future research that builds upon and extends our findings.

Conclusions and recommendations

The study's key takeaways make a significant contribution to the field of criminology. The persistence of customer theft as a major source of loss, coupled with the minimal planning required for such crimes, should concern loss prevention managers, indicating the continued existence of easy opportunities in retail environments. The dramatic rise in costs due to employee theft calls for a sharper focus by retailers.

Additionally, the emergence of online fraud highlights a shift in retail crime in the digital era.

The application of an environmental criminological lens has enabled a deeper understanding of the situational and systemic factors influencing retail crime. This perspective can help articulate the rise in employee theft and online fraud, offering new insights into how both physical and digital retail environments can be optimised to mitigate crime.

Our findings contribute to contemporary discussions in criminology, offering examples of crime patterns, evaluating current prevention strategies, and underscoring the potential for innovative crime reduction approaches. The focus on the Australian and New Zealand contexts adds a unique regional perspective to the global discourse on retail crime.

This research not only enhances understanding of retail crime but also lays the groundwork for future studies, opening avenues for exploration in cybercrime and internal theft. These insights are instrumental in shaping future research agendas and developing context-specific strategies to combat retail crime.

Recommendations arising from this study are tailored to policymakers and industry associations, retail industry practitioners, and researchers, addressing the challenges revealed and advocating for collaborative approaches to mitigate retail crime.

For policymakers and industry associations, the development of a regulatory framework targeting cybercrime in the retail sector is paramount. Policies focusing on data protection, consumer rights, and cybersecurity measures are crucial. Collaborative initiatives between law enforcement, retail businesses, and academic institutions are recommended to facilitate knowledge sharing and integrated crime prevention strategies.

For practitioners, comprehensive strategies for internal theft prevention are essential, involving employee screening, audits, and a theft-discouraging corporate culture. Strengthening cybersecurity infrastructure is critical in response to the rise in online fraud, necessitating advanced fraud detection technologies and staff training.

The study suggests several promising directions for future research, addressing identified gaps and exploring emerging trends in retail crime. Investigating the experiences of smaller and independent retailers will provide a more comprehensive understanding of retail crime, shedding light on unique vulnerabilities and strengths in loss prevention.

Another pivotal area of research is employee theft and the efficacy of internal controls. There is a need for a more concentrated examination of the reasons behind the increasing trend of employee theft and the effectiveness of various internal control measures. Such studies could explore the influence of organisational culture, employee engagement, surveillance technologies, and other factors on internal theft rates.

The non-economic impacts of retail crime, particularly the effects on staff well-being and customer perceptions, also warrant attention. Future research should consider the psychological impacts of crime on employees and how customer experiences and perceptions are influenced by security measures in retail settings. This could lead to the development of more holistic crime prevention strategies that consider the wider impacts of retail crime.

Evaluating the effectiveness of various loss prevention strategies, both conventional and innovative, is another crucial area for future research. This could involve experimental designs, case studies, or meta-analyses of existing interventions to determine what works best in different retail environments. Such evaluations would provide valuable insights for retailers in choosing and implementing effective loss prevention measures.

Investigating the role of emerging technologies, such as artificial intelligence and machine learning, in retail crime prevention could offer innovative solutions to long-standing problems. Research in this area could focus on the effectiveness, ethical implications, and consumer responses to the implementation of these advanced technologies in retail environments.

Lastly, there is a pressing need for studies focusing on violence and verbal abuse in retail settings. Research should aim to develop comprehensive approaches to mitigate these issues, improving the safety and well-being of retail staff. Understanding the causes and effective management strategies for dealing with customer aggression and violence is vital in ensuring a safe and positive working environment for retail employees.

In conclusion, the significance of this study lies not only in its contribution to academic discourse but also in its potential implications for combating retail crime. It serves as a catalyst for continued research and action, inspiring a collaborative effort among researchers, practitioners, and policymakers to develop solutions that are as dynamic and multifaceted as the problems they aim to address.

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