Theft victimization in urban settings:
Comparison of tourist and resident case profiles

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Abstract

The relationship between urban tourism and crime has been well documented, although a focus on the specifics of tourist victimization is lacking. This study explores police-recorded thefts against urban tourists in the city of Barcelona (Spain). We apply Conjunctive Analysis of Case Configurations to a large data sample to uncover victimization case profiles and the context in which crimes are committed. Comparisons to resident victimization reveal that the case profiles most likely to result in a tourist being the victim of theft have predominantly female, young targets, and occur mostly at restaurants/bars and during the Summer. Future research should examine victimization trends while accounting for time spent in different settings, and compare self-protective behaviors taken by tourists and residents.

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Introduction

Tourism has become one of the most profitable industries in the last few years. In 2019, 1.5 billion international tourist arrivals were recorded worldwide (UNWTO 2020), and the Travel & Tourism sector contributed 10.4% to the global GDP (WTTC 2021). Spain is the world's second most visited country by tourists, with over 83 million international tourist arrivals in 2019 (UNWTO 2020). The city of Barcelona, located in the northeastern region of Spain (Catalonia), and with a population of around 1.62 million, is Spain's most popular tourist destination. In the last couple of decades, the tourism sector in the city has experienced a dramatic increase: from 2010 to 2019, the number of tourists visiting Barcelona almost doubled, reaching about 14 million in 2019 (Barcelona 2020).

According to official sources, from 2015 to 2019 the city experienced an over 30% increase in crime, led mostly by a rise in the number of thefts, robberies, and burglaries (Barcelona 2020; Garrido 2019). The media, as well as some scholars (Maldonado- Guzmán, Saldaña-Taboada, and Salafranca-Barreda 2020), partially attributed this phenomenon to the ever-growing tourism industry in the city and the fact that tourists seemed to be specially targeted by thieves (Canalis 2019; Castan and Albalat 2019). The situation escalated during the Summer of 2019 when a couple of robberies against foreign officials (one of them resulting in death) resonated broadly in the international press (Media 2019; Tribune 2019). On August 21, 2019, the U.S. Consulate General in Barcelona issued a travel advisory, due to "an increase in violent crime in the city of Barcelona in the summer of 2019, specifically in popular tourist areas. Local authorities have reported a significant increase in the number of petty theft schemes that have included acts of violence, such as aggressive thefts of jewelry, watches, and purses." (24 2019).

The relationship between tourism and crime has been well documented in the literature in the past few decades, with the consistent finding that the increased presence of tourists is related to higher volumes of crime (Mawby 2014). Some authors argue that existing research consists mostly of macro-level quantitative research and that specifics on the details and context of tourist victimization, as well as comparison to resident victimization, are largely lacking (P. Brunt and Shepherd 2004; Erik Cohen 2019). The literature on this issue in Spain is notably sparse, especially considering the volume of tourists visiting the country every year. To the best of our knowledge, until very recently, existing research was exclusively focused on Andalucia, the southernmost region of the country (Aebi and Mapelli 2003; Cerezo, Peláez, and Sortino 2022; Stangeland 1998; Stangeland and Felson 1995), with the only exception of the study by Montolio and Planells-Struse (2016) on the impact of tourist activity on crime rates in Spain as a whole.

Coinciding with the increased availability of official crime statistics, in the last couple of years a few studies have emerged using data from the city of Barcelona:

Maldonado-Guzman ([2020](#), [2022](#)) analyzes the relationship between levels of tourism and urban crime, and Buil-Gil and Mawby ([2022](#)) explore the different crime reporting propensities of tourists and locals. However, the basic characteristics of the crimes committed against tourists, as well as the victim typology and the contextual factors that surround the commission of the crime, remain largely unexplored.

Our study aims to identify unique features of tourist victimization in the city of Barcelona through the analysis and comparison of tourist and resident victimization profiles, thereby addressing some of the gaps in the literature described above. We use police-recorded data of theft incidents from 2016 to 2019 to study victim profiles and contextual characteristics of thefts such as the time and location of the crimes. Contributions to the field include: 1) the analysis of contextual factors of theft against tourists/residents applying Conjunctive Analysis of Case Configurations (CACC), 2) the comparison of thefts against tourists and residents using a unique dataset that identifies the tourist/local status of the victim, and 3) the proposal of a novel way to apply CACC to very large samples.

The Relationship Between Tourisim and Crime

Although tourism can play different roles regarding crime ([Ryan 1993](#)), most research analyzing the relationship between tourism and crime has focused on exploring tourism as a criminogenic factor, comparing crime rates in tourist destinations against other areas, and analyzing how crime volumes vary during high and low tourist seasons ([Allen 1999](#)). Findings of research conducted in multiple locations consistently indicate that an increased presence of tourists in an area, or during certain seasons, is related to a rise in crime, especially property crime [Alleyne and Boxill ([2003](#)) in Jamaica; Biagi and Detotto ([2012](#)) in Italy; Jud ([1975](#)) in Mexico; Michalkó ([2004](#)) in Hungary; Montolio and Planells-Struse ([2016](#)) in Spain; Recher and Rubil ([2019](#)) in Croatia; Walmsley, Boskovic, and Pigram ([1983](#)) in Australia; among others].

Not all tourists experience the same victimization risk. Females, as well as young and elderly tourists, are often described in the literature as more vulnerable to property crimes, citing their riskier lifestyle when on vacation (in the case of younger tourists) and a lower capacity to protect themselves against victimization (in the case of females and the elderly) ([Allen 1999](#); [P. Brunt and Shepherd 2004](#); [Paliska et al. 2020](#); [Zhao and Ho 2006](#); [Ngo, Jaynes, and Cochran 2021](#)).

Just as tourists differ in their risk level, not all places and times are equally risky. Crime properties and contextual characteristics vary depending on the type of crime analyzed ([Cornish and Clarke 1987](#)). For example, it is more likely that a robbery happens at a location and time where few people are passing by; meanwhile, pickpocketing tends to occur at crowded places and times, as has been well established when examining the convergence of offenders, targets, and guardians in time and space through the lens of criminological theories

such as Routine Activity Theory (L. E. Cohen and Felson 1979). For this reason, it is important to analyze violent and property crimes separately and to discriminate further even within these general categories. Analyzing property crimes, Crotts (1996) found that tourists were mostly victimized at their hotels and motels, followed by parking lots and garages, and highways and roadways. Zhao and Ho (2006) found, in a study on victimization among hotel visitors, that thefts tended to occur inside their hotel, and during the daytime. Allen's (1999) study of theft against tourists discusses the same temporal patterns. Vakhitova et al's (2022) study of burglary from tourist accommodations reported that all-inclusive resorts, particularly those located within a city, are much riskier than other types of tourist accommodations. Paliska et al's (2020) analysis of pickpocketing against foreign victims revealed that this crime tends to happen in public places. Studying where and when different groups of tourists are most victimized, and what type of activities they were engaged in at the time of the crime when compared to the resident population, can provide much-needed insight into tourist victimization (Paul Brunt, Mawby, and Hambly 2000; Mawby 2010).

Few studies have focused on examining tourist victimization compared to that of the local population (P. Brunt and Shepherd 2004). Some studies using police data extrapolate whether a victim is a tourist or not from their nationality since police departments rarely record whether the victim is a resident or a tourist (Michalkó 2004; Paliska et al. 2020 ; Zhao and Ho 2006; Albuquerque and McElroy 1999; Mawby 2017). In other studies, such status is assumed if the crime happened at a tourist resort (Recher and Rubil 2019; Walmsley, Boskovic, and Pigram 1983). This is an important limitation of existing work on tourist victimization. Whenever actual resident/tourist comparisons have been possible, often through the use of other data sources such as surveys, the evidence shows that tourists are at higher risk of becoming crime victims of theft and robbery than residents(Buil-Gil and Mawby 2022; see Harper 2001 for a comparison of tourist/resident crime rates in five international locations) and that people are more likely to be victimized on holiday than at their home country (Mawby 2014).

Other gaps in the literature include the lack of comparison of victimization profiles between tourists and residents beyond their varying victimization rates, as well as the contextual factors of victimization. Cerezo et al. (2022) offer descriptive data on tourist vs resident victimization in Malaga (Spain), although such comparisons are conducted on aggregate data on a variety of crimes (sexual abuse, sexual assault, murder, theft, burglary, robbery, and car theft), except for the analysis of locations of thefts against tourists and residents. As indicated by Harper (2001), "[. . .] to the extent that the crime experience of tourists and resident populations is different, both qualitatively and quantitatively, the development of a criminology of tourism that focuses on the situational context of tourism seems appropriate at this time" (p. 1055).

Our study overcomes some of the limitations of previous scholarship. Using

police data where tourist/resident status is specifically recorded, we analyze and compare thefts against residents and tourists with a special focus on the profile of the victims (gender, age) together with the contextual characteristics of the crimes (date, time, type of location). We approach this research from the lens of Routine Activity Theory, described below. The research questions leading this study are:

1. How do tourist and resident case profiles differ?
2. What contexts are riskier for tourists than for residents?

Tourists as Vulnerable Victims

As seen above, there is a need "to focus on the risks experienced by different subgroups of tourists and the extent to which these are influenced by their different vacation routines" (Mawby 2010, 33; the same idea is echoed by Paul Brunt 2010; Harper 2001; Montolio and Planells-Struse 2016). The main theoretical approach used in the tourism and crime literature to explain tourists' heightened victimization risk is Routine Activity Theory (Boakye 2010; Crotts 1996; Albuquerque and McElroy 1999; Mawby 2010; Vakhitova et al. 2022; and Recher and Rubil 2019, among others).

Routine Activity Theory (L. E. Cohen and Felson 1979) states that, for any crime to occur, three elements are required: (1) a suitable target, (2) a likely offender, and (3) the absence of a capable guardian who can prevent the crime from happening. When applied to tourists, the three elements come into play.

Suitable Target. Tourists are particularly attractive targets due to a variety of factors:

- They are easy to spot due to the way they dress and how they behave and they are relaxed and off-guard (Crotts 1996; Harper 2006; Ryan 1993)

- They carry valuable items (cash, tech, jewelry) and documentation (Ryan 1993)

- They may experience language barriers (Allen 1999)

- They are less likely to report the crime to the police (Buil-Gil and Mawby 2022), to press charges (Ryan 1993), and to stay or return to the holiday destination to follow through with the prosecution of an offender (Chesney-Lind and Lind 1986; Harper 2006)

- They spend less time indoors and more time on the street and out at night (Paul Brunt, Mawby, and Hambly 2000; Chesney-Lind and Lind 1986)

- Some of them engage in risky behaviors while on vacation that they would not engage in at home, and tend to visit popular and crowded areas and riskier locations such as bars and nightclubs (P. Brunt and Shepherd 2004; Chesney-Lind and Lind 1986; Harper 2006)

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Likely Offender. Studies examining target selection decisions among offenders have found that tourists are preferred targets among pickpockets (Inciardi 1976), con artists (E. Cohen 1996), and street robbers (Harper 2006) for the reasons stated above.

Absence of capable guardian. Mawby (2010) argues that low levels of guardianship may influence tourists' risk of victimization at three levels:

- Self-guardianship. Tourists are less vigilant and more prone to find themselves in high-risk environments, knowingly or not.

- Community guardianship. Tourists lack the social connections (i.e., neighbors) that could provide informal guardianship due to the transient nature of their visit.
  Additionally, the high turnover of tourists and workers at tourist destinations offers high levels of anonymity, making it difficult for potential guardians to know whether something is amiss, or whether somebody "doesn't belong" (Chesney-Lind and Lind 1986).

- Formal guardianship. Local police may consider that crimes against tourists are not a priority, given that the probability of successful apprehension and conviction of perpetrators is extremely low.

Study Methods

Data and Variables. Incident data on thefts against tourists and residents were obtained from Mossos d'Esquadra (Catalonia's Regional Police) through the Department of Interior of the Government of Catalonia. The from the dataset were selected property crimes committed from January 1, 2016, until December 16, 2019, and occurring in the five districts (out of a total of ten) in Barcelona that concentrate most tourist activity (Molinero 2012; Moll 2020): Ciutat Vella, Eixample, Sants-Montjuïc, Sant Martí, and Gràcia. Two of these districts (Ciutat Vella and Eixample) concentrate about two-thirds of all hotels in the city of Barcelona, and around 40% of all restaurants and retail stores (Moll 2020). In the past few years, tourist activity has spilled over to the three adjacent districts as well: Sants-Montjuïc, Sant Martí, and Gràcia (Moll 2020). While only 56% of all residents are registered in these five districts, 76.4% of all crimes reported in 2019 were concentrated in these areas (Barcelona 2020).

In this study, theft is defined as the unlawful taking of personal property without the consent of the owner. The dataset described above classifies property crimes into the following categories: theft, robbery, burglary, theft of vehicle, and theft from vehicle. Only the incidents recorded under "theft" are used in this analysis, which include any taking of personal property conducted without violence or intimidation (considered robbery according to Spanish law) or breaking and entering (which would constitute burglary), apart from vehicles or items taken from a vehicle.

Victims reporting a crime to Mossos d'Esquadra self-identify in the report as

residents or tourists, as well as three other categories: visiting for work-related reasons, occasional visitor (i.e., visiting the city to go to a doctor appointment), and other/unknown. According to the Department of Interior, the last three categories make up less than 5% of all reported crimes. This data-recording practice overcomes limitations cited in the literature regarding how tourist crime is quantified (Mawby 2017).

A total number of 221,778 thefts against residents and 114,253 thefts against tourists were recorded during the study period. For each crime event, data recorded includes information about the victim (age, gender, nationality) and the event itself (such as date, time, and type of location).

There are several limitations to the use of official crime records when analyzing crime, including how crime is conceptualized (Buil-Gil, Moretti, and Langton 2021). The shortcomings of using police-recorded data in criminological research are well-known and include sources of measurement error such as underreporting, recording bias, and data processing errors, among others (Buil-Gil, Moretti, and Langton 2021; Kroneberg et al. 2022). There are additional limitations of police data relevant to our research. International tourists report crime to police at a lower rate than locals do (Buil-Gil and Mawby 2022) and, in the case of thefts, the time of the incident may be an estimation, as victims of theft and pickpocketing do not always know when exactly the crime happened (Lisowska 2017). Despite these limitations, police records constitute a valuable source of available data on victim and event characteristics in tourism victimization. Thus, in this study, we operationalize thefts as police-recorded incidents of theft in the five main tourist districts in the city of Barcelona.

Conjunctive Analysis of Case Configurations. We use Conjunctive Analysis of Case Configurations to uncover distinctive features of tourist victimization through the analysis of victimization case profiles and the comparison of tourist and resident victimization profile patterns (CACC; (Miethe, Hart, and Regoeczi 2008). CACC is a data analysis technique that focuses on the context of a particular crime through the analysis of unique combinations of variable attributes (case configurations, also called "situational profiles" - Hart 2019) related to a specific outcome. CACC can be used for exploratory data analysis, as well as hypothesis testing, and it provides the opportunity to examine complex relationships of combinations of categorical variables. In the past few years, a growing body of literature has used this technique to identify dominant situational profiles and to explore patterns within case configurations in a variety of topics, such as violence against college students, street robbery and bus stops, terrorism, mass school shootings, sex offenses, and online harassment, among others (Cook et al. 2020; Gruenewald, Drawve, and Smith 2019; Hart and Miethe 2011, 2014; Moneva, Miró-Llinares, and Hart 2020; Paez, Capellan, and Johnson 2021). To the best of our knowledge, this is the first time that CACC has been applied to the study of tourist victimization, and to a dataset with hundreds of thousands of cases.

The first step in conjunctive analysis is to construct a data matrix table (also

called "truth table"), by placing all variables that we want to include in our analysis in the columns of the table (Hart, Moneva, and Esteve 2021). Each row in the matrix represents a unique combination of variable attributes and constitutes a case configuration (or situational profile). For example, if we include 4 dichotomous variables in our analysis, the matrix will contain a total of (2 x 2 x 2 x 2) 16 unique case configurations. We then aggregate the observations in our dataset to the truth table, which allows us to sort our case configurations from most to least prevalent. The second step is to identify dominant case configurations by establishing a minimum-frequency threshold (typically 10 cases when $N > 1000$, and 5 when $N < 1000$), which are then used to explore the patterns in the data. Examination of the level of clustering of unique combinations of variable attributes can also be used to determine the likelihood of a particular outcome (i.e. the dependent variable), but such concentration has been quantified differently in the literature applying CACC. The use of a Situational Clustering Index (SCI) has been recently suggested as a consistent and replicable way to measure the magnitude of clustering among dominant profiles (@ Hart 2019).

Table 1 lists the seven variables included in our model and describes how some of them were recoded into categorical variables.

Table 1: Variables Included in the Conjunctive Analysis of Case Configurations.

Variable	Categories	Description.of.categories
Gender	Male	Gender categories were
	Female	directly obtained from police records.
Age	15–24	Age was recoded into brackets.
	25–34	
	35–44	
	45–54	
	55–64	
	65+	
Type of place	City public areas	Crime location was classified according to the type of place:
	Transportation	for example, crimes occurring in bus stops and
	Restaurants/bars	subway cars were aggregated into the category "transportation."
	Retail	Bars in Spain serve food and drinks throughout the day
	Nightlife	and were therefore aggregated to restaurants.
	Lodging	Musical bars that only open at night
	Leisure/culture	were classified under "nightlife."
	Other	
Seasonality Winter		Seasons were created using solstice and equinox.
	Spring	
	Summer	
	Fall	
Weekday/weekend	Weekday	Weekends consist of a 60-hr period starting Fridays at 4 pm
	Weekend	and ending Mondays at 4am to account for the rhythm of weekend nighttime activities
Time of day	Morning	Time of day was divided into three categories: morning (6 am–1.59 pm), afternoon/evening (2 pm–9.59 pm),
	Afternoon/evening	and night (10 pm–5.59 am). These categories were chosen following common schedules
	Night	in Spain (mealtimes tend to be around 2 pm and 9–10 pm), and also coincide with local police shifts.

Victims under 15 years old (0.3% of the dataset) were excluded from the analysis for consistency with other sources of data on tourism in Barcelona (Barcelona 2020). We followed the listwise method to handle missing data, resulting in a 1% reduction of our total sample size.

Results

Table 2 compares tourist and resident victimization and crime event data. We use contingency tables and Chi-Square tests to compare frequencies of residents and tourists in each category. Demographic data for victims of theft is quite aligned between the two groups: females and younger individuals are more at risk than males and other age groups. The main differences are observed when analyzing the crime event: thefts against tourists concentrate more than those against residents in city public areas and bars/restaurants, and during the Summer. Other temporal patterns such as weekday/weekend and time of day are consistent among the two groups, with slight variations.

Table 2: Comparison of Tourist and Resident Theft Victimization Characteristics, 2016-19.

		% Victimized Tourists (N = 112519)	% Victimized Residents (N = 220031)
Gender	Male	46.1	43.2
	Female	53.9	56.8
X²(1, N = 33255) = 253.74, p = 2.2e-16			
Age	15-24	26.6	22
	25-34	25.8	24.7
	35-44	14.3	18.5
	45-54	14	13
	55-64	11.1	9.8
	65+	8.1	11.8
X²(5, N = 33255) = 2608.1, p = 2.2e-16			
Type of place	City public areas	44.1	36.8
	Transportation	26.5	31.1
	Restaurants/bars	13.6	8.9
	Retail	6.3	11.4
	Nightlife	5.4	5.8
	Lodging	3.2	2.7
	Leisure/culture	0.7	0.9
	Other	0.2	2.3
X²(8, N = 33255) = 97850.2, p = 2.2e-16			
Seasonality	Winter	16.6	23.9
	Spring	26.6	24.9
	Summer	36.7	25
	Fall	20	26.3
X²(3, N = 33255) = 6690.7, p = 2.2e-16			
Weekday/Weekend	Weekday	55.6	58.9
	Weekend	44.4	41.1
X²(1, N = 33255) = 331.16, p = 2.2e-16			
Time of day	Morning	27.9	30.1
	Afternoon/Evening	45.8	46.4
	Night	26.2	23.5
X²(2, N = 33255) = 340.67, p = 2.2e-16			

Conjunctive Analysis of Case Configurations

The analyses provided above only offer a snapshot of each of the variables in isolation. To conduct a descriptive analysis of context-specific effects of the variables included regarding the probability of tourists being a victim of theft, we used Conjunctive Analysis of Case Configurations (CACC), as described in the Methods section of this paper. The terms "case configurations", "case profiles", and "situational profiles" all refer to case-specific combinations of variables.

A data matrix (or "truth table") including our 7 variables was created following a 2 (tourist/resident) X 2 (gender) X 6 (age brackets) X 8 (type of place) X 4 (season) X 2 (weekday/weekend) X 3 (time of day) design, which yielded a total

of 4,608 potential case profiles, that is, unique combinations of the attributes of the variables included in the model. Of those, 4,287 case configurations were observed and listed from the most to the least prevalent. The first 200 profiles (less than 5% of the profiles observed) accounted for 30.7% of all the observations in our dataset. This suggests that, although there is variety in the context of thefts, we also find a pattern of clustering among a reduced number of profiles, consistent with findings in similar studies (Hart and Miethe 2011).

The next step is the identification of dominant case configurations, which is done by selecting the unique combinations of factors that cluster above a minimum-frequency threshold. As indicated above, previous literature suggests a threshold of 10 cases for samples over 1000 (considered "large samples"). But never before has CACC been used with a sample as large as the one in this study, which exceeds 300,000 cases. Applying that threshold to our data yields a total of 1,790 dominant profiles, which renders the analysis futile due to the volume of profiles to be interpreted. As indicated by Miethe et al. (2008), "Rules for minimum cell frequencies are important in conjunctive analysis so that idiosyncratic patterns from low-frequency cells do not adversely affect the interpretation of more dominant patterns of case concentration within a study." (p. 239). For this reason, the minimum-frequency threshold had to be reconsidered in our study (Hart, personal communication on July 14, 2022).

The selection of specific thresholds to define dominant configurations has been referred to as "a rule of thumb" that must constitute a "reasonable minimum" (Miethe and Drass 1999, 10 and 11), and has been compared to the choice of significance levels in traditional statistical analysis (p < .01, .05, or .10) (Hart 2019). The threshold should be high enough to define a small number of profiles relative to the number of observed profiles while maintaining a sufficient level of clustering. We propose the use of the Situational Clustering Index (SCI), which has been recently suggested as a measure of profile clustering in CACC analysis (Hart 2019), to help determine the most appropriate minimum-frequency threshold in this study (Figure 1).
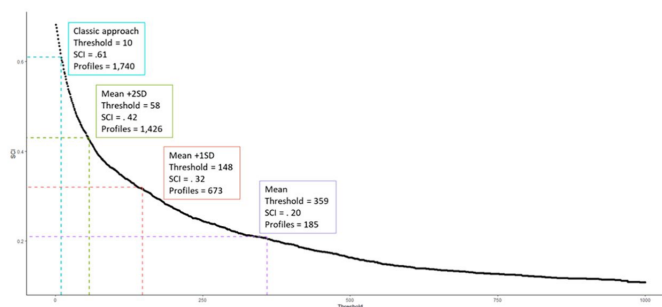

Figure 1: Calculation of situational clustering index using 1 to 1000 minimum-frequency thresholds.

We calculated all SCIs using thresholds ranging from 1 to 1000 (only 4 case configurations exceeded N =1000) and proceeded to compute their mean and standard deviation ($\overline{x} = 0.2056$, $\sigma = 0.1097$). Three options were explored: using the mean (threshold = 359), the mean + 1SD (threshold = 148), and the mean + 2SD (threshold = 58). The first option was discarded due to the low SCI, and the last one did not represent a significant improvement over the use of a threshold of 10 cases, as a total of 1,426 profiles exceeded the minimum-frequency threshold of 58 cases. Additionally, a visual inspection of Figure 1 revealed that the mean + 1SD marks the point where the curve starts leveling off.

Using a minimum-frequency threshold of 148 cases, a total of 673 dominant situational profiles were identified (14.6% of all potential profiles). Figure 2 illustrates how theft victimization clusters within these profiles.
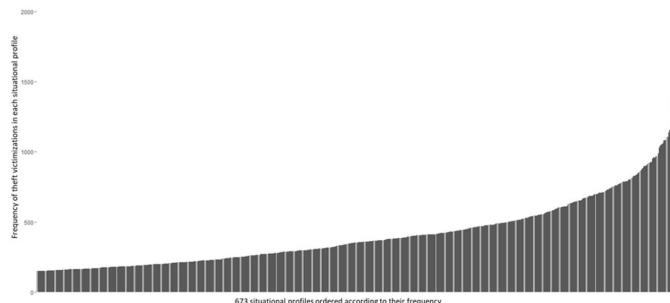

Figure 2: Frequency of theft victimizations within each situational profile.

A goodness-of-fit test was performed to determine clustering in the data (Hart 2019). The findings (χ^2 (672, N = 332,550) = 107643.6, p < .000) indicate that thefts concentrate among a subset of dominant profiles, that is, that thefts tend to occur when certain variable attributes are combined in particular ways. This further supports the idea that thefts against tourists in urban areas are context-dependent. We measure the magnitude of profile concentration using the Situational Clustering Index. The SCI ranges from 0 to 1, with higher values indicating higher levels of clustering. Our results show moderate clustering (SCI = 0.316, 95 % level CI [0.30, 0.33]; confidence interval levels (CI) were calculated using bootstraps (with 2000 replicates for estimating the bias-corrected and accelerated, "BCa", bootstrap interval) following Steenbeek and Bernasco´s (2018) approach when calculating Gini´s coefficient CI.). Figure 3 provides a visual representation of the profile clustering.

Given that the focus of our study are crime events where tourists are the identified victims, we ran the conjunctive analysis using type of victim (tourist-1 vs resident-0) as our dependent variable. This allowed us to determine what combinations of situational factors are more likely in thefts with a tourist and with a resident victim. We proceeded to consider the most/least likely case configurations in thefts with tourist victims by calculating the mean of the probability
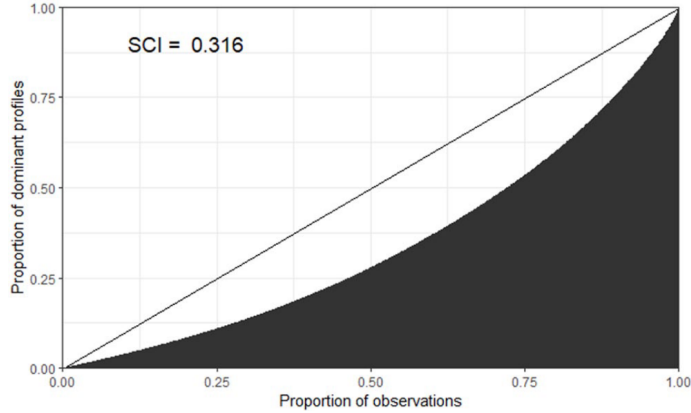
Figure 3: Lorenz curve for the magnitude of the situational clustering.

of the victim being a tourist ($\bar{x} = 0.33$), and selecting the configurations that exceeded $\pm 2SD$ ($\sigma = 0.12$) (see Hart and Moneva 2018). This yielded a total of 17 case configurations with victims most likely to be tourists (Table 3), and 18 case configurations with victims most likely to be residents (Table 4).

Table 3: Case Configurations with the highest probability of tourist victim (most likely)

Id	Gen(2)	Time Day (3)	Age (6)	Type Place (8)	Day Week (2)	Season (4)	N	Prob. Touris Vict
1	male	morning	15-24	restaurants/bars	weekdays	Summer	175	0.726
2	male	night	15-24	city public areas	weekdays	Summer	1590	0.665
3	female	morning	15-24	restaurants/bars	weekdays	Summer	296	0.645
4	male	morning	25-34	restaurants/bars	weekdays	Summer	164	0.640
5	female	afternoon/evening	15-24	restaurants/bars	weekend	Summer	279	0.624
6	female	morning	25-34	restaurants/bars	weekdays	Summer	248	0.617
7	male	night	15-24	nightlife	weekdays	Summer	377	0.615
8	female	morning	45-54	restaurants/bars	weekdays	Summer	197	0.614
9	female	morning	15-24	city public areas	weekend	Summer	459	0.606
10	male	morning	15-24	city public areas	weekdays	Summer	708	0.605
11	male	afternoon/evening	15-24	restaurants/bars	weekend	Summer	149	0.604
12	female	night	15-24	nightlife	weekdays	Summer	990	0.603
13	female	afternoon/evening	45-54	restaurants/bars	weekdays	Summer	247	0.599
14	female	night	15-24	restaurants/bars	weekdays	Summer	208	0.587
15	male	morning	55-64	transportation	weekend	Summer	156	0.583
16	female	morning	15-24	city public areas	weekdays	Summer	869	0.579
17	female	night	15-24	restaurants/bars	weekend	Summer	216	0.579

[*] (num) Number of categories within variables in parentheses.

The top profile in Table 3 shows that when the victim of a theft is a young male and the theft is committed during the Summer, on a weekday morning, at a restaurant or bar, the probability of that victim being a tourist is very high (0.725). Examination of the top 17 dominant situational contexts of thefts against tourist victims reveals that tourists experience the highest risk of victimization during the Summer (100%), especially during weekdays (76%), and in

the morning (53%). 71% of theft profiles feature a victim under 24 years of age, with a slight preponderance of female victims (59%). In terms of location, out of 8 possible types of place, 59% of case configurations take place at restaurants or bars.

Table 4: Case Configurations With Victims Most Likely to be Residents (Least Likely to be Tourists).

Id	Gen(2)	Time Day (3)	Age (6)	Type Place (8)	Day Week (2)	Season (4)	N	Prob. Touris Vict
656	female	morning	65+	city public areas	weekdays	Winter	547	0.090
657	male	morning	25-34	retail	weekdays	Spring	207	0.087
658	female	morning	65+	transportation	weekdays	Fall	670	0.087
659	male	morning	35-44	retail	weekdays	Winter	175	0.086
660	male	afternoon/evening	25-34	retail	weekdays	Winter	351	0.085
661	male	morning	35-44	retail	weekdays	Spring	167	0.084
662	male	afternoon/evening	35-44	retail	weekdays	Winter	434	0.081
663	male	afternoon/evening	35-44	retail	weekend	Spring	252	0.079
664	male	morning	35-44	retail	weekdays	Fall	197	0.076
665	female	morning	65+	retail	weekdays	Spring	344	0.076
666	male	afternoon/evening	35-44	retail	weekdays	Fall	412	0.070
667	male	afternoon/evening	35-44	retail	weekend	Winter	289	0.069
668	male	morning	25-34	retail	weekdays	Winter	158	0.063
669	female	afternoon/evening	65+	transportation	weekdays	Winter	554	0.063
670	female	morning	65+	retail	weekdays	Fall	355	0.059
671	male	afternoon/evening	35-44	retail	weekdays	Spring	437	0.053
672	female	morning	65+	transportation	weekdays	Winter	593	0.051
673	female	morning	65+	retail	weekdays	Winter	296	0.034

* (num) Number of categories within variables in parentheses.

If we look at the very last profile in Table 4, we can see that when a female of 65 years of age or older is victimized during the Winter, on a weekday morning, in a retail establishment, the probability of that victim being a tourist is extremely low (0.034). The contexts in which victims are less likely to be tourists (18 situational contexts) or, in other words, in which victims are more likely to be residents, include thefts happening in seasons other than Summer (50% of least likely profiles occurred in the Winter), during a weekday (89%), and in the morning (61%). Most notably, victims in these case profiles are all over 34 years of age, with the age brackets of 35-44 and 65+ being most prevalent (44% and 39% respectively). 61% of the victims in the least likely case profiles are male. Finally, 78% of these profiles take place in retail settings.

Discussion

This study set out to explore the unique features of tourism victimization, as well as to identify what contexts are related to a higher risk of thefts against tourists, by examining the differences between police-recorded tourist and resident thefts. Police recorded data on the five main tourist districts of Barcelona from 2016 to 2019 were analyzed, and Conjunctive Analysis of Case Configurations (CACC) was used to determine whether thefts against tourists are context-dependent, and which situational contexts are related to increased risk.

When comparing descriptive data of police-recorded thefts against tourists and

residents, we see that they are very similar in the victim's demographic characteristics, as well as the temporal patterns of thefts. The main difference is that thefts against tourists concentrate during the Summer (37% of all thefts occur during this season), while thefts against residents do not present such seasonal trends (25% occur during the Summer months). Interestingly, the percentage of tourists entering the city between June and August is about 28% for each of the years included in the study (Barcelona 2022), as Barcelona experiences year-round tourism with a slight (but not dramatic) increase during the Summer, which seems to indicate that tourists are disproportionately targeted during that season. However further research is needed to fully understand this phenomenon. Regarding where thefts happen, the four most common types of locations for both groups are city public areas, transportation, restaurants/bars, and retail. When comparing the two groups, the proportion of police-recorded thefts against tourists is higher than those of residents in city public areas and restaurants/bars, while resident police-recorded theft is more represented in transportation and retail.

The differences between the profiles of tourists and residents become more salient once CACC is performed. The case profiles most likely to result in a tourist being the victim of theft have predominantly female, young targets (under 34 years old), and occur mostly at restaurants/bars. These findings are consistent with Cerezo et al.'s (2022) comparison of risky locations for theft victimization among tourists and residents. Risk exposure (tourists are more likely to spend more of their time in the city eating out), as well as lack of self-protective behaviors by tourists, are plausible explanations for the clustering of thefts at restaurants and bars. For example, it is a "known fact" among residents in Barcelona that, when eating out, bags should never be placed on the back of the chair or on the floor where they are not being actively monitored ("Barcelona Safety: Essential Tips How to Safeguard Your Personal Safety" n.d.). However, this local practice may not be known among tourists. The least likely case configurations occur mostly in retail establishments (78%), and to older victims. An examination of the number of thefts suffered in different settings accounting for the time spent in them (i.e. using public transportation) would provide finer measures of relative risk for tourists and residents (in line with the work of Lemieux and Felson 2012). Future research should study self-protective behaviors (that is, routine precautions – Felson and Clarke 1995) taken by tourists and residents in different settings to test likely explanations for these results. Additionally, comparing the profile and travel habits of victimized and non-victimized tourists would also help shed light on these issues.

In terms of temporal patterns, the CACC confirms, once again, that Summer is the riskiest season for tourists, at least for our sample of police-recorded thefts. Every single case profile with the highest probability of tourist victims occurs in the Summer, while none of the ones with the lowest probability do. Assuming that Summer visitors behave similarly as visitors during other seasons do (which should be empirically confirmed), our results suggest a disproportionate targeting of tourists during the Summer. This finding could be explained by

groups of "outsider-offenders" who travel to cities like Barcelona during peak tourist season to commit thefts, as suggested by some authors (Mawby 2017).

Finally, looking at the case profiles with the highest probability of tourist victims, we see that risk is the highest for young tourists at bars and restaurants during the Summer. This is an important finding that could be used to design very specific interventions directed at preventing tourist theft victimization in the city.

Some of the limitations of this research that have been discussed throughout the paper include the use of police reports as the source of crime data and the fact that, in the case of thefts from the person, the time of the offense may be an estimation whenever the victim does not know for sure when the theft happened. It is also worth noting that this study is based only on the five main tourist districts in Barcelona that concentrate 76% of all crimes and not the whole city. Moreover, our findings may not generalize to cities with different tourism compositions. Finally, we proposed a new analytical strategy to establish minimum-frequency thresholds in CACC analyses using very large samples, which will need to be tested and validated in future research. Despite these limitations, this research was conducted with data on crimes with actual tourist victims; it addressed some of the important gaps identified in the literature and developed CACC further for its use with very large samples, thereby opening avenues for future research.

Policy Implications

Exploration of profiles of police-recorded thefts against tourists and residents provided invaluable insights into their context and patterns. Comparisons of both types of victims were only possible due to the specific recording of tourist status when reporting the crime. Law enforcement agencies around the world, particularly those in tourist destinations, should consider incorporating this recording practice to be able to analyze and compare tourist and resident victimization.

Analysis of the contextual characteristics of crime events was used to assess when and where tourists are most often victimized, according to police data. Not only are these findings relevant to the scientific understanding of this phenomenon in general, but they draw a clearer picture of the characteristics of tourist victimization in one of the world's leading tourist destinations. This knowledge can, in turn, be used for the design of tourist-specific crime prevention initiatives that, given the volume of tourist victimization, would surely have an impact on the crime levels of the city in general.

Several interventions have been suggested to reduce and prevent crimes against tourists: some examples include establishing partnerships between the tourism industry and criminal justice agencies, facilitating crime reporting by tourists, creating specialized tourism police units or tourism victims' support services, making an effort to collect and analyze tourist victimization data to aid in the

creation of targeted crime prevention initiatives, and tourist education campaigns (Buil-Gil and Mawby 2022; Albuquerque and McElroy 1999; Mawby 2017; Mawby and Özaşçılar 2022).

Authorities in Barcelona have already taken some of these steps: in 2008, the city implemented a system that allows tourists to report crimes at their hotels; in 2014, the regional police started recording tourist/resident status in their crime reports; and in 2020 the Department of Interior created the "Pla Barcelona Ciutat Segura" (Barcelona Safe City Plan) in which it coordinated efforts from stakeholders in different sectors (transportation, retail, tourism, nightlife, etc.) to work together in the reduction of crime in the city. Other interventions at what are known as risky facilities or hotspots should be considered, for example at restaurants and bars, guided by detailed analyses of where and when crimes happen, and who are the most targeted victims. Mixed methods research designs combining validated ecometrics measures and interviews with place managers and place users can help identify potential social mechanisms at the location level (Eck 2010).

Conclusions

This paper examined the characteristics of police-recorded theft events against tourists in urban settings using a unique dataset where the tourist/resident status of theft victims was recorded. We used Conjunctive Analysis of Case Configurations (Miethe, Hart, and Regoeczi 2008) to shed light on victim profiles and contextual factors of this criminal behavior in the city of Barcelona (Spain), and we proposed an adaptation of this analytical strategy for use with large samples, which represents a relevant methodological innovation. Our findings indicate that tourist theft victimization concentrates in time (Summer) and space (in locations such as restaurants) and that these patterns are different from those of victimized residents. Policy implications derived from these findings were discussed above.

Further research on this area should examine more deeply the factors that influence the risk of victimization. To that end, it would be useful to compare profile and behavioral differences between victimized and non-victimized tourists, as well as self-protective behaviors adopted by residents and tourists in places such as restaurants or transportation. Additionally, other crimes such as robbery should also be considered and analyzed: contrasting similarities and differences with the findings of this paper could reveal alternative explanations for the patterns observed.

It is worth noting that, as we write this paper, COVID-19 travel restrictions are being lifted worldwide. It is expected that international travel will gradually recover and reach 2019 levels by 2023 or 2024 (Trade and Development 2021). This is a unique opportunity for local authorities, along with the tourism sector, to reflect on tourist victimization in urban settings and to plan new approaches to these issues.

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