

THEFT CRIMES AGAINST TOURISTS AND VISITORS IN SLOVENIA

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Abstract

Purpose – This paper investigates the nature of theft crimes against tourist and visitors in Slovenia. The main objective of the study was to identify the characteristics of theft victims in tourist areas and to analyze the differences in risk between various crime scenes and types of crime.

Design/Methodology – Using data from police crime statistics and applying a binary logistic regression, we analyzed the relationship between the crime scene and nature of the crime, as well as between the domestic/foreign status of the visitors and type of crime. Since the study uses data from official police database, one of the major challenges was to eliminate crime events from the analysis that occurred outside tourism areas.. This problem was addressed by using geotagged photos from Flickr platform with different spatial queries.

Findings – The findings offer evidence indicating that the victims' backgrounds (status and age group) and accommodation type, determine their vulnerability to certain crimes. The results show that foreign victims are more likely to suffer burglary than their domestic counterparts. In addition, crimes against foreign visitors and tourists are more likely to involve seniors, amount to larger losses, and take place in hotels, motels, and camps. On the other hand, crimes against domestic visitors are more likely to take place during evenings in bars, restaurants, and in vacation homes.

Originality of the research – This study shows that combining data from different public sources into one analysis allows a more reliable analysis of police crime records.

Keywords Crime, Tourists, Tourist destination, Geotagged photos, Statistical modeling

1. INTRODUCTION

In the last ten years, Slovenia has witnessed 6% annual growth in the number of tourist arrivals, recording an influx of almost 5 million in 2017 (SURS 2018). According to the World Travel and Tourism Council report, the tourism industry in Slovenia directly and indirectly contributed 11.9 % to national GDP in 2017 and was estimated to have supported 101,500 jobs (WTTC 2018). Following the current growth rate, it is expected that the sector will become even more important to the national economy in the future.

In recent years, certain Slovenian destinations have experienced an escalation in the number of pickpocketing crimes against visitors. Some of these incidents have been highly publicized by the national media (e.g. Lipnik 2017; Brkić 2018), which could have negatively affected the image of those destinations.

The relationship between tourism and crime has received a great deal of attention in the last few decades. Tourism literature suggests that the crime rate in tourist destinations has an impact on the image of that destination as well as on the level of interest among tourists. There is a consensus among researchers that destinations with crime and safety issues (either real or perceived) are less likely to attract new visitors and discourage repeat visitation (Walker and Page 2007; Bloom 1996; Cavlek 2002; Dimanche and Lepetic 1999; Pizam and Mansfeld 1996; Alleyne and Boxill 2003). In the case of serious concern about their safety, tourists may cancel, postpone or choose alternative destinations that involve less risk (Mansfeld and Pizam 2006). Therefore, destinations go to great lengths to present themselves to visitors as safe through targeted marketing and image control (Ambinder 1992; Tarlow 2006; Walker and Page 2007). However, crime against tourists and visitors are an everyday reality throughout the world (Holcomb and Pizam 2006), and in the era of digital media and social networking, preserving the image of a crime-safe destination is more challenging than ever before. Accordingly, many popular destinations take different action to prevent crime and protect tourists, including the establishment of tourism police (Pizam, Tarlow and Bloom 1997; Boakye 2010).

Considering the growing importance of the tourism sector in the national economy, and strong competition in the saturated European market, it is essential for Slovenian tourist destinations to preserve the image of a tourist-friendly and safe destination. However, too little attention has been paid to what factors may contribute to visitor vulnerability to victimization. Consequently, this paper seeks to explore the relation between crime and tourism in tourist areas in Slovenia. In specific terms, the study aims to identify the characteristics of theft victims and to analyze the differences in risk between various crime scenes and nature of the crime. In the data collection process, a problem of defining tourist areas in the cities was addressed by using the geotagged photos from the Flickr application. To the best of our knowledge, this study is the first attempt to empirically examine this issue in Slovenia.

This paper contributes to the literature on the tourism crime relationship by providing additional understanding on how tourists' characteristics, accommodation preferences, places that tourists visit, and time of day influence the vulnerability of tourists to become suitable targets for a specific crime. Additionally, from the methodological aspect our study seeks to partially solve the problem of using official police statistics in tourism crime research. Police crime records are not specifically designed to be used in tourist-related crime research because they do not contain the information needed to distinguish between tourist and non-tourist victims. We design our research to only contain crimes that occurred in the tourist areas. We used publicly available Flickr geotagged photos and a density based spatial clustering algorithm to define tourist areas within cities. Our work is important because it shows that combining data from different public sources (www.flickr.com and official police records) into one analysis allows a more reliable analysis of police crime records, and gives more comprehensive results to study tourism-crime relationship.

The remainder of this article is structured as follows: section two gives an overview of the relevant literature; section three contains a description of the data and study area; section four presents methods used in the analysis; the results are then presented and discussed in sections five - six; and finally, the last section concludes the article.

2. LITERATURE REVIEW

The relationship between tourism and crime has been studied from different perspectives. Of more immediate relevance to our study, was the focus by some scholarly research on tourists *as victims* in certain destinations (Michalko 2004; Barker et al. 2002; Boakye 2010; Schiebler et al. 1996; Allen 1999; Adam and Adango 2016; Dimanche and Lepetic 1999; Walker and Page 2007; Ryan 1993). Most of these studies found that certain tourist locations are particularly prone to crime and that tourists are more inclined to suffer crime than locals. The latter point is also supported by the findings of Fujii and Mak (1980), Chesney-Lind and Lind (1986), De Albuquerque and McElroy (1999), and more recently those of Harper (2001) and Barker et al. (2002). However, a few researchers have identified no difference in the probability of being a victim of crime between tourists and local residents of a particular area (Prideaux 1996), where in fact, high rates of tourist victimization occur in areas that are already experiencing a high crime rate anyway (Schiebler et al. 1996; Crotts 1996).

Two widely accepted theories in the field of human ecology provide a useful means of understanding why certain locations are more exposed to certain types of crime than others, as well as why tourists and visitors are more likely to suffer crime than local residents. *The routine activities theory* (Cohen and Felson 1979) assumes that normal life activities create an environment in which criminals and victims converge in space and time. The theory suggests that in order for a predatory crime to occur, the convergence in space and time of a suitable target, a motivated offender and the absence of capable guardians (police or private security forces) to prevent the criminal act, are all required (Cohen and Felson 1979). The tourist-crime related literature suggests that tourists are suitable targets because of their appearance, behavior, unfamiliarity with the local area and customs, language barrier and finally, their social isolation (Cohen 1987; Chesney-Lind and Lind 1986; Allen 1999; Michalko 2004; Boakye 2010). Furthermore, tourists are tempting targets since they often carry large sums of money and other valuables and the likelihood of reporting crime is lower (Fuji and Mak, 1980; Chesney-Lind and Lind 1986; Allen 1999; Pizam et al. 1997). It is also recognized in the literature that tourists mainly suffer property related crimes (frauds, larcenies, robberies) and rarely crimes against person (Jud 1975; De Albuquerque and McElroy 1999; Van Tran and Bridges 2009).

Closely related to *the routine activity theory*, *the hot spot theory* explains the association of predatory crimes with certain types of geographical areas (Schiebler et al. 1996). The authors argue that tourist areas with a higher concentration of tourist amenities and attractions can be defined as hot spots, where crimes against visitors are more likely to occur. Such spots include what can be best described as hedonistic places that offer entertainment, food and beverage e.g. pubs, nightclubs, strip clubs (Ryan and Kinder 1996) and drinking hotspots (Roncek and Maier 1991). In such places, some tourists

have a tendency to let their guard down by involving themselves in risk-taking behavior and therefore, increase their exposure to criminal victimization (Barker et al. 2002; Mansfield and Pizam 2006). More recently, a study of crime as tourism externality in Italy by Biagi and Detotto (2014) has revealed significant differences in the level of crime between mountain destinations and art cities destinations. The authors argue that this can be attributed to different territory conformation (in mountain destinations the probability to escape is likely to be lower) and to “technology” of crime (higher concentration of relatively easy locations for pickpocketing e.g. buses, metros etc.) in the cities.

An additional point that emerges from the literature is the fact that certain characteristics concerning the background of tourists and the nature of their travel are important factors that affect victimization. It has been generally established that females, young and elderly visitors are more vulnerable to crime than males and other age groups (Allen 1999; Barker et al. 2002; Adam and Adango 2016). The young are presumably more vulnerable due to their lifestyle and inexperience, while the elderly and females have a lesser ability to protect themselves (ibid.). Olsen and Pizam (1999) further argue that the changing demographics of tourists may even contribute to an increase in victimization rates among the elderly.

In their study of the impact of the Americas Cup Yacht Race in New Zealand on crime rates against tourists, Barker et al. (2002) found out that overseas tourists and those staying in cheaper accommodation (backpacker hostels, campervans, campsites) were more at risk of criminal victimization than their counterparts. Likewise, Boakye (2010) explores how travel preferences (accommodation preference, travel arrangements and party size) influence the degree to which tourists are vulnerable to crime, and highlights that tourists staying in cheaper accommodation (homestay programs) are more susceptible to certain offences. Authors argue that cheaper accommodation normally falls outside the official tourist zone, where capable guardians may not be present to prevent victimization (Barker et al. 2002; Boakye 2010).

With regard to travel arrangements, the literature generally suggests that tourists who use travel intermediaries and undertake journeys in groups (institutionalized tourists) are overall, less exposed to crime (Cohen 1987; Pizam and Mansfeld 1996; Tarlow 2006; Dimanche and Lepetic 1999; Schiebler et al. 1996; Boakye 2010; Adam and Adango 2016). Adam and Adango (2016) argue that “travel intermediaries might act like capable guardians and advise on crime hotspots at destinations to reduce visitor’s risk of being liable” (Adam and Adango 2016, 66). However, in his study, Boakye (2010) also acknowledged that institutionalized tourists are more likely to suffer phone theft crime than non-institutionalized (those who arranged travel by themselves).

In the literature, a number of concerns related to the limitation of official police crime statistics and other official datasets has been raised (Fujii and Mak 1980; Schiebler et al. 1996; Walker and Page 2007; Barker et al. 2002; Mawby 2000). Official police crime records are not specifically designed to be used in tourist-related crime research, thus a lot of important information regarding victim background and travel characteristics have not been recorded. Furthermore, as pointed out by many scholars (e.g. Coleman and Moynihan 1996; Mawby 2000; Barker et al. 2002; Mawby 2017), official crime statistics

are mostly biased, as is the case for a high rate of unreported crime incidents. According to Mawby (2000), property crime (theft and burglary with loss of property) is likely to be reported in most cases due to insurance requirements, while offences such as physical assault, verbal assault or sex offences are highly underreported. The researcher also argues that tourists may face relatively high costs and substantial time loss from reporting crimes and therefore, may prefer not to inform the police of a crime.

In the last decade, numerous studies appear that use user generated social networks contents as a source of information. New data sources allow researchers to conduct analysis that were not possible before. Closer related to our research, some of them focused on using geotagged photos from different social platforms to reveal tourist concentration areas (hot spots) and their spatio-temporal movement. For instance, Girardin et al. (2008) used geotagged photographs from Flickr platform (www.flickr.com) to create tourist concentration maps showing tourist attractions in Rome. Similar approach, however using data from Flickr and Panoramio (www.panoramio.com) platforms, were used by Kisilevich et al. (2010) to identify popular tourist city landmarks and attractive areas. Also with the help of Flickr data, Kádár (2014) and García-Palomares et al. (2015) analyzed the dynamics of tourist activity and their spatial distribution in different European cities. Comparing the data obtained from Flickr geotagged photos with the official statistics based on ticket selling, Kádár (2014) found that, at the level of singular attraction, the Flickr data apparently correlates better to the actual number of visitors who saw these sites than the official statistics. Önder et al. (2014) used Flickr data as an indicator of tourist numbers at destination. Their results indicate that Flickr data can be used as an estimation of actual tourist numbers at the destination, especially at the city level.

In a very similar perspective, Vu et al. (2015) used Flickr photos to explore the Western and Asian tourist hotspots and movements in Hong Kong. In a more recent study, Zhang et al. (2018) used geotagged photos from Flickr to detect tourist attractions in five typical cities of China. In addition, previous research proposed different approaches to define spatial boundaries of tourist spatial concentration areas (around tourist attractions). The most common approach is to use a density based spatial clustering algorithm (DBSCAN, Sander et al. 1998) as described in Kisilevich et al. (2010) and Zhang et al. (2018). However, despite numerous studies using geotagged photos data, to the best of our knowledge, none of the studies has used geotagged photos data in combination with official police data to analyze crime incidents in tourist areas.

3. DATA AND STUDY AREA

The dataset used in this analysis represents a part of the official Slovenian crime statistics dataset (Ministry of the Interior) that was collected from filed police work from the time period 2007 - 2016. Analyzing crime against tourists using official police statistics can be difficult, mostly because the police database does not contain information regarding the status (e.g. tourist, visitor or non-resident working in the area) of the victims and therefore, it is impossible to identify reliable differentiation between the groups. Additionally, due to data protection and privacy issues, the full details of victims and offences are unavailable. The obtained database contains information on the country of

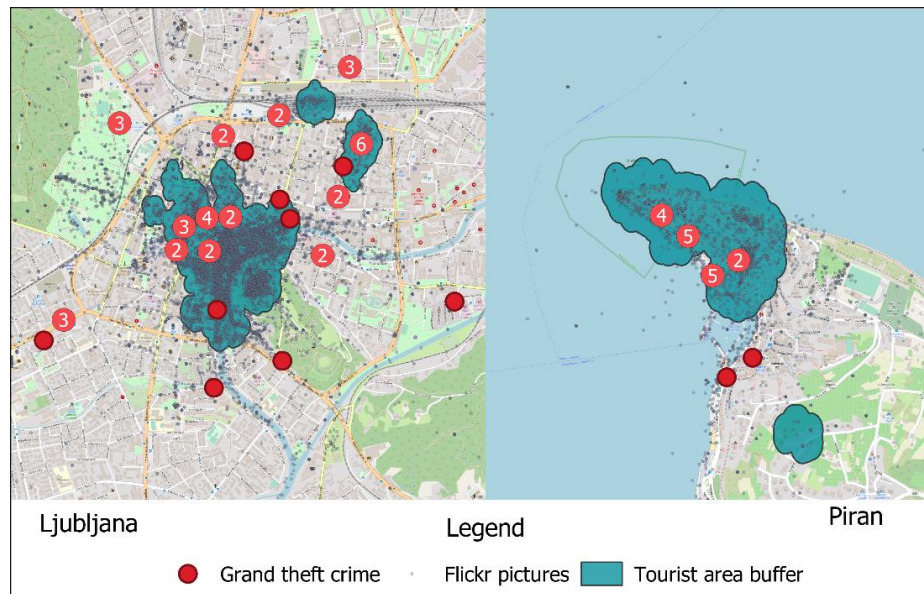
origin for foreign victims. We used this information to distinguish domestic from foreign victims. Nevertheless, this information does not allow us to distinguish between visitors, tourists and residents. For the purposes of clarity, the definition of *tourist* is understood here as someone who stays in accommodation facilities, and a *visitor* as someone who is present in tourist areas.

To limit the number of anomalies in the database, we queried the data to retain only crimes that occurred in hotels, motels, campsites, holiday homes, as well as in restaurants, pubs, and public places (playgrounds, parks, swimming pools and beaches) within tourist areas. The query was conducted in a two-steps process, in the first step all the events that did not occur in accommodation facilities, pubs, restaurants, and public places, were removed from the database. In the second step, we used recorded address locations from the police database to geocode the location of each crime. Based on these, spatial queries were employed to identify crimes that occurred in pubs, restaurants and public places outside tourist areas, which were also excluded from the final dataset.

In this study, we used geotagged photos from Flickr platform to define tourist areas in the cities and outside tourist resorts area. Within cities, tourist areas were defined as buffer zones around major tourist attractions. To help identify popular tourist attractions, we used geotagged photos available from the photo-sharing Flickr website (www.flickr.com). A similar approach has been previously used, for instance, by Kisilevich et al. (2010), Vu et al. (2015) and Zhang et al. (2018) as photos are available for public use via the Flickr Application Interface (API). We extracted 161,530 photos with tourism-related tags taken in Slovenia in the last ten years. Photos included the owner's identification, time stamp, tags, and geographic coordinates. Multiple photos taken by the same user in the same location and within a one-minute time interval were treated as duplicates, and thus were removed from the database. A density-based spatial clustering algorithm DBSCAN (Sander et al. 1998) was then applied to the sample of 80,765 photos to find local level hotspots. Afterwards, concave hulls were calculated for each cluster, and a 20m buffer zone was generated along the boundaries of each concave hull. Buffers intersecting between neighboring concave hulls were merged into a single buffer area, and areas within buffer zones were treated as tourist areas. Figure 1 shows examples of defined tourist area and in Ljubljana and Piran.

At this point it is important to note that there is a relatively low rate of foreigners living in Slovenia, in year 2007 the rate of foreign residents in Slovenia was 3.1% and has increased in year 2017 to 5.4% (SURS 2018). Almost two thirds of crimes occurred in the two most touristic regions in Slovenia, the Obalno-kraška region and the Osrednjeslovenska region which also account for the highest rate of foreign residents (9.7% and 6.9% respectively). In 2017 the lowest rate (1.5%) of foreigners was recorded in Pomurska region where only 5 % of crimes occurred. In addition, according to SURS (2018) the number of foreign tourist arrivals in 2017 were more than twice as high as the arrivals of domestic tourists (3.6 million vs. 1.4 million). Considering that there are only 2.1 million inhabitants in Slovenia, it can be assumed that the chance of foreign resident to fall victim of a crime in a tourist area is rather low in comparison to the chance of foreign tourist.

Figure 1: **Examples of defined tourist area buffer in the city of Ljubljana and Piran. Crime incidents outside these areas were excluded from the analysis.**



Although we are aware that this procedure could not accurately exclude all non-tourist and non-visitor crime incidents from the database, we assume that the number of remaining crimes against non-visitors and non-tourists in the sample is sufficiently small to be safely ignored.

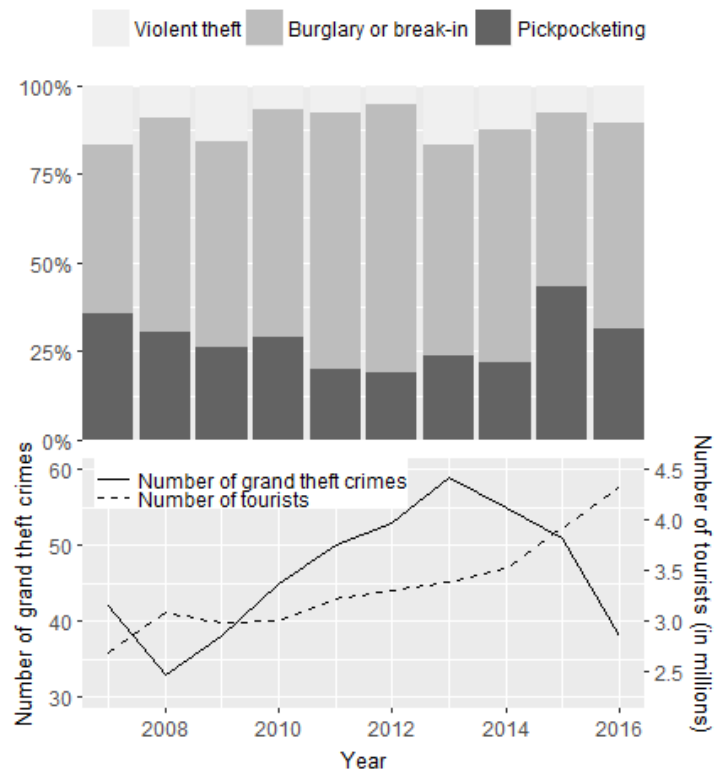
In addition, the literature expresses some concerns about the validity of official crime statistics. To reduce the possible bias resulting from the rate of unreported crimes, we have limited our analysis to include offences of grand theft¹ only. We assume that grand theft is reported in most cases since this involves larger property losses or aggravated theft. For the purpose of our analysis, offences of grand theft were further divided into three subcategories: burglaries and break-ins, violent theft, and pickpocketing. All analyses were conducted using open source QuantumGIS (QGIS; <http://www.qgis.org/>) and R software (R Development Core Team, Vienna, Austria).

After removing incomplete records from the database, 464 individuals were included in the sample, all of whom were crime victims. As noted from Figure 2, the total number of crimes per year ranged from 33 and 59. From 2008, the number of crimes steadily increased until 2013, after which the number of crimes dropped. Another clear pattern that emerges from Figure 2 is the difference in temporal variability among types of crime and the predominance of particular offences. For example, burglary or break-in comprised between 47 % and 75 % of all annually-reported crimes, while pickpocketing

¹ Grand theft is criminalized in Art 205 of the Slovene Penal Code (KZ-1-UPB2, Official Gazette RS, No. 50/2012) and refers to aggravated theft e.g. burglary, theft with assault, theft as a result of organized crime, or theft with a higher value of stolen goods.

remained below 43 % during this time period. Crimes of violent theft accounted for less than 17 %.

Figure 2: **Percentage of distribution of grand theft crimes in tourist areas and the total number of tourist arrivals in Slovenia from 2007 to 2016.**



The detailed characteristics of victims, time of occurrence, and crime scenes for the different types of crime, with respective percentages, are presented in Table 1. From the table it can be noted that burglary and pickpocketing collectively accounted for about 90 % of total crimes. An inspection of Table 1 also reveals little difference in victimization between genders: 52 % of crimes were reported by males, and 48 % by female victims. On the other hand, there is a clear indication that domestic victims were more likely to experience crimes of violent theft (80 %) and pickpocketing (71 %) than foreign victims. Evidence that certain age groups and places are more exposed to a particular type of crime is also present. For example, it seems that those aged 18 to 24 years old, and a slightly older demographic aged from 44 to 54 years old, are more exposed to violent theft (>22 %) than other age groups, while pickpocketing held a larger share of total offences suffered by (18.8 %) 18 to 24 year-olds, and those over 64. In terms of crime location, Table 1 shows that offences occurred prevalently in pubs,

restaurants (49.1 %) and public places, such as parks, beaches, playgrounds and so forth (23.5 %).

Since the original data set presents the time of occurrence for many crimes as a large time interval (sometimes more than four hours), this analysis was conducted using four intervals of equal duration (morning 06:00-12:00, afternoon 12:00-18:00, evening 18:00-00:00, night 00:00-06:00) rather than the actual hour of occurrence. The table shows that pickpocketing and violent theft tended to occur during evening time, whilst most burglaries occurred in the morning (37.5 %) and evening (33 %). In terms of property loss, Table 1 demonstrates that the majority (68 %) of victims suffered a loss amounting to between 100 and 1,000 euros.

Table 1: Distribution of victims' characteristics by background and crime types

	CRIME			Total%	N	Code
	VT	BB	PP			
Gender						
Female	54.9	51.9	51.6	52.2	242	0
Male	45.1	48.1	48.4	47.8	222	1
Origin						
Domestic	80.4	55.8	71.1	62.7	291	0
Foreign	19.6	44.2	28.9	37.3	173	1
Age group						
Under 18	13.7	18	7.8	7.5	35	1
18-24	23.5	9.5	18.8	13.6	63	2
24-34	13.7	25.6	18	22.2	103	3
34-44	11.8	20.7	11.7	17.2	80	4
44-54	21.6	17.2	10.2	15.7	73	5
54-64	7.8	14.4	14.8	13.8	64	6
Over 64	7.8	6.3	18.8	9.9	46	7
Time of day						
Morning	19.6	37.5	21.9	31.3	145	1
Afternoon	15.7	9.1	25	14.2	66	2
Evening	49	33	37.5	36	167	3
Night	15.7	20.4	15.6	18.5	86	4
Place						
Public place	19.6	18.9	35.2	23.5	109	
Pub, restaurant	64.7	42.8	57	49.1	228	
Hotel, Motel	11.8	21.8	4.6	15.9	74	
Holiday home	0	6.3	0	3.9	18	
Campsite	3.9	10.2	3.1	7.5	35	
Loss						
No loss	3.9	11.2	5.5	8.8	30	1
Less than 100 eur	0	1.1	0	0.6	73	2
100 – 1,000 eur	80.4	63.2	75	68.3	317	3
1,000 – 10,000 eur	11.8	16.5	15.6	15.7	41	4
N	51	285	128		464	

VT – Violent theft, BB – Burglary or break-in, PP – Pickpocketing.

4. METHODS

To estimate the reduced-form parameters of victimization, we employed binary logistic regression. *The Pearson Chi-Square test of independence* (with Yates' correction where necessary) or *Fisher's exact test* (where appropriate) were used to test the difference in victimization between groups. Logistic regression is well suited to analyzing dichotomous outcomes, yielding odds ratio interpretations. Thus, the coefficient of the individual predictor represents the expected effect of the indicated predictor on the log odds-ratio.

For the purpose of our analysis, each of the three most frequent crime categories (occurrence of violent theft, burglary, and pickpocketing) were coded as dichotomous variables, having the value of 1 if the crime took place, and 0 otherwise. Gender and domestic/foreign status of the victims were coded 0/1, while age group, time of day, place, and the amount of loss were coded as factors with ordered levels from the lowest to the highest category as shown in Table 1. Afterwards, three separate logistic models (violent theft versus others, burglary or break-in versus others, and pickpocketing versus others) were adopted to predict the occurrence of each crime category and the relative importance of predictors. An alternative method could involve the use of a multi-nominal regression procedure that simultaneously estimates all three independent variables; however, the relatively small sample size for "violent theft" implied that it would most likely result in limited statistical power. Another rationale for using three separate binary logistic regression models states that logistic regression produces simpler and more meaningful results (Hosmer and Lemeshow 1989).

In addition, separate logistic regression analysis was carried out to explore the difference in factors of victimization related to domestic/foreign victim status. Accordingly, the dependent variable (victim origin) was coded in binary function, where foreign victims were coded as 1 while 0 represented domestic counterparts. In this model, crime category and place of crime occurrence were coded as dummies. To control for the variation in number of crimes across time, time dummies were included in all specifications.

The selection of predictors to be included in the model was based on data availability and on a previous review of the literature.

5. RESULTS

The results of the three separate crime category logistic regression models are presented in Table 2. The output includes odds ratios and level of significance of *the Wald test* (given by star level) in relation to the predictors. Two of the three models were significant in predicting the variance of the crime (burglary and pickpocketing) at 0.01 level, while the violent theft model proved to be important at 0.1 level. Despite the apparently low explanatory power of the models, the results highlight the weightiness of some predictor variables. It appears from Table 2 that the place of occurrence and the status of the foreign/domestic victim significantly contributed to victimization rates. Conversely, time of day, loss, and gender had no significant contribution. Age group is marginally significant at 0.1 level. In terms of victim origin, the results of logistic model (Table 2)

show that foreigners were less likely to experience violent theft than their domestic counterpart. Further evidence from Table 1 indeed indicates that significantly fewer cases of violent theft were reported by foreign tourists and visitors ($P=0.009$). Consistent with the results of the violent theft model, the results show that foreigners were 1.5 times more at risk of burglary than other crimes in comparison to those with domestic status. Considering the location where the crime occurred, significant effects were found in burglary and pickpocketing model. Cross-tabulation in Table 1 showed that the offence of burglary is more likely to take place in hotels and campsites compared to pickpocketing ($P=0.000$), while pickpocketing is more likely to take place in public places ($P=0.035$). The results yielded by the pickpocketing model reinforce these findings. In relation to age group, Table 1 indicates that the age group over 64 is more likely to suffer pickpocketing crimes than other age groups ($P=0.000$).

Table 2: Results of binary logistic regression for crime category models

	Violent theft	Burglary	Pickpocketing
	Odds ratio	Odds ratio	Odds ratio
Gender	0.966	0.856	1.298
Foreigner	0.506*	1.516**	0.826
Age group	0.872	0.969	1.113*
Time of day	1.134	0.969	1.055
Place	0.820	2.134***	0.419***
Loss	1.162	0.968	0.968
Nagelkerke R2	0.061	0.115	0.095
Log-likelihood	-150.9	-282.1	-251.0

* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Considering the results of previous (crime category) models and the results of earlier studies (e.g. Barker et al. 2002), an additional binary logistic model was used to explore in detail the differences between victimization of domestic and foreign visitors, and tourists. The results (odds-ratio and significance of *the Wald test*) are presented in Table 3. As shown in the table, gender is the only factor that had no significant contribution. The effect of the crime category is marginal (significant at 0.1 level), while all other factors are significant at 0.05 level. The results highlight that foreigners are more likely to suffer burglary than their domestic counterparts. In addition, criminal offences against foreign tourists and visitors are more likely to involve a loss of an amount ranging from 100 to 1,000 euros, and seniors (aged over 65), while they tend to take place in hotels, motels, and campsites. On the other hand, the results further suggest that offences against domestic victims have a higher propensity to occur during the evening in pubs, restaurants, and holiday homes.

Table 3: Binary logistic regression: predictors of victimization related to victim status (domestic vs. foreign victim)

Variable	Odds ratio
Gender	
Female	reference category
Male	1.185
Age group	
Under 18	reference category
18-24	0.939
24-34	1.322
34-44	1.294
44-54	1.793
54-64	2.242
Over 64	3.432**
Crime category	
Violent theft	reference category
Burglary	2.312*
Pickpocketing	1.885
Time of day	
Morning	reference category
Afternoon	0.939
Evening	0.429**
Night	0.716
Place	
Public place	reference category
Pub, restaurant	0.232***
Hotel, motel	4.179***
Holiday home	0.223**
Campsite	11.02***
Loss	
No loss	reference category
Less than 100 eur	0.518
100 – 1,000 eur	0.921
1,000 – 10,000 eur	2.811**
Nagelkerke R ²	0.299
Log-likelihood	-214.7

* p<0.1, ** p<0.05, *** p<0.01

6. DISCUSSION

First, the official police data analysed in this study clearly reflect the very safe image of Slovenia as a tourist destination. However, given the nature of the data collection and data manipulation procedure used, there may well be an underestimation of the victimization rate. Different authors (Coleman and Moynihan 1996; Mawby 2000; Barker et al. 2002) have underlined the problem of using official police data since official statistics may not provide reliable information due to a potentially high rate of unreported

crimes. This topic is widely discussed in Coleman and Moynihan (1996), and in Mawby (2000). Unfortunately, there are no alternative data sources to refer to when making a comparison with official statistics; therefore, we were unable to estimate the unreported crime rate.

Concerning the types of crime reported, it is evident that victims were predominantly subjected to burglary. Across all years, except for 2015, offences of burglary and break-ins occurred at least twice as often as pickpocketing, while the frequency of such crimes is many times greater than that of violent theft.

Our results also indicated that gender had no effect on vulnerability to crimes. Generally, it is established in the literature that females are more vulnerable to certain types of crime than males - in particular, to rape and sexual assault (Allen 1999; George 2010; Adam and Adango, 2016). In addition, the study of Adam and Adango (2016) suggests that female backpackers are more likely to suffer theft than males although this particular research explores the vulnerability of specific tourist segments in countries with a different cultural environment to that featured in our study. Within this context, our results are hence, more similar to the findings of Barker et al. (2002), who also found gender presented no significant effect. In explaining the insignificance of gender, it should also be noted that in the case of burglary and break-ins (the most frequent crimes in our sample), victims are usually not present at the time, thus gender could not affect the likelihood of being victimized.

In tourism-crime related literature, age is considered to be an important characteristic related to vulnerability to crime. Our results suggest that age is marginally important in relation to type of crime and is significantly related to status (foreign/domestic) of victims. According to the results of the models, victims aged over 64 are relatively more exposed to crime than their domestic counterparts, a finding which is therefore, consistent with the literature. Killias and Clerici (2000) also add that elderly tourists are more vulnerable to crime due to declining physical health and are thus unable to protect themselves, while studies demonstrate that foreign visitors are more at risk of being subjected to certain types of crime, for instance in Harper (2001) and Barker et al. (2002). With regard to age, although data in Table 1 allude to the fact that younger age groups are relatively more exposed to violent theft victimization, there were no model results to support this suggestion.

In terms of crime location, our findings echo and reinforce what has already emerged from the literature review: that certain places tend to encourage the victimization of tourists. The results suggest that burglary is more likely to take place in hotels and campsites, while pickpocketing and violent theft are more likely to occur in public places, pubs and restaurants. This outcome may be partially explained by *the hot spot theory*, according to which, places such as pubs and restaurants have a higher incidence of crime anyway (Schiebler et al. 1996). Additionally, our study suggested that foreign tourists staying in campsites are more likely to become victims of crime than their domestic counterparts, as well as more prone to suffering larger property loss. On the one hand, these results may suggest that domestic tourists are more aware of the risks and are less likely to carry with them large sums of money and valuables; on the other hand, this could indicate that cheaper accommodation such as campsites are less protected and

therefore, expose tourists more to theft and burglary. Indeed, an additional investigation revealed that the majority of offences occurred in smaller rural campsites around the Soča river, and in seasonal summer music festival campsites. Both types of accommodation usually have lower levels of security and safety than those with larger camping facilities that usually have fences, security cameras and security personnel. These results are consistent with the concept of tourist institutionalization (Cohen 1972), and with the results of previous studies. According to Cohen (1972, 1987), non-institutionalized tourists are relatively more vulnerable to crime, as they usually travel alone or in small groups, stay in places which are not heavily patronized by other tourists, have closer contact with the host community and are generally more willing to take risks. Similar findings to those we are presenting have also been reported, for instance, in Barker et al. (2002, 2003), where the authors found that victimization rates were higher for tourists staying in cheaper accommodation (hostels, campervans and campsites), and that foreign tourists were more likely to be victims of theft in their accommodation. The New Zealand study further asserts that foreign tourists are more likely to suffer larger property loss (Barker et al. 2002). Our results find additional support in Boakye (2010), who reported that victimization rates were the highest among tourists who preferred to use homestay accommodation.

With regard to the time of day, the results of crime category models suggest that a particular time bore no significant effect on the type of crime. Nevertheless, our status model results did allude to the fact that foreigners are less likely to become victims of crime in the evening compared to their domestic counterparts. Considering the latter, it is generally established in the literature that official police records are not a suitable source for providing hourly patterns of certain crimes, for example burglaries, since many people discover the crime took place several hours after it originally occurred (Felson and Poulsen 2003). Therefore, official police data usually contain unreliable or missing information on the time of occurrence and consequently, caution should be applied in making any assumptions concerning the time of day.

In sum, we may conclude that our research findings are mostly consistent with previous studies, although our results did highlight some shortcomings mainly associated with data availability and reliability. For instance, some important travel characteristics e.g. travel party size, travel arrangements and repeat visit status are not included in the models owing to the lack of data. Furthermore, the data set contains reported offences of grand theft only, and it cannot be assumed to be representative of unreported crimes or the general victimization rate. In order to overcome these shortcomings, a more reliable and extensive data set would be required. Given the limitations in our data set and the number of assumptions made, the results of our study should be treated as indicative rather than conclusive.

7. CONCLUSION

This study represents an attempt to examine tourist-related crime using the official police database. The main objective of the study was to identify the characteristics of grand theft victims in Slovene tourist areas, and to analyse the differences in risk among different types and scenes of crime. The second aim was to identify the differences in

risk of being victimized between domestic and foreign tourists, and visitors. Considering the limitations of the data, only broad conclusions can be drawn. First, the study provides evidence that gender, time of day, and age group had no significant effect on types of theft, while differences between crime scenes and domestic/foreign status significantly affects the likelihood of criminal victimization. Second, the findings of the domestic/foreign status model offer evidence to conclude that victim background (status and age group), and type of accommodation, both determine vulnerability to certain types of crime. These results are mostly consistent with previous research on this topic and highlight the existence of a statistically significant relationship between tourism and crime. The consistency of our results in comparison to the previous studies that use crime survey data could be an indication of the validity of methodology presented here to filter the official police records. In such a perspective, we may well conclude that combining police records with user generated online contents sources, may offer new opportunities in tourism crime research.

However, for a reliable estimation of the tourist victimization rate and the different determinants of vulnerability among victims, an alternative data source, for example a victim survey, would be needed. This also points to the direction to be followed for further research. In the interim, the study findings can be used by destination management organisations and the police to increase security and encourage crime prevention behaviour in certain destinations. An understanding of what types of crime visitors are more exposed to in particular locations will therefore, also allow destination information centres to give useful security information to visitors, thus helping them to minimise their exposure to potential crimes. This information may therefore enable them to design appropriate strategies to reduce crime incidence within destinations. Consequently, if the rate of tourist-related crime can be reduced, the image of the destination could improve.

As this is the first empirical study undertaken to examine crime in Slovene tourist areas, the results presented here also provide a baseline against which the results of further research will be compared.

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