

Do Tourists Report Crime to the Police? An Exploratory Analysis in Barcelona

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Declaration of interests

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Do Tourists Report Crime to the Police?

An Exploratory Analysis in Barcelona

Abstract

Police-recorded crime data is commonly used to assess the crime risk of tourists and locals. Police records, however, are affected by different crime reporting rates across population groups. No research has explored the different crime reporting propensities of tourists and locals. We analyze two sets of surveys in Barcelona, a general population survey and a survey to tourists. Our results show that while international tourists are less likely to report personal crime to the police than locals, and domestic tourists may also be more likely than international tourists to report personal crime, both international and domestic tourists report vehicle crime more often than locals. Moreover, some individual predictors of crime reporting vary between locals and tourists. New means of encouraging visitors to report crime are needed, for example, through further dissemination of information about how to report from the hotel, specialist tourism police units, or dedicated tourism victims' support services.

Keywords

Crime survey; victimization; survey statistics; dark figure of crime; crime reporting; policing

Introduction

The relationship between crime and tourism, long recognized by academics, is multifaceted (Botterill and Jones, 2010; Pizam and Mansfeld, 1996). Tourists are often involved in crime and antisocial behavior (Andrews, 2011; Homel et al., 1997), they are frequently the victims of crime (Boakye, 2010; Brunt et al., 2000), tourist hotspots are invariably crime hotspots (Johnny and Jordan, 2007; Maldonado-Guzmán, 2022), and both local residents and tourists often express concern about the threat of crime and disorder in tourist resorts (Brunt and Hooton, 2010; Ross, 1992), in the latter case perhaps avoiding such vacation destinations (Holcomb and Pizam, 2006). Yet while perceptions of crime are normally measured through population surveys, relatively few surveys of tourists have addressed their experiences of crime, and even less their experiences in particular resorts. Instead, crime statistics, invariably police records, are commonly used to assess crime risk in locations frequented by tourists. In most cases, these statistics provide no break-down according to whether or not the victim is a tourist. However, even where this information is available (e.g., Chesney-Lind and Lind, 1986), comparisons of risk are dependent upon the assumption that tourists are as likely to report crime to the police as are local people, a questionable assumption as is indeed recognized by some researchers (Michalko, 2004). Thus, whether a tourist area is safe, and if tourists are more or less at risk compared to locals, are questions whose answers are dependent upon the validity of official crime statistics, the fallibility of which has long been recognized (Coleman and Moynihan, 1996; Skogan, 1974). It is widely recognized that not all population groups are equally likely to report crime to the police (Hart and Rennison, 2003; Xie and Baumer, 2019), and the probability of crime reporting may be particularly low among tourists (Allen, 1999; Barker et al., 2002). Correspondingly, if tourism crime reduction strategies are to be considered, basing these solely on police statistics is questionable. No research, however, has yet analyzed the differential crime reporting propensities between tourists and locals, nor explored the extent to which this may affect crime prevention programs.

This paper thus addresses one fundamental question that has not previously been systematically tested: Are tourists more or less likely to report crimes to the police than local people? To do this, we

analyze two sets of surveys conducted in Barcelona, Catalonia, Spain, one a general population survey and the other a survey to tourists. Following this, from a theoretical perspective, we attempt to explain why crimes are or are not reported. Alternatively, from a policy perspective, we consider whether or not under-reporting by tourists leads to a false impression that they are safer than is in fact the case, thereby discouraging initiatives to improve their safety. Subsequently, we consider how tourist victims might be encouraged to report a higher proportion of the crimes they experience.

Literature Review

The safety of tourists has long been of concern to both tourism and crime researchers (Botterill and Jones, 2010; Pizam and Mansfeld, 1996, 2006). While tourism researchers commonly consider a range of risks that tourists might encounter, including natural disasters and health problems (Gössling et al., 2021; Rosselló et al., 2020), and have regularly addressed the problem of terrorism (Sönmez and Graefe, 1998), as well as the risk of experiencing crime, crime researchers have tended to focus exclusively on crime problems (Mawby et al., 2021). In considering crime patterns, researchers have generally used two sources of data: official statistics, mainly police records, and population surveys. Official statistics have been used to demonstrate crime hotspots in tourist resorts and during the peak tourism season (de Albuquerque and McElroy, 1999; Kelly, 1993; Maldonado-Guzmán, 2022). However, in most countries police records fail to distinguish the residential statuses of victims, making it impossible to establish comparisons between victimization rates of tourists and locals (Mawby, 2017). There are, however, exceptions. For instance, Chesney-Lind and Lind (1986), in a study conducted in Hawaii, and de Albuquerque and McElroy (1999), in a study analyzing crime victimization in Barbados, were able to use police data that distinguished the residential statuses of victims. Both articles concluded that overall tourists were more at risk than locals, especially from property crimes. On the other hand, Johnny and Jordan (2007) analyzed crimes recorded by the police in Saint Lucia, and suggested that residents were more likely to be victimized than tourists. However, in line with other studies, acquisitive crimes, such as stealing and house or hotel breaking, were the main types of crime suffered by tourists (Johnny and Jordan, 2007).

One of the main weaknesses of police-recorded crime statistics, long acknowledged by crime researchers, is that they only reveal the ‘tip of the iceberg’ (i.e., those offences that are reported to or discovered by the police and subsequently recorded as crimes). Police records fail to capture the ‘dark figure of crime’, which is known to vary across population groups, geographic areas, and over time (Baumer and Lauritsen, 2010; Buil-Gil et al., 2021). As a result, researchers have looked at other means of measuring victimization, especially surveys of specific populations. For example, the Crime Survey for England and Wales (CSEW) takes place annually with samples of the general population. Surveys of tourists have been less extensive. Some tourists’ victimization surveys have taken samples of tourists visiting different countries. For example, Brunt et al. (2000) sent questionnaires to readers of *Holiday Which*, a UK consumer magazine, and found a relatively high rate of victimization during their most recent vacation. Some more recent surveys have used crowdsourcing platforms and unearthed high rates of victimization among tourists (Mawby and Vakhitova, 2022). Others have involved surveying tourists visiting particular tourist centers, and these are commonly face-to-face interviews. Barker et al. (2002) questioned visitors to New Zealand for the Americas Cup, and concluded that victimization rates were relatively low. In contrast, Mawby et al. (2021), using a self-completion questionnaire for tourists departing from Istanbul airport, found that around 7% of visitors had experienced victimization; and Boakye (2010) reported that almost a third of his sample of foreigners visiting Ghana had been victimized during their stay, with theft the most common offence. However, none of these surveys compared visitors with residents, but rather, explicitly or implicitly, made assumptions about the extent of crime against local people, which is a precarious enterprise given the short lengths of the typical vacation (Mawby, 2017). To our knowledge, the only survey to interview tourists and those of other residential statuses was conducted by Stangeland (1998), who compared tourists to Spain interviewed at the end of their holiday with local and foreign residents of Malaga. This study found that tourists’ rates of victimization during a fortnight (average) holiday were not much lower (and sometimes higher) than those of other groups over a year. Moreover, as far as we are aware, no research using either police data or random samples of those in a tourist location

has compared visitors from within the country with visitors from abroad. Nor have representative samples of tourist victims been asked whether or not they reported crime victimization to the police. This omission is particularly notable because it is well recognized that only a minority of crimes are reported to the police (Baumer and Lauritsen, 2010; Hart and Rennison, 2003). Importantly, the likelihood of crime reporting is known to vary extensively depending on the crime seriousness, the demographic and social characteristics of victims and offenders, across geographic areas, and over time. Crimes that are more serious, or at least perceived as more serious by victims, are more likely to be reported to the police (Asiama and Zhong, 2022; Gottfredson and Hindelang, 1979). For example, completed burglaries are more often reported than unsuccessful attempts (Hart and Rennison, 2003); and while vehicle thefts tend to have a very high rate of reporting, the rate of reporting thefts of items from vehicles is relatively smaller (Tarling and Morris, 2010). Additionally, the characteristics of victims influence the decision to report crime to the police. Using data from the US National Crime Victimization Survey, Hart and Rennison (2003) observed that crimes suffered by females, African-Americans and older respondents were more likely to be reported to the police than those suffered by males, whites and younger people. The likelihood of crime reporting may also differ according to the marital status of victims and the overall household income (Buil-Gil et al., 2021; Hart and Rennison, 2003). And crimes are more likely to be reported to the police when the offender is known to the victim (Asiama and Zhong, 2022; Tarling and Morris, 2010).

There are many reasons why victims may be reluctant to report their victimization. The Office for National Statistics (2019), based on the CSEW, identified four main reasons: perceptions that the police could do nothing (cited by 33% of nonreporting victims); the matter was too trivial (29%); the police would not be interested (20%); and the matter was private or victims dealt with it themselves (19%). Other, less commonly cited reasons included inconvenience, fear of reprisals, and dislike of the police. With regard to tourist victims, Mawby (2000) argues that while these considerations may apply, other additional considerations may also be significant. For instance, the 'cost' of reporting crime may be greater than the benefits anticipated from informing the police. On the one hand, the time spent engaging with the justice system may impinge on valuable vacation time; on the other

hand, the difficulties of dealing with an unfamiliar criminal justice system, especially where a different language is involved, may discourage victims from reporting. It is here, perhaps, that the role of third parties like hoteliers may be important in facilitating access to the police.

From this perspective, victim reporting is characterized as a rational decision-making process in which victims of crime consider the anticipated *benefits* (e.g., protection of self and others, recovery of property, justice retribution) and *costs* (e.g., time and resources required, fear of retaliation) before deciding whether to report it to the police or not (Asiama and Zhong, 2022; Skogan, 1984). Some have criticized, however, that theoretical explanations of reporting behavior based entirely on rational choice models may be overly simplistic and fail to acknowledge that victims are not always capable of assessing the whole extent of benefits and costs associated with crime reporting, nor have enough information about the criminal justice system (Gottfredson and Gottfredson, 1988). The crime reporting decision is strongly driven by emotional and motivational states, related to the sense of loss and fear that individuals may experience due to the victimization (Greenberg and Ruback, 1992), and their previous experiences and perceptions about the police (Goudriaan et al., 2006). Individuals often adjust to crisis situations by relying on their existing social networks, and often discuss the victimization experience with relatives and friends before deciding what to do next (Ruback et al., 1984). Victims are more likely to call the police when they lack strong social bonds that help them adjust to the crisis situation (Black, 1976).

There is a gap in research regarding the tourists' decision to call the police. Mawby and Ozascilar (2022) selected a nonrandom sample of tourist victims and found that the most common explanations for non-reporting were that it was a private or personal matter, victims had dealt with the matter themselves, or they reported it to other agencies (e.g., holiday representative, hotel staff) instead. However, this was a small, nonrandom sample, accessed via a crowdsourcing platform, and care should be taken in generalizing from these findings. In conclusion, while there is considerable evidence regarding the reporting behavior of victims in general, discussion of tourist victims' willingness (or reluctance) to report crime is largely speculative. Specifically, we know nothing of whether tourists are more or less likely than locals to report crime, nor whether there are differences

between foreign tourists and visitors from elsewhere in the country. It is these questions that we address in this paper.

The Research

Study Area

The study is centered in the city of Barcelona. In 2018, the population of Barcelona was 1.62 million residents, while a local survey conducted by the Barcelona City Council in tourist accommodations showed that the number of tourists who visited the city in 2018 was above 8 million (Ajuntament de Barcelona, 2022). This survey also indicated that the number of overnight stays was larger than 20 million, and the mean number of days spent in the city was 2.51. Catalonia is one of the top four regions in Europe with the largest number of nights spend in tourist accommodations (EUROSTAT, 2022). Previous research has identified that, in Barcelona, crime is strongly associated with the distribution of tourism, both in its geographic concentration (Cernat et al., 2022; Maldonado-Guzmán, 2022) and its seasonal variation (Montolio and Planells-Struse, 2016). There is also impressionistic evidence that residents associate tourists with law-and-order problems (Burgen, 2019; Kassam, 2014) and that tourists are targeted by pickpockets (Burgen, 2018).

In 2018, only 15% of victims who reported crime to the police in Barcelona were tourists, and this percentage was 25% in the case of theft (Departament d'Interior, 2020). It has been argued, however, that this may be driven by differences in the length of stays in the tourist destination, rather than actual risk experienced by different population groups (Mawby, 2017), and potentially differences in crime reporting. This is the reason why, in 2008, the Guild of Hotels in Barcelona signed an agreement with Mossos d'Esquadra, the Catalan Police, to allow tourists to report crime incidents to the police from the tourist accommodation. And this is also why the Barcelona City Council includes measures of crime victimization and reporting in its annual Survey to Tourists in Barcelona (Ajuntament de Barcelona, 2019a), to allow for more refined estimates of crime suffered by tourists.

Data and Methods

Data recorded in two sample surveys conducted in Barcelona in the period 2016 to 2019 will be analyzed to obtain estimates of the prevalence and predictors of crime reporting for residents, domestic tourists and international tourists visiting Barcelona.

In order to obtain information from tourists, we use the Survey to Tourists in Barcelona (Ajuntament de Barcelona, 2019a). This survey is almost unique in its design, recording data every year about domestic and international tourists' experiences and perceptions while visiting Barcelona, including measures of victimization (i.e., "Have you been a victim of any crime (such as theft, robbery or assault) or attempted crime against your personal security or your vehicle (owned or rented) during your stay in Barcelona?", with multiple options allowed for "Yes, against my personal security", "Yes, against my vehicle (owned or rented)" and "No"). Follow up questions are also asked about one crime per respondent, including the location of the incident for a list of possible locations, whether it was reported to the police (i.e., "Did you report this crime by signing a document for the police or court?", with possible responses "Yes" and "No"), whether it was reported in a hotel or police station, and whether the person knew about the possibility of reporting from the tourist accommodation. Thus, the survey imposes a cap of one crime per respondent when recording follow up information about incidents, meaning individuals who suffered multiple offences are only probed whether one of them was reported to the police. We return to this point in the Discussion section.

The sampling frame of the Survey to Tourists in Barcelona is all tourists aged 15 or more who stay in any type of accommodation (excluding second residences or cruises) in Barcelona between one and 28 days. Note, then, that second home owners, day-trippers from cruise ships, and tourists staying elsewhere in Spain and visiting the city for the day are not included in the survey. It follows a multistage stratified (strata: months) and cluster (clusters: days of the week and sampling locations) sampling design to select respondents. Respondents are selected in tourist locations, including museums, conference halls and main roads, as well as in the airport, train stations, bus stations and seaport. Survey weights are computed based on the month, type of accommodation and accommodation class and applied to adjust for potential biases arising from the clustered sampling

design. Sample sizes vary across years depending on budget constraints (see Table 1). In order to study differences between domestic and international tourists, our analysis will distinguish the sample of international tourists (i.e., tourists from abroad) from that of Spain-based tourists (i.e., those who reside elsewhere in Spain).

Secondly, to record data from locals, we use the Barcelona Victimization Survey. The Barcelona Victimization Survey is one of the earliest crime surveys in Europe, having recorded data each year since it was launched in 1984 (Ajuntament de Barcelona, 2019b). The questionnaire includes measures of perceived security, trust in policing and neighborhood perceptions, as well as a battery of screening questions about crime victimization in the last 12 months (e.g., in the case of robbery, “I suffered a robbery with threats or violence”, with possible answers “Yes” and “No”, and a follow up “How many times did it happen?” question in case of positive answer). A wide variety of crimes are included in the survey, including burglary, vehicle crime, robbery, theft, mobile phone theft, violence, threats, sexual violence and fraud. In order to find corresponding crime categories to those recorded in the tourists’ survey, we consider crimes against personal security those instances of theft, robbery, theft of phone, theft of electronic device, violence, threat, sexual assault, and burglary (both attempted and successful)¹; while we consider crimes against vehicle all instances of theft from vehicle, theft of parts of vehicle and car theft (attempted and successful). For every crime identified, the questionnaire then probes whether it was reported to the police (i.e., “Did you report this crime by signing a document for the police or court?”). Moreover, in order to equate the design of the Barcelona Victimization Survey to the Survey to Tourists in Barcelona, we impose a cap of one incident per respondent, thus studying if the first crime was reported to the police.

The sampling frame of this survey is all Barcelona residents aged 16 or more. Respondents aged 16 to 64 complete the questionnaire via a web survey, while those aged 65 or more answer the questionnaire through Computer-Assisted Telephone Interviewing. The sampling design consists of stratified random samples based on the district of residence, sex, age groups and nationality of

¹ Thus, in order to equate the design of both surveys, in this article ‘personal crimes’ relate to all crimes against the individual or household, excluding vehicle crimes. Government reports and research articles often use a more restrictive definition of ‘personal crimes’ that exclude household offences.

respondents, but sample sizes may also vary across years depending on budget constraints (Table 1). Survey weights are also computed and applied to adjust for non-response and match the sample to population proportions based on the district of residence and demographic characteristics of respondents. Both the Barcelona Victimization Survey and the Survey to Tourists in Barcelona were accessed from the Barcelona City Council’s Public Opinion Poll Register (<https://ajuntament.barcelona.cat/en/administrative-information/public-opinion-poll-register>).

Given the time varying sample sizes of both surveys, and the particularly small samples recorded in 2016, we will merge the 2016 and 2017 editions of the surveys to increase the effective sample sizes. Moreover, while descriptive statistics will be calculated for each year, inferential statistics about the likelihood of crime reporting will be calculated from the merged 2016-2019 samples of respondents.

Table 1. Sample sizes of the Survey to Tourists in Barcelona and the Barcelona Victimization Survey (2016-2019)

			2016	2017	2018	2019	2016-2019
Barcelona Victimization Survey	Total (residents)	Sample size	1,613	3,614	4,472	1,049	10,748
		Victims of crime	482	1,065	1,385	374	3,306
Survey to Tourists in Barcelona	Total	Sample size	6,032	13,122	12,455	21,832	53,441
		Victims of crime	112	125	216	416	869
	International tourists	Sample size	5,197	9,012	8,451	15,000	37,660
		Victims of crime	91	108	196	374	769
	Spain-based tourists	Sample size	835	4,110	4,004	6,832	15,781
		Victims of crime	21	17	20	42	100

We make use of bar graphs to visualize differences in proportions of crimes reported by the three population groups of interest (i.e., locals, Spain-based tourists, and international tourists) and the two crime types studied (i.e., personal and vehicle crimes). We analyze if these differences are statistically significant using Welch's t-tests for difference of means (Delacre et al., 2017) and randomization-based testing for difference of means based on 1,000 permutations (Edgington and Onghena, 2007).

We then record a series of demographic variables that are available in both surveys and estimate binary logistic regression models to examine if some of the known predictors of crime reporting vary between local residents, domestic tourists and international tourists. More specifically, the following common variables are available in both surveys: age, sex (male or other), education level (higher education or not), nationality (Spanish or not, European or not), employment status (employed or not), and language skills (Speaks Catalan/Spanish or not). Other sociodemographic variables are also known to be strongly related to crime reporting, including ethnicity, marital status, socioeconomic status and relationship to offender (Hart and Rennison, 2003; Xie and Baumer, 2019), but these were not included in our two surveys and thus could not be included in our analysis. All analyses have been conducted in R software (R Core Team, 2022).

Findings

This section describes our findings under four headings. Firstly, in order to provide some context about the nature of tourism in Barcelona, we briefly present some descriptive statistics about the demographic characteristics and everyday activities of tourists. Secondly, to provide some context about the nature of crime victimization suffered by the three population groups, we analyze differences in prevalence of victimization between residents and domestic and international tourists. Thirdly, we analyze differences in crime reporting between these three groups, and whether these differences are statistically significant. Finally, we present the results of our logistic regression models of crime reporting by population groups.

Tourists Visiting Barcelona

The demographic characteristics of tourists visiting Barcelona and their main transportation modes are displayed in Table 2. On average, visitors included in the sample were scheduled to spend 2.9 days in Barcelona, but international tourists spent longer time in the city than Spain-based tourists. Overall, the main reasons to travel to Barcelona were holidays and business for both domestic and international tourists, but the proportion of Spain-based tourists travelling to Barcelona due to business is much larger than that of internationals. The main transportation mode used in Barcelona

was metro, followed by personal car and bus; while the main transport modes used to arrive to the destination were by flight and personal car. While we do not find notable differences between the transportation modes used by domestic and international tourists to move *around* Barcelona, domestic tourists tend to travel *to* Barcelona by personal car while international tourists mainly travel by flight. The median expenditure per person was 810€ in 2016-2017, 910€ in 2018 and 1,200€ in 2019. International tourists spent, on average, more than twice as much as domestic tourists.

In 2016-2017, 30.0% of respondents travelled to Barcelona with their partners, 20.9% alone, 9.9% with friends, 7.9% with colleagues and 6.2% with their children. Similar proportions were found in 2018 and 2019. The proportion of domestic tourists traveling alone is larger than that of international tourists. The main nationalities among tourists were Spanish, British, French, German, American and Italian. Interestingly, international tourists were, on average, around 3 years older than Spain-based tourists.

Table 2. Demographic characteristics and transportation modes of tourists in Barcelona

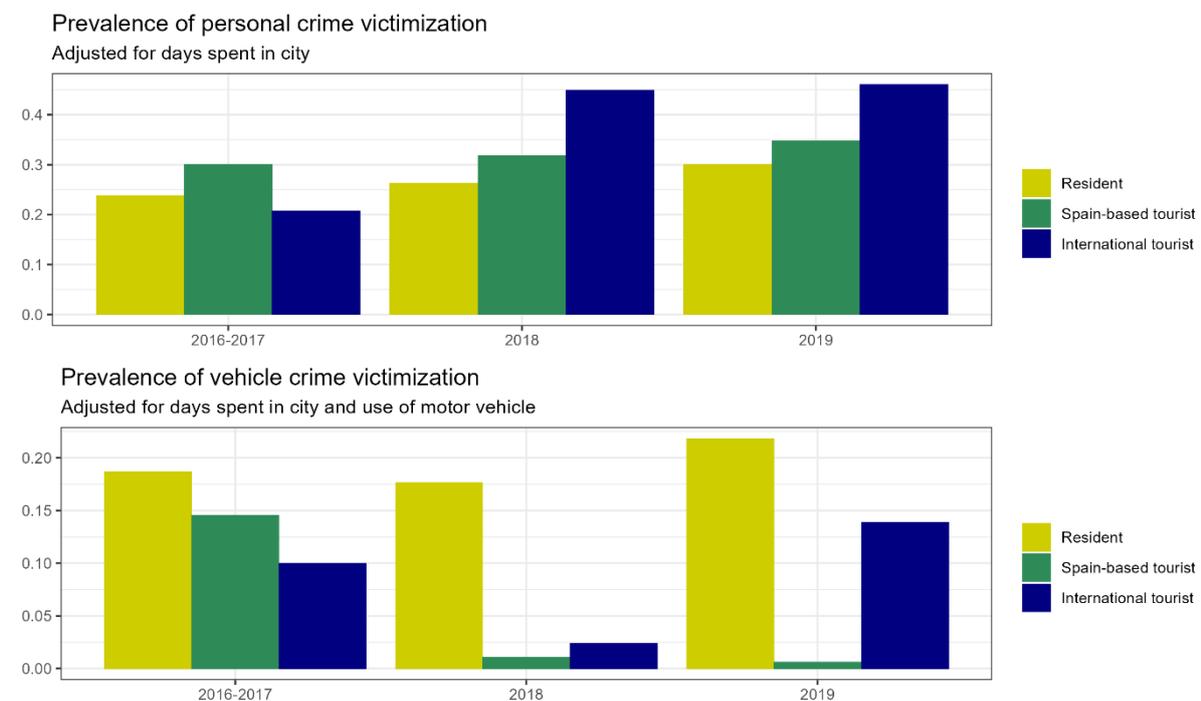
	All tourists			Spain-based tourists			International tourists		
	2016-2017	2018	2019	2016-2017	2018	2019	2016-2017	2018	2019
<i>Time spent in Barcelona</i>									
Average days	2.88	2.89	2.91	2.27	2.30	2.29	3.09	3.17	3.20
<i>Main reasons to travel to Barcelona (top 2 categories)</i>									
Holidays and tourism	58.9%	61.3%	62.1%	43.7%	49.9%	50.6%	64.2%	66.8%	67.3%
Business	10.0%	13.7%	7.8%	17.7%	21.7%	12.7%	7.4%	9.9%	5.6%
<i>Transportation mode used in Barcelona (top 3 categories)</i>									
Metro	55.1%	59.2%	60.8%	51.9%	61.7%	60.8%	55.6%	58.9%	60.8%
Personal car	22.7%	12.9%	12.6%	23.3%	8.5%	9.4%	22.6%	13.5%	13.0%
Bus	8.1%	11.3%	11.8%	7.0%	9.2%	10.8%	8.3%	11.6%	11.9%
<i>Transportation mode used to travel to Barcelona (top 2 categories)</i>									
Flight	75.9%	60.6%	61.8%	26.7%	16.2%	16.0%	87.5%	81.6%	82.6%
Personal car	10.6%	24.2%	23.5%	35.4%	57.4%	57.2%	4.7%	8.5%	8.1%
<i>Expenditure per person</i>									
Median expenditure	810€	910€	1,200€	370€	400€	482€	1,000€	1,130€	1,423€
<i>Respondent was traveling with... (top 5 categories)</i>									
Partner	30.8%	44.9%	44.1%	20.6%	47.7%	47.0%	34.3%	43.6%	42.7%
Alone	20.9%	24.0%	24.1%	20.4%	25.7%	26.5%	21.0%	23.1%	23.0%
Friends	9.9%	12.3%	13.5%	5.1%	9.2%	10.3%	11.6%	13.7%	14.9%
Colleagues	7.9%	10.6%	10.3%	7.1%	12.5%	11.8%	8.1%	9.7%	9.7%
Children	6.2%	16.8%	15.9%	6.8%	25.0%	23.7%	6.0%	12.9%	12.4%
<i>Nationalities (top 6 categories)</i>									
Spanish	25.0%	30.9%	30.1%	92.5%	92.5%	92.1%	1.6%	1.7%	1.9%
British	8.8%	8.1%	7.3%	0.6%	0.5%	0.5%	11.7%	11.7%	10.4%
French	8.6%	6.9%	7.2%	0.5%	0.4%	0.4%	11.5%	10.0%	10.4%
German	6.7%	5.4%	5.4%	0.3%	0.3%	0.3%	8.9%	7.8%	7.8%
American	5.4%	4.7%	4.8%	0.2%	0.1%	0.2%	7.2%	6.9%	6.9%
Italian	4.9%	4.7%	5.0%	0.6%	0.5%	0.6%	6.4%	6.7%	6.9%
<i>Number of nationalities included in the sample</i>									
Total	146	136	149	71	63	72	146	134	147
<i>Age of tourists</i>									
Average age	40.2	40.7	40.8	42.6	43.0	43.0	39.4	39.6	39.9

Victimization of Tourists and Local Residents

Regarding crime victimization experiences while visiting Barcelona, we adjusted for the number of days already spent in the city (i.e., day of interview minus day of arrival) and calculated the prevalence of crime victimization for locals, international tourists and Spain-based tourists, which reflects the adjusted proportion of respondents who suffered at least one incident during their stay.

Estimates of personal crime victimization prevalence are remarkably higher among both domestic tourists (30.1% in 2016-2017, 31.8% in 2018 and 34.8% in 2019) and, with the exception of 2016-2017, international tourists (20.8%, 44.9% and 46.0%, respectively) than for Barcelona residents (23.8%, 26.4% and 30.0%, respectively). This is visualized in Figure 1. Different patterns, however, emerge when we compare prevalence of vehicle crime victimization, also adjusting for the number of days spent in the city and the use of motor vehicle. The proportion of domestic tourists (14.6% in 2016-2017, 1.1% in 2018 and 0.6% in 2019) and international tourists (10.0%, 2.4% and 13.9%, respectively) who suffered vehicle crimes is smaller than that of locals (18.7%, 17.7% and 21.8%, respectively).

Figure 1. Prevalence of crime victimization among locals and tourists



Survey estimates also indicate a notable increase in victimization, mainly related to personal crime, from 2016-2017 to 2018 and 2019. Such an increase in crime aligns with police-recorded crime (Agencia de Datos, 2022) and local survey estimates (Ortiz and Pont Algeró, 2019), which showed large increases in personal property crime and violent crime, but not necessarily vehicle crime, during 2018 and 2019. The spike in crime seen in Barcelona during this period, which later decreased in

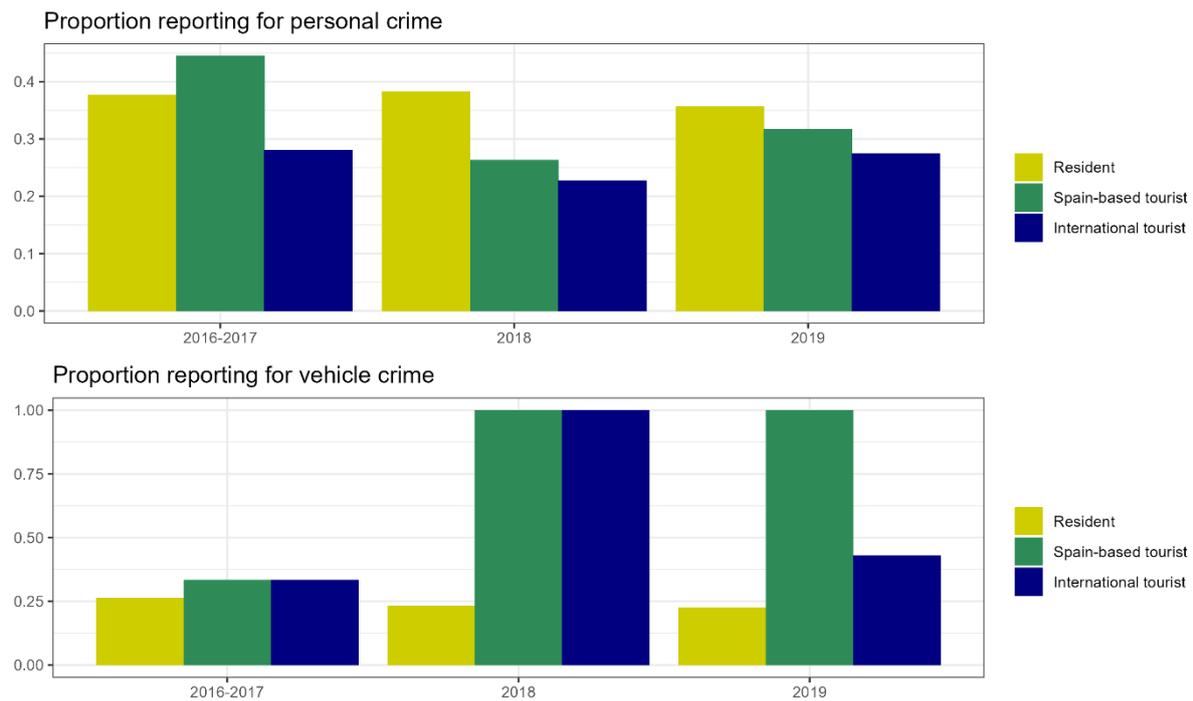
2020, was also reported in international media (Burgen, 2019; Hedgecoe, 2020) and led to growing citizens' concerns and policy reforms in 2022 (Castán, 2022; García Bueno, 2019). While this increase in crime was noted by all population groups, survey estimates appear to show that it was more extensive among international tourists than among locals and domestic tourists. Aside from speculative news articles and commentaries associating crime with disorder and offenders' recidivism (Casas Herrer, 2020; Tercero, 2019), to date no research has systematically analyzed the increase in crime in Barcelona during that period.

While results visualized in Figure 1 allow for a rough comparison of the extent to which visitors were at risk compared to local people and align with previous research findings (Brunt et al., 2000; de Albuquerque and McElroy, 1999; Harper, 2001; Michalko, 2004), these findings should be accepted with caution due to the different questionnaire wording and design used in both surveys (i.e., a battery of questions related to specific crime types in the Barcelona Victimization Survey compared to a single victimization question in the Survey to Tourists in Barcelona).

Levels of Crime Reporting

The design of both questionnaires allows for more reliable comparisons of crime reporting rates between locals and domestic and international tourists. As shown in Figure 2, the proportion of victims of personal crime who report crime to the police appears to be smaller among tourists than locals. With the only exception of domestic tourists in 2016-2017, both domestic (26.3% in 2018 and 31.7% in 2019) and international tourists (28.1%, 22.7% and 27.5%, respectively) seem to report personal crime to the police at a lower rate than locals (37.7%, 38.2% and 35.7%, respectively). Results also appear to indicate that crime reporting is lower among international tourists than Spain-based tourists. This, nonetheless, does not appear to be the case for vehicle crimes. Results visualized in Figure 2 seemingly show that the proportion of victims who report vehicle crimes to the police is larger among domestic and international tourists than amongst locals.

Figure 2. Proportion of crime reporting among locals and tourists



While these results show interesting patterns and demonstrate that estimates of crime based on police records may be severely distorted by differences in reporting rates between locals and tourists (see Figure A1 in the Appendix), it is important to bear in mind that these results may be affected by small sample sizes of victims recorded in some of the surveys. In order to assess whether some of the differences shown in Figure 2 are indeed statistically significant we, first, merge all four rounds of the survey together, thus enlarging the effective sample sizes for study, and second apply Welch's t-tests (Table 3) and randomization-based testing for difference of means (Figure A2 in the Appendix). Results of the t-tests show that locals report personal crimes to the police systematically at a higher rate than international tourists (statistically significant at a $p < 0.001$ level). There is also weaker evidence (at a $p < 0.1$ level) that the proportion of domestic tourists who report personal crime to the police is larger than that of international tourists, and domestic tourists report vehicle crime to the police at a higher rate than residents. All these statistically significant differences are also observed in the randomization-based tests for difference of means (at a $p < 0.05$ level), in which we also find evidence that international tourists may report vehicle crimes to the police more often than locals.

Table 3. *T-tests for difference of crime reporting proportions between locals, international tourists and Spain-based tourists*

		Locals vs. international tourists	Locals vs. Spain- based tourists	International vs. Spain-based tourists
Personal crime	Welch's two sample t-test	$t = 5.2$ ($p < 0.001$)	$t = 0.37$ ($p = 0.713$)	$t = -1.87$ ($p = 0.062$)
Vehicle crime	Welch's two sample t-test	$t = -1.61$ ($p = 0.107$)	$t = -1.85$ ($p = 0.065$)	$t = -0.51$ ($p = 0.619$)

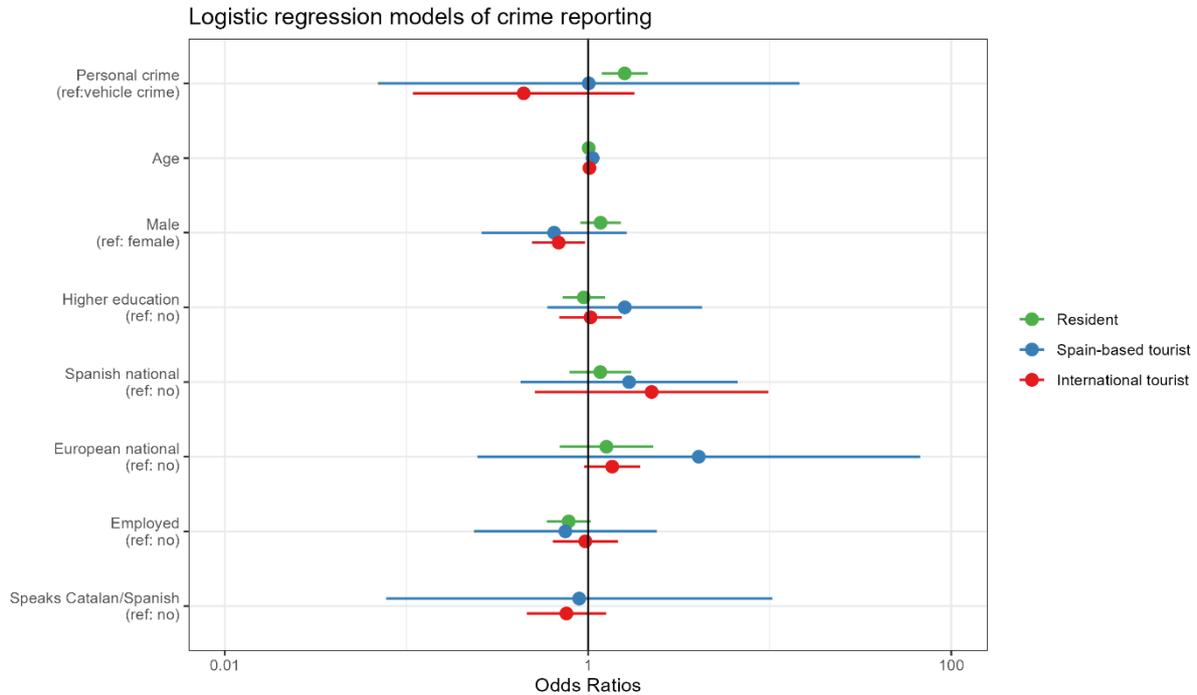
Modeling Crime Reporting

Finally, we analyze if some of the sociodemographic predictors traditionally associated to crime reporting by residents can also be used to explain crime reporting patterns among tourists. Binary logistic regression models of crime reporting are estimated for the three samples of residents, Spain-based tourists and international tourists, and results are shown graphically in Figure 3 and with detailed statistics in Table A1 in the Appendix.

In accordance with results presented in Figure 2, we observe that locals are 59% more likely to report a personal crime than a vehicle crime to the police ($p < 0.001$), while this association is the opposite, but not significant, among international tourists, and there is no observable difference in the case of Spain-based tourists. In line with results shown in Hart and Rennison (2003), in our three samples, older respondents tend to report crimes to the police at a higher rate than younger adults ($p < 0.05$), but the magnitude of this relationship is very small. Interestingly, the effect of gender on crime reporting appears to vary between international tourists and locals: while international tourist females are 31% more likely to report crime to the police than males ($p < 0.05$), this association appears to be the opposite, but not statistically significant, in our model estimated from the local sample (Black, 1976). We do not find any evidence that education level, speaking Catalan or Spanish or having Spanish nationality have an impact on crime reporting in any of our three models. We do, however, find evidence that, in the case of international tourists, European nationals are 36% more likely to report to the police than non-European nationals. The relation of European citizenship with crime reporting is positive and very large in all models, but it is not statistically significant in the models estimated from the samples of locals and domestic tourists. Employed respondents appear to be less likely to report

crimes to the police than unemployed (Buil-Gil et al., 2021), but this relationship is only statistically significant, but weak, in the model estimated from the Barcelona Victimization Survey.

Figure 3. Logistic regression models of crime reporting (Odds ratio and 95% confidence intervals)



Discussion and Conclusions

Police-recorded crime has been the primary data source used by public administrations and researchers to analyze the victimization of tourists and residents in tourist destinations. However, it is widely known that police records are severely affected by measurement error arising from victims' unequal probability of reporting and recording inconsistencies within and between police forces (Skogan, 1974, 1984; Xie and Baumer, 2019). While previous research has shown that not all population groups are equally likely to report crime to the police (Hart and Rennison, 2003; Tarling and Morris, 2010), and some have identified that crime reporting rates may be particularly low among tourists (Allen, 1999; Barker et al., 2002; Mawby, 2000), no research has yet compared the likelihood of crime reporting of residents and tourists, nor assessed the extent to which the predictors of crime reporting vary amongst locals and domestic and international tourists. This has extensive implications both to explain the prevalence, distribution and causes of crime, and to design and evaluate crime

prevention programs in tourist destinations. This article aims to fill this gap in research by using data from four rounds of a survey to tourists and a local victimization survey to compare the crime reporting prevalence of tourists and locals in Barcelona.

Our findings indicate that while international tourists are systematically less likely to report personal crime to the police than residents, and domestic tourists may also be more likely than international tourists to report personal crime, both international and domestic tourists appear to be more likely than locals to report vehicle crime to the police. Moreover, some of the individual variables traditionally associated with crime reporting by residents show dissimilar patterns when we study the reporting of tourists. This has three important implications for theory and crime prevention practice: First, crime reporting tendencies significantly vary between locals and international tourists, and between domestic and international tourists, thus affecting the distributions and patterns shown in official crime statistics and the crime prevention policies based on those. This is perfectly visualized in Figure A1, in the Appendix, which shows the variations in the victimization rates of the three subgroups, variations in reporting patterns, and the extent to which the latter result in a distorted view of risk if we solely rely on police statistics. Second, the likelihood of crime reporting among tourists appears to vary extensively across crime types, and thus it may be inaccurate to argue that tourists are *always* less likely to engage with the criminal justice system than locals. And third, the predictors of crime reporting may vary between locals and tourists, and thus to increase the crime reporting propensities of tourists we need to further understand the drivers of reporting among tourists instead of applying traditional explanations of crime reporting based on samples of residents.

While we have no definitive explanation for some of the patterns observed in this study, and this calls for further research, below we pose probable explanations for our findings. With regard to personal crime, the lower rate of reporting by visitors may be explained in terms of the issues raised earlier: visitors may consider the *costs* of reporting, in terms of vacation time lost and the added difficulties of dealing with a criminal justice system with which they are unfamiliar, and the anticipated *benefits* of reporting, in terms of the low anticipated probability of recovering property, before deciding whether to report personal crime to the police. Moreover, international tourists may be less concerned about

the protection of others than locals and domestic tourists, and thus the probability of altruistic reporting (i.e., reporting crime to contribute to the reduction of crime in an area) may be lower amongst internationals. The fact that Spanish visitors were more likely to report personal offenses than were foreign visitors illustrates these latter points. However, we find no evidence that language issues are a barrier to reporting (Allen, 1999).

Another probable explanation for the observed differences between international tourists and locals, which may also explain why Europeans are more likely than non-Europeans to report to the police, is related to the tourists' perceptions about police services in their respective countries. Previous research findings indicate that the likelihood of crime reporting is directly linked to citizens' perceptions about police services (Goudriaan et al., 2006; Office for National Statistics, 2019), and confidence in policing has been found to be larger amongst Europeans and residents in other Western nations than elsewhere (Cao et al., 2012). Thus, tourists with a low confidence in the police *in their countries* may also be less likely to engage with police forces when travelling to other places. The nature of crimes suffered by locals and domestic and international tourists may further exacerbate these differences: First, tourists are most often victimized by strangers, and previous crime reporting studies identify that the likelihood of crime reporting is smaller when the victim does not know the offender (Asiama and Zhong, 2022; Tarling and Morris, 2010). Second, the average age of residents (44.5) is remarkably larger than that of tourists (36.1), and there is extensive evidence that older respondents are more likely to report to the police (Hart and Rennison, 2003; Xie and Baumer, 2019).

With regard to vehicle crime, it appears that local residents are least likely to report such offenses to the police, especially compared to Spanish visitors. Three possibilities seem plausible for this pattern. Firstly, as noted earlier, thefts *of* vehicles tend to be commonly reported to the police, whereas thefts *from* vehicles have lower reporting rates, and it may be that a higher proportion of locals' cars are involved in thefts from the vehicle. Secondly, more visitors' cars will be hire-cars, thereby increasing the incentive to report, both if the car is stolen and if there is forced entry entailing damage. That said, the number of hire-cars in our sample that were targeted by offenders was too small to enable statistical analysis. And third, this may be related to where vehicles are parked: we might speculate

that international tourists are more likely to park in hotel car parks and other supervised car parks, where the presence of CCTV and other security measures may enable a quicker identification of suspects, while locals are more likely to park on the street.

Our results raise the question of how visitors might be encouraged to report offences to the police. As noted earlier, in 2008, Barcelona introduced an initiative whereby visitors could report crimes via their accommodation. However, it seems that only about a quarter of tourist victims are aware of this (21.43% in 2016-2017, 27.37% in 2018, and 25.68% in 2019). Not surprisingly, then, although the proportion of victims reporting via their hotel had increased, it was still no more than one in six (7.53% in 2016-2017, 15.79% in 2018, and 16.39% in 2019). We would suggest, then, that other means of encouraging visitors to report crime need to be added, for example, through further dissemination of information about how to report, a specialist tourism police unit, or a dedicated tourism victims' support service, as found in other parts of the world (Mawby and Ozascilar, 2022).

While results presented in this article are first-of-its-kind and clearly show the need to advance our understanding of crime reporting propensities among tourists, this research is not free from limitations. First, the Survey to Tourists in Barcelona imposes a cap of one crime per respondent before asking follow-up questions about place of incident and crime reporting, and we also applied a similar approach to the Barcelona Victimization Survey to equate the design of both surveys. The cap of one incident per respondent is likely to increase crime reporting rates artificially, and tourists may answer 'yes' when they have only reported one of the multiple crimes suffered. We thus expect crime reporting rates to be even lower than those described here. It is therefore suggested that future studies analyze crime reporting for a battery of crime victimization incidents instead of capping the number of crimes. The Survey to Tourists of Barcelona may consider adding this change in future editions of the survey. This would also address the second main limitation of the study, related to the small samples of respondents/incidents recorded in some cases. Restricting the crime reporting question to one incident contributed to small samples and a loss of statistical power in our analysis. Future studies should also disaggregate between more specific crime types. Extant research indicates that crime reporting rates vary extensively between theft and burglary, two forms of personal crime, and between

theft of vehicle and theft from vehicle (Hart and Rennison, 2003; Tarling and Morris, 2010), and thus our analysis may mask internal heterogeneity in terms of crime reporting. Finally, future studies would also benefit from including a wider variety of social and demographic predictors in regression models of crime reporting.

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Appendix

Figure A1. Survey-based estimates of crime victimization reported to the police among locals and tourists (colored bars visualize crime victimization reported to the police and shaded bars visualize the total extent of crime victimization)

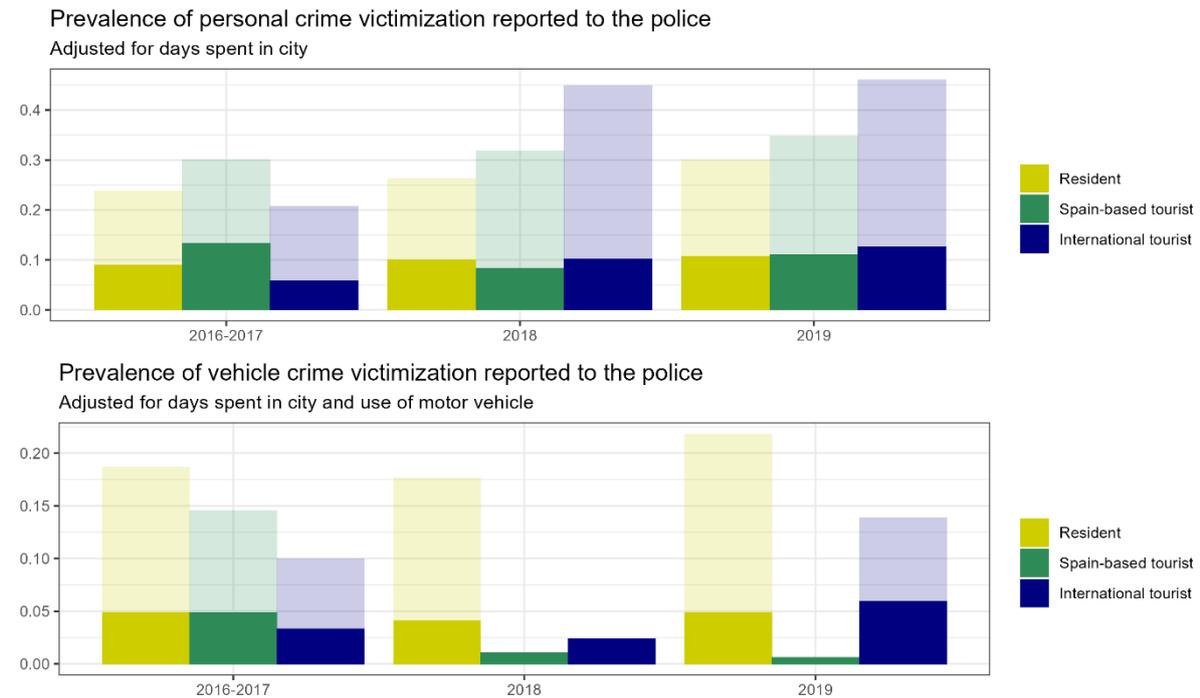


Figure A2. Randomization-based tests for difference of crime reporting proportions between locals, international tourists and Spain-based tourists (1000 permutations)

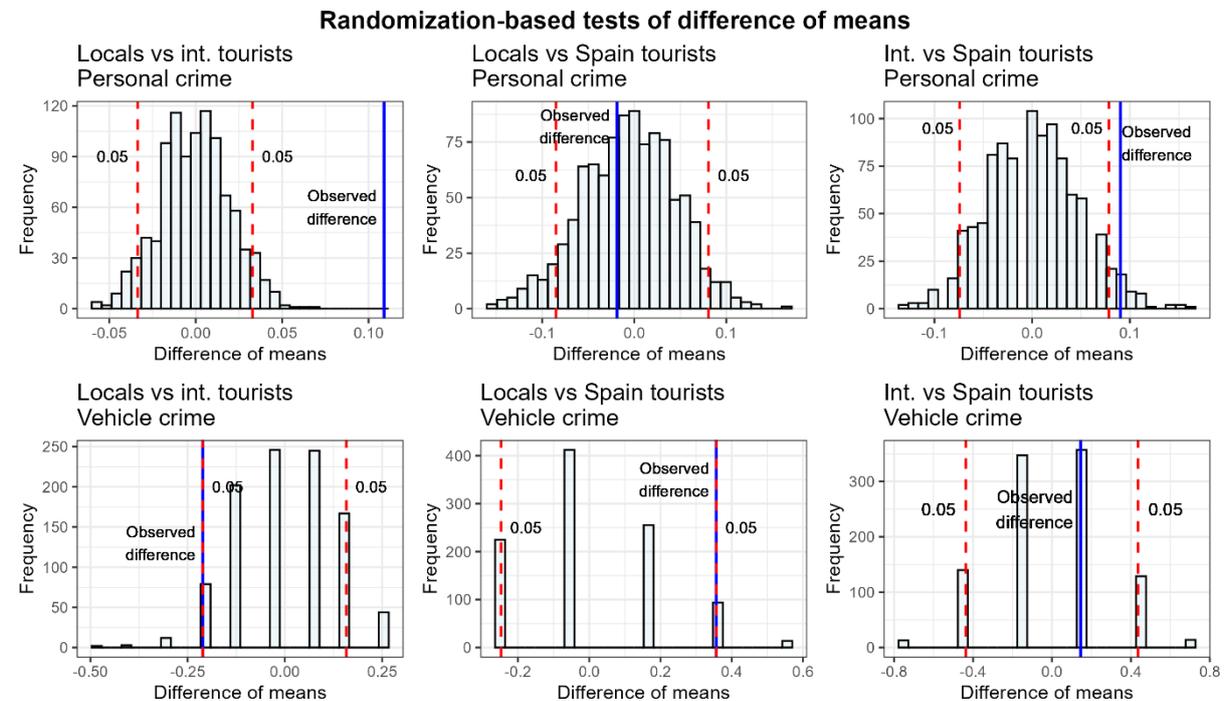


Table A1. Logistic regression models of crime reporting

	Locals			Spain-based tourists			International tourists		
	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
(Intercept)	0.23	0.13 – 0.40	<0.001	0.06	0.00 – 3.05	0.174	0.47	0.10 – 2.27	0.334
Personal crime (ref: vehicle crime)	1.59	1.19 – 2.13	0.002	1.01	0.07 – 16.61	0.994	0.44	0.10 – 1.90	0.255
Age	1.01	1.00 – 1.02	0.020	1.06	1.02 – 1.11	0.007	1.02	1.01 – 1.03	0.003
Male (ref: female)	1.17	0.91 – 1.52	0.224	0.65	0.25 – 1.62	0.359	0.69	0.49 – 0.96	0.030
Higher education (ref: no)	0.95	0.72 – 1.24	0.697	1.59	0.60 – 4.34	0.352	1.03	0.70 – 1.54	0.877
Spanish national (ref: no)	1.17	0.79 – 1.74	0.436	1.68	0.45 – 7.55	0.458	2.24	0.44 – 9.59	0.286
European national (ref: no)	1.26	0.69 – 2.28	0.440	4.07	0.21 – 74.39	0.327	1.36	0.95 – 1.94	0.091
Employed (ref: no)	0.78	0.59 – 1.03	0.083	0.75	0.23 – 2.46	0.627	0.97	0.64 – 1.47	0.871
Speaks Catalan/Spanish (ref: no)				0.89	0.09 – 19.96	0.928	0.76	0.45 – 1.24	0.286
Sample	1127			98			750		
AIC	1423.90			133.11			866.73		
BIC	1464.12			156.37			908.31		
Log-Likelihood	-703.95			-57.55			-424.37		

OR = Odds Ratio; CI = Confidence Internals