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Seasonality of crime in Croatia: A relationship with tourism

Abstract

Peace, safety, and security are the primary conditions for successful tourism development and security threats such as terrorism, crime or potential war conflicts can strongly affect tourism. Of these threats, crime is the most widespread. Certain types of crime are seasonal and some criminal offences are more often committed at a particular time of the year, week or day. The aim of this paper is to determine whether there is a connection between the seasonality of crime and tourism in Croatia. In order to achieve this aim, the correlation analysis was applied on monthly data from 2007 to 2018, using Pearson product-moment correlation coefficient to measure the strength of the relationship between crime and tourism. The analysis covered reported criminal offences that may be related to tourism. The conducted analysis found a statistically significant correlation between the tourist arrivals and stays and almost all types of reported criminal offences, and this correlation was stronger for property crimes and weaker for violent crimes. The obtained results can help law enforcement agencies to allocate police officers in specific periods of time and thus to provide adequate resources to respond to crime, such as additional police officers during the summer or other seasons.

Key words: crime; seasonality of crime; tourism; Croatia

1. Introduction

The importance of tourism for Croatia is significant since tourism is one of the most important economic sectors in Croatia. In 2018 the number of tourist arrivals reached 18.6 million, with 89.6 million tourists overnight stays tourism revenues amounted EUR 10.09 billion and the share of tourism revenues contributed to 19.6% of GDP (Ministarstvo turizma Republike Hrvatske, 2019). To enable tourism to develop, it is necessary to provide tourists safe stay and vacations, which is a complex task since today's society faces many security challenges and threats.

Security in tourism is not only a question of the postmodern age since people have always faced certain forms of danger and uncertainty on their journeys (Michalko, 2003), however, mass travel and mass tourism are a new phenomenon connected with the 20th century. Considering that in the 20th-century tourism became more accessible to the wider population, since social mobility increased and, in general, revenues increased, therefore tourism security has become "one of the most important national security issues across the globe" (Boxill, 2012, p. 26). This attention is easily understandable since "peace, safety, and security are the primary conditions for successful tourism development" (Pizam & Mansfeld, 2006, p. 16) and security threats such as terrorism, crime or potential war conflicts and political turmoil can strongly affect decision-making in choosing of tourist destination (Pizam & Mansfeld, 2006). From the above-mentioned security threats, crime is probably the most widespread: Brunt, Mawby, and Hambly (2000, p. 418) argue that "although there are many examples, the actual risk of terrorist attack is low", and there is a much larger possibility that tourists will become crime victims than terrorist attacks victims.

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Criminological studies have shown that certain types of crime are seasonal; seasonality can be defined as "periodic fluctuations...which tend to recur each year at about the same time period and with a similar degree of intensity" (Dodge & Lentzer, as cited in Carbone-Lopez & Lauritsen, 2013, p. 401). Seasonality can also be observed on a monthly basis, and it can be defined as "consistent intrayear variations of a phenomenon over a lengthy period of time. These variations are repeated in a similar evolving fashion in the same months of the year" (Landau & Fridman, 1993, p. 171). The aim of this paper is to determine whether there is a connection between the seasonality of crime and tourism in Croatia. Since tourism in Croatia is highly seasonal, it can be expected that there is a connection between the seasonality of crime and tourism.

2. Literature review

Crime seasonality is an issue that has been addressed in the literature since the mid-19th century when in 1835 Belgian statistician Adolphe Quetelet published a book "A treatise on man and the development of his faculties", which is considered as the first work exploring this issue (Landau & Fridman, 1993). The basic questions stated in crime seasonality literature are at what times of the year, week or days are certain types of crime more likely to be committed and why, and research of this issue so far "has produced inconsistent and paradoxical results" (Yan, 2004, p. 276). In the literature it is generally considered that "violent crime rates peak during the summer months, while property crime rates peak during winter" (Baumer & Wright, 1996, p. 579), but this understanding should be handled with care since research results are strongly dependent on the type of crime which is being investigated and the geographical area for which the data is analysed.

The literature states two common causes of increased occurrence of violent crime in summer: one is temperature, since it is considered that increase of temperature will increase aggression (Linning, Andresen, & Brantingham, 2017) and the other is increased human interaction during summer, when "traveling, alcohol consumption, and general social interaction are at a high level" (Landau & Fridman, 1993, p. 167). However, various studies have shown that seasonal variations in violent crime cannot be viewed in such a simple and straightforward way.

Murder is one of the most investigated crimes in the crime seasonality literature, but different studies have yielded very different results. Most of the studies have found that murders do not have a seasonal character (McPheters & Stronge, 1973; Cheatwood, 1988; Landau & Fridman, 1993; Valente, 2019). The absence of seasonal fluctuations of murder can be explained by the fact that they represent "crimes of passion and the lack of seasonality conforms to expectations" (McPheters & Stronge, 1973, p. 128). Some researchers justified negative results in research of seasonality in murder with the limited data available since murders are less frequently committed than other types of crime (McDowall, Loftin, & Pate, 2012). There is also no consensus in the literature about seasonal variations in rape. Some research has found that rapes are committed more in summer (McDowall et al., 2012; de Melo, Pereira, Andresen, & Fonseca Matias, 2018), however, there are also studies where the seasonal pattern of rape was not found (McPheters & Stronge, 1973; Breetzke, 2016). Andresen and Malleson (2013) have found that rapes are most often committed in May, however, they did not find a higher intensity of rapes in other parts of the year.

Findings of the research for property crime are also very different. Older research, such as already mentioned by Quetelet and more recent by Farrell and Pease (1994), consider that property crime will occur more in winter due to scarcity of economic goods, but on the other hand it can be expected that

property crime will appear more in summer since homes are more empty during summertime than in other seasons of the year, and therefore the possibility of burglary and theft increases. Likewise, in summer people spend more time outdoors and therefore their property is more accessible to potential offenders (Carbone-Lopez & Lauritsen, 2013).

Stevens, Beggs, Graham, and Chang (2019) found a higher incidence of thefts in summer, and since this research was done in Australia, the reasons found are in the economic needs associated with Christmas holidays. Andresen and Malleon (2013) also found a higher number of thefts in summer, as did McDowall et al. (2012), with a peak in August. In his research Yan (2004) found an increase of shoplifting in December and January, which he explains by economic reasons, but he did not find a seasonal pattern for the total theft category and for burglary. Some studies have found that burglaries mostly occur during the summer (McDowall et al., 2012; Linning et al., 2017), which is explained by the fact that during warmer weather people spend more time outside their homes, thus increasing the possibility of burglary. Farrell and Pease (1994) and Linning et al. (2017) did not find a seasonal trend for motor vehicle thefts. According to a study conducted by McDowall et al. (2012), vehicle thefts were committed mostly between December and January and at least in spring and early summer.

Authors such as Haberman, Sorg, and Ratcliffe (2017) and Linning et al. (2017) have not found seasonal variations in robberies. Landau and Fridman (1993) found an increase in robberies in winter months in Israel, and this increase was influenced by an increase in the cost of living. Badiora, Afon, and Dada (2017) found a higher number of robberies in Nigeria during winter months because of the increased cost of living and rising unemployment due to the termination of seasonal jobs. Andresen and Malleon (2013) found the peak of robberies in May and July, when the weather is nice and people are staying outdoors more often, but also in December and January, when more people stay outdoor for Christmas shopping and New Year's Eve. McPheters and Stronge (1973) and Cheatwood (1988) also found the highest occurrence of robberies during December and January.

Research of the seasonality of tourism-related crime is quite rare in the literature. In one of the first papers about this issue, McPheters and Stronge (1974) conducted an analysis in the Miami area and found that major economic crimes (robbery, larceny, burglary) coincided with the tourist season and that "crimes of passion" (murder, rape and assault) were not associated with the tourist season and therefore concluded that "crime is to some extent an externality or by-product of the tourist industry" (McPheters & Stronge, 1974, p. 290). In a sample of three coastal tourist sites and three non-tourist sites in Australia, Walmsley, Boskovic, and Pigram (1983) found that tourism "may have some incidence" (Walmsley et al., 1983, p. 151) on the occurrence of crime, since property damage and drug possession most commonly occur in summer months and sexual assaults during January, May and vacation season (August to September). Based on data from Hungary for the period from 1996 to 2000, Michalko (2003) stated that the likelihood of foreigners to become crime victims is highest during July and August when the highest number of foreigners visit Hungary, and similar results were obtained by Mawby (2002) analysing Isles of Scilly, where he found that as the number of tourists increases in July and August, crime rates and alcohol-related incidents also increase. De Albuquerque and McElroy (1999), analysing data from the Caribbean for the period from 1990 to 1993, contrary to expectations, found no correlation between the tourist season and crimes against tourists, moreover, they found that the number of property and non-property crimes against tourists was higher after the tourist season than during the season. One possible explanation for this anomaly is seasonal employment: young people, after ending their seasonal jobs in tourism look for other sources of finance, so the number of thefts, burglaries and robberies increased.

3. Data and methodology

In order to achieve the aims of the paper and to determine whether there is some kind of relationship between crime seasonality and tourism, correlation analysis was employed on monthly data for the period from 2007 to 2018. The crime variable includes reported criminal offences, and for tourism two types of variables were chosen: tourist arrivals and overnight stays.

For the analysis were selected criminal offences that may be related to tourists - of violent crime murder and rape were analysed, also including attempts to commit these crimes, and property crime was analysed by robberies, thefts, burglaries, aggravated theft in a particularly brazen manner, pickpocketing and seizure of motor vehicles. Offences against public order and peace were also included in the analysis – according to Croatian legislature, offences against public order and peace, as a special category of security events, include fighting, quarrelling and shouting in public places, consumption of alcohol and drugs in public places, beggary, prostitution etc. Offences against public order and peace are not crime or criminal offence in the strict sense of these terms but they are included in this analysis because of their potential connection to tourism. So far these types of offences were not intensively analysed in the literature on tourism-related crime, although an analysis of these offences may be interesting considering their possible impact on security as well as on tourism.

For the purpose of this study publicly available data were used, published in the official annual reports on safety indicators of the Republic of Croatia, collected by the Ministry of the Interior (Ministarstvo unutarnjih poslova, n.d.). In the Republic of Croatia, the Ministry of the Interior is organized at the level of local self-government units (counties), e. g. each police administration comprises one county, and there are 20 police administrations throughout the country. Unfortunately, the monthly data for each police administration are not publicly available, so this study used aggregated data for the whole country, for all 20 police departments in total.

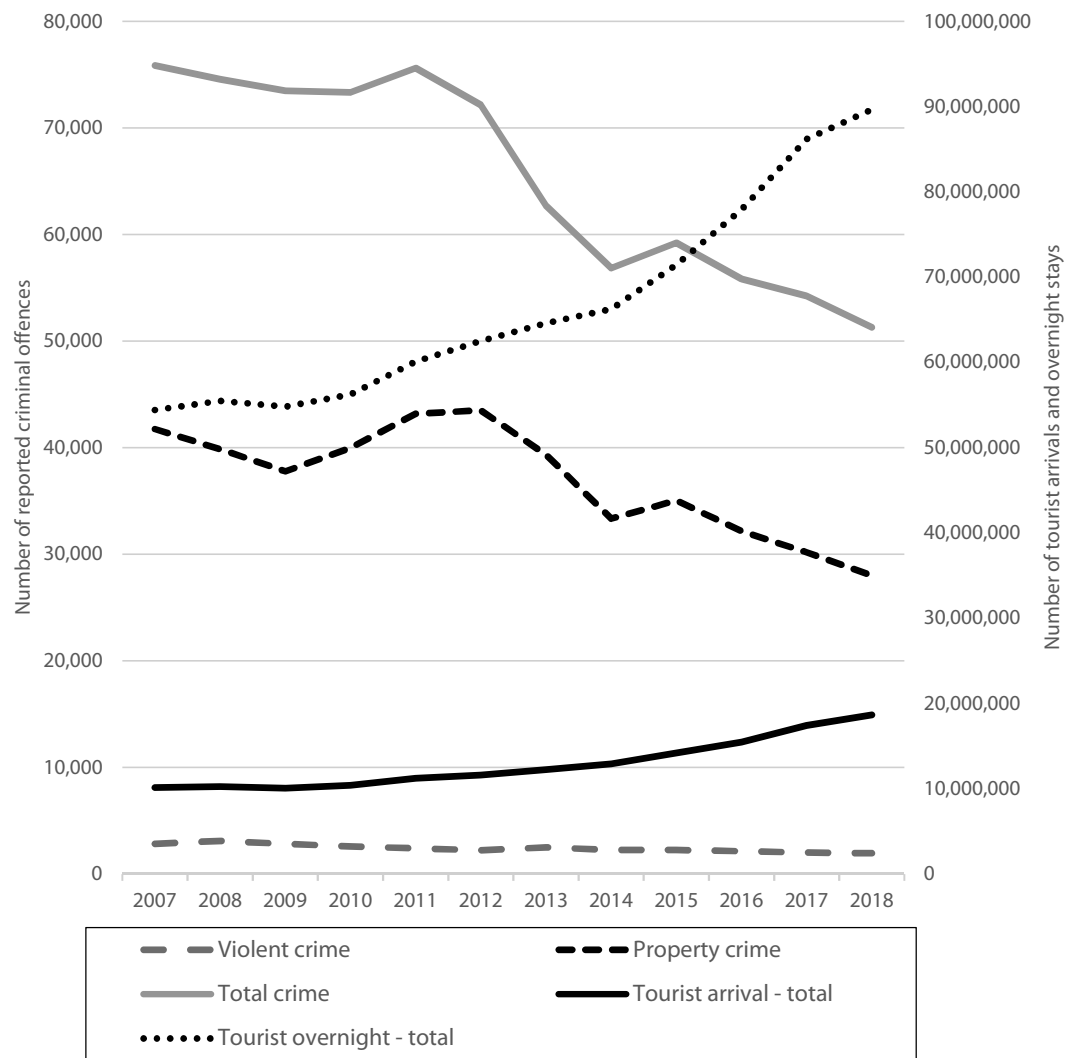
Data for tourism variable includes tourist arrivals and overnight stays, while domestic and foreign tourists were analysed separately. Thus, tourist arrivals and overnight stays were analysed in three separate categories - as total arrivals, domestic tourist arrivals and foreign tourist arrivals and tourist overnight stays were analysed in the same way. Data on tourist arrivals and overnight stays were obtained from the Croatian Bureau of Statistics.

Pearson product-moment correlation coefficient was used to measure the strength of the relationship between research variables. This strength is interpreted using Davis' convention (1971): r values from 0.001 to 0.09 were interpreted as a negligible association, from 0.10 to 0.29 as a low association, from 0.30 to 0.49 as a moderate association, from 0.50 to 0.69 as a substantial association and 0.70 or higher as a very strong association. The bivariate correlation analysis was done using SPSS version 23.

4. Results

The general trends in tourism and crime are shown in Figure 1. In the period from 2007 to 2018, tourism in Croatia has increased strongly, especially tourist overnight stays. Total crime, with less fluctuations, has shown a decline, which is also evident in property crime. The number of reported violent criminal offences shows no major fluctuations, and since 2013 its continued decline is evident.

Figure 1
Reported criminal offences and tourist arrivals and overnight stays (2007 – 2018)



Note: Violent crime includes criminal offences from Title X of Criminal Code (Criminal offences against life and limb) and Title XVI (Criminal offences against sexual freedom).

Tourism in Croatia is highly seasonal, as can be seen from Figures 2 and 3. In the observed period over 50% (on average) of tourist arrivals were realized in July and August, and in the period from June to September almost 75% (on average) of tourist arrivals, so it can be concluded that these months are the peak of the tourist season in Croatia. Overnight stays are even more concentrated in July and August - 61% (on average) of overnight stays were realised in July and August and more than 85% (on average) were realized between June and September. Foreign tourists make up the majority of both tourist arrivals (87% on average) and overnight stays (91% on average).

Figure 2
Aggregated number of tourist arrivals by month (2007 – 2018)

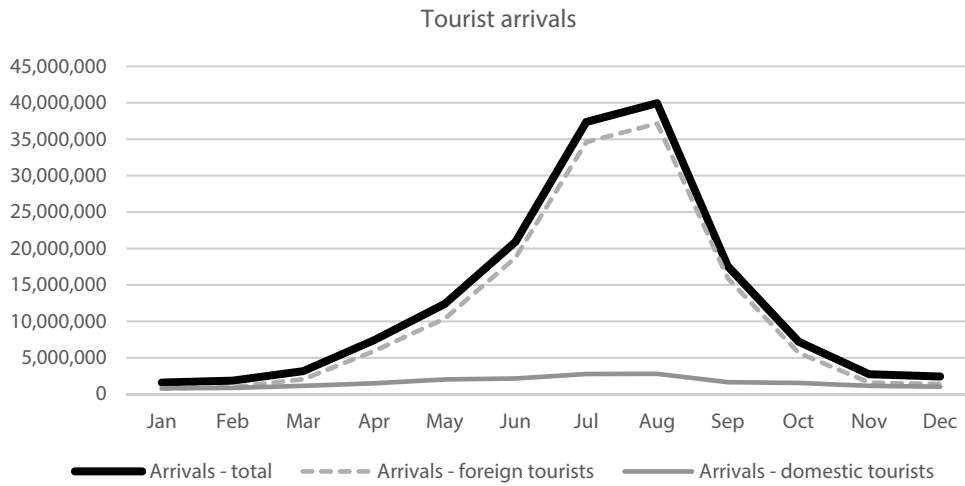
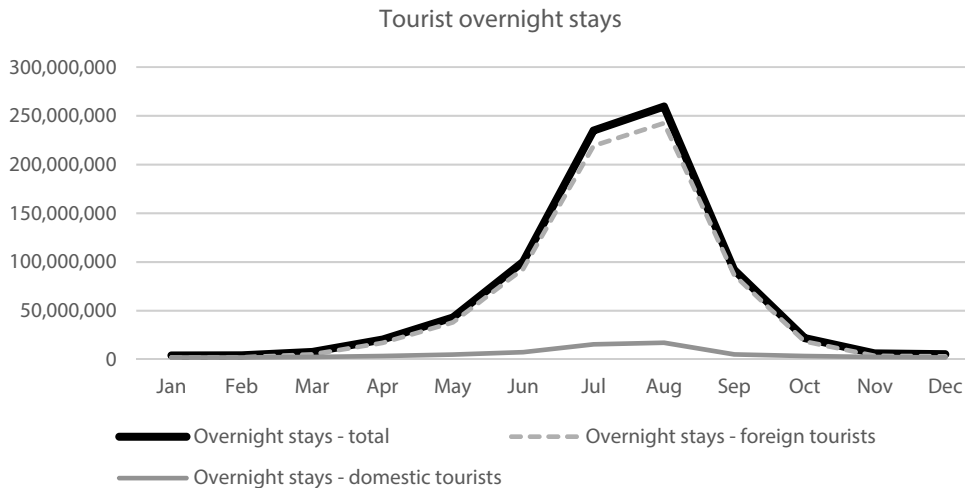


Figure 3
Aggregated number of overnight stays by month (2007 – 2018)



More details on reported criminal offences, tourist arrivals and overnight stays can be found in Table 1.

Table 1
Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Standard deviation
Murder	144	3	31	13.87	4.84
Rape	144	1	26	7.75	4.06
Robbery	144	37	191	93.91	33.28
Theft	144	599	2,148	1,102.86	322.43
Burglary	144	804	2,013	1,341.60	268.50
Aggravated theft in a particularly brazen manner	144	19	200	65.79	31.20
Pickpocketing	144	22	128	58.22	24.91
Seizure of motor vehicles	144	35	215	110.53	42.15
Offences against public order and peace	144	5,029	11,912	7,502.12	1,391.22

Table 1 Continued

Variable	N	Minimum	Maximum	Mean	Standard deviation
Tourist arrivals - total	144	102,214	4,369,000	1,073,360.99	1,137,128.95
Tourist arrivals - domestic	144	54,753	284,000	134,863.40	57,540.84
Tourist arrivals - foreign	144	41,766	4,088,802	938,518.42	1,084,135.43
Tourist overnight stays - total	144	270,089	27,051,000	5,552,807.49	7,428,598.85
Tourist overnight stays - domestic	144	140,976	1,620,000	476,275.45	421,857.88
Tourist overnight stays - foreign	144	118,291	25,431,000	5,076,532.04	7,022,578.15

The results of the analysis can be observed at two levels - as the results of the tourist arrivals analysis and the analysis of the tourist overnight stays. The results of both analyses are shown in Tables 2 and 3.

Table 2

Pearson correlation between tourist arrivals and crime

Reported criminal offences	Tourist arrivals - total	Tourist arrivals - domestic	Tourist arrivals - foreign
Murder	0.109	0.182*	0.104
Rape	0.268**	0.319**	0.265**
Robbery	-0.485**	-0.610**	-0.476**
Theft	0.803**	0.756**	0.802**
Burglary	-0.052	-0.114	-0.048
Aggravated theft in a particularly brazen manner	0.524**	0.447**	0.526**
Pickpocketing	0.289**	0.253**	0.289**
Seizure of motor vehicles	0.143	0.265**	0.136
Offences against public order and peace	0.629**	0.644**	0.625**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

In the analysis of tourist arrivals was found statistically significant relationship between total tourist arrivals and all reported criminal offences except murder, burglary and seizure of motor vehicles. The strongest correlation was determined between tourist arrivals and theft (Pearson's $r = 0.803$), offences against public order and peace (Pearson's $r = 0.629$) and aggravated theft in a particularly brazen manner (Pearson's $r = 0.524$). The only negative correlation was determined between tourist arrivals and robbery (Pearson's $r = -0.485$). Also, there is a low correlation between tourist arrivals and pickpocketing (Pearson's $r = 0.289$) and rape (Pearson's $r = 0.268$). The analysis of domestic and foreign tourists showed smaller differences compared to the results for the total tourist arrivals: a statistically significant correlation was also found between arrivals of domestic tourists and murder and seizure of motor vehicles. However, these correlations are low. When comparing the arrivals of domestic and foreign tourists, a stronger correlation was found between domestic tourists and rapes, robberies and offences against public order than for the foreign ones, and for foreign tourists, the correlation was stronger for theft, aggravated theft in a particularly brazen manner and pickpocketing. Although visible, the differences between domestic and foreign tourists are quite small.

Table 3

Pearson correlation between tourist overnight stays and crime

Reported criminal offences	Tourist overnight stays - total	Tourist overnight stays - domestic	Tourist overnight stays - foreign
Murder	0.119	0.169*	0.116
Rape	0.258**	0.296**	0.255**
Robbery	-0.398**	-0.380**	-0.399**

Table 3 Continued

Reported criminal offences	Tourist overnight stays - total	Tourist overnight stays - domestic	Tourist overnight stays - foreign
Theft	0.837**	0.856**	0.834**
Burglary	0.036	0.109	0.032
Aggravated theft in a particularly brazen manner	0.509**	0.453**	0.511**
Pickpocketing	0.251**	0.174*	0.255**
Seizure of motor vehicles	0.183*	0.297**	0.176*
Offences against public order and peace	0.673**	0.734**	0.668**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Analysis of relationship between overnight stays and reported crimes showed a similar correlation as analyses of tourist arrivals, and there was also found a low correlation between total overnight stays and seizure of motor vehicles (Pearson's $r = 0.183$). For most criminal offences, Pearson's r is lower than in the analysis of total tourist arrivals, but it is slightly higher for thefts and offences against public order and peace. Analysis of domestic tourists overnight stays showed a low correlation to murder (Pearson's $r = 0.169$). Some differences were found when comparing domestic and foreign tourists: a stronger correlation of domestic tourists was found with rape, theft, seizure of motor vehicles and offences against public order and peace, and for foreign tourists, a stronger correlation was found to aggravated theft in a particularly brazen manner and pickpocketing.

5. Discussion

Analysed data suggest that there is a relationship between crime seasonality and seasonality in tourism, however, there are differences between violent and property crime. The strong correlation between violent crime and tourism was not determined. Current research has found that homicides do not show seasonal fluctuations nor are they related to tourism (de Melo et al., 2018), so it is not surprising that was found only a correlation between murder and domestic tourist arrivals (Pearson's $r = 0.169$), especially if we bear in mind that in Croatia in 2017 the homicide rate was 1.1 per 100,000 inhabitants, which is lower than in most of the European countries. The rape rate is also lower than in other European countries and it was 5.87 per 100,000 inhabitants in 2017 (Eurostat, n.d.), so a low correlation between rape and tourists was found as expected.

Property crimes have shown a stronger correlation with tourists than violent ones, which is consistent with the findings of other research (Jarell & Howsen, 1990; Michalko, 2003; de Melo et al., 2018). By a more detailed analysis of property crimes it was found that tourists are more correlated to opportunistic (see Njoloma & Kamanga, 2019) than planned crime; the strongest correlation was found between tourists and theft, aggravated theft in a particularly brazen manner and pickpocketing, criminal offences which do not require preparation and planning, but where opportunity is important. Tourists carry with them technical devices such as mobile phones and cameras that can be easily sold, but also cash and credit cards, so in an unfamiliar environment, they are ideal targets for offenders. Criminal offences which require preparation and planning such as burglary did not show statistically significant correlation with tourists. The other criminal offence that requires planning, seizure of motor vehicles, is correlated only to overnight stays, and this correlation is low (Pearson's $r = 0.183$). Offences against public order and peace have similar logic as opportunistic crime, they are a consequence of the opportunity, but also of the too relaxed and careless behaviour of tourists on vacations. Using drugs and alcohol in public places, buying sexual services or shouting and fighting in public places all are events which do not involve planning, but are the result of an opportunity that arises during their vacation.

For those criminal offences where a statistically significant correlation was found between crime and tourism, there are two possible explanations. The first potential explanation is that by increasing the number of foreigners (visitors or tourists) in a particular area, the crime rate also increases. There are two reasons for this: an increase in the number of foreigners in a particular area increases the number of potential victims, and therefore it can be expected that the crime rates will increase. The second reason is that as the number of people in a certain area increases, potential offenders can expect that their capture will be more difficult because of the large number of people staying there (Jarell & Howsen, 1990). Although this explanation is simple and quite general, its logic can be applied to Croatia. If more than 18 million tourists come to Croatia, as it was in 2018, which has a population of 4.1 million, it is clear that the number of potential victims increases enormously, and that some of those tourists will actually become crime victims.

Another potential explanation is that changes in routine activity during seasons, as stated by routine activity theory (Cohen & Felson, 1979), increase the possibility of criminal victimization. By going on vacation, which is a change of everyday routine, people leave the familiar areas of their homes where they feel safe and on vacation, in a new and unfamiliar environment, they can easily become crime victims. On vacations, especially on summer vacations, tourists spend most of the time outdoors, and generally, it increases human interaction, thus the potential interaction of a "suitable targets" and a "motivated offenders". The mere fact that someone is staying outdoor does not mean that he or she will immediately become a crime victim, but the possibility of victimization is increased by staying in so-called risky areas, where crime is more likely to occur. They exist not only in "hedonistic destinations" (Prideaux, 1996) but also in "regular" destinations, and as research has shown, these risky places are places where food and alcohol are consumed, places for entertainment and recreation (Hipp, Bauer, Curran, & Bollen, 2004), parks, beaches and public transit stations (Quick, Law, & Li, 2017). Interaction with risky people (Pratt & Turanovic, 2016), such as local criminals, drug dealers, prostitutes or beggars, also increases the possibility of tourist's victimization. Engaging in risky behaviour is an additional deviation from routine activities because tourists sometimes want to try out things they do not practice at home (Carić, 1999). Some of the tourists "escape for two weeks and indulge in anti-social and self-destructive behaviour" (de Albuquerque & McElroy, 1999, p. 970), and this behaviour usually involves alcohol intoxication, drug consumption or buying of sexual services.

On the other hand, by changing their routine activities, that is, going on vacation, their homes remain empty, thus increasing the possibility of burglaries (Yan, 2004), which is not the case in Croatia, but has been shown in other studies (McDowall et al., 2012; Linning et al., 2017).

In order to get a better insight into the relationship between seasonality in tourism and crime seasonality, it is necessary that the future research include various socio-economic variables such as unemployment rates, salaries, educational level of the local population or the number of police officers and security guards in a particular area, but also environmental variables such as temperature, wind speed, level of precipitation, length of day etc.

6. Conclusions

Although crime seasonality has been studied in the scientific literature since the mid-19th century, the relationship between crime seasonality and tourism has been rarely addressed. Crime seasonality issue and tourism-related crime are in general scarcely analysed in Croatian literature (notable exception is Recher & Rubil, 2020), so this paper represent additional effort in addressing of these issues.

In Croatia, the overall crime rate and rates of various types of crime are lower than in most of other countries in Europe (Eurostat, n.d.), total crime has been steadily declining since 2011, so it can be concluded that Croatia is a safe country for both tourists and residents, which was also shown in this analysis. This study found a low correlation between violent crime and tourism, and the likelihood that a tourist will become victim of serious violent crime seems to be low. Analysis of property crime showed the strongest correlation between tourists and the simpler property crime (theft, aggravated theft in a particularly brazen manner and pickpocketing) which is not planned but is the consequence of the opportunity. The strong correlation between tourists and offences against public order and peace is not surprising since some tourists behave too relaxed and careless during their vacation and engage in risky activities that can be dangerous or illegal.

Since "crime can be prevented by reducing opportunities" (Felson & Clarke, 1998, p. 23), the analysis of seasonal characteristics of crime can facilitate the design of crime prevention activities or proactive policing strategies (Lining et al., 2016) connected with tourism, as well as for the evaluation of implemented programmes (McPheters & Stronge, 1973). All preventive activities undertaken by police and other stakeholders should take into account the seasonal character of crime in order to maximize the effects of implemented policies or measures (Andresen & Malleon, 2013). Understanding the seasonal characteristics of crime can help law enforcement agencies to allocate police officers in specific periods of time (Carbone-Lopez & Lauritsen, 2013) and thus to provide adequate resources to respond to crime, such as additional police officers during the summer or other season (Stevens et al., 2019). This issue has become especially important during the economic recession, since in some countries the number of police officers has decreased and existing resources should be used in the most efficient way (Haberman et al., 2017).

This and similar analysis can help Croatian police in dealing with tourism-related crime. The seasonal character of tourism-related crime has been already recognized by the Croatian Ministry of the Interior, and they implement various measures to increase the safety of tourists, such as the "Safe Tourism Season" project which is implementing in Croatia since 1994. Within the scope of this project, foreign police officers from the countries from which most tourists come to Croatia (e.g. Germany, Austria, Czech Republic, Italy, etc.) stay during summer (from 1 July to 1 September) in Croatia and cooperate with the Croatian police to facilitate communication with foreign tourists and to avoid possible conflict situations (Sigurna turistička sezona, n.d.). This project certainly contributes to the quality of foreign tourists' stay so that they can safely and carelessly spend their holidays and bring home a positive impression of Croatia.

This study has certain limitations. In the study was used publicly available data published on the web pages of the Croatian Ministry of the Interior. Unfortunately, monthly data for single police administration which covers smaller territorial area are not publicly available, so this study used aggregated data for the whole country, i.e. for all 20 police administrations. In future research the analysis should be done at the local level, i.e. at the level of police administration, since in this way it in the analysis will be included more detailed data, and therefore will be obtained more precise results.

Another limitation that also should be addressed in the future research is that it was used data for the 12-year period, since only this data is publicly available. The 12-year period is difficult for bivariate analysis, but it can provide additional insight into the interaction between crime and tourism, thus supplementing descriptive data. In future research should be covered a longer period of time, so it can be expected that an analysis made over a longer period would yield better and more detailed results.

Besides that, in this analysis was used only data known to the police, i.e. data on reported criminal offences. Having in mind that tourists, and especially foreign tourists, often do not report the minor crime to the police (Montolio & Planells-Struse, 2013) it can be expected that some of the committed crimes remained unknown to the police, and therefore not included in this research. To get more accurate data, in future research official police data should be supplemented with data from crime victim surveys, which are unfortunately at this moment not conducted in Croatia. In this way, it will be possible to estimate more precisely the real size and features of the tourism-related crime.

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