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THE IMPACT OF CRIME ON TOURISM VISITS IN CENTRAL JAVA: A PANEL DATA APPROACH

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Abstract

Crime generates insecurities, which limit tourism in several ways: reduced tourist destination appeal, increased perceptions of the risk of being victimized as a tourist, harm to destination image, increased transaction costs, and reduced institutional quality. This study employed a panel data approach to investigate the impact of criminal acts on tourist arrivals in 35 Central Javanese districts/cities from 2020 to 2024. Control variables included tourist attractions, accommodation, restaurants, vehicles, and the COVID-19 pandemic. Findings revealed a significant negative relationship between criminal cases and tourist visits, underscoring security's crucial role. Conversely, tourist attractions, accommodation, and restaurants positively affected arrivals. As expected, the COVID-19 pandemic negatively influenced tourism. Notably, the study found no significant impact from the prevalence of violence against children and women or the ratio of vehicles. Comparative analysis (between tourism-based and non-tourism-based regions) shows that crime consistently deters and attractions consistently promote tourism in all areas. Still, accommodation positively impacts tourism-based economies, while restaurants promote tourism in both regions. These results highlight the necessity of enhancing security measures at tourist destinations, fostering the development of sustainable attractions, and ensuring adequate supporting infrastructure to stimulate tourism sector growth in Central Java.

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INTRODUCTION

Over the past few decades, tourism has demonstrated consistent growth and significant diversification, establishing itself as one of the most rapidly advancing sectors of the global economy. It has made an essential contribution to socio-economic development worldwide (UNWTO, 2013). In the contemporary global landscape, tourism is a significant contributor to world economic growth, representing a primary source of revenue for nations across developed and developing countries (Naseem, 2021). Tourism plays a significant role in international trade and wealth creation for developing countries, contributing to job creation, income generation, living standards, poverty alleviation, gender equality, and the protection and promotion of natural and cultural heritage (Ayres, 2000; ILO, 2011; UNWTO, 2013). Empirical studies have proven that tourism has an impact on economic growth (see Dogan & Zhang, 2023; Naseem, 2021; Özer et al., 2022; Selimi et al., 2017; Simorangkir et al., 2024; Singh & Alam, 2024; Sun et al., 2025); encouraging domestic industrial development (Liu, 2022); financial industry (Turan & Abdiu, 2024); reducing poverty (Ridderstaat et al., 2022; Zhang et al., 2023); and reducing inequality (Dossou et al., 2023; Li et al., 2016).

The global tourism sector experienced substantial employment growth in 2022, generating 21.6 million new positions and contributing to 1 in 11 jobs globally, reaching 295 million. Despite the significant downturn caused by the COVID-19 pandemic, global tourism has shown a strong recovery, with its contribution to global GDP increasing by 22% in 2022, reaching $7.7 trillion. The recovery was driven by domestic and international travel, with international tourist spending rising by 82%. The sector's recovery, led by growth in domestic travel, also showed a positive trend in international travel, with international tourist spending increasing by 82%, reaching US$1.1 trillion, although still 40% below 2019 levels (World Travel & Tourism Council, 2023).

Crime represents a serious problem in the tourism sector, often exacerbated by high population concentrations, and poses a considerable deterrent to prospective tourists (Lisowska, 2017). The perception of personal safety is a critical prerequisite for sustainable tourism development, as insecurity and elevated crime rates substantially diminish a destination's appeal. Based on hotspot theory, increased tourist arrivals have the potential to trigger increased crime, which is exacerbated by ineffective security enforcement, increasing the risk of tourist victimization. The negative impact of crime on a destination's image, reputation, and competitiveness is amplified by sensational media coverage, triggering fear and potentially canceling travel plans based on fear appeal theory (Mataković & Cunjak Mataković, 2019; Suksonghong & Goh, 2023).

The significant correlation between tourism and crime indicates an increased risk of victimization for tourists compared to residents, especially in property crimes such as theft in tourist accommodations. This dynamic negatively impacts tourist demand and the tourism industry, as the perception of an unsafe destination can deter visits. Experiences of crime while on vacation, compounded by secondary victimization from law enforcement or other stakeholders, have the potential to reduce tourists' intention to return, a crucial consideration for destinations that rely on repeat visits (Vakhitova et al., 2023).

Several empirical studies explaining the impact of crime on tourism such as Suksonghong & Goh (2023) using panel data of 132 Thai National Parks from 2010-2019, found that crime in tourist destinations not only has a direct impact on tourism demand, but also dynamically reduces the positive effect of word-of-mouth (WOM) recommendations over time. Farhan & Susanti (2024) using the Fixed Effect Model Within-Group (FEM WG) regression found that crime rates affect tourist visits in Indonesia. Shaari et al. (2022) analyzed the factors influencing tourist arrivals in Malaysia from 1986 to 2016 using the ARDL model, finding that the violent crime index reduced tourist arrivals in the short term. Cheng et al. (2024) analyzed the impact of crime on inbound tourism in Japan using a spatial panel data model, finding that total crime rates did not significantly affect tourism, while violent crime rates had a

significant negative impact. Mohammed & Sookram (2015) showed that violent and property crimes significantly negatively impacted tourist arrivals.

Institutionally, crime substantially elevates transaction costs due to heightened uncertainty and the necessity for increased security expenditures (Chalfin, 2013; Manrique-de-Lara-Peñate et al., 2022)Undermines property rights through theft and (North, 2002) Corruption disrupts contract theory by forcing unfair agreements and creating illegal enforcement systems, ultimately hindering trust, investment, and economic growth, and negatively impacting tourism (Manrique-de-Lara-Peñate et al., 2022; Syed, 2018). Institutional quality influences interactions between individuals and a country's economic performance and tourism development, including law, governance, property rights, and traditions. As part of institutional quality, destination image is crucial in attracting tourists by facing image challenges due to political instability, terrorism, and crime (Mushtaq et al., 2021).

Moreover, tourists' preferences for destinations, which subsequently influence their visitation, are shaped by various destination attribute factors. Effective development of these attributes—encompassing attractiveness, accessibility, amenities, and support system—is vital for attracting tourists, enhancing satisfaction, and cultivating the loyalty essential for the long-term viability of the tourism sector (Crames et al., 2023). Tourist destination attributes such as attractiveness, accommodation, length of stay, price, cuisine, transportation, and season impact consumer choices in determining tourist destinations (Liao & Chuang, 2020). This is a relevant issue considering that consumers, after deciding to travel, can choose various substitute destinations. Consumption of tourism services requires physical presence at the provider's location (Lobo Rodríguez et al., 2018).

Several empirical studies explain the impact of attractions, facilities, and infrastructure on tourist visits, such as Konishi & Saito (2023) Found that accommodation attributes and regional attractions are significant in attracting tourism distribution demand in Japan. McKercher et al. (2025) A survey of 2715 tourists in Cairns (2016-2018) showed that accommodation choice is a valid segmentation criterion for understanding differences in profiles, travel patterns, and tourist behavior during their stay at the destination. It emphasizes the importance of accommodation diversification to overcome seasonality and spread tourism flows. Zientara et al. (2024) A study of 5,220 tourists in ten European capitals using the DCSM index and ordered logit model found that the characteristics of the destination city, transportation preferences from tourists' origins, and accommodation and travel details significantly affect tourists' sustainable transportation choices at the destination. Swantari et al. (2024) With a quantitative descriptive study with 100 respondents using accidental sampling in Situ Gintung, it was found that tourist attractions, facilities, and accessibility significantly affect visiting interest, and recommends descriptive research from Maulana et al. (2021) With a descriptive quantitative approach in Penglipuran Tourism Village, the development of tourist attractions has a positive effect of 73.3% on tourist interest Elmard & Wardi (2022) A study of 230 respondents who had visited Harau Valley showed that tourism image and attractions did not significantly influence the decision to revisit. Still, promotion and service quality significantly affected the decision to revisit and tourist satisfaction, where tourist satisfaction also significantly mediated the decision to revisit.

In 2024, Indonesia's domestic tourism sector experienced significant growth, with the number of domestic tourist trips jumping 21,61% to 1,02 billion visits, although only 17,52% of the population participated. Recreational tourism dominates, especially among the 25-34 age group and workers. Average spending per trip fell 10,13% to IDR 2,31 million, in line with the decrease in trip duration to 3,74 nights. Main expenses include accommodation, food, and transportation (Indonesia Statistics, 2025). When compared to countries in the ASEAN region, in 2022, Indonesia was ranked 4th in terms of the number of tourist visits, Thailand recorded the highest tourist visits of 11.153 thousand trips, followed by Malaysia with 10.071 thousand and

Singapore with 6.305 thousand, while Indonesia was 5.471,3 thousand (ASEAN, 2023).

The tourism sector's contribution to Central Java's economy exhibited an increasing trend from 7,91% of the total Gross Regional Domestic Product (GRDP) in 2012 to 8,41% in 2022, with a temporary decline to 7,80% in 2020 due to the COVID-19 pandemic before recovering to 7,85% in 2021. This growth trend persisted through 2022, culminating in a contribution of 8,41% (Statistics Jawa Tengah Province, 2024a). Tourist data in Central Java shows a significant increase from 2021 to 2023, where domestic tourists jumped from 21.332.409 to 56.485.087, and foreign tourists experienced a drastic increase from 1.793 to 464.719, indicating a recovery and rapid growth of the tourism sector after 2021. The increase in the number of tourists, both domestic and international, indicates great economic potential for Central Java through the tourism sector (Disporapar of Central Java, 2023).

This study aims to analyze the impact of criminal cases in Central Java on the number of tourist arrivals. The analysis incorporates tourist attractions and accommodation as control variables, and a dummy variable to ascertain the influence of the COVID-19 pandemic. The research methodology employed is a panel data approach across districts/cities in Central Java Province during 2020-2024. Specifically, this study examines the effect of crime and the quality of tourist attractions on the level of tourism visits in Central Java Province. Furthermore, we added an analysis of regional differences, specifically comparing areas identified as having a tourism base with regions where tourism is not a significant sector.

RESEARCH METHODS

This study will examine the impact of crime and tourist attractions on the number of tourist visits in Central Java Province. The methodological approach used is panel data with a cross-section of 35 districts/cities in Central Java Province, with time series data from 2020 to 2024. Crime variables include the number of crimes, violence against children and violence against women, We also added control variables, namely tourist attractions, accommodation, number of restaurants and number of vehicles as a proxy for the availability of tourist attractions in providing access, affordability and tourism facilities, and a dummy variable for the COVID-19 pandemic was included to assess its influence on the observed period (A comprehensive overview of the variables used in this study, including their operational definitions, can be found in Table 1.) To investigate the factors influencing tourist arrivals, this study utilizes the subsequent empirical panel data model:

$$\begin{aligned} Ln\,Tourism_{it} = \alpha &+ \beta_1 LnCrime_{it} \\ &+ \beta_2 LnChildren\,Victim_{it} \\ &+ \beta_3 LnWomen\,Victim_{it} \\ &+ \beta_4 Control\,Variable_{it} + \varepsilon \quad (1) \end{aligned}$$

Where $Tourism$ is the number of tourist visits, $Crime$ is the number of criminal cses, $Children\,Victim$ is the number of violence against children aged 0-1 years, $Women\,Victim$ is the number of violence against women ged 18+, $Control\,Variable$ is the number of tourist attractions, number of accommodations, number of restaurants and the ratio of the number of vehicles to the length of the road, including dummy variables in the Covid-19 period where one is 2020 and 2021, and 0 otherwise, α is a constant $\beta_1, \beta_2, \ldots, \beta_n$ are coefficients, i is the cross section districts/cities and t is the observation period and ε is the error term. The variables, expressed in their original units, will be transformed using natural logarithms before analysis. Panel data regression techniques were employed, utilizing the Common Model (CM), Fixed Effects (FE), and Random Effects (RE) as primary estimation methods. The Hausman test rigorously determines the selection between the FE and RE models, which assesses the correlation between the individual-specific errors and the predictor variables. Furthermore, the Chow test was applied to identify any significant structural changes within the regression model across different subsets of the data, ensuring the robustness of the chosen estimation strategy. These diagnostic tests are crucial for validating

the assumptions underlying panel data models and ensuring the efficiency and consistency of the parameter estimates.

After estimating the entire region, we conducted additional estimates by comparing the correlation between variables in 2 categories of tourism-based and non-tourism-based sectors. The division of the area was taken based on the analysis of Statistics Jawa Tengah Province (2024) using the Dynamic Location Quotient (DLQ) method to see the tourism sector as a leading sector between regions from 2013-2023, there are 17 regencies/cities with the tourism sector as a base sector and 18 towns/regencies are not base sectors (regional details can be seen in table 2 and figure 1). This comparative analysis will provide a more comprehensive picture of the relationship between variables.

Table 1. Details of the Variables

Variable Abbreviation	Definition	Measurement	Source
Toursim	Visitors to Tourist Attractions and Events	Ln	Statistics Jawa Tengah Province
Crime	Number of Reported Crimes	Ln	Statistics Jawa Tengah Province
Children Victim	Number of Children (Age 0-18 Years) Victims of Violence	Ln	Statistics Jawa Tengah Province
Women Victim	Number of Women (Age 18+) Victims of Violence	Ln	Statistics Jawa Tengah Province
Attraction	Number of Tourists at Tourist Attractions and Events	Ln	Statistics Jawa Tengah Province
Accomodation	Summation of Hotel and Other Accommodations	Ln	Statistics Jawa Tengah Province
Restaurant	Number of Restaurants	Ln	Statistics Jawa Tengah Province
Vehicle	Total number of vehicles to total length of road	%	Statistics Jawa Tengah Province (Author Calculation)
Covid	1 = Year of Covid (2021, 2022); 0 = Otherwise	Dummy	

Note: Accommodation data includes the total number of 1, 2, 3, 4, 5-star hotels and other accommodations; Number of vehicles consists of the total number of passenger cars, buses, trucks and motorcycles; Road length consists of the total length of roads according to authority of city/district, provincial and national

Table 2. Distribution of Tourism Base & Non-Tourism Base

Non-Tourism Base	Tourism Base
Banjarnegara	Boyolali
Banyumas	Jepara
Batang	Karanganyar
Blora	Kendal
Brebes	Klaten
Cilacap	Kudus
Demak	Magelang
Grobogan	Magelang City
Kebumen	Pati
Pekalongan	Pemalang
Pekalongan City	Salatiga City
Purbalingga	Semarang City
Purworejo	Sragen
Rembang	Surakarta City
Semarang	Tegal City
Sukoharjo	Temanggung
Tegal	Wonosobo
Wonogiri	

Source: Statistics Jawa Tengah Province (2024)

Figure 1. Distribution of regions according to Dynamic Location Quotient (DLQ) of the Tourism Sector of Regency/City in Central Java, 2013−2023

Source: Statistics Jawa Tengah Province (2024)

RESULTS AND DISCUSSION

Descriptive statistical analysis (see table 3) shows that the variable "Tourism" has an average value of 1.201.620 with a median of 822.328, a range of values with the lowest number of visitors of 23.938 people, namely in Salatiga City at 2019 and a maximum of 7.345.373 people, is Semarang City at 2024, the average area with the highest tourist visits is Banyumas, Purbalingga, Kebumen, Wonosobo, Magelang, Jepara, Demak, Semarang, Surakarta City and Semarang City. The "Crime" variable recorded an average of 229 with a median of 179, and the smallest value variation was 63 cases in Wonogiri Regency in 2024, to the highest 1,356 cases, namely Semarang City in 2022. The number of "Children Victims" had an average of 36,14 with a range of the smallest values is three children in Magelang City at 2020 to the largest 158 children is Semarang City in 2022, while "Woman Victim" showed an average of 26,55 and a range of 1 person in Grobogan at 2024 to the largest 179 in Semarang City at 2022. For tourism attributes, "Attraction" had an average of 36,42 with a value between 3 units, namely Tegal Regency in 2020, 2022, 2023 and 2024, and the largest 131 units is Kebumen in 2024, "Accomodation" had an average of 58.84 with a minimum range of 8 accommodations, namely Sragen Regency in 2020 and 2021 to the largest 240 total accommodations is Semarang City at 2024, "Restaurant" has an average of 106.39 restaurants with the lowest variation of 10 restaurants in Sragen Regency in 2020 and 2021. In Tegal City in 2020, the largest 1,604 restaurants in Boyolali Regency in 2024, and "Vehicle" has an average ratio of 797,31, with the smallest range with a ratio of 168,02, namely Tegal City in 2023, to the largest 5.458,99 in Magelang City in 2021.

Table 4 shows the Panel regression analysis with the dependent variable of the natural logarithm of the number of tourists (LnTourism), which shows several significant influences of the independent variables tested. In the Fixed Effects (FE) models I and IV, the number of Crime cases (LnCrime) has a negative and statistically significant coefficient (-1,180 in model I and -1,024 in model IV, both significant at the $p<0,001$ level). This indicates that a one percent increase in the number of crime cases is correlated with a decrease of about 1,18% and 1,024% in the number of tourists, assuming other variables are constant. Meanwhile, the number of

child victims (LnChildrenVictim) variable with a coefficient of -0,106 and the woman victims (LnWomanVictim) with a coefficient of 0,185 in the FE I model do not show a statistically significant effect on the number of tourists. In contrast to the FE model, in Random Effects (RE) models II and III, the variables related to tourism attraction show a significant positive effect. The tourism attraction (LnAttraction) has a positive and significant coefficient (0,194 in model II and 0,183 in model III, both significant at the $p<0.05$ level). The number of accommodations (LnAccommodation) also shows a positive and significant effect (0,372 in model II, significant at the $p<0,001$ level, and 0.401 in model III, significant at the $p<0,001$ level). Similarly, the number of restaurants (LnRestaurant) has a positive and significant coefficient (0,136 in model II, significant at the $p<0,05$ level, and 0,148 in model III, significant at the $p<0,05$ level). The COVID-19 (COVID) dummy variable in RE II and III models shows a negative and significant coefficient (-0,787 and -0,727, both significant at $p<0,001$), indicating a negative impact of the pandemic on the number of tourists. The vehicle ratio variable (Vehicle) does not significantly affect RE II and III models. Comparison between FE and RE models based on diagnostic tests shows varying preferences. The significant Chow test in both FE models (statistical values 11,105 and 7,799, both significant at $p<0,001$) supports using the FE model over Pooled OLS. The Hausman test gives mixed results, significant in models II (statistical value 10,052, $p<0,05$) and IV (statistical value 14,632, $p<0,01$), indicating a preference for the FE model, but not significant in model III (statistical value 0,000). The significant Breusch-Pagan LM test in all models (statistical values range from 86,277 to 147,719, all significant at the $p<0,001$ level) confirms the presence of significant individual effects, supporting the use of panel models. Overall, FE I and IV models have higher R-squared values (0,767 and 0,780) than RE II and III models (0,503 and 0,516), indicating better ability in tourist numbers.

Based on the panel data regression results presented in Table 5 (The selection of independent variables for subsequent analysis was contingent upon their demonstrable statistical significance, as comprehensively presented in Table 4.), the random effects model was determined to be the preferred specification according to the model selection tests. The estimation results from this model indicate that the impact of tourism (LnTourism) can be analyzed for both the Tourism Base and Non-Tourism Base models. In the Tourism Base model, the coefficient for several criminal cases (LnCrime) is -0,517, which is statistically significant ($p < 0,05$). This indicates that a 1% increase in the crime rate is associated with a 0,517% decrease in tourist visits. Conversely, the number of tourist attractions (LnAttraction) has a positive and significant coefficient of 0,413 ($p < 0,05$), suggesting that a 1% increase in tourist attractions leads to a 0,413% increase in tourist visits. Similarly, the coefficients for the number of accommodations (LnAccommodation) and restaurants (LnRestaurant) are also positive and statistically significant ($p < 0,01$), with values of 0,604 and 0,299, respectively, implying a positive relationship with tourist visits.

Comparing the Tourism Base and Non-Tourism Base models reveals some differences in the magnitude and significance of the coefficients. The negative impact of crime is more pronounced in the Non-Tourism Base model, with a coefficient of -0,879 ($p < 0,01$), indicating a more substantial deterrent effect on tourism compared to the Tourism Base model (-0,517, $p < 0,05$). The positive impact of tourist attractions remains significant in the Non-Tourism Base model (0,369, $p < 0,01$), although slightly smaller than in the Tourism Base model (0,413, $p < 0,05$). Interestingly, the coefficient for accommodation is significant ($p < 0,01$) in the Tourism Base model (0,604) but becomes statistically insignificant in the Non-Tourism Base model (0,356, $p > 0,10$). Conversely, the positive impact of restaurants is statistically significant in both models, but slightly more substantial in the Non-Tourism Base model (0,338, $p < 0,05$) compared to the Tourism Base model (0,299, $p < 0,01$). The R-squared value is higher for the Non-Tourism Base model (0,376)

than the Tourism Base model (0,279), suggesting a better overall fit to the data. Overall, the Tourism Base model significantly influences each variable, while in the Non-Tourism Base model, the accommodation variable has no influence.

Table 3. Summary Statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	N
Tourism	1,201,620	822,328	7,345,373	23,938	1,321,798	2,19	175
Crime	228,99	179,00	1,356,00	63,00	186,29	3,75	175
Children Victim	36,14	30,00	158,00	3,00	26,36	1,56	175
Woman Victim	26,55	19,00	179,00	1,00	28,36	3,20	175
Attraction	36,42	34,00	131,00	3,00	24,33	1,07	175
Accomodation	58,84	34,00	240,00	8,00	60,80	1,63	175
Restaurant	106,39	53,00	1,604,00	10,00	201,92	4,89	175
Vehicle	797,31	610,00	5,458,99	168,02	692,77	3,53	175
Covid	0,40	0,00	1,00	0,00	0,49	0,41	175
LnTourism	13,448	13,620	15,810	10,080	1,148	-0,474	175
LnCrime	5,260	5,187	7,212	4,143	0,534	1,020	175
LnChildren Victim	3,332	3,401	5,063	1,099	0,746	-0,307	175
LnWoman Victim	2,889	2,944	5,187	0,000	0,896	-0,168	175
LnAttraction	3,326	3,526	4,875	1,099	0,818	-0,788	175
LnAccomodation	3,664	3,526	5,481	2,079	0,869	0,543	175
LnRestaurant	4,007	3,970	7,380	2,303	1,043	0,505	175

Source: Data processed, 2025

Table 4. Panel Regression Results

Dependen Variabel: LnTourism	I FE		II RE		III RE		IV FE	
LnCrime	-1,180	***			-0,275	*	-1,024	***
LnChildrenVictim	-0,106							
LnWomanVictim	0,185							
LnAttraction			0,194	**	0,183	**	0,331	***
LnAccomodation			0,372	***	0,401	***	0,717	*
LnRestaurant			0,136	**	0,148	**		
Vihicle			0,000				0,000	
Covid			-0,787	***	-0,727	***		
C	19,475	***	11,205	***	12,519	***	15,104	***
Chow Test	11,105	***	12,058	***	13,513	***	7,799	***
Hausman Test	24,096	***	10,052	*	0,000		14,632	***
BP LM Test	104,717	***	138,218	***	147,719	***	86,277	***
R-squared	0,767		0,503		0,516		0,780	
Adjusted R-squared	0,704		0,488		0,502		0,718	
Durbin-Watson stat	1,841		1,593		1,677		2,327	
F-statistic	12,187		34,189		36,090		12,663	
Prob(F-statistic)	0,000		0,000		0,000		0,000	

Note: *, **, and *** indicate the significance level at 0.10, 0.05, and 0.01. Models I and IV use the best estimation, Fixed Effect; Models II and III use Random Effect estimation.
Source: Data processed, 2025

Based on the results of the modeling estimation in Central Java, it was identified that the level of crime cases hurts the number of tourist visits, in several empirical studies supporting the results of research, such as Farhan & Susanti (2024); Shaari et al. (2022) and Mohammed & Sookram (2015). These findings indicate that the perception of security and crime risk in the Central Java region has the potential to inhibit tourists' interest in visiting. An increase in crime incidents can create an image of a less safe destination, thereby reducing the attractiveness and preference of tourists towards Central Java as a tourist destination.

Table 5. Panel Regression Results on Tourism Base and Non-Tourism Base Models

Dependen Variabel: LnTourism	Tourism Base		Non-Tourism Base	
LnCrime	-0,517	**	-0,879	***
LnAttraction	0,413	**	0,369	***
LnAccomodation	0,604	***	0,356	
LnRestaurant	0,299	***	0,338	**
C	11,389	***	14,114	***
Chow Test	7,354	***	10,139	***
Hausman Test	6,496		3,828	
BP LM Test	40,580	***	63,890	***
R-squared	0,279		0,376	
Adjusted R-squared	0,245		0,345	
Durbin-Watson stat	1,744		1,459	
F-statistic	8,211		12,059	
Prob(F-statistic)	0,000		0,000	

Note: *, **, and *** indicate the significance level at 0.10, 0.05, and 0.01. The selection of independent variables for the subsequent analysis was predicated on those exhibiting statistically significant effects, as detailed in Table 4. The model chosen is a random effect.
Source: Data processed, 2025.

Central Java Province statistically experienced a decrease in crime rates, a downward trend in the number of crimes in Central Java from 10.224 cases in 2019 to 7.606 cases in 2023, followed by a decrease in the crime risk level from 29,4 in 2019 to 20,3 in 2023. Theft is the most common type of crime that occurs in villages/sub-districts in Central Java, reaching 25,52% in 2021, a significant decrease from 47,38% in 2014 and 47,53% in 2018, with a general reduction in crime rates in 2021 across all types, where the most significant decrease occurred in theft and the smallest in human trafficking (from 0,04% to 0,01%). Types of Crime: Mass brawls, a decreasing trend in the number and percentage of villages/sub-districts in Central Java experiencing mass brawls, from 2,94% (2014) to 2,72% (2018), and then 1,11% (2021), where fights between community groups are the most frequent (Statistics Jawa Tengah Province, 2024b). It is noted that the trend of increasing tourists in Central Java in general shows an increase in the number of domestic tourists from 22.629.085 in 2020 to 56.485.087 in 2023, and foreign tourists from 1.793 in 2021 to 464.719 in 2023. Followed by the trend of the average length of stay of guests in star hotels tending to be stable in the range of 1,35-1,36 nights after a decline in 2020 (1,17 nights), while the occupancy rate of star hotel rooms shows an increase from the lowest point of 25,94% in 2020 to 48,32% in 2023 (Disporapar of Central Java, 2023). In line with the decline in crime rates, thefts and mass brawls in Central Java, there is a trend of increasing numbers of tourists in various regions, and this improving security condition, the Central Java tourism sector is experiencing rapid growth, marked by a substantial increase in the number of domestic and foreign tourists between 2020 and 2023, as well as stabilization of length of stay and an increase in occupancy rates of star hotels after the COVID-19 pandemic.

The correlation between the decline in crime rates and the increase in tourism activity indicates that conducive security conditions play an essential role in restoring and encouraging the growth of the tourism sector in Central Java. From an institutional perspective, the decline in crime rates in Central Java reflects the strengthening of institutional quality in law enforcement and security, significantly reducing implicit transaction costs for tourists and increasing trust in destinations. These better institutional conditions contribute positively to the growth of the tourism sector, as indicated by the increase in the number of tourists and hotel

occupancy rates. This aligns with the view that institutional quality, including tourism, is an essential foundation for economic development.

Attractions have a significant positive effect on the number of tourist visits, and confirm research with primary data by Swantari et al. (2024) and Maulana et al. (2021). This implies that the diversity and quality of tourist attractions in Central Java, ranging from natural beauty and cultural heritage to exceptional interest tourism potential, are the main driving factors for tourists to visit. Several areas, such as Banyumas, Kebumen, Wonosobo, Karanganyar, and Semarang City, have many tourist attractions compared to other places and tend to have many tourists. Developing and managing attractions that are sustainable, innovative, and responsive to tourist preferences can increase the volume of visits, extend the length of stay, and increase tourist spending in Central Java, which ultimately contributes positively to regional economic growth.

The availability of adequate accommodation, reflected in the number of hotels and inns, as well as the existence of a variety of restaurant choices, has been shown to have a positive effect on the number of tourist visits, functioning as an essential supporting facility in increasing the motives of tourists, this is in line with the findings of Konishi & Saito (2023) & McKercher et al. (2025). The availability of diverse accommodation infrastructure, ranging from starred hotels to more affordable lodgings, provides flexibility for various segments of tourists according to their preferences and budgets. Likewise, the culinary variety offered by several restaurants not only meets the basic needs of tourists but also becomes an integral part of the tourist experience, encouraging exploration and increasing satisfaction. Several other variables, namely the COVID period, have been confirmed to impact the decline in the number of tourists in Central Java and other tourist attractions in various countries, due to travel restrictions and concerns about the spread of the virus. Meanwhile, the variable of violence against children and women has not been confirmed to affect tourist visits, because issues related to violence mostly occur in households (Hidayat, 2020). This issue is likely not a significant consideration for tourists when choosing a destination compared to other factors such as general security or more directly felt tourist attractions. Considerations regarding the number of transportation modes also do not affect tourist visits, because private or rented vehicles are still the most widely used mode of transportation by domestic tourists, covering 61 percent of total transit. (Annur, 2022).

The differential impacts of the independent variables between the Tourism Base and Non-Tourism Base models, the influence of criminal activity on tourist arrivals exhibits a consistent negative and statistically significant effect in both specifications. However, the magnitude of this deterrent is notably larger within the Non-Tourism Base model, suggesting that in regions less reliant on tourism as a primary economic driver, crime exerts a more substantial negative influence on the number of tourist visits. Conversely, the positive impact of tourist attractions on tourism is significant across both models, albeit with a slightly reduced magnitude in the Non-Tourism Base context. This implies that while attractions consistently stimulate tourism, their effect might be marginally less pronounced in areas with a more diversified economic structure.

A key distinction arises in the role of accommodation. While accommodation availability demonstrates a significant positive association with tourist arrivals in the Tourism Base model, this effect becomes statistically insignificant in the Non-Tourism Base model. This divergence suggests that in areas where tourism forms a central part of the economic base, accommodation facilities are a crucial driver of tourist visits. However, in regions with a less dominant tourism sector, accommodation availability may not be as directly linked to the overall volume of tourist arrivals. The positive influence of restaurants on tourist visits remains statistically significant in both model specifications, with a slightly more substantial effect observed in the Non-Tourism Base model. This indicates that dining options consistently

contribute to tourism, potentially playing a relatively more important role in attracting visitors to areas with a less concentrated tourism sector. Overall, the Tourism Base model shows significant influence from all included variables. In contrast, the Non-Tourism Base model indicates that accommodation availability does not significantly impact tourist numbers in those regions.

CONCLUSION

Crime is a significant issue in the tourism industry, as it can deter tourists and reduce the attractiveness of a destination due to the perception of insecurity reinforced by media coverage, which ultimately damages the image, reputation, and competitiveness of the destination, as well as increasing transaction costs and disrupting institutional quality. The Central Java tourism sector shows an increasing trend in its contribution to GRDP from 2012 to 2022, with significant growth in domestic and foreign tourists after the decline due to the COVID-19 pandemic, indicating great economic potential. This study examines the impact of crime, namely the level of crime, violence against children and women, on the number of tourist visits, with control variables, namely tourist attractions, accommodation, restaurants, vehicle ratio, and the Covid-19 period in 35 districts/cities in Central Java in 2020-2024.

The Central Java tourism sector shows significant resilience and growth potential, where the decrease in the confirmed crime rate is statistically positively correlated with the increase in tourists after the COVID-19 pandemic. From an institutional economic perspective, the decline in crime rates in Central Java indicates a strengthening of the quality of institutions in law enforcement and security that reduce implicit transaction costs, increase tourist confidence, and contribute positively to the growth of the tourism sector. The carrying capacity of the diversity and quality of tourist attractions are the main drivers of visits, as well as the availability of adequate accommodation and restaurant facilities; However, the pandemic period has hurt the number of tourists, factors such as violence against children and women, and the number of unconfirmed transportation options have a significant influence on the decision to visit, with private vehicles still the dominant mode of transportation for domestic tourists.

Comparative analysis across regions reveals that crime consistently hinders tourism, and attractions consistently promote it in tourism- and non-tourism-based regions. The positive impact of accommodation is only significant in the tourism-based areas, indicating its crucial role in the economy. At the same time, restaurants positively influence tourism in both contexts, with potentially more potent effects in non-tourism-based regions.

Based on the analysis, the main recommendation for Central Java is to continue to strengthen efforts to reduce crime rates, especially theft, by increasing security in and around tourist areas, as well as improving the quality of institutions and effective law enforcement to attract and retain tourists; in addition, local governments and tourism stakeholders need to continuously develop and promote the diversity of tourist attractions in various regions, as well as ensure the availability and quality of accommodation and supporting facilities such as adequate restaurants to increase tourist satisfaction and motivation.

Moreover, maintaining and expanding accommodation capacity is paramount alongside crime reduction and attraction development for regions with a strong tourism base. In contrast, for non-tourism-based regions, while crime reduction and attraction development remain crucial, policies should focus on leveraging restaurant infrastructure as a key driver of tourist visits, given the insignificant impact of accommodation in these areas, institutional efforts should prioritize creating a conducive environment for the growth of the food and beverage sector as a key tourism draw, alongside maintaining security and supporting attraction development. Strategic investment in diverse dining options and enhancing safety and attractions can effectively stimulate tourism even in regions where it is not the primary economic driver.

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