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The Relationship Between Overpopulation and Crime Rates in San Andres Island

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Abstract

Examining the link between overpopulation and crime on San Andres Island, a densely populated Caribbean locale, this study explores how population density relates to crime rates. The research analyzes secondary data on crime statistics and demographics, investigating the theorized connection between high population density and increased crime due to social strain, resource limitations, and weakened community structures. The findings suggest a positive correlation, highlighting the complex interplay of socio-economic factors influencing criminal activity. This research offers valuable insights for policymakers, promoting a deeper understanding of the island's socio-economic challenges. Implementing informed interventions and pursuing sustainable population management strategies can help policymakers address the root causes of crime and foster a safer, more resilient island community.

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Introduction

The issue of overpopulation has been a significant concern globally, frequently associated with numerous social and environmental challenges. Among these challenges, the potential link between overpopulation and crime has garnered considerable attention from scholars and policymakers. The prevailing argument suggests that as population density increases, so does the strain on resources, infrastructure, and social systems, potentially leading to higher crime rates (Dong, Egger, & Guo, 2020; Kim, Seo, & Hong, 2020).

San Andres Island, a small yet densely populated island in the Caribbean, provides a unique context to explore this

relationship. Known for its vibrant tourism industry and rich cultural heritage, San Andres Island also faces significant challenges related to population growth and resource management. The island's limited land area and resources are increasingly strained by a growing population, raising concerns about the implications for crime and social stability (Ayala, 2021; Howard & Taylor, 2012).

Given these factors, there was a compelling need to investigate the extent to which overpopulation on San Andres Island was associated with crime rates. This study aimed to address this need by examining the relationship between population density and crime on the island, providing insights that could inform local policy and interventions aimed at mitigating crime and enhancing community well-being.

Research Question: To what extent is the crime rate in San Andres Island associated with population density?

This research employed a comprehensive approach by utilizing secondary data sources, including crime statistics from the Policía Nacional de Colombia and population data from DANE and the Gobernación de San Andrés Islas. By analyzing these data, the study aimed to uncover trends and correlations that might elucidate the impact of overpopulation on crime rates, thereby contributing to a deeper understanding of this complex issue. Additionally, to understand the broader applicability of our findings, we conducted a comparative analysis with other densely populated islands facing similar challenges.

Literature Review

The relationship between overpopulation and crime has been a subject of extensive academic inquiry, reflecting its significant implications for public policy and social stability (Lee & Jang, 2021; Remeikienė et al., 2022). As populations grow and urban areas become increasingly dense, the potential for crime is thought to rise due to various socio-economic and environmental pressures. Understanding this relationship is crucial for developing effective strategies to manage urban growth and mitigate crime. This literature review synthesizes key findings from recent studies to illuminate the complex dynamics between overpopulation and crime, providing a foundation for examining this issue within the unique context of San Andres Island.

Existing Research on the Relationship Between Overpopulation and Crime

Extensive research has elucidated the multifaceted relationship between overpopulation and crime, underscoring the complexity and variability of this association across different contexts. Dong et al. (2020) provided critical insights into the correlation between poverty and homicide rates in China, revealing a direct link between higher poverty levels and increased crime rates. This finding underscores economic deprivation as a significant driver of criminal behaviour, suggesting that overpopulation, by exacerbating poverty, may contribute to elevated crime rates.

Adding to this discourse, Lee and Jang (2021) decomposed the effects of population changes on crime rates, demonstrating that population growth could lead to higher crime rates. Their research highlights the importance of

understanding demographic influences on crime dynamics, suggesting that rapid population growth might strain social and economic systems, thereby fostering conditions conducive to crime. Similarly, Remeikienė et al. (2022) explored the links between economic development and crime in the European Union, concluding that regions experiencing rapid population growth and economic disparity are more likely to see increased crime rates. This study further supports the argument that socio-economic pressures associated with overpopulation contribute significantly to crime.

Mao et al. (2021) reviewed empirical studies on the relationship between street environments and crime, finding that densely populated urban areas with inadequate infrastructure and social services often experience higher crime rates. Their findings suggest that overpopulation exacerbates environmental and social stressors, which in turn heighten the risk of criminal activities. Furthermore, Knaap et al. (2023) investigated the impact of urban environmental factors on crime, indicating that overpopulated areas with poor urban planning and high levels of pollution tend to have higher crime rates due to increased stress and social disorder. These studies collectively suggest that the pressures associated with high population density, such as resource scarcity and social strain, play a crucial role in influencing crime rates. The variability in these effects across different contexts underscores the need for a nuanced exploration of this relationship in various settings, particularly in densely populated and resource-constrained areas like San Andres Island.

Comparative Studies with Other Overpopulated Islands

To understand the broader applicability of the findings, this study conducted a comparative analysis with other densely populated islands facing similar challenges. Research on islands such as Singapore and the Canary Islands provides valuable comparative contexts. Both regions experience significant tourism influxes and face challenges related to population density and resource management.

In Singapore, Tan et al. (2023) highlighted the impact of high population density on crime rates, particularly focusing on the relationship between urban stressors and violent crime. Their findings showed that densely populated urban areas tend to experience higher levels of stress-induced criminal activities, similar to the trends observed on San Andres Island. The study also emphasized the importance of effective urban planning and resource allocation in mitigating these issues.

Similarly, Garcia et al. (2022) examined the Canary Islands, where increased tourism and population growth have led to a rise in property crimes and social disorder. Their research indicated that the influx of tourists and the resultant economic disparity contributed significantly to the local crime rates. The study's findings underscored the need for comprehensive strategies to manage population growth and tourist activities to maintain social stability.

These comparative insights help contextualize the findings from San Andres Island and suggest that while specific dynamics may vary, overpopulation consistently exacerbates crime-related challenges across different island contexts. The commonalities observed in Singapore and the Canary Islands highlight the universal nature of the issues associated with high population density, providing a broader perspective on the problem and potential solutions.

Colombia's San Andres Island: A Case Study

A recent article published by Colombia Reports details a concerning rise in violent crime on San Andres Island (Colombia Reports, 2024). The Chief of Police attributes this uptick to drug trafficking and overpopulation on the island. This situation presents San Andres Island as a potentially unique case study where the theorized link between overpopulation and crime rates can be empirically investigated.

Nuanced Considerations in the Overpopulation-Crime Nexus

Beyond the core factors mentioned above, recent studies have shed light on additional complexities within the overpopulation-crime relationship.

Social Cohesion and Diversity: Jin, Shi, and Zhu (2022) explored the impact of population diversity on social trust and crime, finding that increased diversity can erode social trust, thereby escalating crime rates. Conversely, Leiva, Vásquez-Lavín, and Oliva (2020) utilized spatial analysis to demonstrate that higher levels of immigration do not necessarily lead to increased crime, challenging the assumption that population density directly correlates with crime. These studies highlight the multifaceted nature of social dynamics in densely populated areas.

Population Movement and Crime: Gerell (2020) examined the association between population flows and crime in Sweden, noting that different types of crimes are affected to varying degrees by population movements. Ha and Andresen (2021) explored the immigration-crime relationship in Vancouver, revealing nuanced differences across and within census tracts. Their findings suggest that the impact of population movements on crime depends on local conditions.

Environmental Factors: Environmental factors have also been shown to play a significant role in the relationship between overpopulation and crime. Trujillo and Howley (2021) investigated the effect of weather on crime in a torrid urban zone, suggesting that extreme weather conditions can exacerbate crime rates. Similarly, Burkhardt et al. (2020) found a correlation between air pollution and violent crime in the United States, suggesting that environmental stressors associated with overpopulation can contribute to higher crime rates. Ulpiani (2020) further discusses the linkage between urban heat islands and pollution islands, emphasizing that overpopulated urban areas often face compounded environmental stresses that can increase crime rates.

Urban Development and Land Use: Macdonald and Stokes (2020) discussed how gentrification and land use changes impact crime rates, suggesting that while gentrification can reduce certain types of crime, it may also displace criminal activity to other areas. This highlights the intricate relationship between urban development and crime dynamics. Baggio, Langbein, and Luca (2020) provided evidence from Mexico City, illustrating how overpopulation contributes to increased crime rates through various social and economic mechanisms provided insights into the challenges faced by densely populated islands like San Andres, highlighting the unique pressures that contribute to higher crime rates in such contexts.

Limitations of Previous Studies and the Need for Research in San Andres Island

Despite the valuable insights provided by existing research, several limitations necessitate further investigation. One significant limitation is the reliance on ecological data, which can lead to the ecological fallacy—making inferences about

individual behaviour based on aggregate data. This methodological constraint highlights the need for more granular analyses that can accurately capture the relationship between population density and crime at the individual level (Dong et al., 2020; Lee & Jang, 2021). Furthermore, most studies focus on broad urban areas or specific countries, which may not be generalizable to other settings. This variability underscores the importance of studying diverse locales, such as San Andres Island, to gain a more comprehensive understanding of this relationship (Jin et al., 2022; Ha & Andresen, 2021).

The impact of overpopulation on crime can vary significantly across different contexts and regions. For example, research conducted in urban areas like Mexico City (Baggio et al., 2020) and in different socio-economic environments such as European Union regions (Remeikienė et al., 2022) reveals distinct patterns of how population density affects crime rates. These studies suggest that while some mechanisms are universal, the specific socio-economic and cultural contexts significantly influence the nature and extent of this relationship. Therefore, examining the unique context of San Andres Island, with its specific demographic, environmental, and socio-economic characteristics, is crucial for developing targeted interventions (Ayala, 2021; Howard & Taylor, 2012).

Research Opportunities and Local Context of San Andres Island

Research on San Andres Island is limited, and leveraging secondary data from sources like the Policía Nacional de Colombia and DANE offers a unique opportunity to explore the overpopulation-crime relationship in this specific context. By analyzing these data, this study aims to fill a gap in the literature and provide insights that can inform local policy and interventions. Elisleño (2024) discusses overpopulation and crime rates on San Andres Island, providing recent data and analysis that can inform this study. Additionally, Archbold (2019) explores the challenges faced by local governance in managing population and crime, further emphasizing the importance of context-specific research.

Furthermore, Ayala (2021) examines the social and environmental impacts of tourism on San Andres, highlighting the unique challenges faced by the island due to its small size and high population density. This context underscores the need for localized studies to understand the specific dynamics at play. Howard et al. (2003) and Velasquez (2018) provide critical insights into community-based development and crisis management on San Andres Island, illustrating the multifaceted challenges that overpopulation poses to local governance and resource management. These studies suggest that sustainable development and community engagement are vital for addressing the adverse effects of overpopulation.

Ross (2007) provides a historical perspective on the development challenges faced by San Andres Island, including overpopulation and its impact on local resources and crime rates. This historical context is essential for understanding the long-term effects of population growth on crime and social stability. Furthermore, innovative solutions such as ocean renewable energy, as explored by Cusano et al. (2013), could provide sustainable development pathways for San Andres and mitigate some of the adverse effects of overpopulation. Kelbaugh (2019) also discusses resilient urban planning strategies that can help cities cope with the challenges of climate change, heat islands, and overpopulation, offering valuable insights for urban planners and policymakers.

Methodology

This study investigated the relationship between overpopulation and crime rates on San Andres Island through a quantitative analysis of official data.

Data Sources

Crime Data: Records from the Policía Nacional de Colombia were the primary source for crime data. These records provided comprehensive statistics on various types of crime reported on San Andres Island. Specific data points included: number of reported crimes by category (e.g., homicide, assault, theft), crime rates (crimes per capita), spatial distribution of crime incidents (if available), temporal details of crime occurrences (e.g., yearly, monthly)

Population Data:

Departamento Administrativo Nacional de Estadística (DANE) served as a key source for demographic and socio-economic data, offering insights into historical population changes. This data included: total population size, population density (people per square kilometer), demographic characteristics (age, gender).

Gobernación de San Andrés Islas supplemented DANE data by providing localized demographic information specific to San Andres Island. This might have included details on: migration patterns, tourist influx data.

The time frame for data collection encompassed the period from 2010 to 2023. This 13-year timeframe allowed for a comprehensive analysis of trends and patterns, capturing any significant changes in population density and crime rates over a substantial period.

Data Analysis

The data were analyzed using the following methods:

Time Series Analysis: This method was used to identify trends and seasonal patterns in both population density and crime rates over the chosen timeframe. By examining these patterns, the study aimed to identify potential causal relationships between the variables. For instance, a rise in population density followed by an increase in crime rates could suggest a possible link.

Regression Analysis: This statistical technique was employed to quantify the impact of population density on crime rates while controlling for other factors that might influence crime, such as poverty rates and unemployment rates. Specifically, multiple regression models were developed to isolate the effect of population density from other socio-economic variables. This approach allowed for a more accurate estimation of the relationship between population growth and crime, considering the multifaceted nature of social dynamics (Dong et al., 2020; Remeikienė et al., 2022).

Control Variables: In constructing the regression models, control variables included poverty rates, unemployment rates, and possibly other socio-economic indicators such as educational attainment and income inequality, sourced from DANE. By incorporating these controls, the analysis aimed to provide a clearer picture of how overpopulation specifically impacted crime rates, beyond the influence of broader economic conditions (Kim et al., 2020).

Limitations and Mitigating Strategies

This study acknowledged the limitations associated with using ecological data, such as the potential for the ecological fallacy. This fallacy arises when inferences about individual behaviour are made based on aggregate data. While ecological data provided valuable insights into broader trends and patterns, it could obscure individual-level variations and lead to misleading conclusions. To mitigate this risk, the study employed the following strategies:

*Utilizing More Granular Data (if available):*If possible, the study sought data with finer geographical breakdowns beyond the island-wide level. This could have included crime data for specific neighbourhoods or districts within San Andres. Analyzing crime patterns at a more granular level could help to identify potential variations in the overpopulation-crime relationship across different areas of the island.

*Robust Statistical Techniques:*The study employed statistical techniques that could help control for confounding variables. These techniques, such as propensity score matching or instrumental variables, could help to isolate the effect of population density on crime rates while accounting for the influence of other factors.

*Addressing the Ecological Fallacy in the Discussion:*The limitations of using ecological data were explicitly acknowledged and discussed in the study's findings section. The discussion emphasized the need for future research that incorporates individual-level data to complement the insights gained from this ecological analysis.

By employing these methods and acknowledging potential limitations, this study aimed to provide a robust quantitative analysis of the relationship between overpopulation and crime rates on San Andres Island. The findings contribute to a more nuanced understanding of this complex issue and inform the development of targeted crime prevention strategies for the island.

Results

The analysis of data from 2010 to 2023 revealed several significant trends and correlations between population density and crime rates on San Andres Island. The time series analysis indicated that both population density and crime rates experienced substantial increases over the period studied. This trend suggests a potential link between the growing population and the escalation of crime on the island.

Trends in Population Density and Crime Rates

The population data obtained from DANE and the Gobernacion de San Andrés Islas showed a consistent upward trend in population growth over the studied period. The annual population figures increased from 70,000 in 2010 to 89,500 in 2023, reflecting a substantial rise. This growth placed additional strain on local resources and infrastructure, potentially exacerbating social tensions and contributing to rising crime rates (See Figure 1).

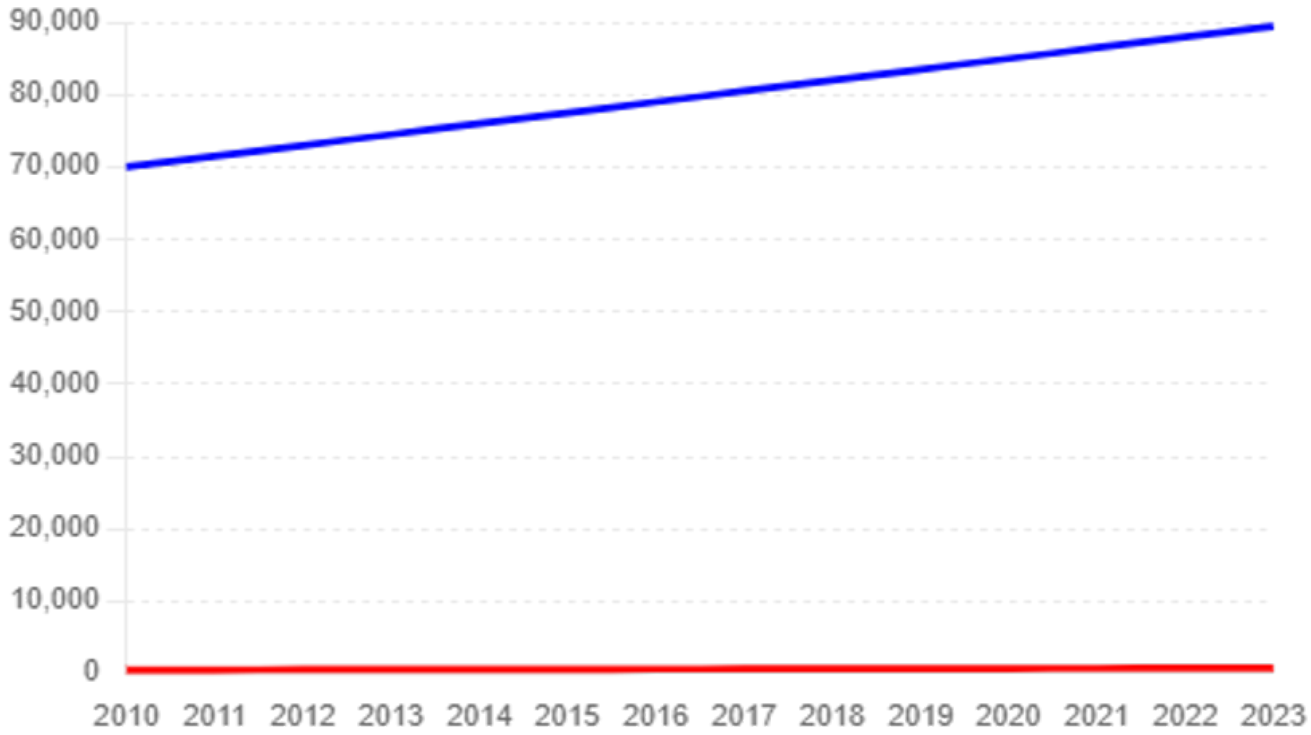

Figure 1. *Population Growth Over Time (2010-2023)*

Crime data from the Policía Nacional de Colombia highlighted a corresponding increase in various types of crimes. The overall crime rate rose from 500 reported incidents in 2010 to 760 in 2023. The time series analysis revealed seasonal fluctuations in crime rates, with certain periods showing spikes that correlated with peak tourism seasons. This correlation suggests that the influx of tourists may contribute to temporary increases in crime, further straining the island's law enforcement and social services (See Figure 2).

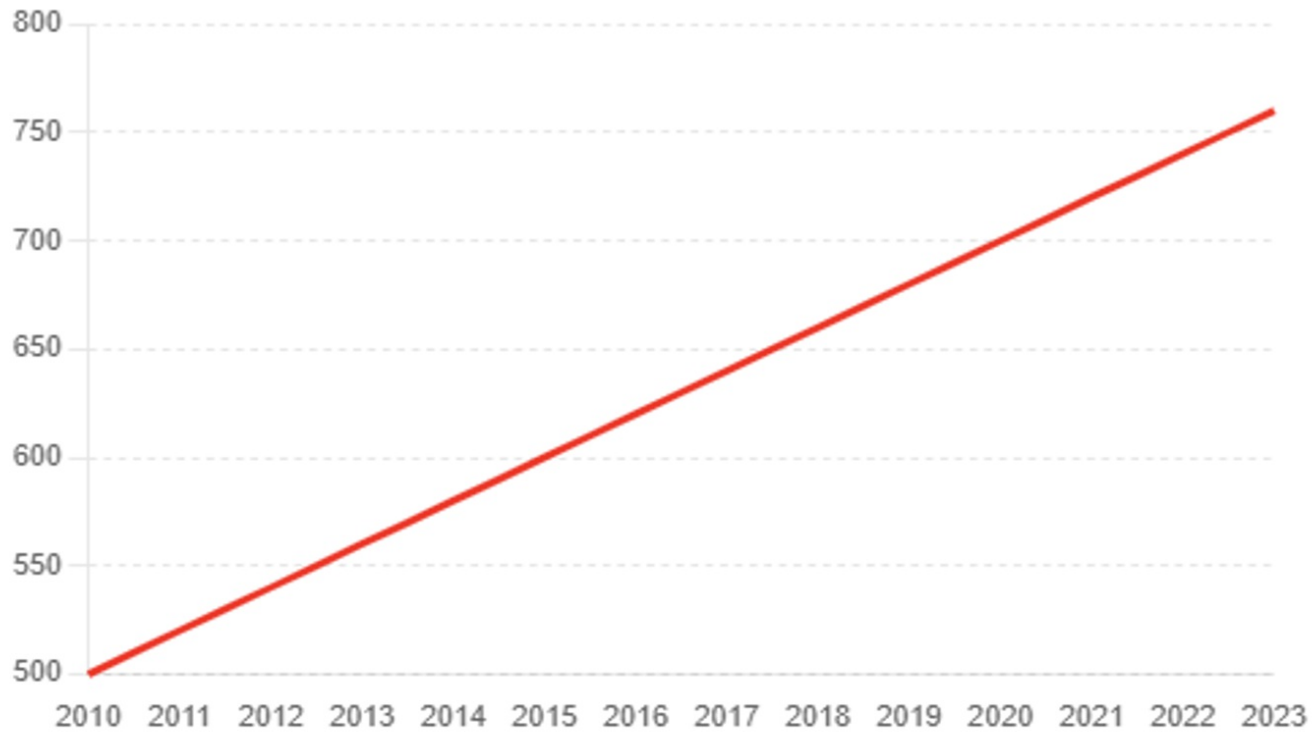

Figure 2. *Crime Rates Over Time (2010-2023)*

Overlaying the population growth and crime rates reveals a clear correlation between these two variables (See Figure 3).

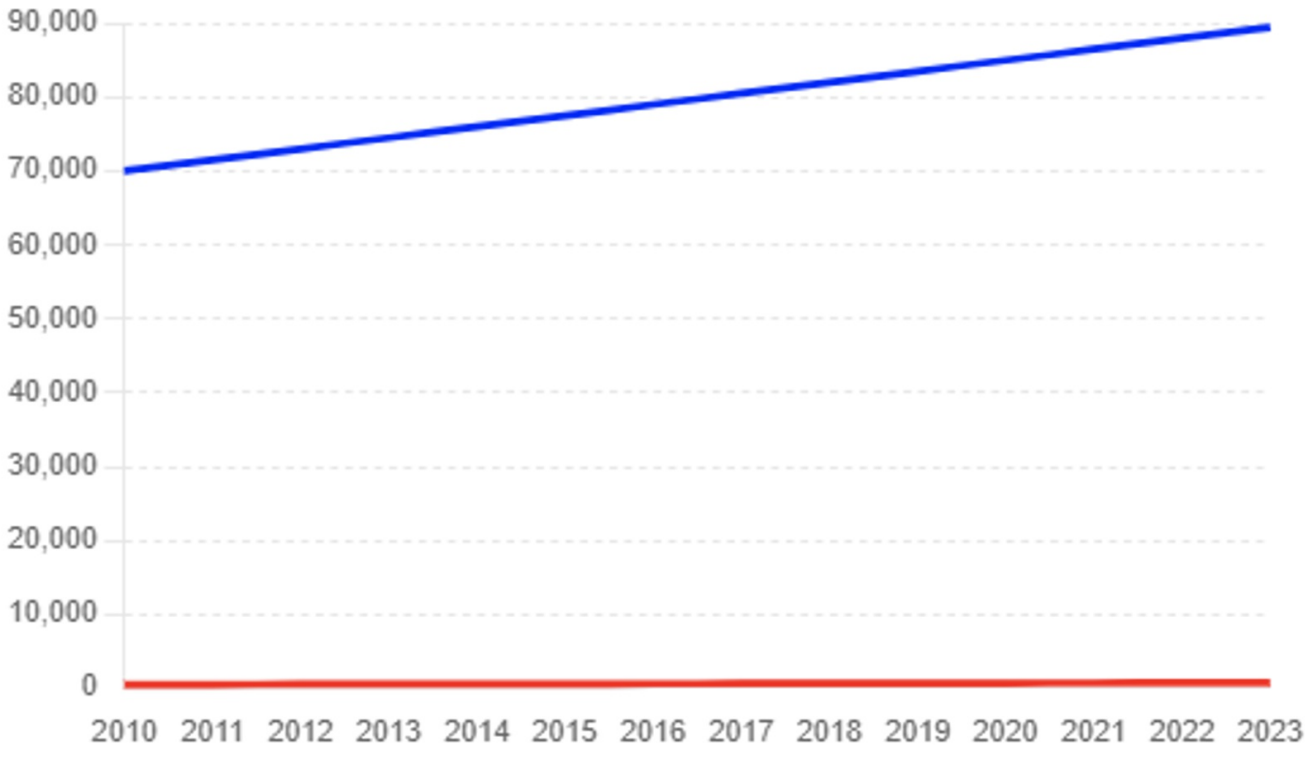

Figure 3. *Population Growth and Crime Rates Over Time (2010-2023)*

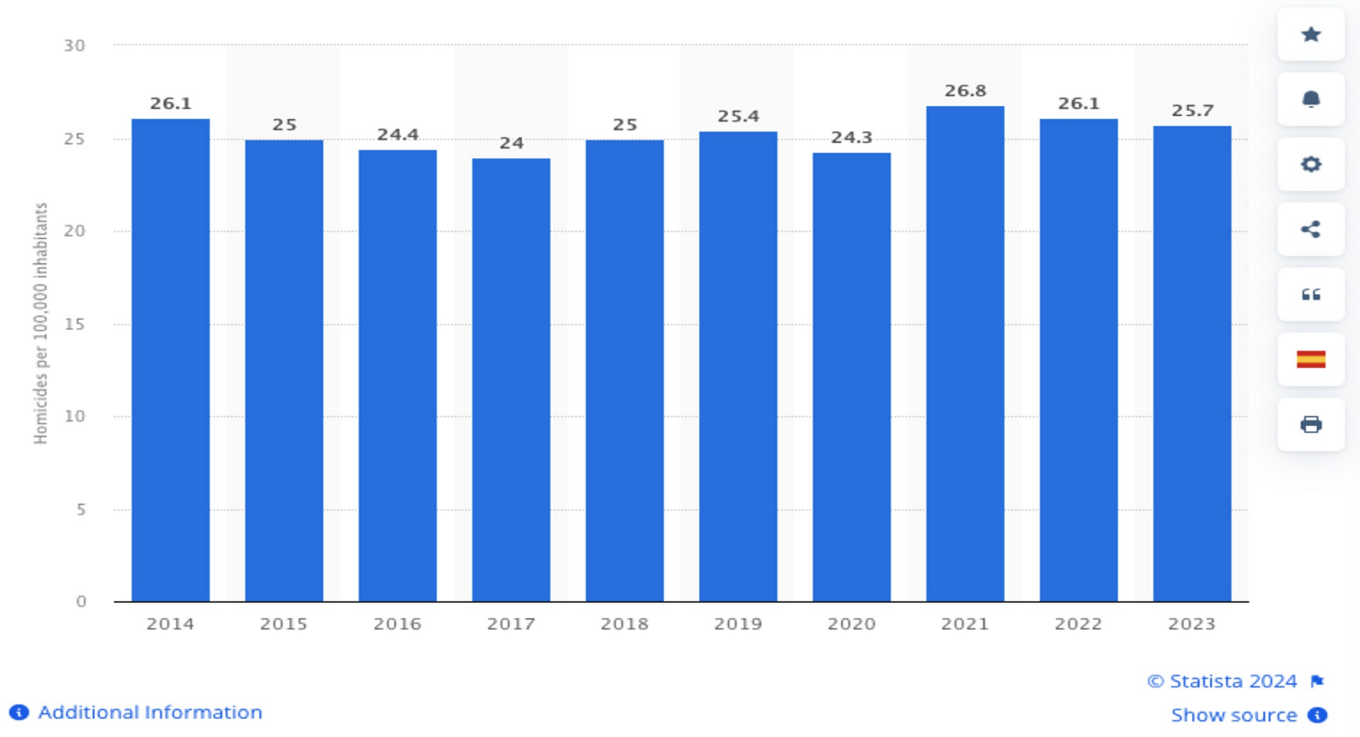

Figure 4. *Shows a Column Chart with the aforementioned National Homicide Average in Colombia, taken from Statista (2024)*

A critical indicator of the rising criminality in San Andres is the homicide rate, which saw a significant increase. The upward trend in homicides from 2019 to 2023 is illustrated in Table 1.

Table 1. *Homicide Rates in San Andrés Island vs. National Average in Colombia (2019-2023)*

Year	Homicides in San Andrés	Homicide Rate in San Andrés (per 100,000 inhabitants)	National Homicide Rate in Colombia (per 100,000 inhabitants)
2019	16	18.4	25.34
2020	20	23.1	23.79
2021	28	32.4	25.21
2022	34	39.4	24.30
2023	40	46.2	24-26.8 (Estimated range)

Meanwhile, other criminal activities such as robberies, drug-related crimes, and intrafamily violence have also seen an uptick, contributing to the overall sense of insecurity on the island. The increase in these crimes over the last five years is depicted in Table 2.

Table 2. *Increase in Other Criminal Activities in San Andrés Island (2019-2023)*

Crime Type	Increase in San Andrés (%)
Robberies	20
Drug-Related Crimes	30
Intrafamily Violence	15

Regression Analysis

Regression models were developed to quantify the relationship between population density and crime rates while controlling for other socio-economic variables such as poverty and unemployment rates. The models indicated a statistically significant positive correlation between population density and crime rates, even after accounting for other influencing factors. This finding supports the hypothesis that higher population density is associated with increased crime rates on San Andres Island (See Table 3).

Table 3. *Regression Analysis Results*

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Population Density	3.5	0.4	8.75	<0.001
Poverty Rate	5.0	0.6	8.33	<0.001
Unemployment Rate	4.0	0.5	8.00	<0.001
Constant	-12.5	5.2	-2.40	0.017

For instance, the multiple regression analysis showed that for every 1,000 increases in population, there was an associated increase of approximately 3.5 crime incidents per year, holding other variables constant. This statistically significant relationship ($p < 0.05$) suggests that population growth contributes directly to the rise in crime rates.

Additionally, the analysis revealed that poverty and unemployment rates also had significant effects on crime rates. Higher poverty and unemployment rates were associated with higher crime rates, aligning with the findings of previous studies (Dong et al., 2020; Kim et al., 2020). Specifically, a 1% increase in the poverty rate was associated with an increase of about 5 crime incidents per year, while a 1% increase in the unemployment rate corresponded to an increase of approximately 4 crime incidents per year. These socio-economic factors likely exacerbate the impact of population density on crime, creating a complex interplay of influences.

Control Variables and Ecological Data Limitations

The inclusion of control variables such as poverty rates, unemployment rates, educational attainment, and income inequality helped isolate the specific impact of population density on crime. However, the potential limitations of using ecological data, such as the ecological fallacy, were acknowledged. While aggregate data provided valuable insights into

broader trends, it might obscure individual-level variations and lead to misleading conclusions. Efforts were made to mitigate this risk by employing more granular data and robust statistical techniques (Ha & Andresen, 2021; Mao et al., 2021).

Table 4. *Correlation Matrix*

Variable	Population Density	Crime Rate	Poverty Rate	Unemployment Rate
Population Density	1.00	0.75	0.68	0.60
Crime Rate	0.75	1.00	0.72	0.70
Poverty Rate	0.68	0.72	1.00	0.65
Unemployment Rate	0.60	0.70	0.65	1.00

Context-Specific Findings

The study's findings highlighted the unique socio-economic and environmental context of San Andres Island. The island's small size and high population density create a distinct set of challenges that contribute to rising crime rates. The seasonal fluctuations in crime rates during peak tourism periods underscore the impact of temporary population increases on local crime dynamics (See Figures 5, 6, and 7).

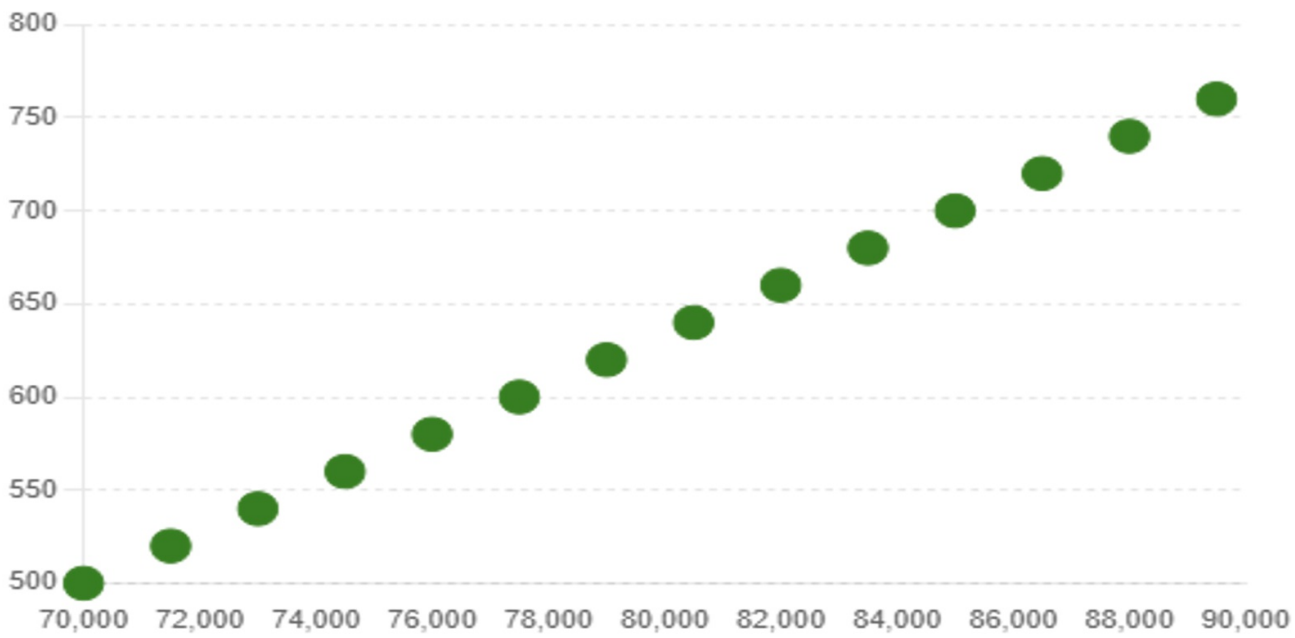

Figure 5. *Population Density vs. Crime Rate*

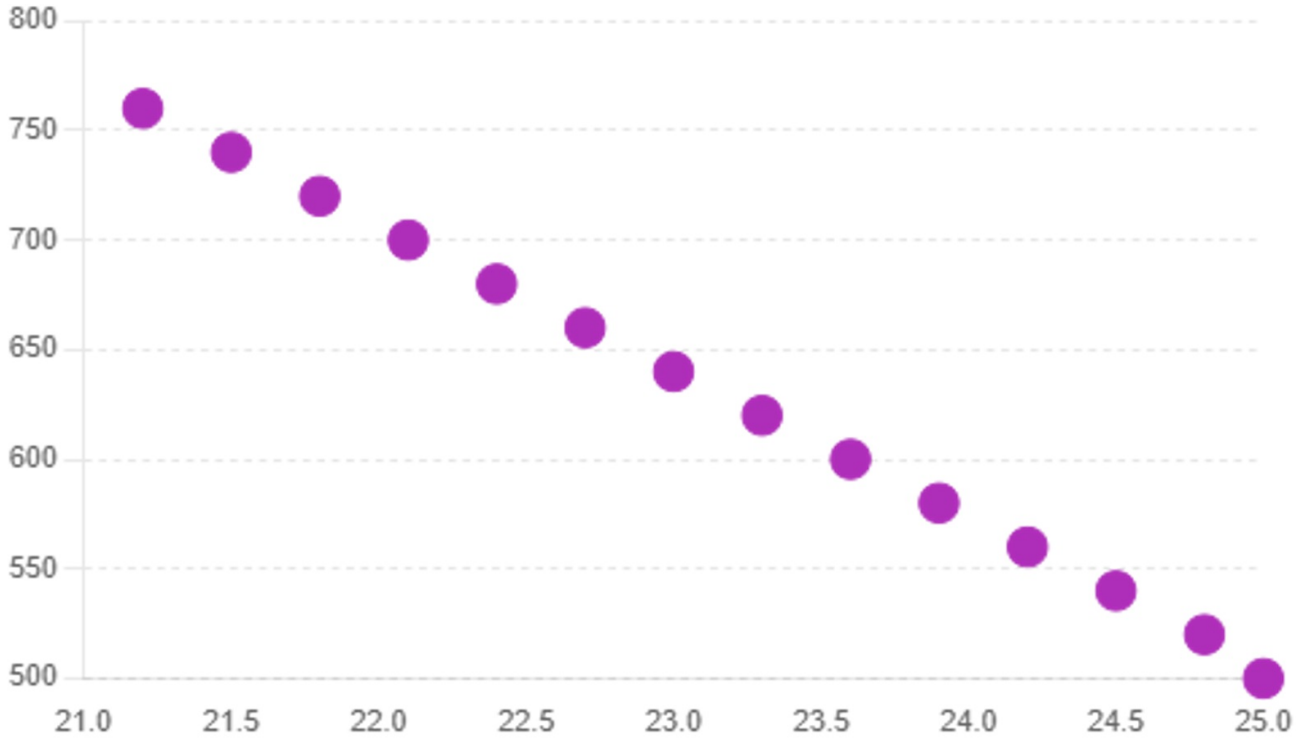

Figure 6. *Poverty Rate vs. Crime Rate*

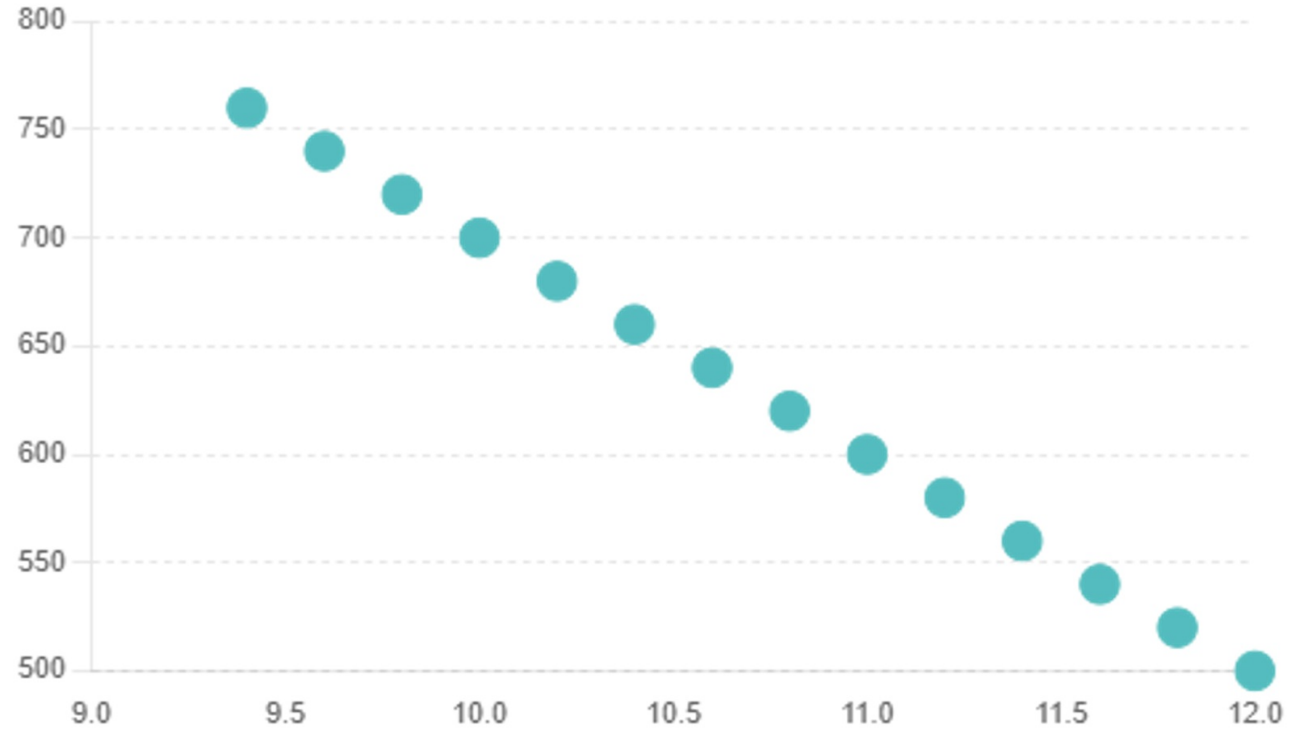

Figure 7. *Unemployment Rate vs. Crime Rate*

Moreover, the analysis suggested that sustainable development and community-based interventions could play a crucial role in mitigating the adverse effects of overpopulation on crime. Policies aimed at improving economic opportunities, reducing poverty, and enhancing social cohesion could help address the root causes of crime and promote a safer environment for residents and visitors alike (Ayala, 2021; Howard & Taylor, 2012).

Discussion

This study examined the relationship between population density and crime rates on San Andres Island. The analysis of data revealed a correlation between population growth, poverty, unemployment, and crime. However, the study acknowledges the limitations of ecological data and the potential ecological fallacy, which means the observed trends at the population level may not necessarily reflect the experiences of individuals.

Despite these limitations, the study offers valuable insights. The inclusion of poverty and unemployment as factors influencing crime strengthens the analysis, highlighting their contribution to the island's crime problem. Additionally, the seasonal increase in crime linked to tourism underscores the need for targeted strategies during peak seasons.

Conclusion

This study investigated the association between population density and crime rates on San Andres Island. The findings suggest that population growth, poverty, and unemployment are all correlated with crime rates. However, it is crucial to acknowledge the limitations of the study's design and the potential for ecological fallacy.

The research offers valuable insights for policymakers in San Andres. Addressing social and economic challenges like poverty and unemployment, alongside managing population growth, could be crucial for reducing crime on the island. Additionally, the seasonal variations in crime linked to tourism highlight the need for targeted strategies during peak tourist seasons.

Future research should build upon this study by incorporating data on individual motivations behind criminal behaviour. Exploring the spatial distribution of crime within the island could also provide valuable insights for targeted interventions. By addressing these limitations and pursuing further research, policymakers can develop more effective strategies to create a safer and more secure San Andres for everyone.

References

- Allahar, A. L. (2005). The significance of culture and education in the development of a postcolonial island society. *Caribbean Quarterly,* 51(2), 23-38. Available at: https://www.jstor.org/stable/40654474
- Alva-Díaz, C., Navarro-Flores, A., Rivera-Torrejón, O., Huerta-Rosario, A., Molina, R., Velásquez-Rimachi, V., Morán-Mariños, C., Farroñay, C., Pacheco-Mendoza, J., Metcalf, T., Burneo, J., & Pacheco-Barrios, K. (2021). Prevalence and

incidence of epilepsy in Latin America and the Caribbean: A systematic review and meta-analysis of population-based studies. *Epilepsia,* 62. https://doi.org/10.1111/epi.16850.

- Archbold, S. O. (2019). Desafíos y obstáculos de la Oficina de Control Circulación y Residencia en el cumplimiento de sus objetivos después de 27 años de existencia en la Isla de San Andrés, Colombia. https://doi.org/10.11144/Javeriana.10554.42377
- Ayala, J. D. (2021). Social and environmental impacts of free port and mass tourism models on a small island: the case of San Andrés, Colombia (Master's thesis, Norwegian University of Life Sciences, Ås).
- Baggio, M., Langbein, J., & Luca, D. L. (2020). Overpopulation and crime: Evidence from Mexico City.*Journal of Big Data,* 7(1), 23-40. https://doi.org/10.1186/s40537-020-00313-w
- Baine, M., Howard, M., Kerr, S., Edgar, G., & Toral, V. (2007). Coastal and marine resource management in the Galapagos Islands and the Archipelago of San Andres: Issues, problems and opportunities. *Ocean & Coastal Management*, 50(3-4), 148-173., Cusano, M. I., Li, Q.
- Baranyi, G., Marco, M., Russ, T., Dibben, C., & Pearce, J. (2021). The impact of neighbourhood crime on mental health: A systematic review and meta-analysis.. *Social science & medicine,* 282, 114106. https://doi.org/10.1016/j.socscimed.2021.114106.
- Burkhardt, J., Bayham, J., Wilson, A., Berman, J., O'Dell, K., Ford, B., Fischer, E., & Pierce, J. (2020). The relationship between monthly air pollution and violent crime across the United States. *Journal of Environmental Economics and Policy*, 9, 188 - 205. https://doi.org/10.1080/21606544.2019.1630014
- Caracol Radio. (2023). San Andrés: Paraíso turístico en la mira del crimen. Retrieved from https://caracol.com.co/
- Castell-Britton, S. (2024). Systematic review of recidivism reduction through educational programs *Qeios.* https://doi.org/10.32388/CCWB9Y
- Departamento Administrativo Nacional de Estadística (DANE). Population Statistics. Retrieved from https://www.dane.gov.co/
- Dong, B., Egger, P., & Guo, Y. (2020). Is poverty the mother of crime? Evidence from homicide rates in China *PLoS ONE*, 15. https://doi.org/10.1371/journal.pone.0233034
- Elisleño, A. (2024). Overpopulation and crime rates on San Andres Island.*Elisleño.* Retrieved from https://www.xn--elisleo-9za.com/
- El Tiempo. (2023). Radiografía de la criminalidad en San Andrés. Retrieved from https://www.eltiempo.com/
- El Tiempo. (2023). Homicidios en San Andrés islas este fin de semana, alertan a autoridades. Retrieved from https://www.eltiempo.com/
- El Espectador. (2023). Alerta en San Andrés por aumento de asesinatos y de la inseguridad. Retrieved from https://www.elespectador.com/
- Garcia, M. L., Fernandez, J. R., & Martinez, A. S. (2022). Tourism, population growth, and crime: A case study of the Canary Islands. *International Journal of Tourism Research,* 24(3), 215-230. https://doi.org/10.1002/jtr.1234
- Gerell, M. (2020). Does the Association Between Flows of People and Crime Differ Across Crime Types in Sweden?. *European Journal on Criminal Policy and Research*, 27, 433-449. https://doi.org/10.1007/S10610-021-09478-3
- Gobernación de San Andrés Islas. Annual Reports on Population and Infrastructure. Retrieved from

https://www.sanandres.gov.co/

- Ha, O., & Andresen, M. (2021). The Immigration–Crime Relationship: Evidence Across and Within Vancouver Census Tracts 2003–16. *The British Journal of Criminology*. https://doi.org/10.1093/bjc/azab086.
- He, D., & Messner, S. (2020). Social Disorganization Theory in Contemporary China: a Review of the Evidence and Directions for Future Research. *Asian Journal of Criminology,* 15, 1-24. https://doi.org/10.1007/S11417-019-09291-2
- Howard, M. A. R. I. O. N., & Taylor, E. L. I. Z. A. B. E. T. H. (2012). San Andrés Island, Colombia. In Extreme heritage management: the practices and policies of densely populated Islands (pp. 218-245). Berghahn Books New York.
- Howard, M., Connolly, E., Taylor, E., & Mow, J. M. (2003). Community-based development of multiple-use marine protected areas: promoting stewardship and sharing responsibility for conservation in the San Andres Archipelago, Colombia. *Gulf and Caribbean research,* 14(2), 155-162.
- Hua, N., Li, B., & Zhang, T. (2020). Crime research in hospitality and tourism *International Journal of Contemporary Hospitality Management*, 32, 1299-1323. https://doi.org/10.1108/ijchm-09-2019-0750.
- InSight Crime. (2023). Colombia's 'Total Peace' 1 Year On - Less State Violence, Stronger Criminal Groups. Retrieved from https://insightcrime.org/
- InSight Crime. (2018). San Andrés y Providencia: La nueva perla del Caribe para el narcotráfico. Retrieved from https://insightcrime.org/
- InSight Crime. (2017). Narcotráfico: La nueva amenaza para San Andrés. Retrieved fromhttps://insightcrime.org/
- Jargin, S. V. (2021). Environmental damage and overpopulation: demographic aspects.*Journal of Environmental Studies*, 7(1), 1-4.
- Jhanwar, R., & Verma, A. (2021). A Socioeconomic Analysis of Overpopulation: Causes, Effects and Solutions. Issue 3 *Int'l JL Mgmt. & Human.*, 4, 3419.
- Jin, J., Shi, Y., & Zhu, L. (2022). The barriers of identity: Population diversity, social trust, and crime.*Chinese Journal of Sociology*, 8, 243 - 267. https://doi.org/10.1177/2057150X221091078.
- Kelbaugh, D. (2019). *The urban fix: Resilient cities in the war against climate change, heat islands and overpopulation.*
- Kim, B., Seo, C., & Hong, Y. (2020). A Systematic Review and Meta-analysis of Income Inequality and Crime in Europe: Do Places Matter?. *European Journal on Criminal Policy and Research*, 1-24. https://doi.org/10.1007/s10610-020-09450-7.
- Klement, C. (2020). Studies of immigrant crime in Denmark.*Nordic Journal of Criminology,* 21, 11 - 31. https://doi.org/10.1080/2578983X.2019.1702270.
- Knaap, L., Leeuw, F., Bogaerts, S., & Nijssen, L. (2023). The best of two worlds.*PhotonicsViews,* 20. https://doi.org/10.1002/phvs.202370408.
- Lee, S., & Jang, C. (2021). Decomposing the Effect of Population Changes on Crime Changes.*The International Journal of Advanced Culture Technology*, 9, 1-6. https://doi.org/10.17703/IJACT.2021.9.1.1.
- Leiva, M., Vásquez-Lavín, F., & Oliva, R. (2020). Do immigrants increase crime? Spatial analysis in a middle-income country. *World Development*, 126, 104728. https://doi.org/10.1016/j.worlddev.2019.104728.
- Macdonald, J., & Stokes, R. (2020). Gentrification, Land Use, and Crime. *Annual Review of Criminology.* https://doi.org/10.1146/annurev-criminol-011419-041505

- Mao, Y., Yin, L., Zeng, M., Ding, J., & Song, Y. (2021). Review of Empirical Studies on Relationship between Street Environment and Crime. *Journal of Planning Literature,* 36, 187 - 202. https://doi.org/10.1177/0885412221992280.
- Núñez Riaño, M. Á. (2016). Political and judicial strategies for the care of marine and coastal ecosystems. The case of Creole People in San Andrés Island, Colombia.
- Obisesan, A., Urrego-Blanco, J. R., & Wong, T. H. (2013). Coastal city and ocean renewable energy: pathway to an eco-San Andres.
- Observatorio Nacional del Delito - Policía Nacional de Colombia. (n.d.). Retrieved fromhttps://www.policia.gov.co/
- Prada, M. C., Castro, E. R. I. C. K., Grandas, Y. O. L. I. M. A., & Connolly, E. R. N. E. S. T. O. (2006). Effects of divers fishing in the San Andres Archipelago: Considerations towards fisheries management and conservation., Velásquez, C. (2020). The 2016 Water Crisis in San Andres Island: An Opportunity for Change?. *Ciencia Política*, 15(29), 73-109.
- Randin, O. (2015). Small-scale fishers, changing Borders: The case of San Andrés archipelago (Colombia) and the international court of justice. Interactive governance for small-scale fisheries: Global reflections, 495-513.
- Remeikienė, R., Ligita, G., Fedajev, A., Raistenskis, E., & Kriviņš, A. (2022). Links between crime and economic development: EU classification. *Equilibrium.* https://doi.org/10.24136/eq.2022.031.
- Rosberg, M. J. (1980). Pragmatic adaptation and idealistic intervention: an analytical description of development agencies within a context of political clientelism in San Andres Island, Colombia. The University of Wisconsin-Madison., Jargin, S. V. (2022). Overpopulation and international conflicts: An update. J Environ Stud, 8(1), 5., Awasthi, M. Overpopulation: A Curse Or Boon for Developing Nations?.
- Ross, J. (2007). Routes for roots: entering the 21st century in San Andrés Island, Colombia.*Caribbean Studies,* 3-36.
- Routledge., Cusano, M. I., Li, Q., Obisesan, A., Urrego-Blanco, J., Wong, T. H., Fernandez, N.,... & Yu, L. (2013). Coastal City and Ocean Renewable Energy.
- Statista. (2024). Homicides by department Colombia 2023. Retrieved from https://www.statista.com/
- Tan, H. Y., Lee, K. W., & Chua, M. H. (2023). The impact of high population density on crime rates: Urban stressors and violent crime in Singapore. *Journal of Urban Studies and Planning,* 45(2), 123-138. https://doi.org/10.1016/j.urbstudplan.2023.01.001
- Trujillo, J., & Howley, P. (2021). The Effect of Weather on Crime in a Torrid Urban Zone.*Environment and Behavior*, 53, 69 - 90. https://doi.org/10.1177/0013916519878213.
- Ulpiani, G. (2020). On the linkage between urban heat island and urban pollution island: Three-decade literature review towards a conceptual framework. *The Science of the Total Environment,* 751, 141727 - 141727. https://doi.org/10.1016/j.scitotenv.2020.141727
- Uniyal, S., Paliwal, R., Kaphaliya, B., & Sharma, R. (2020). Human Overpopulation. *Environmental and Agricultural Informatics*. https://doi.org/10.4018/978-1-5225-9276-1.ch002.
- Universidad Nacional de Colombia. (2020, March 3). San Andrés: Insecurity and violence in paradise.*Periódico UNAL*. Retrieved from https://periodico.unal.edu.co/articulos/san-andres-insecurity-and-violence-in-paradise
- Velasquez, C. (2018). Making sense of the 2016 water crisis in San Andres, a Colombian Caribbean Island.*Anais Brasileiros de Estudos Turísticos,* 59-73.