

METHODS OF ASSESSMENT AND IMPACT ANALYSIS ON TOURISM ACTIVITY IN MEXICO

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Abstract

This paper analyzes how country risk influences tourism activity in Mexico, drawing on Mixed Migration Centre (2022) data on migrants'/refugees' perceptions of insecurity and supplementing it with macro indicators (sovereign ratings, the Fragile States Index) and tourism revenues (2020–2024). The study employs descriptive analysis, a decision-making application (expected value) for three regions, and the Pearson coefficient to test correlation. The findings highlight widespread risks, the dominant role of criminal groups, and a strong inverse relationship between risk and tourism performance ($r \approx -0.9$).

Keywords: country risk, tourism, Mexico, security, Fragile States Index, decision theory.

JEL Classification: Z32, F52, O54.

1. Introduction

At present, changes occur daily worldwide. These include globalization and the internationalization of economic activities, which play a major role in creating trade relations between countries. Such processes facilitate an integrated economic space and contribute to population welfare. Therefore, analyzing the impact of country-related risks on the tourism sector requires a multidimensional approach. To illustrate country-risk situations, Mexico was selected. Although it has exceptional tourism potential, Mexico is characterized by significant challenges related to security, political instability, and socio-economic variables.

2. Heading

2.1. Research methodology

Understanding a country's risks is essential, especially for tourists, because it includes the possibility of being exposed to political and social instability that could affect them. For this purpose, in accordance with the report issued by the Mixed Migration Centre (2022), an analysis was conducted. A total of 918 people were selected through face-to-face interviews (97%) and partially by phone (3%), carried out mostly in Tapachula (68%) and Tijuana (31%).

The research followed the steps described in the specialized literature, focusing on the sample, data collection and analysis methods, research instruments, and ethical considerations.

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The study used a 5-question questionnaire aimed at understanding and identifying areas in Mexico where migrants and refugees do not feel safe at all. Based on the questionnaire, mathematical calculations were performed to demonstrate the objectives.

2.2. Research objectives

Based on the analysis, the following research objectives were pursued:

General objective: Identifying the risk components that significantly affect the level of development and the perception of tourism in Mexico;

- Assessing the correlation between risk level and tourism industry performance;
- Analyzing variations in Mexico's country risk scores between 2020–2024;
- Formulating a strategic direction aimed at reducing the vulnerability of the tourism sector.

2.3. Research hypotheses

- In Mexico, due to instability and high risk, the number of tourists differs from year to year.
- Travelers' opinions about a country are influenced by safety levels and social problems.
- If risk-management policies were introduced, the risk level would be lower.

2.4. Research variables

This case study is exploratory, and in terms of data collection it is cross-sectional, since respondents were interviewed only once. The independent variables are:

- Respondents' age – between 18 and 55; those over 55 accounted for only 2%.
- Sex – women, men.
- Legal/migratory status – refugee, migrant, emigrant, undocumented, transit.

Dependent variable: awareness that risk exists in many areas of Mexico, measured through the repetition of the phrase “I felt in danger!” in cities such as Guatemala, Mexico City, etc.

2.5. Research stages

The research was carried out in several stages between February and October 2021, with fewer data from Tijuana because collection there began only at the end of April 2021.

- Documentation and review of “Safety risks and dangerous locations reported by refugees and migrants in Mexico”;

- Collecting responses through a questionnaire from respondents from Honduras, El Salvador, Guatemala, Nicaragua, and Venezuela;
- Developing an analysis of a potential investment and demonstrating the correlation between tourism and risk level;
- Formulating conclusions after synthesizing the data;
- Preparing the report.

2.6. Research participants

A purposive (non-probabilistic) sampling model was used because researchers primarily wanted information from those who took the Pacific route through Mexico or who had previously attempted to migrate to the United States and chose other routes. Local residents also participated in the questionnaire.

The sample consisted of 38% women (349) and 62% men (569).

2.7. Description of research methods and techniques

To conduct this research, the main country risks and how they affect a country's population and economy were first examined. Then, to meet the objectives, the following techniques and tools were used:

- Reviewing information explaining why Mexico is a high-risk country. Cartels and illicit substance trafficking increase risk, and in some cities theft and violence also affect travelers.
- For tourism revenue data, official sources such as INEGI and SECTUR were used; to analyze perceived risk, the U.S. Department of State Travel Advisory was used. For financial data, information from the Bank of Mexico was used.
- The MMC questionnaire contains 5 questions divided into two categories: dangerous areas and perceived risks. Relevant responses were closed-ended, providing quantifiable and comparable data.

At the end of the research, conclusions and personal proposals are included in order to improve the risk situation.

2.8. Research results and interpretation

The analysis of the collected information involves a series of essential methodological steps designed to facilitate interpretation and the extraction of relevant conclusions, so that the report remains grounded in its initial objective: identifying the risk factors that significantly influence the development level and perception of tourism in Mexico.

Given that the questionnaire had only five questions, they can be considered equally important.

For the first question—reflecting exposure to risks during migration and involvement in violent acts—respondents reported predominantly negative experiences along routes in Mexico. According to Diagram 2, 76% (698)

mentioned at least one dangerous location, indicating that risk is widespread. Twenty percent (184) reported two or more dangerous locations. In addition, 58% (532) of migrants and/or refugees were direct victims of abuses in high-risk areas.

From the second question, it can be inferred that the risks faced by travelers, locals, and others are unavoidable. Robberies were reported in 90% of cases (826 people). Extortion and bribery were mentioned by 74% (697), and approximately 4 in 10 respondents (358) reported kidnapping risk and psychological violence.

Responses show that Guatemala City and border towns were mentioned most frequently, as key transit points. These areas become active risk zones, and such perceptions have a direct link to country risk and its impact on tourism.

Results for question four show that in Guatemala the most common risks were bribery and extortion, indicating corruption and abuses. By contrast, Mexico is associated with severe risks of physical violence, kidnapping, or detention. According to Diagram 3, there are major differences between kidnapping, physical violence, death, and sexual violence in Mexico (45%, 29%, 18%, 13%) versus Guatemala (12%, 19%, 7%, 4%).

For the last question, the most frequently mentioned perpetrators were criminal groups: 93% (854) identified them as the main sources of danger. A total of 220 participants reported abuses by the army and police, while 22% (202) mentioned officials within the immigration system.

The generalized feeling of insecurity is aggravated not only by violent acts committed by criminal groups but also by immigration and police officials. Thus, not only locals but also travelers may not trust law enforcement if they need help.

To identify the ratio, we calculate:

$$\text{Ratio} = 532/698 = 0.763 (\approx 76\%) (1)$$

This result shows that 76% of respondents both perceived risks and were direct victims, indicating that risk is not merely fear but is grounded in real-life experience.

2.9. Country risk assessment in Mexico for expanding a tourism activity

To analyze a potential investment in a guided tour line, three regions are examined: Tapachula, Tenosique, and Mexicali, identified in the questionnaire as high-risk areas.

Decision alternatives: A1 – Tapachula; A2 – Tenosique; A3 – Mexicali.

States of nature (S = risk scenarios): S1 = Partial stability (relative security); S2 = Medium criminal activity (extortion, robberies); S3 = Severe violence (kidnappings, cartel interventions).

Probabilities are estimated based on MMC statistics (2022), the U.S. Department of State warning level, and the historical data from the questionnaire.

Probabilities used: S1 = 0.2; S2 = 0.5; S3 = 0.3.

Table no.1. Expected outcomes (xi, thousand USD) and probabilities (pi)

Alternative	S1 (p1=0.2)	S2 (p2=0.5)	S3 (p3=0.3)	TOTAL (expected value)
Tapachula (A1)	-15	-50	-100	-58.0
Tenosique (A2)	-10	-40	-90	-49.0
Mexicali (A3)	10	-20	-45	-21.5

Expected value: $E(A_i) = \sum (x_i \cdot p_i)$

$E(A_i) = \sum (x_i \cdot p_i)$ (2)

Conclusion: Among the three alternatives, Mexicali (A3) has the lowest expected loss and is the only one with a potential profit under a favorable scenario. The model shows how decision theory can be used in country risk analysis, supporting decisions based on statistical expectation.

2.10. Variation in Mexico’s country risk scores between 2020–2024

Table no.2. Evolution of Mexico’s sovereign ratings (2020–2024)

Year	Moody’s	S&P	Fitch
2020	Baa1 (Negative)	BBB (Negative)	BBB- (Stable)
2021	Baa2 (Stable)	BBB (Negative)	BBB- (Stable)
2022	Baa2 (Stable)	BBB (Stable)	BBB- (Stable)
2023	Baa2 (Stable)	BBB (Stable)	BBB- (Stable)
2024	Baa2 (Negative)	BBB (Stable)	BBB- (Stable)

Table no.3. Mexico’s risk score (Fragile States Index)

Year	Risk score
2020	86.5
2021	85.9
2022	85.1
2023	83.7
2024	82.5

If we analyze the data in Table 2, we observe that in 2020 the country suffered due to the pandemic. GDP declined substantially, and country risk influenced the economy. A contributing factor was the state oil company Pemex, supported by the state, alongside uncertainties related to public policies.

In 2021, an economic improvement is visible and the risk score decreases slightly. In 2022 the trend continues without major changes. In 2023 there is relative stability of the scores.

In 2024, although the FSI score falls to 82.5, the electoral context increased uncertainty, and Moody's maintains a negative outlook (Baa2 Negative).

2.11. Correlation between risk level and tourism industry performance

Tourism revenue data indicate continuous growth in 2020–2024. In 2020, Mexico used flexible strategies and kept borders open for most tourists, sustaining international interest. In 2024, the country received 45.04 million international tourists, 7.4% more than in 2023.

To evaluate the relationship between the risk score (FSI) and tourism revenues, the Pearson correlation coefficient is calculated.

Table no.4. Data for correlation analysis

Year	Estimated risk score (X, FSI)	Tourism revenues (Y), USD bn
2020	86.5	11.0
2021	85.9	19.8
2022	85.1	28.0
2023	83.7	30.8
2024	82.5	32.96

Source: FSI (Fund for Peace) and SECTUR/INEGI

Table no.5. Final computation table

Year	X	Y	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})(Y - \bar{Y})$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$
2020	86.5	11.0	1.76	-13.512	-23.78	3.10	182.57
2021	85.9	19.8	1.16	-4.712	-5.47	1.34	22.20
2022	85.1	28.0	0.36	3.488	1.25	0.13	12.17
2023	83.7	30.8	-1.04	6.288	-6.54	1.08	39.53
2024	82.5	32.96	-2.24	8.448	-18.92	5.02	72.29
Σ					-53.46	10.67	328.76

Source: Author's own calculations

Pearson correlation coefficient:

$$r = \Sigma[(X_i - \bar{X})(Y_i - \bar{Y})] / \sqrt{(\Sigma(X_i - \bar{X})^2 \cdot \Sigma(Y_i - \bar{Y})^2)} \quad (3)$$

Applying the computed values yields $r \approx -0.9$, indicating a very strong inverse relationship between risk and tourism revenues over the analyzed period.

3. Conclusion

3.1. Validation/invalidations of the research hypotheses

The analysis enabled an understanding of the complexity of country risk assessment in Mexico. Regarding the first hypothesis—that a higher level of country risk negatively affects international tourism—the results are convincing. The Pearson coefficient of approximately -0.9 indicates a very strong inverse proportional relationship.

The second hypothesis, concerning the usefulness of decision-making methods, was partially validated: such methods provide a different perspective, but results depend on the assumptions and criteria selected. The conclusion is that quantitative models are useful but cannot fully replace contextual understanding.

3.2. Recommendations for future research

Future research could extend the analysis to other countries to test whether the negative relationship between risk and tourism is replicated. It would be useful to include a qualitative dimension (interviews with tourists or tourism entrepreneurs) to capture how risk is perceived in practice. In addition, dynamic models and scenario simulations could be used to forecast risk evolution over time and tourism responses.

3.3. General conclusions

Risk represents the possibility of events that negatively affect actions and decisions. In migration and tourism, risk includes both objective aspects (political instability, violence) and subjective perceptions that shape behavior.

This paper combines quantitative and decision-based approaches using empirical data (the MMC questionnaire) and macro indicators. The analysis highlights the widespread distribution of risks, regional differences, and the key role of geographic and institutional context. Through decision methods, a simulation for expanding a tourism activity was conducted, and the strong negative correlation ($r \approx -0.9$) supports the idea that risk influences tourism viability.

In conclusion, risk analysis must be flexible and contextualized, and quantitative and decision tools are useful when applied with discernment.

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