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International tourist inflow in Mexico; Construction of a predictive model

Demanda de turistas internacionales hacia México; construcción de un modelo predictivo

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Abstract

This article examines the impact of international tourism in Mexico and introduces a predictive model to estimate the arrivals of international tourists for the period 2023-2025. Using monthly data provided by the Bank of Mexico (BANXICO), the Box-Jenkins method is employed, determining that an ARIMA model optimally fits the data. The results reveal notable demand patterns and emphasize the significant effect of the pandemic on tourist trends. After a marked decline during the most critical phases of the pandemic, a gradual recovery in tourist arrival figures is evident. These findings are essential for the Mexican tourism sector, offering valuable insights for planning and strategic decision-making. The suggested model can be a useful tool for tourism marketing professionals, assisting them in designing more accurate and effective strategies. Additionally, this study contributes, both empirically and methodologically, to the Mexican tourism context and has the potential to be extrapolated and applied in international settings.

JEL Code: C22, C53, Z30
Keywords: international tourism; Mexico; COVID-19; tourism demand; forecasts; ARIMA

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Resumen

Este artículo examina el impacto del turismo internacional en México y presenta un modelo predictivo para estimar las llegadas de turistas internacionales durante el periodo 2023-2025. A partir de datos mensuales proporcionados por el Banco de México (BANXICO), se emplea el método Box-Jenkins, determinando que un modelo ARIMA se ajusta de manera óptima a los datos. Los resultados revelan patrones de demanda notables y subrayan el efecto significativo de la pandemia en las tendencias turísticas. Luego de una notable disminución durante las fases más críticas de la pandemia, se evidencia una recuperación paulatina en las cifras de llegada de turistas. Estos descubrimientos son esenciales para el sector turístico mexicano, brindando insights valiosos para la planificación y decisiones estratégicas. El modelo sugerido puede ser una herramienta útil para los profesionales del marketing turístico, ayudándoles a diseñar estrategias más precisas y efectivas. Adicionalmente, este estudio contribuye, tanto desde una perspectiva empírica como metodológica, al ámbito turístico mexicano y posee el potencial de ser extrapolado y aplicado en contextos internacionales.

Código JEL: C22, C53, Z30
Palabras clave: international tourism; tourist arrivals; tourism forecasting; ARIMA model; post-COVID-19 recovery; tourism demand modeling; Mexico tourism

Introduction

Tourism is one of the most dynamic industries worldwide, playing a key part in many nations' economies. Its expansion and scope are constantly intensifying (Chang et al., 2011). Tourism has grown at an average annual rate of 4-5%, contributing 8% of global GDP and 10% of global employment (World Tourism Organization, 2020) (UNWTO). It represents a major economic driver for many countries (Fu et al., 2020).

Mexico has historically been an outstanding tourist destination due to its rich cultural and natural diversity. It has beaches, forests, archaeological sites, unique architecture, extensive border areas, and diverse recreational sites. International tourism has significantly impacted Mexico's economic growth and development. Factors such as the increase in real income and leisure time in developed countries and technological advances in transportation and infrastructure have been crucial to this development. Tourist inflow is vital for hotels, airlines, cruise ships, and recreational areas (Witt & Song, 2000), (Song et al., 2019).

This paper adopts a classic scientific research structure to analyze international tourist inflow in Mexico. The following points will be addressed:

Introduction: Context and relevance of the study

Review of the literature: Analysis of previous studies and related theories

Methodology: Description of the methodological approach

Results: Research findings

Discussion and Conclusions: Interpretation of results and suggestions for future research

Tourism contributes considerably to Mexico's GDP. Nevertheless, in 2020, due to the global health crisis, tourism as a share of GDP declined from 8.6% to 6.8%, according to INEGI (Instituto Nacional de Estadística y Geografía or National Institute of Statistics and Geography). A recovery began in 2021, reaching 7.1%, and 8.1% in 2022. By 2023, it is expected to approach 8.4%, similar to the pre-pandemic period. The COVID-19 pandemic posed unprecedented challenges for the sector. As the world recovers, it is vital to understand the evolution of tourist inflow in Mexico and propose predictive models for future arrivals. This paper seeks to present a post-COVID-19 model to analyze this influx and provide strategic information for the sector.

Due to the significant role played by international tourism in Mexico, this research has established a series of questions that will direct and enrich its approach and structure.

How has the influx of international tourists to Mexico changed after the COVID-19 crisis?

The health crisis caused by COVID-19 has transformed the lives of millions of people worldwide. The way governments deal with it, with what resources, through which organizations, and how each society reacts minimizes or amplifies the impact of the pandemic (Sanchez, 2020).

In this context, the pandemic has marked the global tourism industry indelibly. Hypothesis 1 suggests that international tourist inflow has experienced a considerable decline in Mexico after the COVID-19 pandemic. Travel restrictions, health safety concerns, and the resulting global uncertainty have been determining factors in this decline. Although some tourism destinations have begun to show signs of recovery, tourist inflow has not yet reached pre-pandemic levels.

Is the structural design of the proposed model effective in predicting tourism trends?

Projecting tourism in the post-pandemic context is essential for strategic planning and decision making. Hypothesis 2 postulates that the structural form of the model is effective for this projection. By adequately incorporating the key factors that influence international tourist inflow in Mexico in the post-COVID-19 context, and by considering the univariate Box-Jenkins methodology with the number of foreign tourist arrivals to Mexico as the dependent variable, the model can provide accurate and reliable estimates of future tourist inflow.

Specifically, a univariate ARIMA model will be developed to project tourist inflow in Mexico. As its name suggests, the univariate analysis does not consider causal connections with other internal variables nor does it incorporate data on the performance of other predictor variables (Conde, 2013). The analysis and projection will be carried out using monthly data for the period (1)2010-(3)2023 for Mexico, consulted in the BANXICO database. The contribution of this work is not only limited to the empirical evaluation but also includes a significant methodological and theoretical part, particularly applied to the Mexican environment, with the potential to be extended to the international context.

As the projection of total tourist inflow becomes evident, it will be possible to estimate the potential of tourism activity as a source of valuable information for economic agents involved in the planning, production, and distribution of tourism products. Likewise, clear objectives and goals could be established in the sector, such as developing new tourist destinations of excellence or increasing domestic, border, and road tourism. Considering these predictions, numerous activities could be planned to ensure a competitive capacity in this area in the coming years, considering the impact of the coronavirus pandemic. This would help Mexico's tourism sector adapt to the demands and constant changes worldwide.

Research in tourism time series and forecasting studies will be critical in Mexico's economic, humanistic, cultural, and social growth. Accurately forecasting the projected volume of tourists within a specific period is a considerable challenge, given the possibility of unexpected changes that could disrupt activity (Hao et al., 2020). Consequently, it is critical to make accurate predictions regarding tourist flow at any given point in time. Accuracy in tourist inflow projections is crucial for formulating appropriate policies (Makoni et al., 2023).

This study contributes to the knowledge about the relevance of ARIMA models in the tourism sector. Thus, effective forecasting of international tourist inflow in Mexico provides decision makers in the tourism industry with an invaluable planning tool. The most widely used and recognized statistical time series forecasting models are the autoregressive integrated moving average (ARIMA) and the seasonal ARIMA (SARIMA) (Makoni et al., 2023). The Box-Jenkins methodology, used to fit ARIMA/SARIMA models, is widely recognized for its high forecast accuracy and efficiency in modeling various time series (Khandlwal et al., 2015).

Review of the literature

Existing literature on international tourism in Mexico has addressed factors influencing destination choice, travel patterns, and tourism's economic and social impact. Nonetheless, most of these studies were conducted before the COVID-19 pandemic and therefore do not address the changes that arose in its

aftermath (Torres-González et al., 2022). Therefore, updating existing knowledge and analyzing how tourist inflow has evolved in the post-COVID-19 context is essential. A relevant work that provides a glimpse of the impact of the pandemic is that of Mendoza (2020). This study analyzes the economic impact of the COVID-19 pandemic in Mexico, focusing on the immediate labor repercussions. Using time series models and autoregressive vectors, short-term labor trends are anticipated. The research is particularly relevant when considering the application to sectors such as international tourism and how external variables, such as COVID-19, transform social and economic dynamics.

Health safety has become a determining factor in the decision of international tourists when choosing a destination. The perception of a destination as safe, with effective measures against diseases, is essential. In addition, air transport links and other elements, such as the quality of tourist services and cultural diversity, impact tourist inflow.

When addressing tourist inflow, it is crucial to mention pioneering studies such as that of Alcaide (1964), which focused on Spanish tourism. Over the years, researchers such as Barry and O'Hagan (1972) and Bechdolt (1973) have delved deeper into the subject. Rey (1998) presents a chronological table summarizing the most relevant econometric models at the international level.

In the context of Mexico, the study by Conde (2013) uses a univariate ARIMA model to estimate the influx of international tourists. Soria et al. (2011) developed a model to identify the elements that influence international tourist inflow in Mexico. Hernandez (2011) studied Mexico's international tourism using the least squares method. Arellano and Chapa (2017) proposed a model to evaluate the impact of unexpected events, such as the appearance of the AH1N1 influenza.

Sanchez and Duron (2016) address this subject and contribute to the analysis of international tourism from the Mexican perspective. This study looked for the best model to predict the flow of international visitors to Mexico, considering it as a hierarchical series. Although hierarchical approaches are believed to be more efficient, they are not always valid in practice. Some hierarchical methods were found to be superior but not consistently so. Another relevant study in the Mexican context for tourism analysis is that of Loría et al. (2017). This study uses a Structural Vector Autoregressive Model (SVAR) and a Bayesian VAR model, based on Okun's (1962) model, to analyze the positive impact of tourism.

Wu et al. (2021) state that ARIMA/SARIMA models are widely used in tourist inflow forecasting. Forecasts using univariate models such as ARIMA or SARIMA are found to be more accurate (Makoni et al., 2023).

Methodology

Most models for determining tourist inflow constitute the foundations for approaching this subject, particularly in developed countries (Wen et al., 2021). In the approach to the model for the case of Mexico, reference will be made to works such as Wit et al. (1995) and Song (2000), which, in the author's opinion, is the best work on the subject. Furthermore, in the analysis of the state of the art, works such as Vogt and Wittayakorn (1998), Aguayo (2003), Conde (2013), and Makoni et al. (2023) were reviewed.

From a methodological point of view, it is considered that the modeling and projections of international tourist inflow should be based on consolidated methodologies, such as those discussed in the review of the literature. It is not appropriate to analyze data in isolation if robust conclusions are sought, let alone for informed decision making. In this study, tourist inflow will be modeled using ARIMA models, whose efficiency has been supported by their prominence as an essential tool in economic and tourism analysis in recent years, according to Conde (2013) and Makoni et al. (2023).

Characteristics of the time series data

Time series are a special type of data collected at regular intervals over a specific period. Time-series analysis makes it possible to examine patterns of changes and fluctuations that occur over time, including trends, cycles, and seasonal patterns (Chatfield & Xing, 2019). This data type is essential in various fields such as economics, finance, meteorology, health, and tourism.

An important aspect of time series is that the observed data are temporally correlated. Unlike cross-sectional data, where observations are independent, in time series, a given observation depends on its past observations, which is called autocorrelation. Autocorrelation in time series data requires specific analytical methods to ensure accurate and reliable estimates.

Furthermore, time series can exhibit stationarity or non-stationarity. A time series is stationary when its statistical properties, such as mean and variance, are constant over time. In contrast, a non-stationary time series shows a systematic variation of these properties over time. Time series analysis often requires the data to be stationary, so techniques such as differencing can be used to transform non-stationary series into stationary (Shumway et al., 2017).

Decomposition is another technique commonly used in time series analysis that involves dividing a series into three components: trend, seasonality, and residual. Trend refers to the long-term trajectory of the series, seasonality describes the regular and predictable variations, and the residual ... (incomplete paragraph)

Box-Jenkins method

The Box-Jenkins method, also known as ARIMA methodology, is a time series analysis and modeling technique frequently used in forecasting and data analysis. This method, developed by George Box and Gwilym Jenkins (1970), seeks to identify patterns and trends in a time series to predict future data points.

The Box-Jenkins methodology consists of three main stages: identification, estimation, and verification.

In the identification stage, an exploratory analysis of the data is performed to identify the nature of the components of the time series (trend, seasonality, or cycles) and to determine whether it is necessary to differentiate the series to achieve stationarity.

In the estimation stage, one or several ARIMA models that seem most appropriate for the data are selected, their parameters are estimated, and their quality is compared.

In the verification stage, the quality of the selected model is assessed by verifying whether the model residuals are white noise (i.e., they are independent and identically distributed) and whether the model adequately predicts the data.

It is important to mention that the Box-Jenkins methodology assumes that the time series is stationary, which means that its statistical properties (such as mean and variance) do not change over time. When a time series is not stationary, it can be transformed using the differencing technique.

The approach is suitable for both stationary and non-stationary time series. The approach includes:

(i) Identification: ACF and PACF (Autocorrelation Function, and Partial Autocorrelation Function, respectively) are used to determine the order of the model using time series graphs of the data.

(ii) Parameter estimation: Apply the maximum likelihood estimation (MLE) method to estimate the parameters of the tentative model.

(iii) Diagnostic verification: The adequacy of the fitted model in terms of forecast accuracy is checked

Akaike information criterion

The Akaike Information Criterion (AIC) is a statistical value used to compare the quality of different statistical models. Developed by Hirotugu Akaike in 1974, the AIC is used to select among possible models, preferably those that offer a good quality of fit with as few parameters as possible, to avoid overfitting.

AIC considers both the complexity of the model (the number of parameters) and its ability to fit the data. A model with fewer parameters may have a worse fit, but it is less prone to overfit the data and, therefore, can generalize new data better. Conversely, a model with more parameters may fit the data better but may overfit and perform poorly on new data.

The calculation of the AIC for a model is based on the maximum likelihood of the model and the number of parameters. Generally, the model with the lowest AIC value is preferred as it indicates the optimal balance between model complexity and fit.

Diagnostic analyses

The results of the estimated model misspecification tests—normality, non-autocorrelation, and heteroscedasticity—were also run in Rstudio. These diagnostic tests were the following:

Diagnostic Tests:

- Normality: The Shapiro-Wilk test was used to verify whether the residuals are normally distributed.
- Non-Autocorrelation: The Ljung-Box test was used to check for autocorrelation in the residuals.
- Heteroscedasticity: The Breusch-Pagan test was used to detect the presence of heteroscedasticity in the residuals.
- White Noise: If the residuals successfully pass all of the above tests, it will be determined if they are white noise.

Shapiro-Wilk normality test

data: residuals

W = 0.94889, p-value = 2.103e-12

Box-Ljung test

data: residuals

X-squared = 0.0057299, df = 1, p-value = 0.9397

These diagnostic tests concluded that the p-values of the tests are greater than a significance level of 0.05, the null hypotheses would not be rejected, and the residuals would be considered to be normally distributed, have no autocorrelation, and show no heteroscedasticity. The evidence shows that the residuals passed all these tests. Therefore, it could be considered that they are white noise.

Results

The data used for this study correspond to monthly international tourist arrivals to Mexico, covering from January 1980 to March 2023. These data were obtained from the BANXICO repository. After a series of tests and adjustments, it was decided to restrict the sample data set from January 2010 to March 2023. The data analysis and the predictive model's construction were executed using the statistical software RStudio (R Development Core Team, 2010). Table 1 presents the descriptive statistics of the data.

Table 1
Descriptive statistics for the series (thousands of tourists)

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
775.4	1672.3	2014.9	2274.9	2787.6	4714.4

Source: created by the author with data from BANXICO

The average number of international tourists is 2 275 000 per month. The data are positively skewed due to the positive skewness value. The distribution does not represent a normal distribution. To visualize some of the characteristics of the data descriptively, a time series graph was constructed with the original data since 1980. Figure 1 is the original time series of the data provided by BANXICO.

Some of the characteristics and findings of the series are:

- International tourist arrivals are at their lowest point with 775 400.
- The seasonality of the series is observed, with peaks in December and troughs in September in general.
- If the series is segmented, constant periods are observed at the annual level; from 2014 onwards, there is a pronounced growth until before the COVID-19 pandemic.
- There was a pause in tourist arrivals during the most critical period of the pandemic, reaching its lowest point in April (775 000) and May (890 000) 2020.
- In 2022, there was a gradual increase, reaching a growth of 17% vs. the previous year.
- As of January 2023, a significant recovery was expected, 17.3% Q1 2003 vs. Q1 2022.

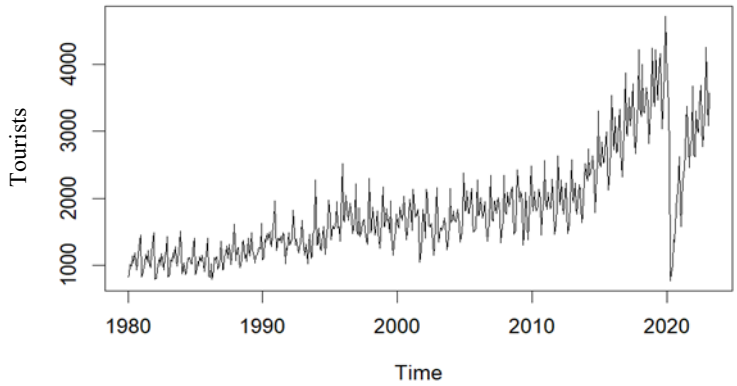

Figure 1. Graph of the original time series of international tourist arrivals to Mexico from January 1980 to March 2023
Source: created with RStudio with data from BANXICO

Following the execution of preliminary evaluations and a meticulous review of several parameters of the ARIMA algorithm, together with measures of forecast accuracy, a specific time interval was suggested for constructing the predictive model. Specifically, the selected period extends from January 2010 to March 2023, as can be seen in the model shown in Figure 2.

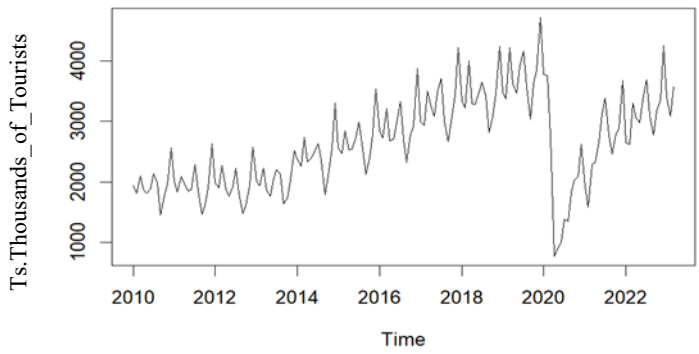

Figure 2. Graph of the original time series of international tourist arrivals to Mexico from January 2010 to March 2023
Source: created with RStudio with data from BANXICO

An evaluation was conducted to identify the optimal model applicable to the series of international tourist arrivals to Mexico. According to the results, the model that provided the lowest

Akaike Information Criterion (AIC) value of 1204.643 was the ARIMA model (0,1,1) (0,1,1). Consequently, this model emerges as the most suitable for short- and medium-term projection of tourist arrivals. See Table 2.

Table 2
Selection of the best model

Model	AIC
ARIMA (2,1,2)(1,1,1) [12]	: Inf
ARIMA (0,1,0)(0,1,0) [12]	: 1245.441
ARIMA (1,1,0)(1,1,0) [12]	: 1221.028
ARIMA (0,1,1)(0,1,1) [12]	: 1204.643
ARIMA (0,1,1)(0,1,1) [12]	: 1220.757
ARIMA (0,1,1)(0,1,1) [12]	: 1209.008
ARIMA (0,1,1)(0,1,1) [12]	: 1209.004
ARIMA (0,1,1)(0,1,1) [12]	: 1211.045
ARIMA (0,1,1)(0,1,1) [12]	: Inf
ARIMA (0,1,0)(0,1,0) [12]	: 1232.192
ARIMA (1,1,1)(1,1,1) [12]	: 1209.129
ARIMA (0,1,2)(0,1,2) [12]	: 1209.129
ARIMA (1,1,0)(1,1,0) [12]	: 1215.842
ARIMA (1,1,2)(1,1,2) [12]	: Inf

Source: created with RStudio with data from BANXICO

The results in Table 2 suggest that the ARIMA (0,1,1) (0,1,1) model [12] with a non-zero mean is the best for the data due to its lower AIC value.

The Maximum Likelihood Estimation (MLE) method was used in the estimation of the ARIMA (0,1,1) (0,1,1) model [12].

The following is a breakdown of the model for clarity:

(0,1,1): This is the non-seasonal part of the model.

The first number (0) indicates no autoregressive (AR) term is used.

The second number (1) indicates that a regular difference has been taken to make the series stationary.

The third number (1) indicates that a moving average (MA) term is used.

(0,1,1)[12]: This is the seasonal part of the model.

The first number (0) in the seasonal component indicates no seasonal autoregressive term is used.

The second number (1) indicates that a seasonal difference has been taken to make the series stationary in seasonality.

The third number (1) indicates that a seasonal moving average term is used.

The number in brackets [12] indicates that the series has an annual seasonality (12 months).

The optimal model required both a regular difference (indicated by the second number in the non-seasonal part) and a seasonal difference (indicated by the second number in the seasonal part).

The order of integration refers to the number of differences needed to make a series stationary. In the case of the time series of international tourists to Mexico, the series has an integration order of 1 for the non-seasonal part and another integration order of 1 for the seasonal part. This implies that the original series had a trend and a seasonality that needed to be differentiated to achieve stationarity. That is, the original series was not stationary, but after taking the appropriate differencing, it became stationary and suitable for ARIMA modeling.

Determining stationarity is crucial before applying ARIMA models, as these models require the series to be stationary. To determine whether a time series is stationary, one of the alternatives is to run the Augmented Dickey-Fuller (ADF) test, a test commonly used to determine the stationarity of a time series. If the p-value of the test is less than a significance level (e.g., 0.05), the null hypothesis is rejected, and the series can be considered stationary. In this case of the time series of international tourists to Mexico, the ADF yields a value of 0.0162449; therefore, the transformed series is stationary. (Part of this explanation will be included in the body of the article for further details).

The generation of projections for the time series of tourist inflow over 36 months, from January 2023 to December 2025, is proposed in a reasoned manner. According to the resulting model predictions, the year 2023 is expected to conclude with a total of 43 481 000 international tourists, which would mean a growth of 26.25% compared to 2022. This is a promising prediction that anticipates renewed dynamism in the tourism sector. Consequently, according to this quantitative analysis, it is inferred that the disruption of international tourism to Mexico can be considered to have been overcome.

Table 3
Summary of monthly forecasts (in millions of tourists)

	Year		
Month	2023	2024	2025
January	3.568	3.589	3.597
February	3.458	3.478	3.485
March	4.047	4.067	4.072
April	3.530	3.548	3.553
May	3.475	3.492	3.495
June	3.709	3.725	3.727
July	3.915	3.930	3.931
August	3.486	3.499	3.499
September	2.991	3.003	3.002
October	3.283	3.294	3.292
November	3.621	3.630	3.627
December	4.398	4.406	4.402

Source: created with RStudio with data from BANXICO

In economics and management sciences, longer-term projections may be more uncertain and, therefore, less accurate. Therefore, the prediction horizon of the predictive model developed only considered 36 months.

The accuracy of forecasts may decrease as the time horizon extends due to increasing uncertainty. Factors such as changes in government policies, global economic conditions, industry trends, natural disasters, pandemics, and other unforeseen events can significantly impact long-term trends (Song et al., 2000).

Furthermore, forecasting models like ARIMA are often based on historical patterns and trends. While these models can be effective in forecasting short- and medium-term trends, they may not be able to accurately capture structural or disruptive changes that may occur in the distant future.

Figure 3 illustrates a graphical representation of projected international tourist arrivals.

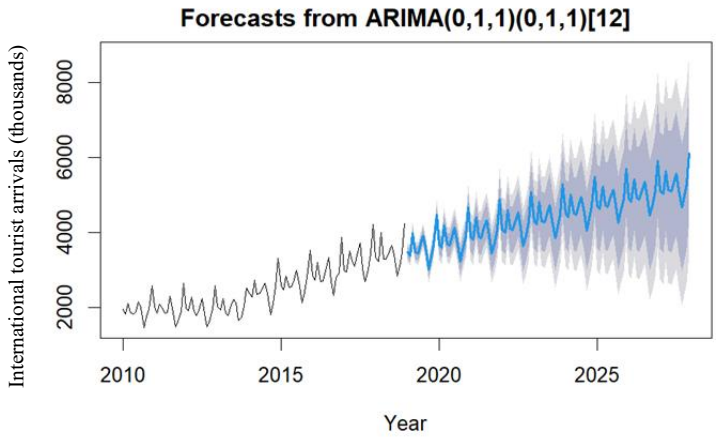

Figure 3. Graph of the forecast of international tourist arrivals to Mexico
Source: created with RStudio with data from BANXICO

This paper presents future projections derived from the time series analysis related to the influx of international tourists in Mexico, employing the Box-Jenkins methodology and the statistical program RStudio. These projections seek to provide a solid basis for decision making by tourism professionals and public policymakers. It is also hoped that the study's results will shed light on the factors influencing the tourist inflow in Mexico. In a world where tourism plays a crucial role in the economy and culture, having a clear vision of its evolution is essential. This study, therefore, not only benefits professionals in the sector but also has the potential to influence the strategic direction of an entire nation.

Discussion and conclusions

International tourism in Mexico has traditionally been a vital revenue source and a substantial national economy driver. The changing dynamics of tourism, influenced by both endogenous and exogenous factors, make the ability to forecast future trends essential for effective planning and management of the sector.

Accurate forecasting of time series, such as international tourist arrivals, is not just a matter of anticipating numbers. It is a strategic tool that allows tourism stakeholders and policymakers to prepare for variations in influx, optimize resources, and design more effective marketing and promotion strategies. Additionally, in a broader context, these forecasts can help anticipate and mitigate potential socioeconomic impacts, from job creation to infrastructure and environmental sustainability.

An analysis has been carried out to project international tourist inflow in Mexico through the Box-Jenkins methodology using RStudio statistical software to analyze data on monthly arrivals of foreign visitors in Mexico. The ARIMA model (0,1,1) (0,1,1)[12], which was used to estimate monthly projections from January 2023 to December 2025—three years were considered reasonable for this research—was able to update the projections in light of new data. The predictions show that the number of foreign visitors to Mexico is expected to recover gradually, following a seasonal trend similar to the pre-pandemic statistics. When considering the full forecast for 2023, a growth of 26% vs. 2022 is predicted. The functional form studied is reasonably robust considering the methodology and results obtained, as well as the tests performed.

Hypotheses 1 and 2 are proven. Primarily, the COVID-19 pandemic was an emblematic episode in the chronology of global tourism, triggering negative repercussions in the sector. As an integral part of this global dynamic, Mexico was not immune to these adverse circumstances. Analyses indicate that the most acute moments during this health crisis were recorded in April and May. The volume of international tourists in Mexico decreased drastically, from a pre-pandemic average of 3 500 000 arrivals (2019) to 833 000 visitors in 2020. At the end of 2020, compared to 2019, there was an overall contraction in tourist arrivals of 46%. In the background, the resulting ARIMA model best fits the data, based on the tests and methodology employed.

Nevertheless, it is crucial to recognize that no model—no matter how advanced—can fully capture the complexity and volatility inherent in international tourism. Unpredictable factors, such as health crises, political changes, or natural disasters, can drastically alter predicted trends. Therefore, while forecasts provide a solid basis for planning, they must be complemented by constant monitoring of the environment and a willingness to adapt to changing circumstances.

This research aims to enrich the body of knowledge regarding the relevance of ARIMA models in the tourism industry. This study can potentially benefit all players in the industry and public sector decision makers in various ways.

Relevance of the results

This research serves as an invaluable compendium for refining sample-based predictions within the context of forward-looking projections. The findings herein assist government decision makers in creating appropriate policies, planning and effectively allocating resources to the community, and making strategic investment decisions in tourism.

The results presented here can contribute to a better understanding of the determinants of international tourism to Mexico from the influx approach. The model can be applied with certain variants in the light of new data. On the other hand, the research promotes disseminating a historical view for analysis and trends, so that the most recent situation should not be sought, but rather the trend and the general model presented here.

In a globalized world where international tourism to Mexico faces both opportunities and challenges, the ability to look to the future through reliable forecasts is more relevant than ever. These forecasts, backed by robust methodologies and advanced tools, are essential to ensure that Mexico continues to thrive as a leading tourism destination on the world stage.

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