



Assessing the effect of international visitors on the creation of precarious employment in Mexico

Evaluación del efecto de los visitantes internacionales en la creación de empleo precario en México

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Abstract

This document assesses the relationship between the arrival of international visitors and the so-called rate of critical occupancy conditions (RCOC) during the period from the first quarter of 2005 to the first quarter of 2023. The RCOC is designed to measure inappropriate labor conditions concerning remuneration and working time. A quantitative analysis was performed by using a Dynamic Ordinary Least Squares (DOLS) model, which considers the RCOC as the dependent variable, and the arrival of international visitors and Mexico's real GDP as independent variables. The main results show that, in the long term, the RCOC positively responds to variations in the number of international visitors. Meanwhile, in the short term, the arrival of international visitors has a negative effect on the RCOC.

JEL Code: C22, E24, L83, Z32, Z39

Keywords: international visitors; labor precarity; inbound tourism; DOLS

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Resumen

Este documento analiza la relación entre la llegada de visitantes internacionales y la tasa de condiciones críticas de ocupación (TCCO) durante el periodo que abarca del primer trimestre de 2005 al primer trimestre de 2023. La TCCO fue diseñada para medir condiciones laborales inadecuadas en términos de remuneración y tiempo laborado. El análisis cuantitativo se llevó a cabo a través de un modelo de mínimos cuadrados ordinarios dinámicos, DOLS por sus siglas en inglés, que considera la TCCO como variable dependiente y, como variables independientes, la llegada de visitantes internacionales y el PIB real de México. Los resultados principales muestran que, en el largo plazo, la TCCO responde positivamente a la llegada de visitantes internacionales, pero, en el corto plazo, el efecto se vuelve negativo.

Código JEL: C22, E24, L83, Z32, Z39

Palabras clave: visitantes internacionales; precariedad laboral; turismo receptivo; DOLS

Introduction

Labor precariousness is associated with insecure and irregular employment conditions. In this context, employers' obligations to provide social security to employees are strongly reduced (Ioannides et al., 2021). In particular, labor flexibility has been considered a triggering factor for the deterioration of working conditions, as it undermines the access to social security (Martínez-Licerio et al., 2019). Equally, income inadequacy and a lack of rights and protection are part of the dimensions characterizing labor precariousness (Kreshpaj et al., 2020). Conversely, decent work takes into account fair income, freedom of association, gender equity, and personal development, among others (Santos, 2023).

Concerning the Mexican context, the lack of well-paid jobs has become a major problem, as it has boosted informal and precarious occupations as alternatives to a labor market incapable of providing adequate jobs for individuals entering the labor force (Martínez Vargas, 2020). Additionally, the characteristics of the Mexican labor market have aggravated this situation, as wage increases have not had positive impacts on poverty alleviation (Martínez-Licerio et al., 2019). Moreover, it has been noticed that augments in minimum wages do not significantly stimulate employment (Martínez González, 2020).

Tourism, for its part, is considered to contribute to poverty alleviation, as it positively influences the economy not only by creating employment but also by stimulating economic growth; therefore, developing the tourism sector has become an option to boost progress in regions where it can take place (Andrés-Rosales et al., 2023). In addition, tourism enhances intersectoral connections due to its near linkages with numerous productive branches of the economy (Acerenza, 2006). For example, tourism has played an important role in improving the food, drink, and tobacco industry (Sánchez, 2022).

Tourism has been criticized for creating not only precarious employment but also deep social malaise and economic inequalities (Robinson et al., 2019). Effectively, an important part of tourism

activities is undertaken by women, who are usually hired in vulnerable and low-paid positions (Domínguez et al., 2021). However, similar working conditions have been described for migrant workers and young people (Ioannides et al., 2021). Furthermore, low wages and temporality in tourism employment have been associated with a higher probability of workers moving out from their residence regions (Valente et al., 2023). Nevertheless, the social problems derived from tourism are frequently overlooked, as it is considered that, in the absence of tourism-related activities, many cities would have an even more precarious economic life (Costa et al., 2022).

The main objective of this study is to analyze the effect of international visitors arriving in Mexico on the creation of low-paid jobs. To achieve this objective, this study utilizes the so-called “rate of critical occupancy conditions” (RCOC). This rate, according to the National Institute of Statistics and Geography (INEGI, 2023a), attempts to quantify inadequate labor conditions from the perspective of remuneration, working time, or a combination of both, an approach that turns out to be particularly sensitive in Mexico’s rural areas. The INEGI (n.d.) literally defines the so-called “population employed in critical conditions of occupation” as follows:

“Employed people who are in the following situations: work less than 35 hours a week for market reasons; work more than 35 hours a week receiving monthly labor income below the minimum salary; work more than 48 hours a week receiving income of up to two minimum salaries.”

Meanwhile, the RCOC is the percentage of people working in the above-cited circumstances (INEGI, n.d.). It is necessary to highlight that this rate is computed as a percentage of the employed workforce (INEGI, 2023a).

A quantitative analysis is performed using Stock and Watson’s (1993) Dynamic Ordinary Least Squares (DOLS) model. In this study, the DOLS model uses the real gross domestic product (GDP) and the arrival of international visitors as independent variables, and the RCOC as the dependent variable. Following Masih and Masih (1996), the error correction model is also computed. The study period covers the first quarter of 2005 to the first quarter of 2023.

This study will be of interest to both researchers and policy makers, as, to the best of my knowledge, this is the first study documenting the effect of international visitors on an indicator such as the RCOC. Additionally, this document provides evidence of the positive statistically significant, although inelastic, impact of international visitors on the RCOC in the long term; however, in the short term, the effect becomes negative.

The remainder of this document is organized as follows: In Section 2, a literature review is presented. Section 3 is divided into two subsections, presenting the data and their sources and the econometric methodology. Section 4 presents the econometric results. Finally, the discussion, conclusions, and limitations are presented.

Literature review

Tourism has been considered an “extremely” labor-intensive sector and an important source of jobs for people with different skill levels, in addition to permitting women, young people, and migrants to enter the labor market (Aynalem et al., 2016). In fact, tourism’s capacity to create a vast number of jobs has made it an important tool to counter poverty (Weinz and Servoz, 2013). Additionally, tourism promotes trade-led growth through the diversification of the service sector (Ferguson 2010). Different studies have provided empirical evidence supporting the tourism-led employment hypothesis in the particular context of numerous nations, such as those of Gómez and Barrón (2019), Manzoor et al. (2019), Rotar et al. (2023), and Zhao et al. (2023).

However, an important part of the literature has highlighted the existence of labor precarity in tourism activities in places as diverse as Cancun, London, Paris, and Punta Cana (Cañada, 2017). Labor precarity can be seen from different perspectives, as it involves aspects such as unhealthy conditions, a lack of bargaining power for labor, illegitimated forms of work, temporary forms of employment that can result in casual work, and the low-skilled characteristics of the workforce (Lee et al., 2015). Therefore, decent work is not limited to wage issues, as it is more related to labor conditions (Walmsley, 2017).

In tourism, labor precariousness has been largely associated with seasonal variations. In order to palliate the adverse effects of tourism’s seasonal cycle, tourism companies apply policies allowing them to maintain both their profit-earning capacity and operability (Ramírez, 1994). In this context, tourism companies usually demand temporary employment during the high peak of the seasonal cycle to fulfil their needs (Caballero, 2011). However, most temporary positions conclude when the high season is over (Jolliffe and Farnsworth, 2003). Moreover, the atypical contracts characterizing temporary jobs in tourism have worsened labor conditions, as well as salaries (Caballero, 2011). To alleviate the adverse effects of tourism seasonality, it has been recommended to promote tourism categories unrelated to seasonal changes, such as business and congress tourism, and cultural and scientific tourism (Cárdenas, 1990).

Another factor affecting tourism demand is the so-called “overtourism”, which refers to a place that has been overexploited as a tourist destination by exceeding its capacity to receive visitors (Guzmán, 2019). Overtourism aggravates labor precariousness, as the demand for tourism services does not increase at the same rate as that in the tourism sector labor market, and wages do not change according to the labor demand (Walmsley, 2017). Effectively, in the case of the cruise industry, it has been observed that increases in ships’ capacity have resulted in augments in the intensity of work for crewmembers, as the growth in the number of passengers has proportionally surpassed the growth of crews (Teberga, 2021).

It is also considered that unions have lost their influence in tourism companies, leading to the appearance of more precarity in the sector (Cañada, 2017). Moreover, the existence of anti-union

strategies as generalized practices has been noticed; these strategies are boosted by different divisions within the tourism workforce, allowing employers to undermine solidarity among workers, thus lowering their bargaining capacity (Kearsey, 2020).

Furthermore, the tourism sector creates an important number of unremunerated jobs as a result of the numerous tourism microbusinesses and the number of family members working in the hotel and restaurant trades (Ferguson, 2010). Equally, many tourism workers only receive the minimum social security, which contributes to the creation of unprotected formal jobs (Palafox-Muñoz and Rubí-González, 2020). In the same vein, the tourism sector has also been criticized for not providing employees with formal training and because it regularly demands unpaid overtime (Walmsley, 2017). Moreover, on some occasions, it is expected that tourists complement workers' payment through tips (Palafox-Muñoz and Rubí-González, 2020). Tips, however, can be utilized as an indicator to evaluate the quality and efficiency of the service, as these rewards mirror clients' desire to pay an overprice for the attention received (Durón, 1998).

In the Mexican case, the development of tourism has brought about different economic malaises, as not only has it made the country increase its reliance on foreign capitals, but it has also boosted labor precarity (Wilson, 2008). Additionally, men are usually occupied in tourism regions that attract a considerable number of international tourists, thus receiving higher salaries than women who "are relegated to other destinations" (Andrés et al., 2023). Although wage-related issues could be attributed to the fact that, in tourism, as mentioned by Ramírez (2006), job positions are mostly addressed to low- and medium-skilled workers, Marsan (2023) reports tourism and hospitality, along with gastronomy and culinary services, within the list of the worst-paid college degrees in Mexico. Therefore, as mentioned by Lee et al. (2015), labor precariousness concerns not only low-skilled and illegal migrant workers but also highly educated people.

Finally, this study approaches labor precariousness in tourism by analyzing the effect of international visitors on the RCOC, which, as previously mentioned, is concerned with low-paid jobs. This study was carried out by evaluating both the short and long terms, finding that international visitors exert a positive inelastic effect on the RCOC in the long term but a negative effect in the short term.

Materials and methods

Data and sources

To elaborate on this document, quarterly time series data were used. The study period covers the first quarter of 2005 to the first quarter of 2023 (N = 73). The series were obtained from the following sources:

the RCOC and the real GDP (Y) were obtained from the INEGI (2023b), and the number of international visitors (V) was obtained from Banco de México (2023).

The RCOC and V were obtained as monthly frequency data, while Y was obtained as quarterly frequency data. For all three series' frequencies to be consistent, the RCOC was averaged into quarterly frequency data, and V was added to the quarterly frequency data. All three quarterly series were seasonally adjusted by using the Census-X12 filter. The objective of seasonally adjusting a series is to eliminate cyclical variations; moreover, using a smoothing technique allows for recognizing patterns and uncharacteristic observations in the series (Pindyck and Rubinfeld, 2001).

To obtain robust results from the econometric model, unit root tests, namely, the Augmented Dickey–Fuller (ADF) and the Phillips–Perron (PP) tests, were utilized (Table 1). The results in Table 1 illustrate that all three series can be considered $I(1)$ at the 5% significance level.

Table 1
Unit root tests, 2005Q1–2023Q1.

Series	ADF			PP		
	A	B	C	A	B	C
ln RCOC	-1.6027	1.5524	1.8389	-1.5840	1.4157	1.5805
ln V	-3.1171	-2.8074*	-0.2986	-3.1367	-2.7774*	-0.3256
ln Y	-3.4358*	-1.3182	1.5385	-3.3052*	-1.3867	2.0753
$\Delta \ln$ RCOC	-9.1684***	-7.8758***	-7.6276***	-9.1684***	-7.9545***	-7.7682***
$\Delta \ln$ V	-9.2100***	-9.2732***	-9.3308***	-9.2777***	-9.3442***	-9.4027***
$\Delta \ln$ Y	-11.1117***	-11.1781***	-10.9623***	-12.3426***	-12.1497***	-11.3479***

Note: A.—trend and Intercept; B.—intercept; C.—none. *** and * represent $p < 0.01$ and $p < 0.1$, respectively.

Source: Author's own

Figures 1, 2, and 3 illustrate the evolution of all three series utilized in this study over time. Figures 1a, 2a, and 3a display both trends and raw data. To obtain the trends, first, all three series were seasonally adjusted by applying the Census X12 filter, and then Hodrick and Prescott's (1997) filter was applied by using, in the case of the monthly frequency data, $\lambda = 14,400$ as a smoothing parameter; meanwhile $\lambda = 1,600$ was utilized to smooth the real GDP. These λ -values correspond, according to the EViews 12 User's Guide (2020), to the values originally employed to smooth monthly and quarterly frequency data, respectively. Meanwhile, Figures 1b, 2b, and 3b present the raw data ordered by season and the mean corresponding, depending on the case, to the month or quarter analyzed.

Figure 1a shows that the RCOC has presented an ascending trend since 2017. In 2017, the first real increases in the minimum wage took place (INEGI, 2023b). However, increases in minimum wages have made it difficult to interpret the results of the RCOC, as increases in minimum wages imply that more people fall into the salary range considered by such a rate (AnálisisCEO, 2022). Additionally, due

to the COVID-19 outbreak, the Mexican economy underwent an evident stagnation in economic branches such as tourism, transport, and microbusinesses, which caused the loss of thousands of jobs (Chiatchoua et al., 2020). In addition, numerous workers went through salary reductions or temporary layoffs without pay; meanwhile, new businesses such as home delivery started to grow (Sánchez-Castañeda, 2020).

In this context, it is important to consider that unemployed people may be disposed to temporary work in any remunerated activity, even if it is not to their liking, particularly when they are not economically prepared to cope with joblessness (Negrete, 2011). For its part, Figure 1b shows that the RCOC presents seasonal variations, which are particularly notorious during the first months of the year.

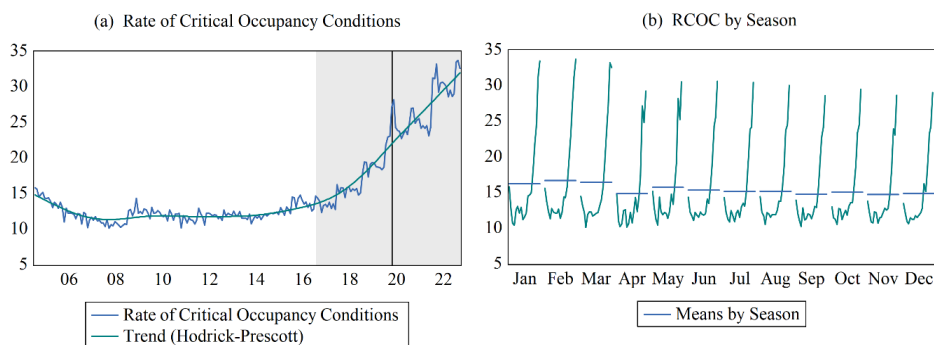


Figure 1. Rate of critical occupancy conditions, 2005M01–2023M03.
 Source: Elaborated with data from the INEGI (2023b).

For its part, Figure 2a exhibits the negative effect that the COVID-19 pandemic had on the arrival of international visitors. In fact, as mentioned by Abbas et al. (2021), the tourism and leisure industries were among the most affected sectors worldwide, which was reflected in large economic losses. Figure 2b reveals the seasonal behavior of the number of international visitors arriving in Mexico. The figure shows that March and December are the months with the most arrivals; conversely, September is the month with the lowest number of arrivals.

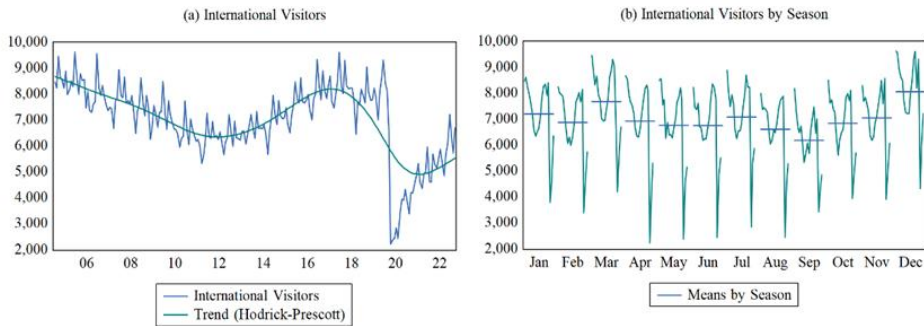


Figure 2. International visitors, 2005.M01 – 2023M03.
 Source: Elaborated with data from Banco de México (2023).

Figure 3a shows the evolution of Mexico's real GDP during the study period. The figure shows that the GDP had two main falls. The first evident GDP contraction occurred during the international financial crisis, which impacted Mexico's economy by augmenting the unemployment rate and by diminishing the remittances received from the United States (Díaz-Bautista, 2009). Then, as a consequence of the COVID-19 outbreak, during 2020Q2, the deepest economic contraction ever registered in Mexico's history occurred (Cota, 2020).

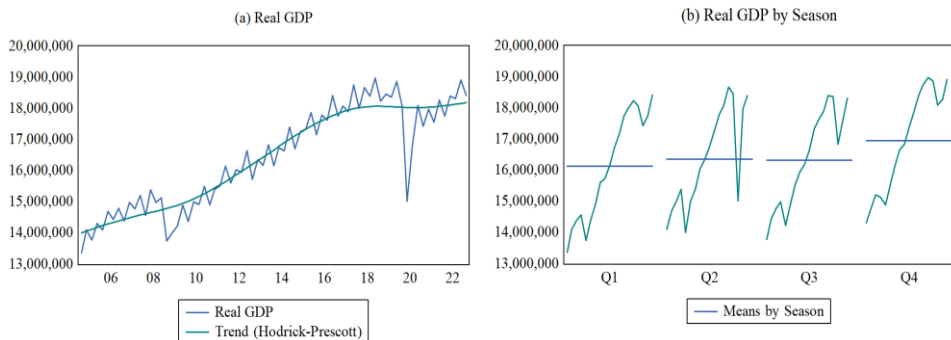


Figure 3. Mexico's real GDP, 2005Q1 – 2023Q1.
 Source: Elaborated with data from the INEGI (2023b).

Finally, Figure 3b exhibits the seasonal behavior of Mexico's real GDP, illustrating that the real GDP has its lowest mean during the first quarter of the year, while its highest mean is achieved during the fourth quarter of the year.

Methodology

The aggregate production function, supposing the existence of only two inputs, can be written as $Y = F(K, N)$, where Y refers to the aggregate output, K is the aggregate capital stock, and N represents the aggregate employment. This function establishes “a specification of the relation between aggregate output and the inputs in production” (Blanchard and Johnson, 2013).

To study the relationship between employment and output, as mentioned by Sudrajat (2008) and Sánchez (2023), it is possible to simplify the above-mentioned function as $Y = f_1(N)$; this function states that the aggregate output depends on the aggregate employment and represents the supply side. Meanwhile, the demand side corresponds to the form $N = f_2(Y)$; this function shows that employment depends on the aggregate output.

Equation (1) is defined in order to provide empirical evidence corroborating the effect of international visitors on the creation of precarious employment in Mexico. This equation is based on the demand side of the simplified aggregate production function, and consists of substituting the aggregate employment with the RCOC, as this rate represents a particular type of employment, and in adding the international visitors.

$$\text{RCOC} = f(V, Y) \quad (1)$$

However, it is important to take into account that GDP, as commented by Mankiw (2001), is an indicator of economic welfare, whereas the RCOC, as previously mentioned, attempts to measure inadequate labor conditions; therefore, GDP is expected to have a negative impact on precarious employment. In fact, according to Alaimo et al. (2015), during periods of economic expansion, workers have the possibility of moving to better jobs, as economic growth is related not only to employment creation, but also to the type of employment created by the economy. To conduct the empirical estimation of Equation (1), a Stock and Watson's (1993) DOLS model was computed.

The approach of DOLS models is adequate for carrying out this study given that it represents a parametric robust methodology when using small samples, in addition to correcting for possible bias among regressors (Masih and Masih, 1996). Moreover, DOLS models provide efficient estimators of cointegrating vectors in systems containing deterministic components and variables with different orders of integration (Stock and Watson, 1993). Essentially, a DOLS model is a regression with an $I(1)$ dependent variable and $I(1)$ or $I(0)$ explanatory variables, including leads and lags of the $I(1)$ independent variables in differences (Masih and Masih, 1996). Introducing these leads and lags into the model helps to control eventualities related to endogeneity (Månsson et al., 2018).

Equation (2) represents the DOLS model utilized to empirically estimate Equation (1). The model considers k leads and m lags of both independent variables in differences.

$$\ln \text{RCOC}_t = \beta' X_t + \sum_{j=-k}^m \phi_j \Delta \ln V_{t-j} + \sum_{j=-k}^m \eta_j \Delta \ln Y_{t-j} + \varepsilon_t \quad (2)$$

In Equation (2), vectors β and X_t are defined as follows:

$$\beta = \begin{pmatrix} c \\ \beta_1 \\ \beta_2 \\ \delta_1 \\ \delta_2 \end{pmatrix} \quad \text{and} \quad X_t = \begin{pmatrix} 1 \\ \ln V_t \\ \ln Y_t \\ t \\ t^2 \end{pmatrix}$$

As observed in vector X_t , variables V and Y were transformed into natural logarithms in order to measure elasticities; meanwhile, c , t , and t^2 represent a constant, a linear trend, and a quadratic trend, respectively. The number of leads and lags in Equation (2) was determined by using the Hannan–Quinn criterion.

As all three variables in the model are $I(1)$, the following three cointegration tests were applied: Park's added variables, Engle–Granger, and Phillips–Ouliaris tests. As per Gujarati and Porter (2009), once cointegration is confirmed, the Granger representation theorem guarantees that the relationship among the cointegrated series can be expressed as an error correction mechanism. The error correction model (ECM) equation is presented in Equation (3):

$$\Delta \ln \text{RCOC}_t = \alpha + \sum_{i=1}^q \vartheta_i \Delta \ln \text{RCOC}_{t-i} + \sum_{i=0}^q \varphi_i \Delta \ln V_{t-i} + \sum_{i=0}^q \omega_i \Delta \ln Y_{t-i} + \lambda t + \theta \text{EC}_{t-1} + \xi_t \quad (3)$$

In Equation (3), EC_{t-1} represents the error correction term, whose associated parameter θ is expected to be negative (Gujarati and Porter, 2009). It is important to note that the ECM equation considers a trend and a constant given that Equation (2) contains a trend and a quadratic trend. The term EC_t , following Masih and Masih (1996), was computed as shown in Equation (4):

$$\text{EC}_t = \ln \text{RCOC}_t - \beta' X_t \quad (4)$$

Equation (3) was computed allowing six lags, and the variables that were not statistically significant at the 5% level were eliminated from the ECM equation by using the unidirectional backwards method. Finally, the econometric analysis was carried out by using EVIEWS 12.

Econometric results

A DOLS model was estimated to evaluate the impact of international visitors on the RCOC. The cointegrating vector that resulted from applying such a methodology is presented in Table 2.

Table 2
Dynamic OLS long-term coefficients.

Variables	Coefficient	t-Statistic
ln V	0.1066	2.2510**
ln Y	-2.1516	-8.0927***
Constant	36.9087	9.2541***
t	-0.0062	-3.0949***
t ²	0.0003	26.9357***

Note: leads = 0, lags = 1, selection method based on Hannan–Quinn criterion (maximum leads and lags = 6). Coefficient covariance matrix: OLS. *** and ** represent $p < 0.01$ and $p < 0.05$, respectively.

Source: Author's own

The statistics related to the DOLS model are presented in Table A1 in Annex. To avoid finding spurious relations, three cointegration tests were applied, the results of which are summarized in Table 3.

Table 3
Cointegration tests.

Test	Null Hypothesis	Statistic	Value	Probability
¹ Park's Added Variables	Series are cointegrated	χ^2	0.5468	0.7608
² Engle–Granger	Series are not cointegrated	τ -Statistic	-5.0196	0.0224**
		z-Statistic	-37.1866	0.0216**
³ Phillips–Ouliaris	Series are not cointegrated	τ -Statistic	-5.0466	0.0209**
		z-Statistic	-36.9914	0.0226**

Note: ¹quartic trend. ²Selection criterion: Hannan–Quinn. ³Kernel: Bartlett. Bandwidth method: Newey–West fixed. ** represents $p < 0.05$.

Source: Author's own

The results of Park's added variables test show that the null hypothesis of cointegration is not rejected. Meanwhile, both the Engle–Granger and Phillips–Ouliaris tests reject the null hypothesis of no cointegration at the 5% level (Table 3). Therefore, it is possible to conclude that the series in the model are cointegrated.

As the variables are cointegrated, it is possible, as previously mentioned, to represent them as an error correction mechanism. The results of computing the ECM regression, once the statistically insignificant variables were eliminated from the model, are summarized in Table 4.

Table 4
Error correction model regression.

Variable	Coefficient	t-Statistic
$\Delta \ln \text{RCOC}_{t-1}$	0.3555	3.8517***
$\Delta \ln \text{RCOC}_{t-3}$	0.2335	2.6575**
$\Delta \ln \text{RCOC}_{t-5}$	0.3201	3.4263***
$\Delta \ln V_t$	-0.1324	-4.8053***
$\Delta \ln V_{t-1}$	0.1506	4.6120***
$\Delta \ln V_{t-3}$	-0.1289	-2.3514**
$\Delta \ln V_{t-5}$	0.1019	3.3625***
$\Delta \ln V_{t-6}$	-0.1459	-2.7890***
$\Delta \ln Y_{t-3}$	1.0579	4.0339***
$\Delta \ln Y_{t-6}$	0.9245	3.7397***
EC_{t-1}	-0.6283	-5.9120***

Note: Selection method: unidirectional backwards. Stopping criterion: p – value = 0.05. Always included variables: EC_{t-1} . ** and *** represent $p < 0.05$ and $p < 0.01$, respectively.

Source: Author's own

The results in Table 4 show that the EC_{t-1} term is, as expected, negative and statistically significant. The standard correct specification tests for an OLS model were applied to the ECM equation, finding that these tests were strictly satisfied (Table 5).

Table 5
ECM correct specification tests.

Test	Value	Probability
Jarque–Bera Normality Test	3.7867	0.1505
Breusch–Godfrey Serial Correlation LM Test (12)	9.6842	0.6436
Breusch–Pagan–Godfrey Heteroskedasticity Test	6.9578	0.8025
ARCH LM Test (12)	10.9549	0.5328
Ramsey RESET Test	0.7958	0.3763
R^2	0.6720	---
Adjusted R^2	0.6123	---

Note: The tests are performed using the χ^2 statistic, with the exception of the RESET test, which is performed using the F statistic.

Source: Author's own

To complement the tests in Table 5, the CUSUM and CUSUM of Squares tests were applied to the ECM equation (Figure A1). In the same vein, as the ECM equation was computed by using the OLS methodology, the Quandt–Andrews unknown breakpoint test was applied (Table A2).

The results show that, in the long term, the RCOC is highly elastic to variations in the real GDP. More precisely, the results indicate that, when the real GDP increases by 1%, the RCOC reduces by approximately 2.15%. Conversely, when the number of international visitors increases by 1%, the RCOC barely increases by 0.10%, implying that the RCOC is inelastic to changes in the number of international

visitors (Table 2). In the short term, however, the real GDP has no contemporaneous effect on the RCOC, while the number of international visitors reduces the RCOC (Table 4). Finally, the EC_{t-1} term shows that 62.83% of the disequilibrium is corrected within one quarter (Table 4).

Conclusions and discussion

This document illustrates that, in the long term, there is an inelastic positive statistically significant effect of international visitors on the RCOC (Table 2). In this sense, it might be claimed that international visitors have a limited impact on the creation of low-paid jobs. However, it is important to consider that international tourists and excursionists do not visit Mexico's whole territory, whereas the RCOC is an indicator providing information at the national level. Nonetheless, the importance of international visitors in determining the RCOC is mirrored in its statistical significance within the equilibrium relation found among the variables utilized in this study.

Contrariwise, in the short term, the ECM equation shows that international visitors have a negative effect on the RCOC (Table 4). In Mexico, tourism activities have generated opportunities for local residents to complement their usual labor activities, permitting them to receive additional incomes to afford their needs (Andrés-Rosales et al. 2018). Moreover, the creation of part-time jobs could create, in the short term, a beneficial equilibrium between unemployment and underemployment (Candela and Figini, 2012). Additionally, the INEGI (2023a) explains that the same individual, given their labor conditions, can be considered to calculate one or more complementary employment rates. In this sense, increasing underemployment does not necessarily mean increasing the RCOC.

Concerning the real GDP, the DOLS model shows that economic growth has an elastic negative impact on the RCOC in the long term, as the RCOC reduces by 2.15% when the real GDP grows by 1% (Table 2). Conversely, the ECM equation reveals that the real GDP has no contemporaneous effect on the RCOC in the short term (Table 4).

Among the reasons leading tourism businesses to create precarious employment, it was mentioned that unions have lost their influence in the industry. In fact, Cañada (2017) mentions that an important part of the debate about guaranteeing decent work in tourism is about the type of alliances that employees should generate in order to convey their demands.

Nonetheless, the main objective of any business is to optimize its benefits, but optimal benefits are only achieved when businesses reach their minimum cost (Varian, 1999). Therefore, forcing tourism companies to maintain employment during negative phases of the tourism seasonal cycle could become counterproductive, as it could lead companies to increase costs due to unproductive work. Additionally,

implementing such policies could make it difficult for people wanting to obtain a complementary income to begin a part-time job in the tourism sector.

Instead, as previously mentioned, the types of tourism unrelated to seasonality should be promoted to generate demand for tourism services during the low and medium seasons. For example, Mexico should promote its world-class museums, such as the National Museum of History–Castillo de Chapultepec, the Templo Mayor Museum, and the National Museum of Anthropology, as, according to Puga (2017), cultural tourism is the fourth main motivation for foreigners traveling to Mexico, whereas it is the sixth major reason for domestic tourists. Likewise, more cities should be made business tourism destinations, as Romo (2022) reports that, in Mexico, only Guadalajara is considered within the list of the best cities for the meeting industry.

There are important factors to take into account when analyzing the pros and cons of developing tourism as a source of employment. For example, unemployment can lead to an increase in non-monetary costs, as it can be a triggering factor for insecurity or even suicide (Winkelmann and Winkelmann, 1998). In this sense, although visualizing the impact of tourism in creating precarious employment trials the idea of tourism as the panacea to solve welfare issues (Cañada, 2017), it is essential to consider that tourism supports economic branches such as agriculture, retail, construction, and handicrafts (Hartrich and Martínez, 2020).

Finally, it is also necessary to consider the beneficial effects that tourism can have on travelers, as it allows them to cope with the stressing situations of daily life and the psychological malaises that come from such situations (Fernández, 1998). Additionally, tourism can collaborate with other sectors to improve cultural understanding (Sánchez, 2020). Therefore, it is necessary to carefully balance the costs and benefits generated by tourism development for adequate policies to be formulated.

Limitations and future research

As mentioned in the text, the RCOC considers information at the national level, while tourism activities do not take place all over the Mexican territory. In this sense, the effect of international visitors on creating low-paid jobs could be underestimated. Equally, recent increases in the Mexican minimum wage have made the RCOC difficult to interpret, so a more precise indicator of labor precariousness is required to obtain more accurate results. Future research should focus on the effect of the tourism sector on precarious employment by sex. Likewise, the issue should be approached from a cross-sectional or panel data perspective, with the aim of incorporating information from the different federal entities of the country.

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Conflicts of interest

The author declares no conflicts of interest.

Data availability statement

The data that support the findings of this study are openly available at Mendeley Data at <https://doi.org/10.17632/y8b2gnxr6p.1>.

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Annex

Table A1
DOLS statistics

Test	Value	Probability
Jarque-Bera Normality Test	0.7341	0.6927
R ²	0.9859	---
Adjusted R ²	0.9841	---
Sum of squared residual	0.0988	---

Note: Only the main default statistics are presented.

Source: Author's own

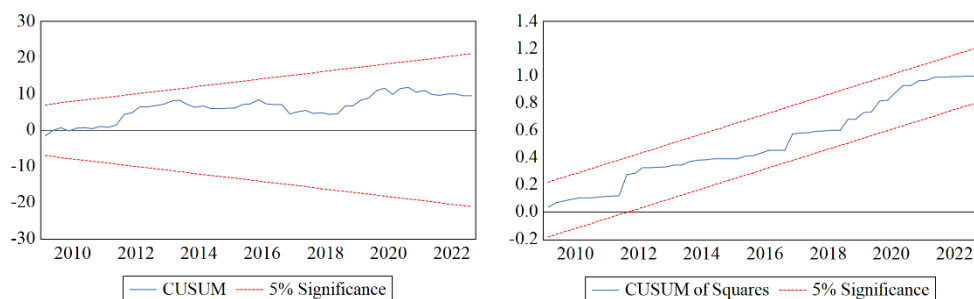


Figure A1. CUSUM and CUSUM of Squares tests.
Source: Elaborated from the results of the ECM model.

Table A2
ECM Quandt-Andrews unknown breakpoints test

Statistic	Value	Probability
Maximum LR F-statistic (2019Q1)	1.5632	0.5844
Maximum Wald F-statistic (2019Q1)	17.1955	0.5844
Exponential LR F-statistic	0.5567	0.5722
Exponential Wald F-statistic	6.6158	0.4765
Average LR F-statistic	1.1066	0.3183
Average Wald F-statistic	12.1732	0.3183

Note: 20% of trimmed data; 39 breakpoints compared.

Source: Author's own