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Forma de citación sugerida para este documento: Mordecki, G., Domingorena, S. y Pascal, J. (2026). "Tourism and uncertainty". Serie Documentos de Trabajo, Instituto de Economía, Facultad de Ciencias Económicas y de Administración, Universidad de la República, Uruguay.

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Tourism and uncertainty

Gabriela Mordecki, Sofia Domingorena y Joaquín Pascal*

Resumen

El turismo es uno de los sectores más grandes y dinámicos del mundo: impulsa el crecimiento económico, crea empleo, fomenta el intercambio cultural, facilita el comercio y contribuye a la prosperidad mundial. Uruguay es una economía pequeña y abierta situada en el sur de Sudamérica, y su sector turístico receptivo se caracteriza por una elevada concentración de la demanda: sus dos vecinos grandes, Argentina y Brasil, representan conjuntamente aproximadamente el 70 % del total de llegadas de turistas. Esta fuerte dependencia hace que el sector turístico de Uruguay sea especialmente vulnerable no solo a las perturbaciones macroeconómicas internas, sino también a las fluctuaciones económicas y a la inestabilidad política procedentes de los países vecinos.

En este artículo, analizamos el impacto de la incertidumbre —medida mediante los índices de incertidumbre en materia de política económica (EPU) de Argentina y Brasil, junto con un índice compuesto de EPU para Uruguay— sobre la demanda turística procedente de estos dos países, utilizando modelos autorregresivos de retardo distribuido (ARDL). También tenemos en cuenta en los modelos el Producto Interno Bruto (PIB) de Argentina y Brasil, así como los tipos de cambio reales (TCR) bilaterales de ambos países con Uruguay. Nuestros resultados indican que una mayor incertidumbre en materia de política económica en Uruguay tiene un efecto negativo sobre la demanda turística que llega desde Argentina, mientras que no se observa ningún efecto significativo en la demanda turística procedente de Brasil. Al examinar los efectos de la incertidumbre procedente de Argentina y Brasil sobre la demanda turística en Uruguay, constatamos que una mayor incertidumbre en ambos países tiene un impacto negativo en el turismo.

Palabras clave

Demanda turística, Incertidumbre, EPU, ARDL, Uruguay

Clasificación JEL

L83; Z32; C32

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Abstract

Tourism is one of the world's largest and most dynamic industries, driving economic growth, creating jobs, fostering cultural exchange, facilitating trade, and contributing to global prosperity. Uruguay is a small, open economy in Southern South America, and a high concentration of demand characterizes its inbound tourism sector: its two big neighbors, Argentina and Brazil, jointly account for approximately 70% of total tourist arrivals. This strong dependence leaves Uruguay's tourism sector particularly vulnerable not only to domestic macroeconomic shocks but also to economic fluctuations and policy instability originating in neighboring countries.

In this paper, we analyze the impact of uncertainty—measured using the Economic Policy Uncertainty (EPU) indices for Argentina and Brazil, together with a composite EPU index for Uruguay—on tourism demand from these two countries, employing Autoregressive Distributed Lag (ARDL) models. We also consider in the models the Gross Domestic Product (GDP) of Argentina and Brazil and the bilateral Real Exchange Rates (RER) of both countries with Uruguay. Our results indicate that higher economic policy uncertainty in Uruguay has a negative effect on tourism demand from Argentina, while no significant effect is found for tourism demand from Brazil. When examining the effects of uncertainty originating in Argentina and Brazil on tourism demand in Uruguay, we find that higher uncertainty in both countries has a negative impact on tourism demand from each respective market.

Keywords

Tourism demand, Uncertainty, EPU, ARDL, Uruguay.

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Key words: Tourism demand, Uncertainty, EPU, ARDL, Uruguay.

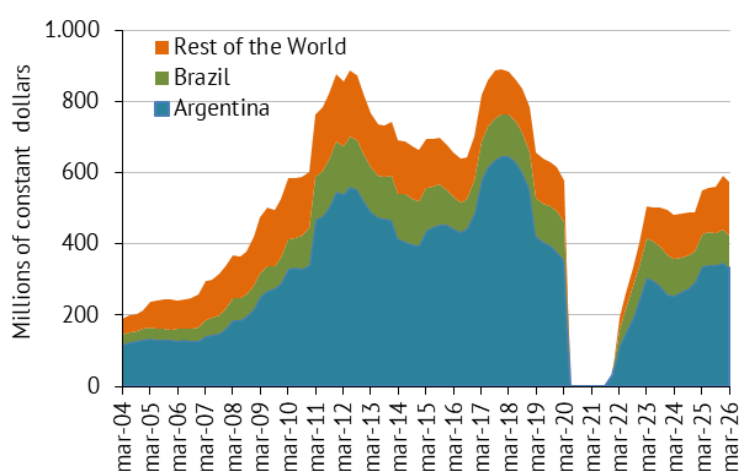
JEL: L83; Z32; C32

1. Introduction

Tourism is one of the world's largest and most dynamic industries, driving economic growth, creating employment, fostering cultural exchange, facilitating trade, and promoting global prosperity (Nguyen et al., 2024). However, despite its economic significance, the sector is inherently vulnerable to external shocks and uncertainty. Macroeconomic fluctuations, political instability, public health crises, and geopolitical tensions regularly alter travel patterns and strongly influence tourists' decisions. Economic literature has extensively documented how heightened uncertainty encourages risk aversion and leads economic agents to postpone consumption and investment decisions (Bernanke, 1983; Dixit & Pindyck, 1994; Bertola et al., 2005). In the context of international travel, uncertainty in source markets directly affects household budget allocations, often turning discretionary items—such as overseas tourism—into primary targets for expenditure reduction or deferral.

At the national level, Uruguay presents a particularly compelling case study for analyzing these dynamics. Tourism is a central pillar of the Uruguayan economy, historically accounting for approximately 7% of Gross Domestic Product (GDP) and 7% of total employment (Uruguayan Chamber of Tourism, 2025). However, as a small open economy in Southern South America, Uruguay's inbound tourism sector is marked by an extreme concentration of demand: its two large neighbors, Argentina and Brazil, jointly account for roughly 70% of total incoming tourists (Figure 1). This heavy dependence leaves the domestic tourism sector uniquely exposed not only to domestic macroeconomic shocks but also to economic fluctuations and policy instability originating across its borders. Following the severe downturn caused by the COVID-19 pandemic—a crisis that highlighted the industry's extreme sensitivity to unexpected disruptions—the sector experienced a strong recovery, approaching pre-pandemic operational levels by 2024 (UN Tourism, 2025a). Nevertheless, the volatile economic landscape in the region underscores the constant need to understand how economic sentiment and news translate into uncertainty that affects travel decisions.

Figure 1 - Foreign exchange earnings by country of origin



Source: Ministry of Tourism of Uruguay and Bureau of Labor Statistics

Understanding the transmission mechanisms of economic uncertainty is critical for policy design, destination management, and private sector forecasting in highly dependent economies. In recent years, methodological advances in measuring uncertainty have gained significant traction, spearheaded by news-based indicators such as the Economic Policy Uncertainty (EPU) index developed by Baker, Bloom, and Davis (2016). Building upon these frameworks, this study evaluates the impact of uncertainty on Uruguayan inbound tourism by combining both domestic and foreign measures of economic instability. Specifically, to capture the domestic and broader international environment, we employ a composite economic uncertainty index for Uruguay developed by Lanzilotta et al. (2023) following the methodology of Lanzilotta et al. (2018). This metric synthesizes external uncertainty—captured by the global EPU and Brazil's EPU—with domestic financial volatility, measured via the standard deviation of 12-month exchange rate expectations from the Central Bank of Uruguay (BCU).

Furthermore, inspired by empirical evidence demonstrating that origin-country policy uncertainty significantly reduces outbound tourism flows (e.g., Işık et al., 2020, for North American travel markets), this paper explicitly investigates the cross-border spillover effects of economic uncertainty from Argentina and Brazil on tourism demand in Uruguay. By evaluating total tourism expenditure, we aim to provide a comprehensive assessment of how origin-market uncertainty influences incoming travel flows.

The main objective of this paper is to empirically examine the relationship between domestic and regional uncertainty indicators and inbound tourism flows to Uruguay. The remainder of this article is organized as follows: section 2 provides a comprehensive literature review on the theoretical and empirical impacts of uncertainty on tourism; section 3 details the data sources, variable definitions, and quantitative methodology employed; section 4 presents the empirical findings and discusses them in light of prior literature; and section 5 concludes with policy implications, limitations, and potential directions for future research.

2. Background

The study of the impact of macroeconomic and policy uncertainty on tourism has gained growing theoretical and empirical attention. From a conceptual perspective, uncertainty increases information costs and the perceived risk associated with travel decisions (Williams & Baláž, 2015). On an empirical level, the literature broadly agrees that heightened levels of uncertainty—typically measured via the Economic Policy Uncertainty (EPU) or World Uncertainty Index (WUI)—exert a disincentivizing and negative effect on international tourist arrivals (Balli et al., 2019; Balli et al., 2018). In this line, Gozgor and Ongan (2017) analyzed the impact of economic policy uncertainty on domestic tourism demand in the US (1998–2015), demonstrating through cointegration analysis and error correction models that higher EPU levels lead to significant declines in tourism spending in the long run.

A key consensus in inbound tourism research is that global-scale uncertainty (GEPU/WUI) tends to generate a more severe and prolonged adverse impact on inbound demand than local or domestic uncertainty (Sharma et al., 2021; Tsui et al., 2018). Furthermore, recent studies

demonstrate that this response is asymmetric: increases in uncertainty contract tourist flows far more sharply than equivalent decreases stimulate them (Gupta & Dutta, 2019; Wu et al., 2021).

In addition, the sensitivity of inbound tourism to uncertainty varies according to income levels across economies and the specific metrics evaluated (Demir et al., 2020). While periods of high global uncertainty frequently lead to a decline in average expenditure per tourist (Nguyen et al., 2020), overall arrival volumes may exhibit substitution effects between outbound, domestic, and inbound tourism (Wu et al., 2020; Wu et al., 2021).

3. Data and Methodology

3.1 Data:

To conduct this analysis, quarterly data series from the first quarter of 1997 to the fourth quarter of 2025 were used. In examining tourism demand—measured in terms of foreign exchange earnings by country of origin—this study relies on data for Argentine and Brazilian tourism in Uruguay. The Ministry of Tourism provides this data. Additionally, the real GDP for Argentina and Brazil was included; both series were obtained from the National Institute of Statistics and Censuses of Argentina (INDEC) and the Central Bank of Brazil (BCB), respectively. Other exogenous variables incorporated into the analysis include the bilateral real exchange rate (RER), calculated from press data and official sources in Argentina, Brazil, and Uruguay, and measures of economic policy uncertainty for Argentina and Brazil based on Economic Policy Uncertainty (EPU) indexes, and a self-constructed indicator for Uruguay that combines EPU indexes with a measure of financial volatility from the Central Bank of Uruguay (Lanzilotta et al., 2023).¹

Table 1, which is presented below, summarises this information.

¹ The real exchange rate is defined as: $e = E \cdot xP^* / ExP$, therefore when it increases, it implies a depreciation, an improvement in the price ratio with the domestic country, in this case Uruguay.

Table 1- Variables used for the analysis

Variables	Description	Source	Frequency	Period
$tour_{Arg}$	Foreign exchange earnings from Argentina	Ministry of Tourism, Uruguay	Quarterly	1/1997 - 4/2025
$tour_{Bra}$	Foreign exchange earnings from Brazil	Ministry of Tourism, Uruguay	Quarterly	1/1997 - 4/2025
GDP_{Arg}	Argentine GDP	INDEC, Argentina	Quarterly	1/1997 - 4/2025
GDP_{Bra}	Brazilian GDP	BCB, Brazil	Quarterly	1/1997 - 4/2025
RER_{Arg}	Real exchange rate	Own elaboration, from the data of official agencies	Quarterly	1/1997 - 4/2025
RER_{Bra}	Real exchange rate	Own elaboration, from the data of official agencies	Quarterly	1/1997 - 4/2025
EPU_{Uy}	Economic policy uncertainty	Own elaboration, from the data of official agencies	Quarterly	1/2006 - 4/2025
EPU_{Arg}	Economic policy uncertainty	Andres-Escayola et al (2024)	Quarterly	1/1997 - 4/2025
EPU_{Bra}	Economic policy uncertainty	Andres-Escayola et al (2024)	Quarterly	1/1997 - 4/2025

Source: Authors' own elaboration

3.2 Methodology:

This section presents the methodology used to estimate the main results and to test their robustness. To test the hypotheses regarding the relationship between uncertainty and tourism, several time-series models are estimated in which tourism demand from Argentina and Brazil depends on the level of economic activity in the country of origin—proxied by real GDP—the bilateral RER, and an EPU indicator.

Given the two hypotheses, the empirical analysis is conducted separately for two sets of models. The first examines the effects of uncertainty in the destination country (Uruguay), whereas the second considers uncertainty in the country of origin (Argentina or Brazil). For both sets of models, the empirical specification is estimated using the Autoregressive Distributed Lag (ARDL) cointegration approach proposed by Pesaran and Shin (1995, 1996) and Pesaran et al. (2001). This approach is particularly suitable in the present context, as it allows for the estimation of cointegrating relationships among $I(1)$ and $I(0)$ variables, thereby making it possible to assess the impact of uncertainty on tourism in both the short and the long run.

As a robustness check, alternative ARDL specifications were estimated to assess the estimated long-run relationships and elasticities.

ARDL Model

Pesaran and Shin (1999) developed the Autoregressive Distributed Lag (ARDL) methodology, which allows the analysis of long-run relationships among variables regardless of whether they are integrated of order zero, $I(0)$, or order one, $I(1)$, provided that none of them is integrated of order two. This feature reduces reliance on unit root tests, whose results may be affected by size and power problems (Franses and Haldrup, 1994).

Another important advantage of this methodology is that it follows a single-equation approach, which simplifies both estimation and the economic interpretation of the results (Nkoro and Uko, 2016). The model assumes the existence of a single equilibrium relationship between the dependent variable and the set of explanatory variables. Moreover, the coefficients estimated for the long-run relationship can be interpreted as elasticities, providing a straightforward measure of the responsiveness of tourism demand to changes in economic policy uncertainty, GDP, and the bilateral real exchange rate. This is particularly relevant for the present study, as quantifying these long-run responses is central to assessing how uncertainty and other macroeconomic conditions affect tourism demand from Argentina and Brazil.

The estimation of an ARDL model involves several stages. First, the Bounds Test is applied to evaluate the null hypothesis of no cointegration. This test consists of examining the joint significance of the variables expressed in levels by means of an F-statistic. If the null hypothesis is rejected and the coefficient associated with the error correction term is negative and statistically significant, it can be concluded that a stable long-run relationship exists among the variables (Pesaran, Shin and Smith, 2001).

Next, the optimal lag structure is selected, seeking a specification whose residuals satisfy the classical assumptions of no serial correlation, homoscedasticity, and normal distribution of the residuals. Once the appropriate specification has been identified, the long-run coefficients are estimated, and the model is reparameterized into its Error Correction Model (ECM) representation, allowing the short-run effects to be clearly distinguished from the adjustment dynamics toward the long-run equilibrium.

The general representation of the ARDL model in its ECM form can be expressed as:

$$\Delta y_t = \alpha + \beta_1 y_{t-1} + \sum_{i=1}^k \gamma_i x_{i,t-1} + \sum_{i=1}^q \delta_i \Delta y_{t-i} + \sum_{i=1}^q \sum_{j=1}^k \varphi_{ij} \Delta x_{j,t-i} + \dots + \mu_t \quad (1)$$

Where y denotes the dependent variable, x_i represents the set of k explanatory variables, q is the number of lags included in the model, and μ_t is an error term assumed to follow a white-noise process.

4. Results

4.1 Data description and characterization

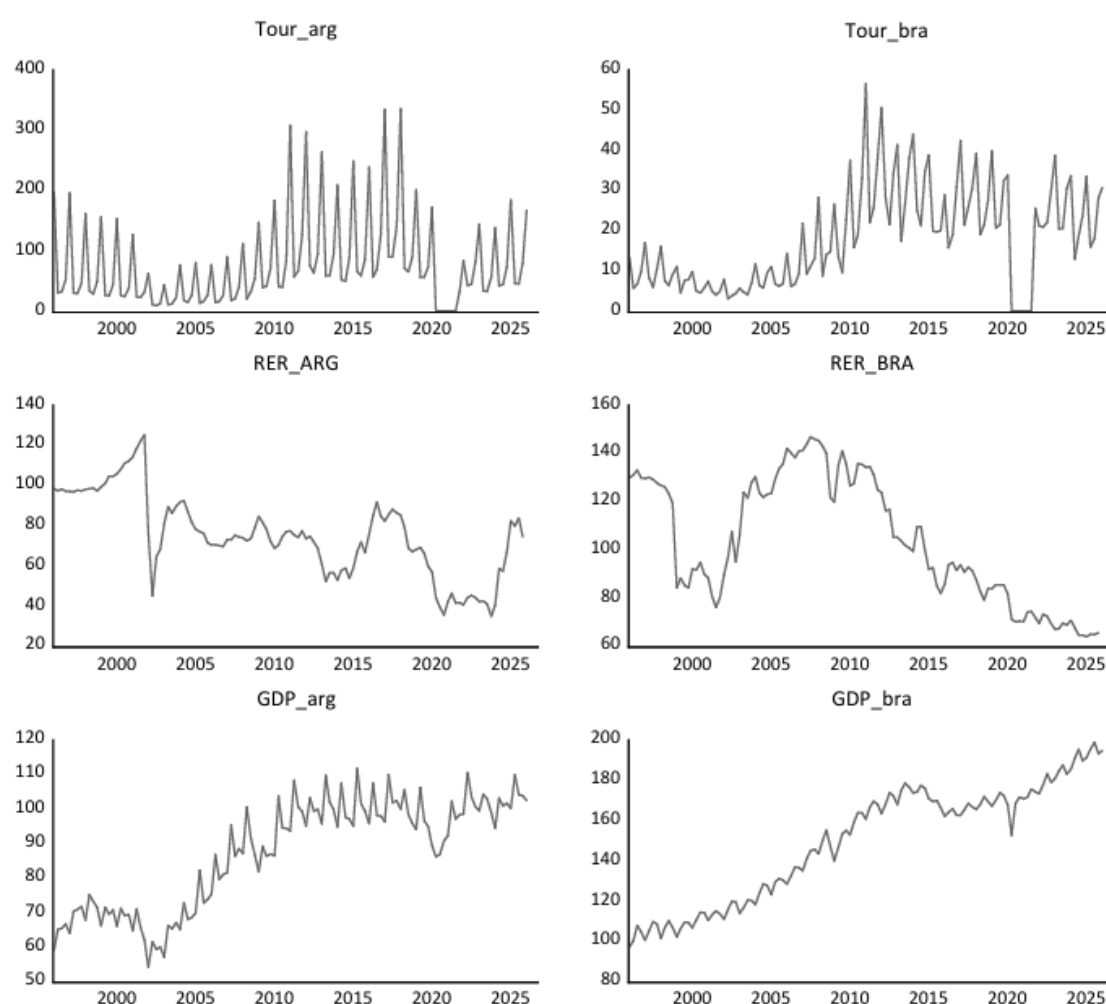
The analysis covers the period from early 2006 to the end of 2025 when using Uruguay's Economic Policy Uncertainty (EPU) index. However, a longer sample period, spanning

1997–2025, is considered when examining the effects of economic policy uncertainty in neighboring countries, given the greater availability of EPU data for Argentina and Brazil.

As shown in Figure 2, tourism demand displays a marked seasonal pattern, with foreign exchange earnings from Argentina showing more recurring peaks and troughs throughout the series, whereas foreign exchange earnings from Brazil exhibit lower seasonal volatility and a smoother long-run trajectory. Both series experienced a sharp decline during the pandemic due to international travel restrictions, followed by a rapid recovery once borders reopened.

Although the GDP of both countries had a similar upward trend until approximately 2011, their subsequent trajectories diverged. Argentina's economy largely stagnated thereafter while experiencing recurrent fluctuations. Whereas Brazil underwent a temporary slowdown after the mid-2010s and resumed growth after the pandemic (OECD, 2023).

Figure 2 - Variables used for the analysis



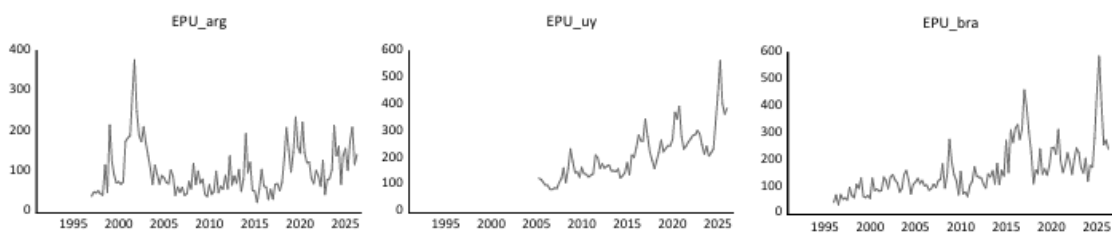
Source: Ministry of Tourism of Uruguay, INDEC, BCB, and RER was our own elaboration.

Regarding the bilateral RER, both series show a clear downward trend, reflecting Uruguay's increasing relative price level compared to its main trading partners. This trend is particularly evident in the case of Brazil. In contrast, the bilateral RER with Argentina is characterized by

substantially greater volatility, reflecting repeated exchange-rate adjustments and episodes of macroeconomic instability in this country. The pronounced appreciation observed after 2023 coincides with the significant changes in Argentina's exchange-rate regime, following the change in the administration.

Finally, the EPU indices display substantially greater short-term variability than the macroeconomic variables, with their peaks and troughs broadly coinciding with episodes of heightened volatility in the bilateral RER. The main difference across countries lies in their long-run dynamics. Whereas Argentina's EPU index exhibits no clear long-term trend, the indices for Uruguay and Brazil present a gradual upward trajectory over time.

Figure 3 - Economic Policy Uncertainty indices (EPU)



Source: Escayola et al. (2024); Uruguay's EPU was our own elaboration.

Based on the results of the Augmented Dickey-Fuller (ADF) and KPSS unit root tests (Table A.1 in the appendix), the variables under analysis are found to be non-stationary, except for the Economic Policy Uncertainty indices for Argentina, Brazil, and Uruguay, for which the evidence supports the stationarity hypothesis. Although Brazil and Uruguay's EPU index exhibits a mild upward trend, the statistical tests nevertheless indicate that it behaves as a stationary process.

Table 2 - ADF Unit root tests

Series (2)	Time period	Levels(1)			First Differences (1)		
		Statistic	Specification	Reject H0 at 95%	Statistic	Specification	Reject H0 at 95%
Tour_Arg	1997.2 2026.1	-2.252396 (0.1893)	Constant	No	-6.105126 (0.00000)	None	Yes
Tour_Bra	1998.2 2026.1	-1.982964 (0.6039)	Constant Trend	No	-4.742434 (0.00000)	None	Yes
ITCR_ARG	1997.2 2025.4	-2.019051 (0.2784)	Constant	No	-6.609518 (0.00000)	None	Yes
ITCR_Bra	1996.3 2025.4	-1.609542 (0.7836)	Constant Trend	No	-9.699284 (0.00000)	None	Yes
EPU_Bra	1997.1 2026.2	-5.232637 (0.0002)	Constant Trend	Yes	-8.559744 (0.00000)	None	Yes
EPU_arg	1997.1 2026.2	-3.641673 (0.0063)	Constant	Yes	-10.29049 (0.00000)	None	Yes
EPU_uy	2005.4 2026.1	-4.341725 (0.0045)	Constant Trend	Yes	-9.064236 (0.00000)	None	Yes

(1) The estimated p-value of the test is reported in parentheses.
(2) The number of lags of the variables used in the test, both in levels and in first difference, was chosen according to the AIC criterion.

Source: Author's calculations

Cross-Correlation Analysis

Before estimating the econometric models, graphical and cross-correlation analyses were conducted between the bilateral RER and the EPU indices. The objective was to determine whether both variables should be included simultaneously in the empirical specifications, given the apparent coincidence between episodes of exchange rate volatility and uncertainty shocks in the region.

The results indicate that the cross-correlation between the bilateral RER and the EPU index in the country of origin is relatively high only in the Brazilian case, consistently exceeding the conventional threshold of 0.3 (Mate et al., 2022). By contrast, the corresponding correlations for Argentina remain below this threshold. These findings suggest that, for Brazil, both variables convey overlapping information. Since the primary objective of this study is to identify the effect of uncertainty on tourism, the bilateral RER was excluded from the models that incorporate Brazil's EPU index. For the Argentine specifications, where no comparable overlap was detected, the bilateral RER was retained.

Table 3 - Cross-correlation analysis

X variable	Cross Correlation between Uruguay's EPU and X variable in:											
	(t-10)	(t-9)	(t-8)	(t-7)	(t-6)	(t-5)	(t-4)	(t-3)	(t-2)	(t-1)	(t-0)	
Bilateral RER between Uruguay and Brazil	-0.53	-0.56	-0.58	-0.60	-0.63	-0.65	-0.67	-0.69	-0.72	-0.75	-0.78	
Bilateral RER between Uruguay and Argentina	-0.33	-0.39	-0.44	-0.48	-0.47	-0.43	-0.34	-0.27	-0.23	-0.19	-0.18	
X variable	(t+0)	(t+1)	(t+2)	(t+3)	(t+4)	(t+5)	(t+6)	(t+7)	(t+8)	(t+9)	(t+10)	
Bilateral RER between Uruguay and Brazil	-0.78	-0.74	-0.68	-0.61	-0.57	-0.55	-0.53	-0.51	-0.50	-0.48	-0.46	
Bilateral RER between Uruguay and Argentina	-0.18	-0.19	-0.23	-0.27	-0.34	-0.43	-0.47	-0.48	-0.44	-0.39	-0.33	
X variable	Cross Correlation between country of origin EPU and X variable in:											
	(t-10)	(t-9)	(t-8)	(t-7)	(t-6)	(t-5)	(t-4)	(t-3)	(t-2)	(t-1)	(t-0)	
Bilateral RER between Uruguay and Brazil	-0.36	-0.39	-0.40	-0.41	-0.42	-0.45	-0.45	-0.46	-0.48	-0.50	-0.52	
Bilateral RER between Uruguay and Argentina	0.20	0.24	0.27	0.27	0.30	0.28	0.24	0.20	0.16	0.13	0.05	
X variable	(t+0)	(t+1)	(t+2)	(t+3)	(t+4)	(t+5)	(t+6)	(t+7)	(t+8)	(t+9)	(t+10)	
Bilateral RER between Uruguay and Brazil	-0.52	-0.50	-0.45	-0.39	-0.35	-0.34	-0.32	-0.30	-0.30	-0.29	-0.29	
Bilateral RER between Uruguay and Argentina	0.05	-0.05	-0.13	-0.15	-0.15	-0.14	-0.11	-0.07	-0.06	-0.03	-0.01	

Source: Author's calculations

Conversely, when considering uncertainty in the destination country (Uruguay), the results differ across origin countries. For Brazil, the cross-correlation remains above the selected threshold, whereas for Argentina it exceeds the threshold only after a year has passed. Consequently, because the bilateral RER appears to overlap with the uncertainty indicator only in the Brazilian case, the bilateral RER was preserved as an explanatory variable only in the models for tourism foreign exchange earnings from Argentina.

4.2 Main Empirical Results

Models Including Uruguay's Economic Policy Uncertainty

For tourism foreign exchange earnings from Argentina, evidence supports the existence of a long-run equilibrium relationship among Argentina's real GDP, the bilateral RER, and Uruguay's Economic Policy Uncertainty index. Real GDP and the bilateral real exchange rate exert positive long-run effects, whereas Uruguay's EPU has a negative effect. Moreover, the estimated error-correction coefficient indicates a rapid adjustment toward the long-run equilibrium.

Specifically, approximately 95% of any deviation from the long-run equilibrium relationship is corrected within one quarter, implying that the adjustment is completed in approximately 1.05 quarters.

The estimated long-run relationship for tourism foreign exchange earnings from Argentina is:

$$Tour_{Arg} = -29.35 + 6.49 * GDP_{Arg} + 1.31 * RER_{Arg} - 0.28 * EPU_{Uy} \quad (2)$$

Since all variables enter the model in logarithmic form, the estimated coefficients can be interpreted as long-run elasticities. Accordingly, a 1% increase in the bilateral real exchange rate is associated with an approximately 1.3% rise in tourism foreign exchange earnings, while a one-percentage-point increase in Argentina's economic activity raises the dependent variable by approximately 6.5%. Conversely, a 1% increase in Uruguay's Economic Policy Uncertainty reduces it by approximately 0.3%.

For Brazil, evidence also supports the existence of a long-run relationship. However, in this case, Uruguay's EPU index is not significant in the cointegrating relationship, suggesting that tourism receipts from Brazil are determined primarily by economic activity rather than by uncertainty in the destination country.

The estimated long-run relationship for tourism foreign exchange earnings from Brazil is:

$$Tour_{Bra} = -9.53 + 2.77 * GDP_{Bra} \quad (3)$$

According to these estimates, a one-percentage-point increase in Brazil's economic activity raises tourism foreign exchange earnings by approximately 2.8%. The estimated speed of adjustment toward the long-run equilibrium is considerably lower (34%) than that obtained for Argentina, implying a more gradual adjustment process. Specifically, the estimated error-correction coefficient indicates that approximately 34% of the deviation of the dependent variable from the long-run equilibrium is corrected each quarter, with the adjustment process requiring approximately 2.94 quarters to be completed.

Table 4 - ARDL Models for Argentina and Brazil including Uruguay's EPU

Long-run relationship	Argentina		Brasil	
Variables	coefficient	Estimator	coefficient	Estimator
REAL GDP	6.49 ***			2.77 ***
RER	1.31 ***		-	
EPU	-0.280 ***			-0.26
Constant	-29.35 ***			-9.53 **
Adjustment speed of				
Tourism receipts	-0.95 ***			-0.34 ***
Model Specification				
Transformation of variables		Yes; logarithmic		Yes; logarithmic
Lag structure		4,4,3,3		2,0,1
Akaike criterion (AIC)		-0.524		-0.329
Schwarz criterion (BIC)		0.220		0.019
ARDL Bound Test statistic		108.950		5.640
5% I(0) Critical Value		2.90		3.20
5% I(1) Critical Value		3.80		4.05
Seasonal treatment		Yes; seasonal dummies		Yes; seasonal dummies
Outlier treatment		Yes;TC		Yes;TC
Residual Normality		Yes; Jarque-Bera		Yes; Jarque-Bera
	p-value=	0.284	p-value=	0.803
Residual Serial Correlation (up to 5 lags)	p-value=	0.113	p-value=	0.200
The dependent variable in these models is tourism receipts from the origin country (Argentina or Brazil).				
TC denotes transitory changes.				
Order of the variables: Tourism receipts, Real GDP, RER and EPU.				
(*) significant at the 10% level: (**) significant at the 5% level: (***) significant at the 1% level.				

Source: Author's calculations

Models Including Origin-Country Economic Policy Uncertainty

For Argentina, the preferred specification suggests the existence of a long-run relationship among the variables, with coefficient signs consistent with those obtained in the previous set of models. Argentina's EPU exerts a statistically significant and negative effect in both the short and the long run.

The main differences relative to the previous specification lie in the lower income elasticity of tourism foreign exchange earnings, the smaller response of tourism foreign exchange earnings to economic policy uncertainty, and the slower speed of adjustment toward the long-run equilibrium, with approximately 36% of the disequilibrium corrected each quarter.

The estimated long-run relationship is:

$$Tour_{Arg} = -13.99 + 3.28 * GDP_{Arg} + 1.01 * RER_{Arg} - 0.19 * EPU_{Arg} \quad (4)$$

Accordingly, a 1% increase in the bilateral real exchange rate raises tourism foreign exchange earnings by approximately 1%, while a one-percentage-point expansion of Argentine economic activity increases tourism foreign exchange earnings by approximately 3.3%. Conversely, a 1% increase in Argentina's Economic Policy Uncertainty reduces tourism foreign exchange earnings from that country by approximately 0.2%.

For Brazil, evidence also supports the existence of a long-run equilibrium relationship in which both real GDP and Brazil's EPU index belong to the cointegrating vector. Economic activity exhibits a positive long-run elasticity, whereas uncertainty has a negative effect on the variable of interest.

Unlike the Argentine case, the estimated error-correction coefficient is more closely aligned with those obtained in the specifications incorporating Uruguay's EPU. The main differences lie in the higher income elasticity of tourism foreign exchange earnings and the slightly slower speed of adjustment toward the long-run equilibrium, with approximately 23% of the disequilibrium corrected each quarter.

The estimated long-run relationship is:

$$Tour_{Bra} = -13.09 + 3.7 * GDP_{Bra} - 0.5 * EPU_{Bra} \quad (5)$$

As it is shown in the previous equation, a one-percentage-point increase in Brazil's economic activity raises tourism foreign exchange earnings by approximately 3.7%, whereas a 1% increase in Brazil's EPU reduces tourism foreign exchange earnings from Brazil by approximately 0.5%.

Table 5 - ARDL Models for Argentina and Brazil including EPU from country of origin

Long-run relationship Variables	Argentina		Brasil	
	coefficient	Estimator	coefficient	Estimator
REAL GDP		3.281 ***		3.70 ***
RER		1.008 ***	-	
EPU		-0.193 **		-0.50 ***
Constant		-13.99 ***		-13.09 ***
Adjustment speed of				
Tourism receipts		-0.36 ***		-0.23 ***
Model Specification				
Transformation of variables		Yes; logarithmic		Yes; logarithmic
Lag structure		3,1,0,0		4,1,1
Akaike criterion (AIC)		-0.744		-0.544
Schwarz criterion (BIC)		-0.364		-0.143
ARDL Bound Test statistic		15.188		7.196
5% I(0) Critical Value		2.90		3.20
5% I(1) Critical Value		3.80		4.05
Seasonal treatment		Yes; seasonal dummies		Yes; seasonal dummies
Outlier treatment		Yes;TC		Yes;TC
Residual Normality		Yes; Jarque-Bera		Yes; Jarque-Bera
	p-value=	0.228	p-value=	0.274
Residual Serial Correlation (up to 5 lags)	p-value=	0.122	p-value=	0.110
The dependent variable in these models is tourism receipts from the origin country (Argentina or Brazil).				
TC denotes transitory changes.				
Order of the variables: Tourism receipts, Real GDP, RER and EPU.				
(*) significant at the 10% level; (**) significant at the 5% level; (***) significant at the 1% level.				

Source: Author's calculations

4.3 Robustness of the Main Results

For tourism foreign exchange earnings from Argentina, in the specification including Uruguay's Economic Policy Uncertainty, the main findings are supported by alternative ARDL specifications, all of which confirm the existence of a long-run relationship involving the four variables included in the model, presenting similar long-run elasticities and speed of adjustment coefficients as well.

Table 6 - ARDL Models for Argentina including Uruguay's EPU

Long-run relationship Variables	Alternative especification N°1		Alternative especification N°2	
	coefficient	Estimator	coefficient	Estimator
REAL GDP	6.13	***	5.98	***
RER	1.09	***	1.09	***
EPU	-0.28	***	-0.27	**
Constant	-26.79	***	-26.17	***
Adjustment speed of				
Tourism receipts	-0.87	***	-0.88	***
Model Specification				
Transformation of variables	Yes; logarithmic		Yes; logarithmic	
Lag structure	4,0,3,5		4,1,3,5	
Akaike criterion (AIC)	-0.429		-0.335	
Schwarz criterion (BIC)	0.196		0.291	
ARDL Bound Test statistic	82.6		67.1	
5% I(0) Critical Value	2.90		2.9	
5% I(1) Critical Value	3.80		3.8	
Seasonal treatment	Yes; seasonal dummies		Yes; seasonal dummies	
Outlier treatment	Yes;TC		Yes;TC	
Residual Normality	Yes; Jarque-Bera		Yes; Jarque-Bera	
	p-value=	0.440	p-value=	0.842
Residual Serial Correlation (up to 5 lags)	p-value=	0.115	p-value=	0.096
The dependent variable in these models is tourism receipts from the origin country (Argentina or Brazil).				
TC denotes transitory changes.				
Order of the variables: Tourism receipts, Real GDP, RER and EPU.				
(*) significant at the 10% level; (**) significant at the 5% level; (***) significant at the 1% level.				

Source: Author's calculations

Evidence from the alternative ARDL specifications for tourism foreign exchange earnings from Brazil likewise confirms the presence of a long-run cointegrating relationship between GDP and the tourism variable, with the estimated long-run elasticities and speed-of-adjustment coefficients remaining broadly stable across specifications.

Table 7 - ARDL Models for Brazil including Uruguay's EPU

Long-run relationship		Alternative especification N°1		Alternative especification N°2	
Variables		coefficient	Estimator	coefficient	Estimator
REAL GDP		2.49	**	2.29	**
RER					
EPU		-0.16		-0.14	
Constant		-8.59	*	-7.66	*
Adjustment speed of					
Tourism receipts		-0.28	***	-0.32	***
Model Specification					
Transformation of variables	Yes; logarithmic			Yes; logarithmic	
Lag structure	3,2,1			2,2,1	
Akaike criterion (AIC)		-0.450		-0.320	
Schwarz criterion (BIC)		0.050		0.080	
ARDL Bound Test statistic		3.7		5.2	
5% I(0) Critical Value		3.20		3.2	
5% I(1) Critical Value		4.05		4.05	
Seasonal treatment	Yes; seasonal dummies			Yes; seasonal dummies	
Outlier treatment	Yes;TC			Yes;TC	
Residual Normality	Yes; Jarque-Bera			Yes; Jarque-Bera	
	p-value=	0.880		p-value=	0.93
Residual Serial Correlation (up to 5 lags)	p-value=	0.300		p-value=	0.16
The dependent variable in these models is tourism receipts from the origin country (Argentina or Brazil).					
TC denotes transitory changes.					
Order of the variables: Tourism receipts, Real GDP, RER and EPU.					
(*) significant at the 10% level; (**) significant at the 5% level; (***) significant at the 1% level.					

Source: Author's calculations

Finally, for the models including the EPU from the country of origin, the estimated results through the ARDL models are consistent with those obtained using Uruguay's uncertainty indicator.

For the model using Brazil's Economic Policy Uncertainty, the alternative ARDL specifications support the existence of a cointegrating relationship in which real GDP and economic policy uncertainty are significant long-run determinants of tourism receipts, with positive and negative elasticities, respectively.

Moreover, the speed of adjustment estimated in these ARDL models is very similar to that obtained in the specifications including Uruguay's Economic Policy Uncertainty, providing additional evidence of the robustness of the estimated long-run relationships.

Table 8 - ARDL Models for Brazil including Brazil's EPU

Long-run relationship Variables	Alternative especification N°1		Alternative especification N°2	
	coefficient	Estimator	coefficient	Estimator
REAL GDP		3.55 ***		3.33 ***
RER				-
EPU		-0.44 **		-0.42 **
Constant		-12.65 ***		-11.65 ***
Adjustment speed of				
Tourism receipts		-0.30 ***		-0.26 ***
Model Specification				
Transformation of variables		Yes; logarithmic		Yes; logarithmic
Lag structure		3,2,1		4,0,1
Akaike criterion (AIC)		-0.542		-0.463
Schwarz criterion (BIC)		-0.119		-0.132
ARDL Bound Test statistic		7.9		5.6
5% I(0) Critical Value		2.9		3.2
5% I(1) Critical Value		3.8		4.05
Seasonal treatment		Yes; seasonal dummies		Yes; seasonal dummies
Outlier treatment		Yes;TC		Yes;TC
Residual Normality		Yes; Jarque-Bera		Yes; Jarque-Bera
	p-value=	0.26	p-value=	0.54
Residual Serial Correlation (up to 5 lags)	p-value=	0.12	p-value=	0.08
The dependent variable in these models is tourism receipts from the origin country (Argentina or Brazil).				
TC denotes transitory changes.				
Order of the variables: Tourism receipts, Real GDP, RER and EPU.				
(*) significant at the 10% level; (**) significant at the 5% level; (***) significant at the 1% level.				

Source: Author's calculations

5. Final remarks

Tourism is one of the world's largest and most dynamic industries, playing a vital role in promoting economic growth, generating employment, fostering cultural exchange, facilitating trade, and contributing to global prosperity. Uruguay is a small, open economy in Southern South America, and its inbound tourism sector is characterized by a high concentration of demand: its two big neighbors, Argentina and Brazil, jointly account for approximately 70% of total tourist arrivals. This strong dependence leaves Uruguay's tourism sector particularly vulnerable not only to domestic macroeconomic shocks but also to economic fluctuations and policy instability originating in neighboring countries.

In this paper, we analyze the impact of uncertainty—measured using the EPU indices for Argentina and Brazil, together with a composite EPU index for Uruguay—on tourism demand from these two countries, employing ARDL models. First, we perform a cross-correlation analysis between the bilateral RER and the EPU indices of the countries of origin to determine whether both variables should be included simultaneously in the empirical specifications, given the apparent coincidence between episodes of exchange-rate volatility and uncertainty shocks in the region. The results indicate that the cross-correlation between the bilateral RER and the EPU index of the country of origin is relatively high only in the Brazilian case, consistently exceeding the conventional threshold of 0.3 (Mate et al., 2022). Accordingly, we include both variables in the Argentine models, while the Brazilian models include only the uncertainty indicators.

Our results indicate that higher economic policy uncertainty in Uruguay has a negative effect on tourism demand from Argentina, while no significant effect is found for tourism demand from Brazil. When examining the effects of uncertainty originating in Argentina and Brazil on tourism demand in Uruguay, we find that higher uncertainty in both countries has a negative impact on tourism demand from each respective market.

In the first set of models, which includes Uruguay's EPU, we find a negative effect of Uruguayan uncertainty on tourism demand from Argentina, but no significant effect on demand from Brazil.

For Argentina, a 1% increase in the bilateral RER is associated with a 1.3% increase in tourism foreign exchange earnings, while a one-percentage-point increase in Argentina's economic activity raises the dependent variable by approximately 6.5%. Conversely, a 1% increase in Uruguay's EPU reduces tourism foreign exchange earnings by approximately 0.3%.

For Brazil, a one-percentage-point increase in economic activity raises tourism foreign exchange earnings by approximately 2.8%. The estimated speed of adjustment toward the long-run equilibrium is considerably lower for Brazil (34%) than for Argentina (95%), implying a more gradual adjustment process.

In the second set of models, we examine the impact of Argentina's and Brazil's EPU on tourism demand in Uruguay. We find a negative effect of uncertainty on tourism demand from both countries.

For Argentina, the main differences relative to the previous specification are the lower income elasticity of tourism foreign exchange earnings, the smaller response of tourism foreign exchange earnings to economic policy uncertainty, and the slower speed of adjustment toward the long-run equilibrium, with approximately 36% of the disequilibrium corrected each quarter. A 1% increase in the bilateral RER increases tourism revenue by approximately 1%, while a 1% increase in Argentina's GDP increases tourism revenue by approximately 3.3%. Conversely, a 1% increase in Argentina's EPU reduces tourism receipts from that country by approximately 0.2%.

For Brazil, a one-percentage-point increase in economic activity raises tourism foreign exchange earnings by approximately 3.7%, whereas a 1% increase in Brazil's EPU reduces tourism foreign exchange earnings from Brazil by approximately 0.5%.

Overall, the results indicate that uncertainty has a significant effect on tourism revenues. When considering Uruguay's EPU, a significant effect is found only for Argentina, whereas Argentina's and Brazil's EPU indices both have a negative impact on tourist spending in Uruguay. These findings have important policy implications. In particular, knowledge of the speed of adjustment provides policymakers with a window of opportunity to introduce measures aimed at mitigating the impact of uncertainty on tourism.

Future research could consider other tourist markets beyond Argentina and Brazil, including Uruguayans living abroad and tourists from Europe or the United States. It could also employ

alternative measures of uncertainty, such as the uncertainty indicators based on business and consumer expectations developed by Clavería (2021).

6. References

- Andres-Escayola, E., Ghirelli, C., Molina, L., Perez, J. J., & Vidal, E. (2024). Using Newspapers for Textual Indicators: Guidance Based on Spanish-and Portuguese-Speaking Countries: E. Andres-Escayola et al. *Computational Economics*, 64(2), 643-692. <https://doi.org/10.1007/s10614-023-10433-z>
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, 131(4), 1593-1636. <https://doi.org/10.1093/qje/qjw024>
- Balli, F., Shahzad, S. J. H., & Uddin, G. S. (2018). A tale of two shocks: What do we learn from the impacts of economic policy uncertainties on tourism?. *Tourism management*, 68, 470-475. <https://doi.org/10.1016/j.tourman.2018.04.008>
- Balli, F., Uddin, G. S., & Shahzad, S. J. H. (2019). Geopolitical risk and tourism demand in emerging economies. *Tourism Economics*, 25(6), 997-1005. <https://doi.org/10.1177/1354816619831824>
- Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment. *The quarterly journal of economics*, 98(1), 85-106. <http://hdl.handle.net/10.2307/1885568>
- Bertola, G., Guiso, L., & Pistaferri, L. (2005). Uncertainty and consumer durables adjustment. *The Review of Economic Studies*, 72(4), 973-1007. <https://doi.org/10.1111/0034-6527.00358>
- Chandan Sharma & Rupika Khanna (2021): Does global economic policy uncertainty drive tourism demand? A cross-country analysis, *Journal of Policy Research in Tourism, Leisure and Events*. <https://doi.org/10.1080/19407963.2021.1916510>
- Claveria, O. Uncertainty indicators based on expectations of business and consumer surveys. *Empirica* 48, 483-505 (2021). <https://doi.org/10.1007/s10663-020-09479-1>
- Demir, E., Gozgor, G., & Paramati, S. R. (2020). To what extend economic uncertainty effects tourism investments? Evidence from OECD and non-OECD economies. *Tourism Management Perspectives*, 36, 100758. <https://doi.org/10.1016/j.tmp.2020.100758>.
- Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton University Press. <https://doi.org/10.2307/j.ctt7sncv>
- Domingorena, S. y Mordecki, G. (2026). "Reviewing the factors driving demand for regional tourism in Uruguay". Serie Documentos de Trabajo, DT 5/26. Instituto de Economía, Facultad de Ciencias Económicas y Administración, Universidad de la República, Uruguay. <https://doi.org/10.7784/rbtur.v20.3423>
- Franses, P. H., & Haldrup, N. (1994). The Effects of Additive Outliers on Tests for Unit Roots and Cointegration. *Journal of Business & Economic Statistics*, 12(4), 471-478. <https://doi.org/10.1080/07350015.1994.10524569>

- Gozgor, G., & Ogan, S. (2017). Economic policy uncertainty and tourism demand: empirical evidence from the USA. *International Journal of Tourism Research*, 19(1), 99-106. <https://doi.org/10.1002/jtr.2089>
- Gupta, M. R., & Dutta, P. B. (2019). International Tourism in a North–South Model: A Theoretical Analysis. *Foreign Trade Review*, 54(2), 91-114. <https://doi.org/10.1177/0015732519831804>
- Işık, C., Sirakaya-Turk, E., & Ogan, S. (2020). Testing the efficacy of the economic policy uncertainty index on tourism demand in USMCA: Theory and evidence. *Tourism Economics*, 26(8), 1344-1357. <https://doi.org/10.1177/1354816619888346>
- Lanzilotta, B., Merlo, G., Mordecki, G., & Umpierrez, V. (2023). Understanding uncertainty shocks in Uruguay through VAR modeling. *Journal of Business Cycle Research*, 19(3), DOI: 10.1007/s41549-023-00081-5
- Lanzilotta, B., Mordecki, G., & Umpierrez, V. (2018). Political economic uncertainty in a small & open economy: the case of Uruguay. *Serie Documentos de Trabajo*; 5/18.
- Mate, K. K. V., Bushnell, D. M., Anatchkova, M., Martin-Delgado, J., Ahmed, O. M. Y., Williams, V., & Daskalopoulou, C. (2022). What is with all these different correlation thresholds? *Quality of Life Research*, 31, S42-S42.
- Nguyen, C. P., Schinckus, C., & Su, T. D. (2020). Economic policy uncertainty and demand for international tourism: An empirical study. *Tourism Economics*, 26(8), 1415-1430. <https://doi.org/10.1177/1354816619900584>
- Nguyen, P. C., Schinckus, C., Hui Ling Chong, F., Nguyen, B. Q., & Le Thuy Tran, D. (2024). Tourism and contribution to employment: Global evidence. *Journal of Economics and Development*. <https://doi.org/10.1108/JED-07-2024-0269>
- Nkoro, E. and Uko, A.K. (2016) Autoregressive Distributed Lag (ARDL) Cointegration Technique: Application and Interpretation. *Journal of Statistical and Econometric Methods*, 5, 63-91.
- OECD (2023), OECD Economic Surveys: Brazil 2023, OECD Publishing, Paris, <https://doi.org/10.1787/a2d6acac-en>.
- Pesaran, M. H., & Shin, Y. (1995). An autoregressive distributed lag modelling approach to cointegration analysis (Vol. 9514, pp. 371-413). Cambridge, UK: Department of Applied Economics, University of Cambridge. <https://doi.org/10.1017/CCOL521633230.011>
- Pesaran, M. H., & Shin, Y. (1996). Cointegration and speed of convergence to equilibrium. *Journal of Econometrics*, 71(1-2), 117-143. [https://doi.org/10.1016/0304-4076\(94\)01697-6](https://doi.org/10.1016/0304-4076(94)01697-6)

- Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled Mean Group Estimation of Dynamic Heterogeneous Panels. *Journal of the American Statistical Association*, 94(446), 621–634. <https://doi.org/10.1080/01621459.1999.10474156>
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. <https://doi.org/10.1002/jae.616>
- Tsui, W. H. K., Balli, F., Tan, D. T. W., Lau, O., & Hasan, M. (2018). New Zealand business tourism: Exploring the impact of economic policy uncertainties: Exploring the impact of economic policy uncertainties. *Tourism Economics*, 24(4), 386-417. <https://doi.org/10.1177/0047287520921245>
- UN Tourism. (2025a). *International tourism recovers pre-pandemic levels in 2024* [Press release]. <https://www.untourism.int/news/international-tourism-recovers-pre-pandemic-levels-in-2024>
- UN Tourism. (2025b). *World Tourism Barometer*. <https://doi.org/10.18111/wtobarometereng>
- Uruguayan Chamber of Tourism, & Center for Studies of Economic and Social Reality. (2025). Monitor turismo CERES - Setiembre 2025 [CERES Tourism Monitor - September 2025]. <https://camtur.com.uy/wp-content/uploads/2025/09/Monitor-turismo-CERES-Setiembre-2025.pdf>
- Williams, A. M. and Baláž (2015), V. Tourism, risk and uncertainty: theoretical reflections, *Journal of Travel Research*, 54(3): 271-287. <https://doi.org/10.1177/0047287514523334>
- Wu, T.-P., and H.C. Wu. 2020. "A multiple and partial wavelet Analysis of the Economic Policy Uncertainty and Tourism Nexus in BRIC". *Current Issues in Tourism* 23 (7):906. doi:10.1080/13683500.2019.1566302
- Wu, T. P., Wu, H. C., Wang, C. M., Chen, F., Wu, S. T., & Liao, S. Y. (2021). Decomposing a time-frequency relationship between economic policy uncertainty and tourism in the G8 countries through wavelet analysis. *Journal of Policy Research in Tourism, Leisure and Events*, 13(2), 266-284. <https://doi.org/10.1080/19407963.2020.1793767>

7. Annex

Table A. 1 - KPSS Unit root tests

Series (1)	Time period	Statistic	Levels		First Differences		
			Specification	Reject H0 at 95%	Statistic	Specification	Reject H0 at 95%
EPU_uy	2005.2 2026.1	0.048958	Constant Trend	No	0.082561	Constant	No
EPU_arg	1997.1 2026.2	0.124927	Constant	No	0.044553	Constant	No
EPU_Bra	1996.2 2026.2	0.050345	Constant	No	0.085871	Constant	No
(1) The number of lags of the variables used in the test, both in levels and in first difference, was chosen according to the AIC criterion.							

Source: Author's calculations