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Tourism and contribution to employment: global evidence

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Abstract

Purpose – This study examines how tourism contributes to employment.
Design/methodology/approach – Using various econometric techniques for panel data, the study estimates the contribution of tourism to employment in a sample of 148 economies from 2002 to 2017. The analysis is also carried out for three sub-samples according to income levels.
Findings – This study has three significant contributions: *Firstly,* it shows that investment and consumption in the tourism sector have positive benefits for employment. Furthermore, the improvement of institutional quality boosts these positive gains. *Secondly,* there is a U-inverted relationship between the income level and total contributions of tourism to employment. The development of the tourism industry would therefore follow the pattern suggested by the Kuznets curve hypothesis. *Thirdly,* the positive effects of tourism investment and consumption in tourism are evidenced in all three sub-samples. In contrast, the effects of institutions seem to be weaker in higher-income economies (implying that there is a larger space for low-income economies to use institutional reform to boost the development and contribution of tourism in their economies). Finally, institutional quality appears to enhance the contribution of tourism to employment.
Originality/value – The study highlights the importance of the tourism industry in enhancing employment.

Keywords Tourism, Labour, Tourism spending, Tourism investment, Institutions
Paper type Research paper

1. Introduction

In past decades, the tourism industry has generally become one of the world's largest economic sectors, contributing significantly to job creation, export stimulation and prosperity across the globe (WTTC, 2018). Interestingly, recent literature has suggested integrating tourism economics into multidisciplinary research integrating social sciences to understand better the dynamics of tourism and its impact on society (Okumus *et al.*, 2018). The need to investigate tourism development and its economic contribution through an interdisciplinary lens is increasingly recommended in the specialized literature (Song *et al.*, 2012).

This research contributes to the current literature on tourism economics by proposing and analysing how tourism contributes to the economy, especially employment. It is worth

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mentioning that tourism development is investigated in terms of direct contributions to the economy, and we study the effects of tourism through the lens of institutional quality. Furthermore, we investigate tourism as a function composed of elements defining a demand and a supply for tourism. The institutional quality is then incorporated as an augmented factor to understand tourism's direct and total contributions to employment. The specialized literature (e.g. see Rasoolimanesh *et al.* (2018)) often implied a non-linear pattern for tourism development (e.g. see Wan and Song (2018)), so that the nonlinear relationships between tourism and its contributions to the economy are examined in light of the Kuznets curve hypothesis.

This study examines how tourism contributes to employment in 148 economies (divided into three sub-samples according to income levels) between 2002 and 2017. In addition, the influences of tourism development are examined for three sub-samples by income levels: 53 low- and lower-middle income economies (LMEs), 43 upper-middle income economies (UMEs) and 52 high-income economies (HIEs).

Our study finds that tourism's demand and supply sides generate positive contributions to employment. However, from all components, tourism investment has a more considerable marginal influence on employment. Notably, better institutional quality has a significant positive impact on tourism contributions, suggesting that institutions could support tourism development and its contribution to employment. The empirical results also show a U-inverted relationship between tourism contribution to employment and income level (proxying by the real gross domestic product [GDP] per capita). This finding supports the Kuznets curve pattern hypothesis. Finally, with regard to the income levels, our study finds that investment and consumption related to tourism have strong positive effects on tourism contribution to employment in all three sub-samples; however, the positive effect of institutions is weaker in higher income groups simply because institutions already provide a flexible structure supporting the tourism industry. This observation suggests that there is room for institutional reform in LMEs to enhance the development and contributions of tourism to their economies.

The study is organized as follows: The next section reviews the literature. Our methodology and data are presented in Section 3. Section 4 reports and discusses the empirical results. Some recommendations and conclusions are proposed in the final section.

2. Literature review

Growing attention has been paid to the increasing importance of the tourism industry in the recent decade (Richards, 2018). In addition, many empirical studies have documented the positive contributions of tourism to the economy by increasing foreign currency earnings, attracting international investment, raising tax revenues and creating job creation (Liu *et al.*, 2017).

A specific strand of the literature focuses on the contributions of tourism economic growth (or "tourism-led growth"), which can be investigated at various levels: sector, industry, country, regions and across nations [1]. Dogru and Bulut (2018) showed that tourism could stimulate economic growth and vice versa in seven European countries during the crisis. Still, tourism might also lead to the problem of the Dutch disease in the economy due to its effects on resource allocations towards nontradable sectors. Lv (2019) found that tourism has a negative long-run effect on regional inequality in 113 countries from 1995 to 2012.

Another strand of the work deals with the roles of tourism in job creation. Carrascal Incera and Fernández (2015) explained that tourism businesses could create many jobs, especially for lower-skilled wage workers, so that tourism helps to solve the problem of income inequality and poverty. However, tourism economists also point out that employment in tourism (especially in accommodation and restaurant services) usually takes the form of fulfilment by self-employment or family business (Carrascal Incera and Fernández, 2015). In other words, the tourism contribution to employment may not be as high as expected.

Several recent studies further explored the role of tourism in economic growth at different levels (e.g. see El-Menyari (2021), Gao *et al.* (2021), Wijesekara *et al.* (2022), Okumus and Kocak (2023), Arici *et al.* (2024) and others). Studying in different regions in ten countries of

Europe, Romão (2020) concludes that tourism demand has a positive correlation with economic growth. Gao *et al.* (2021) found that tourism and economic growth are mutual causalities in a sample of 18 Mediterranean countries from 1995 to 2010. Rasool *et al.* (2021) indicated that inbound tourism and economic growth have also mutual causality in the Brazil, Russia, India, China and South Africa (BRICS) group from 1995 to 2015. Baidoo *et al.* (2022) found that tourism has a positive impact on economic growth in a sample of 40 Sub-Saharan African countries in the period of 2000–2016. More recently, Shang *et al.* (2023) added that tourism can contribute positively to economic growth in Asia from 2000 to 2021, especially in low-income countries. Through a meta-analysis based on 545 estimates from 113 articles, Nunkoo *et al.* (2020) showed that there is a significant positive relationship between tourism and economic growth. Overall, the relationship between tourism and economic growth is mostly agreed upon among studies.

However, the literature on the contribution of tourism to employment is not properly completed, especially at a global stance. Several existing studies on the contribution of tourism to employment were mostly focused on specific national situations. For example, Garsous *et al.* (2017) showed that tax incentives implemented by the Brazilian federal government for tourism firms have increased employment in tourism. Sokhanvar and Çiftçioğlu (2022) indicate that tourism can increase employment in Estonia and Latvia. However, there is still a lack of a global analysis of the contribution of tourism to employment. This topic is even more important in a post-Covid era (Koh, 2020). Interestingly, several previous studies mostly focus on the contribution of inbound tourism: the arrivals of international tourists (e.g. El-Menyari (2021), Pérez-Rodríguez *et al.* (2021)). Also, some works (Nguyen, 2022) highlighted the importance of domestic tourism in sustainable development along with international tourism.

Song *et al.* (2012) claimed that a better understanding of tourism requires the integration of other social science disciplines. In this context, institutions are playing an increasingly key role in the influence of tourism on socioeconomic factors (e.g. Nguyen and Su (2021), Nguyen *et al.* (2021)). Institutions are the rules of the game in a society (North, 1990) since they amend human behaviours (especially the economic agencies) through incentives (see North (1981), Acemoglu and Robinson (2008)). A better institutional quality could help reduce asymmetric information problems, which decreases the transaction cost and risk, so that it increases the market efficiency and, therefore, the resource allocation efficiency (Cohen *et al.*, 1983). In this context, improving institutions could act as a positive catalyst for tourism contributions to the economy since they can improve the efficiency of tourism development. The following section empirically investigates this claim.

3. Methodology and data

This section is structured into three parts. The first introduces our model; the second presents our data, while the list sub-section discusses the econometric methods we used to test our model.

3.1 Model

To examine what determines tourism contributions to the economy, our study uses a basic function describing tourism contribution through two components: tourism supply and tourism demand. The tourism supply can be proxied by the capital investment in tourism (Alam and Paramati, 2017), while the tourism demand is proxied by the expenditures related to the tourism spending (Dogru and Bulut, 2018).

$$TC = f(TS, TD) \tag{1}$$

TC captures the contribution of tourism to employment; *TS* refers to the tourism supply side, while *TD* characterizes the tourism demand side. As evoked earlier, the institutional quality (*INST*) could improve the efficiency of the tourism market and resource allocation (Cohen

et al., 1983), so we added this indicator to our function as an augmented driver of tourism contribution to the economy.

$$TC = f(TS, TD, INST) \tag{2}$$

As suggested by the Kuznets curve hypothesis (Kuznets, 1955), the development of the tourism industry (and its contributions) may follow the dynamics of income levels. In this context, the income level (*Income*) is added to the function as a controlling factor. Consequently, our function becomes,

$$TC = f(Income, TS, TD, INST) \tag{3}$$

Based on this Equation (3) and a line with the existing empirical studies (Li *et al.*, 2018) and recent literature of tourism contribution to add an additional control variable – trade openness (TRADE – see Wijesekara *et al.* (2022)), we can detail the tourism contribution to employment by the following equation:

$$TC_{it} = \beta_0 + \beta_1 GDPpc_{it} + \beta_2 TS_{it} + \beta_3 TD_{it} + \beta_4 INST_{it} + \beta_5 TRADE_{it} + \varepsilon_{it} \tag{4}$$

where *i*, *t* denote the country *i* at year *t*; *TC* is the percentage of tourism contribution to employment, respectively; *GDPpc* is the logarithm of GDP per capita to proxy for the income level; *TS* is the percentage of tourism capital investment to GDP to proxy for tourism supply; *TD* is the percentage of tourism spending to GDP to proxy for the tourism demand. The originality of our approach is to integrate institutional quality indicators. All variables are measured in real prices to exclude the effect of inflation. β is the coefficient; ε is the residual term. For robustness purposes, we use different proxies for tourism demand, including domestic tourism spending (*TD1*) and business tourism spending (*TD2*). Meanwhile, the tourism contribution is measured as the total and direct contribution to employment.

Our study uses the square of the logarithm of the real GDP per capita (Alam and Paramati, 2016) to identify the potential existence of the Kuznets curve hypothesis in the relationships between income levels and tourism contributions. In this context, our model takes the following form,

$$TC_{it} = \beta_0 + \beta_1 GDPpc_{it} + \beta_1' GDPp\widehat{c}2_{it} + \beta_2 TS_{it} + \beta_3 TD_{it} + \beta_4 INST_{it} + \beta_5 TRADE_{it} + \varepsilon_{it} \tag{5}$$

Moreover, the study estimates the model with the interaction of institutional quality (*INST*) with each proxy of tourism supply (*TS*) or tourism demand (*TD*), respectively, to analyse the catalyst effect of institutional quality on the influence of tourism on contribution to employment.

The following sub-section presents in more detail our samples and data.

3.2 Data

Our study collects data related to tourism development from World Travel and Tourism Councils – These data include tourism capital investment and three kinds of tourism expenditures (Domestic Tourism Spending and Business Tourism Spending). We expressed these measures in the percentage of the real GDP to proxy the tourism supply (tourism investment – *TS*) and tourism demand (two kinds of tourism spending – *TD1 and TD2*). Meanwhile, we use the total contribution from tourism to employment (*TC1*) and the direct contribution from tourism to employment (*TC2*) to proxy the contributions of tourism to employment. The real GDP per capita (*GDPpc*) and the real GDP are collected from the World Development Indicators (WDIs – World Bank), while the mean of six institutional indicators (*INST*) (including Control of corruption, Government effectiveness, Political stability and

Absence of Violence/Terrorism, Regulatory quality, Rule of law and Voice and accountability) from the World Bank are used to proxy the institutional quality. Trade openness (%GDP) is collected from WDIs as well. Due to data availability, our final sample includes 148 economies covering the period 2002–2017 (see Table A1, A2 in Appendix for the country list, our primary data, sources and description and data description). We also divided the entire sample into three sub-samples following the income levels classified by the World Bank: 53 LMEs, 43 UMEs and 52 HIEs. The details of data calculations and description for the total sample (and three sub-samples) are reported in Table A3, Appendix, and the correlation matrix is in Table A4, Appendix.

Figure 1 shows that the tourism industry has directly contributed to roughly 5% of the total jobs, with the highest ratio in HIEs, then UMEs, and finally in LMEs.

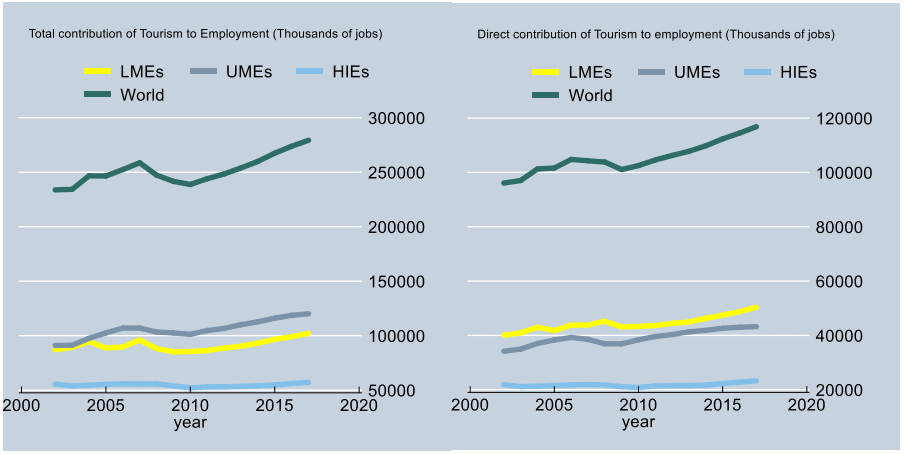
Figure 1 reports the absolute values of tourism contributions to employment. Tourism created over 100 m jobs in UMEs and LMEs, while job creation in HIEs appears to be lower. Interestingly, the direct job creation from tourism is the highest in the LMEs, then in the UMEs, and finally in the HIEs.

Figure 2 illustrates the contributions of tourism to employment in terms of percentage to total employment, respectively. This shows the same story suggested by the data above – the ratios of tourism contributions to employment are the highest in the HIEs, the UMEs and the lowest in the LMEs. This observation suggests that tourism development in the LMEs is still in its infancy, with a low productivity and a low efficiency.

3.3 Econometric methods

We proceeded with our empirical investigation with a static analysis of our Equations (4) and (5) – we detailed this static approach in the first sub-section; afterwards, we extended a more dynamic analysis explained in the second sub-section.

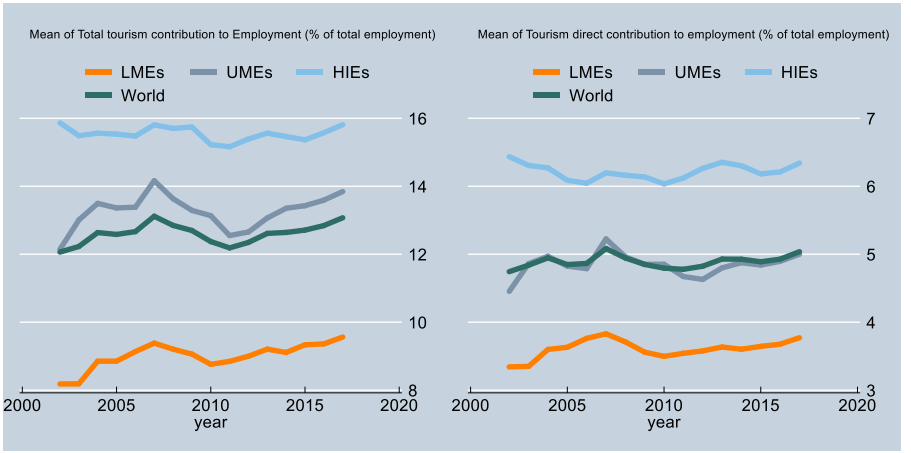
3.3.1 Static panel data models. Our final sample includes 148 economies (large N) with a short time dimension (2002–2017, 16 years), indicating balanced panel data. We first examine the potential existence of cross-sectional dependence using Pesaran's CD test (Pesaran, 2004). The results given in Table A3 show the presence of cross-sectional dependencies in all



Note(s): Contribution of tourism is collected from the World Travel and Tourism Council (WTTC); the value is summed up for all countries in same income groups

Source(s): Authors' own work

Figure 1. Tourism contributions to employment



Note(s): Contribution of tourism is collected from the World Travel and Tourism Council (WTTC); the value is summed up for all countries in same income groups

Source(s): Authors' own work

Figure 2. Tourism contributions to employment (percentages)

variables. These findings confirmed the trend for all variables in our three sub-samples. Next, we recruit five different stationary tests, including the Pesaran (2007)'s cross-sectionally augmented panel unit root test (Z(t-bar)) test; the Im-Persaran-Shin unit root test (Im *et al.*, 2003); Fisher based on Phillips–Perron type (Z(Inverse normal) unit root test (Choi, 2001), Levin-Lin-Chu unit-root test (Levin *et al.*, 2002), and the Harris–Tzavalis unit-root test (Harris and Tzavalis, 1999). The results of these tests are provided in Table A5 (Appendix), and they show that most of our variables are stationary. These observations confirm that our analysis has a low probability of spurious regression due to the non-stationary data. Next, the Granger-causality test (developed by Dumitrescu and Hurlin (2012)) is used to investigate the relationships between each explanatory variable and independent variable. Hereafter, Table A6, Appendix, shows that there is a mutual Granger causality between independent variables and dependent variables.

This fact could cause an endogenous problem in our estimation Equations (4) and (5) due to the potential influence of the dependent variables on the independent ones (Roodman, 2006). To avoid this issue, we estimate our Equations (4) and (5) with a one-year lag of all independent variables, so our Equations (4) and (5) can be expressed as follows:

$$TC_{it} = \beta_0 + \beta_1 GDPpc_{it-1} + \beta_2 TS_{it-1} + \beta_3 TD_{it-1} + \beta_4 INST_{it-1} + \beta_5 TRADE_{it} + \varepsilon_{it} \quad (6)$$

$$TC_{it} = \beta_0 + \beta_1 GDPpc_{it-1} + \beta_1' GDPp\widehat{c}2_{it-1} + \beta_2 TS_{it-1} + \beta_3 TD_{it-1} + \beta_4 INST_{it-1} + \beta_5 TRADE_{it} + \varepsilon_{it} \quad (7)$$

This specific step is supported by works documenting that tourism investments have a lagged effect on the economic contributions of tourism (Alam and Paramati, 2017) and also by studies showing that change in institutional quality is a slow process. We also recruited the panel corrected standard errors model (PCSE) estimator to solve the issue related to the existence of cross-sectional dependence in the small panel data with short T and large N (Marques and Fuinhas, 2012). For our robustness checks, we replicated our empirical analysis by using

alternative econometric techniques: Pool ordinary least squares (OLS) and feasible generalized least squares (FGLS) (Liao and Cao, 2013). It is worthy to notice that we estimate Eq. (6) and calculate the variance inflation factor (VIF) to examine the problem of multicollinearity. The values of VIF are presented in Table A7, Appendix. All values of VIF are much lower than 10, indicating a very low probability of having multicollinearity.

As many studies (e.g. see Azam *et al.* (2018)) suggested that the effects of tourism and institutions on the environment might be different across countries and regions, we replicate our econometric analysis for three sub-samples defined by the income levels. The following sub-section details our dynamic estimations of our equations.

4. Results and discussions

This section is structured into two sub-sections, one discussing our empirical results for the global sample and one presenting our observations by income levels.

4.1 The tourism contributions to employment (full sample – 148 nations)

The results of the PCSE estimators for Equation (6) are presented in Table 1 (there are robustness checks by the robust pool OLS and the FGLS estimators that all show strong consistency in our findings, which can be provided upon requests).

This table shows interesting findings. First, there is an inconsistent effect of income level (*GDPpc*) in all total or direct contributions of tourism to employment (*TC1* and *TC2*) suggesting that the relationship between the income levels and the tourism contributions would not follow a linear trend. This observation is consistent with previous findings on the relationships between tourism development and other factors such as pollution, residents' perceptions or income inequality (Wan and Song, 2018). This is also a justification for us to consider a nonlinear relationship between the income level and the tourism contributions in our Equation (7).

Table 1. Tourism and contribution to employment

Model	(1)	(2)	(3)	(4)
Dep. Var	TC1	TC1	TC2	TC2
GDPpc(−1)	0.072	0.914***	0.210***	0.561***
	[0.116]	[0.158]	[0.060]	[0.078]
TS(−1)	4.157***	3.641***	1.619***	1.405***
	[0.229]	[0.201]	[0.120]	[0.108]
TD1(−1)	0.715***		0.300***	
	[0.035]		[0.014]	
TD2(−1)		1.759***		0.733***
		[0.128]		[0.061]
INST(−1)	2.247***	1.565***	0.502***	0.220**
	[0.169]	[0.225]	[0.085]	[0.108]
TRADE(−1)	−0.010***	−0.025***	0.0002	−0.006***
	[0.001]	[0.002]	[0.001]	[0.001]
Cons	2.818**	−3.405**	−0.932	−3.515***
	[1.261]	[1.689]	[0.630]	[0.823]
N	2,197	2,197	2,197	2,197
R-squared	0.615	0.656	0.516	0.555
No. of countries	148	148	148	148

Note(s): Results are estimated by PCSE estimations. Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively

Source(s): Authors' own work

Second, both demand (Tourism spending – *TD1* and *TD2*) and supply sides (tourism investment – *TS)* of tourism development have a significant positive effect on the tourism contributions to job creation and GDP. This implies that the tourism development from the two sides (supply and/or demand) induces an increase in the employment rate (Liu *et al.*, 2017). This finding supports initiatives protecting all aspects that could enhance tourist activities (i.e. protection of natural resources) while reducing the negative externalities of tourism (i.e. pollution) (Azam *et al.*, 2018).

Third, institutional quality (*INST*) has a significant positive effect on tourism contributions to employment. This means that the nations with a better institutional framework have enhanced the positive effects that tourism can have on employment. Such a finding has an important policy implication since it suggests that improving institutional quality is vital for the sustainable development of the tourism industry.

Based on these results, the square of the income level (square of logarithms of real GDP per capita – *GDPpc^2*) is added to the estimations to examine the nonlinear relationship between the income level and the tourism contributions to the economy. The results of Equation (7) estimated by the PCSE estimator are presented in Table 2.

The results in Table 2 show us interesting findings. The tourism investment (*TS*) and tourism spending (*TD1* and *TD2*) have a significant positive effect on both total and direct contributions of tourism to employment. The institutional quality still has a positive impact on tourism contributions with a larger marginal effect, indicating that a slight change in the institutional framework can have significant (i.e. more than proportional) positive consequences on the employment contributions of tourism.

The results show that the real GDP per capita has a significant positive effect, while the square of the real GDP per capita has a significant negative effect on the total contribution of tourism to employment (*TC1*). Estimations are significant and consistent for total tourism contribution to employment (*TC1*), while they are not for direct contribution of tourism to employment (*TC2*) as well as tourism spending (*TD1*and *TD2*). This finding provides strong

Table 2. Tourism and contribution to employment: the test for Kuznets curve hypothesis

Model	(1)	(2)	(3)	(4)
Dep. Var	TC1	TC1	TC2	TC2
GDPpc(−1)	8.361***	8.784***	0.447	0.629
	[0.969]	[0.797]	[0.511]	[0.439]
GDPpc^2(−1)	−0.505***	−0.480***	−0.014	−0.004
	[0.066]	[0.057]	[0.035]	[0.031]
TS(−1)	4.079***	3.573***	1.617***	1.404***
	[0.241]	[0.210]	[0.125]	[0.112]
TD1(−1)	0.697***		0.300***	
	[0.035]		[0.013]	
TD2(−1)		1.737***		0.733***
		[0.128]		[0.061]
INST(−1)	3.154***	2.433***	0.528***	0.227
	[0.272]	[0.315]	[0.144]	[0.161]
TRADE(−1)	−0.012***	−0.027***	0.0002	−0.006***
	[0.001]	[0.002]	[0.001]	[0.001]
Cons	−29.736***	−34.314***	−1.864	−3.782***
	[3.021]	[2.300]	[1.640]	[1.327]
N	2,197	2,197	2,197	2,197
R-squared	0.623	0.663	0.516	0.555
No. of countries	148	148	148	148

Note(s): PCSE estimations. Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively

Source(s): Authors' own work

evidence that tourism contributions to employment have an U-shaped shape in relation to income level. This observation contributes to the current literature in tourism economics by adding the evidence of the U-inverted shape relationship, demonstrating that a Kuznets framework can describe the relationships between tourism development and income levels. This adds a complementary perspective to the existing works that recently documented similar patterns between tourism and inequalities (Alam and Paramati, 2016) or pollution (Katircioğlu, 2014).

This U-inverted shape relationship indicates that economic development (income level) enhances the employment contribution of the tourism industry. A higher level of investment would then support such growth due to higher expected returns in this industry and a higher tourism demand (thanks to higher income levels). However, the development of the tourism industry and its relationship with the increase in income level would reach a particular level after which further development of tourism might cause severe externalities, especially in terms of the environment, such as pollution (Azam *et al.*, 2018). These negative externalities may induce a reduction in the tourism destination (Seraphin *et al.*, 2018) and therefore decrease the tourism contributions to the economy.

This finding could also be interpreted through a different lens. The tourism industry can be seen as a particular industry serving the leisure activities of humans, which is not in the exact nature as the manufacturing or construction sectors – consequently, one particular destination can only serve a maximum number of tourists at one time. This may lead to a "cost disease problem" (Baumol, 1993) in which the economic contributions of the tourism industry (Song *et al.*, 2012) are constrained in the long run. As a result, the stakeholders involved in the tourism industry might adjust their business to tackle this situation, as suggested by recent works (Vujko *et al.*, 2018; Gutiérrez *et al.*, 2017).

4.2 Tourism contributions to employment: analysis by income levels

This section investigates the relationships between tourism development and tourism contribution to employment (by income levels) by using Equations (6) and (7). We worked with three sub-samples, including 53 LMEs, 43 UMEs and 52 HIEs. The results are presented in Tables 4–6.

(1) Low- and lower middle-income economies

The results in Table 3 show that the positive effects of the three major independent variables (including tourism investment, tourism spending and institutions) have a positive effect on tourism contribution to the employment in the LMEs.

This result is consistent with many previous empirical studies on this topic (Li *et al.*, 2018). Vanegas (2014), for instance, found that tourism development is a matter for economic development in five Central American countries, while Ohlan (2017) revealed that inbound tourism induces a higher economic growth in both the long run and short run over the period 1960–2014 in India.

Interestingly, the effects of the real GDP per capita and its square are not statistically consistent or significant. Also, the significant negative effect of the income level and the significant positive effect of its square on the total contributions of tourism to employment (*TC1*) suggest that the total tourism contribution to employment and income levels have a U-shape relationship. This result is in line with our previous observations and analysis of the global sample.

Institutions appear to play a significant role in increasing the economic contributions of tourism. This positive influence confirms our statement that institutional quality is a vital driver for the sustainable development of tourism (Law *et al.*, 2016).

(2) Upper middle-income economies

The results for the 43 UMEs are presented in Table 4.

Table 3. Tourism and contribution to employment: low- and lower middle-income economies

Model	(1)	(2)	(3)	(4)
Dep. Var	TC1	TC1	TC2	TC2
GDPpc(−1)	−4.223*	0.190	−0.605	2.713***
	[2.329]	[1.577]	[1.007]	[0.692]
GDPpc^2(−1)	0.351**	0.095	0.059	−0.155***
	[0.165]	[0.113]	[0.072]	[0.049]
TS(−1)	3.294***	3.270***	1.248***	1.237***
	[0.208]	[0.198]	[0.090]	[0.086]
TD1(−1)	0.748***		0.358***	
	[0.071]		[0.025]	
TD2(−1)		1.277***		0.407***
		[0.139]		[0.051]
INST(−1)	3.494***	2.504***	1.422***	1.162***
	[0.345]	[0.343]	[0.121]	[0.113]
TRADE(−1)	−0.009***	−0.027***	−0.004***	−0.009***
	[0.002]	[0.004]	[0.001]	[0.002]
Cons	16.622**	−1.190	2.994	−9.087***
	[7.691]	[5.356]	[3.370]	[2.417]
N	779	779	779	779
R-squared	0.639	0.680	0.620	0.614
No. of countries	53	53	53	53

Note(s): Results are estimated by PCSE estimations. Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively
Source(s): Authors' own work

Table 4. Tourism and contribution to employment: upper middle-income economies

Model	(1)	(2)	(3)	(4)
Dep. Var	TC1	TC1	TC2	TC2
GDPpc(−1)	69.326***	73.527***	25.090***	25.686***
	[12.208]	[11.167]	[4.862]	[4.458]
GDPpc^2(−1)	−4.092***	−4.280***	−1.446***	−1.462***
	[0.715]	[0.650]	[0.286]	[0.261]
TS(−1)	3.553***	3.298***	1.377***	1.330***
	[0.233]	[0.234]	[0.108]	[0.113]
TD1(−1)	0.753***		0.372***	
	[0.106]		[0.052]	
TD2(−1)		2.109***		0.677***
		[0.113]		[0.040]
INST(−1)	2.520***	−0.092	0.313*	−0.500***
	[0.320]	[0.394]	[0.165]	[0.176]
TRADE(−1)	0.028***	−0.011**	0.017***	0.003
	[0.005]	[0.005]	[0.003]	[0.003]
Cons	−290.79***	−311.85***	−109.16***	−112.22***
	[51.683]	[47.639]	[20.461]	[18.877]
N	640	640	640	640
R-squared	0.576	0.646	0.535	0.566
No. of countries	43	43	43	43

Note(s): Results are estimated by PCSE estimations. Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively
Source(s): Authors' own work

Table 5. Tourism and contribution to employment: high-income economies

Model Dep. Var	(1) TC1	(2) TC1	(3) TC2	(4) TC2
GDPpc(−1)	47.209***	81.790***	16.359***	35.006***
	[12.569]	[14.279]	[5.926]	[6.860]
GDPpc^2(−1)	−2.447***	−4.157***	−0.795***	−1.716***
	[0.620]	[0.702]	[0.294]	[0.339]
TS(−1)	4.400***	3.447***	1.718***	1.168***
	[0.417]	[0.396]	[0.192]	[0.170]
TD1(−1)	0.689***		0.232***	
	[0.117]		[0.048]	
TD2(−1)		2.553***		1.426***
		[0.399]		[0.192]
INST(−1)	4.168***	4.295***	0.189	0.089
	[0.620]	[0.632]	[0.272]	[0.262]
TRADE(−1)	−0.020***	−0.036***	−0.002	−0.009***
	[0.005]	[0.003]	[0.002]	[0.001]
Cons	−223.76***	−396.99***	−81.83***	−175.97***
	[63.738]	[72.684]	[29.853]	[34.751]
N	778	778	778	778
R-squared	0.617	0.662	0.470	0.547
No. of countries	52	52	52	52

Note(s): Results are estimated by PCSE estimations. Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively
Source(s): Authors' own work

Table 6. Tourism and contribution to employment: interactions with institutions

Model Dep. Var	(1) TC1	(2) TC1	(3) TC1	(5) TC2	(6) TC2	(7) TC2
GDPpc(−1)	0.066	0.070	0.848***	0.210***	0.213***	0.536***
	[0.110]	[0.116]	[0.147]	[0.059]	[0.061]	[0.075]
TS(−1)	4.041***	4.157***	3.589***	1.611***	1.619***	1.385***
	[0.182]	[0.229]	[0.197]	[0.101]	[0.120]	[0.107]
TD1(−1)	0.724***	0.713***		0.301***	0.304***	
	[0.034]	[0.036]		[0.014]	[0.014]	
TD2(−1)			1.751***			0.730***
			[0.121]			[0.058]
INST(−1)	1.852***	2.072***	0.829**	0.473***	0.768***	−0.061
	[0.313]	[0.225]	[0.328]	[0.149]	[0.100]	[0.188]
INST(−1)*TS(−1)	0.330**			0.024		
	[0.156]			[0.076]		
INST(−1)*TD1(−1)		0.045			−0.068***	
		[0.030]			[0.016]	
INST(−1)*TD2(−1)			0.435***			0.166*
			[0.134]			[0.099]
TRADE(−1)	−0.010***	−0.009***	−0.026***	0.000	−0.000	−0.007***
	[0.002]	[0.001]	[0.002]	[0.001]	[0.001]	[0.001]
Cons	3.007***	2.803**	−2.706*	−0.918	−0.910	−3.248***
	[1.146]	[1.260]	[1.560]	[0.599]	[0.631]	[0.785]
N	2,197	2,197	2,197	2,197	2,197	2,197
R-squared	0.616	0.615	0.659	0.516	0.517	0.557
No. of countries	148	148	148	148	148	148

Note(s): Standard errors are in []. *, ** and *** are significant levels at 10, 5 and 1%, respectively
Source(s): Authors' own work

The numbers in Table 4 indicate that tourism investments and tourism spending have a significant positive effect on tourism contributions to employment. This is consistent with our earlier results for the full sample (as well as for the LMEs). This finding is also supported by Li *et al.* (2018), who confirmed the importance of the tourism supply side through the tourism investment factor to enhance gains for the employment generated by the tourism demand. All our findings are consistent with existing works in China (Liu *et al.*, 2017), in Brazil (Goffi *et al.*, 2019), Brazil, Mexico and the Philippines (Sokhanvar *et al.*, 2018).

Notably, the real GDP per capita has a significant positive effect, while its square has a significant negative effect on tourism contributions to employment of the UMEs. This observation suggests the existence of a U-inverted shape relationship between income level and employment contribution of tourism of UMEs, in line with our analysis of the global sample. In the same vein, institutional quality has a positive effect on the tourism contribution to employment (*TC1* and *TC2*).

(3) High-income economies

The results for the 52 HIEs are presented in Table 5.

Results in Table 5 show that investments in tourism and tourism spending have a positive effect on tourism's contribution to employment. Moreover, tourism investments have a larger coefficient than tourism spending, highlighting the larger role played by the supply side of tourism. The results are consistent with existing studies investigating this matter (Li *et al.*, 2018), e.g. in Spain (Balaguer and Cantavella-Jorda, 2002) and in Croatia, Estonia, Portugal, Bulgaria, Iceland, Hungary and Spain (Sokhanvar, 2019).

The significant negative effect of the real GDP per capita on tourism contribution to employment is in line with our results observed in the LMEs and the UMEs. In this context, tourism development in low-income countries would bring its contribution to a higher level in terms of total employment, while this contribution would gradually decrease with the income level in the UMEs. This observation confirms the fact that the GDP per capita has a positive effect, while its square has a negative effect on tourism contribution.

Institutions have a positive effect on the total contribution of tourism to employment. This finding is the same as the one observed for the UMEs: an improvement of the institutional quality would benefit the economy through the development of industrial sectors related to tourism. Interestingly, better institutions do not have a consistent effect on tourism's direct contribution to employment, which can be explained by the fact that governments with a good institutional framework would probably promote the development of sustainable tourism so that they would therefore limit the growth of a particular segment of the tourism industry (Li *et al.*, 2018).

4.3 Economic contributions of tourism: catalyst role of institutions

As mentioned in our methodology section, we also estimate the interaction of institutions with each proxy of tourism supply/demand on employment contribution. The results are reported in Table 6:

The estimated results show that interaction terms of institutional quality (INST) with tourism supply (*TS*) or tourism demand (TD2), except the case of TD1, are statistically significantly. This implies that a better institutional quality would stimulate the contribution of tourism to employment.

5. Conclusion

Our study is one of the first attempts in the literature to investigate the key determinants of tourism contributions in relation to employment from both sides, demand and supply of tourism. This study contributes to tourism economics by investigating the effects of tourism capital investment, tourism spending and institutional quality on the total (and direct)

contributions of tourism to employment. Our empirical findings contributed to the existing literature on three aspects.

Firstly, higher tourism investment and consumption provide positive gains for employment. These positive effects were confirmed in all three sub-samples. Furthermore, the marginal effect of tourism investment is larger than that observed for tourism spending. Notably, a better institutional quality also benefits tourism contributions, which implies that the improvements in institutions could boost these positive gains of tourism investment and tourism spending on employment.

Secondly, we showed the existence of a U-inverted relationship between income level and contributions of tourism to employment. This result suggests strong evidence of a nonlinear relationship between tourism development and other socio-factors, as documented in the current literature. This means that tourism development would follow the pattern of the Kuznets curve hypothesis. This U-inverted shape relationship indicates that economic development (income level) enhances the contributions of the tourism industry. Such growth would then be supported by a higher level of investment due to higher expected returns in this industry and a higher tourism demand (thanks to higher income levels). However, the development of the tourism industry and its relationship with the increase in income level would reach a particular level, after which further development of tourism might cause severe externalities leading to a reduction of tourism activities. This finding could also be explained by the fact that tourism is a special industry serving the leisure activities of humans, which is not in the same nature as the manufacturing or construction sectors – consequently, one particular destination can only serve a maximum number of tourists at one time.

Thirdly, besides the positive effects of tourism investment and consumption on tourism contributions in all three sub-samples. Interestingly, institutions play a positive catalyst for the contribution of tourism to employment.

Our study suggests policymakers prioritize tourism investment as it has one of the most significant positive parameters for employment, particularly in LMEs. In this context, strengthening institutional quality is essential for tourism development since better governance and improved public sector efficiency can enhance tourism contributions. In LMEs, such institutional reforms are vital to creating a more flexible and supportive environment for the tourism industry. For HIEs, where institutions provide strong institutional support, policymakers need to shift towards innovation and sustainability to maintain competitiveness.

Notes

1. See Li, K.X., Jin, M. and Shi, W. (2018), "Tourism as an important impetus to promoting economic growth: A critical review", *Tourism Management Perspectives* 26,135–142, https://doi.org/10.1016/j.tmp.2017.10.002, for a detailed literature.

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Supplementary material
The supplementary material for this article can be found online.

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