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Do tourism receipts affect *bank* profitability? Analytical evidence from 85 tourism economies

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ABSTRACT

Using data from 17,077 banks in 85 tourism economies during 1995–2016, this study analyzes the impact of international tourism receipts on banks' profitability and hence financial stability. This study uses two-step system dynamic generalized method of moments estimator techniques to find that the tourism receipts are received through both direct and indirect channels and adversely affect bank profitability. Developing and low-income countries experience the greatest negative impact on profitability. Banks in European countries suffer the highest negative impact, whereas those in the United States are affected the least. Commercial and savings banks experience the highest negative impact of tourism. The findings of the study emphasize prudence in fiscal spending in countries where tourism constitutes a significant part of government revenue. The deleterious impact of COVID-19 on the flow of tourism revenue is likely to affect bank profitability and financial stability of the countries dependent on tourism. Therefore, it is of great significance to policy planners worldwide. The study also opens new vistas for research.

1. Introduction

Theoretically, tourism plays a pivotal role in a country's economic growth. It is also among the fastest growing and the largest service sector worldwide (Foon and Chye, 2015). Tourism boosts economy through increased employment opportunities, new/-additional investments in infrastructure, augmented tax, and foreign exchange revenue. Tourism receipts contribute to this growth through both direct and indirect channels. Directly, increased income to governments from tourism receipts results in increased fiscal spending, thereby strengthening the growth prospects of national economy. Indirectly, more tourist arrivals in an economy results in an increased demand for various goods and services, improved business attitudes, and popular expectations. New public and private investments in the productive capacities triggered by higher tourism receipts to meet the increased demands in the economy further boost the growth rates.

Studies have shown a significant association between tourism and its contribution to economic growth in developed and emerging

market economies (Foon and Chye, 2015; Antonakakis et al., 2016, 2015; Perles-Ribes et al., 2017; Li et al., 2018; Dogru and Bulut, 2018). The effect of tourism on bank profitability, however, remains unexplored in the literature.[1]

The World Development Indicators (WDI) data revealed that in tourism economies where banks' lending activities and tourism are crucial to economic growth, the levels of bank profitability are low, whereas that of nonperforming loans (NPLs) are relatively high (Table 1). However, no econometric study has so far assessed the impact of tourism receipts on the banking system's profitability or examined whether it causes NPL problems in banks. Assessing the effects of tourism receipts on bank profitability not only provides a clear understanding of the drivers of profitability in countries that rely on tourism but also enables governments and regulators to develop appropriate strategic responses to preempt or ameliorate any adverse effects.

Given that banks are critical to the economic development process and key to financial stability, the importance of tourism receipts on the health of the banking sector must be recognized. Specifically, given the dependence on tourism revenue, the linkage between tourism and banks' financial performance and banking stability is crucial for the development of public policy, particularly during boom–bust tourism cycles. This study addresses this gap in the literature.

Increased liquidity in the financial system, resulting from high tourism receipts augments the deposit base of domestic banks, which, in turn, is intermediated into lending. The resultant increase in the lending activities permeates into the economic growth of the countries concerned and the banks' profitability. This study addresses three key questions: Does tourism revenue influences bank's profitability in tourism economies; in other words, is there a direct linkage between tourism receipts and bank profitability? Does the impact of tourism receipts on the profitability of banks varies according to the overall economic development of a country and its geographical location? Considering that commercial banks operate according to the conventional principles of accepting deposits and lending money, is the effect of tourism receipts on the profitability of commercial banks asymmetric compared with that on cooperative and savings banks? This study finds empirical evidence for these issues.

This study uses individual bank data from 1995 to 2016 for 17,077 banks from 85 global tourist countries to empirically analyze the effects of tourism receipts on the profitability of banks.[2] The study investigates whether banks that operate in tourism economies are more profitable, considering bank-specific characteristics such as their management efficiency, whether bank returns are affected by the financial structure, and macroeconomic conditions, such as financial development and business cycles. We study the differences in the relationship between tourism revenue and performance of banks operating in developing and developed countries (low-, middle-, and high-income economies) and those operating across different geographical regions.

This study makes multiple contributions to the literature on tourism. First, this empirical study is the first on banking to investigate the effect of tourism on the profitability of banks. Second, this study is the first that uses such a varied sample of banks worldwide. Third, the evaluation of the effect of tourism revenue on the profitability of banks would help governments not only in modulating their fiscal spending but also in enabling the central banks to better regulate the tourism market while monitoring the financial health of banks. Fourth, the panel data are classified into various subpanels and the effect of various conditions on the possible linkage of tourism and bank profitability is considered by including the level of development, income, specialization, geographic location (North and South America, Europe, Asia-Pacific, Middle East, and Africa), and the 2008 global financial crisis period (before, during, and after). This approach obviates the problems of using panel data in which different countries are grouped as a whole and not as independent units. Therefore, identifying country-specific differences in the relationships between tourism and bank profitability is difficult. If country-specific factors are crucial for determining the effect of tourism on bank profitability, this study emphasizes the importance of designing country-specific policies rather than adopting a common approach. Fifth, previous studies have restricted their samples to commercial banks, ignoring other specialized banking institutions. There are considerable variations in the banks' attitudes with different ownership structures toward managing risks, profitability, and capital. Hence, further classification helps to explore the differences in the relationship between tourism and profitability between different types of banks. This study includes all types of banks: commercial, savings, and cooperative. The results show that bank specialization is important, when one considers the effect of tourism, suggesting that banks should consider their specialization while evaluating alternative strategies to diversify revenue streams. Sixth, three proxies are used for assessing bank profitability: net interest margin (NIM), return on assets (ROA), and return on equity (ROE). Uniquely, all three proxies are found to be robust in this study on the relationship between tourism revenue and bank

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[1] In any economy, banks play the pivotal role of financial intermediation. This study emphasizes the importance of bank profitability and performance and, hence, financial sector stability to ensure balanced economic development. The banking industry worldwide has witnessed major structural reforms following the 2008 global financial crisis during the last decade. There has also been a fundamental shift in the banking orientation and, therefore, sustainable growth in profitability and holistic asset management practices. Both have received critical attention by the top management of banks in recent years. Similarly, post-crisis, ensuring financial sector stability has become one of the key mandates of central banks worldwide.

[2] This study focuses on 85 tourism economies for several reasons. Given their unique cultural heritage, their history of civilization, and the existence of religious places, these economies have attracted tourists across the globe. Research by the World Travel and Tourism Council (WTTC) finds that tourism in these economies accounted for 10.4% of the global GDP. In 2018, tourism in these economies contributed 10% of the total employment by creating 319 million jobs. The WTTC data also reflect that international tourism accounted for 71.2% of all tourism-related spending in 2018. It registered the most robust growth in developing nations and provided a much-needed impetus to economic growth and development in these economies. In 2018, tourism grew by a no Table 8.6% in North Africa, but the Asia-Pacific region also recorded a healthy growth of 6.4%. UNWTO data showed that political instability arising out of wars and revolutions during 2011 severely disrupted developing economies. International tourist arrivals to the Middle East dropped by 8.4% and to North Africa by 6.5%. Thus, an in-depth analysis of the effect of tourism revenue on banking profitability and, hence, financial stability in the 85 countries, is critical. Some of these economies have suffered from banking crises and there is ongoing bank restructuring in many of them.

Table 1

Stylized facts and hypothesis testing.

Panel A: Stylized facts: trends of international tourism receipts vs. banking indicators for world tourism countries 2010−2016

Year	2010	2011	2012	2013	2014	2015	2016
International tourism, receipts(USD billion)	1099.35	1231.34	1275.12	1369.44	1445.37	1391.89	1417.78
Bank concentration	76.88	76.03	74.83	74.69	74.09	75.63	74.97
Bank deposits to GDP (%)	66.90	66.96	67.60	68.94	71.00	70.65	74.77
Loan to deposits (%)	117.43	118.31	118.95	119.20	119.96	111.55	114.36
NPL ratio	6.00	6.15	6.17	6.64	6.81	6.60	6.67
NIM	3.78	3.75	3.72	3.69	3.55	3.69	3.56
ROA	1.13	0.94	1.03	1.00	0.86	0.87	0.81
ROE	10.5	9.84	9.27	9.10	9.01	9.12	8.94

Panel B: Hypothesis testing: the effect of tourism receipts on bank deposits, loans, and NPLs

	Demand deposits % total deposits	Total deposits % total assets	Loans % deposits	Loan growth	NPLs
Tourism receipts % GDP	0.663***	0.930***	0.617**	2.705***	0.122***
	(0.256)	(0.250)	(0.238)	(0.399)	(0.0150)
Control variables	Included	Included	Included	Included	Included

Source: WDI and author's own estimate.

profitability. Four proxies are used for tourism revenue: tourism receipts as a percentage of Gross domestic product (GDP), tourism receipts to exports, the natural logarithm of tourism receipts, and changes in tourism receipts. The panel data were analyzed using pooled regression and static and dynamic panel estimation techniques. Dynamic techniques were used to consider profit persistence, and endogeneity, if any.

This empirical analysis finds evidence that international tourism receipts adversely affect bank profitability. Increased tourism receipts weaken the banks' profitability in tourism economies. Specifically, international tourism receipts have the greatest (lowest) negative effect on the banks' profitability in developing and low-income (developed and high-income) tourism countries. Banks in European tourism economies suffer from the highest negative effect of tourism receipts on bank profitability, whereas those in the Middle East are affected the least. Moreover, international tourism receipts have a negative but insignificant impact on the profitability of investment and cooperative banks; however, they have a negative and significant impact on that of commercial and savings banks. The significant negative effect of tourism receipts on profitability is the highest in the case of commercial banks.

This study is presented as follows: Section 2 presents the hypothesis development. Section 3 reviews the empirical literature on tourism and bank profitability. Section 4 explains the data and variables. Section 5 reports the methodology used in this study. Section 6 presents the empirical results, and Section 7 presents the conclusion.

2. Hypothesis development

Tourism revenue is a critical element in the growth of tourism economies. Hence, volatility in tourism revenue has precipitous effects on the real economy. The health of a country's banking system is closely linked to the health of the economy. The linkage of tourism revenue to bank profitability and, in turn, to the health of the financial system of the concerned countries is critical for policy planners. From a macroeconomic perspective, higher tourism revenue leads to lower inflation, and it positively influences the national income. A decrease in tourism receipts, however, leads to a decline in the disposable income of households. Moreover, as tourism receipts are a major source of finance of private sector business, any dip in tourism revenue has an immediate negative impact on the health of the corporates and, consequently, on the profitability of banks, arising out of a higher incidence of NPLs. The hypothesis of tourism-led economic growth proposes that tourism is a major driver in ensuring eventual economic growth. Mihalic (2002) argued that tourism-led growth strategies have several advantages over growth fostered by the export of goods and services. Sahli and Nowak (2007) reported that many governments across the world have engaged in tourism development to promote economic growth. West (1993) argued that foreign exchange earnings, employment, and household income are the key benefits that accrue to an economy from tourism. Tang and Jang (2009) found that a temporal hierarchy exists between industries related to tourism. Hence, tourism can stimulate the development of related industries and can drive the overall growth of the economy (Holzner, 2011). Lee and Chang (2008) contended that the development of tourism not only ignites growth in specific industry sectors but also fosters the overall economic growth. The findings of these studies substantiate the argument that tourism boosts the national economy. However, based on the Granger causality test, other studies have found that tourism development does not result in economic expansion (Oh, 2005; Katircioglu, 2009). Moreover, contradicting the conventional understanding of at least one-way causal relationships, several studies argue that ultimately tourism and economic growth are not likely to be cointegrated. Hence, no relationship exists between tourism and economic growth.

International tourism receipts can affect bank profitability through both direct and indirect channels. In the direct channel, for example, higher inbound tourism significantly contributes to the external foreign exchange reserves, which boost tourism economies. This additional flow of foreign exchange results in higher fiscal spending by the government, which, in turn, augments the flow of deposits to banks. Lee and Brahmasrene (2013); Foon and Chye (2015), and Dogru and Bulut (2017) found that tourism revenues boost economic growth. Improved economic growth prospects lead to additional demand for bank credit. In the indirect channel, tourism

receipts affect bank deposits indirectly via improved tourism-related cash flows to business activity or excess liquidity in the market. Increased liquidity in the financial system, because of increased tourist arrivals and tourism-related remittances and spending, results in increased deposits in the banking system. Banks in tourism-dependent countries mediate in this increased flow of deposits resulting from tourism receipts in the form of bank lending. The nature of banking concentration and hence competition, affects the pricing of bank loans. In case of lower concentration, banks compete with each other for pricing lending products, which directly impacts their profitability. The presence of foreign banks stiffens competition in the local market and further negatively affects the margin of domestic banks.

When the tide of tourism turns, and there is a sudden drop in tourism revenue, governments tighten their fiscal spending, which adversely affects economic growth prospects. A deceleration in economic growth hurts corporate health and hence their balance sheet. Banks' procyclical behavior induces them to increase the loan prices during an economic contraction, which further precipitates default. This phenomenon was evident during 2010–2016, when an increase in international tourism receipts decreased bank market concentration and increased the loan-to-deposits ratio. The increased NPLs during this period led to a decline in the banks' profitability (i.e., NIM, ROA, and ROE) in the tourism economies (see Panel A, Table 1). Moreover, the results of testing the hypothesis using a two-step system generalized method of moments (GMM) (Panel B of Table 1) show that the impact of tourism receipts on bank demand deposits, total deposits, loans to deposits, loan growth, and NPLs is direct, positive, and significant at the 1% or 5% level. A significant association is likely between international tourism receipts and banks' profitability in tourist countries. Accordingly, the following hypothesis is proposed:

Hypothesis. Tourism receipts affect bank profitability.

3. Literature review

3.1. Empirical literature on tourism

The impact of tourism on the rate of economic growth has attracted considerable attention from policy planners, economists, and researchers alike. Such keen interest is mainly because the robustness of the policies related to tourism receipts can determine the direction of national economic growth and prosperity. Policy planners and economists, however, hold divergent views on the inter-relationship between tourism and economic growth. Empirical studies have also reported conflicting results. Various country-specific studies and studies in multinational frameworks have used different econometric approaches to examine this interrelationship.

Studies by Lee and Chang (2008) for Taiwan; Schubert et al. (2011) for Antigua and Barbuda; Seetanah (2011) for 49 countries; Stylidis and Terzidou (2014) for Kavala, Greece; Pratt (2015) for Small Island Developing States; Antonakakis et al. (2015) for 10 European countries; Antonakakis et al. (2016) for democratic regimes; Perles-Ribes et al. (2017) for Spain; Dogru and Bulut (2018) for 7 European countries; and Sokhanvar et al. (2018a,b) for Chile have reported that economic growth and tourism are interrelated, resulting in Granger causality economic growth. In their study in Malaysia on causality between different variables, Lean and Tang (2010) used Toda and Yamamoto's (1995) method developed by Dolado and Lütkepohl (1996) to confirm the existence of a stable correlation between tourism and growth from 1989 to 2009. However, other studies have argued that tourism expansion does not result in economic expansion (e.g., Sokhanvar et al. (2018a,b) for Colombia, Hungary, Poland, Russia, South Africa, Thailand, and Turkey). Oh (2005) found that economic growth in South Korea resulted in a unidirectional Granger causality from tourism and not in the opposite direction. Parida et al. (2017) for India; Sokhanvar et al. (2018a,b) for 98 countries; Sokhanvar et al. (2018a,b) for China, India, Indonesia, Malaysia, and Peru; and Demir and Gozgor (2018) for 15 countries report similar results. Contrary to the traditional understanding of one-way causality, Katircioglu (2009) found that tourism and economic growth in Turkey during 1960–2006 were not interrelated. Similar results were found by Webster and Ivanov (2014) for 131 countries during 2000–2010.

Other studies have analyzed the possible association between tourism and economic growth. Most, however, find that although tourism boosts economic growth, the effect is inelastic (the impact is less than 1 %).

3.2. Empirical literature on bank profitability

Two strands of literature have investigated the drivers of banks' profitability: one focuses on bank profitability in the context of a single country and the other on cross-country differences. Most studies have found that the key determinants of bank profitability are size, capitalization, liquidity, and credit risk. They also found that GDP, inflation rate, bank concentration, efficiency, and stock market capitalization significantly impact bank profitability. The results vary because of the differences in databases, the period under reference, and the country-specific environment.

Studies on drivers of bank profitability in the United States found capital position, size, market share, product differentiation, and bank risk as the key factors. Rhoades (1985) found that market share, and hence market power, bears a positive relationship with bank profitability. In a study of the profitability of US banks from 1973 to 1978, Smirlock (1985) found that bank size has a negative relationship with profitability. Berger (1995a) concluded that bank profitability is positively associated with x-efficiency and market power. Berger (1995b) also provided empirical evidence of the positive association between capitalization and bank profitability. Tregenna (2009) investigated the effects of bank size, market structure, and operational efficiency on bank profitability from 1994 to 2005. The study reported a strong profit–bank concentration relationship and argued that high profitability in the US banking system before the crisis resulted from a banking concentration and not from improved banking efficiency. Using GMM and pooled ordinary least squares (OLS) estimation techniques, Hoffmann (2016) found a strong association between bank profitability and capital position

Table 2

Numbers of banks, development and income levels, and geographical areas.

No.	Country	Number of banks	Development level	Income level	Geographical area	Tourism receipts (USD million)	Rank*
1	US	9525	Developed	High income	The Americas	144,400	1
2	Argentina	80	Developing	Upper middle income	The Americas	3903	53
3	Brazil	170	Developing	Upper middle income	The Americas	3939	48
4	Canada	54	Developed	High income	The Americas	15,230	23
5	Chile	44	Developed	High income	The Americas	1973	63
6	Colombia	47	Developing	Upper middle income	The Americas	2473	52
7	Costa Rica	44	Developing	Upper middle income	The Americas	1882	62
8	Mexico	43	Developing	Upper middle income	The Americas	11,620	18
9	Peru	30	Developing	Upper middle income	The Americas	1865.7	56
10	Bolivia	17	Developing	Lower middle income	The Americas	320.4	109
11	Ecuador	38	Developing	Upper middle income	The Americas	661.5	90
12	Venezuela	62	Developing	Upper middle income	The Americas	770.8	114
13	Austria	245	Developed	High income	Europe	16,410	19
14	Belgium	54	Developed	High income	Europe	9447	27
15	Bulgaria	26	Developing	Upper middle income	Europe	2630	60
16	Croatia	38	Developing	High income	Europe	6525	36
17	Cyprus	16	Developed	High income	Europe	2447	69
18	Czech Republic	25	Developed	High income	Europe	5765	43
19	Denmark	100	Developed	High income	Europe	5158	44
20	Finland	11	Developed	High income	Europe	3304	67
21	France	306	Developed	High income	Europe	47,580	5
22	Germany	1509	Developed	High income	Europe	38,810	7
23	Greece	17	Developed	High income	Europe	12,150	21
24	Hungary	28	Developing	High income	Europe	5171	41
25	Ireland	24	Developed	High income	Europe	6608	33
26	Italy	794	Developed	High income	Europe	36,810	9
27	Luxembourg	91	Developed	High income	Europe	3556	55
28	Netherlands	27	Developed	High income	Europe	13,020	16
29	Norway	130	Developed	High income	Europe	4361	47
30	Poland	65	Developing	High income	Europe	8911	30
31	Portugal	29	Developed	High income	Europe	10,260	25
32	Slovak Republic	18	Developing	High income	Europe	1532	70
33	Spain	146	Developed	High income	Europe	47,070	4
34	Sweden	97	Developed	High income	Europe	8026	31
35	Switzerland	237	Developed	High income	Europe	13,990	15
36	Turkey	46	Developing	Upper middle income	Europe	19,120	10
37	United Kingdom	120	Developed	High income	Europe	39,160	3
38	Bosnia and Herzegovina	22	Developing	Upper middle income	Europe	567.9	111
39	Estonia	9	Developing	High income	Europe	1117	81
40	Lithuania	10	Developing	High income	Europe	851.5	94
41	Macedonia	19	Developing	Upper middle income	Europe	146.4	137
42	Malta	11	Developing	High income	Europe	1000	91
43	Montenegro	7	Developing	Upper middle income	Europe	855.2	105
44	Romania	25	Developing	Upper middle income	Europe	1251	78
45	Serbia	8	Developing	Upper middle income	Europe	812.3	93
46	Ukraine	54	Developing	Lower middle income	Europe	2786	86
47	Australia	26	Developed	High income	Asia & Pacific	21,840	12
48	China	128	Developing	Upper middle income	Asia & Pacific	36,230	2
49	Hong Kong	96	Developed	High income	Asia & Pacific	19,500	8

Table 2 (*continued*)

No.	Country	Number of banks	Development level	Income level	Geographical area	Tourism receipts (USD million)	Rank*
50	India	102	Developing	Lower middle income	Asia & Pacific	9456	14
51	Indonesia	112	Developing	Lower middle income	Asia & Pacific	6784	29
52	Japan	850	Developed	High income	Asia & Pacific	11,740	13
53	Korea	72	Developing	High income	Asia & Pacific	11,430	17
54	Malaysia	43	Developing	Upper middle income	Asia & Pacific	12,240	20
55	Philippines	47	Developing	Lower middle income	Asia & Pacific	3280	46
56	Russia	325	Developing	Upper middle income	Asia & Pacific	10,210	26
57	Singapore	63	Developed	High income	Asia & Pacific	9671	22
58	Sri Lanka	20	Developing	Lower middle income	Asia & Pacific	1066	58
59	Thailand	51	Developing	Upper middle income	Asia & Pacific	19,990	6
60	Vietnam	32	Developing	Lower middle income	Asia & Pacific	4176	39
61	Bangladesh	38	Developing	Lower middle income	Asia & Pacific	78.5	145
62	Kazakhstan	29	Developing	Upper middle income	Asia & Pacific	933.9	83
63	Pakistan	56	Developing	Lower middle income	Asia & Pacific	781.8	108
64	Bahrain	51	Developing	High income	Middle East	1391	77
65	Kuwait	27	Developing	High income	Middle East	500	106
66	Oman	14	Developing	High income	Middle East	889.5	75
67	Qatar	9	Developing	High income	Middle East	3550	28
68	Saudi Arabia	15	Developing	High income	Middle East	7240	32
69	United Arab Emirates	31	Developing	High income	Middle East	5259	24
70	Egypt	41	Developing	Lower middle income	Middle East	6989	42
71	Israel	20	Developed	High income	Middle East	4451	50
72	Jordan	15	Developing	Lower middle income	Middle East	2600	54
73	Lebanon	63	Developing	Upper middle income	Middle East	4606	40
74	Morocco	18	Developing	Lower middle income	Africa	5420	38
75	South Africa	21	Developing	Upper middle income	Africa	7086	35
76	Botswana	9	Developing	Upper middle income	Africa	493.4	103
77	Ghana	19	Developing	Lower middle income	Africa	617.5	107
78	Mauritius	14	Developing	Upper middle income	Africa	1210	84
79	Nigeria	24	Developing	Lower middle income	Africa	346.2	125
80	Rwanda	8	Developing	Low income	Africa	142.4	127
81	Tanzania	12	Developing	Low income	Africa	1020	74
82	Tunisia	20	Developing	Lower middle income	Africa	2535	80
83	Uganda	17	Developing	Low income	Africa	487.9	97
84	Zambia	8	Developing	Lower middle income	Africa	342.1	113
85	Zimbabwe	13	Developing	Low income	Africa	178	141
Total No. of banks		17, 077					
Total observations		297,929					

Note: Classifications of countries based on their level of development, income level, and geographical area according to World Bank Data for 2016 and IMF. *The global ranking based on international tourism receipts 2016 issued by the International Tourism Organization (ITO) as well as the World Bank.

in the US banks. Chronopoulos et al. (2015) found an increase in profit persistence in the US banks during a crisis.

Several studies exist on bank profitability in the European economies. In their study of profitability in European banks during 1986–1989, Molyneux and Thornton (1992) found a negative relationship between liquidity and bank profitability. Goddard et al.

(2004) examined European economies and reported that profitability and bank size were weakly related but capitalization and profitability were significantly positively related. Maudos and Guevara (2004) used fixed- and random-effect models to decipher the drivers of NIM in European banking from 1993 to 2000. They concluded that the drop in NIM is consistent with the relaxation of competitive conditions and a corresponding increase in the market power and banking concentration in the European economies. Pasiouras and Kosmidou (2007) used GMM and pooled OLS techniques to study bank profitability and concluded that bigger banks are profitable than smaller banks as they benefit from economies of scale and scope. In their study of banking profitability in eight European economies using a dynamic panel model, Goddard et al. (2013) found that efficient and diversified banks are more profitable than others. They also find that profitability is lower for banks that are more capitalized. Saghi-Zedek and Tarazi (2014) found similar results.

Cross-country studies are relatively scarce in the literature. Demirguc-Kunt and Huizinga (1999) investigated the determinants of bank profitability in 80 countries. They observed that the relationship between GDP and bank profitability varies between developing and developed countries. They concluded that in economies with a large banking sector in relation to GDP, banks have a lower profit margin and profitability. They argued that a positive association exists between banking concentration and bank profitability. They also reported that in developing economies, foreign banks create a higher NIM and hence higher profitability. In their analysis of 42 countries from 1994 to 2008, Lee and Hsieh (2013) found that commercial banks show the highest reverse effect of capital on profitability than other banks, which show the lowest but positive capital effect on profitability. The effect of capital on profitability also varies between low- and high-income economies. In their study on the relationship between market power and bank profitability using the data of 1929 banks in 40 emerging market and advanced economies from1990 to 2008, Mirzaei et al. (2013) found that a higher market power results in better bank performance in advanced economies. However, they found no support for the structure–conduct–performance (SCP) hypothesis for profitability in the banking sectors of emerging market economies. Dietrich and Wanzenried (2014) investigated banking profitability in 118 countries using 10,165 banks from 1998 to 2012. They reported that the determinants of profitability in terms of size, sign, and significance largely vary across countries with varying income levels. Using a sample of 1992 banks from 39 OECD economies during 1999–2013, Bitar et al. (2018) found that the imposition of higher capital requirements adversely affects the efficiency and profitability of banks with high liquidity.

Albertazzi and Gambacorta (2009) argued that a key element in the macroprudential assessment of any country is to assess the linkage of banking profitability with fluctuations in the business cycle. They addressed the likely impact of structural and institutional characteristics on this linkage while identifying a set of equations for measurement. Athanasoglou et al. (2008) argued that a profitable banking system can absorb adverse economic shocks and maintain stability in any country's financial system. In the banking literature, ROA, ROE, and NIM are extensively used as determinants of bank profitability. Lee and Hsieh (2013); Mirzaei et al. (2013); Lee et al. (2014), and Bitar et al. (2018) expanded these determinants to include the effect of bank-specific factors, such as cost efficiency, liquidity, credit risk, bank size, and capital ratio, and industry-specific ratios, such as the nature of ownership, stock market capitalization and concentration, including macroeconomic variables such as GDP growth and inflation as additional determinants of bank performance.

Given its importance in tourism economies, tourism revenue has a significant impact on banks' performance; however, no research has so far addressed this issue. Similarly, does the impact of tourism revenue on bank profitability differ by country, across developed and developing economies and across low-, middle-, and high-income economies? These issues would be of key interest to policy planners, regulators, and other stakeholders.

4. Data and variables

This study used unbalanced unit-level panel data of 17,077 banks in 85 tourism economies in the Americas, Europe, Asia and the Pacific, the Middle East, and Africa. The sample covers 1995–2016. Most banks in our sample are from the US (9525), followed by Germany (1509), Japan (850), and Italy (794). The study data set also includes all types of banks: commercial, cooperative, and savings. Investment banks are excluded from the sample because they do not take deposits. One bank was excluded from the sample because of the unavailability of data for three consecutive years. To assess bank profitability, we drew data from the Bankscope database. We collected data on tourism receipts, macroeconomic variables, and financial structure indicators from the United Nations World Tourism Organisation (UNWTO), World Travel and Tourism Council (WTTC), and WDI, respectively. Column 5 of Table 3 presents the classification of countries based on the level of income. We categorized the economies according to the 2016 GNI per capita, calculated using the World Bank Atlas method. If data on GNI per capita were unavailable, we substituted GDP per capita. The countries in our analysis were grouped as high income (41), upper middle income (24), lower middle income (16), and low income (4). Column 4 of Table 3 presents the development level of each country. We classified the economies using the IMF definition: advanced (27 countries) and developing (58 countries). According to the OECD standards, 13 developing countries in our sample were defined as high income, while the rest were classified as not high income. Column 6 of Table 3 shows the geographic regions of the sample countries: the Americas (12), Europe (34), Asia and Pacific (17), Middle East (10), and Africa (12). Columns 7 and 8 of Table 2 present tourism receipts in USD and the global tourism ranks of the countries in the sample. The global tourism ranking is based on international tourism receipts for 2016 issued by the International Tourism Organization (ITO) and World Bank.

Table 3 presents the definitions of variables and the respective data sources. Table 4 gives the profile of the mean values of variables during the sample period for different bank types in the countries grouped by development level, level of income, geographic region, and specialization. Country-wise mean values of the variables are reported in Appendices A and B. The sample averages of the independent variables of tourism receipts and as a percentage of GDP are US$9.45 billion and 4.24 %, respectively. The highest average value of tourism receipts is for developed countries (US$20.47 billion) followed, by high-income countries (US$14.83 billion), North

Table 3
Definition of variables.

Variables	Description	Source
***Dependent variables:* Bank profitability**		
NIM	Net interest margin = Net interest revenue/total assets	Bankscope
ROA	Return on assets = Net profits before taxes/total assets	Bankscope
ROE	Return on equity = Net profits before taxes/total equities	Bankscope
Independent variables:		
Tourism receipts	International tourism real receipts per capita (% of total GDP)	UNWTO and WTTC
Control variables:		
Bank-specific factors:		
Bank efficiency	The ratio of total operating expenses to the sum of net interest revenue and non-interest income	Bankscope
Bank capitalization	Calculated as equity-to-total assets	Bankscope
Opportunity cost	This variable is proxied by the ratio of liquid reserves/total assets	Bankscope
Market risk	Measured by the total amount of security investments to total assets ratio	Bankscope
Liquidity risk	Calculated as loans divided by total assets	Bankscope
Credit risk	Measured by non-performing loan to loans ratio	Bankscope
Bank size	The natural logarithm of the accounting value of the total assets	Bankscope and authors' calculation
Macroeconomic environment		
GDP growth	Real GDP growth rate	WDI
Fiscal stance	The ratio of public surplus to GDP	WDI
Inflation rate	Current period inflation rate (consumer prices)	WDI
Unemployment rate	Unemployment, total (% of total labor force)	WDI
Industry-specific:		
Bank concentration	Bank concentration is calculated by dividing the assets of the five largest banks by the assets of all banks operating in the market	Bankscope and authors' calculation
Market capitalization	The ratio of stock market capitalization to GDP	WDI

and South America (US$15.75 billion), and the US (US$144.4 billion). However, the highest average value of tourism receipts as a percentage of GDP is for developing countries (4.49 %) followed, by upper-middle-income countries (4.82 %), the Middle East region (5.62 %), and Montenegro (20.15 %). For the dependent variable, bank profitability, NIM averages at 4.81 %; the highest values are for commercial banks (4.29 %) followed, by developing countries (5.88 %), low-income countries (12.81 %), Africa region (8.74 %), and Zimbabwe (16.98 %). Regarding the ROA, the average is 1.51 % and the highest value is for cooperative banks (1.39 %) followed, by developing countries (1.72 %), low-income countries (2.97 %), Americas region (2.45 %), and Bolivia (7.886 %). The average ROE is 11.63 %, and the highest value is for cooperative banks (11.19 %) followed, by developing countries (12.36 %), low-income countries (24.03 %), Africa region (20.18 %), and Botswana (38.53 %).

Table 5 provides the profile of Pearson's correlation coefficients. We find that the correlation is small (less than 0.5), which indicates that the independent variables have a weak association. Gujarati (2003) argued that there is no multicollinearity issue if the correlation coefficient is less than 0.90. Furthermore, Kennedy (2008) suggested that multicollinearity becomes a critical issue only when the correlation coefficient is more than 0.80; this is, however, not true in this study.

4.1. Banks' profitability

This study assesses the influence of tourism receipts on banks' profitability in global tourism economies, while we control for a comprehensive set of bank-specific, macroeconomic, and industry-specific variables. Consistent with the literature, NIM, ROA, and ROE are used as indicators of bank profitability (Table 3). Studies have widely used the ratio NIM for analyzing bank profitability (Athanasoglou et al., 2008; Dietrich and Wanzenried, 2014). The focus is on the profit earned by banks from their lending/funding activities and reflects the bank's ability to set lending rates in relation to interest expenses.

In studies, ROA is popularly used as a key ratio in evaluating the banks' profitability (Athanasoglou et al., 2008; García-Herrero et al., 2009). ROA is also used to assess banking efficiency as it evaluates the extent of returns generated by banks from their assets book. ROA reflects profits earned per unit of assets and assesses the bank management's ability to use its financial resources to generate profits. While NIM focuses on assessing the banks' ability to make a profit from interest-generating activities, ROA focuses on the extent of the profit earned by a bank per unit of its assets.

ROE is the measure of the return on shareholders' investment in equity. Although ROE is not as popular as ROA, it is a benchmark indicator of the banks' financial performance. Tan (2016) argued that banks with higher equity levels (i.e., lower leverage) generate higher ROA but lower ROE. He also argued that ROE does not consider a higher level of risk resulting from higher leverage and disregards the regulatory restrictions on leverage. ROE, according to Tan, is not an appropriate indicator of bank profitability.

Briefly, NIM, ROE, and ROA capture different aspects of banking operations. NIM focuses on the bank's lending activities, ROA on the bank's ability to generate profits from its assets, and ROE on the bank's robustness in its leverage decisions. These profitability

Table 4

Variable means over the sample period for different types of bank during the period 1995–2016.

Variable	All Countries	Developed countries	Developing countries	High-income countries	Upper middle-income countries	Lower middle-income countries	Low-income countries	Americas region	Europe region	Asia & Pacific region	Middle East region	Africa region	Commercial banks	Cooperative banks	Savings banks
NIM	4.81	2.50	5.88	2.86	6.26	5.65	12.81	8.04	3.44	3.54	3.04	8.74	4.29	3.78	3.01
ROA	1.51	1.05	1.72	1.19	1.55	1.88	2.97	2.45	0.96	1.18	1.66	2.43	1.02	1.39	0.83
ROE	11.63	10.07	12.36	10.14	12.17	11.56	24.03	13.02	8.38	10.75	12.25	20.18	7.58	11.19	9.16
Tourism receipts (USD billion)	9.45	20.47	4.32	14.83	6.06	2.97	0.46	15.75	11.09	10.55	3.75	1.66			
Tourism receipts% of GDP	4.24	3.68	4.49	4.20	4.82	3.65	3.45	1.79	5.08	2.93	5.62	4.98			
Bank efficiency	210.25	262.43	185.97	241.76	163.64	220.63	125.52	79.88	259.60	236.57	204.36	168.45	83.88	178.68	203.13
Bank capitalization	10.80	7.40	12.39	9.18	12.46	11.11	16.28	10.82	9.72	9.49	13.28	13.64	10.12	8.34	7.25
Opportunity cost	9.49	5.25	11.47	6.33	12.75	10.49	18.27	9.93	9.17	7.35	8.19	14.08	3.17	5.05	7.29
Market risk	21.20	21.78	20.93	21.59	18.78	23.27	23.45	16.95	21.13	22.65	22.04	22.93	26.09	20.60	22.78
Liquidity risk	62.64	68.09	60.06	67.22	58.22	60.72	48.95	62.75	63.77	63.04	66.91	55.24	66.14	65.89	60.12
Credit risk	3.93	2.70	4.50	3.20	4.38	5.16	3.85	2.86	4.20	3.56	4.45	4.33	1.43	2.47	1.62
Bank size	17.57	17.82	17.45	17.38	17.46	17.76	19.34	17.39	16.61	20.04	16.82	17.59	13.83	16.82	20.31
GDP growth	3.71	2.45	4.30	3.02	3.85	4.83	5.59	3.33	2.69	4.80	4.42	4.85			
Fiscal stance	−0.40	1.82	−1.43	2.19	−2.85	−1.44	−8.13	−0.97	−1.86	2.27	4.47	−3.55			
Inflation rate	6.33	2.02	8.33	2.64	9.76	8.97	12.96	8.71	5.13	5.88	3.12	10.65			
Unemployment rate	8.57	7.30	9.16	7.54	11.59	7.97	3.34	8.99	10.13	5.12	7.31	9.64			
Bank concentration	67.99	74.34	65.03	74.31	62.39	62.29	59.49	59.04	74.33	62.35	72.98	62.78	34.57	66.41	55.89
Market capitalization	48.27	81.08	32.72	65.84	35.40	27.56	21.46	42.56	44.26	65.42	52.17	36.83			

Table 5
Correlation matrix.

No.}	}	1}	2}	3}	4}	5}	6}	7}	8}	9}	10}	11}	12}	13}	14}
1	Tourism receipts	1													
2	Bank efficiency	−0.199***	1												
3	Bank capitalization	−0.033***	−0.183***	1											
4	Opportunity cost	−0.412***	0.030***	0.072***	1										
5	Market risk	0.123***	0.056***	−0.033***	−0.119***	1									
6	Liquidity risk	0.224***	0.018**	−0.202***	−0.303***	−0.377***	1								
7	Credit risk	−0.168***	0.219***	0.118***	0.222***	−0.022***	0.085***	1							
8	Bank size	−0.317***	0.310***	−0.262***	0.138***	0.012*	0.0001	0.048***	1						
9	GDP growth	−0.043***	0.079***	0.074***	0.179***	0.030***	−0.137***	−0.0102	0.122***	1					
10	Fiscal stance	−0.030***	0.072***	−0.0147**	−0.014**	0.052***	−0.044***	0.044***	0.076***	−0.0027	1				
11	Inflation rate	−0.026***	−0.005	0.049***	0.026***	0.0005	−0.034***	0.0051	0.030***	−0.0007	0.0006	1			
12	Unemployment rate	−0.275***	0.023***	0.116***	0.222***	−0.074***	−0.124***	0.213***	−0.098***	−0.048***	−0.054***	0.0003	1		
13	Bank concentration	−0.259***	0.281***	−0.013*	0.073***	−0.116***	0.0027	0.172***	0.194***	−0.064***	0.054***	−0.019***	0.112***	1	
14	Market capitalization	0.359***	−0.116***	−0.021***	−0.178***	0.040***	0.102***	−0.166***	−0.174***	−0.033***	−0.065***	−0.015***	−0.166***	−0.018***	1

indicators used in this study assess the banks' profitability from various perspectives and provide a comprehensive assessment of banking health, facilitating the development of appropriate macroprudential policies by the regulatory authorities. To prevent any abnormality or possible measurement errors, the outliers in NIM, ROA, and ROE below the 1 st percentile and above the 99th percentile of the distribution of our sample are omitted (Chen et al., 2015).

4.2. Tourism receipts

International tourism real receipts per capita is the prime indicator of tourism revenue, commonly used in earlier studies (Anto-nakakis et al., 2016; Pratt, 2015; Tang and Abosedra, 2014; Lee and Brahmasrene, 2013; Schubert et al., 2011). The receipts from international tourism include expenditure by inbound international visitors and payments made to national carriers for their travel. This study uses international tourism receipts as a percentage of GDP for the analysis. Several other measures are also used in robustness tests, such as international tourism receipts as a percentage of total exports, the log of receipts from international tourism, and changes in receipts from international tourism.

4.3. Control variables

Following Mirzaei et al. (2013); Djalilov and Piesse (2016); Maudos (2017); Psillaki and Mamatzakis (2017); Bouzgarrou et al. (2018), and Saif-Alyousfi et al. (2020a, 2020b), this study introduces several bank-specific control variables, such as bank efficiency, bank capitalization, opportunity cost, market risk, liquidity risk, credit risk, and bank size. Bank efficiency is measured by dividing operating expenses by total income and bank capitalization as the ratio of equity to total assets. We proxy the opportunity cost by the ratio of liquid reserves to total assets. The study also considers market risk, measured as the ratio of total investments in securities to total assets and liquidity risk, calculated as loans divided by total assets. Credit risk is measured by the percentage of NPLs and bank size by the log of total assets. For the country-specific control variables, the business cycle's condition is assessed by adding the real GDP growth rate per annum, inflation rate, and rate of unemployment. Governments in most tourism countries depend heavily on tourism-related revenues. Therefore, an additional macro-control variable is included as the ratio of public surplus to GDP, which positively affects banks' profitability. This study also uses bank concentration and stock market capitalization as a percentage of GDP to capture industry-specific factors. The SCP hypothesis proposes that higher market concentration indicates greater market power, which enables firms to make higher profits. Under this hypothesis, a higher market concentration boosts bank profitability. However, according to the efficient market hypothesis, banks in a concentrated market are more efficient under higher product diversification. Banks' efficiency leads to higher profitability in such markets. Hence, a higher level of concentration may not imply greater market power. Therefore, concentration and profitability need not be positively correlated. Market concentration is computed by dividing the total assets of the five largest banks in an economy by the assets of all banks operating there. The effect of this variable on bank profitability is unpredictable.

5. Methodology

This study uses both static and dynamic panel estimation techniques to calculate the impact of tourism receipts on bank profitability for 85 countries. The following static panel estimation techniques are used: cross-section pooled OLS, random-effects (RE), and fixed-effects (FE) models. The two-step system GMM estimator is used as the dynamic panel estimation technique.

To assess the impact of tourism on bank profitability for 85 countries, Eq. (1) is estimated with static panel estimation techniques. The model that provides the most robust results is chosen.

$$
\begin{aligned}
\mathbf{PROF}_{ijt} = \boldsymbol{\beta}_0 + &\sum_{j=1}^{J} \boldsymbol{\beta}_1 \mathbf{TOUR}_{jt} + \sum_{j=1}^{J} \boldsymbol{\beta}_2 \mathbf{BAN}_{ijt} + \sum_{j=1}^{J} \boldsymbol{\beta}_3 \mathbf{MAC}_{jt} + \sum_{j=1}^{J} \boldsymbol{\beta}_4 \mathbf{IND}_{jt} + \sum_{j=1}^{J} \varnothing_1 \mathbf{Countrydummy}_j \\
&+ \sum_{j=1}^{J} \boldsymbol{\varphi}_1 \mathbf{Timedummy}_t + \boldsymbol{\varepsilon}_{ijt}
\end{aligned}
\tag{1}
$$

where i, j, and t indices denote bank, country, and time, respectively. *PROF* is the profitability of banks proxied by NIM, ROA, and ROE. β_0 is the constant term. *TOUR* is the tourism receipts; *BAN* is the bank-specific factors; *MAC* is the macroeconomic factors; *IND* is the industry-specific factors; and ε is the error term.

The appropriateness of the model selection can be confirmed using several formal statistical tests. This study uses the Breusch–Pagan Lagrange Multiplier (LM) test in our choice between cross-sections pooled OLS and a RE model to examine the null hypothesis. Rejection of this hypothesis indicates that the choice of the cross-section pooled OLS technique is inappropriate. Choosing between FE and RE models, the Hausman specification test is used to examine the null hypothesis that random effects are consistent and efficient. If the hypothesis is rejected, the robustness of the FE model estimation results is confirmed.

Because of the dynamic nature of the banks' profitability and economic behavior, the GMM estimator proposed by Arellano and Bover (1995) is used to estimate the combined effects of tourism receipts and other determinants of banks' profitability in 85 countries. Calculating profitability using NIM, ROA, or ROE is difficult. The first issue is the problem of endogeneity: for example, profitable banks strengthen their equity base by retaining profits. They also spend more on advertising to augment their business and hence size, which results in improved profitability. The causality, however, could be the opposite. For example, the operational efficiency of more

Table 6

Full Sample: The relationship between tourism receipts and bank profitability using two-step system GMM.

	NIM	ROA	ROE
Lag $_{t-1}$	0.511***	0.427***	0.396***
	(0.0156)	(0.0145)	(0.0153)
Tourism receipts	−0.145***	−0.174***	−2.340***
	(0.0301)	(0.0302)	(0.318)
Bank efficiency	−0.273***	−0.0132***	−0.361***
	(0.0432)	(0.0032)	(0.0395)
Bank capitalization	0.0690***	0.0546***	−0.108*
	(0.0059)	(0.0054)	(0.0604)
Opportunity cost	0.0182***	0.0107***	0.154***
	(0.0047)	(0.0039)	(0.0424)
Market risk	−0.127***	0.0103***	0.0907***
	(0.0300)	(0.0026)	(0.0317)
Liquidity risk	0.0282	0.0471	0.0374
	(0.0298)	(0.0370)	(0.0321)
Credit risk	−0.0183	−0.121***	−1.202***
	(0.0168)	(0.0153)	(0.164)
Bank size	0.156***	0.0851***	0.785***
	(0.0366)	(0.0209)	(0.270)
GDP growth	0.0243***	0.0274***	0.358***
	(0.0062)	(0.0052)	(0.0586)
Fiscal stance	0.0548***	0.0701***	0.0235*
	(0.0128)	(0.0122)	(0.0122)
Inflation rate	0.0776	0.0159	0.0123
	(0.0665)	(0.0640)	(0.0719)
Unemployment rate	−0.0621***	−0.0463***	−0.327***
	(0.0092)	(0.0079)	(0.0866)
Bank concentration	0.0168	0.0338	0.00589
	(0.0154)	(0.0989)	(0.0131)
Market capitalization	0.0202***	0.0509***	0.0359***
	(0.0068)	(0.0061)	(0.0066)
Country dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
No. of observations	229,502	229,502	229,502
No. of banks	16,393	16,393	16,393
Sargan/Hansen test P-value	0.495	0.460	0.582
AR(2) P-value	0.641	0.698	0.107

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively. The coefficient of constant is removed to save the space.

profitable banks is adversely affected as they recruit more personnel. The second issue is the unobservable heterogeneity across banks, such as the mechanism of corporate governance, which is difficult to measure. These economies could have substantial heterogeneity. Finally, because of political interference, the persistence of profitability across various economies could be a challenge. This study uses GMM, also known as the system GMM estimator, proposed by Arellano and Bover (1995) to address these issues. GMM accounts for the problems of endogeneity. Lagged values of the dependent variable are used in levels and differences in the system GMM estimator. The study also used lagged values of other regressors as instruments and hence has potential problems of endogeneity. The dynamic version of Eq. (1) can be rewritten as follows:

$$
\mathbf{PROF_{ijt}} = \beta_0 + \beta_1 \mathbf{PROF_{ijt-1}} + \sum_{j=1}^{J} \beta_2 \mathbf{TOUR_{jt}} + \sum_{j=1}^{J} \beta_3 \mathbf{BAN_{ijt}} + \sum_{j=1}^{J} \beta_4 \mathbf{MAC_{jt}} + \sum_{j=1}^{J} \beta_5 \mathbf{IND_{jt}} + \sum_{j=1}^{J} \varnothing_1 \mathbf{Countrydummy_j}
$$
$$
+ \sum_{j=1}^{J} \varphi_1 \mathbf{Timedummy_t} + \varepsilon_{ijt}
$$
(2)

Specifically, two types of GMM estimators are reported in the literature on the estimation of dynamic panels: Arellano and Bond (1991) developed the difference GMM estimator, and Arellano and Bover (1995) developed the system GMM estimator. The data are first differentiated in the difference GMM estimator to eliminate fixed effects. In the system GMM estimator, however, the data are simultaneously estimated in differences and levels. According to Lee and Hsieh (2013), the system GMM is better than the difference GMM because of more robustness in reducing the finite sample bias and improving efficiency gains. Sarafidis et al. (2009) argued that in unbalanced panel data, as is the case in this study, the system GMM addresses serial correlation better than the difference GMM. Moreover, the system GMM addresses the problem of unit root property and presents accurate results (Bond, 2002; Tan, 2016).

The system GMM technique has one-step and two-step alternatives. Lee and Hsieh (2013) argued that the two-step GMM estimator is more robust to the problem of weak instruments and, therefore, more efficient than the one-step estimator. Regarding the two-step

estimator, Windmeijer (2005) proposed a corrected variance estimate, arguing that owing to lower bias and standard errors, it produces more accurate inferences than the one-step version. Considering these reasons and following the approaches adopted in studies by García-Herrero et al. (2009) and Lee and Hsieh (2013), this study adopts the two-step system GMM estimator with Windmeijer's (2005) corrected standard error. The Sargan/Hansen test of over-identifying restrictions and the Arellano–Bond test for autocorrelation are used to test the validity of the instruments.

6. Empirical results

6.1. Benchmark results

This section reports our estimation results. The first stage examines all the banks at the aggregate level and then checks the individual subpanels. This study of the subpanels assesses the impacts of the country-specific characteristics. In addition, we study the linkage between tourism revenue and the profitability of different types of banks.[3]

The model is estimated using the two-step system dynamic GMM estimator with a one-period lagged dependent variable. Table 6 presents the results of the analysis. The Sargan test fails to reject the null hypothesis at 5%. The moment conditions of this model are also valid. The significant coefficients of the lagged dependent variables (NIM, ROA, and ROE) confirm that the use of the dynamic model. Hence, robustness of our estimates using the two-step dynamic GMM process is confirmed and the standard errors are unbiased. Therefore, inferences can be drawn based on our estimation results.

Similar to our estimation results for the static panel, using the two-step dynamic GMM estimator indicates that tourism receipts adversely affect the bank's profitability (NIM, ROA, and ROE) at 1 % significance level. Specifically, on an average 10 % increase in per capita real tourism receipts, the NIM, ROA, and ROE of banks in 85 tourist countries decreases by 1.5 %, 1.7 %, and 23.4 %, respectively. The robustness of this result suggests that tourism receipts have a direct bearing on the profitability of banks in countries that are highly dependent on tourism revenue.

Several factors lead to an adverse effect of tourism revenues on the banks' profitability. In the direct channel hypothesis, given that tourism receipts constitute a considerable portion of governments' external revenue, higher tourism revenues directly affect fiscal spending and improves economic growth prospects of the countries concerned. Lee and Brahmasrene (2013); Foon and Chye (2015), and Dogru and Bulut (2017) found that tourism revenues boost economic growth. This growth prospect results in increased demand for bank credit but simultaneously increases competition in the banking space. Increased competition results in a squeeze in the profit margin of the banks vying for a slice of the increased demand for bank lending, adversely affecting their profitability. The indirect channel hypothesis assumes that improved business confidence during boom periods of tourist arrivals results in exuberance in lending. In such an environment, banks tend to overstretch prospective customers by relaxing their credit standards, which lowers the quality of their assets portfolio and increases the default risk in their loan portfolio. An increased default in the loan book adversely affects the banks' profitability. In terms of other indirect channels, increased liquidity in the financial system due to higher tourist arrivals and tourism-related spending increases deposits in the banking system. Banks, in search of profitability, intermediate these deposits into lending even at a shrinking margin, which further jeopardizes the quality of their loan books. Any volatility in tourist arrivals sharply increases the rate of delinquency, while default in the loan books adversely affects profitability.

Regarding the control variables, there are several interesting results. First, cost-efficient banks earn higher profits, suggesting that better managed banks are more profitable. Second, we find that banks with a higher level of capitalization, reserves, and investment in securities have better profitability, which suggests that banks with a higher level of capital and reserves prefer less risky but healthier projects to improve their profitability. Third, banks with higher NPLs have lower profitability. Fourth, larger banks are more profitable. Fifth, with regard to macroeconomic variables, an increased rate of growth of GDP or market capitalization increases the profitability of the banking system. This suggests that banks located in countries with high GDP growth rates or economies with well-developed financial markets have better profitability. A higher fiscal spending by governments results in better bank profitability.

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[3] First, we estimate the growth model for our panel of 85 tourism countries using the static panel estimation technique; however, to save space, we do not report the results in Table 6. Our findings suggest that all coefficients of the estimated model of growth with cross-section pooled OLS have the correct sign, and the majority are significant at the level of 1%. Similarly, our RE model estimation results bear the expected signs and are significant at 10 %. R-square statistics of the goodness of fit are higher than 0.40. The rejection of the null hypothesis of the absence of a random effect by the Breusch–Pagan LM test indicates that our estimates of the RE model are more robust than those with the cross-section pooled OLS. The next stage compares the RE and FE models using the Hausman test and concludes that the estimated results with our FE model are more appropriate than the RE model. However, the error-variance generated by our FE model is unequal (i.e., heteroskedastic), and there exist serial correlations among the residuals. To overcome the problem of heteroskedasticity, we again estimate our FE model using the panel-corrected standard error estimator. The R-square values of tourism receipts and the other explanatory variables can explain 57.3 %, 54.5 %, and 55.9 % of the variation in NIM, ROA, and ROE, respectively, for the countries in our sample. The FE model, therefore, is found to be appropriate, and the entire set of explanatory variables is found to be significant at 1 %. Our findings also suggest that tourism receipts have a negative impact on bank profitability (NIM, ROA, and ROE) in these tourist economies. A 10 % rise in per capita real tourism receipts decreases these profitability measures by 1.2 %, 0.5 %, and 5.1 %, respectively. Nonetheless, Tang and Abosedra (2014) and Solow (2001) argued that economic behaviors and tourism are complex and dynamic. García-Herrero et al. (2009) and Saif-Alyousfi et al. (2020a, 2020b) argued that in estimating bank profitability, researchers face challenges of endogeneity, unobservable heterogeneity, and persistence of profitability. To assess the possible relationship between the profitability of banks and tourism over time, the specification of the model must also be dynamic. The authors confirm that the two-step system dynamic GMM estimator is the appropriate method to solve these problems.

Table 7

Different development levels: The relationship between tourism receipts and bank profitability using two-step system GMM.

	NIM	ROA	ROE
Panel A: All developed countries			
Lag $_{t-1}$	0.696***	0.575***	0.482***
	(0.00488)	(0.00618)	(0.00570)
Tourism receipts	−0.0860***	−0.0591**	−0.780**
	(0.0243)	(0.0204)	(0.292)
No. of observations	198,800	198,800	198,800
No. of banks	14,200	14,200	14,200
Sargan/Hansen test P-value	0.594	0.559	0.575
AR(2) P-value	0.220	0.159	0.174
Panel B: US			
Lag $_{t-1}$	0.816***	0.582***	0.577***
	(0.0025)	(0.00316)	(0.00268)
Tourism receipts	−0.287***	−0.509***	−0.832***
	(0.0108)	(0.00989)	(0.0997)
No. of observations	131,894	131,894	131,894
No. of banks	9421	9421	9421
Sargan/Hansen test P-value	0.413	0.457	0.479
AR(2) P-value	0.152	0.132	0.233
Panel C: Developed countries without US			
Lag $_{t-1}$	0.496***	0.475***	0.398***
	(0.0163)	(0.0187)	(0.0173)
Tourism receipts	−0.296***	−0.139***	−0.846*
	(0.0321)	(0.0320)	(0.445)
No. of observations	66,906	66,906	66,906
No. of banks	4779	4779	4779
Sargan/Hansen test P-value	0.584	0.569	0.595
AR(2) P-value	0.299	0.155	0.154
Panel D: Developing countries			
Lag $_{t-1}$	0.538***	0.438***	0.335***
	(0.00391)	(0.00541)	(0.00690)
Tourism receipts	−1.247***	−2.613***	−2.433***
	(0.0195)	(0.00829)	(0.126)
No. of observations	30,702	30,702	30,702
No. of banks	2193	2193	2193
Sargan/Hansen test P-value	0.175	0.195	0.264
AR(2) P-value	0.391	0.507	0.845

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively.

However, higher rates of unemployment reduce household income, which affects the bank loan repayment ability and leads to lower bank profitability.

Table 6 presents statistically significant evidence that tourism receipts affect the profitability of banks: an increase (decrease) in tourism receipts is associated with lower (higher) bank profitability.

Tables 7–10 report the results of the empirical analysis of the sample countries, further classified by the level of development, level of income, geographical region, and specialization. Considering that the US banks account for 55.78 % of the sample population, the study presents the empirical results for the US banks only. Results for banks in developed and high-income countries, excluding those in the US, are also presented to verify whether our results suffer from any sampling bias. However, to save space, we do not present the results of the other control variables.

Table 7 is similarly compiled as Table 6, but here the countries are classified as developed and developing. Table 8 classifies the countries based on income level as high, upper middle, lower middle, and low. In terms of profit persistence, banks in the developed countries have the highest value in terms of all variables of profitability (NIM, ROA, and ROE). In terms of persistence of NIM, high-income countries score the highest value (0.962), while the lowest value (0.442) accrues to banks in the lower-middle-income countries. In terms of persistence of ROA and ROE, banks in the upper-middle-income countries attain the highest level (0.492 and 0.341), and the lowest value accrues to banks in the lower-middle-income countries (0.351 and 0.096). Our results suggest that profit persistence varies with the level of development of the respective economies, as well as the level of income.

As reported in Tables 7 and 8, we find that the relationship between tourism receipts and banks' profitability in the US, developed (other than the US), developing, high-, upper-middle-, lower-middle-, and low-income tourist countries are negative and significant. These results are similar to those presented in Table 6. Specifically, the profitability of banks in developed countries is least adversely affected by tourism receipts. However, tourism receipts have the most negative impact on NIM, ROA, and the ROE of banks in low-

Table 8

Different income levels: The relationship between tourism receipts and bank profitability using two-step system GMM.

	NIM	ROA	ROE
Panel A: All high-income countries			
Lag $_{t-1}$	0.962***	0.392***	0.143***
	(0.0370)	(0.0267)	(0.0242)
Tourism receipts	−0.169	−0.210*	−0.221**
	(0.130)	(0.121)	(0.0744)
No. of observations	203,252	203,252	203,252
No. of banks	14,518	14,518	14,518
Sargan/Hansen test P-value	0.599	0.598	0.597
AR(2) P-value	0.112	0.304	0.302
Panel B: High-income countries without US			
Lag $_{t-1}$	0.552***	0.439***	0.286***
	(0.00450)	(0.00584)	(0.00771)
Tourism receipts	−0.110***	−0.0503***	−0.529***
	(0.0064)	(0.0082)	(0.118)
No. of observations	69,902	75,950	75,950
No. of banks	4993	5425	5425
Sargan/Hansen test P-value	0.199	0.125	0.239
AR(2) P-value	0.607	0.183	0.331
Panel C: Upper middle-income countries			
Lag $_{t-1}$	0.531***	0.458***	0.341***
	(0.0377)	(0.0340)	(0.0443)
Tourism receipts	−0.0557***	−0.0856**	−0.382***
	(0.0068)	(0.0392)	(0.0610)
No. of observations	17,430	17,430	17,430
No. of banks	1245	1245	1245
Sargan/Hansen test P-value	0.262	0.176	0.196
AR(2) P-value	0.808	0.105	0.843
Panel D: Lower middle-income countries			
Lag $_{t-1}$	0.442***	0.330***	0.239***
	(0.0360)	(0.0426)	(0.0415)
Tourism receipts	−0.805***	−2.844***	−3.820***
	(0.115)	(0.0618)	(0.0652)
No. of observations	8218	8218	8218
No. of banks	587	587	587
Sargan/Hansen test P-value	0.626	0.627	0.604
AR(2) P-value	0.452	0.148	0.149
Panel E: Low-income countries			
Lag $_{t-1}$	0.502***	0.351***	0.0965*
	(0.0524)	(0.0384)	(0.0550)
Tourism receipts	−1.388***	−2.419***	−3.218***
	(0.144)	(0.0611)	(0.388)
No. of observations	602	602	602
No. of banks	43	43	43
Sargan/Hansen test P-value	0.239	0.168	0.186
AR(2) P-value	0.953	0.236	0.347

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively.

income tourism countries. Banks in high-income countries have the lowest negative effect of tourism receipts on NIM, ROA, and ROE. Hence, in developing and low-income tourist economies, international tourism receipts have a greater impact on bank profitability. This result indicates that low-income countries should curb the negative influence of tourism receipts on banks' profitability. Banks in developed and high-income countries should have sound and sophisticated financial supervisory capacity, including technology; hence, banks in developed and high-income countries face a lower risk from the negative impact than those in developing and low-income countries (Claessens, 2009).

Table 9 presents the results by geographic location. Banks in European countries have the highest negative impact of tourism receipts on NIM and ROE (0.465 and 1.223). Banks in Asia-Pacific have the highest negative effect in terms of ROA (0.165). However, Middle Eastern countries have the lowest negative effect of tourism receipts on bank profitability, where NIM, ROA, and ROE are 0.123, 0.0532, and 0.0932, respectively. These countries adhere to the Islamic precepts that limit the banks' risk-taking options. Banks in the Middle East show the highest risk and profit persistence. This implies that either there is stiff competition among banks in this geographic location or banks lack transparency of information (Berger et al., 2000).

Table 9

Geographical regions: The relationship between tourism receipts and bank profitability using two-step system GMM.

	NIM	ROA	ROE
Panel A: All Americas countries			
Lag $_{t-1}$	0.550***	0.409***	0.437***
	(0.00420)	(0.00533)	(0.00510)
Tourism receipts	−0.207***	−0.127***	−0.787*
	(0.0376)	(0.0349)	(0.469)
No. of observations	140,476	140,476	140,476
No. of banks	10,034	10,034	10,034
Sargan/Hansen test P-value	0.109	0.129	0.189
AR(2) P-value	0.603	0.778	0.809
Panel B: Americas without US			
Lag $_{t-1}$	0.116***	0.267***	0.277**
	(0.015)	(0.0872)	(0.141)
Tourism receipts	−0.0923	−0.0662	−0.0423
	(0.690)	(0.553)	(0.380)
No. of observations	8610	8610	8610
No. of banks	615	615	615
Sargan/Hansen test P-value	0.105	0.263	0.480
AR(2) P-value	0.242	0.185	0.279
Panel C: European countries			
Lag $_{t-1}$	0.451***	0.295***	0.109***
	(0.0108)	(0.081)	(0.0235)
Tourism receipts	−0.465***	−0.109***	−1.223***
	(0.0255)	(0.0308)	(0.412)
No. of observations	56,966	56,966	56,966
No. of banks	4069	4069	4069
Sargan/Hansen test P-value	0.359	0.711	0.517
AR(2) P-value	0.964	0.393	0.166
Panel D: Asia Pacific countries			
Lag $_{t-1}$	0.709***	0.535***	0.373***
	(0.00266)	(0.00208)	(0.00386)
Tourism receipts	−0.362***	−0.165***	−0.837***
	(0.00612)	(0.00383)	(0.0405)
No. of observations	25,984	25,984	25,984
No. of banks	1856	1856	1856
Sargan/Hansen test P-value	0.704	0.125	0.762
AR(2) P-value	0.722	0.803	0.136
Panel E: Middle East countries			
Lag $_{t-1}$	0.344***	0.399***	0.371***
	(0.0495)	(0.0626)	(0.0759)
Tourism receipts	−0.123**	−0.0532**	−0.0932**
	(0.0555)	(0.0205)	(0.0498)
No. of observations	3724	3724	3724
No. of banks	266	266	266
Sargan/Hansen test P-value	0.692	0.669	0.690
AR(2) P-value	0.124	0.255	0.339
Panel F: Africa countries			
Lag $_{t-1}$	0.747***	0.311***	0.257***
	(0.122)	(0.0514)	(0.0757)
Tourism receipts	−0.302*	−0.103**	−1.077*
	(0.0579)	(0.0499)	(0.554)
No. of observations	2352	2352	2352
No. of banks	168	168	168
Sargan/Hansen test P-value	0.472	0.420	0.613
AR(2) P-value	0.239	0.116	0.258

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively.

Table 10
Bank types: Estimation results of tourism receipts and bank profitability using two-step system GMM.

	All countries			US			Non US countries		
	NIM	ROA	ROE	NIM	ROA	ROE	NIM	ROA	ROE
Panel A: Commercial banks									
Lag $_{t-1}$	0.638***	0.413***	0.407***	0.720***	0.459***	0.449***	0.677***	0.496***	0.465***
	(0.00155)	(0.00194)	(0.00118)	(0.00259)	(0.00295)	(0.00206)	(0.00134)	(0.00282)	(0.00411)
Tourism receipts	−0.533***	−0.712***	−6.842***	−0.335***	−0.633***	−6.016***	−0.0394***	−0.0236***	−0.422***
	(0.0075)	(0.0057)	(0.0489)	(0.0054)	(0.0081)	(0.0486)	(0.0042)	(0.0029)	(0.0502)
No. of observations	178,640	178,640	178,640	117,932	117,932	117,932	60,708	60,708	60,708
No. of banks	12,760	12,760	12,760	8447	8447	8447	4313	4313	4313
Sargan/Hansen test P-value	0.147	0.206	0.116	0.414	0.586	0.323	0.128	0.101	0.155
AR(2) P-value	0.457	0.765	0.378	0.132	0.129	0.855	0.448	0.278	0.477
Panel B: Cooperative banks									
Lag $_{t-1}$	0.622***	0.556***	0.547***	———	———	———	———	———	———
	(0.00120)	(0.00147)	(0.00199)	———	———	———	———	———	———
Tourism receipts	−0.0317	−0.0306	−0.105	———	———	———	———	———	———
	(0.179)	(0.152)	(0.206)	———	———	———	———	———	———
No. of observations	28,966	28,966	28,966	———	———	———	———	———	———
No. of banks	2069	2069	2069	———	———	———	———	———	———
Sargan/Hansen test P-value	0.191	0.131	0.143	———	———	———	———	———	———
AR(2) P-value	0.490	0.833	0.442	———	———	———	———	———	———
Panel C: Savings banks									
Lag $_{t-1}$	0.722***	0.479***	0.328***	0.739***	0.457***	0.481***	0.480***	0.572***	0.426***
	(0.00239)	(0.00251)	(0.00383)	(0.0374)	(0.0445)	(0.0230)	(0.0369)	(0.0419)	(0.0417)
Tourism receipts	−0.0252***	−0.0765***	−0.708***	−0.427***	−0.557***	−3.069***	−0.635***	−0.223*	−5.031***
	(0.0021)	(0.0023)	(0.0506)	(0.0532)	(0.0503)	(0.494)	(0.157)	(0.123)	(1.013)
No. of observations	21,896	21,896	21,896	13,650	13,650	13,650	8246	8246	8246
No. of banks	1564	1564	1564	975	975	975	589	589	589
Sargan/Hansen test P-value	0.116	0.199	0.215	0.521	0.596	0.732	0.106	0.336	0.212
AR(2) P-value	0.798	0.698	0.752	0.187	0.107	0.101	0.874	0.555	0.294

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively.

Table 11

Alternative measures of tourism receipts: Estimation results of tourism receipts and bank profitability using two-step system GMM (robustness check 1).

	NIM	ROA	ROE
Panel A: Tourism receipts to exports			
Lag $_{t-1}$	0.513***	0.385***	0.386***
	(0.0098)	(0.0099)	(0.0110)
Tourism receipts to exports	−0.0179***	−0.0574*	−0.0715**
	(0.0055)	(0.0309)	(0.0305)
No. of observations	229,502	229,502	229,502
No. of banks	16,393	16,393	16,393
Sargan/Hansen test P-value	0.485	0.339	0.589
AR(2) P-value	0.372	0.441	0.168
Panel B: Natural logarithm of tourism receipts			
Lag $_{t-1}$	0.493***	0.395***	0.388***
	(0.0102)	(0.0104)	(0.0112)
Log of tourism receipts	−0.158***	−0.0467**	−0.451*
	(0.0437)	(0.0182)	(0.233)
No. of observations	229,502	229,502	229,502
No. of banks	16,393	16,393	16,393
Sargan/Hansen test P-value	0.489	0.482	0.588
AR(2) P-value	0.320	0.373	0.164
Panel C: Tourism receipts changes			
Lag $_{t-1}$	0.493***	0.396***	0.393***
	(0.0095)	(0.0096)	(0.0098)
Changes of tourism receipts	−0.0135*	−0.0153**	−0.0126*
	(0.00702)	(0.0060)	(0.0068)
No. of observations	229,502	229,502	229,502
No. of banks	16,393	16,393	16,393
Sargan/Hansen test P-value	0.493	0.385	0.592
AR(2) P-value	0.726	0.946	0.161

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively.

In the case of cooperative banks, the coefficient of tourism receipts on NIM, ROA, and ROE fluctuates from negatively significant to insignificant compared with the results in the benchmark model in Table 6 (Table 10). Tourism receipts have a negative but insignificant influence on the profitability of investment and cooperative banks and a negative and significant impact on commercial and savings banks. Commercial banks have the highest significant negative effect of tourism receipts on NIM, ROA, and ROE at 0.533, 0.712, and 6.842, respectively. By contrast, cooperative banks have the lowest insignificant negative effect of tourism receipts on NIM, ROA, and ROE at 0.0317, 0.0306, and 0.105 respectively. Hence, tourism receipts impact various measures of bank profitability, as well as different types of bank. The profitability of traditional banks, which provide deposits and loan-related services, is adversely affected by tourism receipts, although not in the case of other types of bank.

Finally, all results presented in Tables 7–10 pass the test of the second-order serial correlation and the Sargan test, confirming that the validity of the instruments used in this analysis.

6.2. Robustness analysis

Our model is modified to verify the robustness of the results as follows: The independent variable (i.e., tourism receipts) is replaced with alternative measures often used in the tourism literature, namely, ratio of tourism receipts to exports, the natural logarithm of tourism receipts, and changes in tourism receipts. Table 11 presents the results. First, a consistent evidence of an inverse relationship between tourism receipts and the profitability of banks is observed. Second, our bank-level panel data are reconfigured to a country-level panel. The average of NIM, ROA, and ROE across banks in every country for each year is computed. Regression analysis is then run on the average bank characteristic variables and other country-specific variables using the two-step system GMM estimator. The results (Table 12) are consistent with the results of the bank-level panel data. Third, given the structural changes in the banking industry worldwide during 1995–2016, we consider the intervening sub-periods, including the 2008 global financial crisis. We follow Saghi-Zedek and Tarazi (2014) and Saif-Alyousfi et al. (2020a) for our analysis by dividing the sample into three subsamples: pre-financial crisis period (1995–2006), financial crisis period (2007–2009), and post-financial crisis period (2010–2016). The two-step system GMM is used to analyze the pre-crisis and post-crisis groups. For the financial crisis period subsample, the least squares dummy variable (LSDV) model is used to overcome the issue of a small sample size. Table 13 reports the estimation results for the three subsamples. The impact of tourism receipts on three measures of bank profitability is negative and significant in all sample groups, which is consistent with our main findings. This relationship with ROE is, however, insignificant for the financial crisis period. The behavior of other variables in all subsamples is also similar to that in the main estimation, except for a few weak and insignificant

Table 12

Average data: The relationship between tourism and bank profitability using two-step system GMM (robustness check 2).

	NIM	ROA	ROE
Lag $_{t-1}$	0.0928***	0.0425*	0.0649***
	(0.0241)	(0.0234)	(0.0247)
Tourism receipts	−0.139**	−0.0373**	−0.604***
	(0.0654)	(0.0155)	(0.172)
Bank efficiency	−0.0246*	−0.0196*	−0.0210***
	(0.0143)	(0.0105)	(0.0043)
Bank capitalization	0.195***	0.0152**	0.102
	(0.0466)	(0.0068)	(0.0634)
Opportunity cost	0.0198**	0.0349**	0.222*
	(0.00920)	(0.0155)	(0.120)
Market risk	−0.0621**	0.0737**	0.0480*
	(0.0291)	(0.0320)	(0.0270)
Liquidity risk	0.0519*	0.0724*	0.0819**
	(0.0290)	(0.0383)	(0.0381)
Credit risk	−0.0223	−0.0685***	−0.411**
	(0.0782)	(0.0247)	(0.209)
Bank size	0.125*	0.0337*	0.941***
	(0.0761)	(0.0181)	(0.303)
GDP growth	0.0846**	0.0442*	0.332*
	(0.0329)	(0.0252)	(0.179)
Fiscal stance	0.0502***	0.0170	0.0385**
	(0.0094)	(0.0474)	(0.0137)
Inflation rate	0.0579**	0.00872	0.217*
	(0.0268)	(0.0157)	(0.115)
Unemployment rate	−0.117**	−0.0271	−0.470***
	(0.0511)	(0.0223)	(0.132)
Bank concentration	0.0895	0.0623	0.0175
	(0.0785)	(0.0370)	(0.0382)
Market capitalization	0.0938*	0.0370**	0.0272**
	(0.0538)	(0.0159)	(0.0132)
Year dummy	Yes	Yes	Yes
Country dummy	Yes	Yes	Yes
No. of observations	1, 785	1, 785	1, 785
No. of banks	85	85	85
Sargan/Hansen test P-value	0.456	0.541	0.432
AR(2) P-value	0.172	0.160	0.121

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively. The coefficient of constant is removed to save the space.

Table 13

Subsample periods: Estimation results of tourism receipts and bank profitability in pre- and post-global financial crisis periods (robustness check 3).

	Subsample 1995–2006			Subsample 2007–2009			Subsample 2010–2016		
	NIM	ROA	ROE	NIM	ROA	ROE	NIM	ROA	ROE
Lag $_{t-1}$	0.610***	0.486***	0.476***	−0.268***	−0.375***	−0.382***	0.342***	0.063***	0.055***
	(0.0061)	(0.0093)	(0.0101)	(0.0372)	(0.0328)	(0.0344)	(0.0139)	(0.0175)	(0.0164)
Tourism receipts	−0.0437***	−0.0747***	−0.225***	−0.185**	−0.118*	−0.880	−0.0545**	−0.115***	−0.533**
	(0.0078)	(0.0086)	(0.0857)	(0.0759)	(0.0621)	(0.719)	(0.0216)	(0.0244)	(0.220)
Year dummy	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Country dummy	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
No. of observations	70,777	70,777	70,777	43,974	43,974	43,974	114,751	114,751	114,751
No. of banks	13,335	13,335	13,335	14,658	14,658	14,658	16,393	16,393	16,393
Sargan/Hansan test P-value	0.262	0.177	0.302	———	———	———	0.103	0.179	0.102
AR(2) P-value	0.835	0.665	0.995	———	———	———	0.306	0.097	0.592

The null hypothesis of the Sargan test (or Hansen test) is that the instruments used are not correlated with residuals (over-identifying restrictions). The null hypothesis of the serial correlation test is that the errors exhibit no second-order serial correlation. The values in parentheses are standard errors. *, ** and *** denote significance at 10 %, 5 % and 1 % levels, respectively. The coefficient of constant is removed to save the space.

relationships in the subsample of the financial crisis period. Thus, even after grouping the sample into pre- and post-financial crisis periods, no change is observed in the main results and the corresponding findings.

7. Conclusions, discussion, and policy implications

Despite recognizing the contribution of tourism to economic growth, no studies have focused on the possible effect of tourism revenue on bank profitability, which drives financial stability. The WDI data show that bank profitability is high in tourism economies, where bank lending is crucial to economic growth. The data also show that NPLs are relatively high in these economies. This study addresses this drawback in the literature and provides an analytical assessment of the possible impact of tourism receipts on bank profitability. This study uses annual panel data of 17,077 banks from 85 countries from 1995 to 2016. We develop the model on tourism receipts and bank profitability using both static panel estimation techniques and the two-step system dynamic GMM estimator.

The estimation results show that tourism receipts have a significant adverse impact on bank profitability. An increase in tourism receipts decreases the banks' profitability. Specifically, banks in developed countries show the lowest negative effect of tourism receipts on their profitability, compared with those in developing countries. Moreover, the profitability of banks in low-income tourism countries suffers the most from tourism receipts. Conversely, banks in high-income countries show the lowest negative effect of tourism receipts on their profitability. In terms of geographic classification, banks in European countries suffer the highest negative effect of tourism receipts on their profitability, whereas those in Middle Eastern countries are affected the least. Furthermore, tourism receipts have a negative but insignificant impact on the profitability of investment and cooperative banks but a negative and significant impact on that of commercial and savings banks. Commercial banks face a higher adverse impact of tourism receipts than cooperative banks.

To understand the factors affecting the linkage between tourism receipts and bank profitability, this study examines the growth in tourism revenue against the profile of NPLs in banks of various countries. Fig. 1 shows a plot of the growth in tourism receipts and NPLs only of developing countries from 1995 to 2016 and their GDP growth profiles are superimposed. As expected, there are wider variations in the profile of tourism revenues in the case of developing economies during this period. Over the years, the NPL profile replicates the tourism revenue profile but in the opposite direction, though at the same pace. This finding supports our argument that increased government spending in anticipation of sustained growth of tourism revenue results in excessive lending by commercial banks. A decline in tourism revenue and hence government spending, results in higher NPLs. Banking development and robustness of the regulatory framework in these countries also play a significant role in maintaining banking stability during economic shocks due to the wide fluctuations in tourism-related revenue during the study period. Our findings stress that governments in developing economies that significantly depend on tourism revenue should recognize that fluctuations in their fiscal spending triggered by undulations in tourism revenue adversely affect banking health and, finally, the stability of the financial sector. They should also recognize that tourism revenue affects banking health through both direct and indirect channels. The central banks of the countries concerned should significantly strengthen their respective frameworks of macroprudential intervention and the banks' capital position.

In some tourism-dependent European economies, such as Turkey, Hungary, Macedonia, Ukraine, Romania, Bulgaria, Denmark, and the UK, the average NPLs ranged from 4.026 % to 7.996 %. In 2016, according to the WDI data, the UK ranked 3rd and Turkey 10th in
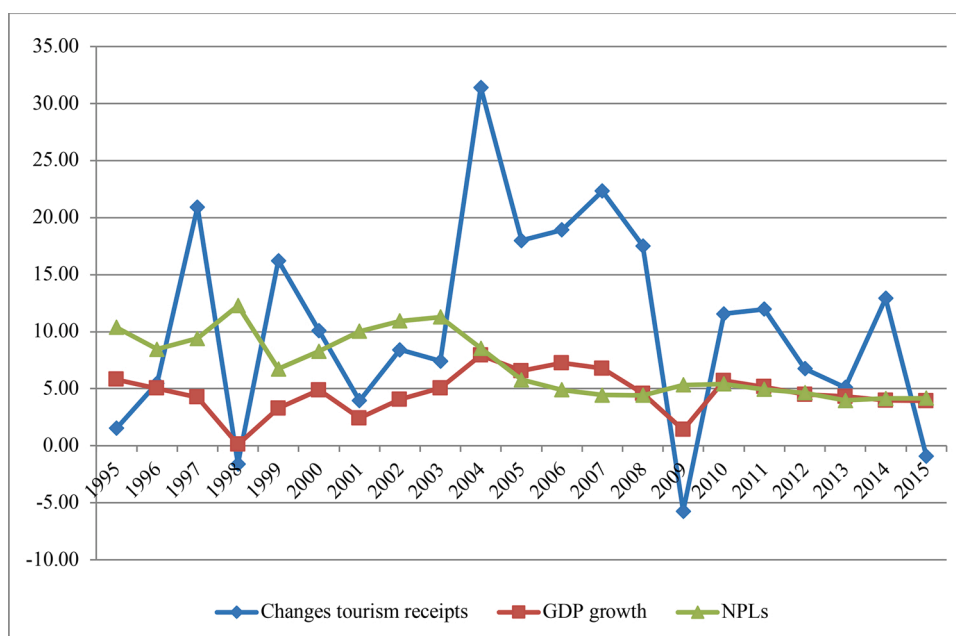

Fig. 1. Growth profile of tourism revenue, GDP, and NPLs in developing economies.
Source: Author's own estimate.

terms of tourism revenue. Therefore, tourism receipts are shown to have a negative effect on bank profitability, with high NPLs in the books of banks in these countries. In countries such as Spain, Greece, Italy, and Portugal, which have suffered from significant banking stress in the recent past, the level of NPLs were 2.19 %, 3.13 %, 3.28 %, and 2.12 %, respectively, during the study period. In terms of tourism receipts, these countries were ranked 4th, 9th, 2Ist, and 25th, respectively, in 2016. Their governments were expected to initiate appropriate fiscal and macroprudential policy measures to balance tourism revenue and economic growth against stabilizing the financial sector. In the US, the NPLs were 1.44 %, which reduced the importance of recognizing the negative relationship between tourism growth and bank profitability.

The study findings have implications for policy planners and researchers alike to investigate the relationship between tourism revenue and financial sector stability. Future studies may investigate the effect of tourism revenue on banking health across various periods of economic stress. The impact of COVID-19 on the tourism economies and, consequently, on the financial markets and institutions (Goodell, 2020) is an example. The estimates by UNWTO show that COVID-19 is likely to result in a loss of 1.1 billion international tourists, which may lead to a loss of export revenue of nearly US\$1.2 trillion (International Tourism, 2020). The Statistical Annex of the World Tourism Barometer by UNWTO (2020) indicated that the percentage changes in tourist arrivals in Year-to-Date in May 2020 over the same period of the previous year are −19.1, −34.6, −15.2, −12.5 and −10.8, respectively, in Europe, Asia, the Americas, Africa, and the Middle East. Following the COVID-19 shock, banks in tourism economies withdrawing from the credit market or becoming conservative (Bongini et al., 2019) on their loan portfolios would delay the economic recovery process. This poses a further challenge to the financial regulators in the countries concerned.

Author contributions

Abdulazeez Y.H. Saif-Alyousfi: Conceived and designed the analysis, Collected the data, Contributed data or analysis tools, Performed the analysis, Wrote the paper.

Asish Saha: Conceived and designed the analysis, Collected the data, Contributed data or analysis tools, Performed the analysis, Wrote the paper.

Acknowledgments

Appendix A. Summary statistics: Bank-level characteristics across countries

Mean values of key bank-level characteristics across countries during the period 1995−2016.

No.	Country	NIM	ROA	ROE	Bank efficiency	Bank capitalization	Opportunity cost	Market risk	Liquidity risk	Credit risk	Bank size
1	US	3.828	1.043	8.019	83.98	10.23	3.145	26.26	65.91	1.444	13.91
2	Argentina	9.417	3.192	12.94	78.63	13.49	12.94	16.48	54.15	3.368	16.57
3	Brazil	9.477	3.300	14.98	69.60	12.64	6.161	24.58	49.09	4.589	16.10
4	Canada	2.077	0.873	14.71	63.47	4.887	5.106	6.085	63.76	0.372	17.91
5	Chile	4.197	1.985	14.81	59.53	7.358	6.622	14.74	75.79	1.024	22.80
6	Colombia	7.637	2.507	15.47	69.14	12.31	7.165	20.56	64.97	2.326	23.41
7	Costa Rica	10.55	0.0897	8.050	91.5	13.35	9.086	13.24	44.64	1.90	19.10
8	Mexico	6.477	4.016	15.13	81.69	18.51	8.378	26.71	56.85	2.325	18.68
9	Peru	8.831	2.162	15.99	78.201	9.250	18.46	9.984	66.90	2.462	16.10
10	Bolivia	11.14	7.886	9.305	40.72	11.36	8.112	10.62	80.7	2.990	13.82
11	Ecuador	10.42	0.203	7.938	74.65	4.444	12.91	13.40	62.43	7.792	13.32
12	Venezuela	12.41	2.202	18.92	167.4	12.03	21.09	20.79	49.75	3.731	16.98
13	Austria	2.156	0.920	8.412	269.7	6.250	2.719	17.02	76.24	3.444	16.27
14	Belgium	1.506	1.224	4.845	385.7	14.89	3.940	33.46	37.02	0.477	18.13
15	Bulgaria	4.643	0.0141	7.423	320.1	13.99	15.32	16.52	61.32	8.285	14.33
16	Croatia	3.293	0.994	−0.76	49.97	11.45	10.27	21.33	56.06	2.873	15.56
17	Cyprus	3.586	−0.0933	−3.627	244.6	7.700	24.73	19.26	62.23	14.13	15.81
18	Czech Republic	3.942	1.643	10.31	186.3	11.81	6.420	15.88	78.20	7.154	19.92
19	Denmark	4.479	1.070	8.281	178.0	10.59	6.147	20.12	69.36	4.402	15.72
20	Finland	1.858	0.995	10.53	242.1	5.276	5.262	16.93	77.09	0.520	15.09
21	France	1.811	0.823	7.991	353.4	9.386	1.478	18.52	75.10	2.778	17.08
22	Germany	1.818	0.580	5.998	452.0	4.446	3.267	25.59	59.38	0.720	16.64
23	Greece	3.131	0.547	8.850	272.4	6.022	7.436	22.03	67.02	5.182	16.92
24	Hungary	7.278	2.354	22.02	220.3	9.708	13.68	20.02	62.60	8.525	22.33
25	Ireland	2.250	0.708	8.047	298.9	6.009	2.590	28.78	73.31	4.387	18.00
26	Italy	3.284	0.895	8.523	272.1	8.832	2.770	30.79	64.11	3.604	16.15
27	Luxembourg	1.775	1.005	16.07	481.4	5.480	2.405	27.82	66.32	1.324	17.63

(continued on next page)

(*continued*)

Mean values of key bank-level characteristics across countries during the period 1995−2016.

No.	Country	NIM	ROA	ROE	Bank efficiency	Bank capitalization	Opportunity cost	Market risk	Liquidity risk	Credit risk	Bank size
28	Netherlands	1.694	0.969	12.59	365.8	5.937	3.231	41.61	78.91	1.557	18.81
29	Norway	2.417	1.345	11.15	234.9	4.603	2.380	10.65	84.35	1.028	16.52
30	Poland	3.226	1.462	10.47	277.9	12.22	4.142	28.04	59.82	4.601	17.07
31	Portugal	2.122	0.952	10.67	386.9	4.094	3.185	18.43	73.58	2.950	17.48
32	Slovak Republic	3.296	0.889	8.523	200.4	7.702	6.143	23.74	68.21	6.628	15.30
33	Spain	2.195	1.010	10.56	279.7	5.547	2.488	26.83	69.59	3.371	18.69
34	Sweden	0.828	1.855	15.24	345.4	5.838	2.409	25.09	55.33	0.684	20.53
35	Switzerland	1.453	1.086	8.863	284.0	6.660	3.678	20.04	75.21	0.496	16.76
36	Turkey	7.996	3.327	21.55	224.0	13.10	7.350	20.53	58.85	4.117	16.20
37	United Kingdom	4.026	2.309	21.09	254.7	13.21	7.750	27.34	53.78	5.237	18.10
38	Bosnia and Herzegovina	5.111	−0.0342	1.362	71.29	10.39	24.31	6.512	68.08	3.872	13.06
39	Estonia	4.405	0.567	1.7	333.5	8.321	29.58	21.06	44.66	2.399	12.90
40	Lithuania	2.752	0.541	6.508	279.3	10.40	6.466	20.36	68.59	3.569	13.71
41	Macedonia	5.667	0.0374	5.655	177.3	16.53	25.81	15.01	53.80	1.800	16.58
42	Malta	2.323	0.127	10.62	222.6	8.222	6.660	25.58	66.06	3.427	14.49
43	Montenegro	5.324	0.0145	1.331	97.81	11.38	20.57	5.406	43.95	2.347	12.27
44	Romania	4.972	1.493	9.135	219.2	9.775	19.07	20.67	62.30	8.883	16.43
45	Serbia	5.060	1.195	4.959	114.8	33.05	15.28	15.96	36.13	7.643	17.52
46	Ukraine	5.303	−0.173	−9.900	229.9	11.76	12.91	11.36	61.61	10.38	16.61
47	Australia	2.581	1.329	13.96	276.4	6.096	2.631	12.41	78.29	0.806	17.81
48	China	3.089	0.969	17.77	159.7	5.571	13.37	27.33	57.21	3.014	20.73
49	Hong Kong	2.446	1.186	13.74	194.4	8.685	6.075	25.49	54.74	1.486	19.84
50	India	2.801	1.353	13.99	341.7	6.768	6.129	31.15	56.66	0.206	19.96
51	Indonesia	5.358	1.324	10.48	235.0	11.88	8.824	18.96	57.05	3.207	23.28
52	Japan	1.694	0.177	3.075	151.3	4.982	4.892	25.37	66.65	0.437	21.73
53	Korea	4.560	1.116	8.486	265.0	9.400	5.284	19.30	69.65	2.218	24.28
54	Malaysia	2.634	1.118	11.14	216.4	7.956	5.688	18.79	72.55	4.484	17.94
55	Philippines	4.842	1.675	8.982	224.8	14.20	11.13	23.09	50.40	6.481	17.98
56	Russia	5.301	1.327	9.493	231.8	12.88	12.21	17.22	42.87	5.460	18.75
57	Singapore	2.194	1.124	11.05	189.3	9.574	7.311	17.32	65.95	2.995	18.86
58	Sri Lanka	4.670	3.341	12.11	243.4	14.36	5.825	26.30	52.53	3.821	17.38
59	Thailand	3.246	1.230	4.493	260.5	8.790	1.809	14.97	80.18	6.112	19.90
60	Vietnam	3.137	0.379	12.73	286.6	7.454	4.836	27.28	74.09	1.619	25.42
61	Bangladesh	1.817	1.022	16.74	252.6	12.22	10.20	29.74	61.29	0.0449	18.41
62	Kazakhstan	5.317	0.435	2.923	235.1	11.92	9.377	16.02	83.42	11.36	19.58
63	Pakistan	4.489	0.998	11.57	257.7	8.547	9.372	34.23	48.08	6.817	18.77
64	Bahrain	2.504	1.916	5.844	253.6	19.00	7.375	30.56	50.62	5.669	13.82
65	Kuwait	2.992	1.531	10.26	171.5	13.34	4.014	16.91	76.89	5.400	14.97
66	Oman	3.380	1.293	10.93	165.1	17.80	7.030	12.44	80.15	3.824	14.12
67	Qatar	2.578	2.934	16.82	120.1	18.31	4.694	17.89	68.53	2.149	17.29
68	Saudi Arabia	3.161	2.461	17.47	120.8	14.93	6.176	25.94	68.00	2.712	18.31
69	United Arab Emirates	3.757	2.433	14.70	146.5	15.61	6.484	14.07	77.45	4.239	17.30
70	Egypt	3.492	1.627	12.96	329.8	9.006	8.297	28.23	63.73	10.11	16.64
71	Israel	2.244	0.663	8.188	279.1	5.392	11.60	14.17	71.33	0.860	18.01
72	Jordan	3.921	1.373	11.48	172.0	12.00	12.54	20.89	62.11	7.131	14.49
73	Lebanon	2.382	0.410	13.81	285.1	7.379	13.64	39.26	50.31	2.432	23.22
74	Morocco	3.769	1.320	12.19	206.5	8.395	6.920	19.49	70.38	5.148	18.10
75	South Africa	3.740	3.662	19.29	302.3	19.10	5.247	18.20	51.22	2.470	18.55
76	Botswana	6.378	2.960	38.53	163.8	8.644	8.665	33.72	61.16	2.604	16.17
77	Ghana	12.91	4.548	28.34	132.9	14.14	20.20	29.07	50.43	7.575	13.99
78	Mauritius	4.113	1.375	13.74	137.3	12.65	12.21	18.97	51.46	1.640	17.61
79	Nigeria	7.040	1.775	10.32	196.6	14.71	12.87	25.08	45.30	5.178	20.13
80	Rwanda	13.13	4.270	21.52	121.3	17.66	23.95	13.66	53.10	5.020	20.07
81	Tanzania	11.19	0.851	28.78	88.59	13.98	16.49	22.44	58.23	0.775	20.85
82	Tunisia	2.896	0.970	7.708	207.9	9.206	3.927	13.72	80.97	4.320	15.11
83	Uganda	9.939	3.820	31.25	133.8	16.32	11.15	38.00	48.26	2.023	20.80
84	Zambia	12.80	0.614	15.94	172.0	11.72	25.81	23.09	56.18	7.595	14.04
85	Zimbabwe	16.98	2.957	14.57	158.4	17.16	21.50	19.68	36.20	7.573	15.63
	Total observations	297,929	297,810	297,791	282,047	286,155	290,184	294,752	282,180	280,770	297,757
	Skewness	0.859	0.743	−0.058	0.888	0.763	1.413	0.584	−1.600	1.690	0.346
	Kurtosis	3.639	3.211	2.925	3.070	3.085	4.118	2.675	5.521	5.135	1.918
	VIF				1.59	1.35	1.7	2.91	3.04	1.63	2.24

Appendix B. Summary statistics: Country-level variables across countries

Mean values of the variables tourism receipts, macroeconomic conditions and financial market indicators across countries during the period 1995−2016.

No.	Country	Tourism receipts (USD million)	Tourism Receipts % of GDP	GDP growth	Fiscal stance % of GDP	Inflation rate	Unemployment rate	Bank concentration	Stock market capitalization % of GDP
1	US	144,400	1.124	2.406	−3.354	2.220	5.928	34.57	115.5
2	Argentina	3903	1.274	2.649	−0.006	6.043	11.59	51.97	14.35
3	Brazil	3939	0.308	2.457	−2.043	9.336	10.85	58.09	39.53
4	Canada	15,230	1.388	2.447	−0.663	1.856	7.499	73.72	83.09
5	Chile	1973	1.435	4.369	−0.963	3.894	7.497	63.53	92.38
6	Colombia	2473	1.292	3.513	−2.785	8.121	12.53	60.10	30.47
7	Costa Rica	1882	7.474	4.224	−4.327	9.558	7.038	79.37	7.774
8	Mexico	11,620	1.420	2.494	−1.671	9.077	4.112	71.20	26.81
9	Peru	1865.7	1.742	5.566	−2.754	3.055	18.79	6.328	77.40
10	Bolivia	320.4	2.077	4.188	1.015	5.631	4.098	84.66	13.43
11	Ecuador	661.5	1.366	3.202	−0.224	15.09	7.629	66.97	5.895
12	Venezuela	770.8	0.552	2.471	6.113	30.68	10.36	57.95	4.032
13	Austria	16,410	5.340	1.810	2.511	1.806	5.061	78.94	22.43
14	Belgium	9447	2.414	1.782	0.931	1.862	8.007	85.29	54.21
15	Bulgaria	2630	7.810	2.847	−4.837	12.39	11.95	66.49	8.712
16	Croatia	6525	14.47	2.059	−4.024	2.809	13.00	65.27	24.59
17	Cyprus	2447	15.07	2.424	−4.935	2.027	7.607	93.17	35.21
18	Czech Republic	5765	4.416	2.632	−2.840	3.487	6.394	75.10	17.34
19	Denmark	5158	2.033	1.506	3.662	1.879	5.603	82.13	46.08
20	Finland	3304	1.660	2.339	3.215	1.501	10.08	79.78	88.03
21	France	47,580	2.225	1.588	0.332	1.392	10.10	65.34	61.52
22	Germany	38,810	1.305	1.394	3.614	1.401	7.856	77.86	41.18
23	Greece	12,150	5.522	1.118	−6.217	3.038	13.67	64.13	41.93
24	Hungary	5171	5.771	2.260	−3.442	7.810	8.069	66.83	19.88
25	Ireland	6608	3.637	5.184	0.945	2.191	8.426	83.74	47.30
26	Italy	36,810	2.179	0.638	0.066	2.103	9.838	64.82	32.63
27	Luxembourg	3556	8.904	3.582	7.703	1.888	4.165	43.30	136.5
28	Netherlands	13,020	2.117	1.999	6.135	1.910	4.712	83.83	80.61
29	Norway	4361	1.434	2.152	10.635	2.092	3.841	88.52	44.13
30	Poland	8911	3.048	4.113	−3.574	5.802	12.31	58.34	22.07
31	Portugal	10,260	5.468	1.323	−6.326	2.244	8.527	82.21	34.01
32	Slovak Republic	1532	2.287	4.050	−3.775	4.681	14.11	77.75	3.947
33	Spain	47,070	4.592	2.175	−3.116	2.362	16.78	77.20	94.22
34	Sweden	8026	1.998	2.587	5.200	1.110	7.408	90.24	80.73
35	Switzerland	13,990	3.115	1.794	9.964	0.542	3.858	82.48	193.0
36	Turkey	19,120	3.640	4.949	−3.319	26.50	9.071	66.19	23.22
37	United Kingdom	39,160	1.775	2.105	−2.380	1.982	6.223	63.14	102.4
38	Bosnia and Herzegovina	567.9	4.671	5.099	−10.179	1.915	23.02	55.65	6.978
39	Estonia	1117	8.819	4.503	−5.517	5.966	9.762	98.52	23.09
40	Lithuania	851.5	3.354	4.760	−5.755	5.404	12.22	92.81	15.42
41	Macedonia	146.4	1.910	2.663	−4.676	2.703	24.90	73.87	5.452
42	Malta	1000	15.97	3.721	−2.660	2.231	6.543	96.26	35.77
43	Montenegro	855.2	20.15	2.451	−23.870	1.676	19.08	61.46	31.03
44	Romania	1251	1.158	3.140	−5.654	18.89	6.816	69.50	5.682
45	Serbia	812.3	2.041	2.923	−10.314	20.98	16.89	63.90	13.23
46	Ukraine	2786	2.583	1.862	−0.636	17.73	8.562	53.17	12.14
47	Australia	21,840	2.910	3.269	−4.485	2.597	6.074	78.48	94.27
48	China	36,230	1.095	9.166	3.454	2.897	4.415	62.40	37.17
49	Hong Kong	19,500	8.748	3.388	7.229	2.401	4.480	76.60	239.5
50	India	9456	0.856	7.025	−1.345	7.158	3.915	43.57	52.39
51	Indonesia	6784	2.058	4.817	0.566	10.20	7.205	56.16	29.19
52	Japan	11,740	0.241	0.951	2.683	0.107	4.248	50.64	68.53
53	Korea	11,430	1.328	4.548	2.654	3.034	3.653	37.01	58.01
54	Malaysia	12,240	6.782	5.180	8.205	2.525	3.208	72.62	139.4
55	Philippines	3280	2.359	4.861	0.925	4.706	8.384	50.83	52.99
56	Russia	10,210	1.249	2.870	5.891	18.37	8.025	42.97	36.58
57	Singapore	9671	5.738	5.159	18.417	1.574	3.757	83.67	183.7
58	Sri Lanka	1066	2.794	5.357	−3.654	8.630	7.089	70.57	16.91
59	Thailand	19,990	7.813	3.576	2.446	2.886	1.545	65.10	57.38
60	Vietnam	4176	3.660	6.647	−1.568	6.230	2.264	68.69	8.677

(*continued*)

Mean values of the variables tourism receipts, macroeconomic conditions and financial market indicators across countries during the period 1995−2016.

No.	Country	Tourism receipts (USD million)	Tourism Receipts % of GDP	GDP growth	Fiscal stance % of GDP	Inflation rate	Unemployment rate	Bank concentration	Stock market capitalization % of GDP
61	Bangladesh	78.5	0.0975	5.627	0.413	6.446	4.006	59.74	8.179
62	Kazakhstan	933.9	1.414	5.142	−1.309	11.97	8.482	61.70	12.31
63	Pakistan	781.8	0.676	4.060	−1.959	8.218	6.216	79.16	16.98
64	Bahrain	1391	8.804	4.453	4.471	1.409	1.323	82.30	66.84
65	Kuwait	500	0.764	3.578	28.534	3.128	1.925	82.89	69.61
66	Oman	889.5	2.101	3.484	4.229	1.865	18.48	79.45	33.62
67	Qatar	3550	2.637	8.127	20.255	4.175	1.779	69.31	55.56
68	Saudi Arabia	7240	1.489	3.224	10.031	2.333	5.621	65.46	58.65
69	United Arab Emirates	5259	1.999	4.627	−0.508	3.007	3.370	67.46	23.11
70	Egypt	6989	5.199	4.408	−0.488	8.276	10.35	65.09	35.06
71	Israel	4451	2.604	3.997	1.103	3.168	9.334	84.72	58.86
72	Jordan	2600	14.28	4.591	−4.960	3.363	13.50	76.63	104.2
73	Lebanon	4606	16.28	3.694	−17.933	0.483	7.443	56.53	16.19
74	Morocco	5420	7.386	3.872	−1.867	1.876	12.11	78.09	43.34
75	South Africa	7086	2.841	2.873	−2.635	6.163	23.78	80.73	182.7
76	Botswana	493.4	4.885	4.756	7.631	7.777	18.77	76.52	21.04
77	Ghana	617.5	3.754	5.592	−7.477	19.77	6.688	35.32	8.801
78	Mauritius	1210	16.46	4.445	−3.705	5.233	7.847	69.80	46.25
79	Nigeria	346.2	0.224	4.884	6.918	14.23	6.470	52.29	17.40
80	Rwanda	142.4	2.851	8.182	−5.840	6.409	2.395	92.28	35.37
81	Tanzania	1020	5.174	6.036	−7.083	9.592	3.063	45.06	2.147
82	Tunisia	2535	8.008	3.767	−4.198	3.828	14.73	53.43	11.68
83	Uganda	487.9	3.316	6.694	−5.424	6.686	2.449	69.01	7.043
84	Zambia	342.1	2.419	5.673	−4.706	17.15	11.94	69.22	9.567
85	Zimbabwe	178	2.465	1.462	−14.157	29.14	5.469	31.59	55.20
Skewness			2.096	0.201	−2.501	1.453	1.250	−0.224	−0.006
Kurtosis			6.615	2.751	8.389	4.432	3.807	2.275	1.580
VIF			2.11	1.42	1.69	1.52	1.45	1.77	2.1

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