



Article Tourist Intensity in the World, 1995–2015: Two Measurement Proposals

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Abstract: The work emphasizes the importance of measuring the tourist intensity of the economies that are oriented to tourism activity, with the aim of avoiding subjective arguments and being more related to perception than with the empirical contrast of the data. A tourist intensity index is proposed, which is made up of four essential variables: GDP, tourist spending, population, and the number of tourists. However, at the same time, it is complemented by a measure of tourist density, which helps to better understand the proposed index. This allows for the classification of countries according to the resulting index, and to calibrate their position in the set of tourist economies. This can be very useful for the application of economic policies aimed at correcting externalities that are generated in the advanced development of mass tourism.

Keywords: mass tourism; tourist intensity; tourist density

1. Introduction

A concept that has been disseminated insistently in recent times is that of saturation and/or intensity in the leading mass tourism economies, after the great boom in tourism economy as of 1950 [1]. The media have echoed this issue with certain insistence, often times using arguments and experiences of a subjective nature—which are not to be ignored—but with a lack of reliable empirical data to allow reasonable—and homogenised—contrast between different geographic areas. Indeed, despite the importance of tourism on an international scale, there is no single consensus regarding how to measure tourism intensity. This is understood, by some authors, as the number of overnight stays per resident [2–4]; while others adduce the number of tourist arrivals and overnight stays [5,6]. In both cases, the models are basically related to the life cycle of the tourism product [7], in its different stages of development. There are also contributions from study cases of tourism destinations with high intensities, in order to identify threats and possible innovative solutions. In each contribution, the definition of tourism intensity is different: it may be the relationships of tourists with respect to the permanent population; or the number of annual tourists divided by the km² of territory; sometimes, it is even calculated as overnight stays per 1000 inhabitants, or number of arrivals per 100 inhabitants [8–14].

At the same time, empirical contributions concerning the sustainability of tourism—besides the theoretical contributions in this field—incorporate decisive elements for analysing the sector. From the abundant bibliography available, we highlight these recent contributions: [15–22]. In short, intensity, saturation, and sustainability—and even, the notion of governance—have ended up being concepts that are increasingly used by social scientists to analyse tourism phenomena [23–30]. This methodologically disparate situation is what justifies the main purpose of this research: the proposal of two specific instruments for measuring tourism intensity. (There exists important official documentation regarding tourism intensity. By way of example, [31–35]. Bed count and/or overnight stays are usually the

indicators used.) The methodological justification lies in the fact that we do not have precise indicators to measure tourism intensity and, above all, we do not have them as composite indicators. We can observe the tourist evolution with parameters such as the number of visitors, overnight stays, and even tourist spending. However, we have not detected the composition of synthetic indices that group different variables, and that the result is satisfactory in two directions: first, the possibility of having a ranking of tourist intensity; and second, that these results open new perspectives for research.

First of all, the formulation of a Tourism Intensity Index (TII). To this effect, four large dimensions will be adopted, based on information published by the World Tourism Organisation (WTO), corresponding to the period from 1995 to 2015, worldwide. These four dimensions are the number of tourists a destination receives, its total population, as well as tourism revenue, and the GDP of the economy considered. The study follows on from a previous one [36], in which a tourism intensity index was provided, and was applied to 18 island economies throughout the world, thereby revealing a ranking based on the data—GDP, tourism spending, population, and number of tourists—extracted from the statistical institutions in the observed regions. We believe the contribution offered in this new paper, which is based on the aforementioned factors, improves on the former, as it uses a homogeneous source from the WTO, thereby leading to more robust results.

Secondly, a measure of Tourism Density (TD), that is, the number of tourists per km^2 , which complements the TII. If we multiply the demographic component of the TII by the population ratio per km^2 of the country, this tourism density will be obtained. This calculation is reached by combining the information from the WTO with that gathered from the World Bank regarding the population and number of km^2 for each of the countries.

The virtue of these two indices is that they involve different variables and not only one or two, as found in the aforementioned reference contributions, which have defined much of the research conducted on the evolution of mass tourism in this specific field. Such indicators are correct. Yet, the new indices we propose contribute three basic virtues. Firstly, they constitute a methodological innovation, by introducing, in a single synthetic index, four determining variables that are closer to the economic reality of the territory considered. Secondly, they facilitate their application on an international, national, and regional scale, in order, thereby, to establish comparisons, hence the scale of analysis is equally broad. Thirdly, the results open up new pathways for research, not only in the field of tourism, but also for studying economic structures (for an interesting analysis in this direction for Spanish regions, see [37]).

The article is organised as follows. In the first section, the important development of tourism economy in the world since the 1950s is set forth, a prime example of a technical-economic change with services at the epicentre [38]. The second section focuses on the methodological proposal and the results obtained concerning a Tourism Intensity Index (TII), which uses the four aforementioned key vectors to understand tourism economy; and a Tourism Density index (TD) which is based on intensity as a function of the area of the destination, such that it complements the former. The paper closes with some final reflections that, additionally, summarise the main contributions of the study.

The starting hypothesis of the research is that there are tourist intensities of great relevance, affecting mainly island economies around the world. On the other hand, the construction of tourist intensity indexes promotes a scientific basis to validate possible processes of sustainability or unsustainability of a territory. The results obtained in the research are satisfactory in this regard, as can be consulted in the conclusions of the investigation.

The connection of our research with the fundamental idea of sustainability lies in an essential methodological aspect: to provide measurable indicators, with variables of public access, that open new perspectives for future research. We can see how we have obtained a ranking of countries based on the proposed indexes and, at the same time, this allows us to flee from subjective conceptions and contribute more and better scientific findings about the phenomenon of sustainability. Now, it may be clearer to venture, with new indicators of a biophysical nature, if the panel of countries that have emerged from our indexes confirm processes of environmental sustainability. However, from

the outset, we do know that these countries constitute, in the field of tourism economy, those that, in principle, may have greater problems of spatial and demographic congestion. These two elements we consider are key to the sustainability of a territory.

2. Tourism, an Industry in Expansion

Tourism is one of the most important and dynamic economic activities of our days, recording remarkable growth since the immediate post-war period. The progression of the number of tourists between 1950 and 2018 is striking [36,39–41]. The perspective of economic history points towards a loss of tourism strength in Europe and America as destinations. In 1950, 97% of world tourism was aimed at these continents. By the turn of the 21st century, the proportion had decreased to 70–80% and, according to the forecasts of the UNWTO, this figure will have dropped to 64% by 2020 [42]. At the other end of the spectrum, we find the Asia and Pacific areas, which have gained greater prominence, with an outlook of 27% in 2020. Similar conclusions are reached for the East and Africa, which have doubled—and are expected to increase—their function as a world tourism destination. Hence, it is possible to observe a loss of market share for Europe and America and a certain "peripheralisation" of tourism expansion [43,44].

According to [45], the number of international tourist arrivals grew 3.9% in 2016, to reach 1235 million worldwide. It was the seventh consecutive year of above-average growth, after the Great Recession that began in 2008. This growth is sustained, on the one hand, by an increase in disposable personal income; and, on the other hand, by certain sociodemographic changes that are taking place in the most advanced countries, such as the rise in couples without children and single family homes, better standards of education, a higher proportion of older people, and an increase in the number of retirees [46]. International tourist arrivals worldwide could increase 3.3% a year between 2010 and 2030, to reach 1800 million in 2030, according to the long-term forecast listed in the UNWTO report [47].

Nonetheless, three objections can be made to these optimistic perspectives. First of all, a decrease in tourism spending at the destination. The tourism-spending variable is a concept that is affected by fluctuations in exchange rates and by an increase in prices of tourism products. However, the trend appearing over the last decade seems to be clear: a reduction in the length of stay at the destination [48,49]. Among the causes of these shorter stays, it is worth noting a greater frequency of international trips, which is associated with a reduction of the length of each one; a preference of tourists for higher quality holidays, which means giving up on longer stays; and the existence of a price effect, which could lead to a reduction of the time of stay at the destination. Secondly, symptoms of maturity in tourism demand in certain countries. Observation of outbound tourism points towards a possible stagnation—in source markets of developed countries—of the percentage of the population making trips abroad. The cases of France and Great Britain are illustrative: the rise in tourism demand is due to a greater frequency of trips per year by frequent travellers. In this sense, since 1990, the world regions that have enlarged outbound tourism have mostly been Asia and the Pacific, and the Middle East [50,51]. Europe and America have increased their figures more slowly. Finally, it is worth noting new consumer tastes [52]. This customer-described as "post-Fordist"-has interests that differ from crowded sun and beach places and, therefore, represents a serious threat to mass tourism destinations. In France, but especially in Great Britain (and also in Germany), the reduction of social benefits and continuous vacation time has encouraged the adoption of new patterns of tourist consumption. That is to say: shorter trips, but more frequent. These cases represent a model of tourist consumption that especially affects sun and beach destinations, the most demanded by British, French, and German tourists. They are examples that can be extended to other countries and destinations.

At any rate, tourism growth is expansive, measured by an indicator as eloquent as the number of visitors in a certain area. Tourism becomes imitative the moment its first successes crystallise: unconscious talent flows, emulation expands, and chaotic, disorganised beginnings give way to submission to practical rules of operation of the new activity. The turnaround becomes evident: national or regional economies show patent signs in the structures of their labour markets, and in the gradual contribution of the emerging activity in generating income. All this was coined in a peculiar expression applied to developing economies: "pleasure peripheries" [53]. According to this, these peripheries are tourism ghettos located in lagging regions that, since the 1970s, have proliferated under two essential conditions: good air connectivity and the availability of many hours of sunshine. These areas, close to the coast and, in some way, blinded, surrounded centres that were generally poor and poorly connected to other more privileged areas. (Examples that can be cited are Port-au-Prince, Nassau, San Juan de Puerto Rico, Acapulco, Cancun, Hawaii as peripheral areas frequented by North-American tourists; Mallorca, Ibiza, Benidorm, the Canary Islands, Torremolinos, more visited by Europeans, without forgetting, in these cases, other destinations such as Nice, Monte Carlo, Cannes, Venice, and Florence; and the Philippines, Hong Kong, Bangkok, and Bali, as the preferences of the Japanese [53]). However, these so-called peripheries do not have similar evolutions—because their historical trajectories are heterogeneous—neither can they be explained by tourism models of a generalist nature that satisfy all of them in their different chronologies. Ref. [54] aims to lay down some common coordinates to these peripheries, based on the theory of dependence and by relating their tourism trajectories to the general dynamics of capitalism. There exists, in this contribution, a clear interest in coding the behaviours of the tourism areas considered, from the structuralist matrix of the aforementioned theory. We totally disagree with this unifying sense. Measuring these evolutions is feasible based on the two instruments proposed below.

3. Presentation of the Indices: Methodology and Results

The authors define two different indices, the Tourism Intensity Index and the Tourism Density. The Tourism Intensity Index (TII) adopts demographic and economic variables obtained from the WTO for all countries. This ensures the homogeneity of the selection of the variables for drawing up the index. Namely, this is defined as follows:

Tourism Intensity Indexⁱ =
$$\sqrt{\frac{\frac{T_i}{P_i}}{\frac{T_w}{P_w}} \times \frac{\frac{TR_i}{GDP_i}}{\frac{TR_w}{GDP_w}}} \times 100$$
,

where T is the number of tourists, P the population, TR tourism revenue, GDP the gross domestic product, and the subscript i is used for a specific country, and w for the world. The WTO provides, amongst many other indicators and always from a general perspective, the relationship between the amount of inbound and domestic tourism and the population, as well as the percentage of the GDP of inbound tourism spending from 1995 to 2015 for all the countries in the world. It must be indicated, however, that these data are not always available and, occasionally, neither are they available for the same country for all the years analysed. This led to a methodological problem that we attempted to solve by focusing on the trends of the series.

While carrying out the calculation of the TII, we added a new geographical aspect: the Tourism Density (TD) of the country, that is, the number of tourists per km²:

$$TD = \frac{Inbound \ tourism + Domestic \ tourism}{Population} \times \frac{Population}{km^2} = \frac{Inbound \ tourism + Domestic \ tourism}{km^2}$$

If the demographic component of the TII is multiplied by the population ratio per km² of the country, the tourism density will be obtained. This calculation is reached by combining the information from the WTO with that gathered from the World Bank concerning the population and number of km² for each of the countries.

Having defined the contents of the two indices, the calculation of the TII for all the countries between 1995 and 2015 is presented below. Countries were ranked from greater to lower tourism intensity, depending on the mean value of the indicator over this period, and were classified according to whether they had a very high TII (mean greater than 1500), a high TII (mean lower than 1500 and

over 500), a medium TII (mean lower than 500 and greater than 100), or a low TII (mean lower than 100). This enabled us to obtain four large blocks of countries by comparing to 100, which would be the average world value. Let us look at this in greater detail.

3.1. Countries with a Very High Tourism Intensity Index

The countries classified as having a very high TII are the ones listed in Table 1.

COUNTRY	TII		
	Mean Value 1995–2015		
Macao, China	6.656		
Aruba	3.720		
Anguilla	2.654		
Bahamas	2.164		
Maldives	2.077		
Antigua and Barbuda	1.944		

 Table 1. Very high Tourism Intensity Index (mean value 1995–2015).

Source: own work. Data source: World Tourism Organization.

In Figure 1, the set of countries with the greatest TII and the evolution of these indicators from 1995 to 2015 can be observed.



Figure 1. Very high Tourism Intensity Index evolution. Source: own work. Data source: World Tourism Organization.

The interpretation of these materials is clear: except for the territory of Macau (made up of the mainland of Macau, connected to Asia, and the two islands of Taipa and Coloane), the rest are archipelagos located in the Caribbean (Anguilla, Antigua and Barbuda, Aruba, and the Bahamas) and the Maldives in the Indian Ocean. All of these have the highest TII and, by far, the greatest in this group, we find to be Macau, one of the largest gambling centres in the world, followed by Aruba, which boasts the best casinos in the Caribbean.

In Table 2, the two basic components of the very high TII are broken down, by country, for 2014 (it must be noted that for 2015, much of the data is still not yet available). Both Macau and the Maldives

reveal a dependency on tourism spending that is greater than 90% of their GDP; but the large number of tourists, with respect to the population produced in Macau, places it in the first position, far ahead of Aruba, in second place.

	(Tourism/Population) (Ti/Pi)	Tourism Revenue/GDP (TRi/GDPi)—%
COUNTRY	2014	2014
Macao, China	25.20	92.9
Aruba	10.36	61.0
Anguilla	4.91	41.8
Bahamas	3.73	27.0
Maldives	3.37	91.7

Table 2.	Basic c	omponents	of the	verv	high	TII.
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There is no 2014 data in the case of Antigua and Barbuda. Source: own work. Data source: World Tourism Organization.

3.2. Countries with a High Tourism Intensity Index

The countries classified with a high TII are the ones given in Table 3. Standing out in this group are many archipelagos that are famous for their tourism industry: Barbados, Bahrain, Belize, Dominica, Fiji, Grenada, Jamaica, Malaysia, Mauritius, Montserrat, Saint Lucia, Saint Kitts and Nevis, Seychelles; and, also, countries such as Austria, Croatia, Spain, the United States, Estonia, France, Greece, and Hong Kong, among others.

COUNTRY	TH	COLINITRY	711
COUNTRY	111	COUNTRI	111
	Mean Value 1995–2015		Mean Value 1995–2015
Seychelles	1.501	Hungary	697
Bahrain	1.419	Belize	690
Saint Lucia	1.419	Fiji	677
Croatia	1.413	Czech Republic	677
Barbados	1.360	Saint Vincent and the Grenadines	671
Cyprus	1.203	Ireland	667
Saint Kitts and Nevis	1.157	Greece	659
Montenegro	982	Cambodia	619
Montserrat	969	Mauritius	608
Australia	925	Finland	603
Grenada	866	Uruguay	598
New Zealand	866	Singapore	589
Hong Kong, China	852	Slovenia	586
Spain	847	Jamaica	584
Estonia	813	France	580
Austria	811	Vanuatu	579
Dominica	809	Samoa	578
Taiwan Province of China	804	United States of America	513
Malaysia	789	Iceland	509
Luxembourg	758	Norway	501
Thailand	711	-	

Table 3. High Tourism Intensity Index (mean value 1995–2015).

Source: own work. Data source: World Tourism Organization.

In Table 4, the five-year evolution of the TII is given, from 1995 to 2015, for the group of countries whose mean value for the period is greater than 500 and less than 1500.

COUNTRY	1995	2000	2005	2010	2015
Seychelles	1.895	1.508	1.175	1.588	
Bahrain	1.473	1.468	1.548	1.725	
Saint Lucia	1.809	1.554	1.596	1.258	
Croatia				1.316	1.515
Barbados	1.703	1.361	1.342	1.305	
Cyprus			1.269		
Saint Kitts and Nevis	1.616	930	1.440	948	
Montenegro				1.097	
Montserrat	1.592	1.425	1.101	690	
Australia				966	960
Grenada	1.236	941	564	751	
New Zealand				831	
Hong Kong, China		492	724	1.124	1.259
Spain		1.008	819	775	837
Estonia				818	1.065
Austria				829	826
Dominica	909	748	748	873	
Taiwan Province of China				694	914
Malaysia				800	810
Luxembourg				736	745
Thailand				697	
Hungary				717	737
Belize	641	642	722	725	
Fiji	634	494	722	845	
Czech Republic			681	705	624
Saint Vincent and the	756	739	735	554	
Grenadines	700	100	100	001	
Ireland				658	753
Greece			667	558	826
Cambodia				621	
Mauritius	543	582	608	672	644
Finland		547	561	694	
Uruguay				629	543
Singapore	884	568	498	631	
Slovenia		576	544	629	637
Jamaica	660	591	533	641	637
France			597	583	548
Vanuatu	506	587	503	724	
Samoa	606	591			
United States of America				520	550
Iceland	402	426	393	491	1081
Norway				512	494

Table 4. Five-year evolution of the high Tourism Intensity Index.

Source: own work. Data source: World Tourism Organization.

In Table 5, the TII components for 2014 are broken down into their demographic and economic aspects. From the demographic point of view, the greatest pressure is received by Australia, followed by Bahrain and Taiwan, whereas, at the economic level, Seychelles reveals the greatest dependency followed by Saint Lucia, Dominica, Fiji, and Belize (it should be noted that for some countries, there are no data available in 2014).

	(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%		(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%
COUNTRY	2014	2014	COUNTRY	2014	2014
Seychelles	2.43	31.8	Hungary	2.73	5.4
Bahrain	7.67	5.7	Belize	0.91	22.1
Saint Lucia	1.84	28.6	Fiji	0.78	22.8
Croatia	4.00	17.6	Czech Republic	3.58	3.7
Cyprus	3.24	12.5	Saint Vincent and the Grenadines	0.65	12.8
Saint Kitts and Nevis	2.06	15.1	Ireland	3.81	4.4
Montenegro	2.16	20.8	Greece	2.34	8.2
Montserrat	1.73	13.0	Cambodia	0.88	19.2
Australia	10.70	2.4	Mauritius	0.82	13.6
Grenada	1.26	15.8	Uruguay	2.33	3.5
Hong Kong, China	3.84	15.8	Singapore	2.15	6.2
Spain	4.42	4.6	Slovenia	2.08	5.9
Estonia	4.17	8.6	Jamaica	0.75	16.2
Austria	4.32	4.8	France	4.37	2.3
Dominica	1.13	23.6	United States of America	6.84	1.4
Taiwan Province of China	7.09	3.3	Iceland	3.05	8.0
Malaysia	3.32	6.7	Norway	5.73	1.3
Luxembourg	2.05	9.6			

Table 5. Basic components of the high TII.

There are no complete 2014 dates in the case of Barbados, New Zealand, Thailand, Finland, Vanuatu, and Samoa. Source: own work. Data source: World Tourism Organization.

3.3. Countries with a Medium Tourism Intensity Index

The countries classified as having a medium TII are shown in Table 6.

COUNTRY	TII COUNTRY		TII
	Mean Value 1995–2015		Mean Value 1995–2015
Jordan	491	Philippines	243
Switzerland	470	Japan	225
Republic of Korea	465	Kyrgyzstan	205
Cabo Verde	456	South Africa	205
Slovakia	444	Vietnam	202
Turkey	444	Indonesia	199
Tunisia	422	China	198
Lebanon	407	Guyana	189
Italy	389	Israel	175
United Kingdom	386	Ukraine	163
Dominican Republic	368	Oman	163
Lithuania	364	Ecuador	162
Canada	360	Gambia	160
Armenia	353	Suriname	154
Colombia	337	Brunei Darussalam	141
Belgium	332	Mongolia	138
Albania	331	El Salvador	135
Botswana	331	Nicaragua	124
Romania	322	India	111
Poland	318	Honduras	111
Costa Rica	308	Mexico	106
Tonga	276	Bosnia and Herzegovina	105
Saudi Arabia	271	_	
Panama	267		
Qatar	264		

 Table 6. Medium Tourism Intensity Index (mean value 1995–2015).

Source: own work. Data source: World Tourism Organization.

In Table 7, the five-year evolution of the TII can be observed from 1995 to 2015, for countries whose value for the period is greater than 100 and less than 500. As this is a mean value for the whole

20-year period, some higher magnitudes for the TII may be found, as this is not a mean value but, rather, the specific value of the TII for that particular year.

COUNTRY	1995	2000	2005	2010	2015
Jordan	431	378	504	617	
Switzerland				466	420
Republic of Korea				418	467
Cabo Verde	148	348	497	767	
Slovakia			437	430	
Turkey				428	467
Tunisia	489	461	422	463	
Lebanon		196	507	621	
Italy		447	377	374	336
United Kingdom				382	404
Dominican Republic	345	405	369	348	390
Lithuania			383	348	347
Canada				371	342
Armenia				342	442
Colombia				339	395
Belgium				322	353
Albania	44	66		645	733
Botswana	252	316	381	450	
Romania				295	344
Poland			319	308	321
Costa Rica	274	316	341	320	
Tonga	275	227	277	355	
Saudi Arabia			266	252	333
Panama	167	184	222	350	441
Qatar		134	246		
Philippines				208	308
Japan				228	
Kyrgyzstan		45		160	344
South Africa				209	188
Vietnam			173	230	
Indonesia				193	213
China	180	185	200	213	
Guyana	200	249	147	162	
Israel	274	234	150	186	150
Ukraine	44	96	220	243	126
Oman		138	152	181	
Ecuador				186	203
Gambia			152	129	
Suriname	193	143	238	152	
Brunei Darussalam			150		
Mongolia	78	89	187	169	
El Salvador	59	133	154	146	183
Nicaragua	71	111	135	153	
India	72	80	101	139	187
Honduras	73	104	123	130	
Mexico	163	111	98	93	113
Bosnia and Herzegovina		93	94	115	

 Table 7. Five-year evolution of the medium Tourism Intensity Index.

Source: own work. Data source: World Tourism Organization.

Upon analysing the data in Table 8, the country with the greatest demographic pressure is Korea, followed by Japan; in both cases, economic dependence is small. At the opposite end of the scale, we find Jordan, followed by Albania and Panama, with important economic dependence, but with controlled demographic pressure.

	(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%		(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%
COUNTRY	2014	2014	COUNTRY	2014	2014
Jordan	0.54	15.4	Saudi Arabia	1.79	1.2
Switzerland	1.91	3.0	Panama	0.45	11.7
Republic of Korea	4.82	1.6	Qatar	1.30	5.0
Turkey	1.43	4.9	Philippines	1.13	2.1
Tunisia	0.64	6.4	Japan	4.80	0.4
Italy	1.65	2.1	Kyrgyzstan	0.49	6.3
United Kingdom	2.28	2.0	South Africa	0.40	3.0
Dominican Republic	0.49	8.8	Indonesia	1.02	1.3
Lithuania	1.62	2.9	China	2.68	1.0
Canada	3.52	1.2	Israel	0.37	2.1
Armenia	0.69	8.6	Ukraine	0.28	1.7
Colombia	2.73	1.3	Oman	0.38	2.4
Belgium	1.3	2.8	Brunei Darussalam	0.48	0.5
Albania	1.16	14.0	El Salvador	0.22	5.1
Botswana	0.89	6.2	Nicaragua	0.22	3.8
Romania	2.98	1.1	India	1.00	1.0
Poland	1.41	2.2	Mexico	0.23	1.3
Costa Rica	0.53	6.4	Bosnia And Herzegovina	0.14	4.0

Table 8. Basic components of the medium TII.

There are no complete 2014 dates in the case of Cabo Verde, Slovakia, Lebanon, Tonga, Vietnam, Guyana, Gambia, Suriname, Mongolia, and Honduras. Source: own work. Data source: World Tourism Organization.

3.4. Countries with a Low Tourism Intensity Index

The countries classified as having a low TII are listed in Table 9.

COUNTRY	TII	COUNTRY	TII
	Mean Value 1995–2015		Mean Value 1995–2015
Comoros	98	Kuwait	39
The Former Yugoslav Republic of Macedonia	97	Malawi	38
Syrian Arab Republic	95	Togo	38
Lesotho	93	Madagascar	37
Guatemala	92	Yemen	33
Azerbaijan	86	Mali	30
Senegal	85	Cameroon	28
Rwanda	84	Guinea-Bissau	24
Russian Federation	83	Timor-Leste	23
Kenya	81	Burkina Faso	23
Serbia	70	Ethiopia	21
Solomon Islands	69	Sierra Leone	21
Zambia	69	Côte D'Ivoire	17
Bolivarian Republic of Venezuela	67	Algeria	16
Bhutan	66	Chad	15
Plurinational State of Bolivia	64	Congo	14
Republic of Moldova	60	Niger	14
Haiti	57	Pakistan	11
Peru	57	Papua New Guinea	10
Belarus	56	Angola	9
Paraguay	54	Burundi	8
Sri Lanka	53	Sudan	8
Nepal	48	Central African Republic	8
Uganda	47	Myanmar	4
Ghana	46	Bangladesh	2
Benin	45	Democratic Republic of the Congo	1
Diibouti	41		

Table 9. Low Tourism Intensity Index (mean value 1995–2015).

Source: own work. Data source: World Tourism Organization.

In Table 10, the five-year evolution of the TII from 1995 to 2015 can be appreciated for the countries with a mean less than 100; many are excluded from the classification, due to a lack of data available in the WTO for the period analysed.

COUNTRY	1995	2000	2005	2010	2015
Comoros	156	112	93	74	
The Former Yugoslay Republic of Macedonia		101	78	100	140
Svrian Arab Republic	85	82	98	201	
Lesotho	89			89	
Guatemala				97	84
Azerbaijan			45	88	
Senegal	76	71	92	96	
Rwanda		28		82	119
Russian Federation	70	86	71	70	85
Kenva	123	67	81	82	
Serbia			43	82	121
Solomon Islands	89	24	31	103	
Zambia		59	103	78	
Bolivarian Republic of Venezuela				61	
Bhutan	28	35	41	93	
Plurinational State of Bolivia	52	42	82	66	79
Republic of Moldova				56	64
Haiti	61	47	27	73	
Peru	32	44	60	69	
Belarus			34	60	77
Paraguay	92	48	46	58	99
Sri Lanka	57	44	52	50	
Nepal	69	56	30	44	
Uganda	23	30	48	73	
Ghana	20	00	10	56	
Benin	<u> 68</u>	42	42	42	
Diibouti	42	41	35		
Kuwait	51	41	28	35	
Malawi	40	36	38	35	
Тодо	23	20	24	60	
Madagascar	31	39	43	35	
Yemen	9	10	22	82	
Mali				34	
Cameroon	18	31	21	27	
Guinea-Bissau			5	28	
Timor-Leste				28	
Burkina Faso		19	22	28	
Ethiopia	17	14	20	33	
Sierra Leone	35	15	32	16	
Côte D'Ivoire				20	
Algeria	8	14	25	21	
Chad	20	14			
Congo	22	10	15	0	
Niger	8	15	13	18	
Pakistan	13	11	11	11	
Papua New Guinea	15	9			
Angola		7	11		
Burundi	8	6	10	8	6
Sudan	2	1	9	8	
Central African Republic	12	8	7		
Myanmar	6	4			
Bangladesh	2	3	3	3	
Democratic Republic of the Congo			1	1	

 Table 10. Five-year evolution of the low Tourism Intensity Index.

Source: own work. Data source: World Tourism Organization.

From Table 11, it can be deduced that, within the group, the country with the greatest economic dependence is the Solomon Islands, followed by Bhutan, Togo, and Sri Lanka. In no case is significant demographic pressure visible.

	(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%		(Tourism/ Population) (Ti/Pi)	Tourism Revenue/ GDP (TRi/GDPi)—%
COUNTRY	2014	2014	COUNTRY	2014	2014
The Former Yugoslav Republic of Macedonia	0.20	2.6	Belarus	0.11	1.6
Guatemala	0.09	2.7	Paraguay	0.10	0.1
Azerbaijan	0.22	3.6	Sri Lanka	0.07	4.4
Senegal	0.07	3.1	Nepal	0.03	2.6
Rwanda	0.08	3.7	Benin	0.02	1.7
Russian Federation	0.23	1.0	Kuwait	0.05	0.4
Kenya	0.03	3.0	Malawi	0.05	0.6
Serbia	0.12	3.1	Togo	0.04	5.1
Solomon Islands	0.04	6.2	Mali	0.01	1.8
Zambia	0.06	2.4	Burkina Faso	0.01	1.5
Bolivarian Republic of Venezuela	0.51	0.1	Sierra Leone	0.01	0.7
Bhutan	0.18	6.1	Algeria	0.06	0.2
Plurinational State of Bolivia	0.08	2.2	Burundi	0.02	0.2
Republic of Moldova	0.03	3.9	Bangladesh	0.00	0.1
Peru	0.10	1.9	Ũ		

Table 11. Basic components of the low TII.

There are no complete 2014 dates in the case of Comoros, Syrian Arab Republic, Lesotho, Haiti, Uganda, Ghana, Djibouti, Madagascar, Yemen, Cameroon, Guinea-Bissau, Timor-Leste, Ethiopia, Cote d'Ivore, Chad, Congo, Niger, Pakistan, Papua New Guinea, Angola, Sudan, Central African Republic, Myanmar, and Democratic Republic of the Congo. Source: own work. Data source: World Tourism Organization.

The classification demonstrates the relevance of the Caribbean as a key area in global tourism intensity, a reality that describes its nature of island economies [36,55].

Below, we present the calculation of the Tourism Density (TD) for all the countries from 1995 to 2015. With these data, a ranking was drawn up from greater to lower tourism density, based on the mean value of the indicator in this period, and the countries were classified according to whether they have very high TD (mean greater than 10,000 tourists per km²), high TD (mean less than 10,000 tourists per km² and over 1000 tourists per km²), medium TD (mean less than 1000 tourists per km² and greater than 300 tourists per km²), or low TD (mean less than 300 tourists per km² and greater than 100 tourists per km²), enabling us to obtain, in turn, four large blocks of countries.

In Figure 2, the evolution of Tourism Density, from 1995 to 2015, can be observed in Macau—the country with the greatest tourism density in the world—far greater than the next two, which are Hong Kong and Singapore. Macau goes from a tourism density of 210,100 tourists per km² in 1995 to 480,726 tourists in 2014 (there are no data available for 2015), representing 128.8% growth over this period.

Far behind, but still classified as having very high tourism density, we find Hong Kong and Singapore, whose evolution from 1995 to 2015 is shown in Figure 3. Hong Kong goes from a density of 6532 tourists per km² in 1998 to 25,183 tourists per km² in 2014, namely, 285.5% growth over the period (Table 13). Singapore goes from 9034 tourists per km² in 1995 to 16,390 in 2014, up 81% (Table 13).



Figure 2. Tourism Density in Macao. Source: own work. Data source: World Tourism Organization and World Bank.



Figure 3. Very high Tourism Density. Source: own work. Data source: World Tourism Organization and World Bank.

In Figure 4, the evolution of density from 1995 to 2015 is revealed for the set of countries that were classified as having high Tourism Density.

The classification was drawn up based on the mean tourism density value between 1995 and 2015. It must be remembered that, in the case of high tourism density, the mean value must be less than 10,000 tourists per km² and over 1000 tourists per km². As it is a mean value for the whole 20-year period, some values greater than 10,000 tourists per km² can be found in Figure 4, as this is not a mean value but, rather, the specific value for the corresponding year. Leading this group is Bahrain, which goes from a density of 3255 tourists per km² in 1995 to 13,556 tourists per km² in 2014, representing 216.5% growth (Table 13). The evolution of tourism density is very different among the countries classified as having high tourism density. At one end, we find the Maldives, whose tourism density increased 327.6% between 1995 and 2014; and at the other end, is Japan, which decreased 18.3% between 2008 and 2014 (in this figure, the impact of the earthquake in 2011—the strongest recorded in Japanese history—can be clearly seen).



Figure 4. High Tourism Density. Source: own work. Data source: World Tourism Organization and World Bank.

In Table 12, the five-year evolution, between 1995 and 2015, is outlined for the Tourism Density of the set of countries classified as having medium tourism density. In this group, we find all the countries whose average tourism density over the period considered is less than 1000 tourists per km² and greater than 300 tourists per km².

COUNTRY	1995	2000	2005	2010	2014	Average (1995–2014)
United Kingdom				607	605	627
Antigua and Barbuda	500	470	557	523		538
France			537	509	527	530
Czech Republic			437	458	477	461
Saint Lucia	373	435	513	494	545	455
Belgium				424	480	445
Spain		380	419	392	406	399
Cyprus			390		404	393
Italy		384	410	410	333	389
Saint Kitts and Nevis	304	281	542	377	435	383
Switzerland				368	379	383
Luxembourg				329	441	378
Mauritius	206	322	375	459	506	372
Grenada	318	379	291	324	394	355
Seychelles	258	283	262	367	483	319

Table 12. Five-year evolution of the medium Tourism Density.

Source: own work. Data source: World Tourism Organization and World Bank.

European countries appear, for the first time, in the classification: England, France, the Czech Republic, Belgium, Spain, Cyprus, Italy, Switzerland, and Luxembourg. Table 13 shows the evolution of tourism density, which is very different among the European countries classified in the group of medium tourism density. On the one hand, we find Spain, whose density increased 27.8% from 1999 to 2014, going from 318 tourists per km² to 406 tourists per km²; and, on the other hand, we find Switzerland, with a drop of 10.5% between 1998 and 2014, from 423 tourists per km² to 379 per km².

COUNTRY	Tourism Density	Initial Year Considered	Final Year Considered	Initial Tourism Density	Final Tourism Density	Growth
India	Low	1995	2014	42	393	830.0
Qatar	Low	1999	2014	31	243	691.6
China	Low	1995	2014	67	382	473.5
Maldives	High	1995	2014	1.054	4.506	327.6
Bahrain	High	1995	2014	3.255	13.556	316.5
Hong Kong, China	Very High	1998	2014	6.532	25.183	285.5
Mauritius	Medium	1995	2014	206	506	146.1
Macao, China	Very High	1995	2014	210.100	480.726	128.8
Lebanon	Low	1997	2013	53	122	128.3
Philippines	Low	2009	2014	174	374	114.8
Malaysia	Low	2008	2014	155	300	92.8
Seychelles	Medium	1995	2014	258	483	86.9
Singapore	Very High	1995	2014	9.034	16.390	81.4
Jamaica	Low	1995	2014	104	189	81.3
Aruba	High	1995	2014	3.439	5.956	73.2
Thailand	Low	2006	2013	186	297	60.1
Saint Lucia	Medium	1995	2014	373	545	46.3
Saint Kitts and Nevis	Medium	1995	2014	304	435	43.0
Israel	Low	1995	2014	104	137	31.5
Colombia	Low	2009	2014	89	114	27.9
Spain	Medium	1999	2014	318	406	27.8
Slovenia	Low	2000	2014	167	212	26.5
Indonesia	Low	2006	2014	110	136	24.5
Grenada	Medium	1995	2014	318	394	24.1
Turkey	Low	2009	2014	116	141	21.6
Barbados	High	1995	2012	1.028	1.247	21.3
Belgium	Medium	2009	2014	399	480	20.3
Saint Vincent and The Grenadines	Low	1995	2014	154	182	18.3
Luxembourg	Medium	2007	2014	381	441	15.5
Ireland	Low	2006	2014	217	250	15.4
Austria	Medium	2008	2014	385	440	14.2
Cyprus	Medium	2003	2014	355	404	13.9
Croatia	Low	2008	2014	265	300	13.1
Antigua and Barbuda	Medium	1995	2013	500	552	10.5
Italy	Medium	1997	2014	310	333	7.4
Republic of Korea	High	2009	2014	2.294	2.423	5.6
Poland	Low	2005	2014	162	171	5.4
Greece	Low	2004	2014	184	193	4.8
United States of America	Low	2007	2014	214	222	3.8
Czech Republic	Medium	2003	2014	464	477	2.8
France	Medium	2005	2014	537	527	-1.9
Slovakia	Low	2005	2013	246	236	-4.2
United Kingdom	Medium	2009	2014	634	605	-4.4
Switzerland	Medium	1998	2014	423	379	-10.5
Bahamas	Low	1995	2014	115	103	-10.7
Hungary	Low	2008	2014	328	289	-11.8
Japan	High	2008	2014	1.977	1.615	-18.3
, <u>r</u>	8	_000			2.010	-0.0

Table 13. Evolution of Tourism Density.

Source: own work. Data source: World Tourism Organization and World Bank.

Finally, in Table 14, it is possible to see the evolution of tourism density between 1995 and 2015 for the countries classified as having low tourism density. The mean of the indicator for the period considered is less than 300 tourists per km², and greater than 100 tourists per km².

Standing out in this group of countries with low tourism density, we find India, Qatar, and China, which have undergone the greatest rise in tourism density in the period of study out of all the countries analysed. India went from 42 tourists per km² in 1995 to 393 tourists per km² in 2014, representing 830% growth (Table 13). Qatar evolved from 31 tourists per km² in 1999 to 243 tourists per km² in 2014, up 691.6%. China, with 67 tourists per km² in 1995, reached 382 tourists per km² in 2014, representing a rise of 473.5%.

1995	2000	2005	2010	2014	Average (1995–2014)
			263	300	280
			211	374	270
		246	209		237
			229		230
			207	300	226
			203	250	224
			205	222	210
154	187	246	185	182	194
		211	152	193	191
	167	173	190	212	185
67	81	131	225	382	161
		162	146	171	159
42	68	120	229	393	152
104	120	135	175	189	141
			127	141	129
			126	136	126
	71	109	207		110
115	111	116	99	103	108
	33	79		243	105
			105	114	105
104	115	90	130	137	100
	1995 154 67 42 104 115 104	1995 2000 154 187 157 167 67 81 42 68 104 120 115 71 113 33 104 115	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Table 14. Five-year evolution of the low Tourism Density.

Source: own work. Data source: World Tourism Organization and World Bank.

4. Conclusions

First of all, the main aim of this research was to design an index to calculate tourism intensity, a key concept for any tourism destination, as it can affect the wellbeing of both residents and the tourists themselves. We established this by consulting the databases of the UNWTO for the period 1995–2015, using four determining vectors: the GDP, tourism spending, the population, and the number of tourists. We thereby built a compound index that is more convincing than tourism analysis using only one of the aforementioned indicators. However, our aim was above all descriptive, without going into—which would require considerable length—the economic characteristics of the groups of countries we were able to group together, based on the calculation of the TII. Classifying a destination according to whether it has a very high, high, medium, or low tourism intensity, may be useful when it comes to determining the type of policies that must be defined in order to eliminate negative externalities and to boost positive ones. Along these lines, we believe an analysis of tourism densities (TD) is also important, and we put forward a second proposal for measuring tourism intensity based on a specific formula, with data from the TII and from the World Bank. Both methodologies enabled different rankings to be drawn up, broken down according to tourism intensity, with some specific parameters: very high, high, medium, and low.

Secondly, it is emphasised that the region with the highest tourism intensity in the world is Macau, a destination that focuses its economy on gambling, as it boasts numerous casinos in its territory. The TII is 6656, the mean between 1995 and 2015 (100 would be the mean world value), with a TD of 48,726 tourists per km² in 2014. The case of Macau is not unique; in fact, another relevant conclusion is that island economies are the ones with the greatest TII. In this regard, the present study follows the lines marked in a previous one [36], in which it was also determined that the highest tourism densities in the world were found in archipelagos and, specifically, in the Cayman Islands, British Virgin Islands, and the Balearic Islands.

Thirdly, we can affirm that the changes taking place in tertiary economies in the process of economic globalisation are very fast. The different tourism intensities will, undoubtedly, condition

regulations of all kinds: urban, fiscal, and pertaining to the tourism industry itself. Hence, the importance, decisive in our opinion, of measuring tourism economy with tools that are innovative (the use of bioeconomy criteria is another key research path to studying the evolution of tourism economies more accurately, based on biophysical indicators that affect sustainability processes; see [56–63]). Based on this observation, a whole range of opportunities for, and threats to, tourism economies open up. As for the former, the dynamic competitiveness of the productive systems consists not only of the ability to adapt to changes in demand, but to do so in the shortest possible time. Indeed, the speed with which local actors process and put information into practice is crucial, and this can be boosted through cooperation between the different productive units. The agility whereby this information is systematised is related to three essential factors, amongst others: firstly, the productive resources of companies, depending on their critical mass or size; secondly, human capital and the implementation of regional and local innovation systems, since their availability may favour finding new possibilities of efficient productive combinations, in order to respond to changes in demand; finally, the function of leadership, which the public sector would have to take on with effective synergies with private capital.

We would like to highlight the fact that the empirical precision of tourism intensity, quite apart from perceptions that are subjective or have clear political intentions, is what we are seeking in this line of research, with the result of drawing up the Tourism Intensity Index (TII) and the Tourism Density index (TD). They have two main potentials: they enable a homogeneous comparison, using four main indicators that come from institutions with open consultation databases—the UNWTO and the World Bank; and they determine a specific numerical magnitude which, at least, eschews subjective observation which, despite always being respectable, may be biased.

The tourist intensity is affecting many regions specialized in the leisure industry. These are factors of concern: problems of demographic congestion, high consumption of natural and energy resources, ecological impacts that affect the landscape, and even our own cultural values. All these elements, which are clearly sensed in our research, force policy makers to act in very clear directions. The most important, without a doubt, will be the environmental sustainability of the tourist territory. This territory is the main context, the basic natural capital that is a claim for visitors. We understand that magical recipes cannot be given in economic policy. However, at the same time, we think that the objectives to be achieved would be to encourage renewable energies, a strong technological renovation that makes processes more efficient (production of electricity by photovoltaic means, for example), the possibility of promoting a specific environmental taxation for tourism and, last but not least, betting on the formation of a human capital specialized in mass tourism in all its aspects.

Lastly, our results are of a macroeconomic nature, and are usually assigned to nation states. However, we think that, as research assumptions, the indices and the methodology we have constructed would be equally applicable to a more regional-scale analysis. The sustainability of tourism should be treated from regional perspectives (as has also happened with studies of economic history in the industrial field). This is why this can be a good line of future research: the disaggregation of data on a regional scale. Now, the research that is developed in the future will have the limits that will be marked by the availability of statistical records. This is fundamental. However, at the same time, the proportion of these new measurement indices can be contrasted with others that should be investigated. In this sense, we are working on the preparation of biophysical indicators for the tourist economy, which will complement the two indices presented in this work.

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