



Sensitivity and vulnerability of international tourism by covid crisis: South America in context



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ABSTRACT

The aim of this research is to visualize those countries that would have the greatest impact in terms of sensitivity and vulnerability due to the drop in travels, as a product of the pandemic, with special emphasis on South America. For this, the participation of tourism in the economy of certain countries prior to the coronavirus crisis was measured by analysing three groups of countries: the ten most tourist countries in the world according to their receipts; countries whose economies are most dependent on tourism; and the twelve South American countries, contextualized through the other two groups. Thus, multiple combinations of high, low and medium sensitivity and vulnerability were identified for South American and for the countries with the highest absolute receipts from tourism, but an alarming scenario for the most dependent countries on international tourism, many of them small island countries in development (SIDS). Additionally, the ideas of *low apparent sensitivity* and that of *low sensitivity due to role inversion* offer new ways to interpret a low sensitivity. Likewise, and with respect to vulnerability, three possible stages of recovery of international tourism activity were noted.

Introduction

In mid-March 2020, the World Health Organization declared that the world was experiencing a pandemic, based on the emergence and spread of SARS-CoV-2, also known as coronavirus (WHO, 2020).

The coronavirus pandemic exposed the little-noticed, but increasingly profound, link between tourism and international relations. Indeed, international travels were the main vector for the spread of the virus in a highly globalized world.¹ As a result, many common practices experienced severe restrictions. Finally, tourism was one of the economic activities most affected by the pandemic. Thus tourism impacted on international life, at the same time that restrictive policies on international travels hampered tourism.²

This research aims to analyze and measure the impact of the coronavirus pandemic on international tourism, in terms of sensitivity and vulnerability, with special emphasis on South America. For this purpose, three groups of countries are analyzed, through intragroup and intergroup readings; that is, countries of the same group are compared with each other and with respect to the other groups. First, the ten

most touristic countries in the world according to their receptive tourism expenditures. Not according to arrivals; after all, the drop in tourism is due to foreign receipts that do not circulate, rather than by people who do not travel. Although both exchanges are related and, in the respective top ten, both lists coincide in seven out of ten countries. Second, the countries whose economies are most dependent on tourism. There are almost twenty countries whose Gross Domestic Product (GDP) came from tourism above 30%. Third, the twelve South American countries, contextualized through the other two groups.³

Methodology

A few of methodological decisions are discussed beforehand. On the one hand, absolute and relative data are presented by country, rather than by regions, blocs or global basis, in order to identify the nuances of the phenomenon. Absolute data come from the World Bank (WB, 2020) and correspond to 2018: the last year with complete statistical series to date. Relative figures were obtained from the World Travel and Tourism Council (WTTC, 2020) and date from 2019, except for

¹ Tourism can be considered as a specific dimension of international relations. A decade ago, international tourism was considered an indicator of countries globalization level (Chen and Woo, 2010, pp. 123 and 127).

² Duroselle (1998) conceives international relations made up of two major objects of study: international life and international politics.

³ In all three cases, the variable that served as the selection criterion for each set was marked with grey.

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domestic spending, which is from 2018. On the other hand, economic variables are considered since this sector is the most affected by the pandemic; others, such as the environment, even seem to have benefited. Finally, *calculated* variables were marked with an asterisk; as estimates, they are not considered *pure* data.

Each variable is explained below:

Absolute Data	
Arrivals (thousands of trips)	Number of trips carried out by foreign people who voluntarily enter a country other than the one where they usually reside, for the purpose of visiting, for less than twelve months and without the purpose of carrying out work at destination
Departures (thousands of trips)	Number of trips carried out by people who voluntarily leave a country where they usually reside, for the purpose of visiting, for less than twelve months and without the purpose of carrying out work at destination
Receipts (millions of US \$)	Expenditure made by people who voluntarily enter a country other than the one where they usually reside, for visiting purposes. Also referred to as <i>incomes</i> (of foreign receipts).
Expenditure (millions of US\$)	Expenditure made in other countries by people who voluntarily leave a country where they habitually reside, for visiting purposes.
Receipts per arrival* (US\$ per arrival)	Average expenditure spent on each trip. It results from dividing receipts over arrivals.
Absolute balance* (millions of US\$)	Receipts minus expenditures.
RELATIVE DATA	
Gross Domestic Product GDP (percentage)	Ratio of production by tourism-to-GDP. Contribution of tourism to national economic production.
Employment (percentage)	Number of tourism employment-to-total employment. Contribution of tourism to the generation of jobs.
Exports (percentage)	Share of tourism expenditures out of total exports. Contribution of tourism to exports.
Relative balance* (percentage)	Receipts divided expenditures.
Domestic expenditure (percentage)	Proportion of tourism spending made by residents of the country.

The *relative tourism balance* is a novelty as an indicator and shows that two countries with similar values in receipts or in absolute balance are not experiencing the same effect. Thus, for example, similar amounts of foreign receipts came out of both Bolivia and Ecuador but, with tourism incomes were equal to 0.80 for the first country and 1.80 for the second. In the same way, the absolute balance of Fiji and Montenegro are quite similar, but the relationship between their receipts and expenditures results in very different relative balances, considering that Montenegro doubled Fiji in this respect. Likewise, the fairness of this variable is also evident in the cases of Italy and the United States, both with the same relative balance value, but with very different absolute balances and up to five times higher for the latter. Note that the relative tourism balance is equivalent to one when receipts equal expenditures,

it is greater than one when receipts is greater, and is less than one when expenditures are greater.

International sensitivity and vulnerability

The dimensions of *sensitivity* and *vulnerability* find a theoretical framework in the complex interdependence approach and both constitute conceptual categories that allow understand the idea of international power from that perspective.⁴ Indeed, this theory conceives the country power in terms of control over results and originated from various sources, among which the economy stands out. Unlike the traditional conception of power, widely based on the military component and as an initial resource.

Defined by its authors, *sensitivity* implies a “liability to costly effects imposed from outside before policies are altered to try to change the situation” (Keohane and Nye, 2011 [1977]: 11). In other words, it is equivalent to the impact that an adverse and novel foreign situation or policy produces on a specific international actor. In contrast, *vulnerability* was conceptualized as “an actor’s liability to suffer costs imposed by external events even after policies have been altered” (Keohane and Nye, 2011 [1977]: 27). That is, the ability of an international actor to react to an adverse and novel foreign situation or policy.⁵

On the one hand, and beyond the sources of power, note that the notion of sensitivity observes initial resources; the idea of vulnerability, on the other hand, is based on the potential to modify subsequent results. On the other hand, although the less dependent actors -that is, less sensitive ones- tend to be less vulnerable, they do not always have guarantees of control over results. Vulnerability, in short, results from political will and managerial capacity and/or the possibility and availability of substituting diminishing external resources for internal ones.

In the present international tourism analysis, sensitivity is based on the variables of receipts, receipts per arrival, absolute and relative balances, as well as tourism contribution to GDP, employment and exports. For its part, vulnerability depends on domestic expenditures, at least in a first stage.

The most touristic countries in the world, in absolute terms

In this section, countries with the highest, medium or lowest vulnerability and sensitivity of the set will be identified. This group is made up of those countries that received the most receipts from tourism in 2018. They are the United States, Spain, France, Thailand, Germany, Italy, the United Kingdom, Australia, Japan, and Hong Kong. The first seven were also part of the top ten tourism destinations in the world in terms of tourist arrivals, a list that is completed by China, Turkey and Mexico. These three countries are among those that receive the most foreign visits (arrivals), but not among those that receive the most foreign receipts (receipts); consequently, they are also not in the top ten for receipts per arrival.

Some explanations should be noted. First, the table was organized according to receipts (in gray in Table 1) and shows the top ten countries according to that criterion but. Second, the amounts marked in italics in the columns of arrivals, departures, and expenditures, belong to countries outside of the top ten -they were added to complete the horizontal readings by countries-. Third, the figures without brackets below the line in the three columns referred belong to countries that would complete those three top ten. Fourth, three countries appear repeated in at least two of these three lists (China, the Russian Federation and Korea), so they are considered important. In order to calculate the receipts per arrival and the absolute balance, the missing figures, necessary to obtain these data, are presented in brackets. By

⁴ An interesting critique of this theory can be found in Del Arenal (2005: 317-325).

⁵ An interesting critique of these categories can be found in Tokatlián and Pardo (1990) and in Hoffmann (1987).

Table 1
Absolute indicators for the top ten countries with the highest receipts.

Countries	Arrivals (thousands of trips)	Departures (thousands of trips)	Receipts (millions of US\$)	Expenditure (millions of US\$)	Receipts per arrival* (US\$ per arrival)	Absolute balance* (millions of US\$)
1. U.States	79 745	92 564	256 145	186 508	3 212	69 637
2. Spain	82 773	19 116	81 250	26 670	982	54 580
3. France	89 322	26 914	73 125	57 925	819	15 200
4. Thailand	38 178	9 966	65 242	14 675	1 709	50 567
5. Germany	38 881	108 542	60 260	104 204	1 550	-43 944
6. Italy	61 567	33 347	51 602	37 644	838	13 958
7. U.Kingdom	36 316	70 386	48 515	68 888	1 336	-20 373
8. Australia	30 816	11 403	47 327	42 351	1 536	4 976
9. Japan	31 192	18 954	45 276	28 096	1 452	17 180
10. H.Kong	29 263	92 214	41 870	26 498	1 431	15 372
China	62 900	149 720,00	[40 386]	277 345	642	-236 959
Russia	[24 551]	41 964,00	[18 670]	28 791	760	-10 121
Korea	[15.347]	28 696	[19 856]	34 769	1.294	-14 913
	Turkey 45 736	Malaysia 30 761		Canada 35 581		
	Mexico 41 313	Ukraine 27 811				

Source: Elaborated by the authors based on the World Bank (WB, 2020).

the way, with the exception of Japan, all of the top ten countries by receipts also appear in at least one of the other three lists (arrivals, departures and outgoing spending).

Table 1 shows that the ten countries that earned the most money from tourism received more than US \$ 40 billion in 2018 (receipts). Of these, the United States presented a formidable situation: it tripled Spain -in second place- and quadrupled the average of the rest of the ranking. As a consequence of this, its receipts per arrival were superlative: it doubled Thailand -in second place- and also the average of the rest of the ranking. Furthermore, its absolute balance was the most positive, followed by Spain and Thailand, although these two countries enjoyed a higher proportion of incomes in relation to expenditures (relative balance in Table 2).

China presented the opposite situation to the United States, with a little relevant receipt per arrival -similar to Russia- and a negative absolute balance: all Chinese tourists together in 2018 spent almost seven times the global amount of what China got for tourism receipts that same year. This variable was also negative for Germany and the United Kingdom, but to a lesser extent.

Regarding Table 2, it is observed that Thailand presented in 2019 an economy more sustained by tourism than the rest of the countries in the ranking. This was evident in magnitudes around 20% in contribution to GDP, employment and exports. The variable of tourism exports ranked Spain in second place in terms of relative dependence on tourism. On the contrary, France, Australia, and Japan were the countries least dependent on tourism.

The 2020 pandemic would largely deprive these countries of the benefits of positive balances and the costs of negative ones. How likely is it that countries with positive absolute balances replace these receipts with domestic expenditures in a first stage of tourism reactivation? It depends on each case. On the one hand, Germany, China, the United States and Japan are more likely, since their residents' travels expenditures accounted for more than 80% of their 2018 overall tourism expenditures. On the other hand, Hong Kong and Thailand are less likely, since in both cases less than 30% of their tourism expenditures had domestic origin.

In sum, Thailand is to the most sensitive country in the group to the coronavirus pandemic due to an economy largely based on tourism -although it does not reproduce the marked dependence proper of the group of countries strongly dependent on tourism, analysed below-. In addition, together with Spain -and to a greater extent the United States-, it experienced an absolute balance with a positive sign that, projected to 2020, is equivalent to foreign receipts that will not enter.

In perspective of the theoretical approach of complex interdependence, countries with high figures in the first four relative indicators are considered to be more sensitive, and those with low magnitudes in domestic expenditure are more vulnerable.⁶ In this case, Spain and Thailand are located at the corner of the most sensitive and vulnerable countries at the same time, although the situation of the latter is more worrying (Graph 1). In the middle, Hong Kong is intermediate in terms of sensitivity (but high vulnerability) and France as well as Korea are intermediate in terms of vulnerability (but low sensitivity). The rest of the countries meet at the virtuous corner, with low figures in both indicators (Graph 2).

The most touristic countries in the world, in relative terms

Any country whose GDP is based on tourism above 20% experiences some economic dependence on that activity. Many are the countries that make up of this group. Smaller is the group whose tourism GDP is greater than 30% and which suffers from a strong dependence on tourism (in grey in Table 4). In 2018, there were 19 countries: Montenegro, Macao and 17 Small Island Developing States (SIDS).

SIDS are a group of 52 developing countries (38 originally), with a littoral geography and similar challenges regarding environment (UN-SIDS, 2020). They were recognized by the United Nations (UN) at the 1992 Earth Summit and are categorized into three regions: Asia and the Pacific (22), the Caribbean and Latin America (23) and Africa (7). They work together at the UN through the Alliance of Small Island States (AOSIS) and also belong, respectively, to three regional cooperation organisations: the Caribbean Community (CARICOM), the Pacific Islands Forum (PIF) or the Indian Ocean Commission (IOC). The SIDS included in this analysis constitute one third of the total.

It is noteworthy that a large part of the countries in this group (74%) registered a high receipt per arrival, above US\$ 1,000/trips: above the receipt per arrival of the preceding group of countries (70%, in Table 1). At the extremes, Antigua and Barbuda surpassed Montenegro more than six times and, compared to the previous ranking, also the United States (Table 1).

The positive absolute balance is characteristic of this set. Indeed, the lowest one (Dominica; in Table 3) exceeded the highest of the previous group (Spain; in Table 1). In all cases, foreign receipts from tour-

⁶ The difference between the largest and smallest numerical expressions determines the rank of each column. This range divided into three makes it possible to identify more sensitive, intermediate and less sensitive countries. The same operation is applied to know the vulnerability from domestic expenditure.

Table 2
Relative indicators for the top ten countries with the highest receipts.

Countries	GDP (%)	Employment (%)	Exports (%)	Relative balance (%)	Domestic expenditure (%)
1. U.States	8.6	10.7	7.8	1.37	84
2. Spain	14.3	14.6	18.0	3.04	44
3. France	8.5	9.4	7.7	1.26	66
4. Thailand	19.7	21.4	21.1	4.45	29
5. Germany	9.1	12.5	2.9	0.58	86
6. Italy	13.0	14.9	7.9	1.37	76
7. U.Kingdom	9.0	11.0	4.2	0.70	83
8. Australia	7.0	8.0	5.3	1.12	78
9. Japan	7.0	8.0	5.3	1.61	81
10. H.Kong	12.3	14.9	5.7	1.58	26
China	11.3	10.3	4.9	0.15	86
Russia	5.0	5.6	3.6	0.65	71
Korea	4.2	4.8	3.4	0.57	55

Source: Elaborated by the authors based on World Travel and Tourism Council (WTTC, 2020).

S	United States	Spain	Thailand
		France · Italy · Australia	
	Germany · Japan	United Kingdom · China Russia · Korea	Hong Kong
	V		

Source: Elaborated by the authors

Graph 1. Sensitivity (S) and vulnerability (V) for the top ten countries with the highest receipts. Source: Elaborated by the authors.

S		Aruba	Macao
	Bahamas	Barbados	Virgin Is UK · Maldives Virgin Is USA · Grenada St. Lucia
	Fiji · Montenegro	Seychelles · Cape Verde Belize · Jamaica	Antigua and Barbuda · Anguilla · Dominica · Vanuatu
	V		

Source: Elaborated by the authors

Graph 2. Sensitivity (S) and vulnerability (V) for countries with tourism GDP greater than 30%. Source: Elaborated by the authors.

ism of this dependent group at least tripled their expenditures. And in a third of the group it was more than ten times higher. Paradigmatic situation that of Macao whose incomes exceeded almost thirty times its expenditures.

Regarding Table 4, the selection criterion was the contribution of tourism activity to GDP above 30%, and this resulted in a sample of countries with strong economic dependence on tourism. Of the sample, almost half of the countries presented in 2019 a tourism GDP between 30 and 40%, a quarter of the same countries between 40 and 50%, and another quarter above 50%. Among the latter, the cases of Aruba and Macao stood out with more than 70 and 90%, respectively.

The same happened with tourism employment, since at least a third of the jobs in these countries responded to tourism in 2019. Indeed, half of the group observed tourism employment between 30 and 50%, and the other half, above 50%. Extreme figures showed Saint Lucia, Aruba and Antigua and Barbuda: all three cases registered a rate of employment explained by tourism in magnitudes above 70; 80 and even 90%, respectively.

Exports also verified a dependent situation: in all cases, at least 40% of foreign receipts were due to tourism, considered as an exporting economic sector. A quarter of the countries presented tourism exports between 40 and 50%, another quarter between 50 and 60%, and half of the group, above 60%. With more than 80%, the cases of Macao, Aruba and Bahamas stood out.

All these relative data, plus usual positive balances declined in 2020, describe scenarios of alarming sensitivity in a year without

international travels. Additionally, vulnerability is also high, with figures of domestic expenditure lower than 20% in all cases, and even 10% in more than a half. With less than 5%, Macao and Maldives are the countries with the least domestic tourism.⁷

Despite the fact that all the countries present worrying figures, it is possible to identify nuances. At the extremes, Macao -with higher sensitivity and higher vulnerability- and Fiji as well as Montenegro -lower sensitivity and lower vulnerability-. Aruba has higher sensitivity, but slightly attenuated vulnerability. Conversely, several countries experience a higher vulnerability, although sensitivities comparatively intermediate (British and North American Virgin Islands, Maldives, Grenada, and Saint Lucia) or lower (Antigua and Barbuda, Anguilla, Dominica, and Vanuatu). Barbados proposes intermediate sensitivity and vulnerability in relation to the whole.

South American countries

Table 5 shows that in 2018, the dozen South American countries as a whole received a lower amount of foreign receipts for tourism than Hong Kong -the least favoured country in the first group, Table 1, and even less than Macao -the most favoured of the second group, Table 3. Colombia, Brazil, Argentina, and Peru present the highest figures, while Guyana and Suriname the lowest absolute numbers.

Peru's absolute tourism balance was the most prominent among the positive ones, seconded by Uruguay. At the same time, Brazil and Argentina had the most pronounced absolute negative balances, especially the former. The balances of these two countries decided a markedly negative absolute tourism balance for the subcontinent and equivalent, for example, to that of Australia (Table 1).

Regarding travel income (receipts per arrival), Colombia had the most outstanding figures, seconded by Peru and Venezuela.⁸ Receipts in that country was twice the South American average, it was slightly above the average of the first group (Table 1) and a little below the average of the second group. For its part, Guyana had the lowest receipts -eight times less than the South American average-, followed by Suriname and Paraguay.

Table 6 shows that the participation of the tourism sector in the economy (GDP) of South America in 2019 was a little lower than the average of the most touristic countries (Table 2), and four times less than the countries with the lowest tourism GDP among the dependent group (Table 4). Uruguay was the country with the highest contribution from tourism to its GDP -more than double the South American average-, and Suriname the one with an economy less based on tourism - almost three times the average for the subcontinent. In any case, the regional distribution was symmetric; in other words, half

⁷ Read more about the impact of coronavirus on tourism in SIDS at UN (2020).

⁸ The official data for Venezuela are considered, despite their reliability.

Table 3
Absolute indicators for countries with tourism GDP greater than 30%

Countries	Arrivals (thousands of trips)	Departures (thousands of trips)	Receipts (millions of US\$)	Expenditure (millions of US\$)	Receipts per arrival* (US\$ per arrival)	Absolute balance* (millions of US\$)
Macau	18 493	1 579	40 358	1 411	2 182	38 947
Aruba	1 082	–	2 024	358	1 871	1 666
Virgin Is. UK	192	139	484	40	2 521	444
Maldives	1 484	123	3 054	433	2 058	2 621
Virgin Is. USA	381	–	1 046	–	2 745	–
Bahamas	1 633	–	3 383	536	2 072	2 847
Antigua and Barbuda	269	–	971	113	3 610	858
St. Lucia	395	–	989	87	2 504	902
Grenada	185	–	548	41	2 962	507
Seychelles	362	72	611	102	1 688	509
Cape Verde	710	–	524	97	728	427
Belize	489	–	487	50	996	437
Anguilla	–	–	–	–	–	–
Dominica	63	–	111	30	1 762	81
Vanuatu	–	–	–	–	–	–
Fiji	870	174	1 370	160	1 575	1 210
Montenegro	2 077	–	1 224	73	589	1 151
Jamaica	2 473	–	3 099	503	1 253	2 596
Barbados	680	–	1 125	78	1 654	1 047

Source: Elaborated by the authors based on the World Bank (WB, 2020).

Table 4
Relative indicators for countries with tourism GDP greater than 30%.

Countries	GDP (%)	Employment (%)	Exports (%)	Relative balance (%)	Domestic expenditure (%)
Macau	91.3	65.5	81.3	28.60	3
Aruba	73.6	84.3	85.9	5.65	8
Virgin Is. UK	57.0	66.4	55.2	12.10	7
Maldives	56.6	59.6	79.0	7.05	4
Virgin Is. USA	55.5	68.8	77.3	–	6
Bahamas	43.3	52.2	81.6	6.31	17
Antigua and Barbuda	42.7	90.7	47.5	8.59	6
St. Lucia	40.7	78.1	56.0	11.37	7
Grenada	40.5	42.9	79.3	13.37	6
Seychelles	40.5	43.8	41.4	5.99	10
Cape Verde	37.2	39.3	50.8	5.40	12
Belize	37.2	39.3	48.0	9.74	13
Anguilla	37.1	51.3	66.0	–	7
Dominica	36.9	38.7	56.4	3.70	7
Vanuatu	34.7	36.0	67.3	–	6
Fiji	34.0	26.3	46.9	8.56	19
Montenegro	32.1	32.8	47.7	16.77	13
Jamaica	31.1	32.8	56.7	6.16	11
Barbados	30.9	33.4	72.1	14.42	10

Source: Elaborated by the authors based on World Travel and Tourism Council (WTTC, 2020).

Table 5
Absolute indicators for South American countries.

Countries	Arrivals (thousands of trips)	Departures (thousands of trips)	Receipts (millions of US\$)	Expenditure (millions of US\$)	Receipts per arrival* (US\$ per arrival)	Absolute balance* (millions of US\$)
Argentina	6 942	11 130	5 999	13 092	864	–7 093
Bolivia	1 142	1 060	970	1 081	849	–111
Brazil	6 621	10 628	6 324	22 229	955	–15 905
Chile	5 723	3 825	3 972	3 086	694	886
Colombia	3 904	4 368	6 617	5 625	1 695	992
Ecuador	2 535	1 402	1 878	1 043	741	835
Guyana	287	–	28	80	98	–52
Paraguay	1 181	1 266	393	549	333	–156
Peru	4 419	3 078	4 894	3 417	1 107	1 477
Suriname	278	–	73	104	263	–31
Uruguay	3 469	1 947	2 439	1 309	703	1 130
Venezuela	427	1 079	546	2 920	1 279	–2 374
TOTAL	36 928	39 783	34 133	54 535	798	–20 402

Source: Elaborated by the authors based on the World Bank (WB, 2020).

Note: Receipts per arrival is an average.

Table 6
Relative indicators for the top ten countries in South America.

Countries	GDP (%)	Employment (%)	Exports (%)	Relative balance (%)	Domestic expenditure (%)
Argentina	9.2	7.5	5.9	0.46	85
Bolivia	5.9	6.2	9.3	0.90	55
Brazil	7.7	7.9	2.3	0.28	94
Chile	10.0	11.7	4.4	1.29	82
Colombia	4.9	5.2	12.8	1.18	43
Ecuador	5.1	5.2	10.8	1.80	34
Guyana	4.4	4.7	2.1	0.35	75
Paraguay	4.2	4.5	2.8	0.72	67
Peru	9.3	7.5	9.5	1.43	70
Suriname	2.6	2.8	3.1	0.70	42
Uruguay	16.4	16.3	16.9	1.86	67
Venezuela	9.4	9.7	5.1	0.19	85
Average	7.30	7.43	7.08	0.11	66.58

Source: Elaborated by the authors based on World Travel and Tourism Council (WTTC, 2020).

of the countries were above the overall average and the other half below. A similar reading can be made for the tourism employment data.

Regarding tourism as an exporting economic activity, South America was below the average of the first group of countries (Table 2), but almost nine times less than the second one (Table 4). Once again, Uruguay presented higher percentages -more than double the South American average-, and Guyana the lowest proportions -more than three times the average for the subcontinent-, closely seconded by Brazil and Paraguay. In sum, Uruguay turns out to be the country most sensitive to a drop in tourism in the region and, in parallel, Suriname and Guyana the least affected.

The proportion of tourism expenditure of domestic origin in South America in 2018 was equivalent to two thirds of total tourism spending in the region. This is a little lower than the first group of countries (Table 2) and more than seven times compared to the second group, whose economy is eminently touristic (Table 4). Brazil's domestic expenditure was particularly high -at the level of the most favoured cases in the first group-, and followed by Argentina, Venezuela, and Chile, with also prominent figures. These magnitudes define a low vulnerability based on the advantage of a national tourist demand.

The ratio of foreign receipts to expenditures indicates that the most pronounced relative balance was that of Uruguay, followed by that of Ecuador. All in all, Uruguay's relative tourism balance was below that of any country dependent on tourism and a little higher than the average of the countries with the highest tourism incomes.

Ecuador showed the lowest proportion of domestic expenditure -seconded by Colombia and Suriname-, but similar to the least favoured cases of the first group (Table 2), and twice the most favoured cases of the second set of countries (Table 4). Thus, these three countries experience a higher vulnerability than the four South American countries in the previous paragraph, but not far from the most touristic in the world (Table 2), and well above those dependent on tourism (Table 4). The vulnerability of Bolivia, Paraguay, Peru, and Uruguay is low, and the rest of the countries are intermediate.

In sum, although sixth in receipts, Uruguay is the country most dependent on tourism in the region. And therefore also the most sensitive to a global crisis that affects the sector. Chile, Colombia, Ecuador and Peru second it in sensitivity. At the opposite extreme, the rest of the countries show less sensitivity in South America. The Brazilian case is interesting: second in receipts, but among the least sensitive countries, given that the pandemic would avoid its usual and bulky negative balance.

Finally, South America presents a palette of cases by combining the criteria of sensitivity and vulnerability (Graph 3). First, Uruguay is highly sensitive and quite vulnerable, while Colombia and Ecuador are highly vulnerable and quite sensitive. Second, several countries show low figures in both indicators: Argentina, Brazil, Guyana, and

Venezuela. Third, Peru presents an intermediate situation. Forth, Chile experiences low vulnerability -although intermediate sensitivity- and, conversely, Paraguay and Bolivia show low sensitivity -although intermediate vulnerability-.

Three discussions

LOW APPARENT SENSITIVITY. This statistical analysis based on certain variables aims to characterize the participation of tourism in the economy of certain countries prior to the coronavirus crisis in order to visualize those countries that would have the greatest impact with the fall in travel due to the pandemic. In this sense, it is clear that those whose economies depend to a greater extent on tourism are more likely to suffer costs, not necessarily the most touristic. By contrast, those least dependent on tourism are likely to report fewer losses.

It should be noted that two types of countries are not very dependent on tourism, evident in low GDP based on tourism. On the one hand, those with high receipts; for example: the United States, France, and the United Kingdom, also Colombia in South America. On the other hand, those who show low receipts; for example: Guyana and Suriname in South America. In sum, although both types are not very sensitive to tourism crises, for the latter it is an *apparent low sensitivity*, probably the product of underdeveloped and little diversified economies. Consequently, low sensitivity is not always an advantage. In these cases, the reduction of trips does not have a significant impact because there is nothing to impact. And before low sensitivity there is low development. In other words, debts regarding transforming natural and cultural resources into tourism attractions, providing quality tourist services, marketing tourist packages, promoting the destination abroad, etc. (Navarro, 2015; Navarro-Drazich, 2020a)

LOW SENSITIVITY DUE TO ROLE INVERSION. Tourism system can be understood as the confluence of a subsystem of origin or issuer with a subsystem of destination or receiver. The first sends out visitors who travel to the second. The latter, the tourist destination, is a socio-natural construct made up of several subsystems: natural, artificial, cultural, economic, political, and social. The social subsystem includes people who perform specific roles within the destination: civil servants and businessmen, travel agents and service providers, guides and technicians, professionals and researchers, teachers and students, the local community, etc. (Navarro-Drazich, 2020b). But people who live in a tourism destination also travel and in that case they become visitors; that is, components of the issuing subsystem for other tourist destinations. This possibility that the same country can be considered an issuing subsystem or a receiving subsystem, depending on which facet is analysed, is called here *role inversion* in international tourism relations (Navarro-Drazich, 2017).

In previous paragraphs it was concluded that the low sensitivity of certain countries is based on a low tourism GDP, be it the result of a

S		Uruguay	
	Chile	Peru	Colombia · Ecuador
	Argentina · Venezuela Brazil · Guyana	Paraguay · Bolivia	Suriname
			V

Source: Elaborated by the authors

Graph 3. Sensitivity (S) and vulnerability (V) for South American countries. Source: Elaborated by the authors.

diversified economy or poor tourism development. The latter implies countries that usually do not record significant foreign receipts from tourism in relative terms, so they will not be substantially affected due to travel restrictions. Additionally, it was observed that countries that record significant expenditures of foreign receipts for tourism also experience low sensitivity, and that these losses will be saved due to the current reduction in trips.

Thus, destinations with a low relative tourism balance, preferably less than one, are not very sensitive. This is the case of Germany and the United Kingdom, as well as Brazil and Argentina in South America: countries with average tourism economies, but relevant issuers of international tourism.⁹ On the contrary, tourist sensitivity is deep in the case of Thailand and Uruguay in South America.

It should be noted that a destination is frequently sensitive when an external situation causes a decrease in demand, either because the issuing market suffers from an economic crisis or because the destination suffers from natural catastrophes or crises related to security. In this sense, the originality of a pandemic is that it affects both the issuing subsystem and the receiving subsystem. And a significant number of countries in the world play both roles at the same time.

VULNERABILITY IN THREE STAGES. As the pandemic subsides it should be followed by a subsequent recovery of tourism in gradual and inverse ways. Thus, three consecutive stages are foreseen for the rehabilitation of the activity.

In a first stage, low vulnerability is related to high domestic expenditure. In other words, countries that have their own or national demand, are more likely to reactivate the activity while there are prohibitions on international travel, with the exception of repatriations.

In a second stage of restricted foreign arrivals, the reactivation of international tourism will depend on the policies implemented and requirements requested in each issuing and receiving country, which will make the selection process difficult to a different extent: CRP (C-Reactive Protein) test –previous to the trip and once in the destination-, selection of passengers by country of origin or nationality, mandatory quarantine at destination, medical assistance insurance, medical certificate, antigenic test, sworn declaration, use of a face mask or surgical mask, face shield or protective glasses in flight.

In a third post-pandemic stage, defined by mass vaccinations, the reactivation will be linked to the economic situation in both supply and demand. The pandemic has impacted the economies of both parties to varying degrees and in various aspects: the devaluation of certain currencies is reducing the capacity of issuing tourism for some countries, while positioning them more competitively as tourist destinations; the prices of tourist services, particularly air transport and accommodation, are making certain places more or less attractive or unattainable; the closure of tourism companies is reducing the supply of services in various places, etc.¹⁰

Each South American country should analyse its international tourism relations with its main markets for the last two stages (Table 7). In this sense, Argentina stands out as a source of tourists for six South

⁹ According to the World Travel and Tourism Council, the global average contribution of tourism to the world GDP was 10.3% in 2019 (WTTC, 2020).

¹⁰ More forecasts on post-pandemic tourism in Vargas Sánchez (2020).

Table 7

Main tourism issuing countries for South American countries (averages 2016–2018).

South American Destinations	Main Tourism Issuing Countries for South American Destinations (greater than 10%)
Argentina	Brazil, Chile, Paraguay, Uruguay
Bolivia	Peru, Argentina
Brazil	Argentina
Chile	Argentina
Colombia	United States
Ecuador	Venezuela, Colombia, Argentina
Guyana	United States, Cuba
Paraguay	Argentina, Brazil
Peru	Chile, United States
Suriname	The Netherlands, Guyana
Uruguay	Argentina, Brazil
Venezuela	Colombia

American countries; Brazil and the United States for three, Chile and Colombia for two.

Conclusions

The pandemic revealed the intimate relationship between tourism and international relations. Tourism favoured the circulation of the virus and transformed it into a global health problem and, for this very reason, the countries had to ban international travel and generated a global economic crisis, with a relevant base in tourism.

The analysis of pure and calculated tourism, absolute and relative indicators for three groups of countries, allowed contextualize the situation of South America, on the one hand. On the other hand, it also allowed measure the impact of the coronavirus pandemic through the idea of sensitivity and, additionally, allowed foresee the possibilities of reactivation through the notion of vulnerability.

For the purposes of this research, sensitivity was observed in absolute data: receipts, receipts per arrival, and absolute tourism balance; and also in relative data: GDP, employment, exports and, relative tourism balance. It should be noted that the conception and calculation of the *relative tourism balance* added an original indicator for the analysis of the data.

Two novel categories resulted from that analysis. On the one hand, the idea of *low apparent sensitivity*, descriptive of countries that would not suffer the impacts of the coronavirus on international tourism due to their minimal tourism development, rather than due to an outstanding tourism development but proportionally balanced by other sectors in the context of diversified and robust economies.

On the other hand, the notion of low sensitivity due to role inversion visualizes the double function experienced by many countries of the world as issuers and receivers of tourists. This prism made it possible to register, for the purposes of calculating the sensitivity, not only the frustrated benefits of foreign inbound tourism, but also the improvised advantage that results from travel restrictions by avoiding the outflow of foreign receipts by outbound tourism –that can be redirected domestically-. In this sense, and unlike other typical crises of international tourism, it was warned that a pandemic impacts on both

at the same time: countries that send and countries that receive tourists; then, the *roles inversion* is unavoidable for the analysis of the effects of a pandemic in international tourism relations.

Regarding vulnerability, three stages were noted: 1. In relation to domestic tourism expenditures for a first period without international travels; 2. Linked to the restrictions imposed by issuing and receiving countries in a second stage of conditioned travels; and 3. Redefined by surviving economic situations for post-pandemic times.

Specifically with respect to the three sets of countries analysed, a few conclusions should be observed. Both South America and the first group -the ten most touristic countries in the world in terms of receipts- show a profuse range of combinations: at the extremes, countries with high sensitivity and high vulnerability; or low sensitivity and low vulnerability; intermediate cases and mixed cases; that is, one dimension is high and the other is low, or vice versa. The second group, countries whose economies are more dependent on tourism and mainly Small Island Developing States, suffer generalized situations of high sensitivity and high vulnerability.

Finally, two lines are of interest for future research. On the one hand, to observe the recovery of international tourism in the countries studied in relation to the forecasts made here. On the other hand, to identify the policies on international tourism that the different countries are implementing in order to mitigate the impact of the pandemic.

CRedit authorship contribution statement

Diego Navarro-Drazich: Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Project administration.
Cristian Lorenzo: Writing - review & editing, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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