
Academic Research Paper

Measuring proximity tourism in Spain during the pandemic. An Origin-Destination Matrix approach

Caterina Sciortino

Department of Economics, Statistics and Business, University of Palermo, Viale delle Scienze Ed. 13, 90128 – Palermo, Italy, caterina.sciortino@unipa.it. ORCID: 0000-0002-9703-8392

Ludovica Venturella

Department of Economics, Statistics and Business, University of Palermo, Viale delle Scienze Ed. 13, 90128 – Palermo, Italy, ludovica.venturella@unipa.it. ORCID: 0000-0003-0763-1449

Stefano De Cantis

Department of Economics, Statistics and Business, University of Palermo, Viale delle Scienze Ed. 13, 90128 – Palermo, Italy, stefano.decantis@unipa.it. ORCID: 0000-0002-5068-6421

Abstract: This work aims to provide more clarity around the concept of proximity tourism giving an overview of how tourist flows changed during the COVID-19 pandemic. The concept of proximity changed over the years in different ways. Indeed, if in the past it was understood only on a geographical or physical level, today it makes sense to talk about the different typologies of proximity such as cultural, political, and social. The economic crisis caused by the COVID-19 pandemic has led to the growing importance of domestic tourism. We use an Origin-Destination (O/D) Matrix approach, considering trips made to Spain in the three years 2019-2021. The idea is to build three matrices containing the coefficients of attraction. This is the first time that this methodology is used on Spanish data to understand the dynamic behind the different Spanish regions in terms of tourism proximity. This study is relevant in terms of political decision-makers and can bring to stimulate tourism within the national territory and encourage local mobility. Proximity tourism is a different way of doing tourism than foreign travel because it allows for greater sustainability in line with the needs of the time, turns out to be a different way of vacationing, and supports local destinations that are often vulnerable.

Keywords: *COVID-19, domestic tourism, local destination, tourist attractiveness coefficient*

JEL Codes: L83; Z32

1. Introduction

Starting from 2019, the world is being hit by COVID-19 through a rapid spread (WHO, 2021). In 2020, the number of cases confirmed were 153.954.491 and deaths exceeded 3 million. The diffusion of the virus was influenced and stimulated by the mobility of people and therefore became

a global pandemic (Li et al., 2022).

Government-imposed restrictions on long-distance travel, such as limitations on mobility, control over seat availability in transportation, and the implementation of safety measures pertaining to social distancing, have been implemented as part of efforts to mitigate the rapid spread of infectious diseases. In addition, the pervading sense of apprehension and perceived risks associated with contracting infections has significantly hindered the willingness of tourists to embark on cross-border journeys. Consequently, these multifaceted factors have collectively contributed to a substantial decline in revenue within the tourism sector. According to the World Tourism Organization (UNWTO), recent data indicates that the figures pertaining to tourist arrivals and the broader tourism industry have regressed to levels comparable to those observed in the 1990s (UNWTO, 2020). The pandemic thus triggered a global crisis that impacted health systems first, which collapsed due to a lack of beds and a shortage of equipment. Secondly, economic systems and related industries were hit hard by the restrictions brought about by the proliferation of the virus and the resulting government decisions to block the internal and external mobility of citizens. Tourism was one of the hardest-hit sectors.

Recent WHO data (2021) describe the United States as the country with the highest number of confirmed cases, followed by India and Brazil. Even in Europe, France, Spain, the UK, and Italy show a high number of confirmed cases. COVID-19 caused an unprecedented crisis in Europe. After China surpassed the peak of infections, Italy and Spain became the epicenter nations of Europe in terms of several infected cases. Spain reached one of the highest mortality rates in the world (Zhang et al., 2020). The first confirmed case of COVID-19 in Spain was reported on 31 January 2020. It was an imported case corresponding to a tourist visiting the Canary Islands.

The impact of the pandemic on the Spanish economy has been severe, resulting in significant losses. According to the Spanish National Institute of Statistics (INE, 2021), there has been a notable decline in GDP growth. Specifically, in the last quarter of 2019, the GDP growth rate stood at 2%. However, in the first quarter of 2020, Spain experienced a sharp contraction, with negative figures reaching -5.24%. This downturn can be attributed to the state of alert imposed on March 12th, along with the implementation of strict containment measures to curb the spread of the virus.

The tourism market in Spain always played an important role in the economy of the country. Indeed, according to OECD (2020) in 2017 tourism accounted for 11.8% of GDP, and in 2018 it sustained 13.5% of employment. Finally, in 2019 tourism greatly contributed to GDP by 14.6%. As a concern the international tourist flows in the last ten years, these have been growing continuously. Indeed, before the COVID-19 pandemic (2019) Spain received 83.7 million tourists, 1.1% more than in 2018. Unfortunately, the pandemic stopped this growing trend and in 2021, only 31.1(-62%) million tourists visited Spain. The impact of COVID-19 on international tourism in Spain can be appreciated through the following table proposed by the INE, comparing the international tourist arrivals in 2019-2020-2021 (Table 1).

Table 1. Resident trips by country of destination: Spain or Abroad (2019-2020-2021)

YEAR	SPAIN	ABROAD	TOTAL
2019	173,754,971.00	20,119,745.00	193,874,716.00
2020	96,449,394.00	5,074,468.00	101,523,862.00
2021	135,687,709.00	7,205,752.00	142,893,461.00

Source: Author elaboration. Comparative 2019-2020-2021 (Millions)

Domestic tourism, due to its nature, was less affected by mobility restrictions concerning international ones, and this justifies the increase in the months of July, August, and September that

coincide with the erasing of the restrictions. These two tourism markets are characterized by different flows of tourists and different features. International tourism sometimes is preferred by the government and destination managers due to the higher spending capacity but on this occasion, after the pandemic, domestic tourism could play an important role in the global tourism recovery. Indeed, according to Arbulú et al. (2021) “domestic tourism is the key driver of the tourism sector globally” and “its importance in relieving the tourism industry crisis due to COVID-19 pandemic cannot be underestimated”.

Only in recent times, the proximity concept has gained further importance due to COVID-19 which has forced people to stay in their countries of residence without being able to travel abroad, despite this, the current literature on the topic of proximity tourism is severely lacking (Salmela et al., 2021). For instance, according to Lebrun et al. (2021) with COVID-19 there has been a considerable change in tourism, in terms of mobility, consumption habits, and free time. Furthermore, this has led to an increase in domestic and proximity tourism because proximity and more accessible destinations have been considered.

Given the importance of domestic tourism and the problems associated with COVID-19, the concept of proximity tourism is more relevant today than ever before: that is, the possibility of doing tourism without moving from national borders.

The present study endeavors to delineate the concept of proximity within the field of tourism. In pursuit of this objective, an exhaustive examination of the existing literature on the subject was undertaken. Additionally, given the substantial influence of the COVID-19 pandemic on the tourism sector, the secondary aim of this investigation is to assess the prevailing situation in Spain with regard to tourism, thereby furnishing policymakers with essential guidelines to enhance the charm of tourist destinations. Moreover, by employing a coefficient of attraction, a comprehensive overview of the alterations in tourist behavior induced by the pandemic will be provided.

To summarize, the primary objectives of this study can be outlined as follows:

- To establish a definitive definition of proximity tourism, thereby contributing to the extant body of literature on this subject.
- To assess the contemporary framework of Spanish tourism flows through the implementation of an O/D matrix.
- To elucidate any modifications in tourist movement patterns within destinations resulting from the pandemic, utilizing the coefficient of attraction.

The subsequent sections of this paper are organized as follows: following a review of the literature concerning proximity tourism and the utilization of O/D matrices, The subsequent paragraph provides a detailed exploration of the data and methodology employed. This section elucidates the processing of data obtained from microdata accessible on the official Spanish website (<https://www.ine.es/en/>), along with the construction of three matrices corresponding to the years 2019, 2020, and 2021.

As confirmed by Alvarez-Diaz et al. (2020) the first uses of the O/D matrices are in the context of migration between rural and urban areas of a country and travel times in relation to the mobility of cities (Coeymans, 1983). Extensive use of the O/D matrix can be found in tourism literature (Pérez, 2016; Gálvez et al., 2014, Guardia and Muro, 2009).

In the work of Guardia and Muro (2009), geographical distance and the economic weight of the territory appear to be the predominant factors in the attractiveness of a tourist destination. The scholars investigated inter-regional tourism flows in the period 2004-2008 for Spain, establishing which regions were the most attractive in terms of tourism. They analyzed inter and intra-regional tourism at a descriptive level by constructing an O/D matrix. Following this, they calculated

attractiveness coefficients and determined the most attractively dense and marginalized areas, respectively. In Guardia and Muro's (2009) study, the Autonomous Communities that attract the most tourists from other regions were Aragon, Cantabria and Valencí.).

Alvarez-Díaz et al. (2020) using the methodology proposed by previous authors, present a study of tourism in Colombia using data provided by the Survey of Domestic Tourist Expenditure (Encuesta de Gasto Interno-EGIT). The author's study conducted over the period of 2012-2013, and based on the estimation of attractiveness coefficients, reveals a predilection for intra-regional tourism within Colombia, as opposed to inter-regional tourism. The main reason for this lies in the distance between the regions and especially the mountainous nature that of origin-destination trips using data from 2012-2013, as well as the estimation of attractiveness coefficients of these flows. Once the O/D matrix is constructed, they find that domestic tourism in Colombia follows an intraregional rather than an interregional tourism pattern. The objective of our study is to construct three matrices comprising attraction coefficients. The anticipated outcomes are associated with the notion that travel patterns have been altered as a result of the pandemic. Moreover, it is expected that there has been an enhanced attractiveness of Spanish destinations over the three-year period under examination, particularly in relation to tourism emphasizing proximity.

2. Literature review and theoretical framework on tourism proximity

The concept of proximity nowadays acquires a different meaning from the past, because if before it was understood only on a geographical/physical level, now it might make sense to talk about different proximities (cultural, political, social, and, organizational).

Citarella (2013) elucidated the concept of proximity by asserting that "everything is related to everything, but the things that are near are more correlated than things far." Through this statement, the author aimed to convey the multifaceted nature of proximity, which manifests itself in various forms depending on the relationships involved (Citarella, 2013).

According to the author, the concept of proximity encompasses the scale of interaction between the local and the global. At the physical-geographical level, proximity manifests itself in the identification of individuals residing in the same geographic location and sharing a common language. This proximity-based identification fosters relationships that are inherently influenced by spatial proximity. Despite this, social ties are no longer only limited to "face-to-face" because thanks to new technologies it is possible to develop relationships and, in general, international relations, even at a distance regardless of geographical proximity (Citarella, 2013).

Today's society is steeped in the phenomenon of hypermobility), or long-distance travel that corresponds to cosmopolitanism (Cohen and Gössling, 2015). According to Andriotis (2018), mobility over shorter distances, along with minimal consumption is more considered in lifestyles to date. According to Rosu (2020), there is a significant shift away from previous statements that determined immobility as disadvantageous.

In this sense, Citarella (2013) expresses the inadequacy of geographical proximity, both at the physical and functional level, proposing to consider the various works that have highlighted multiple proximities other than the spatial one, namely those related to cognitive, institutional, socio-cultural aspects (Citarella, 2013).

One of the consequences of the COVID-19 crisis, which would be in line with the principles of sustainability, has been the strengthening of local tourism at the expense of long-distance travel (Dot Jutgla et al., 2022). This proximity tourism has many specific characteristics regarding the organization of tourist activity. They all favor a demand in terms of short geographic distance from

the domestic tourist and, to a large extent, also from the working and middle classes (Dot Jutgla et al., 2022). According to Gilly and Torre (2000), it is possible to define two types of proximity in addition to the one based on Euclidean distance (the geographical-physical one): social and virtual. The concept of social proximity has to do with tacit and codified knowledge: the former manifesting itself on a local scale, the latter on a global scale.

Cultural proximity pertains to the interconnectedness and interplay of individuals within a network, sharing common knowledge, values, and experiences (Boschma, 2005). On the other hand, virtual proximity refers to the concept of proximity in the digital field, specifically within cyberspace. This type of proximity represents a "non-place/non-space" since the internet is perceived as a novel domain that is accessible to anyone, anytime (Citarella, 2013).

The context highlights the transformation of activities that were traditionally confined to local contexts, which can now be conducted from any location worldwide. Within this framework, tourism emerges as a significant aspect of people's lives, encompassing various leisure and recreational pursuits. Consequently, tourism exhibits distinct characteristics associated with the notion of proximity. The aforementioned context highlights the transformation of activities that were traditionally confined to local contexts, which can now be conducted from any location worldwide.

Some authors have attempted to define the concept of tourist proximity (Jeuring and Diaz-Soria, 2017; Rantala et al., 2020). Jeuring and Diaz-Soria (2017) define it as a particular form of tourism that highlights the local destination with short distances and low-carbon transportation modes. Recent literature suggests that the concept of proximity extends beyond mere physical distances and encompasses the notion of novelty and freshness in one's perspective (Rantala et al., 2020).

Salmela et al. (2021) conducted a thematic literature review aimed at establishing the relevant search terms associated with proximity tourism. The authors undertook a systematic analysis to discern the forward-looking aspects and diverse perspectives within the field.

The literature around domestic tourism is dense and does not provide a definition or conceptual framework for proximity tourism. "Proximate", "intraregional", "intra-regional", "near-home", "nearby", "near-by", "short-distance", and "home-bound" are the synonyms proposed by the authors for the concept of proximity tourist (Salmela et al., 2021).

Diaz-Soria (2017) in his work proposes an important question: "How is it possible to visit a place in a tourist way if that place is next to our home or feels familiar?"

In addressing this question, the author initially delves into the foundational concept of proximity, which traditionally pertains to geographical distances. However, the author subsequently highlights alternative perspectives, that challenges the limited perspective associated with the geographical notion. These viewpoints argue that in our contemporary world, characterized by high specialization and globalization, there are no longer any limits to accessing diverse locations, individuals, and experiences.

As stated by Boschma (2005) it is a complex and multidimensional concept because it is both physical and spatial but also has an abstract dimension based on the perception that organizations and individuals have of distances. Furthermore, the multidisciplinary discourse revolves around the interplay between centers and peripheries within a specific urban context, aiming to comprehend the intricate connection between rural and urban areas (Bertacchi et al., 2021).

In pandemic times, the importance of exploring one's own city's cultural endowment due to excessive governmental restrictions has prompted citizens to learn about their own natural riches (Bertacchi et al., 2021).

In this sense, Jeuring and Haartsen (2017) explain that the subjective nature of the concepts of distance and proximity holds significant importance in defining tourism activities, as they are not purely physical parameters but rather reflect subjective perceptions and emotions. The distance can be interpreted both in terms of time and cost, and as experience (i.e., the perception of change in scenery and climate).

From an experiential point of view, some types and situations that are created within the tourism experience can be considered "Proximate/Neighborhood". Considering the study conducted by Rantala et al. (2020), they propose the concept of proximity tourism as an approach that addresses the global environmental crisis by fostering responsible practices and choices focused on genetic and environmental conservation (Rantala et al., 2020).

The previous discussion has elucidated the dependence of proximity tourism on the perceptions held by institutions and individuals regarding the notion of distance and its impact on tourism activities. Furthermore, it has been established that domestic tourism cannot be encompassed within the scope of proximity tourism due to the frequent occurrence of domestic trips exceeding distances of over 500 kilometers.

To provide a clearer understanding of proximity tourism to a broader audience, it is essential to consider situations where individuals engage in proximity trips out of necessity rather than choice. In such instances, choosing not to renounce to long-distance travel and instead opting to explore familiar surroundings becomes crucial to maintain their tourist status, even if the activities pursued may not strictly adhere to conventional tourism standards.

The situation just described is one that fully interprets the travel freeze due to the global COVID-19 pandemic. Over the course of time, numerous pandemics and epidemics have impacted the world, leading governments to implement containment measures that involved the closure of both inbound and outbound borders. These measures were implemented to mitigate the transmission of infectious diseases. However, with the advent of COVID-19, these measures have assumed greater significance due to several factors. Firstly, COVID-19 represents the first global pandemic that has affected the entire world extensively. Secondly, the rapid and unprecedented impact of the virus on a global scale distinguishes it from previous outbreaks.

Romagosa (2020) in this regard discusses the opportunities that proximity (and sustainable) tourism can provide in the era of crisis from COVID-19. The impact that COVID-19 has had on tourism has been resounding change in travel habits, reorganization of spaces dedicated to recreational activities, redistribution of space and allocation of hours and shifts in museums and other points of interest, the emergence of remote work practices, changes in consumption patterns, evolving health requirements, and other related factors have contributed to a shift in various aspects of society.

However, the author (Romagosa, 2020), emphasizes the resilience of the tourism sector, which possesses an impressive capacity to adapt and shelter from crises and disasters. Romagosa's work views proximity tourism as a form of sustainable tourism encompassing environmental, social, and economic dimensions. Proximity tourism entails a deliberate choice by individuals to engage in travel activities within proximity to their residential or familiar surroundings. This conscious decision to avoid long-distance travel minimizes the negative impact on the environment, as it reduces carbon emissions associated with transportation. Additionally, proximity tourism promotes social sustainability by encouraging interaction with local communities, fostering cultural exchange, and supporting local economies. From an economic perspective, proximity tourism generates opportunities for small-scale businesses, stimulates local employment, and enhances the overall economic resilience of the destination. Thus, proximity tourism aligns with the principles

of sustainability by promoting responsible travel practices and contributing to the well-being of both the environment and the host communities.

3. Materials and methods

The analysis performed is based on the microdata on national trips made in Spain in 2019, 2020, and 2021. In other words, these years represent the periods before, during, and "after" the pandemic, although it should be noted that the year 2021 cannot be considered entirely free from the impact of COVID-19. The idea behind the use of these three years is to obtain a full perspective of the changing tourist behavior and travel patterns in the scope of new mobilities.

The microdata was provided by INE after downloading the data, a process of encoding variables and value labels were successfully encoded using SPSS software. The data obtained, have been processed into three different data matrices, for each year.

Three O/D matrices (in the next tables, 2,3 and 4) were constructed with the aim of defining domestic tourism in Spain and excluding from the destination columns the trips towards foreign destinations. In addition to the three matrices with the attraction coefficients, there are also a fourth and fifth matrices-shaped by the ratio between the coefficients of 2020 and those of 2019 and, 2021-2020, respectively. We, therefore, limit ourselves to trips made by residents from region x to region y of Spain and within the same region of origin. Spain is divided into 17 autonomous communities, respectively: Andalusia (AND), Aragon (ARA), Asturias Principality of (AST), Balearic Island (BAL), Canaries (CAN), Cantabria (CANT), Castile and Leon (CAST1), Castile la Mancha, (CAST2), Catalonia (CAT), Valencian Community (VAL), Extremadura (EXT), Galician (GAL), Madrid Community of (MAD), Murcia Region of (MUR), Navarra Floral Community of (NAV), Basque Country (BAS) and finally, Rioja (RIO).

The origin-destination matrix (1) has the following structure:

$$\text{O/D Matrix} = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1j} & \cdots & X_1 \\ x_{21} & x_{22} & & x_{2j} & & X_2 \\ \vdots & & & & & \vdots \\ x_{i1} & x_{i2} & & x_{ij} & & X_i \\ \vdots & & & & & \vdots \\ Y_1 & Y_2 & & Y_j & & T \end{bmatrix} \quad (1)$$

Where:

- x_{ij} = number of trips originated in cell ii and within the destination in cell j ;
- X_i = number of trips originated in cell i ;
- Y_j = number of trips received by cell j ;
- T = total trips.

In our study we replicated the methodology proposed by Guardia and Muro (2011) using as input the flows that are generated by the O/D matrices. We focused on regions within Spain, considering in the row the region of origin, and in the column the regions of destination.

The applications of the index in literature are very few (Torres and Monsalve, 2018; Gálvez and Romero, 2014; Guardia and Muro, 2011), the use of the index to assess the change

in attractiveness over time is uncommon, as most studies typically rely on matrices composed of the averages of the time series considered instead of utilizing the index. The tourist attractiveness index (2) is calculated as follows:

$$ca_{ij} = \frac{x_{ij}}{\sum_j x_{ij}} / \frac{y_j}{\sum_j y_j} \quad (2)$$

Where:

- ca_{ij} : is the coefficient of tourist attraction between the regions (Spanish communities) i (origin) and j (destination)
- x_{ij} : number of trips made by the region i (the single intersection cell, i.e., the joints one between destination i and destination j)
- $\sum_j x_{ij}$: total tourist demand of the region's residents i (the total of the single row in the matrix),
- $\sum_j y_j$: total demand flows
- y_j : number of trips received by the region (community) j

A place, whether it is a site or an object, achieves the status of an attraction when it is acknowledged as such by tourists. The term "attraction" refers to the correlation between a specific place or site and the tourists who express a desire to visit it. The strength of a tourist flow is determined by the attraction coefficient, with a coefficient greater than one indicating a strong flow, while a coefficient less than one indicates a weak flow (Pérez, 2016). This implies that the flow x_{ij} holds more significance in the overall number of trips to destination j compared to the total number of trips originating from location i (all in relative terms) within the total number of trips (Pérez, 2016).

4. Results

For a correct interpretation of the results, it is necessary to look at the most important facts that have occurred in Spain with the advent of the pandemic. Spain had its first epidemic manifestation in January 2020 due to the entry of a tourist on the Canary Island of La Gomera. Starting in March, a state of emergency is declared, leading to the closure of all public places. Thus, a period of first quarantine begins which will see a gradual reopening starting in May. This is followed by a summer period with a relaxation of restrictions and subsequently, starting from September, a further increase in infections. In 2020, therefore, travel between regions was also quite complicated due to the bans imposed by the government, including the ban on moving from one region to another during the Easter holidays. In addition, the Spanish government imposed a ban on entry for non-residents in the country until May 2020. All these pandemic-related restrictions have influenced the tourism sector and travel, especially international travel. Indeed, looking at the absolute number of trips taken by Spanish abroad, a sharp reduction can be observed.

Looking at the coefficient matrices, an increase from 2019 (Table 5) to 2020 (table 6) is visible and considering the ratio between these coefficients in the two years, a concentration of coefficients can be intercepted along the main diagonal (Table 8). As we expected, looking at the biennium 2021-2020 (Table 9) (with respect to Table 6 and Table 7), there appears to be a different trend in travel, as the coefficients are less concentrated along the main diagonal

compared to the previous biennium. The reason behind this reduction may be related to the relaxation of government-imposed travel restrictions (the ratio denoted a decreased of this form of tourism with values lesser than 1.

Table 2. Trips of residents to Spain by autonomous community of origin and destination (2019).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO	TOT
AND	21843535	92899	155494	226122	143577	83665	286590	340947	330463	536453	550673	187348	1854884	329385	52412	134965	11010	27160422
ARA	291210	3095997	26016	45495	35469	68393	252911	77494	900681	636443	28514	59998	289168	34573	98954	205946	69234	6216496
AST	159048	31083	2120671	34511	43444	178850	689875	13831	98845	87272	55705	340189	205342	6561	14384	82051	14163	4175825
BAL	210880	62957	36194	1652168	31032	13370	49298	42745	424778	147964	18260	76720	240325	10901	10646	23712	555	3052505
CAN	228970	24970	19014	20477	5084115	10227	66159	34797	129898	86795	3991	141454	490803	11455	7621	50544	5617	6416907
CANT	87137	37666	141361	16301	35022	730359	373169	14919	46357	67015	10868	53324	204514	2829	9580	88887	24615	1943923
CAST1	528883	126663	498971	45503	117137	747716	5504625	76428	209364	438897	210624	423486	1182172	29213	45724	275369	80924	10541699
CAST2	950054	128145	53364	30751	66571	105214	346362	2627111	89421	1441821	201809	60299	1352182	320088	6913	63746	5554	7849405
CAT	1100264	1287906	116978	546662	196408	112636	435388	423664	20364155	987341	127326	313143	1248220	61805	173483	366568	90252	27952199
VAL	943976	719879	98657	181294	65513	62203	289490	1362646	695936	10101877	47439	169579	737902	344118	87053	101408	60495	16069465
EXT	936756	18051	49873	11419	16453	9803	131061	156464	42622	60468	1624015	21865	442810	20292	1274	12053	2312	3557591
GAL	167416	19681	262765	46740	127698	68354	451287	50644	161177	144968	38757	6759703	446985	85088	19851	71635	7440	8930189
MAD	3682312	906012	903103	298575	420835	634769	6612456	5350820	882615	3647270	1397801	1047390	3904330	616211	232810	763359	223097	31523765
MUR	863885	59985	30171	26189	15888	20899	89009	310039	94520	719537	23122	46506	288040	1654142	16526	36101	16773	4311332
NAV	113028	237221	27315	16647	19854	65057	140997	35563	219930	186161	13880	30000	169022	2724	1007292	272160	121534	2678385
BAS	279977	477649	284306	66928	80119	1053108	1718318	61181	451415	405263	108288	252752	499921	8857	1079070	2272983	566259	9666394
RIO	57336	96958	19226	9062	7487	72531	113706	15289	110812	75531	5453	15148	104442	3228	49906	104982	332431	1193528
TOT	32444667	7423722	4843479	3274844	6506622	4037154	17550701	10994582	25252989	19771076	4466525	9998904	13661062	3541470	2913499	4926469	1632265	173240030

*Source: Author elaboration***Table 3.** Trips of residents to Spain by autonomous community of origin and destination (2020).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	4.29	0.08	0.20	0.44	0.14	0.13	0.10	0.20	0.08	0.17	0.79	0.12	0.87	0.59	0.11	0.17	0.04
ARA	0.25	11.62	0.15	0.39	0.15	0.47	0.40	0.20	0.99	0.90	0.18	0.17	0.59	0.27	0.95	1.16	1.18
AST	0.20	0.17	18.16	0.44	0.28	1.84	1.63	0.05	0.16	0.18	0.52	1.41	0.62	0.08	0.20	0.69	0.36
BAL	0.37	0.48	0.42	28.63	0.27	0.19	0.16	0.22	0.95	0.42	0.23	0.44	1.00	0.17	0.21	0.27	0.02
CAN	0.19	0.09	0.11	0.17	21.10	0.07	0.10	0.09	0.14	0.12	0.02	0.38	0.97	0.09	0.07	0.28	0.09
CANT	0.24	0.45	2.60	0.44	0.48	16.12	1.89	0.12	0.16	0.30	0.22	0.48	1.33	0.07	0.29	1.61	1.34
CAST1	0.27	0.28	1.69	0.23	0.30	3.04	5.15	0.11	0.14	0.36	0.77	0.70	1.42	0.14	0.26	0.92	0.81
CAST2	0.65	0.38	0.24	0.21	0.23	0.58	0.44	5.27	0.08	1.61	1.00	0.13	2.18	1.99	0.05	0.29	0.08
CAT	0.21	1.08	0.15	1.03	0.19	0.17	0.15	0.24	5.00	0.31	0.18	0.19	0.57	0.11	0.37	0.46	0.34
VAL	0.31	1.05	0.22	0.60	0.11	0.17	0.18	1.34	0.30	5.51	0.11	0.18	0.58	1.05	0.32	0.22	0.40
EXT	1.41	0.12	0.50	0.17	0.12	0.12	0.36	0.69	0.08	0.15	17.71	0.11	1.58	0.28	0.02	0.12	0.07
GAL	0.10	0.05	1.05	0.28	0.38	0.33	0.50	0.09	0.12	0.14	0.17	13.11	0.63	0.47	0.13	0.28	0.09
MAD	0.62	0.67	1.02	0.50	0.36	0.86	2.07	2.67	0.19	1.01	1.72	0.58	1.57	0.96	0.44	0.85	0.75
MUR	1.07	0.32	0.25	0.32	0.10	0.21	0.20	1.13	0.15	1.46	0.21	0.19	0.85	18.77	0.23	0.29	0.41
NAV	0.23	2.07	0.36	0.33	0.20	1.04	0.52	0.21	0.56	0.61	0.20	0.19	0.80	0.05	22.36	3.57	4.82
BAS	0.15	1.15	1.05	0.37	0.22	4.67	1.75	0.10	0.32	0.37	0.43	0.45	0.66	0.04	6.64	8.27	6.22
RIO	0.26	1.90	0.58	0.40	0.17	2.61	0.94	0.20	0.64	0.55	0.18	0.22	1.11	0.13	2.49	3.09	29.56

Source: Author elaboration

Table 4. Trips of residents to Spain by autonomous community of origin and destination (2021).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	4.29	0.08	0.20	0.44	0.14	0.13	0.10	0.20	0.08	0.17	0.79	0.12	0.87	0.59	0.11	0.17	0.04
ARA	0.25	11.62	0.15	0.39	0.15	0.47	0.40	0.20	0.99	0.90	0.18	0.17	0.59	0.27	0.95	1.16	1.18
AST	0.20	0.17	18.16	0.44	0.28	1.84	1.63	0.05	0.16	0.18	0.52	1.41	0.62	0.08	0.20	0.69	0.36
BAL	0.37	0.48	0.42	28.63	0.27	0.19	0.16	0.22	0.95	0.42	0.23	0.44	1.00	0.17	0.21	0.27	0.02
CAN	0.19	0.09	0.11	0.17	21.10	0.07	0.10	0.09	0.14	0.12	0.02	0.38	0.97	0.09	0.07	0.28	0.09
CANT	0.24	0.45	2.60	0.44	0.48	16.12	1.89	0.12	0.16	0.30	0.22	0.48	1.33	0.07	0.29	1.61	1.34
CAST1	0.27	0.28	1.69	0.23	0.30	3.04	5.15	0.11	0.14	0.36	0.77	0.70	1.42	0.14	0.26	0.92	0.81
CAST2	0.65	0.38	0.24	0.21	0.23	0.58	0.44	5.27	0.08	1.61	1.00	0.13	2.18	1.99	0.05	0.29	0.08
CAT	0.21	1.08	0.15	1.03	0.19	0.17	0.15	0.24	5.00	0.31	0.18	0.19	0.57	0.11	0.37	0.46	0.34
VAL	0.31	1.05	0.22	0.60	0.11	0.17	0.18	1.34	0.30	5.51	0.11	0.18	0.58	1.05	0.32	0.22	0.40
EXT	1.41	0.12	0.50	0.17	0.12	0.12	0.36	0.69	0.08	0.15	17.71	0.11	1.58	0.28	0.02	0.12	0.07
GAL	0.10	0.05	1.05	0.28	0.38	0.33	0.50	0.09	0.12	0.14	0.17	13.11	0.63	0.47	0.13	0.28	0.09
MAD	0.62	0.67	1.02	0.50	0.36	0.86	2.07	2.67	0.19	1.01	1.72	0.58	1.57	0.96	0.44	0.85	0.75
MUR	1.07	0.32	0.25	0.32	0.10	0.21	0.20	1.13	0.15	1.46	0.21	0.19	0.85	18.77	0.23	0.29	0.41
NAV	0.23	2.07	0.36	0.33	0.20	1.04	0.52	0.21	0.56	0.61	0.20	0.19	0.80	0.05	22.36	3.57	4.82
BAS	0.15	1.15	1.05	0.37	0.22	4.67	1.75	0.10	0.32	0.37	0.43	0.45	0.66	0.04	6.64	8.27	6.22
RIO	0.26	1.90	0.58	0.40	0.17	2.61	0.94	0.20	0.64	0.55	0.18	0.22	1.11	0.13	2.49	3.09	29.56

Source: Author elaboration

Table 5. The coefficients of tourist attraction between the regions (Spanish communities) *i* (origin) and *j* (destination) (2019).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	4.52	0.10	0.07	0.22	0.11	0.05	0.09	0.14	0.05	0.09	0.65	0.10	0.53	0.33	0.07	0.10	0.00
ARA	0.13	14.02	0.14	0.17	0.07	0.42	0.37	0.32	0.81	0.79	0.23	0.18	0.55	0.12	1.48	0.66	0.89
AST	0.12	0.07	20.83	0.12	0.08	1.20	1.71	0.06	0.10	0.12	0.14	1.20	0.57	0.15	0.02	0.96	0.53
BAL	0.30	0.39	0.26	32.06	0.21	0.14	0.11	0.13	0.61	0.39	0.38	0.38	0.69	0.13	0.17	0.03	0.18
CAN	0.10	0.01	0.01	0.06	20.42	0.03	0.11	0.03	0.07	0.05	0.07	0.19	0.54	0.04	0.09	0.19	0.06
CANT	0.17	0.19	2.71	0.24	0.18	18.62	1.67	0.07	0.12	0.14	0.35	0.42	1.41	0.00	0.04	2.63	0.91
CAST1	0.17	0.21	1.49	0.21	0.17	1.89	6.58	0.29	0.08	0.20	0.85	0.42	1.14	0.09	0.30	0.57	0.72
CAST2	0.39	0.23	0.38	0.20	0.04	0.29	0.46	6.76	0.06	1.48	0.60	0.18	2.55	1.23	0.10	0.17	0.11
CAT	0.15	1.26	0.18	1.01	0.13	0.20	0.12	0.13	5.50	0.24	0.22	0.24	0.35	0.12	0.44	0.34	0.41
VAL	0.25	0.89	0.21	0.52	0.04	0.17	0.10	1.12	0.17	5.80	0.06	0.09	0.53	1.49	0.25	0.25	0.23
EXT	0.92	0.10	0.11	0.04	0.00	0.09	0.34	0.29	0.09	0.08	22.63	0.02	2.07	0.13	0.19	0.14	0.03
GAL	0.07	0.09	0.55	0.20	0.21	0.14	0.40	0.07	0.08	0.08	0.14	15.05	0.40	0.00	0.08	0.59	0.01
MAD	0.58	0.57	1.24	0.58	0.29	1.27	1.81	2.58	0.22	0.94	1.37	0.68	2.38	0.95	0.68	0.69	0.46
MUR	0.72	0.16	0.34	0.18	0.08	0.25	0.18	1.74	0.09	1.41	0.19	0.15	0.75	21.38	0.07	0.12	0.07
NAV	0.18	1.80	0.43	0.24	0.20	1.73	0.67	0.02	0.55	0.40	0.10	0.25	0.68	0.05	22.76	2.99	8.75
BAS	0.20	0.82	1.26	0.43	0.25	5.13	1.72	0.07	0.26	0.36	0.22	0.25	0.50	0.23	5.24	10.18	5.96
RIO	0.14	1.82	0.35	0.14	0.07	3.31	1.36	0.21	0.34	0.59	0.06	0.20	0.71	0.00	2.37	3.11	37.58

Source: Author elaboration

Table 6. The coefficients of tourist attraction between the regions (Spanish communities) i (origin) and j (destination) (2020).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO	TOT
AND	18449860	70053	99520	142675	125880	35900	197637	266018	185412	383648	400425	199870	828147	203257	17868	80641	22612	21709423
ARA	118760	2640969	14665	61098	33540	42822	145218	56509	656050	438240	13102	42749	167016	19214	94219	70050	37680	4651901
AST	113279	18823	1363435	19791	37745	153172	451139	5193	47322	79735	20483	258936	157332	6122	4587	57582	3204	2797880
BAL	161308	15672	7959	2187388	23891	4046	20957	27854	199870	150966	10310	40992	206019	10574	10794	13266	0	3091866
CAN	98880	14944	32189	8791	4134041	5183	67950	18672	86702	60668	4073	66032	285052	10543	5696	26654	0	4926070
CANT	62223	17909	96823	19137	14941	863214	261316	9034	26554	36053	15188	42170	163203	3926	12714	63292	28416	1736113
CAST1	331236	45168	288546	60750	35009	379296	4511907	137927	158894	311463	117593	329894	840125	18457	19083	155344	53805	7794497
CAST2	642671	104190	66219	27719	35849	59955	255725	2443760	97466	982163	174539	83120	620290	204626	12854	36548	612	5848306
CAT	864544	1378115	94123	595015	189936	78098	304810	175874	16716168	959477	100047	239607	684056	127050	117591	377102	98804	23100417
VAL	785114	533498	61927	169841	62018	38574	83057	907508	760931	9357234	37268	116367	481118	255665	26487	128860	21918	13827385
EXT	660506	35129	23964	27256	4107	18124	155699	88600	34123	22603	1277240	45829	337287	4150	3790	15599	1818	2755824
GAL	125182	4359	129597	40129	73729	65248	224792	34354	86231	64070	43418	5774858	289505	4407	7809	57274	5966	7030928
MAD	2393193	467450	663034	245429	288569	458423	4439552	3957758	854634	2725472	1089997	784532	3246877	336138	140044	356229	121674	22569005
MUR	517749	62032	24819	35361	23236	26379	48275	268234	73006	592605	8893	38357	301987	1490422	15363	14411	0	3541129
NAV	69673	145543	13316	15167	14742	46823	155221	10058	232696	121414	10926	40817	109508	20270	962705	208977	26378	2204234
BAS	291432	233802	162324	86921	56383	953966	1102984	75071	296403	344139	127221	192974	402038	9917	430076	1406380	569467	6741498
RIO	38734	105944	13771	6548	4007	52808	83669	6094	78555	65393	6638	22385	57805	10763	48280	65611	332294	999299
TOT	25724344	5893600	3156231	3749016	5157623	3282031	12509908	8488518	20591017	16695343	3457361	8319489	9177365	2735501	1929960	3133820	1324648	135325775

Source: Author elaboration

Table 7. The coefficients of tourist attraction between the regions (Spanish communities) i (origin) and j (destination) (2021).

O\D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	4.47	0.07	0.20	0.24	0.15	0.07	0.10	0.20	0.06	0.14	0.72	0.15	0.56	0.46	0.06	0.16	0.11
ARA	0.13	13.04	0.14	0.47	0.19	0.38	0.34	0.19	0.93	0.76	0.11	0.15	0.53	0.20	1.42	0.65	0.83
AST	0.21	0.15	20.89	0.26	0.35	2.26	1.74	0.03	0.11	0.23	0.29	1.51	0.83	0.11	0.11	0.89	0.12
BAL	0.27	0.12	0.11	25.54	0.20	0.05	0.07	0.14	0.42	0.40	0.13	0.22	0.98	0.17	0.24	0.19	0.00
CAN	0.11	0.07	0.28	0.06	22.02	0.04	0.15	0.06	0.12	0.10	0.03	0.22	0.85	0.11	0.08	0.23	0.00
CANT	0.19	0.24	2.39	0.40	0.23	20.50	1.63	0.08	0.10	0.17	0.34	0.40	1.39	0.11	0.51	1.57	1.67
CAST1	0.22	0.13	1.59	0.28	0.12	2.01	6.26	0.28	0.13	0.32	0.59	0.69	1.59	0.12	0.17	0.86	0.71
CAST2	0.58	0.41	0.49	0.17	0.16	0.42	0.47	6.66	0.11	1.36	1.17	0.23	1.56	1.73	0.15	0.27	0.01
CAT	0.20	1.37	0.17	0.93	0.22	0.14	0.14	0.12	4.76	0.34	0.17	0.17	0.44	0.27	0.36	0.70	0.44
VAL	0.30	0.89	0.19	0.44	0.12	0.12	0.06	1.05	0.36	5.49	0.11	0.14	0.51	0.91	0.13	0.40	0.16
EXT	1.26	0.29	0.37	0.36	0.04	0.27	0.61	0.51	0.08	0.07	18.14	0.27	1.80	0.07	0.10	0.24	0.07
GAL	0.09	0.01	0.79	0.21	0.28	0.38	0.35	0.08	0.08	0.07	0.24	13.36	0.61	0.03	0.08	0.35	0.09
MAD	0.56	0.48	1.26	0.39	0.34	0.84	2.13	2.80	0.25	0.98	1.89	0.57	2.12	0.74	0.44	0.68	0.55
MUR	0.77	0.40	0.30	0.36	0.17	0.31	0.15	1.21	0.14	1.36	0.10	0.18	1.26	20.82	0.30	0.18	0.00
NAV	0.17	1.52	0.26	0.25	0.18	0.88	0.76	0.07	0.69	0.45	0.19	0.30	0.73	0.45	30.62	4.09	1.22
BAS	0.23	0.80	1.03	0.47	0.22	5.83	1.77	0.18	0.29	0.41	0.74	0.47	0.88	0.07	4.47	9.01	8.63
RIO	0.20	2.43	0.59	0.24	0.11	2.18	0.91	0.10	0.52	0.53	0.26	0.36	0.85	0.53	3.39	2.84	33.97

Source: Author elaboration

Table 8. Coefficient Ratio (2020-2019).

O/D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	1.04	1.22	0.33	0.48	0.79	0.41	0.90	0.71	0.63	0.49	0.81	0.83	0.60	0.55	0.62	0.57	0.00
ARA	0.52	1.19	0.90	0.43	0.44	0.87	0.90	1.60	0.81	0.87	1.28	1.03	0.92	0.42	1.54	0.56	0.74
AST	0.56	0.42	1.12	0.26	0.30	0.64	1.03	1.18	0.59	0.66	0.27	0.83	0.89	1.97	0.12	1.36	1.45
BAL	0.84	0.82	0.63	1.15	0.81	0.75	0.68	0.59	0.65	0.94	1.68	0.89	0.71	0.77	0.85	0.12	9.78
CAN	0.50	0.13	0.13	0.35	0.96	0.41	1.04	0.34	0.47	0.39	2.73	0.50	0.56	0.40	1.24	0.68	0.67
CANT	0.70	0.42	1.04	0.53	0.36	1.15	0.88	0.58	0.70	0.45	1.60	0.88	1.05	0.00	0.13	1.62	0.67
CAST1	0.61	0.73	0.86	0.90	0.56	0.60	1.24	2.47	0.60	0.54	1.07	0.58	0.78	0.62	1.13	0.60	0.86
CAST2	0.60	0.59	1.56	0.95	0.16	0.51	1.04	1.27	0.70	0.91	0.60	1.32	1.16	0.61	1.88	0.60	1.49
CAT	0.71	1.20	1.23	1.00	0.71	1.19	0.82	0.55	1.13	0.79	1.25	1.28	0.63	1.10	1.22	0.76	1.22
VAL	0.80	0.85	0.96	0.87	0.39	1.01	0.57	0.83	0.59	1.05	0.55	0.47	0.91	1.42	0.78	1.14	0.57
EXT	0.64	0.80	0.21	0.23	0.00	0.72	0.93	0.41	1.07	0.53	1.25	0.18	1.29	0.44	8.56	1.19	0.36
GAL	0.71	1.70	0.51	0.71	0.53	0.42	0.79	0.82	0.64	0.53	0.84	1.13	0.62	0.00	0.59	2.06	0.13
MAD	0.94	0.86	1.22	1.16	0.83	1.49	0.88	0.98	1.16	0.94	0.80	1.19	1.53	1.01	1.55	0.82	0.63
MUR	0.67	0.49	1.34	0.56	0.84	1.19	0.90	1.53	0.62	0.96	0.90	0.77	0.88	1.13	0.29	0.39	0.17
NAV	0.80	0.88	1.19	0.73	1.05	1.67	1.30	0.12	0.98	0.66	0.49	1.28	0.85	1.11	1.03	0.84	1.83
BAS	1.29	0.70	1.17	1.15	1.09	1.08	0.96	0.71	0.79	0.97	0.50	0.54	0.75	5.03	0.78	1.21	0.94
RIO	0.53	0.95	0.60	0.36	0.42	1.26	1.43	1.05	0.52	1.06	0.33	0.89	0.63	0.00	0.94	1.00	1.26

Source: Author elaboration

Table 9. Coefficient Ratio (2021-2020).

O/D	AND	ARA	AST	BAL	CAN	CANT	CAST1	CAST2	CAT	VAL	EXT	GAL	MAD	MUR	NAV	BAS	RIO
AND	0.99	0.75	2.83	1.10	1.35	1.25	1.04	1.37	1.05	1.66	1.11	1.50	1.07	1.40	0.80	1.58	/
ARA	1.03	0.93	0.99	2.79	2.78	0.91	0.92	0.61	1.14	0.97	0.48	0.85	0.97	1.76	0.96	0.99	0.93
AST	1.83	2.07	1.00	2.16	4.17	1.88	1.02	0.47	1.13	1.86	1.99	1.25	1.46	0.70	4.69	0.92	0.22
BAL	0.91	0.30	0.42	0.80	0.95	0.39	0.70	1.12	0.70	1.01	0.34	0.57	1.41	1.28	1.43	5.78	0.00
CAN	1.11	5.91	19.58	1.07	1.08	1.55	1.41	2.10	1.75	2.12	0.49	1.14	1.57	3.00	0.92	1.23	0.00
CANT	1.11	1.24	0.88	1.68	1.29	1.10	0.98	1.17	0.87	1.22	0.98	0.94	0.98	/	13.06	0.60	1.84
CAST1	1.32	0.63	1.06	1.34	0.69	1.06	0.95	0.98	1.59	1.59	0.69	1.65	1.39	1.36	0.57	1.51	0.98
CAST2	1.49	1.81	1.27	0.86	4.33	1.44	1.04	0.98	1.98	0.92	1.95	1.30	0.61	1.41	1.55	1.58	0.09
CAT	1.36	1.08	0.97	0.92	1.67	0.69	1.16	0.96	0.87	1.42	0.79	0.69	1.25	2.35	0.81	2.07	1.07
VAL	1.18	1.00	0.91	0.85	2.76	0.68	0.64	0.94	2.07	0.95	1.67	1.57	0.96	0.61	0.54	1.58	0.71
EXT	1.37	3.03	3.54	9.01	/	3.14	1.77	1.76	0.91	0.82	0.80	13.82	0.87	0.59	0.52	1.70	2.68
GAL	1.30	0.16	1.45	1.03	1.33	2.74	0.87	1.04	0.99	0.96	1.68	0.89	1.50	/	0.98	0.59	7.28
MAD	0.96	0.83	1.02	0.68	1.15	0.66	1.18	1.08	1.13	1.04	1.38	0.84	0.89	0.77	0.64	0.99	1.19
MUR	1.06	2.51	0.89	1.98	2.07	1.23	0.80	0.69	1.43	0.96	0.52	1.21	1.67	0.97	4.50	1.51	0.00
NAV	0.93	0.84	0.60	1.04	0.86	0.51	1.13	3.04	1.27	1.12	1.97	1.23	1.08	8.33	1.35	1.37	0.14
BAS	1.12	0.97	0.82	1.09	0.90	1.14	1.03	2.47	1.13	1.14	3.33	1.87	1.76	0.32	0.85	0.89	1.45
RIO	1.49	1.34	1.70	1.64	1.49	0.66	0.66	0.46	1.54	0.89	4.45	1.83	1.20	/	1.43	0.91	0.90

Source: Author elaboration

Looking at domestic tourism within regions, there is a coefficient greater than one in all regions, while in other (not all), this ratio is lower (Tables 5,6 and 7, respectively). This suggests that residents of the regions, influenced by COVID-19 restrictions, preferred to travel within their region of residence rather than move to different regions. However, in contrast to the concentration on the main diagonal, there are some cases.

In fact, in the matrix of relationships between coefficients, it is possible to identify a ratio of 2.5 (Table 8) caused by residents of Castile and León (the largest Spanish autonomous community) who have traveled to the Castilla-La Mancha region. This could be explained by geographical reasons since the two regions are neighboring and it is easily possible to travel by car.

Looking at the attraction coefficients for the year 2021, what often emerges is that the coefficient tends to return to pre-2020 levels. Looking at the attraction coefficients of the Cantabria region for residents in Navarra, we find coefficients of 1.04 (2019), 1.73 (2020), and 0.88 (2021). In addition to these coefficients, others seem to approach their original values after 2020, which could mean a return to travel habits even though 2021 is still too immature a year to talk about post-pandemic. Indeed, the reasons for these two regions presenting high attraction coefficients are not clear.

Finally, what emerges from the results is certainly a trend for residents to travel within their region, but there doesn't seem to be a great tendency to travel to nearby areas. The significance of domestic tourism has been acknowledged considering the pandemic, leading some regions to prioritize national tourism by temporarily suspending international promotion efforts and emphasizing the concept of high-quality tourism without overcrowding. Among these regions are Asturias, Galicia, Cantabria, and the Basque Country, all territories of the so-called "Green Spain" circuit that extends along the northern coast of Spain and is loved for the nature that constitutes one of its main resources.

5. Discussion, conclusions, and future implications

Today, more than ever, the importance of domestic tourism has grown exponentially. The pandemic crisis has trained international travel, and as an immediate consequence, there has been a substantial drop in tourist flows. During the most restrictive periods of the pandemic situation, travel was not even allowed domestically, borders were closed for months, and all this led to a new way of thinking about tourism. Proximity tourism was therefore a key turning point for the recovery of the tourism sector: the recovery of regional and domestic travel allowed for a limited recovery of tourism in general in 2019-2020-2021.

The work conducted explained the situation in Spain in terms of proximity tourism, also considering how the global crisis has affected not only the tourism sector but all economic, social, and political sectors. Spain was one of the European countries hardest hit by the crisis and the Spanish tourism market, which has always been recognized as internationally renowned, suffered substantial losses.

The use of the O/D matrix has demonstrated to be a valuable tool for analyzing domestic tourist flows within Spain. While international demand has received more attention in research, the study of domestic demand has been relatively overlooked. Therefore, the authors believe that this methodology could be applied in various countries to enable comparisons of proximity tourism within Europe and worldwide. The fundamental concept remains the same; only the geopolitical structure of the country's changes, which does not limit the implementation of this methodology. In this context, the contribution of this study is limited to the pandemic years. The primary objective of the authors was to provide an

overview of internal flows, focusing on understanding changes in domestic demand and the impact of COVID-19 on travel patterns.

Another point to consider is the possibility of expanding the methodology by proposing contiguity matrices or matrices of distances from the centroids that can capture the aspect of geographic distance, which is not sufficiently considered in this study. Future lines of research will indeed be oriented towards considering the distance between regions as a significant variable in explaining attraction coefficients, and to do so, the methodologies could be useful.

The study's findings could potentially support policymakers' decisions, with a general perspective of enhancing destination experiences, promoting local tourism, and supporting local accommodations. The utilization of the proximity concept during lockdowns has a dual added value: on one hand, there is a community interest in fostering domestic tourism during challenging and crisis-ridden times like the COVID-19 pandemic; on the other hand, the use of this methodology could benefit domestic tourism campaigns, territorial marketing, and tourism networks.

Another aspect that could be further explored relates to the findings of the study regarding the need to improve connectivity between regions for better tourist flow utilization. In this regard, understanding the infrastructure of countries and assessing their strengths and weaknesses could facilitate internal policies and enhance tourist flows.

Conflict of interest

None.

References

- Alvarez - Diaz, M., D'Hombres, B., Ghisetti, C., & Pontarollo, N. (2020). Analysing domestic tourism flows at the provincial level in Spain by using spatial gravity models. *International Journal of Tourism Research*, 22(4), 403-415. <https://doi.org/10.1002/jtr.2380>
- Arbulú, I., Razumova, M., Rey-Maqueira, J., & Sastre, F. (2021). Can domestic tourism relieve the COVID-19 tourist industry crisis? The case of Spain. *Journal of Destination Marketing & Management*, 20, 100568. <https://doi.org/10.1016/j.jdmm.2021.100568>
- Bertacchini, E., Nuccio, M., & Durio, A. (2021). Proximity tourism and cultural amenities: Evidence from a regional museum card. *Tourism Economics*, 27(1), 187-204. <https://doi.org/10.1177/1354816619858761>
- Boschma, R. (2005). Proximity and Innovation: A Critical Assessment. *Regional Studies*, 39(1), 61-74. <https://doi.org/10.1080/0034340052000320887>
- Coeymans, J. E. (1983). Determinantes de la migración rural-urbana en Chile según origen y destino. *Cuadernos de Economía*, 43-64.
- Citarella, F. (2013). Prossimità e innovazione per il vantaggio competitivo dei sistemi turistici locali. *Oltre la Globalizzazione Prossimità/Proximity*, 91.

- Díaz-Soria, I. (2017). Being a tourist is a chosen experience in a proximity destination. *Tourism Geographies*, 19(1), 96-117. <https://doi.org/10.1080/14616688.2016.1258453>
- Dot Jutglà, E., Romagosa Casals, F., & Noguera Noguera, M. (2022). El incremento del turismo de proximidad en Cataluña en el verano de 2020: una oportunidad para la consolidación del turismo rural como forma de turismo sostenible y segura. *Investigaciones Turísticas*, (23), 162-185. <https://doi.org/10.14198/INTURI2022.23.8>
- El País: Martín, A. (2020). La atracción turística de España en cifras. El País.
- Gálvez, T. G., Romero, J. M., & Devesa, M. J. S. (2014). Measuring and analysing domestic tourism: the importance of an origin and destination matrix. *Tourism Economics*, 20(3), 451-472. <https://doi.org/10.5367/te.2013.0337>
- Gálvez, T. G., & Muro, J. (2009). Modelo de Análisis de las Estadísticas de Demanda Turística en España. In Actas do IX Congreso Galego de Estatística e Investigación de Operacións: Ourense, 12-13-14 novembro de 2009 (pp. 21-26). Universidade de Vigo.
- Guardia Gálvez, T., & Muro Romero, J. (2011). Polarization, second home and insularity in domestic tourist flows in Spain. Description and analysis from a gravity model. *Estudios Turísticos*, (189), 77-94.
- Gilly, J. P., & Torre, A. (2000). Proximity relations. Elements for an analytical framework. *Industrial networks and proximity*, 1-16.
- Höckert, E. M., Rantala, O., & Jóhannesson, G. T. (2021). Sensitive communication with proximate messmates. *Tourism Culture & Communication*. <https://doi.org/10.3727/109830421X16329967732226>
- INE (Instituto Nacional de Estadística). (2021). Impacto económico de la pandemia en España.
- Itagnol: Staff Writer. (2021, March). Pasqua 2021, Spagna: confermato divieto spostamenti tra regioni. Itagnol.
- Itagnol: Staff Writer. (2020, May). Estate 2020: si potrà viaggiare fra Italia e Spagna? Itagnol.
- Jeuring, J., & Díaz-Soria, I. (2017). Introduction: proximity and intraregional aspects of tourism. *Tourism Geographies*, 19(1), 4-8. <https://doi.org/10.1080/14616688.2016.1258454>
- Jeuring, J. H. G., & Haartsen, T. (2017). The challenge of proximity: the (un)attractiveness of near-home tourism destinations. *Tourism Geographies*, 19(1), 118-141. <https://doi.org/10.1080/14616688.2016.1258456>
- Jeuring, J. H. (2018). Pluralizing touristic production and consumption roles of residents? An SME

- perspective on proximity tourism. *Tourism Recreation Research*, 43(2), 147-160. <https://doi.org/10.1080/02508281.2017.1369629>
- Klaniczay, J. (2022). The Resilience of Proximity Tourism During the Pandemic: Local Walking Tours of Budapest. *International Journal of Tour Guiding Research*, 3(1), 3. <https://doi.org/10.47912/ijtgr2022.3.1.31>
- Lebrun, A. M., Corbel, R., & Bouchet, P. (2021). Impacts of Covid-19 on travel intention for summer 2020: A trend in proximity tourism mediated by an attitude towards Covid-19. *Service Business*, 1-33. <https://doi.org/10.1007/s11628-021-00424-6>
- Li, L., Tao, Z., Lu, L., Liu, H., Zhang, J., & Zhang, M. (2022). The impact of COVID-19 on the regional tourism flow network: An empirical study in Hubei Province. *Current Issues in Tourism*, 25(2), 287-302. <https://doi.org/10.1080/13683500.2020.1829817>
- Sánchez, M., Linares Gómez del Pulgar, M., & Tejedor Cabrera, A. (2022). Perspectives on proximity tourism planning in peri-urban areas. *European Planning Studies*, 30(12), 2456-2473. <https://doi.org/10.1080/09654313.2022.2034931>
- Moreno-Luna, L., Robina-Ramírez, R., Sánchez, M. S. O., & Castro-Serrano, J. (2021). Tourism and sustainability in times of COVID-19: The case of Spain. *International Journal of Environmental Research and Public Health*, 18(4), 1859. <https://doi.org/10.3390/ijerph18041859>
- Nevala, H. (2020). Proximity tourism: A thematic literature review. *SISÄLLYSLUETTELO / CONTENTS*, 46.
- OECD. (2020). Economic impact of tourism in OECD countries.
- Pérez, M. D. (2016). Domestic tourism in Uruguay: a matrix approach. *www.pasosonline.org*, 14(4), 811.
- Rantala, O., Salmela, T., Valtonen, A., & Höckert, E. (2020). Envisioning tourism and proximity after the Anthropocene. *Sustainability*, 12(10), 3948. <https://doi.org/10.3390/su12103948>
- Romagosa, F. (2020). The COVID-19 crisis: Opportunities for sustainable and proximity tourism. *Tourism Geographies*, 22(3), 690-694. <https://doi.org/10.1080/14616688.2020.1744918>
- Rosu, A. (2020). Making sense of distance. Mobility in staycation as a case of proximity tourism.
- Salmela, T., Nevala, H., Nousiainen, M., & Rantala, O. (2021). Proximity tourism: A thematic literature review. *Matkailututkimus*, 17(1), 46-63. <https://doi.org/10.30671/mktutu.106614>
- Soria, I. D., & Coit, J. C. L. (2013). Thoughts about proximity tourism as a strategy for local development. *Cuadernos de Turismo*, 32, 303-305.

Turismo Italianews. (2020). La Spagna pensa al dopo Coronavirus: Asturie, Galizia, Cantabria e Paesi Baschi decidono di puntare sul turismo interno.

UNWTO (World Tourism Organization). (2020). World Tourism Barometer, Issue 3.

WHO-World Health Organization. (2021). Global status of COVID-19.

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. Finance Research Letters, 36.

Turistica - Italian Journal of Tourism applies the [Creative Commons Attribution \(CC BY\) license](#) to everything we publish. Developed to facilitate Open Access, this license lets authors maximize the impact or their research by making it available for anyone, anywhere in the world to find, read and reuse. Under this license, authors agree to make articles legally available for reuse, without permission or fees, for virtually any purpose. Anyone may copy, distribute, or reuse these articles, as long as the author and original source are properly cited.