

Residents' perceptions of negative tourism impacts and mitigation strategies: the case of Porto

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Abstract

Purpose – This paper aims to analyse residents' perceptions of tourism growth in Porto prior to the COVID-19 pandemic, aiming to determine the most appropriate strategies to mitigate negative tourism impacts. Studies on resident perceptions of tourism impacts are still scarce, particularly the ones addressing the topic in the context of Portuguese urban tourism areas.

Design/methodology/approach – Data was collected through an online survey, focusing on three categories of impacts: (i) economic, (ii) sociocultural (iii) and spatial-environmental, and the respective mitigation strategies, analysed from the perspective of Porto's residents. Descriptive and bivariate statistics – T-test and Eta correlation – were used to analyse the collected data.

Findings – Respondents who live in the city centre experience specific tourism impacts more negatively, when compared to those living outside the inner-city area. Furthermore, no strong correlation is found between the said impacts and the respective mitigation strategies. However, creating awareness among tourists about acceptable behaviour in shared spaces is the strategy that stands out, as it has a medium correlation with all three impact categories. Most impact-strategy associations are weak, meaning that the defined strategies are not the most case-appropriate, which is something that policymakers should address.

Originality/value – To the best of the author's/authors' knowledge, this is the first study to adopt this approach in tackling the negative impacts of rapid tourism growth in Porto.

Keywords Urban tourism growth, Residents' perceptions, Tourism impacts, Mitigation strategies, Porto

Paper type Research paper

(Information about the authors can be found at the end of this article.)

Introduction

Tourism has become an industry of unprecedented growth, catalysing significant changes in destinations worldwide. Before the sudden undertourism caused by the COVID-19 pandemic, there was a growing debate on the over-tourism phenomenon. Although tourist over-crowding is not a recent phenomenon in urban destinations such as Amsterdam, Barcelona, Paris, Prague or Venice (e.g. Amore, Falk, & Adie, 2020; Gravari-Barbas & Guinand, 2017; Koens & Postma, 2017; Seraphin, Gowreesunkar, Zaman, & Bourliataux-Lajoie, 2018), it was not until the recent years that tourism growth became more exponential in the Portuguese context, particularly within the historic inner-city areas (see Carvalho, Ribeiro, & Peter, 2020; Vareiro & Mendes, 2016; Vareiro, Mendes, & Cardoso, 2021; Vaz de Freitas, Sousa, Ramazanov, & Albuquerque, 2022). Efficient management of urban tourism growth and the creation of sustainable cities has, thus, become imperative across tourism hotspots, calling for sustainable mechanisms of monitoring and measuring tourism growth, as well as defining when the limits of this growth are being exceeded. Therefore, studying urban tourism indicators and impacts is essential for defining more

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sustainable, case-appropriate planning regulations and the aforementioned mechanisms (WTO, 1996). Moreover, it is of utter importance to study urban destinations that, prior to the pandemic, have started to experience excessive tourism growth to prevent them from reaching the stage of saturation in the future.

Tourism impacts measured through objective indicators such as revenues and visitation numbers largely differ from those perceived by the residents (Gursoy & Nunkoo, 2019; Nunkoo & Ramkissoon, 2011; Godovykh, Hacikara, Baker, Fyall, & Pizam, 2023). Residents and their stakeholder groups represent components external to the tourism system, yet ones closely connected and impacted by it, and critical for their success, diversity and understanding of their complexity (Easterling, 2004). Tackling negative tourism impacts, thus, ought to be in accordance with their perceptions, because they represent important manifestations of the level of support for tourism development (Jordão, Breda, Veríssimo, Stevic, & Costa, 2021; Song et al., 2017; Styliadis, Biran, Sit, & Szivas, 2014). Making residents' opinions part of the decision-making processes is not recent, and there is a vast literature on the topic of residents' perceptions of tourism development and the resulting impacts (e.g. Andereck, Valentine, Knopf, & Vogt, 2005; Eslami, Khalifah, Mardani, Streimikiene, & Han, 2019; Nunkoo & Ramkissoon, 2011; Nunkoo, Smith, & Ramkissoon, 2013; Nunkoo & So, 2016; Rasoolimanesh, Ringle, Jaafar, & Ramayah, 2017a; Rasoolimanesh, Roldán, Jaafar, & Ramayah, 2017b; San Martín, García de los Salmones Sánchez, & Herrero, 2017). However, it was not a common or comprehensively adopted practice in Portugal, where there has been a continued gap in understanding residents' perceptions of tourism impacts (Vareiro, Remoaldo, & Cadima Ribeiro, 2013). There are very few studies that have explored residents' perceptions of tourism impacts in the Portuguese context (e.g. Vareiro et al., 2013; Vareiro & Mendes, 2016). It was not until years later and the emergence of over-tourism, that similar approaches were applied to the two largest Portuguese urban areas, i.e. Lisbon and Porto. Most of these studies, however, are of exploratory nature (e.g. Carvalho et al., 2020; Vareiro et al., 2021), and are based on limited samples and findings that cannot be extrapolated to the overall population. Moreover, few studies question the residents about the specific strategies to minimise the negative and maximise the positive tourism impacts, or measures to ensure sustainability (e.g. Cardoso & Silva, 2018).

This study seeks to identify the most suitable strategies to mitigate negative economic, sociocultural and spatial-environmental impacts caused by the rapid tourism growth in the city of Porto, as perceived by its residents. The interest in studying this particular urban area resulted from outstanding and continuous tourism growth over the last decade. This was followed by the emergence of the over-tourism phenomenon, which started to affect the city milieu and its residents economically, socially, culturally and environmentally. Studies of the phenomenon equally started to emerge (e.g. Dodds & Butler, 2019; Gonzalez, Coromina, & Galí, 2018; Milano, 2018; Panayiotopoulos & Pisano, 2019; Pinke-Sziva, Smith, Olt, & Berezvai, 2019). Aiming to define case-appropriate practical measures, the paper intends to determine:

- which impacts urban tourism growth the residents of Porto perceive most negatively; and
- which strategies they consider the most appropriate to respond to a number of growth impacts, aimed at a more sustainable urban tourism planning and management.

A more specific objective is to understand whether the perceptions differ, depending on their level of affectedness by tourism dynamics, evaluated through the residence proximity to busy tourist areas. This is found to have a significant effect on residents' support of tourism development, and the way tourism-related costs and benefits are perceived (Jurowski & Gursoy, 2004; Raymond & Brown, 2007; Sharma & Dyer, 2009). The study, therefore, separates the perspectives of residents living in the city centre from those who do not. A quantitative approach to data analysis was adopted, the main instrument of data

collection being an online survey applied to the residents of the municipality of Porto. The main theoretical contribution of the paper is in exploring residents' perceptions of the most adequate strategies to mitigate negative tourism impacts, which is a gap in the literature needed to be bridged. An applicable contribution is in the prospect of allowing policymakers to reflect on residents' opinions about the adequacy and relevance of specific measures when defining strategies and regulations for further tourism development.

Literature review

Residents' perceptions of negative tourism impacts

The excessive tourist flows create pressure on environmental and socio-cultural carrying capacity, impacting both natural and constructed sites, local communities and even the visitors' experience at a destination. Research on tourism impacts was initially focused on the positive aspects, with the focus shifting towards the negative in the 70s of the past century (e.g. [Andereck & Vogt, 2000](#); [Jafari, 1986](#)), as well as on the residents' attitudes towards tourism and its development (see [Nunkoo et al., 2013](#)). Today, global metropolises such as Amsterdam, Barcelona, Berlin, Lisbon, Paris and Venice, are increasingly discussed in tourism literature in the context of the negative impacts, tourism excesses/over-tourism and unsustainable urban tourism planning (e.g. [Amore et al., 2020](#); [Bouchon & Rauscher, 2019](#); [Cheer, Milano, & Novelli, 2019a, 2019b](#); [Colomb & Novy, 2017](#); [Freytag & Bauder, 2018](#); [Gravari-Barbas & Guinand, 2017](#); [Koens & Postma, 2017](#); [Milano, 2017](#)). A long-term success of tourism development and the sustainability of tourism destinations are likely to be achieved when residents' opinions are taken into consideration ([Nunkoo & Ramkissoon, 2011](#); [Rua, 2020](#); [Woo, Kim, & Uysal, 2015](#)).

Literature addresses resident perceptions of urban tourism growth in different contexts. [San Martín et al., \(2017\)](#) made a relevant distinction between perceptions, attitudes and behaviours, additionally separating attitudes to those towards tourism and those towards tourists. Many authors study the relationship between the community attachment and the perceptions of tourism impacts, in terms of place of birth or length of residence in the community (e.g. [Andereck et al., 2005](#); [Eslami et al., 2019](#); [Faulkner & Tideswell, 1997](#); [Gursoy, Jurowski, & Uysal, 2002](#); [Rasoolimanesh et al., 2017a, 2017b](#)), which is also reflected upon in this paper. The reasoning behind people's perceptions of the impacts of tourism development in cities is complex due to various factors, such as whether or not they work in tourism-related activities and if their income is generated by tourism, or whether they have other non-economic benefits from the industry ([Koens & Postma, 2017](#)). Therefore, the empowerment and personal benefits of residents' support of tourism development are connected to the ways they perceive tourism impacts ([Boley & McGehee, 2014](#); [Boley, McGehee, Perdue, & Long, 2014](#)).

There is a logical trade-off between positive and negative experiences with tourism. People who experience positive impacts are willing to accept and tolerate more negative implications than those who do not ([Koens & Postma, 2017](#)). According to the social exchange theory (SET), people's perceptions and attitudes tend to be more positive when they benefit from tourism exchanges ([Andereck et al., 2005](#); [Gursoy & Rutherford, 2004](#); [Gursoy et al., 2002](#); [Gursoy, Ouyang, Nunkoo, & Wei, 2019](#); [Long, Perdue, & Allen, 1990](#); [Perdue, Long, & Allen, 1987, 1990](#)). Some studies, however, reveal contradictory conclusions where higher criticism of tourism impacts comes from residents who are personally involved, economically dependent on or benefit from tourism ([Vodeb, Fabjan, & Nižić, 2021](#)). The SET has been the most frequently used theory in examining residents' attitudes and responses towards tourism development and made the most significant theoretical contributions to the topic ([Fredline & Faulkner, 2000](#); [Gannon, Rasoolimanesh, & Taheri, 2021](#); [Rasoolimanesh & Seyfi, 2021](#); [Rasoolimanesh et al., 2017a, 2017b](#)), and is one of the theories that informed this paper.

Over-tourism impacts, limits to urban tourism growth, and the ways residents perceive and support tourism development have gained a greater interest in the Portuguese context only relatively recently (e.g. [Amore et al., 2020](#); [Cardoso & Silva, 2018](#); [Costa, Stević, Veríssimo, & Ferreira da Silva, 2019](#); [Petruzzi, Marques, do Carmo, & Correia, 2020](#); [Pinto da Silva, Brandão, & Sousa, 2019](#); [Rodrigues, Vieira, Fernandes, & Pires, 2020](#); [Vieira, Rodrigues, Fernandes, & Pires, 2016](#)). Because the studies are still substantially scarce and predominantly exploratory, bridging the existing research gap is thus of utter importance for both theoretical and practical advances of tourism in Portuguese urban areas. There is a common tendency to make a distinction between the economic, social/cultural and environmental impacts of tourism on host communities (e.g. [Almeida García, Balbuena Vázquez, & Cortés Macías, 2015](#); [Andereck et al., 2005](#); [Cardoso & Silva, 2018](#); [Gursoy et al., 2002](#); [Kim, Uysal, & Sirgy, 2013](#); [Perdue et al., 1990](#); [Sinclair, Gursoy, & Vieregge, 2015](#); [Wang & Xu, 2015](#)), which is the approach adopted in this paper.

Strategies to mitigate negative tourism impacts

The conflicts inherent to negative tourism impacts call for reflection on strategies for managing tourism excesses. There is a growing body of literature on understanding both positive and negative tourism impacts (e.g. [Bouchon & Rauscher, 2019](#); [Faulkner & Tideswell, 1997](#); [Gursoy & Nunkoo, 2019](#); [Milano, 2018](#); [Postma & Schmuecker, 2017](#)), that proposes conceptual models/frameworks to deal with such conflicts and help mitigate tourism development's negative impacts. [Faulkner & Tideswell \(1997\)](#) developed a framework for monitoring the community impacts of tourism. [Postma and Schmuecker \(2017\)](#) explored conflict drivers and irritation factors (cultural distance and spatial and temporal distribution) for residents, tourists and tourism providers, using the developed model to examine the case of Hamburg, Germany. [Milano \(2018\)](#) proposed a 5D framework (deseasonalisation, decongestion, decentralisation, diversification and deluxe tourism) for alleviating over-tourism and tourism phobia issues. [Bouchon and Rauscher \(2019\)](#) distinguished regulatory (containment) strategies – such as taxing, limiting supply and access and residential initiatives, and market diversification strategies – such as spatial diffusion, special interest tourism and seasonality. The authors, then, propose a new categorisation for evaluation of the over-tourism phenomenon – from the ease of access (spatial saturation), lodging (housing ambiguities) and experience (storytelling), to touristification and over-tourism.

Some authors explore strategies related to specific impacts, which can be grouped based on the specific aspects they are aimed to tackle (e.g. [Arcos-Pumarola, Marzal, & Llonch-Molina, 2018](#); [Butler, 2018](#); [Jacobsen, Iversen, & Hem, 2019](#); [Panayiotopoulos & Pisano, 2019](#); [Pinke-Sziva et al., 2019](#)). They suggest strategies concerning urban infrastructure and spatial dispersion, such as the creation of new points of interest/new routes in the peripheral city areas; expansion of carrying capacity to enable accommodating the ever-growing number of visitors: improvement of public services (e.g. more trash bins, police and public toilets); better connection of different areas of the destination (e.g. old town with modern quarters, making the less popular areas more attractive to visitors).

Other scholars (e.g. [Cheer et al., 2019a, 2019b](#); [Cheung & Li, 2019](#); [Jacobsen et al., 2019](#); [Koens, Postma, & Papp, 2018](#); [Kuščer & Mihalič, 2019](#); [Nunkoo & Ramkissoon, 2010](#)) stress the need for local inclusion in decision-making, creation of partnerships between different stakeholders, public–private collaboration at different levels, community empowerment and resilience, local social networks, sense of belonging, gender-responsible tourism and preservation of identity. Similarly, strategies based on tourist–resident interaction are suggested by authors like [Higgins-Desbiolles et al., \(2019\)](#), [Panayiotopoulos and Pisano \(2019\)](#) and [Seraphin, Gowreesunkar, Zaman, and Bourliataux-Lajoinie \(2018\)](#). These include creating interactive/collaborative spaces and events that would enable dialogue between the resident and visiting populations, raising awareness in visitors about the

impacts they cause on destinations and promoting responsible sociocultural and environmental conduct. There is also a significant body of literature on strategies concerning the planning regulations, such as limiting the short-term accommodation, implementing tourist taxes, controlling the number of visitors or promoting policies that respect landscape particularities (e.g. [García-López et al., 2018](#); [Jacobsen et al., 2019](#); [Sarantakou & Terkenli, 2019](#); [WTO, 1996](#)).

When it comes to similar research efforts in the Portuguese context, and for the city of Porto in particular, there are but a few studies that are paving the way for further research. [Jordão et al. \(2021\)](#) defined the limits of acceptable change for tourism development in the historic area of Porto, in an attempt to shed more light on impacts caused by tourism dynamics, and the subsequent need for strategic plans that support sustainability. [Pinto da Silva et al. \(2019\)](#) proposed specific preventive measures for a specific set of goals, aiming to ensure the sociocultural sustainability of urban communities. [Cardoso and Silva \(2018\)](#) questioned the residents on their support for a specific set of strategies proposed by [Koens and Postma \(2017\)](#). However, more in-depth analyses are needed, to understand not only the extent of tourism impacts but to determine case-appropriate strategies to mitigate the existing impacts and prevent further excessive tourism growth.

Methodology

Research setting

Porto is the second largest Portuguese urban area, with 231.800 habitants, according to the latest census ([INE, 2023](#)). The population is mainly composed of females (54.2%), working-age residents (62.6%), highly educated (35.3%), employed (40.4%) and predominantly Portuguese (89%) ([INE, 2023](#)). The city has been experiencing continuous tourism growth since 2009, having received 2.2 million tourists and totalizing a record-breaking 4.6 million overnight stays in 2019, with an average annual growth rate of 11% and 6.6%, respectively, ([PORDATA, 2022](#)). This resulted in €292m in tourism receipts, corresponding to an average annual growth rate of 14.7% ([PORDATA, 2022](#)). These numbers have alarmingly decreased by more than 70% in 2020 and 2021, undoubtedly due to the COVID-19 pandemic, but this period falls out of the scope of this study. The unprecedented pre-pandemic tourism growth resulted in significant changes in real estate market dynamics, further contributing to tourism excesses and aggravating the tourism-related impacts. In most parts of the city, the prices of both property acquisition and rental have skyrocketed, becoming significantly higher than the overall national average, pushing the inhabitants away from the newly gentrified areas. Rental values grew to 50% above average income, and there was not only a significant over-pricing of properties across Porto parishes with high accommodation density, but the number of long-term accommodation inhabitants became lower than the national average ([INE, 2019](#)).

Additionally, there is an unbalanced tourist accommodation offer across Porto parishes ([Table 1](#)). The gap is more than notable in the central city parish – the union of parishes of Cedofeita, Sto. Ildefonso, Sé, Miragaia, S. Nicolau and Vitória – where there is quite a high supply of accommodation establishments, compared to the number of inhabitants and the territory's size, and as in comparison to the remaining six parishes.

The disparity is also evident when comparing the accommodation capacity per parish with the average value. Even though no parish exceeds the visitors' ratio to that of residents, two exceed the average capacity. In addition, the central parish has around 57% of the total accommodation capacity when compared to population density, and a little over 60% of the total capacity per sq. km, evidencing a concerning concentration of tourist accommodation establishments within a relatively small area, and one with the low number of inhabitants per sq. km.

Total accommodation capacity for tourists includes tourist establishments (ET) and local (short-term) accommodation (AL). All parishes, except Ramalde, Lordelo do Ouro e Massarelos,

Table 1 Total accommodation capacity across Porto parishes

<i>Porto parishes</i>	<i>Total accommodation capacity per 1,000 residents</i>	<i>Total accommodation capacity per km²</i>	<i>Total accommodation capacity (ET and AL) for tourists</i>
Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau and Vitória	888	6.609	35.908
Bonfim	290	2.270	7.027
Lordelo do Ouro and Massarelos	204	1.059	5.917
Paranhos	51	312	2.238
Aldoar, Foz do Douro and Nevogilde	43	198	1.240
Campanhã	45	181	1.458
Ramalde	32	211	1.229
<i>Average</i>	222	1.549	7.860
<i>Total Porto municipality</i>	232	1.328	55.017

Source: SIGTUR, (2020)

have more accommodation capacity in AL than in the “traditional” ET. This situation is very much in line with what has been problematised for similar European destinations, as well as with what has been argued in the literature: short-term accommodation is changing the geographical distribution of tourism flow in cities, turning the residential neighbourhoods into “part and parcels of the tourist arena” (Bouchon & Rauscher, 2019, p. 601).

Survey design

The construction of the questionnaire underwent three phases, the first being theoretical. This phase implied an analysis of previous studies addressing the topic of excessive tourism growth, resident perceptions and attitudes towards this, and their roles in defining strategies, measures and policies for urban destinations. In the second phase, the international literature has been adapted to the Portuguese context. During this phase, secondary data was analysed (e.g. tourist arrivals, tourist accommodation capacity and number of residents per city) from the most attractive urban tourism areas in Portugal, as well as the opinions of several stakeholders from the tourism sector, collected through a participatory workshop. Finally, the third phase consisted of the questionnaire calibration with a pre-test, applied to a panel of six academic experts and six residents of different ages, educational backgrounds and living in different parishes.

The questionnaire consisted of three main parts. Part I referred to socio-demographic information, considering respondents’ gender, age, education level, employment situation, place of birth, length of residence in Porto and whether or not they live in the city centre, i.e. the proximity to/distance from the main tourist areas. Part II focused on residents’ opinions on tourism development across the city by analysing the intensity with which they perceive the negative impacts of tourism. The latter were grouped in the economic, sociocultural and spatial-environmental dimensions, as suggested in previous studies, based on the sustainable triple-bottom-line (Garau-Vadell, Gutierrez-Taño, & Diaz-Armas, 2018; Liu & Li, 2018; Gonzalez et al., 2018; Styliadis et al., 2014). This section consisted of 38 items presented on a five-point Likert scale, ranging from 1 – “totally disagree” to 5 – “totally agree.”

In addition to identifying the categories of impacts perceived as most negative by the residents of Porto, another objective of the research was to understand which response strategies to rapid tourism growth the residents consider the most appropriate, these being referred to in Part III of the questionnaire. Towards that end, 14 strategies were defined based on two sets of strategies proposed in publications on understanding, measuring and managing tourism growth and visitor pressure in urban destinations (Koens & Postma, 2017; UNWTO, Centre of Expertise Leisure, Tourism & Hospitality, NHTV Breda University of

Applied Sciences, & NHL Stenden University of Applied Sciences (Eds.), 2018). The items were adapted to the reality of the case studied, focusing on residents' opinions on possible solutions to tourism-related problems and better management and planning in the city, and presented to respondents in the form of multiple-choice questions with which they would or would not agree.

Data collection and analysis

Data was collected with the surveying technique, using a combination of non-probability sampling methods, namely, convenience sampling combined with volunteer and snowball sampling. The study was geographically limited to the Porto municipality. Although it is difficult to ensure the absence of substantial bias for non-probability samples, any bias inherent in this study is entirely unintentional. Most of the respondents were not approached/contacted by the researchers directly, which made the surveying process unpremeditated, in an attempt to avoid the sampling and the selection biases.

An online questionnaire was constructed and made available in Portuguese on the *LimeSurvey* platform. The dissemination of the questionnaire was twofold. Firstly, it was promoted in a physical form by distributing fliers and affixing posters in public spaces, such as cafes, restaurants and public libraries. It was then shared on social networks, particularly Facebook groups, official pages of local associations and parish councils and personal contacts. The residents were grouped according to their parish of residence (seven in total). The number of surveyed elements of each geographical area was not pre-determined or controlled, the only exclusion criteria being the city of residence (Porto) and the legal age (>18). The questionnaire was constructed to allow only one access per user (device), the sampling thus being without replacement. The survey was available over six months, from March to September 2019. A total of 279 responses were collected, 220 of which were valid (completed), corresponding to a response rate of 78.85%. The obtained response rate is rather satisfactory when compared to sample sizes and response rates of similar studies. [Sharma & Dyer \(2009\)](#) empirical research, for example, implicated a larger sample of 732 respondents. However, they distributed 5,000 surveys, which corresponds to a 14.64% response rate. [Brida, Osti, & Barquet \(2010\)](#) collected 297 out of 444 distributed questionnaires, amounting to a response rate of 66.89%. [Vareiro et al. \(2013\)](#) obtained 540 of 804 distributed questionnaires (67.1% response rate), however with a substantial number of incomplete data, being left with 400 valid responses. Therefore, the present study has a particularly high response and completion rate.

The final data sample was analysed with univariate and bivariate statistics, with the support of SPSS 25 software. Frequency tables and standard deviation were calculated, followed by *T*-tests aimed to analyse the potential differences between the residents who live in downtown Porto and those who do not, in terms of their perceptions of tourism growth in the city. Additionally, Eta correlation tests were conducted to verify whether or not there is a statistically significant association between the perceived negative impacts (scale and dependent variables) and the possible strategies to alleviate these impacts (categorical and independent variables). Eta coefficient enables the assessment of the degree of association between a categorical and a scale variable ([Jones, 2019](#); [Lakens, 2013](#); [Salkind, 2010](#)). Eta squared was also calculated to evaluate the proportion of variation in tourism impacts that can be attributed to the mitigation strategies. To proceed with this test, all the assumptions were verified. The non-linearity and asymmetry of the data were met because the independent variable is categorical. Lastly, the independence of observations was ensured.

Results

Residents' profiles

Of the total of 220 respondents, 31.4% live in the central civil parish, while 69% live in the surrounding parishes, namely, *Aldoar*, *Foz do Douro* and *Nevogilde* (15.5%),

Paranhos (13.6%), *Lordelo do Ouro e Massarelos* (11.8%), *Bonfim* (10.5%), *Ramalde* (10.5%) and *Campanhã* (6.8%). Of the total respondents, 56% are originally from Porto, 32% are from other Portuguese municipalities and 12% are foreigners. The representation of female and male respondents is quite balanced – 54% and 46%, respectively. Residents between 31 and 40 years old represent the largest group (30%), followed by the 18–30 (25%), the 41–55 (23%) and the 56+ (22%) age groups. The large majority of respondents (81%) hold a university degree or higher, and most are employed (50%) or self-employed (24%). The sample is partially representative of the overall population of Porto, with the exception of the education variable, due to over-representativeness of the respondents holding a university degree.

Residents' perceptions of negative tourism impacts

Nineteen negative tourism impacts were previously grouped into three categories based on the literature: (i) economic, (ii) sociocultural and (iii) spatial-environmental (see [Table 2](#)). Descriptive statistics results indicate that respondents either agree or strongly agree with most items from each of the three dimensions, with an emphasis on the economic impacts that include items such as real estate speculation (mean = 4.75), increase in the cost of living (mean = 4.35) and increase in precarious/seasonal work (mean = 4.10). These findings are consistent with the ones found in the literature, showing that the economic impacts are usually perceived most negatively by the residents, namely, the rising prices of land and housing ([Cardoso & Silva, 2018](#)), in addition to the increase in the costs of living ([Pinto da Silva et al., 2019](#)). In terms of sociocultural impacts, residents mainly agree or strongly agree with issues regarding access to housing (mean = 4.26), decharacterisation

Table 2 Negative tourism impacts

<i>Impacts</i>	<i>Total sample</i>	<i>Live in the city centre</i>		<i>T-test</i> <i>t-value sig.</i>	
	<i>N = 220</i>	<i>Yes</i> <i>N = 69</i> <i>(31.4%)</i>	<i>No</i> <i>N = 151</i> <i>(68.6%)</i>		
	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>		
<i>Economic</i>					
Real estate speculation	4.75	4.86	4.71	-1.768	0.079
Increase in standard and costs of living	4.35	4.49	4.28	-1.611	0.109
Increase in precarious/seasonal work	4.10	4.28	4.01	-1.857	0.065
Excessive tourism offer	4.05	4.28	3.94	-2.070	0.040
Increase in product prices	3.83	4.01	3.75	-1.763	0.079
Increase in service prices (e.g. public transportation, restaurants)	3.96	4.25	3.83	-2.692	0.008
Increase in cultural and leisure activities prices	3.26	3.41	3.20	-1.319	0.189
Increase of competition in labour market	3.53	3.64	3.48	-1.056	0.292
<i>Sociocultural</i>					
Problems regarding access to housing	4.26	4.46	4.17	-1.786	0.076
Decharacterization/loss of authenticity in local traditions and customs	3.77	4.12	3.62	-2.920	0.004
Disturbance of residents' everyday lives	3.75	4.10	3.58	-2.897	0.004
Increase in insecurity and criminality	2.71	3.04	2.56	-2.819	0.005
<i>Spatial-environmental</i>					
Congestion in urban mobility/overload of public spaces	4.00	4.14	3.94	-1.262	0.208
Disappearance of traditional/historical commercial establishments	3.80	4.22	3.60	-3.293	0.001
Environmental pressure (e.g. increase in waste production, pollution and noise)	3.76	4.01	3.65	-2.146	0.033
Lack of parking places	3.67	3.74	3.64	-0.540	0.590
Overload of public services	3.35	3.59	3.25	-1.982	0.049
Reconfiguration of traditional neighbourhoods	3.76	4.13	3.59	-3.043	0.003
Overload of spaces for leisure and commerce (e.g. cafés, stores and restaurants)	3.65	3.90	3.54	-2.129	0.034

Note: Values in italic represent statistically significant differences
Source: Authors' own creation

and loss of authenticity in local traditions and customs (mean = 3.77) and disturbance of residents' daily lives (mean = 3.75). Again, [Cardoso and Silva \(2018\)](#) came to a similar conclusion, where gentrification (loss of local residents in the historic centre) and the decrease in housing opportunities for residents appear to be major negative socio-cultural impacts, as a result of the growing number of tourist accommodations. As stressed by [Eckert, Zacher, Pechlaner, Namberger and Schmude \(2019\)](#), the residents have to be taken into particular consideration when it comes to tourism-influenced housing developments and the resulting gentrification processes. Lastly, the most critically perceived spatial-environmental impacts are the congestion in urban mobility and over-load of public spaces (mean = 4.00), the disappearance of traditional/historical commercial establishments (mean = 3.80), the environmental pressure (mean = 3.76) and the reconfiguration of traditional neighbourhoods (mean = 3.76).

The *T*-test results show statistically significant differences in the perceptions of respondents who live and those who do not live in the central parish ([Table 2](#)). Within the economic dimension, two sets of impacts stand out: the excessive tourism offer and the increase in service prices (e.g. public transportation and restaurants). In this case, those living in the city centre perceive both impacts to a greater extent than those living outside the central parish. In the sociocultural dimension, significant differences are observed in aspects related to loss of authenticity, disturbance of residents' everyday lives and increased insecurity and criminality. Again, the respondents living in the central parish feel more affected by these impacts. Lastly, statistical differences are also found in five spatial-environmental impacts, these being:

1. the disappearance of traditional establishments;
2. environmental pressure;
3. overload of public services;
4. reconfiguration of traditional neighbourhoods; and
5. overload of spaces for leisure and commerce.

The results, thus, suggest that the respondents who reside in the city centre perceive the impacts on the surrounding environment more intensely than those living outside the central parish. These results particularly contribute to the existing state of the art, as there is no consensus on the relationship between the residence proximity to busy tourism areas and the negative perceptions of tourism development ([Jurowski & Gursoy, 2004](#); [Raymond & Brown, 2007](#); [Sharma & Dyer, 2009](#)).

Sampled residents thus perceive the economic impacts most negatively, followed by sociocultural and spatial-environmental ones. The most negatively perceived economic and sociocultural issues (the real estate speculation and problems regarding access to housing, respectively) relate to the same sort of problem, i.e. the housing market tensions. These results are somewhat different from those reported in studies of other European urban destinations, where residents tend to perceive sociocultural and spatial-environmental impacts more negatively, such as housing market tensions/gentrification, disruptive/rude tourist behaviours, over-crowding of certain areas and pressure on infrastructure ([Koens & Postma, 2017](#)). It is interesting to note that Lisbon is the only destination, apart from Porto, where the focus is predominantly on economic impacts, such as price increase (in products, services and facilities), but also the loss of cultural authenticity, and decline in quality of life ([Koens & Postma, 2017](#)).

When analysing the differences between the two groups of residents, the independent *T*-tests reveal significant differences, particularly in items related to sociocultural and spatial-environmental impacts. In both cases, those living downtown tend to perceive tourism impacts more negatively than those living in other parishes, which relates to the

fact that tourism activity is mainly concentrated in the city centre and is in accordance with [Jurowski and Gursoy \(2004\)](#) theory of the distance effects on residents' attitudes towards tourism.

Residents' perceptions of mitigation strategies

Apart from the negative impacts caused by rapid tourism growth in Porto, the present paper also analyses residents' perspectives on possible strategies for lessening tourism pressures. For that purpose, 14 mitigation strategies were defined, emphasising the decentralisation of tourism activity, local involvement and collaboration/communication between residents and visitors. Proposed strategies are shown in [Table 3](#) in decreasing order of relevance, according to the response rate.

Eta correlation tests were conducted to assess whether there are statistically significant associations between the proposed strategies and the negative tourism impacts as perceived by the residents (see [Table 4](#)). Firstly, it is curious to note that no strong association ($\eta \geq 0.7$) between the variables was found, suggesting that the presented strategies might not be entirely suitable to lessen the suggested impacts. Secondly, medium associations were found between ST6 and all the categories of impacts, meaning that raising visitors' consciousness regarding their behaviours within the destination seems important to residents. Eta squared (η^2) allows us to observe the amount of variance in tourism impacts related to each mitigation strategy. In this case, only two large effect sizes were found. When it comes to ST6 and the sociocultural impacts, the total variance accounted for by the independent variable was 21.8% and 23.7% for the spatial-environmental impacts.

A medium association is also observed between ST2 and the spatial-environmental impacts, as 15.1% of the variance in the environmental impacts can be accounted for by the implementation of this strategy. This points out the residents' belief that improving infrastructures for their exclusive use might help tackle the spatial and environmental inconveniences caused by the rapid tourism growth. Also, 16.6% of the total variance in the economic impacts can be attributed to ST6, indicating a medium association. A weak, but still significant, association is observed between ST4 and each of the three categories of tourism impacts, ST2 and sociocultural and spatial-environmental impacts and ST5 and spatial-environmental impacts. Eta squared values indicate that 14.4% of the variance in the sociocultural impacts and 14.9% in the case of spatial-environmental impacts can be

Table 3 Strategies to mitigate negative tourism impacts

Code	Mitigation strategies	No. of responses	%
ST1	Create tourist attractions/routes outside the inner-city areas	159	72.3
ST2	Improve infrastructure for residents' particular use	141	64.1
ST3	Prohibit licencing of new accommodation establishments in certain areas of the city	137	62.3
ST4	Include residents and local stakeholders in the decision-making	133	60.5
ST5	Practice different prices for residents and tourists	121	55.0
ST6	Create awareness among tourists about acceptable behaviours in shared spaces	117	53.2
ST7	Promote creative spaces for tourist-resident interaction	110	50.0
ST8	Give residents priority of use of certain public spaces (e.g. parking)	92	41.8
ST9	Direct tourism promotion to potential visitors with habits compatible with those of the residents	86	39.1
ST10	Create incentives for residents to develop new tourism-related businesses	71	32.3
ST11	Create more taxes for tourists	62	28.2
ST12	Increase taxes for companies related to the tourism sector	56	25.5
ST13	Create new tourist spaces to redirect visitors	61	22.7
ST14	Limit the opening hours of spaces of leisure and commerce (e.g. cafés, restaurants and stores)	39	17.7

Note: Items are ranked by the number and percentage of respondents who agree with them, based on the multiple-response principle

Source: Authors' own creation

Table 4 Eta correlation results

<i>Mitigation strategies</i>	<i>Tourism impacts</i>					
	<i>Economic</i>		<i>Sociocultural</i>		<i>Spatial-environmental</i>	
	η	η^2	η	η^2	η	η^2
Create tourist attractions/ routes outside the inner-city areas	0.121	0.015	0.069	0.005	0.123	0.015
Improve infrastructure for residents' particular use	0.277	0.077	0.354	0.125	0.389	0.151
Prohibit licencing of new accommodation establishments in certain areas of the city	0.227	0.052	0.277	0.077	0.279	0.078
Include residents and local stakeholders in the decision-making	0.315	0.099	0.380	0.144	0.386	0.149
Practice different prices for residents and for tourists	0.268	0.072	0.291	0.085	0.316	0.100
Create awareness among tourists about acceptable behaviours in shared spaces	0.408	0.166	0.467	0.218	0.487	0.237
Promote creative spaces for tourist–resident interaction	0.212	0.045	0.207	0.043	0.181	0.033
Give residents priority in the of use of certain public spaces in the city (e.g. parking)	0.253	0.064	0.272	0.074	0.276	0.076
Direct tourism promotion to potential visitors with habits compatible with those of the residents	0.149	0.022	0.215	0.046	0.196	0.038
Create incentives for residents to develop new tourism-related businesses	0.128	0.016	0.179	0.032	0.199	0.040
Create more tourist taxes	0.056	0.003	0.060	0.004	0.059	0.003
Increase taxes for companies related to the tourism sector	0.197	0.039	0.223	0.050	0.211	0.045
Create new tourist spaces to redirect visitors	0.040	0.002	0.061	0.004	0.092	0.008
Limit the opening hours of leisure and commercial spaces of leisure and commerce (e.g. cafés, restaurants and stores)	0.251	0.063	0.293	0.089	0.298	0.089

Source: Authors' own creation

attributed to the implementation of ST4, suggesting that the participation of locals in decision-making might help to alleviate adverse tourism effects. This might be due to their familiarity with and understanding of the territory, and for being among the primary players in the destination's ecosystem.

The strategies that stand out the most related to the creation of tourist attractions and routes outside the inner-city areas; the improvement of infrastructure for the particular use of residents; the prohibition on licencing of new accommodation establishments in some areas of the city (where they feel the carrying capacity is being exceeded, namely, the city centre) and the inclusion of residents and local stakeholders in the decision-making processes. These findings are concordant with the existing literature on managing tourism excesses through visitors' dispersion to the peripheries and making wider areas of urban destinations attractive in terms of tourism (Arcos-Pumarola et al., 2018; Butler, 2018; Jacobsen et al., 2019; Panayiotopoulos & Pisano, 2019); the improvement of public and supporting services (Pinke-Sziva et al., 2019); the involvement of different stakeholders in the decision-making regarding future tourism development (Jamal & Getz, 1999; Koens et al., 2018; Kuščer & Mihalič, 2019); and some of the more restrictive measures such as the regulation and even prohibition of short-term rentals (García López et al., 2018).

No strong associations are found between the proposed strategies and the perceived impacts, pointing to the need for different case-appropriate approaches. The results further indicate that the implementation of different pricing strategies (ST5) and the improvement of infrastructure for residents' exclusive use (ST2) are associated with spatial-environmental impacts, the latter (ST2) also showing association with sociocultural impacts. On the other hand, efforts should be made by the local authorities to raise awareness among tourists about acceptable behaviours (ST6), and to include residents and local stakeholders in the decision-making processes (ST4), showing keenness by the residents to be more closely involved in managing tourism dynamics affecting their city. This is consistent with the results from previous studies, where residents pinpoint the importance of their inclusion and active involvement in planning and decision-making (e.g. Nunkoo & Ramkissoon, 2011; Rua, 2020; Vodeb et al., 2021; Woo et al., 2015). Lastly, different pricing strategies (ST5) being

associated with spatial impacts could be explained by a logical assumption that there needs to be a guarantee of fair access for all, depending on the means and capabilities of different groups.

Discussion and implications

This study aims to analyse the perceptions of residents of Porto, Portugal, regarding the city's rapid tourism growth and determine the most appropriate response strategies for a more sustainable urban tourism management and planning, and a more coherent relationship between an urban territory and the community that permanently inhabits it. The literature indicates that tourism management is seemingly weighted towards a demand-driven perspective, and the residents of Porto seem to share this opinion. The research evidence points to over-tourism as being a demand-side phenomenon (Amore et al., 2020), making it imperative for policymakers to tackle it differently. A shift to a supply-driven approach could be an alternative, as was suggested nearly two decades ago by Lew, Hall, and Williams (2004), where the capacity of resources to sustain tourism should be the basis for decisions regarding its growth. Similarly, and in line with what has been argued by Koens and Postma (2017), special attention should be paid to the visitor economy vs wider economy relation. The former has to be complementary and not an integral part of the latter, and the objectives of both need to be in accordance with not only the sustainable development of urban territories but the serenity of residential life. Tourism planning and development needs to be an integrated part of the community planning and development, if both the long-term success and sustainability of urban tourism destinations are to be achieved (Woo et al., 2015).

The paper depicts the pre-pandemic over-tourism reality of the Portuguese second largest urban tourism centre, as seen through the eyes of residents. It aims to determine if and which impacts of tourism development residents perceive most negatively, and which strategies they consider most appropriate to mitigate these impacts, the ultimate goal being to contribute to more sustainable urban tourism planning. A more specific objective is to conclude whether the perceptions differ depending on the residence proximity to the most visited tourism areas, i.e. whether or not they live in the city centre. Most respondents recognise the negative impacts tourism generates in the city, pointing to the growing pressure of tourism activity and indicating the rise of over-tourism. However, no strong correlation between the said impacts and the proposed mitigation strategies is found.

The perceived negative impacts are underpinned by the sustainability pillars, considering that tourism affects destinations' economic, sociocultural and spatial-environmental aspects. The theoretical dimensions are consistent with what has been described in previous studies and in the context of other urban tourism destinations with similar problems triggered by rapid tourism growth. Findings indicate that the economic impacts are perceived as the most unfavourable. Additionally, it is shown that the residents who live downtown are likely to feel more negatively impacted by tourism development than those living outside the city centre. Some of the impacts were indeed experienced more intensely by the respondents who reside in the central parish, particularly the spatial-environmental. These findings point out the need for deintensification of tourism development in downtown areas, which have experienced exponential tourism excesses prior to the COVID-19 pandemic. Accordingly, policymakers must seek not to repeat the mistakes that led to the massification of the industry and the emergence of over-tourism in cities. Studies exploring the spatial component, i.e. whether or not the distance between the area of residence and the tourist centres influences people's perceptions of tourism impacts, are still relatively scarce and their findings are disparate (Jurowski & Gursoy, 2004; Raymond & Brown, 2007; Sharma & Dyer, 2009). Moreover, this has not yet been significantly explored in the Portuguese context. A periodical evaluation of residents' perceptions of tourism impacts

could play a crucial role in adopting sustainable approaches to the development of urban destinations (Gómez-Bruna, Martín-Duque, Alzua-Sorzabal, & Ruiz-Rua, 2023).

The theoretical contribution of the study is in the fact that it is among the first to adopt this approach in tackling the negative impacts of rapid tourism growth in Porto and to determine whether the proposed mitigation strategies are case-appropriate, according to residents' understanding. The findings also carry practical implications in what concerns assisting the policymakers in resident inclusion in tourism-related debates and decision-making; designing better public policies through participatory planning that prioritises residents' satisfaction with their quality of life; using citizen science in monitoring the intensity of tourism impacts; and designing more adequate and case-appropriate tourism marketing campaigns. As previously suggested by the literature, more participative, community-involving approaches can contribute to more positive attitudes towards tourism (Andereck et al., 2005; Kim et al., 2013; Nunkoo & Ramkissoon, 2011; Nunkoo & So, 2016; Rua, 2020; Woo et al., 2015). In the context of a Portuguese historic town, it was found that the local government's management practices have a significant effect on the perceived tourism impacts, as well as on the residents' support for its further development (Vieira et al., 2016). This supports the claim on the importance of transparent, responsible management by the governing bodies, one that promotes inclusion, involvement and benefits the local community and small businesses. It is only natural that those more involved in the industry's dynamics, who personally benefit from it, perceive it more positively and adopt a more supportive attitudes towards its further development, as defended by the SET. Resident inclusion does not only have the potential to help respect the principles of sustainability but can potentially generate less resistance and result in more adequate and informed support for urban tourism development.

The present study has several limitations that are certainly an opportunity for future research. Firstly, the number of responses was not as high as initially expected. In addition, the online survey method proved to have some constraints in terms of reaching a satisfactory data sample. Therefore, future studies should combine online with other approaches to guarantee higher response rates. A face-to-face approach has, too, been tested on three respondents for the present study. However, due to the extensiveness of the survey, it proved altogether unsuitable. It took a long time to conduct it in person, which seemed to have made the subjects visibly restless and eager to complete it as quickly as possible, without giving the questions much thought. On the other hand, in the online approach, the respondents fully controlled their time, interrupting and retaking the survey as it best suited them. Future studies might also adopt a probability sampling method (or a combination thereof) that guarantees greater representativeness of different sub-groups within the population (e.g. cluster or stratified). Despite testing potential differences among groups of different origins (i.e. Porto natives, other Portuguese regions and foreigners) regarding their perceptions of tourism impacts, no significant outputs were observed. Future research could replicate the analysis with other similar groups to further advance the community attachment theory.

The fact that the research was conducted in a single destination makes it unrepresentative of perceptions of other destinations' residents (e.g. dimension, intensity of tourism development, cultural identity, etc.), so comparative studies should be conducted in different destinations. In accordance with what was concluded by Petruzzi et al. (2020), a qualitative approach would greatly enrich future studies in combination with the quantitative. It would also be pertinent to further investigate this topic in the context of Butler's tourist area life cycle model (1980) and Doxey's *Irridex* model (1975). Residents typically perceive tourism impacts differently during different stages of tourism development, their attitudes being naturally more favourable early on and more negative in mature destinations (e.g. Akis, Peristianis, & Warner, 1996; Butler, 1980; Doxey, 1975; Faulkner & Tideswell, 1997; Upchurch & Teivane, 2000). The decision-making regarding tourism development should,

therefore, bear in mind the destination's carrying capacity before it reaches its limits and a stage of decline.

Lastly, the paper analyses the reality of an urban destination that started experiencing excessive tourism growth relatively shortly before the COVID-19 pandemic. It would be pertinent to conduct a follow-up, post-pandemic study with the residents of Porto, as well as to compare their perceptions to those of the residents of other Portuguese historic centres that experience similar tourism growth rates.

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Note

1. Data referring to Porto municipality can be consulted under 'Territories' in the table.

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Further reading

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