The Environmental Impacts of Hosting the "2012 Guimarães European Capital of Culture" as Perceived by the Local Community*

Los impactos medioambientales del evento "2012 Guimarães Capital Europea de la Cultura" percibidos por la comunidad local

Les effets ambiantaux de l'accueil de la Capitale Européenne de la Culture 2012 et la perception de la communauté locale

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Abstract

This paper presents the results of an evaluation of the perceptions of the environmental impacts of the 2012 European Capital of Culture (ECOC) on the hosting community of Guimarães, a World Heritage Site. Data was obtained through a self-administered survey of 510 residents in the Guimarães municipality at the end of 2011. The primary results indicate that the residents acknowledged that hosting the event brought benefits to the city, but it also had negative impacts. The impacts perceived by residents were classified as socio-cultural, economic and environmental. The negative environmental impacts were the most pronounced.

Keywords: environmental impacts, European Capital of Culture, perceptions of residents, tourism development, sustainability

Resumen

Este trabajo presenta los resultados de la evaluación de las percepciones de los impactos medioambientales del evento 2012 Capital Europea de Cultura (ECOC) en la comunidad de Guimarães, Patrimonio de la Humanidad. Los datos se obtuvieron a través de una encuesta autoadministrada de un total de 510 residentes en el municipio de Guimarães, a finales de 2011. Los resultados primarios indican que los residentes reconocieron que el acontecimiento aportó beneficios a la ciudad, pero también impactos negativos. Los impactos percibidos por los residentes fueron clasificados como socioculturales, económicos y medioambientales. De todos ellos, los impactos medioambientales negativos fueron los que más repercutieron en el municipio.

Palabras clave: impactos medioambientales, Capital Europea de la Cultura, percepciones de los residentes, desarrollo del turismo, sostenibilidad

Résumé

Cet article parle de la Capitale Européenne de la Culture-2012 (CEC) et tente déterminer ses impacts à partir de la perception de la communauté de residents. C'est la première fois que ce type d'analyse a été réalisé au Portugal, en ayant comme objet d'étude les habitants de la CEC et visant aussi un Patrimoine de l'Humanité.

Les données empiriques ont été obtenues à partir d'une enquête faite à 510 habitants de la région de Guimarães, à la fin de 2011. Les principaux résultats révèlent que les habitants reconnaissent que l'accueil de cet événement a apporté des bénéfices à la ville, tout en admettant néanmoins quelques aspects moins positifs. Entre les impacts analysés, on peut ressortir les effets ambiantaux comme ceux qui ont marqués plus positivement les habitants. Cette constatation provient de l'analyse d'une série d'indicateurs à partir de laquelle a été effectuée trois différents niveaux d'impacts: socioculturels, économiques et ambiantaux.

Mots-clés: impacts ambiantaux, capitale européenne de la culture, perception des habitants, développement du tourisme, durabilité

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Introduction

The concepts of development and sustainability are very complex to define as they are both polysemous and holistic. The tourism industry can play an important role in the reduction of poverty and attainment of higher levels of development (World Tourism Organization, 2010; Vareiro, Remoaldo & Cadima Ribeiro, 2013). Hence, tourism should be considered an economic activity that is directly related to people's quality of life. Tourism also affects the lives of the host communities (Kim, Uysal & Sirgy, 2012).

Tourism involves many stakeholders and political actors beyond the receivers and providers of tourism services. Tourism has the ability to mobilize the entire human and geographic space. Nevertheless, this activity must be planned in a sustainable manner (Hottola, 2009).

In 1987, the Brundtland Report (*Our Common Future*) discussed that sustainability should be a matter of concern in development strategies implemented worldwide, including those based on the tourism industry.

Accordingly, since the 1990s, the World Tourism Organization has included the concept of sustainable development in its approach to common activities, keeping in mind "that [it] takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities (UNWTO, 2013).

A European Capital of Culture event is an important annual mega-event that can help a host city to become more sustainable. It also promotes the image of the host city. As a result, hosting this event can contribute to attracting new visitors and help enhance the tourism development strategy of the city.

If correctly approached, hosting this kind of event is also a good way to challenge and engage local citizens by generating feelings of common citizenship (Remoaldo, Mota & Cadima Ribeiro, 2013).

We therefore decided to undertake a study to capture the perceived impacts of hosting the 2012 European Capital of Culture (2012 ECOC) on the city of Guimarães, namely the environmental impacts, and the importance they are attributed by its residents.

Guimarães is a small city located in the northwestern region of Portugal. It was classified by United Nations Educational, Scientific and Cultural Organization (Unesco) as a World Heritage Site in 2001. The city is known for its long-established manufacturing tradition, mostly related to the production of textiles and footwear.

Until recently, no research had been conducted in Portugal on the impacts, as perceived by residents, of hosting a mega-event such as the European Capital of Culture, with a focus on environmental issues. Most studies have investigated economic and socio-cultural impacts, rather than environmental ones.

Data was collected by means of a self-administered survey of 510 residents of the Guimarães municipality, at the end of 2011.

The first section of this paper presents a review of the literature addressing the impacts of mega-events and residents' perceptions of them, with a special focus on environmental impacts. Section 2 outlines the methods used in the empirical research. In Section 3, we present some of the demographic and socio-economic characteristics of Guimarães. In Section 4, some results of the survey are presented and discussed. Finally, the primary conclusions are discussed and policy recommendations are put forward.

The European Capital of Culture and its impacts

Cultural festivals, such as the European Capital of Culture, have an impact on the local hosting communities. The European Capital of Culture has been organized annually since 1985 in various European cities. Hence, it is relevant to conduct an evaluation of the impacts (namely the economic, socio-cultural, and environmental impacts) of hosting such an event.

Research has long focused on the impacts of large events, especially those related with sports, and their economic effects. Examples of mega-events that have been studied include the Olympics (e.g., Deccio & Baloglu, 2002; Ritchie, Shipway & Cleeve, 2009; Remoaldo, Mécia & Cadima Ribeiro, 2013), and the Football World Cups (e.g., Lepp & Gibson, 2011). Cultural events, however, have received less attention, despite the efforts of Ritchie (1984), Getz (1991) Hall (1992), Gursoy and Kendall (2006), and Langen and Garcia (2009).

Since 2006, the European Commission made it compulsory to evaluate European Capital of Culture events (Decision no. 1622/2006/EC). In these analyses the first concern is the economic impact, since it is easier to quantify economic effects over socio-cultural impacts.

Langen and Garcia (2009) reported that it is difficult to produce results for socio-cultural impacts that can be explored politically by event organizers, since they are less tangible than economic impacts.

The more commonly highlighted positive economic impacts are: increased employment opportunities; an increase in income, which tends to grow before, during, and after hosting a mega-event (Ritchie, Shipway & Cleeve, 2009); opportunities for more advertising of products and services in the city and country that hosts the mega-event; attraction of investment in new infrastructure; an increase in standards of living (which can also be a socio-cultural impact); and a growth in tax revenues (Table 1).

Some authors divide the social impacts into socio-economic and socio-cultural impacts (Rátz & Puczkó, 2002). This can be explained by the difficulty in separating them, as some of them simultaneously involve economic and socio-cultural dimensions.

The negative economic impacts are also well documented, with attention focusing on the increase in the price of goods and services.

The social impacts concern the social outcomes created by events for particular communities of people and society in general. "Measuring social impacts leads to an understanding of the social benefits or social value of an event" (Quinn, 2013, p. 126).

Positive social outcomes can be as important as economic outcomes; sometimes they are more important (Quinn, 2013). Hall (1992), Kim, Gursoy and Lee (2006), and Ritchie *et al.* (2009), have included environmental and political impacts in their studies, saying that them, along with the socio-cultural impacts, are probably more important than the economic impacts.

There are a number of positive socio-cultural impacts pointed out by several authors (e.g., Deccio and Baloglu, 2002; Waitt, 2003; Ritchie, Shipway and Cleeve, 2009) (Table 1).

Concerning environmental impacts, we can use the broad concept of environment that considers its abiotic, biotic, and sociocultural components. In 1952, Zierer pointed out the importance of the physical and cultural environment in tourism. At present, these areas have been rather neglected by researchers and the media does not pay much attention to them (Rátz & Puczkó, 2002).

Cooper et al. (1998) mentioned that the environment (natural or artificial) must be regarded as the most fundamental ingredient of the tourism product, since the environment faces changes from tourism. Even so, few researchers have conducted an analysis of the impacts of tourism on the environment (Cooper *et al.*, 1998; Rátz & Puczkó, 2002).

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Table 1.

Positive and negative impacts of cultural events on hosting communities

Economic impacts related to the hosting community	
Positive	*Negative*
Increased employment opportunities	Rising prices of goods, services, and properties
Growth of income (which tends to increase before, during, and after the hosting of a mega-event)	Increased cost of living
Opportunity for more advertising of the products and services of the hosting city and country	
Attraction of investment in new facilities and infrastructure	
Increase in the standards of living	
Socio-cultural impacts related to the hosting community	
Positive	Negative
Increase in community's self-esteem	Increased delinquent behavior
Increase in the standards of living	Increased crime rate
Strengthening/preservation of local cultural values and traditions	Overcrowding
Contributes to the construction of a national identity	Conflicts between visitors and residents
Opportunities to meet new people	
More interesting things to do	
Environmental impacts related to the hosting community	
Positive	Negative
Preservation of built heritage	Degradation of the physical and natural environment
Increased public safety	Increase in litter
	Increase in noise pollution
	Decrease in air quality
	Decrease in water quality
	Traffic congestion and parking problems
	Increase in rail and air traffic

Source: Authors' own elaboration using empirical literature references.

Given that this study focuses on a cultural mega-event, it was not necessary to consider all the possible environmental impacts. Thus, Table 1 includes only those we considered relevant in this case. If we were dealing with the creation of national parks, an increase in wildlife, the protection of reefs and beaches, or the maintenance of forests, other types of impacts would have been contemplated. Even so, a set of negative impacts (Table 1) have been analyzed, such as the production of litter and noise, a decrease in air and water quality, and traffic congestion and parking problems (Cooper *et al.*, 1998; Rátz & Puczkó, 2002).

Major emissions (mainly of CO_2, CO and NO_2) resulting from the cooling systems (air conditioning) of catering and accommodation establishments, and the main tourist attractions (Rátz & Puczkó, 2002), must be considered, in addition to pollutant gas and vapor emissions produced by transportation (cars, buses, civil aviation);also the "increased usage of the internal combustion engine for tourist transport, oil burning to provide the power for hotel's air conditioning and refrigeration units add to the diminution of air quality" (Cooper *et al.*, 1998, p. 150).

Some forms of entertainment, such as night clubs, can also contribute to an increase in noise levels.

Litter has huge consequences on the geological qualities of the physical environment, as large amounts of litter cannot decompose and may generate toxic compounds in the soil (Rátz & Puczkó, 2002). It also has a negative aesthetic and visual impact (Cooper *et al.,* 1998).

Degradation of the natural and built environment may include the destruction of vegetation by pedestrians and damage to buildings, such as graffiti.

Methods

The empirical work performed in 2011 was based on a self-administered survey of 510 residents from the Guimarães municipality, located in the northwestern region of Portugal.

The main objective of the survey was to evaluate, in the ex-ante period (in 2011), the intention of Guimarães residents to participate in the mega-event and the impacts they perceived hosting the 2012 ECOC could originate. We tried to capture the three kinds of impacts commonly mentioned in the literature on cultural events, including mega-events (mentioned in section 1 and summarized in Table 1).

On September 29th, 2011, we conducted a pilot survey with 10 residents, which had a total of 29 questions (n = 29) to identify the impacts. The respondents showed some difficulty to understand a few of the questions included, and alerted us regarding the excessive amount of questions raised. We consequently reduced the number of questions to 20, focusing only on the main aspects. A five-point Likert scale (ranging from 1 - 'completely disagree' to 5 - 'completely agree') was used to rank the impacts, according to the perspective of the local community. The data was collected between October and December 2011. From the 1000 questionnaires distributed, we obtained 510 responses, thus resulting in a response rate of 51%.

The survey sample was obtained from four public secondary schools and one professional school. These locations were chosen in order to cover the 69 parishes that administratively are part of the municipality, since we did not want to only include the parishes where most of the event activities would take place.

In order to obtain a higher number of responses and a representative sample of Guimarães residents, we administered the survey to students that were at least 15 years old, as a mean to reach their relatives, including their siblings, parents, siblings of their parents, and grandparents. We wanted to cover three generations of residents (youths, adults and older adults). The students were 15 to 18 years old and in their 10th, 11th and 12th years of schooling. They were asked to complete the questionnaire and take it home to distribute it to their family members.

The questionnaire consisted of 18 questions, which took, on average, 15 minutes to answer. It included structured questions, mainly with a multiple-choice format, using a 5-point Likert scale. The survey was divided into three parts: one related with attendance of and participation in the mega-event (six questions); the second related to residents' perceptions of the impacts of Guimarães 2012 ECOC (two questions); and the third part aimed to collect demographic data on the respondents (i.e., gender, age, marital status, education, parish of residence).

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A statistical descriptive analysis of the survey responses was performed using spss (ibm spss, version 22.0).

This paper reports on the questions related with the perceptions of the impacts determined by empirical research.

The analysis of the impacts of hosting the 2012 ecoc, as expected by Guimarães residents, was based on a set of indicators extracted from the survey implemented. This allowed us to classify them into three different groups of effects, namely socio-cultural, economic, and environmental effects.

Some descriptive statistics were used in the analyses, such as averages and standard deviations. An Anova analysis was applied to find the differences between identified impacts which had statistical significance.

Some characteristics of the municipality and its residents

As cultural events can lead to changes in the quality of life of the host community, it is worth mentioning some characteristics of the residents of the Guimarães municipality. This section describes some characteristics of the city of Guimarães and the demographic structure of its population.

The city of Guimarães is small. The municipality, as a whole, has gradually bolstered its importance in the regional context, that is, the northwestern region of Portugal. The population of the municipality doubled between 1940 and 2001 (Cadima Ribeiro & Remoaldo, 2011). However, in the last decade it has failed to maintain these growth levels. In the last census (2011), for the first time since 1920, there was a 1% decrease in its population, resulting in a total of 158,124 inhabitants (INE, 2012).

The majority of the population has up to four years of education, and can be classified as middle and lower middle classes.

When Unesco awarded the city center of Guimarães world heritage status in December 2001, it had a strong effect on the level of preservation of the buildings of the old town (part of which date from the medieval age). This emphasized its status as the cradle of the nation, since it was the birthplace of the first King of Portugal. This last factor also contributes to make the town well-known, and to the intense community pride of its residents.

Along with a rich built heritage, the municipality has a relevant immaterial heritage that it is nationally renowned. The lovers' handkerchief (a certified product) and the lovers' small ceramic pot (*cantarinha dos namorados*), are examples of its symbolic heritage.

All of this may be called upon to explain the sustained increase in the number of visitors to the city since the beginning of this millennium, even if it is still an emergent international cultural tourism destination.

Main results and discussion

Profile of the respondents. Table 2 summarizes the profile of the survey respondents using the main socio-demographic variables. The majority of the respondents were female (58%); this correlates with the population of the municipality (the universe), as, according to the figures of the 2011 Population Census (INE, 2012): 51.4% of the inhabitants were female.

In our study, the 15 to 24 age cohort (53.1%) was the most representative, far from the 15% of the universe (municipality of Guimarães). This can be explained by the use of public schools to implement the survey, a fact that also restricted how insistent we could be with the students to deliver and collect the questionnaires filled out by their relatives. This factor may also be a clue to understand the missing data in the socio-demographic characteristics requested (Table 2).

The most representative level of education in the sample was up to six years of schooling (47.6%), higher than that of the municipality, whose average is four years of education (29.1%).

Table 2.
Profile of the respondents

	N	%		N	%
Gender			*Professional situation*		
Female	296	58.0	Students	257	50.4
Male	209	41.0	Other	253	49.6
No answer	1	1.0			
Age			*Residence*		
15-24	271	53.1	Predominantly Urban Area (APU)	376	73.7
25-64	218	42.7	Moderately Urban Areas (AMU)	77	15.1
65 and over	12	2.4	No answer	57	11.2
No answer	9	1.8			
Education			*Monthly income*		
Cannot read or write	2	0.4	Less than €500	58	11.0
Up to four years	77	15.1	Between €500 and €1000	174	34.1
Up to six years	243	47.6	Between €1001 and €2500	126	24.7
Secondary	134	26.3	More than €2500	26	5.1
University	32	6.3	No answer	127	24.9
No answer	22	4.3			

Source: 2011 Guimarães residents survey data.

Residents' perceptions of the impacts of the 2012 ECOC. The analysis of the residents' perceptions on the impacts of hosting the 2012 ECOC was based on a set of indicators, which were divided into socio-cultural, economic, and environmental effects.

To conduct a more detailed approach and analyze each of the dimensions, the *socio-cultural impacts* were examined using the 9 indicators available in the survey database, namely: *change in behavior of the residents in response to tourists; increase in the quality of life; increase in the crime rate; improvement of the city's external image; better appreciation and recovery of local traditions; increase in the supply of cultural events; improvement of local infrastructure; change in the residents' practices and traditions;* and *improvement of the local population's self-esteem.*

From the analysis, we concluded that the residents of Guimarães adopted a more direct relationship regarding a few of the socio-cultural impacts, namely those related to the appreciation of their territory and heritage. Specifically, 8 in 10 Guimarães residents declared that they agreed or completely agreed that hosting the 2012 ECOC would contribute to the *improvement of the city's external image*, as well as *allow for the appreciation and recovery of local traditions*. Almost 7 in 10 said that it would contribute to an *increase in the locals' self-esteem* and to the *improvement of local infrastructure*.

With regard to personal benefits from the 2012 ECOC they tended to be less optimistic, as only 4 in 10 agreed or completely agreed that it would *increase their quality of life* and that it could lead *residents to change some practices and traditions.*

Even considering this uncertainty regarding personal socio-cultural impacts, the citizens of Guimarães believed that hosting the 2012 ECOC would not drive a major *increase in the crime rate*, as 5

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in 10 residents did not agree or completely disagreed with this possibility, whereas just 2 in 10 agreed or completely agreed with the prospect of this happening as a consequence of the cultural event.

From these results, we can assume that we are faced with two opinions with regard to the *socio-cultural impacts* of the 2012 ECOC. To deal with this, we decided to create two different synthetic measures[1]: on the one hand, we aggregated the variables capturing the more positive impacts, namely, *increase in the quality of life, improvement of the city's external image, better appreciation and recovery of local traditions, improvement of local infrastructure, increase in the supply of cultural events* and *improvement of the local population's self-esteem*; on the other hand, we aggregated those impacts perceived as more negative, which, in the case of our study, include the *change of behavior of the residents in response to tourists, change in the residents' practices and traditions*, and *increase in the crime rate*.

Using the aggregation of indicators, we concluded that the residents of Guimarães agreed that the idea of hosting the European Capital of Culture would bring socio-cultural benefits to the city, either by having a more direct (personal) impact on residents —*increase in the quality of life, improvement of the local population's self-esteem*—or more related to the promotion of the development of the municipality *improvement of the city's external image, better appreciation and recovery of local traditions, increase in the cultural supply, improvement of local infrastructure*. This approach translates as an average figure of 3.82, which, on a scale of 1 ('complete disagree') to 5 ('completely agree'), should be read as revealing a certain degree of confidence in the positive impacts of the mega-event (Table 3).

Regarding the expected *negative socio-cultural impacts* of the 2012 ECOC, the locals seemed to believe that the negative impacts would not be too severe, as expressed in an average figure of 2.97, which is quite close to the average point of the scale used. This value can be interpreted as a low level of concern regarding possibly less positive impacts on the city from hosting the event, such as the *increase in the crime rate* or the *change in the residents' practices and traditions* (Table 3).

Table 3.
Perceived socio-cultural impacts by gender, age and education

Socio-cultural Impacts							
Positive Impacts				Negative Impacts			
	Average	Standard Deviation	N		Average	Standard Deviation	N
Total	3.82	0.59	510	**Total**	2.97	0.73	510
Gender					Gender		
Men	3.76	0.63	209	H	2.95	0.77	209
Women	3.86	0.55	296	M	2.98	0.70	296
η	Ns			η	Ns		
Age					Age		
<29	3.84	0.56	298	<29	2.90	0.71	298
30-49	3.74	0.63	152	30-49	3.15	0.70	152
50 and +	3.91	0.61	60	50 and +	2.88	0.78	60
η	Ns			η	Ns		

1   Analyzing the reliability indices, there is a satisfactory consistency of the positive impacts, corresponding to a a = 0.72, and a less satisfactory consistency of the negative impacts: a = 0.42.

Socio-cultural Impacts						
	Education				Education	
Up to 4 years of school	3.72	0.64	79	Up to 4 years of school	3.11	0.66	79
From 5 to 12 years	3.85	0.57	377	From 5 to 12 years	2.94	0.74	377
Tertiary education	3.67	0.60	32	Tertiary education	2.87	0.81	32
η	Ns			η	Ns		

Source: Authors' own calculations using the 2011 Guimarães residents survey data.

The average values presented enable us to say that there are, in fact, important differences between the positive and the negative impacts of hosting the 2012 ECOC, that is, the residents believed that the positive socio-cultural effects would outweigh the negative effects[2]. This result does not change when one approaches the issue according to gender, age or level of education[3] (Table 3).

To get a better picture of the *economic impacts* of the Guimarães ECOC, we began by analyzing a set of 5 indicators, namely: *the increase in the price of goods and services; the creation or increase in the amount of jobs available; the increase of residents' income; the attraction of new investment to the region; and the increase in the level of public investment in the cultural industries.*

From this analysis, we concluded that the residents of Guimarães perceived the different impact dimensions in different ways. On the one hand, they expressed quite clearly trust in the overall economic benefit of hosting the European Capital of Culture. To be precise: 7 in 10 Guimarães citizens declared that the event would attract *investment to the region*, and 8 in 10 believe that it would reinforce *public investment in the cultural industries*. On the other hand, they were more cautious when addressing the *promotion of employment* indicator, sensibly expressed by 6 in 10; moreover, they were skeptical when referring to the possibility of hosting the ECOC as a means to *increase their income*, as shown by just 2 in 10.

With regard to the possibility of the 2012 ECOC driving an increase in the prices of goods and services, 4 in 10 Guimarães residents admitted it could happen; it is worth noting that just 2 in 10 declared they did not agree or completely disagreed with the probability of that outcome.

Overall, the residents of Guimarães seemed to be aware of the positive and negative impacts of hosting the ECOC on the city. In order to reinforce this conclusion, we built an aggregate indicator that could capture the two different perceived approaches: the variables related to a more positive expected impact[4] and those related to impacts perceived as more negative. The first case included the following variables: *creation or increase in the amount of jobs available; increase in residents' income; the attraction of new investment to the region;* and *the increase in the level of public investment in the cultural industries.* In the second case, we used the variable *increase in the price of goods and services.*

In terms of the negative impacts variable, an average value of 3.31 —on a scale of 1 to 5— clearly captured the concern of Guimarães residents regarding the less favorable perceived effects of the event to be hosted. The average was slightly higher when addressing the positive impacts (with an average value of 3.64). These results are in line with those presented previously, showing that the local population was aware of both the positive and the negative impacts of hosting such a mega-event.

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2   The statistical Anova test with repeated measures showed that there are differences endowed with statistical significance among the positive and the negative impacts: $F(1, 496) = 522,171$; $p < 0,001$.

3   Positive socio-cultural impacts: $t_{gender}(495) = -1,934$, Ns; $F_{age}(2, 498) = 2,201$, Ns; $F_{education}(2, 479) = 2,550$, Ns. Negative socio-cultural impacts: $t_{gender}(493) = -0,536$, Ns; $F_{age}(2, 496) = 6,660$, Ns; $F_{education}(2, 477) = 1,949$, Ns.

4   The Cronbach's alpha index of positive economic impacts is equal to 0.55.

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Meanwhile, the different evaluations allowed us to conclude that the positive effects were better ranked than the negative ones[5]. This empirical result is consistent with the one obtained when the analysis includes gender, age, or level of education[6] (Table 4).

Table 4.
Perceived economic impacts by gender, age and education

	Economic Impacts						
	Positive Impacts				Negative Impacts		
	Average	Standard Deviation	N		Average	Standard Deviation	N
Total	3.64	0.58	510	**Total**	3.31	1	494
	Gender				**Gender**		
Men	3.61	0.62	209	H	3.34	1,1	203
Women	3.67	0.55	296	M	3.29	1	289
η	Ns			η	Ns		
	Age				Age		
< 29	3.69	0.57	298	< 29	3.24	1	292
30-49	3.56	0.59	152	30-49	3.45	1	143
50 and +	3.62	0.61	60	50 and +	3.36	1,1	59
η	Ns			η	Ns		
	Education				Education		
Up to 4 years of school	3.63	0.59	79	Up to 4 years of school	3.40	1	75
From 5 to 12 years	3.65	0.57	377	From 5 to 12 years	3.26	1	370
Tertiary education	3.56	0.67	32	Tertiary education	3.73	0,8	30
η	Ns			η	Ns		

Source: Authors' own calculation using the Guimarães residents survey data.

Finally, we conducted an analysis of the environmental impacts of the 2012 ECOC using 6 indicators, namely: *increase in the amount of litter produced; increase in traffic; deterioration of the physical and natural environment; increase in public safety;* and *preservation of the built heritage*.

The Guimarães residents expressed a clear opinion about the impact of the event on the *preservation of the built heritage,* since 8 in 10 stated they agreed or completely agreed that hosting the European Capital of Culture would bring benefits in this regard.

Less expressive, even though still worthy of note, was their opinion regarding *public safety*, with 5 in 10 residents agreeing or completely agreeing with the idea that the ECOC would bring an increase in public safety.

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5   This test shows that there are significant statistical differences between the positive and negative impacts: $F (1, 493) = 42.283$, $p < 0.001$.

6   Positive economic impacts: $t_{gender} (494) = -1,172$, Ns; $F_{age} (2, 497) = 2,533$, Ns; $F_{education} (2, 478) = 0,394$, Ns. Negative economic impacts: $t_{gender} (490) = 0,542$, Ns; $F_{age} (2, 493) = 2,053$, Ns; $F_{education} (2, 474) = 3,305$, Ns.

When asked about a few less favorable aspects associated with environmental preservation, the local citizens expressed a more divided position; 4 in 10 declared that hosting the ECOC would bring an *increase in the amount of litter produced*, and 3 in 10 felt it would impact the *deterioration of the physical and natural environment*. It is notable that, regarding this last phenomenon, the same amount of residents declared they did not agree that the event would provoke damage to the physical and natural environment, whereas 4 in 10 declared that they did not have an opinion about this problem.

There are other issues that were considered less favorable in terms of environmental preservation: 6 in 10 respondents mentioned the expected *increase in traffic* and the *increased difficulty with parking* within the city.

In summary, we can surmise that hosting the 2012 ECOC was expected to bring several different environmental impacts: on the one hand, Guimarães residents believed that it would bring environmental benefits, such as those related to awareness of the *preservation of the built heritage* and the *increase in public safety*; on the other hand, some of the residents clearly expressed their concern regarding the expected *increase in traffic*, the *increased difficulties with parking*, *increase in the amount of litter produced* and *deterioration of the physical and natural environment*.

Keeping the same approaches used previously when dealing with the socio-cultural and economic impacts, we proceeded to the aggregation of the variables obtained according to their positive or negative nature, using a 5-point scale. We learned that the positive impacts seemed stronger to the Guimarães residents, as the average figure attained was 3.87, in contrast with 3.37 in the case of those considered negative[7] (Table 5).

From the analysis of the calculated statistical averages, we can conclude that hosting the European Capital of Culture was generally thought of as beneficial for the city of Guimarães. As a city with significant built heritage, its preservation is considered crucial to its economic development and cultural promotion. Thus, the anticipated negative impacts were seen as taking place over a limited period of time, generally constrained to the duration of the mega-event. Aspects such as the *increase in the amount of litter produced* and the *increase in traffic* were not therefore assumed as structural to the aims of Guimarães' daily life.

Guimarães residents, regardless of gender, age or education[8], expressed similar opinions regarding the aforementioned issue. This also applied to the positive or negative nature of the impacts perceived (Table 5).

Table 5.
Perceived environmental impacts by gender, age and education

Environmental Impacts							
Positive Impacts				Negative Impacts			
	Average	Standard Deviation	N		Average	Standard Deviation	N
Total	3.87	0.69	510	Total	3.37	0.70	510
	Gender				Gender		
Men	3.83	0.73	209	H	3.42	0.67	209
Women	3.90	0.65	296	M	3.33	0.73	296
η	Ns			η	Ns		

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[7]   We found differences with statistical significance between the positive and the negative environmental impacts: $F(1, 496) = 136,020$; $p < 0,001$.

[8]   Positive environmental impacts: $t_{gender}(493) = -1,084$, *Ns*; $F_{age}(2, 496) = 2,220$, *Ns*; $F_{education}(2, 477) = 1,951$, *Ns*. Negative environmental impacts: $t_{gender}(493) = 1,465$, *Ns*; $F_{age}(2, 496) = 0,888$, *Ns*; $F_{education}(2, 477) = 0,435$, *Ns*.

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Environmental Impacts							
Positive Impacts				Negative Impacts			
	Average	Standard Deviation	N		Average	Standard Deviation	N
	Age		Age				
< 29	3.88	0.68	298	< 29	3.33	0.73	298
30-49	3.78	0.69	152	30-49	3.43	0.66	152
50 and +	4.00	0.66	60	50 and +	3.39	0.68	60
η	Ns			η	Ns		
	Education				Education		
Up to 4 years of school	3.81	0.73	79	Up to 4 years of school	3.36	0.66	79
From 5 to 12 years	3.90	0.67	377	From 5 to 12 years	3.35	0.72	377
Tertiary education	3.67	0.74	32	Tertiary education	3.48	0.65	32
η	Ns			η	Ns		

Source: Authors' own calculation using the Guimarães residents survey data.

Conclusions and recommendations

According to the empirical results extracted from the survey of Guimarães residents implemented in 2011, we conclude that they were expecting more benefits than drawbacks from hosting the 2012 European Capital of Culture. The analysis of the data shows that, regarding the total positive potential impacts identified, the environmental impacts were among the better ranked by the residents, which meant that they were generally optimistic about the outcome of hosting the mega-event.

Despite this recognition of the benefits of hosting the 2012 ECOC, it is also worth mentioning the relevance given by the residents to the expected negative environmental impacts, since a relatively significant portion believed that it would leave some less positive marks. This fact reveals that there was room for policy action, namely measures aimed at minimizing the negative impacts (environmental, economic, or socio-cultural) of hosting this event. Looking at the residents' concerns, as revealed by our survey data, it was not difficult to identify the main areas where this public action should take place: waste removal, public safety, traffic congestion, car parking, and the preservation of the built heritage.

For a deeper analysis of the expected impacts of hosting a European Capital of Culture, it would be necessary to conduct a comparative study taking a different socio-cultural context into account. This comparative study would provide a better understanding of whether the municipality of Guimarães was really prepared to take full advantage of the opportunities associated with hosting such an event.

Some limitations to the present study derive from the sample used, which was biased with an overrepresentation of the young residents' cohort.

In future research, the team intends to check the consistency of the residents' perceptions of the 2012 ECOC before and after hosting the mega-event.

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