



Article

Events and Festivals Contribution for Local Sustainability

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Abstract: Festivals can improve the image of host communities, making them an appealing destination and boosting local economy. However, it is hard to measure their actual impact, which is a key factor to justify governments' initiatives. This study aims to verify how accurate direct expenditure analysis can be. First, the impact of new visitors' expenditure is calculated based on a survey. Then, consumption indicators are used to forecast the actual economic impact of the festival. Finally, both results are compared. Even though the values gathered with consumption indicators are only a lower bound of the festival's impact, this study found that assessing expenditure intentions during the festival leads to impact estimates that can be three times higher. The theoretical contribution of this study is to identify direct expenditure analysis weaknesses and how to reduce their effects.

Keywords: economic impact; event evaluation; event and festival management; direct expenditure analysis



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1. Introduction

Festivals and touristic events increase the visibility of host communities, which contributes to local economies by attracting tourists and increasing expenditure. These events are mostly funded by local governments who share a need to measure the resulting economic impact to justify their investments. The impact of tourism and of touristic events, festivals in particular, has been widely researched. Nevertheless, there is still no consensus on what is the best way to measure their contributions to local economies.

There are two major problems in measuring the economic impact of an event. First, to decide how to exactly define economic impact and how to measure it. The second problem derives from the need to validate that impact.

The key question that this study aims to answer is if it is possible to accurately calculate the economic benefits of hosting a festival in a small region. The festival can impact local economy in many levels, however for the purpose of the current study the only benefits calculated will be the direct expenditure of visitants. For that purpose, the study was divided into two phases; the first research objective is the measurement of the visitants' expenditure and the second to assess the accuracy of the values obtained in the first stage.

Section 2 contains an overview of current research on leisure events and measurement of the resulting economic impact. Section 3 describes the techniques used to collect data to perform a direct expenditure analysis and to validate these results. Section 4 describes how the expenditures were calculated and how the values were obtained. The difference between the results of the two methodologies and their limitations are described in Section 5. Section 6 contains conclusions and directions for future research.

2. Literature Review

It has been proved that investing in cultural events and festivals can facilitate the creation of social capital and promote the growth of local communities [1]. These events can not only attract tourists as a short-term result but also create strong ties between visitors and the event location, which can be positively associated with an impact on local economy.

Kim et al. [2] divided event research into five categories: motivations for visiting festivals and events, residents' perceptions of festivals or similar special events, economic impacts of festivals or events, improvement of methodological approaches used to refine analysis of the economic impacts of festivals, and socio-demographic and cultural factors that influence the expenditure patterns of festival participants. This study will focus on the impact of festivals in the local economy.

The positive economic impact of special events and festivals on host communities has become widely recognized. Governments have started using these events as a way to enhance economic development, expecting a high return on investment mainly by the expenditure of visitors who only came to the region to attend such events [3]. However, the authors assert that the cost-benefit analysis could be better assessed if measured by the changes on regional incomes. Although a lot of research has been conducted on the impact of events, many authors are concerned about the lack of consistency of the methodologies used. In order to address this concern, Jackson et al. [4] developed a do-it-yourself kit to assess the impacts of festivals, which was tested on Australia regional events.

Even though the need for a more widespread analysis of impacts has been accepted, this is seldom conducted, most likely due to the difficulty in comparing tangible with intangible effects [5]. Nevertheless, the authors believe that the available literature should be enough to guide researchers away from the main pitfalls.

First of all, it is important to define festivals. The main difficulty arises from the fact that, in the past, festivals have been treated indistinctly from events and special events. Wilson et al. [6] define festivals as free and repeated themed festivities, building their definition on the work of Getz et al. [7] who state that festivals are focused on the commemoration of traditions, involve several stakeholders and take place recurrently.

The economic impact of events can be divided into three components according to Agha [8]. The author identifies direct spending as the first element of economic impact, which can be calculated by multiplying the number of visitors by the average number of days spent at the event by the average expenditure per day per person. The author also highlights that this first component is usually the largest in the impact analysis but also the easiest to miscalculate, producing inaccurate results. The second component is indirect spending, the introduction of money coming from direct spending in the local economy. The companies affected by direct spending will generate more business with their suppliers, which are consequently indirectly affected. Finally, Mondello and Rishe [9] define the increase in consumption by the employees of the businesses affected directly and indirectly by the event, due to their increased income, as induced spending (third component).

Economic impact may be measured by different methods. Davies et al. [10] studied the direct expenditure analysis (DEA) and found it to be a cost-effective, reasonable method to evaluate economic impact; even though it does not portray all the effects of the event it can easily provide some credible and quantifiable measurements as long as its weaknesses are not ignored. Despite its shortcomings, DEA was chosen as the method of analysis for the current study.

Regardless of the method used to evaluate economic impact, most authors [8,9,11,12] agree that local visitors should not be included in the analysis. Visitors can be divided into three categories: casual, those tourists who happened to be in the area and end up visiting the event; time-switcher, those who decided to visit the area at that time to attend the event but were already planning on going there regardless; and new, those for whom the event was the main motive to visit the area [13]. The authors defend that only the expenditure of new visitors should be considered for the economic impact analysis.

The calculation of direct expenditure is mainly done by extrapolation of data from surveys that a sample of visitants are asked to fulfill. Therefore, the accuracy of the impact assessment is highly dependent on the quality of the collected data [11]. The representativeness of the sample is reinforced by Warnick et al. [12] who also express their concern regarding overestimation and the application of inadequate measures and techniques to evaluate the impact of an event.

The tendency to exaggerate the economic benefits of festivals and touristic events has already been mentioned by Jackson et al. [4] and Agha [8]. Economic impact delivers a false idea that the outputs are objective and indisputable according to Jeong et al. [14]. The authors suggest that the results obtained should be viewed as a “best guess” taking into account that the analysis process is not exact. This claim is accompanied by some examples where simple decisions made by the researcher can lead to very different outcomes. The average expenditure per person can be calculated using individual weighting or group weighting, and it has been shown that group weighting leads to higher averages which will in turn lead to higher expenditures.

One of the biggest limitations of DEA is that most surveys collect intents instead of expenses. Case et al. [15] concluded that enquiries conducted before the end of an event result in greater direct spending estimates than those obtained by online enquiries released after the event. Moreover, Getz and Page [5] believe that sometimes it is not desirable to disclose the full accounting of the events, and that is politically safer to ensure that the public believes that benefits were correctly forecasted rather than demonstrate them.

New technologies play a major role in improving event analysis. Nowadays everyone has a mobile phone, which allows mobile network providers to collect passive mobile data (PMD). PMD comprise all utilizations of mobile phones while they are connected to public networks, which can be provided to researchers [16]. Tourism research can take advantage of these data to identify tourists and detect temporal and spatial distribution patterns. Nevertheless, there are some weaknesses in these data derived from their aggregation and anonymization. Della Lucia [17] tested the use of passive action-tracking electronic technology (passive RFID- radio frequency identification) to collect actual expenses instead of intentions and was able to get more accurate predictions.

Although much time has been spent researching events and their economic impact a consensus regarding the most appropriate methodology to evaluate this impact has not yet been reached. Furthermore, although the issue of overestimation has been frequently raised, there is a lack of research regarding the validation of the impact estimates obtained.

3. Materials and Methods

The aim of this study was to estimate the economic impact of a festival in a small region. In order to do so, data was collected from an art festival that has been taking place for the past 14 years, during three weeks in July, in a small Portuguese city.

The total number of festival visitors was calculated using mobile data records. Using the number of mobile phones of one mobile provider that were in the festival location, the provider's quota of the market and the quota of mobile phone users in the country, it was calculated that the festival was visited by 173,491 people (locals, national and international tourists).

During the festival period visitors were randomly approached and asked to take a survey. A total of 816 answers were gathered leading to a sample error of 3.5% with a confidence level of 95%. The sample was used to calculate the average expenditures for different economic sectors and their aggregated value, which was used to estimate the direct impact in the local economy.

Once the impact was estimated based on the survey it was necessary to verify its accuracy. To do so, the economic impact of the event was estimated using consumption indicators. The results obtained were compared with the direct expenditure analysis. Since the festival has been happening for the past 14 years it was not possible to compare the data from 2019 with the data from previous years, as they were affected by the event as

well. The values of July's indicators without the event had to be forecasted based on the values from the first semester of 2019. Several methods were used to make this forecast: moving average, simple exponential smoothing [18] and Holt's method [19].

4. Results

After collecting the data, the first step was to divide the visitors into three categories: locals, casual visitors and new visitors. The locals represented 34.55% of the sample and were removed from the analysis, according to the literature. From the 113,534 visitors it was possible to separate those that attended the festival because they were already in the area (casuals—24.72%) from those whose main purpose was to go to the festival (new—75.28%). This study focuses only on the expenditure of the new visitors (85,468) on the principal sectors affected: transportation, accommodation, food and beverage, and shopping. For these sectors, the average spending per person per day was calculated using individual weightings, according to Formula (1)

$$AvgPerPerson = \frac{\sum_i \frac{spending_i}{days_i}}{\sum_i group_i} \quad (1)$$

where $spending_i$ is the amount that group i spent, $days_i$ is the number of days that the group i spent at the festival, and $group_i$ is the number of people in group i (Table 1).

Table 1. Average and total expenditure (€) of new visitors by sector.

	Transportation	Accommodation	Food	Shopping	Total
Average per Person	3.74	2.74	6.30	2.88	15.67
Event total	319,947	234,547	538,493	246,416	1,339,400

Afterwards, the economic impact was estimated based on consumption indicators. The values for July were forecasted using the data from the first six months of 2019. Data included all local electronic transactions and amounts withdrawn per month. The total expenditure for each sector was calculated multiplying the weight of that sector in the total amount of electronic payments by the total amount of electronic payments and cash withdraws (2), as cash payments cannot be traced.

$$SectorTotal = \frac{sector\ electronic\ payment}{total\ electronic\ payment} \times (t.\ electronic\ payment + t.\ cash\ withdrawn) \quad (2)$$

However, July presents higher values of consumption than the previous months due to tourism, therefore a difference between the forecasted and the registered values was observed, as expected. Consequently, it was necessary to determine how much of that difference was due to the festival. The consumption indicators for the district where the festival takes place were then collected to perform another July forecast, and assess the contribution of tourism to this difference. The district was selected as a reference because it shows a very similar distribution throughout the year (excluding July), as can be seen in Table 2. The gap between the differences obtained for the whole district and for the local forecasting corresponds to the festival's impact.

Table 2. Mean absolute difference between district and local weights by sector.

	Difference
Food	0.0066
Accommodation	0.0047
Transportation	0.0339
Leisure	0.0107
Shopping	0.0088
Total	0.0017

Forecasting was performed based on the local and district indicators using three different models: moving average (considering three periods), simple exponential smoothing and Holt's method. Table 3 shows the mean absolute percentage error (MAPE) values obtained for all the methods.

Table 3. Errors of forecasting models.

	Moving Average	Simple Exponential Smoothing	Holt
District mean absolute percentage error (MAPE)	9.87	0.73	1.21
Local MAPE	23.53	1.74	11.04

Simple exponential smoothing was the technique that achieved better results and therefore was the one used to perform the forecasting. The values for July of 2019 were predicted for the local and district indicators of the different sectors considered in the survey. With these predictions, the relative differences for the district and local indicators were calculated, and it was possible to determine the gap between these relative differences. The amount attributed to the festival was obtained by multiplying the gap between the relative differences and the total values of each sector for the festival location (Table 4).

Table 4. Increase of expenditure (€) attributed to the festival.

	Transports	Accommodation	Food	Shopping	Leisure	Total
Event's total	17,499	52,022	181,118	91,232	85,837	427,708

The leisure sector was included in the study, even though it was not accounted for in the survey, as it contains cultural activities such as theatre, concerts and similar programs, which are all activities that can directly benefit from the presence of tourists attracted by the event.

5. Discussion

The calculation of direct expenditure amounts was conducted according to literature suggestions: the survey was presented to random visitors throughout the duration of the festival and the amount of money spent per person per day was calculated with individual weighting instead of group weights. The visitors were divided into local, casual and new and only the new visitors were considered. However, it was not possible to isolate the time-switchers as advised by Damonte et al. [13], which may lead to an overestimation of the event's impact. Moreover, even though a large sample was collected, the analysis was performed based on extrapolations.

The estimates made based on consumption indicators have to be considered as a lower bound for the real values. The consumption indicators are categorized and it may happen that the categories used do not cover all the costs included in the surveys. Furthermore, the economic impact was measured only in the period during which the event took place, which can be a limitation.

The amounts gathered by forecasting using actual consumption indicators were significantly lower than those reported by the survey analysis (Table 5). From Table 2 it can be seen that the Transportation sector is the one that is worst fitted by the district distribution; if this sector is discarded then the total obtained by consumption indicators corresponds to 40% of the total registered by the survey.

Table 5. Relation between event's impact measurements.

	Transportation	Accommodation	Food	Shopping	Total
Survey results	319,947	234,547	538,493	246,416	1,339,400
Consumption Indicators results	17,499	52,022	181,118	91,232	427,708
Proportion	5%	22%	33%	37%	32%

Overall, the expenditure amounts attributed to the festival by the consumption indicators correspond to a third of the expenditures obtained with the survey. This gap reinforces Agha's [8] idea that although direct expenditure is the biggest component of economic impact, it is also the most prone to miscalculation. It also supports the differences between the expenditures reported at the event and post-event discovered by Case et al. [15].

However, the validation strategy used in this work is not flawless. Total amounts were extrapolated from the percentage that each sector represented in electronic payments since there is no way to track how the cash is spent once it is withdrawn.

Moreover, the results depend directly on the quality of the models used to forecast the expected values for July, not including the festival. Even though the model used was the one that achieved the best performance among all tested models, there could be a different one that better fits these data and could make more accurate predictions.

The results of this study reinforce the statement of Jackson et al. [4] that there is a need for standard criteria to measure the economic impact of events in order to restrain the tendency to exaggerate their benefits to the local economy.

Besides representative samples and accurate estimations of attendance [10,11,13], obtaining estimates by two different methods with independent sources will produce more accurate estimations of the economic impact. A survey to festival visitors is the most common source of direct expenditure analysis, and, although it can prove helpful, it should not be used as a single source. Visitors may not be completely accurate in their answers which when all combined can lead to significant miscalculations. Nevertheless, most authors solely rely on it for their estimations [1,4,9,10,14]. More accurate methods of measuring direct expenditure are necessary, such as the passive action-tracking electronic technology proposed in [17].

In order to obtain more objective measurements of the economic impact, the results of direct expenditure analysis should be compared with measures from other sources, like consumption indicators. If the festival is a one-time event, it is easy to compare consumption indicators with the analogous year or years to access the change, taking into account the yearly evolution presented in the remaining periods. When the festival is recurrent and in place for a long time the estimation of the consumption indicators can be done by forecasting models. There are several forecasting techniques available and each will best suit specific context; a proper analysis must be performed in order to select the best one. Even though the evolution of the consumption indicators is not sufficient to estimate the economic impact, its results combined with the direct expenditure analysis can provide better estimations.

6. Conclusions

The present study showed that is possible to estimate the direct expenditure impact of a festival in the local economy. Furthermore, it presented a methodology to validate the impact estimates. This validation process revealed that the expenditure analysis produced results three times higher than those calculated based on consumption indicators. Even though the validation used may present some flaws, it corroborates the idea of other authors that the economic impact of events is widely overestimated. Moreover, the current study presents a real estimate of how inaccurate direct expenditure analysis can be when made with surveys administered during the event.

The gap found between the results obtained with the expenditure analysis based on surveys conducted during the event and the forecast obtained using consumption indicators, even if exaggerated, raises awareness for the need to validate economic impact results. Even if it is not in the best interest of all stakeholders to find out the true impact of events as suggested by Getz and Page [5], the future of events' economic impact research needs to include validation. This paper's theoretical contribution is the identification of direct expenditure analysis' weakness: its dependency of visitors' honesty and accuracy, and the use of validation from independent data to minimize the impact of the first.

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