

IMPACT OF NON-PROFESSIONAL RUNNER CLUBS: An AHP approach to the economic, environmental and sociocultural factors

Impacto de los clubes de corredores no profesionales: Una aproximación AHP a los factores económicos, ambientales y socioculturales

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ABSTRACT: Sports activities can affect the economy, tourism, the environment, society, culture, psychology and the administration. Through the Analytic Hierarchy Process (AHP) this study quantifies the weight that factors related to the economic impact, environmental impact and sociocultural impact and sub-factors (increase of economic activity, increase of job creation, increase of R&D, creation of new accommodation, reduction of environmental impact, increase of heritage preservation, increase of promotion of the environment, increase of value of properties, increase of community spirit, increase in social interest and better living standards) have on the global impact of these activities.

KEY WORDS: Non-professional sport clubs, economic impact, AHP

RESUMEN: *Las actividades deportivas pueden afectar a la economía, el turismo, el medio ambiente, la sociedad, la cultura, la psicología y la administración. A través del Analytic Hierarchy Process (AHP), este estudio cuantifica el peso que factores de impacto económico, impacto ambiental e impacto sociocultural y subfactores (aumento de la actividad económica, aumento de la creación de empleo, aumento de I + D, creación de nuevos alojamientos, reducción del impacto ambiental, el aumento de la preservación del patrimonio, el aumento de la promoción del medio ambiente, el aumento del valor de las propiedades, el aumento del espíritu comunitario, el aumento del interés social y la mayor calidad de vida) tienen en el sobre estas actividades*

PALABRAS CLAVE: Clubes deportivos no profesionales, impacto económico, AHP.

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1. Introduction

The number of non-professional sport clubs offering different sport activities has been increasing recently in the main European cities (Wicker & Breuer, 2013). These clubs are working as an economic and social invigorating element. This study aims to study and quantify the impact of sports activities through the Analytic Hierarchy Process (AHP) (Saaty, 1980).

The AHP was introduced by Thomas L. Saaty in the late nineties. This method was originally designed for decision-making and assessing criteria through experts' opinion. Over two decades later, the AHP is being applied to knowledge areas such as engineering, education, environmental fields, management, benchmarking, geography, etc. (Vaidya & Kumar, 2006).

Specifically, this study focuses on runner clubs. This type of clubs has boosted citizens' sports activities, creating a new networking system among club runners with a shared activity that reports personal benefits.

According to Preuss and Solberg (2006), sports activities can have varying effects on the economy, tourism, the environment, society, culture, psychology, and the administration. Thus, through the Analytic Hierarchy Process we quantify the weight of different factors or sub-factors on the global impact of this kind of activities. Sports activity is the emotional result caused by desire, the need and social innovation for a given activity (Silla et al., 2014).

The structure of this study is the following. Section 2 consists in a theoretical framework of non-professional sport clubs of different activities. Section 3 defines the analysis performed and presents the results. Finally, section 4 shows the main conclusions of the study and points out the limitations and suggestions for further research.

2. Theoretical framework

The number of non-professional sport clubs specialized in different activities has been increasing in the last years (Wicker & Breuer, 2013) partially because of their high economic impact on the city where they are established. Nevertheless, besides the economic impact, environmental and social effects are also determinants of the proliferation of these clubs. Sport events hold value for the audience and are valuable in themselves (Howard & Crompton, 2005).

2.1. Economic impact

The public resources allocated to these events benefits individual people and private companies such as those in charge of the facilities. The population supports the policies applied as long as these policies satisfy their demands. That is, public expenditure that local and regional authorities allocate to aspiring to host a sports event is justified by the

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population's demands and the risk of market failure caused by private investment aiming to benefit from those events.

Some authors (Breuer & Wicker, 2009; Gumulka et al., 2005; Lasby & Sperling, 2007) posit that the current economic situation has been a serious blow for non-profit organizations that often coordinate these sports events. These organizations have seen their subsidies reduced, being forced to find alternative financing.

In addition, this economic impact is also reflected in sports tourism derived from these clubs and events. Sport tourists are people who participate in sports activities during their holidays. They may be (1) participants, (2) people who attend the event, or (3) sport-lovers that travel to participate in self-organized sport events.

According to Delphy (2003), event tourism refers to sport activities or events that attract a significant number of visitors that may participate or attend as audience. Therefore, sport events are an opportunity for destinations that aim at improving their attractiveness (Getz, 2003).

The organization of these events fosters the development of cities and regions, employment, and the improvement of infrastructure. In Spain, sports tourism has a relevant role, as evidenced by events like the Davis Cup or the Motorcycle Grand Prix.

2.2. Environmental and sociocultural impact

Sports activities can promote sport among the population and thus improve their health condition (Gratton & Taylor, 2000). A better public health would reduce work absenteeism, thus improving the production of goods and services (Preuss & Solberg, 2016). According to Howard and Crompton (2005), successful events favor psychological benefits such as the feeling of unity and pride from people living in the place where the event is organized.

Herstein and Jaffe (2008) point out that sport has become an important part of the lives of many people because of the increasing relevance of health and fitness and to sports events organized to attract tourism, a factor highly related to the economic impact that those clubs generate.

In any event, the cultural relevance of these teams is based on the positive externalities of consumption of a professional team which are manifested through civic pride.

A local team is seen as a geographical and cultural feature that is associated with the city. Positive externalities of consumption that are manifested through civic pride and team pride are valuable.

Siegfried and Zimbalist (2000) argue that the presence of a team improves a city's image and may work as free publicity. Some authors claim that it also generates happiness (Rappaport & Wilkerson, 2001).

In this line, Añó, Pablos and Calabuig (2009) point out that organizations that decide which city will host a sports event increasingly consider the degree of acceptance and

support of the citizenship of the event. Therefore, candidatures usually include sociologic analyses. Event organizers must consider both positive and negative effects that hosting it has on the city. Tourism is usually the focus of social impact analysis because sport events attract a great number of tourists, which has effects on the local economy. Negative effects that are not compensated by the benefits include the noise and the traffic. Additionally, the inhabitants do not perceive a benefit regarding employment or the pride of living in the city. The positive aspects include the improvement of the international image of the city or economic benefits (Añó, Calabuig & Parra-Camacho, 2012; Mas-Tur, Pinazo, Tur-Porcar & Sánchez-Masferrer, 2015).

Following Preuss and Solberg (2006), the variables under analysis are economic impact, environmental impact, and sociocultural impact. The economic impact is defined in terms of economic activity and job creation stemming from non-professional sports events. The environmental factor is defined in terms of the reduction of ecological impact and promotion of environmentalism in non-professional sports events. The sociocultural variable is measured in terms of the increase of local interests and values and of living standards of these events. In addition, each of the variables is divided into subcriteria. The economic impact is measured through the following:

- a) Rise in economic activity: economic activity developed around non-professional runner clubs.
- b) Growth of employment/job offers: an increase in job offers and where appropriate, direct job creation in these clubs.
- c) Increase in R&D: greater knowledge of the investment potential and development of the region's economic activity.
- d) Creation of additional accommodation and tourist attractions derived from the development of non-professional runner sport clubs.

Environmental impact is divided into the following criteria:

- a) Reduction of environmental impact: derived from the population's increasing environmental awareness promoted by the events.
- b) Increase of heritage preservation derived from the use of the different local landmarks and reduction of architectonic pollution caused by these events.
- c) Increase of environmental promotion derived from the use of green spaces for the events.

Finally, the socioeconomic impact is divided into the following subcriteria:

- a) Increase of local values and traditions thanks to hosting the events of non-professional runner sports events.
- b) Increase of the community spirit: and local pride derived from the events.
- c) Increase of the social interest and of the local participation in the activities related to the events.

- d) Increase of living standards derived from the effort culture inherent to the events.

3. Method: Analytic Hierarchy Process (AHP)

The AHP process (Saaty, 1978) is a practical approach that allows for the analysis of complex problems, facilitating decision-making based on criteria and mathematics. AHP is based on a combination of scientific and relative aspects through reason scales. This approach consists in ordering problems in levels, as a hierarchy, with the main objective at the top and the alternatives at the base (Saaty, 2004).

The intermediate levels are comprised of the criteria and other elements and are organized so that they are related to the higher levels. This approach requires an exhaustive knowledge of information, the problem, and the criteria comprising it. Once the hierarchy has been created, less relevant criteria can be deleted.

Each level can represent part of the problem, for example, the social approach or the political side (Saaty, 1978).

There are two types of measuring scales: standard scales, which are stable and constant, and relative scales, which are more variable and dependent on other factors and environments. The advantage of relative scales is that they allow introducing standard scales when necessary.

Once the hierarchy is established, judgements are created which compare criteria, establishing preference of some over others in pairs. A judgement matrix is created based on the number of times one element is preferred over the alternative. To determine the priorities, researchers use either objective data or the opinion of experts in the area. The last step consists in classifying the options according to the values obtained in a descending order.

One of the key features of this method is consistency. An element A cannot be more important than an element B and B more important than C if C is more important than A. AHP includes a tool for checking the opinions' consistency: the consistency index.

A perfect consistency is that of Consistency index = 0, but low values of CI are allowed if the result of CI divided by RI (random index) is lower than 0.1. According to Webber et al. (1996), the order in which the comparisons are included may affect subsequent comparisons.

Even though criteria comparisons are quite simple, some methods allow for the automating of the process in cases with numerous criteria or alternatives.

In any event, and given that the analysis' goal is to facilitate decision-making comprising complex issues with multiple criteria and their development is not excessively complex, AHP has been used in a great variety of research areas. Lee and Kozar (2006) apply AHP to e-business. Wind and Saaty (1980) explore its applications to marketing. Years later, Triantaphyllou and Mann (1995) focus on its applications to engineering. Others have used AHP to assess the risk of a particular project (Mustafa & Al-Bahar, 1991) or to

assess services (Mikhailov & Tsvetinov, 2004). More recently, AHP has been employed for data-mining regarding user needs in medicine (Pecchia, Martin, Money, & Barnet, 2013), renewable energy sources in underdeveloped areas (Ahmad & Tahar, 2014) or for less transcendental decisions such as the choice of a mobile network operator (Hassan, Ahmad, & Aminuddin, 2013). Furthermore, AHP can be applied to individual and group decision-making (Saaty, 1989).

The AHP has been criticized for its inability to deal with ambiguity and uncertainty (Chan & Kumar, 2007). In order to address the disadvantage, some authors have used fuzzy logic (Wang et al., 2015). According to this approach, the values provided by the traditional AHP are substituted by fuzzy values based on linguistic parameters. The resulting method is an evolved AHP called Fuzzy Extent Analysis (Chang, 1996; Ahmed & Kılıc, 2018). Furthermore, one of the problems of the fuzzy AHP is that assessors must assign values with an uncertainty degree when translating the values from the semantic scale. Yu (2002) proposes a goal-programming AHP to solve the group decision-making problems in fuzzy AHP.

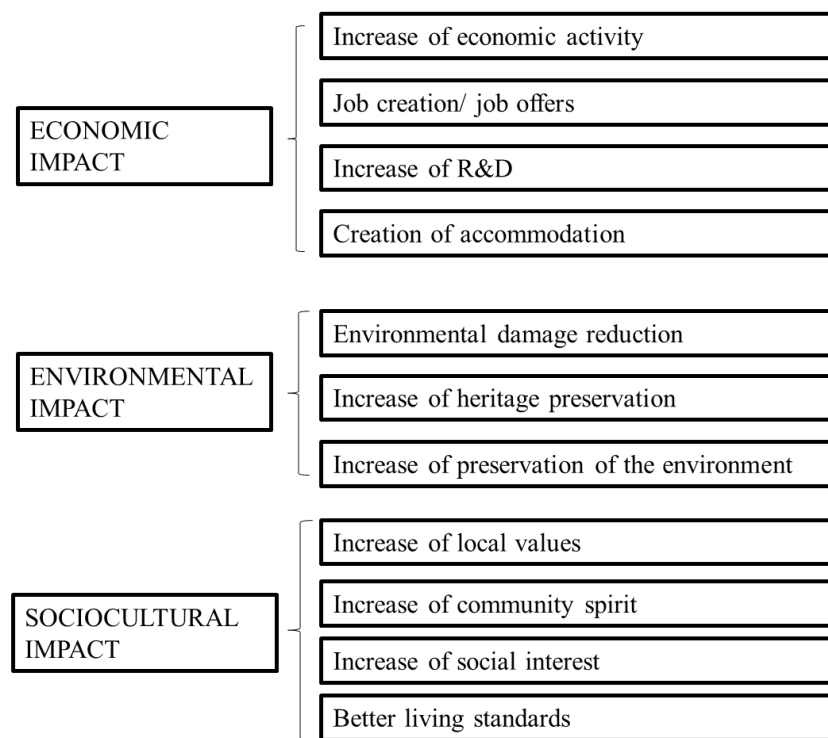


Figure 1. Criteria and subcriteria analyzed using the AHP method

4. Results

For this study, 10 experts of different areas have been interviewed. These experts include university professors related to the sports and economy area, non-professional sports association presidents, coaches of first-level athletics clubs, and other experts related to the academic, sports, and health world.

The AHP process comprises three steps:

- First, after comparing the criteria, experts with a consistency ratio over 5% in the 3x3 pair matrixes and 10% in 4x4 matrixes were discarded (Satty, 2004).
- Second, the assessments of the experts are aggregated through the geometric mean (Roig-Tierno et al., 2013).
- Finally, the relative weights for each assessment are obtained.

Table 1. AHP results

Criteria	Criteria Weight	Subcriteria	Subcriteria Weight	Relative Weight
ECONOMIC IMPACT	67.33%	Increase of economic activity	41.70%	28.07%
		Increase of job creation/ job offers	31.23%	21.02%
		Increase of R&D	15.50%	10.44%
		Creation of new accommodation	11.58%	7.79%
ENVIRONMENTAL IMPACT	14.78%	Reduction of environmental impact.	38.60%	5.70%
		Increase of heritage preservation	26.88%	3.97%
		Increase of promotion of the environment	34.52%	5.10%
		Increase of value of properties	10.24%	1.83%
SOCIOCULTURAL IMPACT	17.89%	Increase of community spirit	23.51%	4.21%
		Increase in social interest	22.88%	4.09%
		Better living standards	43.37%	7.76%

Table 1 suggests the following assessments:

On the one hand, the main positive effect of non-professional sports activities is the economic impact (67.33%) followed by the cultural (17.89 %) and environmental impact. On the other hand, as Table 1 points out, within the economic aspects, the most important impact is the increase of economic activity (41,70%) followed by an increase of job creation and job offers (31.23%).

Regarding environmental impact, with a value of 17.78%, experts consider that the most positive effect of non-professional sports activities is the reduction of environmental damage (38.60%). Finally, the main sociocultural effect (17.89%) is on living standards (43.37%) of the citizens living in the host city.

5. Conclusions

The objective of this study is to establish the variables that are most affected by the existence of non-professional sports clubs focused on different sport activities. The method used was the AHP, which allows for a hierarchy of subcriteria according to the relevance that experts give to each of them.

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The results show that analyzing the relative weight of each of the impacts, the 11 criteria have different impacts. The 75.08% is determined by the following subcriteria: Increase in economic activity, increase of job creation, increase of R&D, creation of new accommodation and increase of living standards.

The impacts of sports events can be external or of public goods, which can be the main reason to finance such events through the public sector. Following Agha and Cotes (2015), without local government financing, all these benefits could be lost or not produced. Although the inhabitants of the area where the event will take place have a key role in decision making (Guaita & Carracedo, 2018), the final decision is taken by other groups (Scheu & Preuss, 2018).

This study has some limitations that may offer opportunities for further research. Fredline (2000) and Fredline et al. (2004) point out that cultural and social features of a city hinder the generalization of a study carried out in a specific region. Therefore, new studies should focus on different areas with specific features or compare the results of the studies.

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