

Economic Contribution of Tourism in Tulum National Park

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Abstract

The general objective of the study was to estimate the economic contribution of tourism in the Tulum National Park (TNP), Santa Fe beach. The method was descriptive and quantitative, with a cross-sectional approach by a representative random survey, with tests of ANOVA and "t" Student. In the results obtained, the average cost per visitor was \$1,632 pesos MXN (US\$ 88), with an average of \$1,058 pesos MXN (US\$57) for the national visitor and \$2,092 pesos MXN (US\$ 112) for the international visitor, while the Park registered 1,320 direct jobs and 325 indirect jobs; the added value of conservation is not recognised as a benefit. Public institutions will be able to use the results to demonstrate the economic benefits of tourism for nature conservation in the National Parks.

Keywords: economic contribution, national park, Tulum, tourism. beach.

Introduction

Historically, Natural Protected Areas (NPAs) have favored the conservation of biodiversity and environmental services, although neoliberal policies currently promote development that preserves natural heritage and generates growth, competitiveness and employment through tourism, which has become a strategy of ecological protection and economic exploitation. However, the lack of measurement of the economic contribution associated with tourism in the PNAs does not make it possible to ensure the maintenance of an adequate level of well-being for the surrounding communities and the conservation of natural spaces.

At the international level, the notorious concern for economic growth that allows alternatives for the conservation of nature, outside and inside the NPAs, in consideration of their ecosystem services, promotes the strategy of tourist exploitation of the environmental services of the landscape to contribute to the regional or local economy. In Mexico, national parks are mainly related to tourism use, and prevailing trends suggest the consolidation of this activity in the near future, so it is imperative to strengthen and integrate conservation efforts, which must invariably involve the social and economic benefit of local populations, whose welfare depends on natural resources, making conservation unviable without the participation of communities. Recognizing that local communities have the right to a better quality of life with the integration of anthropogenic activities in NPAs landscapes, the conservation paradigm is broadened and consolidated to achieve integrated management, to meet the objectives of conservation and local development, through tourism. Thus, the challenge of these natural spaces is to conserve local flora and fauna with attention to the expectations of visitors and support for the local economy, to achieve sustainable tourism. The measurement of the economic contribution of tourism in natural spaces allows estimates to be made that facilitate decision-making for conservation. This encourages private and public investments in the destination such as better infrastructure, greater diversity of activities, which represents a social benefit in the generation of sources of employment and underemployment (Sancho & Buhalis, 1998). Among the main economic benefits resulting from quantification in a protected natural area are the following: savings and responsible management of natural resources, infrastructure, design of plans, programs and projects, tourism development, improvement of quality of life, among others (Artaraz, 2002). In addition, it should be considered that the NPAs create or give added value to their areas of influence, thus contributing to the economy through trade, surplus value, image, among other aspects.

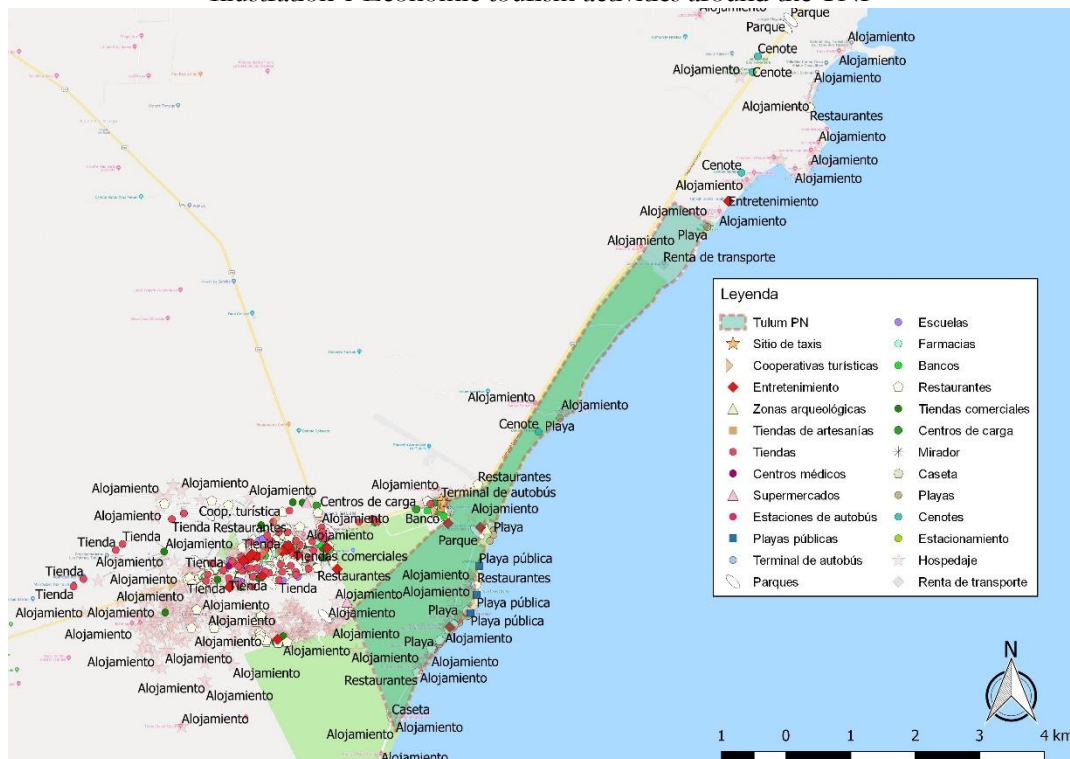
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On the other hand, the interdependence between tourism and natural spaces has led to ecological, social and economic problems. In the case of Mexico and its national parks, land use conflicts, incongruence in the regulation of ecological, social and economic activities, as well as human activities within the NPAs, such as exploitation of natural resources, indirect anthropogenic impacts, lack of regulation of permits for investment in tourism infrastructure; making evident the loss of habitat of flora and fauna species (CONANP, 2007), as well as the scarce government budget for conservation. Studies on tourism expenditure in natural spaces are almost non-existent in Mexico, due to the fact that the measurement is complex, since it involves multiple sectors, which entails benefits that are often difficult to quantify, but that provide the opportunity for growth and development for local communities. In addition, they are a strategy that reduces impacts and encourages investment (Thompson & Peepre, 2001). Ideally, the effects derived directly and indirectly in the payment of the acquired good or service should also be considered (Watson, Wilson, Thilmany, & Winter, 2007).

Economic benefits are the main reason why the state of Quintana Roo is interested in boosting tourism. In this sense, the contribution of this sector is important: in 2016, the State captured 33.6% of the total foreign exchange that entered the country for tourism (SEDETUR, 2017). The main positive economic impacts generated by tourism are linked to foreign exchange earnings, business opportunities, contribution to public revenues and employment generation. In the case of Tulum National Park (TNP), located in the Mexican Caribbean, the main problem is the lack of public investment for conservation and the lack of measurement of the economic benefits that tourism provides in different sectors, often difficult to quantify, leading to a lack of knowledge of the contribution of tourism to economic development (Meyer, 2004) and supporting the underlying perception that nature per se does not have an intrinsic value as a wealth generator.

Illustration 1 Economic tourism activities around the TNP



Source: Prepared by the authors, with QGIS 3.

The main hypothesis was that the average daily economic contribution per visitor to the TNP is \$1,000 MXN pesos. The general objective was to estimate the economic contribution to tourism in the TNP. This study contributes to knowledge by generating an analysis model, as well as measuring the contribution of tourism in a national park with tourist use.

Economic Contribution

The economic contribution comprises the gross changes in an economic region that can be attributed to a particular industry, event or policy (Miller & Blair, 1985). As a consequence of spending, there are impacts and social benefits with respect to economic stability, employment and competitiveness. Moreover, the concentration of spending favors the structure of production and consumption. However, there are also problems associated with the trade boom, such as unplanned urban growth or unplanned migration, which is why economic measurement favors the stability, regulation and joint management of strategies, plans, programs and projects (UNESCO, 2012). In tourism, the economic contribution is mainly linked to expenditure and the generation of jobs, since the income and expenses generated affect or contribute to economic stability, which is associated with the creation or reduction of tourist jobs. This, in turn, according to the International Labor Organization, favors the segmentation of the market into formal and informal jobs, as a consequence of the demand for labor in relation to the level of education and the concentration of opportunities (Egger & García, 2000). Another outstanding aspect is its application to quantify figures that facilitate decision-making and the design of public policies.

According to Keynes (reimp. 2014), the generation or stimulation of economic activities makes it possible to avoid or counteract unemployment, with the main result being an increase in demand or consumption. In this way, family or personal income is increased in order to avoid stagnation. The increase in effective demand, with the objective of improving expectations and stimulating investment, makes it possible to create new forms of demand for the local population, which in turn increases general activity and confidence (Keynes, 2014). Maintaining this dynamic system contributes to the local and regional economy in multiple ways. The government, through public policies, can directly influence the increase in demand in the short term with strategies that favor the whole, among which is the tourist activity in protected natural areas, which are a natural resource and represent an attraction of great importance at the international level, which currently generates economic income with impacts on the ecological, social, cultural and economic directly, indirectly and induced, through the addition of money in the local economy because of tourism expenditure (Brida, Pereyra, Devesa, & Aguirre, 2008).

The direct impacts are reflected in the increase in income from sales of products and services to suppliers inside and outside the region, thus generating the "chains". On the other hand, indirect effects result when direct suppliers buy their inputs from other companies in the region who, in turn, buy inputs from other companies and so on. Almost any economic sector can benefit to a greater or lesser extent from initial tourism spending, depending on how widespread the economy's network is. In addition, induced effects can be considered, which occur when recipients of direct and indirect expenditure, such as employees, spend their income on basic or comfort needs (Szmulewicz, 2008). Trends in scientific research on economic benefits in natural areas highlight economic stability and economic growth [(Carlsen & Wood, 2004); (Buckley, 2004); (Watson, Wilson, Thilmany, & Winter, 2007); (McGrath, Primm, & Lafe, 2017)], on the other hand, sustainable management in a protected natural area and economic sustainability are incipient trends [(Blom, 2000); (Pérez, Zizumbo, & González, 2009); (Berroterán & González, 2010)]. The technique of greatest use for data collection has been the survey [(Carlsen & Wood, 2004); (Ferri & Uriel, 2004); (Hernández, Urciaga, Hernández, & Palos, 2009); (Berroterán & González, 2010); (Rodríguez, 2015); (McGrath, Primm, & Lafe, 2017)].

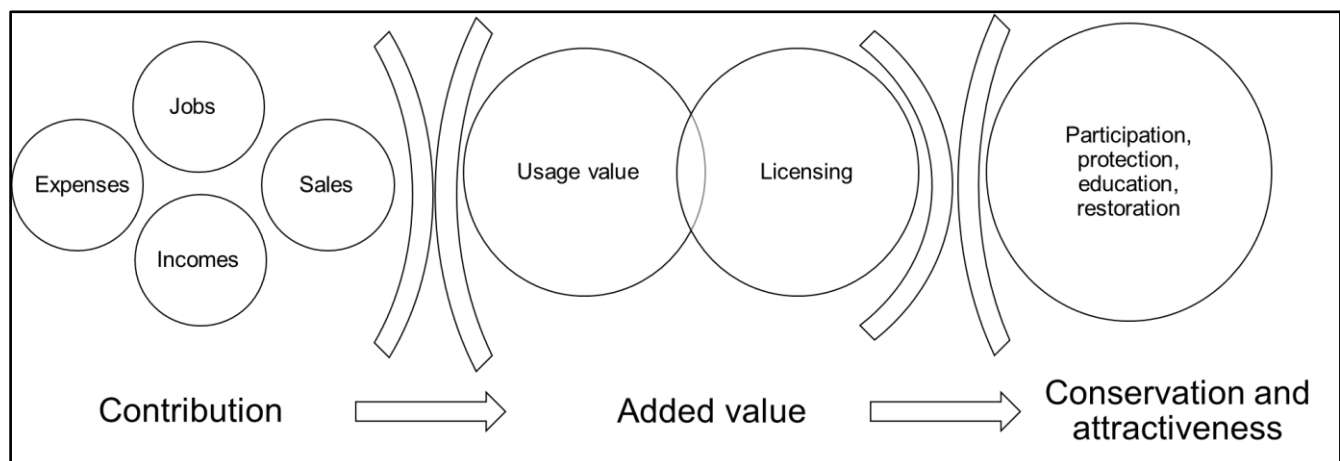
Seven aspects stand out among the problems addressed in the scientific articles: 1) scarce measurement of the economic contribution in the tourism sector [(Ivanov & Webster, 2007), (Carlsen & Wood, 2004)] 2) methodology and its functionality [(Brida, Pereyra, Devesa, & Aguirre, 2008); (Saayman & Saayman, 2008); (Rodríguez, 2015)], 3) the commercialization of tourist attractions [(Berroterán & González, 2010); (Brida, Lanzilotta, & Risso, 2008); (Nava, Mercado, Vargas, & Gómez, 2017)], 4) the assignment of an economic and recreational value for decision making [(Lee & Han, 2002); (Ferri & Uriel, 2004)], 5) the lack of joint participation of the actors involved [(McGrath, Primm, & Lafe, 2017); (Lee & Han, 2002); (Berroterán & González, 2010)], 6) the impacts linked to economic growth [(Buckley, 2004); (Ferri & Uriel, 2004); (Watson, Wilson, Thilmany, & Winter, 2007)] and 7) standardization, management and management [(Blom, 2000); (Watson, Wilson, Thilmany, & Winter, 2007); (Nava, Mercado, Vargas, & Gómez, 2017)].

The evolution of thought or interpretation about the economic contribution during the period from 2000 to 2017 is notorious. At the beginning, the impact of tourism was considered; in 2004, the estimation of use and preservation began to be included [(Blom, 2000); (Lee & Han, 2002); (Carlsen & Wood, 2004); (Buckley, 2004); (Ferri & Uriel, 2004)], from 2007 to 2009 was related in the allocation of economic value, segmentation of scales by area and by activity, began to calculate the effects and impact assessment based on methodological proposals [(Ivanov & Webster, 2007); (Watson, Wilson, Thilmany, & Winter, 2007); (Brida, Pereyra, Devesa, & Aguirre, 2008); (Brida, Lanzilotta, & Risso, 2008); (Saayman & Saayman, 2008); (Brida, Lanzilotta & Risso, 2008); (Pérez, Zizumbo, & González, 2009); (Hernández, Urciaga, Hernández, & Palos, 2009)], from 2010 to 2017 strategies were proposed, comparative analysis of the contribution in relation to the Gross Domestic Product by tourism with case studies applied to include the valuation of landscape by use and recreation in relation to management and sustainable management [(Munro, Allison, & Moore, 2010); (Berroterán & González, 2010); (Cohen, Prayag, & Moital, 2014); (Rodríguez, 2015); (McGrath, Primm, & Lafe, 2017); (Nava, Mercado, Vargas, & Gómez, 2017); (Brida, Rodríguez, Mejía, & Zapata, 2017)].

In terms of measuring the economic contribution, the methods used have been the following: 1) avoided or induced costs, 2) hedonic prices, 3) contingent valuation and 4) travel cost (Cristeche & Penna, 2008). In this sense, the common factor of the analysis has been the relationship between nature and social advantage (Daly, Prugh, & Constanza, 2000), whether or not a payment is made in practice (Hernández, Urciaga, Hernández, & Palos, 2009). Another common factor has been the difficulty of measuring the economic contribution of tourism within natural spaces, since there are no data that can reflect these aspects (Brida, Pereyra, Devesa, & Aguirre, 2008). On the other hand, there is currently government interest in quantifying the economic contribution associated with tourism activity in order to establish public policies.

The analysis of the economic contribution allows quantifying and establishing the relationship between the national park and the communities, which is determined through sales, income and jobs in the area (Stynes & Sun, 2003). In addition, concessions, use value and protection of the natural space must be considered to create added value for the local population, visitors, park administration and local authorities, and businesses, which in turn generates a virtuous circle of visitors, whose expenditure supports investments, businesses, jobs, products and new services. In Mexico, the benefits for local communities within these protected spaces may include environmental subsidies, temporary employment programs, agricultural support, training, and others.

Illustration 1 Economic Contribution in NP



Source: prepared by the authors (2019).

As an important contribution factor, tourism expenditure is defined as the amount paid for the purchase of a consumer good or service during or for the visitor's recreational activities (UNWTO, 1998). In this sense, tourist expenditure includes the categories of: a) tourist packages, b) accommodation, c) food and beverages, d) transport, e) leisure, culture and recreational activities, f) purchases and g) others (Pérez, Borrás, Mesanat, & Mira, 2001), which were measured according to the method presented below.

Method

The Tulum National Park (TNP), decreed in the Official Journal of the Federation on April 23 and 30, 1981, is one of the NPAs with the greatest tourism development in Mexico. The main objective of this natural space is to conserve the area of mangroves and karst pools (cenotes) that house the flora and fauna characteristic of the region and function as a protective area of the archaeological zones of Tulum and Tankah. The adjacent beaches and the interior of the Park represent an important place for the nesting of chelonians and support for tourism (CONANP, 2007). It is also the only terrestrial PNA in the Cancun-Tulum corridor (Riviera Maya), which includes the "walled" zone of Tulum, which is the most visited archaeological zone in the State (CONANP, 2017).

The TNP is recognized for its historical, cultural and ecological value, which represents great potential for the development of activities and programs related to tourism, which are concentrated in the archeological zone and the three public beaches that make it up: Playa Santa Fe, Playa Pescadores and Playa Maya, which are one of the most important sources of income to the municipality of Tulum. By 2018, the number of visitors to the archeological zone inside the NTP was 2,737,500 (SEDETUR, 2019). Regarding tourism activities, there are several hotels, restaurants and cooperatives, among other companies that offer various tourist services such as snorkeling, diving, boat trips, among others. In addition, there are nineteen tourist service providers that work with recreational purposes in the place (SIPSE, 2018a). Inside the Park, the operation of taxis located along the internal highway also stands out (SIPSE, 2018b). Visitors contribute directly and indirectly to the tourist activity, acquiring goods and services such as food, rental of equipment and payment for recreational activities, transportation, tourist guide service, among others. This area was selected for data collection. Santa Fe beach is characterized for being a beach with calm waves and crystal clear water; among its main activities are the observation of the landscape, swimming, boat tours, hiking, recreational activities. It also has areas for palapas and beds for rest, massage area, restaurants, hotels, bars, sale of handicrafts, among others. For the purposes of this research, the travel cost method was used, by estimating the expense per visitor, with the survey technique for the identification of sociodemographic factors and indicators regarding the expense per visitor. In order to delimit the size of the sample, it was used the non-probability sampling for convenience with 95% confidence, from a finite population of 2,737,500 visitors received in the archaeological zone of Tulum during 2018, according to SEDETUR (2019). The sample period covered three seasons: Easter 2017, Easter 2018 and Summer 2018. The informants were visitors located on the Santa Fe beach, chosen for its proximity to the Tulum archaeological zone and ease of access and to those who requested data. The data was collected through a questionnaire instrument, after their activities or consumption at the site.

The questions were written in a personal, brief and direct way, with neutral, clear and simple language. Inclusion and exclusion criteria were considered, since people were selected who were on the Santa Fe beach, who had consumed a tourist or recreational good or service, of legal age and without denoting excessive consumption of alcoholic beverages. It was collected 528 questionnaires with 100% validity, verified through a data review process with the Statistical Package for the Social Sciences (SPSS 18) program. An inferential statistical test was performed based on the Analysis of Variance (ANOVA) test, which is a method for comparing two or more means in relation to the hypothesis (Cuevas, Febrero, & Fraiman, 2004). To calculate the economic contribution per visitor, the following formula was used (De Brauwert et al., 2017): $I = [\sum_{i=1}^n NTV \times E \times PVT]$, where:

I: Income

NTV: Total number of visitors per year

E: Average expenditure per visitor

PVT: Proportion of visitors visiting Tulum National Park as main motivation.

Results

The study period of the present investigation comprised three seasons: summer 2017 with 70 questionnaires, Easter 2018 with 127 questionnaires and summer 2018 with 331 applied questionnaires. With regard to demographic aspects, the majority of tourists come from abroad (55.5%) while the remainder are national (44.5%). The predominant form of visit is with friends with 36%, followed by family with 30%, while 19% travel as a couple, 9% travel alone, 5% through tourism groups and 0.6% other (school, business). The profile of the travellers interviewed is oriented towards nature tourism (68%).

Also, international tourists plan one to three months in advance of the trip, while nationals mostly plan the trip in less than fifteen days. The national tourist travels in groups of two or more people (27%), while the international tourist travels individually (33%). 46% of domestic tourists and 54% of international tourists visit more than one destination during their trip. The average group size is four people for nationals and three people for internationals. The average age range is 22-35 years for nationals and 35-49 years for internationals. The medium of greatest employment for the choice and planning of the trip was the Internet. The most attractive places for both market segments are the Protected Natural Areas.

The result of the survey indicates that the average stay in the state of Quintana Roo is seven days, while inside Tulum National Park the average is 10 hours. The three main activities carried out by tourists are: observation of the landscape, sun and beach and aquatic activities; as well, the activities with growth potential are: culture observation, boat rides and adventure activities. 32% of those surveyed stated that they would travel in the same region if Tulum National Park had not existed, 31.6% would travel to another destination in Mexico, 29.5% would travel somewhere else, 3.8% would travel to another country, 2.7% would stay at home and 0.4% others (return at another opportunity). Regarding accommodation, the majority of visitors use the hotel as the main medium (53%), followed by others with 34.8% (highlighting Airbnb, hostel, apartment rental and camping) and family home with 8.7%. The trend indicates that 61.2% of visitors are aware that they are in a national park compared to 38.8% who did not know such information or had knowledge of the natural space. The main means of transport to the Park is the bus with 29.7%, followed by the tourist package with 23.9% and in third place the taxi with 13.3%. The classification of this national park to attract tourists to the State is 45.5% very important, 28.8% extremely important, 22.7% important and 3% unimportant. In relation to the average expenditure per day per visitor, the average in the PNT is \$1,632 pesos MXN (US\$ 88), the average daily expenditure per lodging is \$1,668 pesos MXN (US\$ 90), food and beverages the average daily expenditure is \$647 pesos MXN (US\$ 35) and transportation is \$481 pesos MXN (US\$ 26). There were 162 direct jobs inside Santa Fe beach, while 1,320 direct jobs and 325 indirect jobs were registered in the Park. The exchange rate used was \$18.54 pesos MXN corresponding to the date of July 31, 2018, published in the Official Journal of the Federation.

The statistic of groups with respect to the average expense with the variable of origin indicated that the visitor of international origin carries out an expense superior to the national one, with a significant difference evident in all the concepts of average expense, with respect to the average expense per day of lodging in the State the difference of the international one is of \$939 pesos MXN (US\$ 51), in the case of the average expense per day of food and drinks in the State the difference is of \$353 pesos MXN (US\$ 19), in the average expense per person the difference is of \$1,034 pesos MXN (US\$ 56); and finally, in the average expense per day for transportation in the State was \$331 pesos MXN (US\$18). ANOVA tests were performed for a factor in relation to the average expense using the season variable, with the result of \$1,058 pesos MXN (US\$57) for the national visitor, while the international visitor obtained an average of \$2,092 pesos MXN (US\$ 112). In relation to the average expenditure per person in Tulum National Park for the visit, it is possible to determine that the average in couple is \$2,308 pesos MXN (US\$ 124), in tourism group is \$1,944 pesos MXN (US\$ 105), with friends is \$1,589 pesos MXN (US \$86), in family is \$1,464 pesos MXN (US\$ 79), while traveling alone is \$875 pesos MXN (US\$ 47) and others is \$283 pesos MXN (US\$ 15). Around 3% of those surveyed indicated that they go exclusively to the NTP, however, the total number of visitors who enter this natural space each year is unknown, as there are no records. Therefore, for purposes of calculating the economic contribution formula (De Brauwert, Harvey, McIlwain, Hobbs, Jompa & Burton, 2017), a total of 2,737,500 visitors were used in 2018 in the Tulum Archaeological Zone (SEDETUR, 2019). Applying the formula with the average expense per person of \$1,632 pesos MXN (US\$ 88), the annual expense is \$134,028,000 pesos MXN (US\$ 7,229,126), which represents a daily average of \$367,200 pesos MXN (US\$ 1,986).

Discussion

This study examined the economic benefits of conservation through a national park with tourism development. Economic theory and the data collected suggest that natural spaces contribute directly and indirectly to trade, spending, employment, added value, and public infrastructure. In this regard, the mechanisms for quantifying the economic contribution of tourism in Tulum National Park will facilitate decision-making for conservation by creating a better understanding between the protection of natural spaces and economic prosperity. The main problem when measuring the economic impact of tourism is due to the fact that tourism activity intervenes with different sectors, which entails benefits that are often difficult to quantify, causing ignorance in the contribution of tourism to economic development (Meyer, 2004).

The initial hypothesis proposed that the average daily economic contribution per visitor to Tulum National Park is \$1,000 pesos MXN (US\$ 54), however, the result shows that people spend \$1,632 pesos MXN (US\$ 88), with an average stay of ten hours. In Saayman & Saayman (2006) studies on the economic contribution to Kruger National Park (South Africa), Mayer et al. (2010) in six national parks: Niedersächsisches Wattenmeer, Bayerischer Wald, Eifel, Müritz, Hainich and Kellerwald-Edersee (Germany), Carlsen & Wood (2004) with tourism expenditure in unique natural spaces (Australia) the registered pattern of tourism expenditure includes accommodation as these PNA are the main and almost exclusive destination, while Tulum National Park is part of the tourist attraction system of Quintana Roo, so it must be considered the added value it gives to the destination as a whole, a situation that prevents a proper comparison of the destination in its entirety. In this aspect there is agreement with Mayer & Woltering, (2018), since they conclude that the economic contribution presents different local and regional influences. Mayer & Woltering (2018) is influenced by factors such as price, attractions, daytime traffic and overnight stay. However, reference to the use of indicators, measurement and quantification are common factors that facilitate decision-making in a natural park. On the other hand, visitors have a perspective in relation to the expense they are going to generate in a destination and establish priorities with respect to the reason for the visit, that is to say, they prefer to spend more on lodging or on food and drinks, souvenirs, among others.

Among the findings in Tulum National Park, the quantification of the average tourist expenditure per visitor stands out; likewise, the limitations presented were concentrated in the lack of knowledge of the number of visitors and jobs inside the Park, for which estimates were made. Another difficulty was the lack of economic value assignment in relation to the quantification and interpretation of environmental goods and services. As has happened in other similar studies, the added value interferes in the value of recreational use, the opportunity cost and the calculation of welfare measures (Vuelta & De la Fuente, 2004). This makes evident the need to include the opinion of social groups in the design of recreational management strategies in addition to including responsible actions for visitors to maintain and consider a conservation model with economic valuation. The absence of a clearly identifiable value-added effect in the TNP is a deficiency not only for the economic contribution, but fundamentally for the conservation mission, since it provides differentiation, attractiveness, competitive advantage and strategy for use management (Oviedo, Caparros, & Campos, 2005). The lack of these estimates causes that the economic contribution is a deficient process and is considered as not a priority (Tyrväinen & Väänänen, 1998).

It is important to mention that the value of natural parks is not in doubt, the conservation of the natural space is vital for humanity, beyond the recreational or aesthetic value, but by determining more precisely the economic contribution of tourism in national parks, decision makers may have better arguments and information to reverse market failures or choose between sustainable use alternatives. The absence of collection of statistical information on the contribution of national parks to the local and regional economy negatively affects the conservation of these natural spaces, since the NPA requires a federal budget for their management, which is granted on the basis of the NPA's participation in income. The elusive question of how much does the designation of an NPA help tourism activity or the growth of tourism requires further study. Although economic value could be measured directly or indirectly through the transfer of benefits, this does not imply that economic value is desirable or preferable over social or ecological value. However, in the capitalist system, by granting a market value to an ecosystem service, its usefulness is recognized; therefore, it will be subject to conservation.

Conclusion

This research analyzed the economic contribution of tourism to Santa Fe Beach, part of Tulum National Park, and demonstrated that tourism expenditure per person is \$1,632 pesos MXN (US\$ 88). In 2018, the direct income of the NTP was \$4,593,118 pesos MXN (US\$ 247,741), 162 direct jobs inside the Santa Fe beach, 325 indirect jobs in the Park and 1,320 direct jobs throughout the Park. Visitors make an estimated annual expense of \$134,028,000 pesos MXN (US\$ 7,229,126). The economic contribution to tourism in Tulum National Park is useful for determining and classifying the factors associated with the management of ecological, social and economic impacts, as well as generating models that demonstrate the social and economic advantages of nature conservation through tourism, which will allow public policies and agreements with stakeholders (public and private sector,

visitors), generating employment opportunities, strengthening responsible tourism and ensuring the conservation of the natural space.

Measuring the economic contribution of natural spaces allows directing tourism growth towards alternatives compatible with conservation and contributing to the strengthening of the regional economy, giving added value to national parks by demonstrating the economic benefits of sustainable use of nature through tourism.

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