

Economic contributions from tourism in a Brazilian National Park at the frontier of the *Cerrado biodiversity hotspot*

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Introduction

Nature tourism economic impacts is one of the most important arguments in nature conservation dialogue with different sectors of society. In developing countries, such as Brazil, biodiversity is threatened, habitat loss and degradation are hampering, based on development and economic models based on commodities such as agribusiness and mining. This is particularly severe in tropical savannas, as the Brazilian Cerrado. Last remnants of the *Cerrado biodiversity hotspot* are shrinking pressured by croplands, urbanization and mining. In this context, we estimate the economic and financial impacts of tourism at Chapada dos Veadeiros National Park - PNCV, and discuss the implications of different models of development, for the sustainable use of the Brazilian Cerrado. Number of visitors in Brazilian National Parks and at Chapada dos Veadeiros region have been increasing in the last decades. This contributes to local economies, through the expenses of the visitors and also to the recognition of the values of the nature.

Methods

PNCV is recognized as a World Heritage Site by UNESCO, is formed by unique ecosystems, being also important for the supply of water in the region and in Brazil, as well as the maintenance of endangered species, endemic ones and others not known by science.

We collect data from 591 independent visitors using two complementary methods: (1) travel cost, and (2) willingness to pay, from December 2015 to July, at the National Park Visitor Center. Beyond sociodemographic profile, visitors were asked about their environmental concern; actual travel expenses, willingness to pay for direct use, through an entrance fee to the Park, willingness to pay for the legacy and existence values. Complementary questions about other activities or services demanded by visitors; suggestion to improve PNCV services, and the reason to visit the PNCV, were asked.

Results and discussion

Visitors' profile is in accordance with other studies in natural areas; they have medium, higher or postgraduate education, middle to high income and have a high environmental concern. 46% of visitors come from the nearby cities of the Federal District (DF) and the state of Goiás, 52% are from other Brazilian states and 2% are foreigners. The total travel expenditures are explained by age, income, trip length. Brazilian visitors from other states, except for DF and Goiás, and foreigners spent more. The financial impact

generated by tourism in Chapada dos Veadeiros region is estimated at R\$92 million per year (DP \pm R\$38 million).

91% of visitors are willing to pay for an access fee, in average R\$ 20. This willingness to pay was explained by an inverse relation with the age and number of visits in the park and by a direct relation with income, as well as their origin, visitors from the other Brazilian states and foreigners are willing to pay a higher fee. Finally, 42% of visitors are willing to pay a monthly value for the conservation of the natural and cultural attributes of PNCV (legacy and existence values). The only significant variable to explain this value is the visitors' literacy.

Travel expenditures generate a significant impact in the economy and can contribute even more to local development. In this context, it is relevant to consider visitor's interests in activities and services, as well as products that benefits local people and nature. The economic impact generated by the visitation in the PNCV shows that the sustainable use of the natural area for tourism is the best option in terms of economic development for the region, being more profitable than the conventional use for agribusiness industry and livestock.

The income potentially generated by the access fee is higher than the budget from the federal government and, therefore, start to collect it is important to complement the financial needs of this protected area.

The willingness to pay for the legacy and existence values suggests that it is important to take advantage of the interest and potential engagement of people in activities and green products, conservation and sustainable use of natural resources. The high level of environmental concern of visitors to the PNCV is important information for planning actions that minimize negative socio-environmental impacts and maximize potential positive impacts.