

ASSESSING THE IMPORTANCE OF ENVIRONMENTAL VARIABLES IN TOTAL TOURISM DEMAND IN LATIN AMERICA

Raul Gouvea
Jana Hranaiova
Universidad de Nuevo México
Albuquerque, NM – EE.UU.

Abstract: *In the 1990s and early 2000s, Latin American countries have realized a unique opportunity to simultaneously capitalize on and protect their rare ecosystems. Ecotourism is an attractive industry for Latin American countries because it offers the possibility of combining economic development with environmental protection. The region is suited for ecotourism because it is rich with unique ecosystems that offer one of the most promising grounds for the development of ecotourism in the world. Latin American countries are at different levels of development and different stages in the lifecycles of their ecotourism industries, all are actively pursuing ecotourism. This paper examines the role of eco-variables in impacting total tourism demand in the region. A sample of 18 Latin American countries is used. Results indicate that environmental variables are not as yet significant in affecting the total tourism demand.*

I – INTRODUCTION

Latin American countries spent the first half of 2000 struggling to stabilize their economies. Thus, now more than ever, Latin American countries are pursuing different strategies to increase their export earnings. In the last two decades several Latin American economies have approached tourism as an alternative that would diversify their export structures and boost their domestic economies.

In 2000, global tourist arrivals reached 699 million. In the same year, tourism & travel accounted for 12.8% of world exports, for 10.7% of the world's gross world product, and for 8.2% of the world's total employment. These numbers make the tourism industry the leading industry in the world. In spite of the global slow down in tourism due to the September 11th attack in New York tourism and travel are increasingly important in the economies around the world. In particular, the last twenty years saw a dramatic growth in tourism industry. The number of tourists increased by 144%, boosting revenues by 353% between 1980 and 2001. By the year 2010, the World Tourism Organization (WTO) expects that global tourism revenues will expand to US\$ 1.5 trillion (www.world-tourism.org 2001). In Latin America the expectation is that by 2010 the Latin American travel and tourism industry will generate US\$ 104 billion (WTTC 2002). This upward trend is leading a number of Latin American countries to engage in the development of policies and business strategies that encourage their participation in the global tourism industry

Globalization also brought to the forefront of the global tourism industry the discussion of more environmentally sound tourism development strategies (Mastny 2002). The 1992 United Nations Conference on Environment and Development (UNCED) fostered the debate on the environmental impacts of the global tourism industry (Aronsson 2000; Fennell 2000; Dangerfield and Tyler 1999).

In 1988, the WTO elaborated on the principles of sustainable tourism as: "Envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems." (McLaren 2002). It is important to mention that sustainability should apply to all different forms of tourism, while ecotourism is a segment within the tourism industry (Duim and Caalders, 2002; Weaver 1998; Western 1993).

In 1992, The Earth Summit Meeting in Rio de Janeiro took the sustainable development agenda further. The Agenda 21 document, a sustainable development plan of action, guided the design of growth and development strategies for the coming decades. After the 1992 Rio Earth Summit, several Latin American economies began paying more heed to the development of their ecotourism industries (Wester 1993; Juric, Cornwell, and Mather, 2002)).

The 1995 Lanzarote Conference on Sustainable Tourism gave continuity to the Rio Earth Summit and fostered debate on ecotourism practices and environmental impacts. The Lanzarote Conference highlighted the need to make the tourism industry more attuned and adapted to the issue of environmental sustainability (Diamantis 2000).

The 2001 Cuiaba Conference stressed the need to include local communities in the planning and execution of ecotourism plans and strategies. Moreover, the entrepreneurial side of ecotourism was also emphasized as a way to spread the benefits of ecotourism to the local community.

The United Nations has designated 2002 the International Year of Ecotourism, further highlighting the importance of sustainable tourism. Ecotourism became a buzzword for resource-rich emerging economies, such as a number of Latin American countries during the 1990's.

This paper examines whether the importance of environmental variables that are likely to attract eco-tourists has achieved a level where they would create a significant driving force for total tourism demand in Latin America. We conduct a cross-country analysis of the effect of environmental pull factors on the number of tourists in year 2000 as well as the change in the total number of tourists in Latin America from 1987 and 1990 to 2000. The paper may have policy implications for different countries for which travel industry is an important part of the

economy. Namely, results may provide guidelines for different countries as to which parts of ecotourism might give them the highest boost in tourist demand.

II – ECOTOURISM: PROMOTING SUSTAINABLE DEVELOPMENT

For the past few years, there has been a new theme in the global tourism industry: tourism in any form or shape should be environmentally sound, should be sustainable (Fennell 2000; Dangerfield and Tyler 1999).

A number of emerging economies are discovering that sound environmental practices create sound economics (Lumsdon and Swift 1998; Weaver 1998). Ecotourism is offering a new avenue for emerging economies to insert their economies in the global economy and, at the same time, it is giving them an incentive to engage in sustainable development strategies. Ecotourism is still in the early stages of its life cycle, which makes it even more appealing to resource rich emerging nations, given its longevity prospects.

In the 1990s, environmentally conscious tourists promoted the growth and development of the ecotourism industry (Sirakaya, Sasidharan, and Sonmez, 1999). The tourism market is experiencing a shift from travelers wanting to visit beaches and coral reefs to visiting unspoiled and less traveled regions such as tropical ecosystems. Travelers are becoming increasingly interested in natural environments, cultures, and adventures. Wilderness setting, wildlife viewing and hiking/trekking opportunities are becoming increasingly appealing to a wider segment of the tourism and travel industry. Ecotourism can take a number of forms, such as educational, scientific, adventure, and agri-tourism (Sweeting and Bruner 1999).

The International Ecotourism Society (TIES) defines ecotourism as: "Responsible travel to natural areas which conserves the environment and sustains the well-being of local people." As such, ecotourism can be seen as a subset or a specialty segment of the nature tourism market (Dixon and Sherman 1991, Mieczkowski 1995, Bruner, Rosenfeld, and Sweeting 1999). Ecotourism can be defined as the kind of tourism that promotes and acts as a catalyst for environmental protection and finds a balance between the five main tenants of an ecotourism sustainable model. Ecotourism strategies must pay heed to: a) economic development, b) environmental protection, c) cultural protection, d) social development and, e) political development. In sum, the challenge of ecotourism is to maximize the benefits of tourism while minimizing the environmental, economic, political, social, and cultural impacts of tourism. In addition, policies have to be devised to optimize the allocation of resources from ecotourism revenues to preserving and sustaining the resource base. The way ecotourism is managed, planned, and executed can address and minimize potential welfare costs associated with ecotourism (WTO 1999; Western 1993).

III – LATIN AMERICAN TRAVEL & TOURISM ECONOMY: ECONOMIC AND ENVIRONMENTAL ASPECTS

Several factors have contributed to the rapid expansion of the Latin American travel and tourism industry:

- a) Market oriented reforms
- b) Substantial technological developments in the transportation and telecommunication industries
- c) Latin American countries' massive investments in infrastructure, such as telecommunications, airport, and port facilities, have facilitated the flow of tourism to traditional and non-traditional Latin American destinations.
- d) Latin American emerging E-commerce industry has also had a substantial impact on the industry, making information available, checking flight availability, prices, and reservations.

The travel and tourism industry in Latin America is very heterogeneous, some countries promote mass tourism while others are engaged in promoting nature and ecotourism activities (Dangerfield and Tyler 1999). For instance, Mexico has capitalized on mass tourism, developing sophisticated tourism centers such as Cancun. On the other hand, Costa Rica has been the “darling” of the global ecotourism effort.

Table 1. Latin America, Tourist Arrivals 1980- 2000 (in thousands)

Country	1980	1985	1990	1994	2000
Argentina	n.a.	1,503	2,728	n.a.	2,849
Bolivia	155	127	354	256	393
Brazil	1,625	1,736	1,091	1,860	5,436
Chile	493	418	976	1,550	1,712
Colombia	1,228	784	813	1,207	739
Costa Rica	345	262	435	761	1,108
Dominican Rep.	17	497	1,356	1,767	3,020
El Salvador	119	133	194	181	749
Guatemala	466	252	509	537	988
Haiti	136	150	120	70	147
Honduras	146	320	461	365	426
Mexico	4,144	4,207	6,393	17,182	19,424
Nicaragua	n.a.	n.a.	106	237	492
Panama	378	315	222	324	484
Paraguay	281	263	280	406	273
Peru	273	300	317	379	988
Uruguay	1,067	1,031	1,267	1,884	273
Venezuela	215	269	526	439	599

Source: Statistical Abstract of Latin America (2001) and World Development Report (2002).

Table 1 shows the evolution of tourist arrivals in selected Latin American countries (the criteria for selection was based on availability and consistency of data). In the period 1987-2000, most Latin American countries saw an increase in tourism arrivals. For instance Mexico, Latin America's main tourist destination, saw the number of tourists increase from 13.8 million visitors in 1987 to 19.4 million in 2000. Costa Rica saw the number of tourists visiting the country increase from 278 thousand in 1987 to 1.1 million in 2000.

Table 2. Economic Impact of Tourism//Travel in Latin American Countries, 2001

	Travel & Tourism Industry as % GDP	Travel & Tourism Economy as % GDP	% of Total Employment	% of Total Exports	Tourism Demand/ US\$ millions
World	4.2	10.7	8.2	12.8	
Countries					
Argentina	3.3	7.9	7.6	13.2	30551.5
Bolivia	4.0	8.6	9.0	20.5	1215.3
Brazil	3.4	7.3	7.5	10.0	58182.2
Chile	3.9	8.4	9.2	8.6	9065.9
Colombia	3.2	7.0	9.3	13.6	7787.1
Costa Rica	7.9	19.2	16.6	18.4	3096.8
Dominican Rep	8.6	25.8	18.6	39.9	5261.7
Ecuador	4.1	11.9	12.2	11.4	2002.7
Guatemala	3.8	8.3	7.9	14.8	2125.5
Honduras	4.4	10.6	11.1	11.2	933.6
México	3.0	8.9	8.3	13.4	70958
Nicaragua	4.4	9.3	10.3	15	435.4
Panama	5.3	14.7	13.0	9.1	2161
Peru	3.9	8.4	8.6	14.8	7323.3
Venezuela	3.0	8.9	10.3	18.4	13680.1

Source: World Travel & Tourism Council, 2002 (www.wttc.org).

Table 2 illustrates the increasing importance of the travel and tourism industry in Latin American economies in 2001. For instance, in Costa Rica the travel and tourism industry accounted for 7.9% of the country's GDP, and the travel & tourism economy for 19.2% of Costa Rica's GDP. Travel and tourism industry captures the direct impact of the production side on the country's economy. The travel and tourism economy includes direct and indirect impacts of travel and tourism on the country's economy. The industry is also an important source of employment for Latin American countries. For instance, it accounted for 18.6% of total employment in the Dominican Republic, and for 8.9% of total employment in Mexico. The industry is also an important source of export earnings. It accounted for 20.5% of Bolivia's export earnings and for 39.9% of the Dominican Republic's total export earnings.

IV. METHODOLOGY

Model

To explore the importance of environmental considerations for tourism, the paper specifies an econometric pull model capturing the impact of environmental variables on tourist arrivals (Frechtling 2001; Hugues, 2002; Lim 1997; Qiu and Zhang 1995; Witt and Witt 1995). Thus, a hypothesis is tested that if ecotourism is a significant driving force of total tourism, the following variables would be important factors for the number of tourists: the number of environmentally certified lodges and hotels (EcoHotels) as well as the environmental sustainability index (ESI) should play a significant role in tourism demand if environmental awareness is a critical factor. Biodiversity should be another factor in ecotourism. We use the number of species of mammals, birds, and higher plants in each country as a proxy for a biodiversity index. Percent of land covered with forests (Forests) and protected as national parks (ProtectedArea) should reflect the degree of conservation and environmental awareness of each country. Two control variables are included in the model: government investment in travel and tourism (GovInvestment) and the number of visits to ecotourism websites for each country (Websites). The latter variable should capture the effect of the internet awareness on tourism flows (Tiernney, 2000). All coefficients are expected to be positive, as the variables should have a positive impact on environmentally motivated tourist visits and thus on total tourism demand.

The following model was run using the ordinary least squares method:

$$\text{TouristArrivals} = \alpha_1 + \alpha_1 \text{EcoHotels} + \alpha_2 \text{PrivateInvestment} + \alpha_3 \text{GovInvestment} + \alpha_4 \text{ESI} + \alpha_5 \text{Forests} + \alpha_6 \text{BiodeversityIndex} + \alpha_7 \text{ProtectedArea} + \alpha_8 \text{WebCitations} + \varepsilon$$

The dependent variable was in turn defined as the total number of tourist arrivals in year 2000 and then as the change in the number of tourist visits from year 1990 to 2000 and 1987 to 2000. The latter two definitions should capture the surge of ecotourism in recent years.

Data

Data were collected for 18 Latin American (see Appendix for a list of countries used). Tourism demand was measured by the number of tourist arrivals at registered accommodation in year 2000 as published by the International Marketing Data Statistics. Eco Hotels is the number of eco lodges and hotels certified by Ecotel and Green Globe 21. Government investment in tourism and travel in US\$ was obtained from the World Travel & Tourism Council. The environmental sustainability index (ESI) is an assessment of a country's overall progress in the direction of environmental sustainability as published in the World Economic Forum. The number of species of mammals, birds and plants was obtained from the 2001 World Development Indicators published by the World Bank. Percent of land covered with forests as

well as the percentage of national territory protected as national parks were also obtained from the same source. The number of websites is the number of citations to ecotourism as listed by Yahoo.com.

V. RESULTS

Table 3 presents the results for the three models with different definitions of the dependent variable. Contrary to our expectations, the results show that environmental variables do not play a significant role in driving tourism demand. Our hypothesis of significance was based on the recent global surge in ecotourism interest, reaching an estimated 2-4% of total tourism worldwide. The results indicate that environmental variables are still not a driving force in total tourism.

Table 3. Regression results

	Total number of tourist arrivals	Change in tourist arrivals (2000- 1990)	Change in tourist arrivals (2000- 1987)
Intercept	8035 (1.4)	-815 (-0.3)	1860 (1.1)
No. Eco Certified Hotels	-19 (-0.2)	39 (1.0)	38 (1.5)
Tourism&Travel % of Private Investment	-0.6 (-0.2)	12 (0.9)	11 (1.2)
Tourism&Travel % of Govt Investment	5 (3.9)	1.2 (2.2)	1.7 (4.4)
Environmental sustainability index (ESI)	-143 (-1.3)	3.8 (0.1)	-37.6 (-1.2)
% Total Land Area as Forests	-35 (-0.9)	8.7 (0.5)	-9.7 (-0.9)
Biodiversity index	-0.05 (-0.9)	0.01 (0.6)	0.0 (0.1)
% Total Land as National Parks	-9.7 (-0.2)	0.3 (0.0)	-6.4 (-0.5)
Ecotourism Web Citations	0.4 (1.9)	-0.1 (-1.0)	0.01 (0.2)
R squared	.91	.70	.93
F-stat	11.2	14.1	2.6

t-values are in parenthesis

The model performs well for the total number of tourists in 2000 as well as for the change in tourist arrivals from 1990 to 2000, with F-statistics yielding 11.2 and 14.1, respectively. The F-statistic of 2.6 is lower for the model with the dependent variable defined as the change in tourist arrivals from year 1987 to 2000. These results are, however, driven by the significance of government investment in tourism and travel, which has a significant positive impact on tourism demand in all models specified. Government money likely substitutes for private investment in these less developed economies. With little private investment, government money is important in facilitating tourism.

The number of web citations is significant at 10% level in the model for total number of tourist arrivals, where it has a positive effect. This result suggest that the internet exposure plays an important role as an inexpensive means of advertising and providing information about these countries. With a lack of tourism advertisement through other means, internet websites form an important channel for attracting tourists to developing countries.

No environmental variables were significant. Thus, the results indicate that whether the country has a high number of ecologically certified hotels or ranks high in the environmental cleanliness rankings does not significantly affect tourist decisions to visit a country. The same holds for coverage of land area by forests and national parks and the number of species of birds, mammals and higher plants that have shown no impact on tourism demand. This lack of significance could be a result of still a low proportion of ecotourism in the total tourism demand, which is currently estimated at 2-4%.

VI. CONCLUSIONS

This paper examines the role of variables representing environmentally motivated tourism on total tourism demand in Latin American countries. The recent surge in ecotourism suggests that environmental variables should create significant driving forces for the number of tourists visiting the country. This paper specifies a demand pull model analyzing the role of ecovariables. The dependent variable is first specified as the total number of tourist arrivals in year 2000, and then as the change in arrivals from years 1987 and 1990 to 2000.

Results indicate that despite all the increasing attention being paid to ecotourism, environmental variables still do not appear to have high relevance for tourism demand. The models explain a high percentage of cross-country variation in the tourist arrivals in year 2000 as well as of the change in tourist arrivals from years 1987 and 1990 to year 2000. R squared ranges from 0.69 to 0.93 for the three models specified. However, this result is driven by the significant impacts of government investment in tourism and the number of ecotourism related web citations. The latter has a significant positive effect in the model for total number of tourist arrivals for 2000. Government investment in tourism substitutes for the lack of private investment in these countries and positively impacts the demand for travel. Also, the significance of the number of visits to the websites related to the country's ecotourism indicates that the internet has become an important vehicle for these countries for promoting their environmental attractiveness for tourists. None of the environmental variables have a significant effect on the tourism demand. These include the biodiversity index, index of environmental sustainability, proportion of forests and national parks in the total country's land area and the number of ecologically certified hotels.

The results of this paper suggest some policy implications for the countries. Investing in tourism and travel was confirmed to be significant for attracting tourists into a country. With a lack of private investment, government money plays an important role in promoting tourism. Also, these countries should pay increased attention to promoting their environmental qualities through the internet. As ecotourism increases in importance, information and exposure through the internet will play an increasingly important part in attracting tourists.

APPENDIX

List of countries used in the sample

Argentina	Honduras
Bolivia	Mexico
Brazil	Nicaragua
Chile	Panama
Colombia	Peru
Costa Rica	Venezuela
Dominican Rep	Trinidad-Tobago
Ecuador	Paraguay
Guatemala	Uruguay

REFERENCES

Aronsson, L.

(2000). *The Development of Sustainable Tourism*. London: Continuum.

Bruner, A. and Rosenfeld, A. and Sweeting, J.,.

(1999). *The Green Host Effect*. Washington, D.C: Conservation International.

Dangerfield, J. and Tyler, D.,

(1999). "Ecosystem Tourism: A Resource-Based Philosophy for Ecotourism." Vol.7, No.2, p.146-158.

Diamantis, D.

(2000). "Ecotourism and Sustainability in Mediterranean Islands." *Thunderbird International Business Review*, Vol.42(4), p.427-443.

Dixon, J. and Sherman, P.

(1991). "The Economics of Nature Tourism: Determining if it Pays." In Tensie Whelan (Ed.), *Nature Tourism*. Washington, D.C: Island Press.

Duim, R., and Caalders, J.

(2002). "Biodiversity and Tourism." *Annals of Tourism Research*, Vol.29, No.3, p.743-761.

Fennell, D.

(2000). *Ecotourism: An Introduction*. New York: Praeger.

Frechtling, D.

(2001). *Forecasting Tourism Demand: Methods and Strategies*. Oxford: Butterworth Heinemann.

Honey, M.

(1999). *Ecotourism and Sustainable Development: Who Owns Paradise?* Washington, D.C: Island Press.

Hughes, G.

(2002). "Environmental Indicators." *Annals of Tourism Research*, Vol.29, No.2, p.457-477.

Juric, B., Cornwell, B., and Mather, D.

(2002). "Exploring the Usefulness of an Ecotourism Interest Scale." *Journal of Travel Research*, Vol.40, February, p. 259-269.

Lim, C.

(1997). "An Econometric Classification and Review of International Tourism Demand Models." *Tourism Economics*, Vol.3(1), p.69-81.

Lumsdon, L., and Swift, J.

(1998). "Ecotourism at Crossroads: The Case of Costa Rica." *Journal of Sustainable Tourism*, Vol.6(2), p.155-172.

Lumsdon, L., and Swift, J.

(2001). *Tourism in Latin America*. London: Continuum.

Maclaren, F.

(2002). "A Strategic Overview of Ecotourism Accreditation and Certification: The Road Forward." www.world-tourism.org.

Mastny, L.

(2002). "Redirecting International Tourism." In Linda Starke (Ed.), *State of the World 2002*. New York, NY: W.W. Norton & Company.

Mieczkowski, Z.

(1995). *Environmental Issues of Tourism and Recreation*. London: University Press of America, Inc.

Qiu, H., and Zhang, J.

(1995). "Determinants of Tourist Arrivals and Expenditures in Canada." *Journal of Travel Research*, Vol.34 (2), p.43-49.

Sirakaya, E., Sasidharan, V., and Sonmez, S.

(1999). "Redefining Ecotourism: The Need for a Supply-Side View." *Journal of Travel Research*, Vol.38, November, p.168-172.

Tierney, P.

(2000). "Internet-Based Evaluation of Tourism Web Site Effectiveness: Methodological Issues and Survey Results." *Journal of Travel Research*, Vol.39, November, p.212-219.

Weaver, D.

(1998). *Ecotourism in The Less Developed World*. London: Oxford University Press.

Western, D.

(1993). "Defining Ecotourism." In *Ecotourism (Ed.)*, by Kreg Lindberg and Donald E. Hawkins. New York: Praeger.

Witt, C., and Witt, S.

(1995). *Forecasting Tourism Demand: A Review of Empirical Research.*" *International Journal of Forecasting*, Vol.11(3), p.447-475.

World Bank

(2002). *2001 World Development Indicators*. Washington, D.C: World Bank.

World Tourism Organization

(1999). *Guide for Local Authorities on Developing Sustainable Tourism*. Geneve: WTO.

World Travel & Tourism Council

(2002). *Travel & Tourism Statistics*. London: World Travel and Tourism Council.