

A LONG-RUN EQUILIBRIUM DEMAND FUNCTION: TOURISM IN MEXICO

Juan Gabriel Brida
Free University of Bozen-Bolzano.

Wiston Adrià Risso
University of Siena

Edgar J. Sanchez Carrera
University of Siena

Tourism demand in Mexico is around 80 percent represented by USA visitors. The goal of this paper is to explain the long-term effects of Tourism Demand in Mexico with respect to US visitors. To reach our goal the methodology of this paper follows the Johansen cointegration analysis and using annual time-series data, a single equation is estimated. With the empirical analyze, we study the tourism demand elasticities considering public investment, relative prices of tourist products, and US income per capita. Further analysis shows only one direction of a strongly positive Granger-causality going from number of tourists to the relative prices. We show that US income positively affects the Mexican tourism demand.

Keywords: *Tourism demand modelling; Public investment on tourism; Economics of Tourism; Johansen Cointegration test.*

INTRODUCTION

When studying tourism demand in Mexico, one can find that total tourist arrivals (domestic plus international tourists) in the six busiest destinations account for 52 percent of all arrivals. These include the three largest cities in the country (Mexico City with 20.6% of arrivals in 2000, Guadalajara, 4.9% and Monterrey with 3.3%), two traditional beach destinations, Acapulco and Veracruz, and Cancun as integrally planned center. Seven other destinations, which include smaller cities, border cities and beach destinations, account for between 2.1 and 3.1 percent of all tourist arrivals, and push the share of the top 13 destinations to just



over 70 percent of arrivals. The remaining 30 percent is shared by 42 destinations spread all over the country. If one considers international tourists only, a more concentrated picture appears. Cancun receives 22 percent of arrivals, and if one adds neighboring Playa del Carmen the figure goes up to more than 30 percent. Mexico City registers 20.6 percent of international arrivals in hotels, so that more than half of all international tourists are accounted for by only three destinations. The following four most important destinations in this respect (Puerto Vallarta, Acapulco, Los Cabos and Cozumel) account for a further 25 percent of international arrivals, so that over three quarters of arrivals are concentrated in seven destinations, six of which are beach destinations (SECTUR, 2001).

Moreover, tourism demand in Mexico made by US visitors represents around the 80 percent of the tourist market in Mexico. That is to say that Mexican international tourism is a form of interaction largely between a semi-peripheral nation, Mexico, and a single core nation, the United States.

Several can be the determinants of a tourism demand function, for example, from security until crime. Because demand has generally been found to be highly income elastic consistent with international tourism being a luxury good and highly responsive to changes in the relative price of tourist services when measured as the real exchange rate relative to the destination country. Increasing available leisure time has also been attributed as a cause of increased tourist demand internationally. A particular importance as determinants are qualitative factors as noted by (Bull, 1991), such as the weather, quality of the beaches, appeal of the culture, gastronomy, and reliability and ease of carriage and entry.

There has been some important works about the estimation of the determinants of a tourist demand function -see for example, (Paraskevopoulos, 1977); (Loeb, 1982); (Stronge and Redman, 1982); (Truett and Truett, 1987); (Smeral and Witt, 1996); (Mudambi and Baum, 1997)-. In a literature survey, (Crouch, 1994) found 80 empirical studies on the demand for tourism. These works focus on income per capita of source countries and the relative price of exported tourist services as the main determinants of demand.

As determinants of the Mexican tourism demand, we consider the following variables:

- Number of US tourists in Mexico.
- Total real expenditure on tourism.
- Relative prices of tourist products, defined as the value of the tourist good in Mexico with respect to its value in USA.

- Public investment.
- USA income per capita.

These are the variables to determine a long-run equilibrium demand function because they measure a Mexican tourism performance -see (FONATUR, 1999); (SECTUR, 2000); (Clancy, M., 1999); (Long, V., 1993); (Nolan and Sydney); (WTO, 1998)-, since these determinants represent a promoter of the regional develops in Mexico. To manage these determinants, (investment, expenditure and relative prices) the Mexican government implemented the “Agenda 21” for the tourism, proposing to implement strategies and actions to force a dynamic in the tourist regions that implies a sustainable development consolidating the welfare and the natural resources with a good optimization of the tourism earnings from the local communities. Through the Agenda 21 the public investment on tourism facilities has increased with a positive evaluation in sustainability and the Mexican tourism demand goes positively with respect to this -an empirical evidence; (SECTUR, 2006)-.

To reach the goal of this paper, a tourism demand function in Mexico, our framework follows the next structure. Section 2 gives a brief description of the Mexican tourism. In section 3 a demand function is computed by a single econometric equation using Cointegration analysis for a long-run equilibrium. Exogeneity and Causality tests are also analyzed. A short summary and the main conclusions are presented in the last section.

A DESCRIPTION OF THE MEXICAN TOURISM

The importance of tourism sector for the Mexican economy and its regional distribution can only be understood by analyzing the role of national government on promoting the sector over the last thirty years. (Brenner et. al., 2002) pointed out that Mexican tourism is particularly notable for three reasons. First, despite a loss of world market share during the 1990s, tourism demand and supply increased faster in Mexico than in most other developing countries, at least in absolute terms. In fact, the quantity of visitors staying in Mexico for more than three days grew from 2.3 million in 1970 to 10.4 million in 1999 and accommodation capacity increased from 130,000 hotel room to 420,000 -see details in (Jiménez, 1992); (SECTUR, 2000)-. Second, state promotion of tourism started off earlier and has been more intense in Mexico than in other destinations. Third, it is the creation of a massive, enclave-like, tourism-related infrastructure in peripheral locations to attract national and foreign

investment. Entire new urban centers have been exclusively designed for leisure and consumption. As a result, specific spatial and functional structures have emerged, with strong effects on large areas on the Pacific and Caribbean coasts.

To implement a tourism policy the Mexican government is managed by two governmental agencies: SECTUR and FONATUR. These two agencies give us the official data base of Mexican tourism sector. SECTUR is Mexico's tourism secretariat. It implements and harmonizes policies aimed at coordinated action by the most popular tourist areas: seaside resorts, big cities, and other inland tourist centers. FONATUR (national tourism promotion fund) is another paragonymal agency that promotes tourism to investors. This agency is the force behind nearly 40% of available hotel room development in seaside resorts and 55% of the sector's total investment funding. Cancún, Ixtapa, Los Cabos, Huatulco and Loreto are five planned centers in which FONATUR has invested more than \$1.5 billion in infrastructure and created a number of investment opportunities. Investments are primarily aimed at a foreign clientele interested in beaches, golf, fishing, etc.

During the 90's the number of tourists visiting Mexico grew at an annual average rate of 1.9 percent, reaching 20.6 million arrivals in 2000, well below the growth of total international tourism arrivals. Day visitors over the decade grew at annual rate of 2.7% surpassing 80 million visitors a year in 2000 as the Mexico--US border became one of the busiest in the world after the implementation of NAFTA in 1994 (see OCDE, 2001).

The last five years FONATUR has fostered investment by providing credit worth US\$7.5 billion, which has generated investments of over US\$14 billion: i) Construction of 117,289 hotel rooms and renovation of 53,505 others and ii) Creation of over 340,000 jobs in the five regions. In 2002, project-related sales were US\$60 million, up by 33.5 percent from the previous years. Since 2002, FONATUR has been less and less present on the market because Mexican government policy has been to encourage the private sector through a more flexible legal framework for obtaining project guarantees or approval. Several American businesses, mainly hotel chains (Sheraton, Westin, Hyatt, Marriott, etc.) are already established in Mexico.

On the other hand, as Gartner (1997) notes, what distinguish one place from another are the complexes of services available and its connection with particular place-images. At present, places increasingly seek to forge a distinctive image and to create an atmosphere of environment, place, and tradition that will prove attractive to capital and to highly skilled prospective employees as well as visitors (Urry,

1995:178). In this sense, (Harvey, 1989) pointed out that, as spatial barriers diminish, we become much more sensitized to what each world space contains, the uniqueness of its workforce, entrepreneurialism, administration, history, environment, and so on. Considerable importance attaches to the kinds of perceptions held by tourists of the places they visit. Specifically, this is the role of tourism marketing on destinations. The successful marketing of destinations such as Jamaica, Cuba, and the Mexican Caribbean can be attributed at least in part to their positive perception. The stress on uniqueness has already become part of national promotion strategies. Belize, for instance, highlights its unspoiled nature, whereas Mexico underlines the high-quality infrastructure provided within state-planned resorts (FONATUR, 1999). So, Mexico is a great flow of tourism attractor.

Two very important qualifications to the aggregate picture appear on closer inspection of the data which tend to change the initial impression of poor performance into one of dynamic expansion of tourism, notably during the second half of the nineties.

The first one has to do with time dimension. Indeed, the picture changes radically if we divide the nineties into two periods. The first one, from 1990 to 1994 is broadly one of stagnation in the wake of the Gulf war which led to a steep fall in the number of Americans traveling abroad. It must be remembered that the US is Mexico's main international market for tourism services, providing 87 percent of all international tourists which penetrate beyond the border zone and practically all of those who stay within the border strip. Between 1990 and 1991 the number of Americans traveling abroad, according to the Travel Industry Association (TIA) fell by 6.9 percent, and it was only in 1994 that the 1990 figure was again reached. Americans traveling to Mexico fell by 8.2% in 1991, and recovery of 1990 levels was recorded only in 1995. On the other hand, the fall in the overall number of tourists visiting Mexico was smaller, 6.4 percent in 1991. This implies that inbound flows from other countries actually grew by more than 3 percent in 1991, a year when, according to WTO, world international tourist arrivals grew by only 1.1 percent.

Even if other factors were surely at work, it seems difficult to escape the conclusion that stagnation in the flow of tourists to Mexico during the first half of the nineties was closely linked to the sequels of the Gulf War on US foreign travel demand. From 1995 onwards, once US travel abroad had gone back to its pre Gulf War level, and up until 2000 tourist arrivals grew at 3.1 percent a year and receipts from tourists (excluding day visitors) grew at 4.8 percent. These rates are not far from those for the

world market over the same period: 4.2 percent for arrivals and 5.2 percent for receipts.

The second qualification that needs to be made has to do with the peculiar nature of international tourism in a country neighboring the United States. The very long, tightly integrated and densely populated border that Mexico shares with the US gives rise to more than 200 million international visits a year when the flows both ways are added (216 million in 2000). These are both day trips and trips that classify as tourist arrivals since the people involved stay overnight in the visited country. Their main characteristic, however, is that these visitors do not travel beyond a narrowly defined border zone, usually 25 or 30 km. deep into each country. These flows are very volatile as they respond to numerous causes, ranging from changes in the peso -- dollar parity and relative prices for goods such as medicines and fuel, to changes in the strictness of border controls and a host of other phenomena linked to everyday life concerns in a series of tightly integrated pairs of cities which happen to be crossed by a border line. Needless to say, many of those visiting the other side of the border travel to visit friends or relatives.

For all these reasons, border tourists form a clearly differentiated group from non border tourists. Average expenditure fluctuates between 50 and 60 dollars, *vis a vis* nearly 600 USD for non - border tourists, their trips are shorter and they tend to use hotel accommodation to a very small extent. In sum, this is a segment which is much less marketable. Their number has fluctuated between 9.5 and 12.5 million tourists a year over the nineties and they account for fewer than 10 percent of earnings from tourism. Even when day visitors are included, visitor activity over the border accounts for barely over a quarter of all earnings from tourism. If we concentrate on the remaining 10.6 million international tourists, those that penetrate beyond the border strip, and who come closer to the expenditure pattern of the normal tourist which the industry usually has in mind, the picture of Mexico as a country losing market share over the nineties changes dramatically. The number of these "inland tourists" grew at an average annual rate of 2.8 percent in 1990 -- 1994, still short of the world market but almost one percentage point faster than total tourists. From 1995 to 2000, however, arrivals of inland tourists have been growing at an annual rate of 6.8 percent, which is 60 percent faster than world arrivals, reaching 10.6 million in 2000. Income from these tourists, in turn, grew at 5.8 percent per year between 1990 and 1994, reflecting an increase in average expenditure associated with a steadily stronger peso, and at 5.4% a year in 1995 - 2000, just above the growth of the world

market, in spite of a large real devaluation in 1995 which brought down average expenditure by 13 percent in 1995 -- 96 (WTO, 1998).

As (Clancy, M., 2001) has pointed out; tourism exports in Mexico have grown rapidly and also experienced significant structural changes over the past quarter-century. The sector now has greater overall capacity, more central organization, and some diversification. Is the tourism sector the key for the Mexican development? The axiom that development laid in the eyes of the beholder rings especially true for third world tourism and Mexico is no exception. For the more orthodox development analysts, tourism appears to be successful. The activity is export-oriented and largely in hands of the private sector. The benefits of 6 to 7 billion dollars in annual export revenue and roughly 3 million jobs are easy to measure and by SECTUR reliable data are available. However, it is true that many tourism jobs are seasonal and low-paying and this is one important consideration for future research in economic tourism. But now our goal is to analyze the tourism demand in Mexico. In the next section a long-run demand function for the Mexican tourism will be obtained.

ECONOMETRIC ESTIMATION

There are not empirical studies about the determinants of the Mexican tourism demand; close literature on tourism demand is done for Spain. Those frameworks explain the expenditure carried out by tourist. The variables are: prices and income. (Espasa et al., 1993) elaborated indexes of income and prices on base of a basket of competitive and consumers from the tourism in Spain. The same variables are considered by (Garcia Ferrer et al., 1997) to forecast the tourism demand in Spain. All these works show a high income elasticity in the tourism, which means that the tourism is a luxury good. We follow the above approaches to determine a classical demand function for the tourism in Mexico during the period 1980-2006, where total real expenditure is our dependent variable and the explanatory variables are relative prices, income and public investment.

Data and variables

In this framework, we use two measures of tourism demand:

1. Quantity of tourists (q_{num})
2. Total real expenditure in tourism (q_{exp}).

In the end, q_{exp} , is the endogenous variable to explain the Mexican tourism demand. Moreover, from an econometric point of view there are some reasons for just considering q_{exp} . A study of tourism demand cannot finish with an estimation of the entering tourists to the country. The latter because in order to forecast the balance of payments is important to estimate the average sojourn and the average tourist expenditure, that is impossible by using only the quantity of tourists.

In the data base we are considering the quantity of US tourist in thousand of persons (q_{num}). The real expenditure of international tourist in Mexico is (q_{exp}) deflected with the Index of National Consumer Prices of USA (INCPUSA).

To compute relative prices (p) of tourist products:

$$\left(\frac{INCP_{mex}}{NC} \right) / INCP_{USA} \quad \text{for all the period : 1980 – 2006} \quad (1)$$

Where, $INCP_{USA}$ is the Index of Tourist products from 1980 to 1997 and then we add recreation to complete the years (source: U.S. Department of Labor: Bureau of Labor Statistics); $INCP_{mex}$ is the Index of Tourism in Hotels and expenses of tourist -source: (SECTUR, 2006)-. NC is the average nominal change.

To compute Public Investment (g) we use:

- The series Generate Investment (FONATUR) with Total Investment Amount from National Bank of Foreign Trade

To compute Investment (from 1980 to 1990 and from 2000) we use:

- The growth rate of Total Investment Amount from National Bank of Foreign Trade

To compute GDP from USA (y) we use:

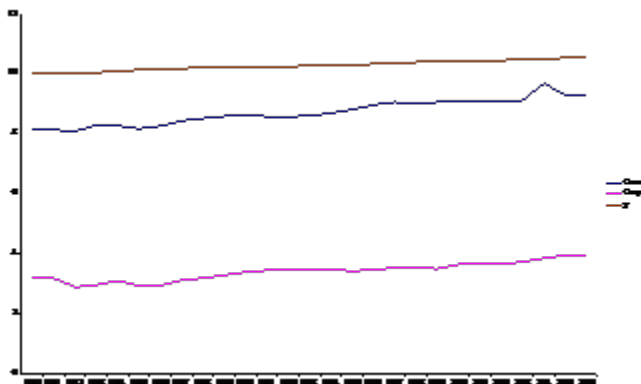
- GDP per capita constant prices at national currency supplied by the World Bank.

Usually the first step in the analysis of any time series is a visual plot of the data. Figure 1 is a plot of the data for q_{num} , q_{exp} and y . We can see that the three series seem to be trending upward, albeit with fluctuations.

Hence, we have time series that seems to be nonstationary and we should analyze its stationarity. Remember that stationary time series are so important because if a time series is no stationary, we can study its behavior only for the time period under consideration.

Each set of time series data will therefore be for a particular episode. As a consequence, it is not possible to generalize it to other time periods.

Figure 1. Data Trend



The next section we present the estimation of the endogenous variables. It was carried out using Cointegration approach. It is well known that this methodology is based on the estimation and contrast of the existence of a long-run relationship among the variables. Once is contrasted the existence of this relationship, it established a mechanism of error correction model (ECM, where all the variables are expressed in differences which typically eliminate trends from the variables involved, they resolve the problem of spurious regressions and the ECM disequilibrium error term is a stationary variable (by definition of cointegration).

EMPIRICAL RESULTS

It is well known the problem of finding spurious regressions when series are non-stationary, see (Phillips, 1986) for an analysis of spurious regressions. Classical econometrics is not applied when process is non-stationary and cointegration method should be applied. Therefore, as a first step we have to study the integration order of the series in order to applied cointegration method.

There are many unit root test, we will applied famous Augmented Dickey-Fuller test and the KPSS test. The former unit root test works under null hypothesis that the process is $I(1)$ (it means the process is integrated of order 1 or non-stationary in levels), the latter test is applied under the null hypothesis of stationarity. According to the above tests, the

time series seems to be integrated processes of first order $I(1)$, then classical econometrics is not applied and we have to study the existence of a cointegration relationship.

One method is the two-step procedure proposed by (Engle and Granger, 1987). However this method assumes the existence of only one cointegration relation. Most general procedure was proposed by (Johansen, 1988) and (Johansen and Juselius, 1990), this test has the advantage of testing all the possible cointegrating relationship.

(Banerjee et. al., 1993) highlights the important connection between a cointegrating relationship and the corresponding long-run equilibrium equation. Searching for a cointegrating relation is searching for a statistical equilibrium between variables tending to grow over time. The discrepancy of this equilibrium can be modeled by a Vector Error Correction (VEC) model which shows how after a shock the variables come back to the equilibrium.

Using the first measure (q_{num}) we found a cointegrating equation but it did not supported weakly exogeneity, then we found a cointegrating equation by using real expenditure (q_{exp}) as demand. For this reason and the one presented in the above subsection, our demand variable will be the total real expenditure, just called (q). The result is shown in Tables 3 and 4.

Tables 1 & 2. Unit Root Tests

Table I: Unit Root Test results: Levels

Variable	$q_{num.}$		$q_{exp.}$		p		g		y	
	ADF	KPSS	ADF	KPSS	ADF	KPSS	ADF	KPSS	ADF	KPSS
Trend, Constant	-4.20*	0.20*	-4.61*	0.07	-3.46	0.07	-4.29*	0.16*	-3.67*	0.07
Constant	-0.02	0.76*	0.18	0.72*	-1.57	0.52*	-0.44	0.73*	-0.23	0.77*
Without Trend, Const.	4.37		1.53		-1.08		-2.00*		3.01	

* Null Hypothesis Rejection at 5%

Table II: Unit Root Test results: First Difference

Variable	$\Delta q_{num.}$		$\Delta q_{exp.}$		Δp		Δg		Δy	
	ADF	KPSS	ADF	KPSS	ADF	KPSS	ADF	KPSS	ADF	KPSS
Trend, Constant	-3.58	0.50*	-4.98*	0.19*	-3.67	0.07	-5.49*	0.12	-3.76*	0.05
Constant	-3.74*	0.50*	-4.79*	0.24	-3.84*	0.09	-9.99*	0.13	-3.95*	0.05
Without Trend, Const.	-6.08*		-4.44*		-4.55*		-9.27*		-2.06*	

* Null Hypothesis Rejection at 5%

Table 3. Unrestricted Cointegration Rank test

Sample (adjusted) :		1982 - 2006			
Included Observations :		25 after adjustment			
Trend assumption :		No deterministic trend			
Series :		p, q, g, y			
Hypothesized	No. of CE	Eigenvalue	Trace Stat.	Critical Value	Prob.
None *		0.596	57.227	54.079	0.025
At most 1		0.480	34.592	35.193	0.058
At most 2		0.383	18.235	20.262	0.093
At most 3		0.218	6.155	9.164	0.179

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

In conclusion, there exist a log-run relationship among total real expenditure, relative prices, public investment and US income per capita. This relationship satisfies the theoretic restrictions about the parameters. Moreover, tourism is a luxury good for the US visitors¹, since the income elasticity of demand is greater than one (2.45), and demand rises more than proportionate to a change in income. That is, if in response to a 10% increase in income, the quantity tourism demand increased by 24.5%, the income elasticity of demand is $24.5\%/10\% = 2.45$. This agrees with other studies noting that tourism is a luxury good as it was also mentioned in the first section.

Table 4. Cointegrating Equation

	q	p	g	y	const.
1	0.033	-0.045	-2.450	22.259	
	[0.278]	[-1.369]	[-6.879]	[5.549]	

Consequently, the Trace Statistic suggests the existence of a cointegrating equation at 5% of significance. Nevertheless, in order to do inference we should at least check weakly exogeneity. The importance of studying exogeneity is clear in (McCallum, 1984). Weakly exogeneity permits to use the estimated equation without modeling the variable that we do not consider endogenous to the model.

Table 5 shows cointegrating equation after testing weakly exogeneity.

Table 5: Weakly exogeneity and Cointegrating Relation

Cointegrating Restrictions :				
$B(1,1) = 1, A(2,1) = 0, A(3,1) = 0, A(4,1) = 0$				
Restrictions identify all cointegrating vectors				
LR test for biding restrictions (rank = 1)				
Chi - square(3): 3.39998				
Probability : 0.33397				
Cointegration Equation after exogeneity				
q	p	g	y	$const.$
1	- 0.319	- 0.059	- 2.029	16.927
	[-3.490]	[-2.117]	[-7.33]	[5.432]

Table 6. Error Correction Model

Error Correction Model				
Error Correction	$\Delta(q)$	$\Delta(p)$	$\Delta(g)$	$\Delta(y)$
CointEq.	-0.599	0	0	0
	[-4.933]			
$\Delta(q(-1))$	0.618	1.258	0.790	-0.006
	[2.756]	[2.497]	[0.311]	[-0.111]
$\Delta(p(-1))$	-0.336	-0.212	0.861	-0.048
	[-3.247]	[-0.910]	[0.735]	[-1.859]
$\Delta(g(-1))$	-0.059	-0.054	-0.575	-0.005
	[-3.466]	[-1.411]	[-2.976]	[-1.205]
$\Delta(y(-1))$	-0.625	-2.325	-5.811	0.769
	[-0.842]	[-1.392]	[-0.692]	[4.130]
Akaike AIC	-2.132	-0.513	2.718	-4.899

Moreover, Granger Causality was studied and the results are presented in Table 7.

Considering both quantity and expenditure of tourist, according to Granger causality test, the tourism demand impact the relative prices, that is, the causality is in the direction from demand to relative prices or movements in the demand impacts the relative prices but the inverse is not causal, this an interesting interpretation, since we can say that in Mexico the tourists does not go because of cheap tourism, in fact, if the relative prices are augmenting is because the quantity of tourists is, also, augmenting. There is also Granger causality from USA GDP to prices (greater US GDP per capita implies an increase in tourism relative prices), while causality between prices and investment is not clear but however, investment on tourism causes expenditure on it. Hence, if the Mexican

government wants to increase the flow of tourism, a good policy is to invest in tourist facilities, since formally the tourism demand function is represented as $p = f(q(g), y)$.

Table 7. Pairwise Granger Causality Tests

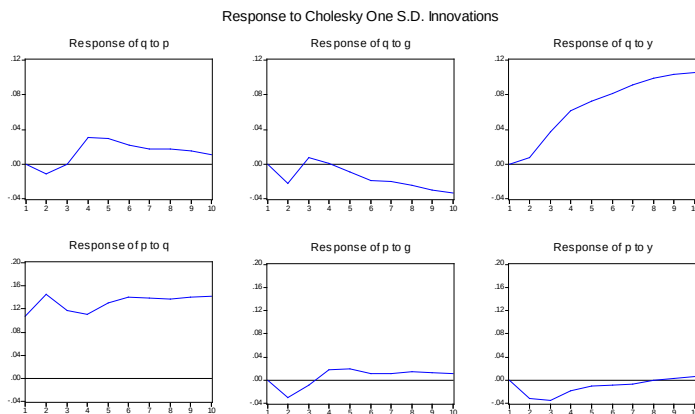
<i>NullHypothesis :</i>	<i>Obs</i>	<i>F</i> <i>Statistic</i>	<i>Probability</i>
$q_{num.}$ does not Granger Cause p	23	4.146	0.020 [*]
p does not Granger Cause $q_{num.}$	□	0.648	0.638
$q_{exp.}$ does not Granger Cause p	23	3.812	0.026 [*]
p does not Granger Cause $q_{exp.}$	□	0.768	0.563
g does not Granger Cause $q_{num.}$	23	0.111	0.977
$q_{num.}$ does not Granger Cause g	□	2.438	0.096
g does not Granger Cause $q_{exp.}$	23	3.399	0.038 [*]
$q_{exp.}$ does not Granger Cause g	□	1.906	0.165
y does not Granger Cause $q_{num.}$	23	1.726	0.200
$q_{num.}$ does not Granger Cause y	□	0.213	0.927
y does not Granger Cause $q_{exp.}$	23	2.318	0.108
$q_{exp.}$ does not Granger Cause y	□	1.397	0.286
y does not Granger Cause p	23	8.293	0.001 [*]
p does not Granger Cause y	□	1.763	0.192
g does not Granger Cause p	23	1.224	0.345
p does not Granger Cause g	□	0.613	0.660
y does not Granger Cause g	23	0.924	0.478
g does not Granger Cause y	□	2.188	0.123
* Null Hypothesis rejection at 5%			

A study of impulse and response was realized in order to see how after a shock to the different variables the prices adjust until equilibrium levels. The next figure shows the results

Note that a shock in relative prices affects first negative and then positively the tourism demand (real expenditure), an increase in investment affects negatively. An increase in the US GDP affects

positively the tourism demand. On the other side, a shock in tourism demand affects always positively relative prices, and movements in investment affects first negative and then positively the relative prices.

Figure 2. Response of q and p to shocks in p , q , g and y



CONCLUSION AND FURTHER RESEARCH

The tourism is a great activity for the Mexican economy and an incredible research field for many economics researchers to contribute on it. A good policy with the participation of the state, the residents and the tourist should preserve the environment and natural resources.

This paper has provided empirical evidence that there is a long-run relationship among tourism demand, relative prices, *US* income per capita and public investment on tourism. The empirical results provide evidence that tourism demand in Mexico has been positively affected by *US* income per capita and public investment. Income elasticity of demand (2.09) shows that Tourism is a luxury good for *US* visitors. The latter confirms for Mexico which is found in other countries, that tourism is luxury good. On the other hand, investment elasticity (0.05) is very low showing a high inelasticity to the tourism demand. According to Granger causality test in the long-run tourism demand causes positively relative prices.

The National Program for Tourism is the basic instrument of the federal government for planning the policy of the institutions in the sector and their relationship with other government institutions. The vision of

what the Industry and Government expect of tourism in the long run, as set out in the Program, states that:

"By 2025 Mexico will be a leading country in tourism, since it will have diversified its markets, products and destinations, and its firms will be competitive at the domestic and international level. Tourism will be recognized as playing a key role in economic development and it will have grown with full respect for the natural, cultural and social environment, contributing all the while to enhancing national identity."

If Mexican government invests on tourist facilities and applies sustainable laws (relative to other nations in the region), then the demand for tourism to Mexico will be positively affected by US income, and relative prices are affected by quantities in number of tourist and tourist expenditure.

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ENDNOTES

Remember that a Luxury good is said to have an income elasticity of demand greater than +1. Luxuries are items we can (and often do) manage to do without during periods of below average income and falling consumer confidence. When incomes are rising strongly and consumers have the confidence to go ahead with big-ticket items of spending, so the demand for luxury goods will grow. Conversely in a recession or economic slowdown, these items of discretionary spending might be the first victims of decisions by consumers to rein in their spending and rebuild savings and household financial balance sheets.

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REFEREED ANONYMOUSLY

Juan Gabriel Brida (JuanGabriel.Brida@unibz.it) is an Assistant Professor at the School of Economics and Management - Free University of Bolzano, Via Sernesi 1, I - 39100 Bolzano, Italy.

Wiston Adrián Risso (risso@unisi.it) is a Researcher at the University of Siena, Department of Economics, P.zza S. Francesco 7, I-53100 Siena, Italy.

Edgar J. Sanchez Carrera (sanchezcarre@unisi.it) is a PhD student at the University of Siena, Department of Economics, P.zza S. Francesco 7, I-53100 Siena, Italy.