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DETERMINANTS OF INBOUND TOURISM REVENUES IN PERU: EVIDENCE FROM A CRISIS PERIOD

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ABSTRACT

The strand of the tourism literature focusing on emerging markets is relatively scarce. However, the increasing importance of tourism activity in emerging economies in the last years is moving the academic attention to countries like Peru, where tourism activity has become an essential part of its recent economic development. Accordingly, this paper analyzes the determinants of tourism demand in Peru, by estimating a single-equation model for the period 2007-2011. Specifically, it is proposed as a tool to analyze and understand the recent evolution of this industry as the basis for growth in the Andean country. The obtained results confirm the positive relationship between the real income of non-resident tourists and tourism demand, while tourism in Peru is not eligible as a luxury good. Additionally, it is shown that there is not a high sensitivity of real income from tourism to inflation differentials. The obtained results provide important implications for policymakers. Namely, it becomes relevant to better understand a country's tourism demand determinants in order to consolidate its economic contribution in times of economic recession.

Contribution/Originality: This paper adds to the incipient literature that analyzes the tourism determinants in emerging economies, both from a theoretical and a practical perspective. Unlike expected, the results find that tourism in Peru is not a luxury good and is highly sensitive to the real income of non-resident tourists and tourism demand.

1. INTRODUCTION

The economic importance of tourism activity has become basic in Peru in recent years, as the tourism industry is the third after mining and fisheries in 2017 (according to the National Institute of Statistics and Informatics). The liberalization of the economy during the 90s of the last century has made the tourism industry's foreign exchange earnings grow up at an average annual growth rate of 12.52% from the period 1990 to 2018. Additionally, the evolution of inbound tourism shows a flow of visitor arrivals, whose average rate of annual growth is 8.34% for the same period.

However, despite Peru's recent active involvement in international tourism, very few empirical studies analyze Peru's tourism patterns yet (Bermeo & Oh, 2013). Considering the growing importance of inbound tourism in Peru, it is essential to identify the key elements to stimulate its development in time and examine the results of tourism activity.

Consequently, the aim of this study is to empirically test the determinants of foreign tourism revenues in Peru from 2007 to 2011, namely foreign income and relative price levels. Based on the classical theory of demand, the obtained results show that foreign real income and income from tourism are positively related. Besides, tourism in Peru is not eligible as a luxury good.

On the one hand, this paper contributes to the literature on tourism revenues determinants in an emerging country. Although some recent studies in emerging economies are being carried out recently (e.g., (Habibi, 2017; Muryani, Permatasari, & Esquivias, 2020)), this is the first study in Peru. Additionally, the results are obtained during the 2007 financial crisis, which provides new insight by considering the effects of adverse macroeconomic conditions.

2. CONCEPTUALIZATION AND HYPOTHESES

2.1. Tourism Demand

The study of tourism demand determinants is a relevant topic in the traditional tourism literature (Alvarez, Garcia, & Gordo, 2007; Lim, 1997; Martin & Witt, 1989; Smeral & Witt, 1996; Witt & Witt, 1995). Besides, recent studies are focusing on emerging economies such as Indonesia (Muryani et al., 2020), Brazil (Tavares & Leitao, 2017), Malaysia (Habibi, 2017), and South Africa (Durbarry, Nicolas, & Seetanah, 2009).

In these studies, various factors affecting the tourism demand of a country are analyzed, such as prices, costs, and social and psychological considerations regarding the behavior of tourists. For the Peruvian case, a study by Scotiabank in 2001 indicates that the main factors affecting tourism demand in Peru are the income level of the major emitting countries and the relative prices of tourism in the competing countries of Peru. To a lesser extent, the supply of attractions and services, information and tourism marketing, and social and political stability of the country are also relevant dimensions. However, there cannot be found any empirical research that models such determinants of tourist demand in Peru in recent literature, being the existing ones are merely descriptive of the situation.

2.2. Tourists' Income

Previous studies show the importance of tourists' income as one of the main determinants of tourism income in an economy (Dogru, Sirakaya-Turk, & Crouch, 2017; Lise & Tol, 2002; Muryani et al., 2020; Ryan, 1991).

According to economic theory, tourism spending is a "higher" good or luxury, and therefore, one would expect the income elasticity to be greater than unity. However, the higher propensity to travel, associated with increased competitiveness in the sector and the development of new technologies, which has favored the emergence of the so-called "mass tourism", could have changed that feature (García-Gómez, Bilgin, Demir, & Díez-Esteban, 2021).

Ryan (1991) points out that in times of economic recession, tourism demand becomes inelastic with respect to income. Thus, during a period of financial turbulences, income elasticity with respect to tourism demand in Peru should tend to be inelastic.

Thus, the first hypothesis is stated as follows:

Hypothesis 1: The income elasticity of tourism revenues in Peru is less than unity and aimed to be inelastic.

2.3. Relative Prices

The second determinant of tourism demand is competitiveness or the relative price of the country as a tourist destination.

First, tourism demand does not refer to a single product but encompasses a set of goods and services that are part of the consumption basket of a typical tourist (among them, hotel and catering services, transportation, and travel agencies). Second, the price competitiveness of a tourist destination, like any other asset, must measure the

price movements of that destination, addressing not only the source markets of tourists but also alternative destinations.

Empirical evidence indicates that the sensitivity of international tourism demand to relative prices varies depending on the degree of development of a tourist destination (Syriopoulos & Sinclair, 1993). In this sense, Peru has historical, cultural, natural, and adventure resources that have not yet been put in value optimally. With proper investment in infrastructure and ancillary services and an adequate promotion, these resources would be able to become competitive tourism products internationally. Therefore, it can be said that tourism in Peru is in a nascent stage. In this sense, inflation differentials with respect to the currencies of its main receptors (Dollar and Euro) inversely influence tourism incomes.

Thus, the second hypothesis is posed as follows:

Hypothesis 2: The price elasticity of tourism revenues in Peru is negative.

3. VARIABLES' DEFINITION AND MODEL SPECIFICATION

The study sample consists of macroeconomic data from the Peruvian economy for 2007-2011 taken from various official sources: Central Reserve Bank of Peru, National Institute of Statistics and Informatics, Andean Community, Ministry of Foreign Trade and Tourism, OECD, and World Tourism Organization.

Most previous studies in this field are based on the classical theory of demand. Economic theory points out that price is an important determinant of demand. Therefore, tourism demand studies conceptualize two price components: the cost of living at a destination and the cost of tourism in competing destinations (Dogru et al., 2017).

Thus, tourism expenditures will be a decision in the process of resource allocation among the various components of spending. Furthermore, it is assumed that the elasticity of tourist services is infinite so that demand can be estimated in isolation without incurring estimation bias (Alvarez et al., 2007)[1].

The relevant dependent variable of the study is Tourism Demand (TD). It is proxied by the income from the Travel section of the Balance of Payments provided by the Central Reserve Bank of Peru. This variable refers to the value of goods and services acquired from an economy for their own use or gifts by nonresidents during their visits. It has excluded the expenses associated with international transport of non-residents on their visits to other economies, which appears under the "Passenger Transport Services" section. The total income has been deflated by a price index representative of the consumption of non-resident tourists. This index is compiled from the COICOP (Classification of Individual Consumption According to Purpose) groups consumer price index, adding them as a weighted average with weights, considering the structure of nonresidents tourist expenditure in Peru arising from the Tourism Satellite Account of Peru that elaborates the Andean Community.

The first independent variable is the real income of non-resident tourists (NRT). It measures the prices in a destination relative to prices in the tourist-originating country and captures the effects of price differences between the origin country and receiving destinations (Dogru et al., 2017). NRT is proxied by using the real income of the main origin markets of tourists visiting Peru to proxy that variable. NRT has been calculated as a geometric average of the real GDP of the main generating tourism countries to Peru (USA, Argentina, Spain, Brazil, UK, France, Canada, Germany, Japan, and Italy)[2], where the weights are calculated according to the importance of tourists from each country in the total number of tourists, according to information supplied by the Ministry of Tourism and OECD. No correction is applied by Purchasing Power Parity (PPP) common in other studies because

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[1]Although the assumption of infinite supply elasticity could be very restrictive for destinations under development or expansion, we believe that the situation in Peru is fulfilled thanks to the abundant supply of tourist accommodation, despite the lack of adequate transport infrastructure network.

[2] Border movements made by citizens of Chile, Bolivia and Ecuador have been excluded because, in most cases, they are not related to tourism, but to business or personal purposes, as shown by the records of the Department of Immigration and Naturalization (DIGEMIN).

the estimation of the PPC is subject to many uncertainties. Besides, being a series of constant prices, this correction only causes a change in the level of the series, what would not affect the estimation of the basic parameters of the model.

Lastly, relative prices (RP) have been calculated using the standard formula of the real effective exchange rates. Thus, prices are approximated by the consumer price index of the sending countries. The weights have been considered in terms of the importance of each issuing country in the total flow of tourists.

The proposed model is as follows:

$$TD_t = \beta_0 + \beta_1\, NRT_t + \beta_2\, RP_t + \varepsilon_{i,t}, \tag{1}$$

Where t indexes time (calendar quarters), and $\varepsilon_{i,t}$ stands for the stochastic error. To test the hypotheses, a model of a single-equation error correction mechanism is used.

4. RESULTS AND DISCUSSION

Table 1 shows the evolution of tourism receipts in USD million annualized over the period 2007-2011.

Table 1. Evolution of tourism revenues in Peru.

	2007	2008	2009	2010	2011
Tourism Revenues	1.950	1.991	2.046	2.008	2.360

Note: Data in millions of USD. Source: Balance of Payments BCRP.

The upward trend of tourism revenues is interrupted in 2010 by the worsening financial crisis in Europe and the United States, which are the major tourism source markets for Peru. This allows us to think that tourism demand is somewhat sensitive to changes in the economic situation of the countries of origin of tourists. However, the initial growing path is resumed in 2011.

Table 2 reports the Pearson correlations among the variables. While the real income of non-resident tourists (NRT) is positively related to tourism demand (TD), the relationship turns negative for the case of relative prices (RP).

Table 2. Correlations of the variables.

Variable	NRT	RP
TD	0.91***	-0.01**
NRT		-0.01

Note: *** indicates a confidence level greater than 99%, ** 95%.

Table 3. Results of the estimation of model 1.

	(1)	(2)
NRT	0.01***	0.01**
	(-21.53)	(-21.45)
RP	-0.51**	-0.50**
	(-9.48)	(-9.51)
ROBUST	NO	YES
Constant	14.83*	11025*
	(2.46)	(2.16)
R-squared	0.90	0.79
Durbin − Watson	2.45	2.11

Note: Numbers in parentheses represent the posterior standard deviations. *** significant at 99% confidence level; ** 95%; * 90%.

The proposed hypotheses are tested following the single-equation error correction mechanism, which allows considering current values of integrated variables, by ordinary least squares (OLS), to obtain estimates of long-run parameters. An estimation using the *robust* parameter is also provided. Results are reported in Table 3.

On the one hand, the obtained results show that the real income of non-resident tourists (NRT) is significant and positively related to tourism demand (TD). However, the income elasticity with respect to tourism demand

reaches a value of 0.01, meaning that tourism cannot be considered a luxury good. Meanwhile, the low value of the coefficient shows a tendency to no income elasticity with respect to tourism demand in periods of crisis (Ryan, 1991), thus confirming the first hypothesis. These results reveal that Peru is a paradigmatic case of the extension of "mass tourism" in emerging countries.

On the other hand, Relative Prices (RP) have a significant negative relationship with tourism demand (TD). Additionally, the sensitivity of revenues from tourism versus relative prices has an estimated elasticity that reaches -0.51. This result confirms our second hypothesis. Accordingly, the response of tourism income in Peru to changes in inflation differentials is not high since the Peruvian tourism industry is in a developing stage. In fact, the appreciation of the PNS (Peruvian New Sol) against the dollar and especially the euro, has helped to increase tourism revenue during the studied period.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Using macroeconomic data for the period 2007-2011 in Peru, this study finds that the real income of non-resident tourists is positively related to tourism demand, whereas the relationship turns negative when considering relative prices. Additionally, it is shown that tourism in Peru is not eligible as a luxury good, while there is not a high sensitivity of real income from tourism to inflation differentials.

These results may have some relevant implications for policymakers. A better understanding of tourism demand in times of economic recession is provided, by identifying relevant variables: real income of non-resident tourists and relative prices. Thus, the authorities should better identify the relevant generating tourism countries to Peru and establish a policy to better diversify them. In this sense, it is important to promote a differentiated touristic offer. Additionally, the obtained results are related to a crisis period. Hence, it is essential to maintain the growth path of Peruvian tourism to consolidate it in periods of economic stability too.

One of the main limitations of this study is the lack of reliable data on the main competitors of Peru. Besides, the proposed model is purely economic, lacking the analysis of other relevant variables such as the supply of attractions and services, information and tourism marketing, and the social and political stability of the country. Thus, possible lines of future research could be directed towards improving the proposed model by introducing these and other macroeconomic variables that consider issues such as climate and alike.

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