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Tourism expenditures and crisis transmission: A general equilibrium GVAR analysis with network theory

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ABSTRACT

According to the World Tourism Organization, during the last decades, tourism has become one of the largest and most dynamic economic industries in the world. In this work, we employ a Network General Equilibrium GVAR model to analyze the impact of tourism expenditures on GDP and our approach allows for the existence of dominant economies in the system. The model is estimated simultaneously as a system of equations for a large panel of world economies and the results show that the less developed economies are quite vulnerable to changes in the tourism expenditures of the dominant economies. Meanwhile, USA is found to be largely unaffected by shocks in the tourism expenditures of the less developed economies.

Introduction

During the last decades, tourism has become one of the largest and most dynamic economic sectors in the world. According to the World Tourism Organization (UNWTO), "International tourist arrivals have increased from 25 million globally in 1950, to 278 million in 1980, 527 million in 1995, and 1133 million in 2014. Likewise, international tourism receipts earned by destinations worldwide have surged from US$ 2 billion in 1950 to US$ 104 billion in 1980, US$ 415 billion in 195 and US$ 1245 billion in 2014" (UNWTO, 2015). Moreover, UNWTO estimates that tourism accounts for about 9% of world GDP and employment, and about 1.5 trillion US dollars exports, which constitutes 6% of total world's exports and 30% of services exports. Now, it is estimated that the emerging economies account for about 45% of world's international arrivals and 35% of international tourist receipts, while the BRICs account for about 13% of world's international arrivals and 16% of international tourist receipts.

Moreover, tourism in EU constitutes the third largest economic activity after the trade and construction sectors. The European Commission estimates that tourism accounts for more than 10% of GDP and more than 12% of employment in EU. Also,

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EU constitutes the most popular tourist destination in the world and one of the top source regions of outbound tourism. Finally, the US account for about 7% of world's tourism arrivals and about 14% of international tourist receipts. On the expenditure side, the BRICs contribute about 21% of international tourism expenditures, whilst the EU contributes about 34% and the US contributes about 11%. Thus, it follows that BRIC's, EU and US account for more than two thirds of international tourism expenditures.

After all, in the globalized era, the growth of the tourism sector depends on its ability to overcome the increasing obstacles that arise from the perceived cultural distance and intercultural competence of various travelers who influence interrole congruence, interaction comfort, adequate and perceived service levels, and satisfaction (Sharma, Tam, and Kim, 2009). Nevertheless, the ongoing crises around the globe set another important obstacle for the tourism sector. In this context, for tourism sector it is apparent that the prevailing question in terms of the tourist industry is how it will be affected by the ongoing crisis, especially since the number of incoming visitors is likely to be strongly determined by the business cycles in the countries of origin (Dekimpe, Peers, & van Heerdy 2016). In other words, what would the impact of a potential slowdown of the emerging economies' tourist activity be on other major economies (e.g. US, EU)? And what is the impact of the recent economic crisis (US, EU) in the emerging markets' tourist activity? Despite early efforts made by Kim, Lado, and Torres (2009) on identifying and assessing the evolution of consumers' differential reactions to major service attribute classes that resulted from and were propagated by a severe financial crisis, thus far no adequate attention has been paid to the impact of economic activity on the service sector, and more specifically, on tourism.

In the field of tourism, in recent years there are a growing number of studies investigating the relationship between tourism and economic activity. These studies have used different methodologies. For example, Lee and Chien (2008), Chen and Chiou-Wei (2009), Arslanturk, Balcilar, and Ozdemir (2011), Schubert, Brida, and Risson (2011) and Arslanturk and Atan (2012) have based their investigation on time-series analysis; Lee and Chang (2008), Chou (2013) and Tugcu (2014) have used panel data; Po and Huang (2008), Ivanov and Webster (2013), and Webster and Ivanov (2014) have based their research on cross-section analysis; Atan and Arslanturk (2012) have used the tool of input–output analysis; Zhou, Yanagida, and Leung (1997) investigated the impact of tourism on the economy of a region on the basis of a computable general equilibrium model;[1]

while De Vita and Kyaw (2016) use a generalized method-of-moments for a panel of 129 countries, over the period 1995–2011, and find evidence in favour of economic growth from tourism activities. From the aforementioned studies as well as from other relevant studies,[2] we may say that there is a rather no unambiguous relationship between tourism development and economic growth. For example, Dekimpe et al. (2016), in a prominent paper, provides evidence in favour of the sensitivity of the tourism sector to macroeconomic business cycles, while Chen (2013) analyzes the tourism cycle in the US economy using a Markov Switching Model. In the meantime, Antonakakis, Dragoumi, Eeckels, and Filis (2016), in a prominent work, explore the relationship between tourism and economic activity using a panel VAR approach attributing the heterogeneity of their findings to the role of democratic institutions.

In a different approach, Tugcu (2014) concludes that the European countries in the Mediterranean region are better able to generate growth from tourism than the other countries in the same region, while Lee and Chang (2008) conclude that tourism development has a higher impact on GDP in non OECD countries than in OECD countries. Moreover, Po and Huang (2008) noticed that the contribution of tourism in economic growth depends on the degree of specialization of a country in tourism activities, while, more recently, De Vita and Kyaw (2016) found a statistically significant contribution of tourism development in growth only for the middle- and high-income countries but not for the lower-income countries. Thus, it seems that the relationships between tourism activities and economic growth are rather complex and further investigation on the subject would be of great interest.

The aim of this paper is to investigate the impact of shocks in tourism expenditures on GDP among a panel of countries that include: China, Russia, Brazil, India, Japan, Australia, Canada, US and EU17.[3]

The selection of the countries is based on the fact that they account for more that 90% of global production, and about two thirds of international tourism expenditures and, therefore, we may assume that the results of our analysis will have general validity.

The present work builds on the prominent work of Acemoglu, Carvalho, Ozdaglar, and Tahbaz-Salehi (2012) and Pesaran and Yang (2016) and, more specifically, we utilize the network system structure proposed by Acemoglu et al. (2012) in order to model the interdependencies among a selected panel of world economies, using a general equilibrium framework. Additionally, we investigate the pervasiveness of each economy in the network using the δ-value characterization established by Pesaran and Yang (2016), while we extend the modeling choice of Spartial Vector Autoregressive schemes proposed by these authors, by using a GVAR process, which acts as an infinite approximation to the global factor augmented process. Finally, based on the selection of dominant entities proposed in Tsionas, Konstantakis, and Michaelides (2016) and Konstantakis, Michaleides, and Tsionas (2016), we provide a robustness analysis for the dominance characterization of each economy

[1] For arguments in favor of the use of computable general equilibrium models in evaluating tourism's economic effects, see, for instance, Dwyer, Forsyth, and Spurr (2004).

[2] For a detailed review of all the relevant studies, see Pablo-Romero and Molina (2013).

[3] In this paper, the EU17 economy is considered as a single economy and includes the economies of: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovak Republic, Slovenia and Spain.