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### **Economic Growth, Tourism & Sustainability – A Thorough State of The Art**

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### **Abstract**

Tourism industry is a very important way of helping country regions or the territory. But, besides its positive influence – like employment, fiscal payments, and... – on local development there is no doubt that tourism has also some negative ones. Over tourism of some cities and regions is now in the debate for bad reasons, with many people contesting in the streets, complaints against its noise and waste, and increasing local cost of life, among others. While experts discuss how to mitigate climate change and reduce CO2 emissions and waste reduction, others discuss how to implement a green, blue, and circular economics to strength growth. This points to the question of developing tourism and economic growth sustainability.

Hundreds of articles, in high-level international journals from all over the world, try to face and participate on these modern and necessary debates with many approaches, variables and proxies, complex econometric models and technologies from panel data models – static and above all dynamics -, ARDL, VAR and VECM, Granger multivariate causality techniques, to Bayesian model averaging (BMA), among others. They try to estimate and weigh observable and unobservable factors related to time- and country-specific effects with all variables considered at their past value to avoid simultaneity bias problems, among many complicated problems that affect model estimations and coefficients signs. The results found in these various empirical papers differs from country and region to country and region, sometimes even they are opposite and even contradictory, these diversities of results being explained either by the country, by the variables and proxies or by the methods considered. With so many works and results published by so many experts a meta-data analysis of the results is a powerful way to try to make their synthesis and achieve some useful conclusions. This is the aim of this research.

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To end these considerations, we must add that there are several ways to achieve carbon neutrality and sustainability, including reducing energy consumption, developing sources of clean energy, switching to equipment that are more energy efficient, and being mindful of, and reducing, energy wastage. Some of them are responsibilities of the productive sector, others are responsibilities of tourism customers. Policymakers should have this in mind when approving new measures or policies related to this sector if they want to contribute to achieving carbon neutrality and sustainability of the sector. It is urgent to save the planet. This research aims to discuss problems and solutions encountered discussed in the respective publications. It fills a gap in the tourism literature.

**Keywords:** *Tourism, tourism-led growth hypothesis, economic growth, sustainability, meta-analysis*

**JEL Classification:** O, F, Q, Y

**Thematic Areas:** 6. Sustainability, environment, and natural resources.

## **1.Introductory considerations**

Tourism is a key sector to promote regional growth, especially for regions located in developing countries and even in developed countries (Yang and Fik 2014). Being, properly managed and the tourist carrying capacity respected (van der Borg, in Coccosis and Mexa, 2017), the tourism sector can positively push other sectors of local economies through spillover effects and become a relevant driver of economic growth (Cernat and Gourdon, 2012; Brida et al., 2016; Kadiyali and Kosová, 2013). Investing in tourism promotes growth of rural, coastal, and peripheral areas usually underdeveloped (Hohl and Tisdell 1995). And developed ones, too.

There is a substantial body of literature that covers this topic: 1) a group of them studies the relationship between tourism and economic growth (Shahzad et al., 2017; Perles-Ribes et al., 2017; Croes, Ridderstaat, and van Niekerk, 2018; Dogru and Bulut, 2018) and concludes that there is a positive correlation between tourism and economic growth. 2) A 2<sup>nd</sup> one, analyzes the effect in causal terms (Dogru and Bulut, 2018). 3) A 3<sup>rd</sup> group of studies show how tourism can be an important factor in mitigating the negative effects of an economic crisis (Perles-Ribes et al., 2017), especially in peripheral regions and on isolated islands (Katircioglu, 2009; Croes, Ridderstaat, and van Niekerk, 2018). Several scholars also focus on how tourism can maintain regional development by enhancing the expenditure of external consumers or by supporting the formation of new services capable of attracting inhabitants with positive effects on local spending. (Ruault, 2018).

Overtourism enters also in the discussion on tourism as a driver of regional economic and social development. In numerous studies it has been demonstrated that, if the tourist carrying capacity of destinations is not violated, tourism remains a very important source of regional development. (Biagi and Detotto 2014; Peeters et al., 2018; UNWTO, 2018; van der Borg, 2017). The recent Covid-19 disease is also proving that the tourism sector can also be a cause of economic crises if the regions/countries that are too many dependents on the tourism industry. The tourism-led growth hypothesis has attracted much attention from scholars, especially in recent years, and testing empirically its predictions has become one of the most important research lines in tourism economics.

In a review, only 4 of 87 studies pointed to evidence of a null effect of tourism on growth (Song et al., 2012). Comprehensive reviews of the literature reveal that the relationship between tourism and growth is almost always confirmed (Pablo-Romero and Molina, (2013) and Brida, Cortes-Jimenez and Pulina, (2016)). Nonetheless, only a reduced number of studies analyzed which specific regional characteristic of touristic supply contributes the most to stimulate both regional competitiveness and economic growth (in parallel).

Regions can be characterized by the concept of territorial capital—which is defined as a set of specific endowments / assets) owned and exploited to increase competitiveness (Camagni and Capello (2013). The same concept can be applied to define regional territorial characteristics to describe a territory's touristic supply and represent assets capable of motivating economic growth. The identification of territorial capital dimensions related to the regional touristic supply, was done by ATTREG (2011), a project funded by the ESPON programme to understand the determinants of regional attractiveness in terms of various types of audiences (citizens and visitors). The ATTREG project developed a theoretical model based on the concept of attractiveness, intended to capture how a place is perceived by visitors and residents in relation to the types of territorial capitals offered by the place itself. In other words, attractiveness is seen as the interaction among a complex set of characteristics based on the presence (or absence) of certain forms of territorial capitals (assets or endowments). The level of attractiveness of a place is determined by the combination of different assets and from the way(s) in which such assets are mobilized, both by non-governmental organizations and institutional actors.

On his turn a recent paper (2021) uses a combination of OLS econometric models and Bayesian Model Averaging (BMA) approaches to estimate the most influential determinants of GDP (Nicola Camatti Luca Salmasi Jan van der Borg, 2021).

To end these considerations, we must add that there are several ways to achieve carbon neutrality and sustainability, including reducing energy consumption, developing sources of clean energy, switching to equipment that are more energy efficient, and being mindful of, and reducing, energy wastage. Some of them are responsibilities of the productive sector, others are responsibilities of tourism customers. Policymakers should have this in mind when approving new measures or policies related to this sector if they want to contribute to achieving carbon neutrality and sustainability of the sector. It is urgent to save the planet.

The remainder of this study is organized as follows. Section 2 presents a literature review of the topic publications, section 3 covers a list of Methods & Empirical strategies used by research, section 4 presents a Meta-analysis, and section 5 discusses the results and concludes.

## **2. State of the art**

The central role played by territorial capitals in determining regional economic growth was established by Camagni and Capello (2013). Territorial capitals represent the specific endowments/assets that a region possesses and can exploit to promote economic growth. This approach is strongly supply-oriented, proven by many prominent papers in the

regional growth literature, and it is the approach that proved to be most effective in predicting the determinants of economic growth. However, results from this literature are mixed, and there is not yet agreement about which territorial assets are the most relevant in predicting economic growth.

On one side, there are the traditional determinants of economic growth (capital and labor); on the other, there are a wide range of non-traditional factors, including infrastructure endowments, natural and cultural resources, and social capital, among others. The influence of these determinants has already been tested separately, to some extent, by previous empirical papers, but they have never been considered together to provide a comprehensive frame for the interpretation of regional development and innovation factors; indeed, this approach is completely new in the literature that explains economic growth with tourism. Among non-traditional factors, the influence of social capital has been largely studied by regional economists, who assume that intangible assets, synergies, and institutional factors have been very important to promoting economic growth (Putnam, 1993; Camagni, 1999; Faray, 2006; Capello, 2006; Storper, 2003; Camagni, 2003; West-Lund, 2006; Fritsch & Storey, 2014; Panzer-Krause, 2019).

However, other types of territorial capitals have been identified by the OECD and were recently considered by the Commission of the EU-European Union. According to these studies, each region possesses a specific territorial capital, different from that of other regions, in which it would be more desirable to invest to produce positive externalities for the territory itself and for surrounding areas. However, there is still no consensus about which elements should constitute territorial capitals.

Some indications are given by the EU Commission, stating that such factors should include the area's geographical location, size, factor of production endowment, climate, traditions, natural resources, quality of life or the agglomeration economies provided by the cities/places and business networks. Other factors may be understandings, customs and informal rules that enable economic stakeholders to work together under conditions of uncertainty and a combination of institutions, rules and practices that make creativity and innovation possible.

In the tourism economic literature, a model for the attractiveness of European regions and cities for residents and visitors was studied, to describe how to exploit the set of endowments, or territorial assets, owned by each region to attract different types of audiences to a given destination and what actions can be taken by policymakers to mobilize these assets. (ATTREG). The model is based on the concept of attractiveness, which is understood as how a place is perceived by visitors and residents in relation to the types of assets that it has to offer. In the ATTREG model, attractiveness is built through the interaction of a complex set of characteristics based on the presence (or absence) of certain forms of territorial capitals (assets or endowments). The premise on which the ATTREG model is based is the concept of territorial capital, which is represented by a complex system of natural and socio-economic elements that define the uniqueness of local assets and the capacity to attract tourists and visitors. Territorial capital is composed of four elements: economic, institutional, physical / environmental, and social environment capitals, to which the ATTREG model adds "social and cultural" and "anthropic" capitals. (Deas and Giordano, 2001).

The level of attractiveness of a place is determined by the combination of different assets and by the way(s) in which such assets are mobilized, both by non-governmental organizations and institutional actors (Fernandez, Pena-Boquete, and Pereira, 2009; Perez-Dacal, Pena-Boquete, and Fernandez, 2014). Evidently, this level of attractiveness cannot be stimulated without limits; destination management strategies must be implemented according to sustainability principles and with the awareness that there is a limit to the tourism carrying capacity of a destination (Butler, 1996; Ritchie and Crouch, 2000; Navarro, 2012) and (O'Reilly, 1986). Exceeding this limit threatens to irreparably damage tourism attractiveness and competitiveness due to the onset of a multitude of negative effects that tend to outweigh the initial benefits, leading the destination to its decline or death. (Buhalis, 2000; McIntyre, 2011; Ritchie and Crouch, 2004, Archer et al., 2005; Coccosis, 2017, Butler, 1980; Giannoni and Maupertuis, 2007).

The phenomenon of over tourism, which affects an increasing number of global destinations each year, refers not to tourism itself, but to when its consequences become 'too much', compromising the quality of visitors' tourist experience and the quality of life of the residents (Peeters et al., 2018; WTTC and McKinsey, 2017, Namberger et al., 2019, Hovinen, 1982; Canestrelli and Costa, 1991; Hovinen, 2002, Mathieson and Wall, 1982). However, if these limits are respected through suitable destination management and marketing policies, tourism can still be an important resource for the growth of a region (Coccosis and Mexa, 2017; Navarro, 2012).

A second study to which we refer frequently is the Tourism and Travel (T&T) sector Competitiveness Index (TTCI) developed by the World Economic Forum and intended to create a ranking of touristic destinations according to their level of competitiveness. The ranking and indicators provided have the advantage of representing the entire world, but they lack territorial variability within each country. The final index is obtained as the sum of three sub-indexes that represent different pillars of national touristic sector competitiveness. The first sub-index represents the T&T regulatory framework, the second captures the T&T business environment and infrastructure and the third measures T&T human, cultural and natural resources. Each index is then subdivided into several pillars (or dimensions) that are meant to serve as proxies for the sub-index to which they refer. The three sub-indexes, however, capture territorial endowments that are very similar to those that the ATTREG project measured.

In fact, the regulatory framework measured by the TTCI is represented well by the institutional capital dimension of the ATTREG model, whereas the business environment and infrastructure measure are captured through economic and social capital; finally, human, cultural and natural resources are captured by the social, environmental, and anthropic capitals of the ATTREG model. Even though the number and types of indicators can vary, at least from a conceptual point of view, the two projects are very similar in spirit, and they share the idea of expressing the touristic sector level of competitiveness and performance with a multidimensional index capable of considering different sources of attractiveness of a territory.

### **3. Methods & Strategies**

Among the empirical methodology used Nicola Camatti, Luca Salmasi, Jan van der Borg (2021) use an interesting one composed by 2 parts: 1) an econometric model to estimate the effect of territorial capital on economic growth, with a standard OLS specification, that can be expressed as follows  $lyt = a + tlyt -1 + Xt b + vt$ , where  $lyt$  represents the logarithm of real GDP per capita in PPS,  $lyt -1$  is the logarithm of real GDP per capita in PPS in  $t-1$  and is included to capture dynamic effects that are likely to arise when using time-series data. In panel data, time dependence is often assumed because of the presence of costs of adjustments or other behavioral frictions that lead almost naturally to the use of a dynamic model including time lags of the dependent variable among regressors.  $X t$  represents the vector of covariates (i. e., territorial assets) and a set of time and country dummies to capture other unobservable factors related to time- and country-specific effects. All variables are considered at their past value to avoid simultaneity bias problems. The Bayesian model averaging (BMA) is also used to understand which of these are more likely to be correlated with the outcome variables adopted to measure the MED regions' touristic performances. When we choose a given specification for our empirical model, there is no assurance that it is the one that best fits the data; in fact, in the presence of model uncertainty, there could be another model that also provides a good fit but leads to different parameters, standard errors or predictions (see Regal and Hook, 1991; Draper, 1995; Madigan and York, 1995; Kass and Raftery, 1995; Raftery et al., 1997). BMA provides a statistical tool to overcome this problem, allowing a researcher to compare a very large number of specifications and choose the one that best fits the data. There are other methods that had been used in the same context. It is the case of panel data models, ARDL, VAR and VECM, and Granger causality techniques, among others.

#### **4. A Short Meta-analysis**

A meta-regression analysis can help to explain the extent to which the data choice selection, specification techniques, and methodological approaches influence the reported results (Stanley 2001). To apply the meta-regression analysis, we can follow the guidelines outlined in Stanley et al.'s (2013) and Stanley's (2001) articles, both published in the *Journal of Economic Surveys*. (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021). The first step in a meta-regression analysis is to collect the maximum possible number of empirical studies on the topic.

To this end, a systematic search of the academic literature must be done. The topics are WoS-Web of Science, Scopus, Google Scholar, WoK, and other journal databases (e.g., ScienceDirect, Wiley Online Library, Taylor and Francis, Springer, and others). The keywords can be "tourism" "economic growth", "effect of tourism on economic growth", "tourism-led growth hypothesis", "impact of tourism on the economy". In this paper the search process was continued until no new studies could be found, "conceptual papers and those written in different languages other than English were excluded from the analysis", and 364 studies published between 1972 and 2017 have been used, the sample comprising journal articles, conference proceedings, working papers, theses, and books/book chapters. (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021). The articles were then selected to be included in the meta-regression analysis based on the following criteria: (1) the study must include a dependent variable describing economic growth; (2) the study must include an independent variable measuring tourism; (3) the

study must report an empirical estimate measuring the effect of tourism on economic growth; and (4) the study must provide information on precision of estimates (*t*-statistics or standard errors). One hundred twenty (120) studies, consisting of 601 estimates of the effect of tourism on economic growth, meet these criteria. Following Havránek and Iršová (2011), the multivariate method of Hadi (1994) is used to jointly detect outliers in both the estimates and its precision (the inverse of the standard error). Through this procedure of identification, 56 observations are deleted as outliers, reducing the sample to 113 studies and 545 estimates.

## 5. Discussion

Following Riley, Higgins, and Deeks (2011) and Borenstein et al. (2010), we employ a random effects model to provide an overall estimate of the average effect of tourism on economic growth. A random effects model considers that the true effect sizes vary from study to study (Borenstein et al. 2010, Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021). Findings from the random effects analysis of the tourism estimates extracted from the 113 studies yield a PCC of 0.380 ( $p < 0.001$ ), with a confidence interval of 0.328 to 0.433. According to H. Doucouliagos (2011), PPC values of greater than  $\pm 0.33$  in a meta-analysis in empirical economics are considered “large” (p. 10).

Therefore, this meta-regression analysis finds empirical evidence supporting the relationship between tourism and economic growth. The finding corroborates the results of studies that validate the TLGH (Antonakakis et al. 2016; Bilen, Yilanci, and Eryüzlü 2017; Brida and Risso 2009; Salifou and ul Haq 2017; Tang and Tan 2013). One of them relates to publication bias that has been found to be problematic in several fields of research such as education (Cook and Therrien 2017), management (Harrison et al. 2017), biomedical (Easterbrook et al. 1991), and economics (H. Doucouliagos and Stanley 2009). However, there has been little discussions of publication bias in tourism research. Our empirical results confirm the presence of publication bias, suggesting that studies predominantly report a positive and significant relationship between tourism and economics growth in support for the TLGH. (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021).

Researchers may have been tempted to report the “good news” that supports the theoretical postulates of the TLGH in contrast to skeptical findings. Such actions are often motivated by factors such as the researchers’ personal agenda, editors’ agenda, and organizations’ political and ideological viewpoints on certain issues (Neuliep and Crandall 1993; Rothstein, Sutton, and Borenstein 2006; Shadish et al. 2016). Similarly, Castro-Nuño, Molina-Toucedo, and Pablo-Romero’s (2013) meta-analysis also confirms the presence of publication bias in the literature on tourism and economic growth.

Most studies reports that tourism contributes positively to economic growth, with some few notable exceptions (Brida, Cortes-Jimenez, and Pulina 2016; Li, Jin, and Shi 2018). Pablo-Romero and Molina (2013) reviewed empirical research findings in a sample of 87 studies and found that 55 of them report a significant and positive relationship between tourism and economic growth, while only 4 identify an insignificant relationship between the two variables. (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021).

Brida et al.'s (2016) synthesis of more than 100 studies also suggests that very few studies find an insignificant relationship between tourism and economic growth. The publication bias also appears in the tourism and economic growth literature. It is also common across other areas of empirical economics research (C. Doucouliagos and Stanley 2013). C. Doucouliagos (2005) identifies substantial bias in the literature on the relationship between foreign aid and economic growth, while H. Doucouliagos and Paldam (2008) report bias in studies on the influence of aid effectiveness on growth.

The findings confirm that there is an authentic link between tourism and economic growth for many countries. The discoveries of the meta-regression results (with robustness check) suggest that the estimate of the relationship between tourism and economic growth is also sensitive to several other factors. The estimate of the TLGH is sensitive to the exchange rate of the destination. The destination's currency influences the tourism sector adversely by decreasing tourist arrivals, length of stay, and tourist spending (Chi 2015; De Vita 2014; Demir and Gozgor 2018; Falk 2015; Stauvermann et al. 2018, Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021).

Studies using a larger set of observations to test the TLGH are likely to report lower estimates. From a statistical standpoint, this is because at a constant  $p$  value, effect size declines as a function of the number of observations (Greenwald et al. 1996, Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021). This finding is consistent with those of Valickova et al. (2015), who find that the coefficient of the relationship between financial development and economic growth is influenced by the number of observations used.

Although studies on the TLGH that are based on large observations have several advantages, they are likely to report statistically significant results with lower effect sizes at a constant  $p$  value than studies using smaller observations. Thus, the marginally significant effect of tourism on economic growth observed in studies may mean that, in reality, the relationship may be quite modest and might almost be trivial at the individual country level. This is because statistical significance testing is designed for use in small samples rather than large samples (Kaplan, Chambers, and Glasgow 2014, (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021).

The choice of proxy for tourism and economic growth has some consequences on the reported estimates. Use of GDP as a proxy for economic growth lowers the estimate. But the use of real GDP, GDP per capita, or real GDP per capita as proxies for economic growth does not have a significant influence on the reported estimate. The use of per capita tourism receipts proxy increases the estimates, while the use of tourism receipts as a percentage of export lowers the estimates. Thus, the ways in which variables are measured in a study influence the reported coefficient, a finding consistent with the results of meta-analysis in other areas of empirical economics. The measure used to approximate financial development influences the magnitude of its relationship with economic growth. (Valickova et al.'s, 2015).

Other meta-analytic studies got similar findings (Havránek 2015). (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021). Some studies investigate the relationship between tourism and growth, differentiating between the short and the long run (Brida, Cortes-Jimenez, and Pulina 2016; Pablo-Romero and Molina 2013). The estimate for the long-run effect of tourism on economic growth is larger than that for the short run. This result



corroborates the findings of Castro-Nuño, Molina-Toucedo, and Pablo-Romero (2013) and some meta-analysis carried out in other areas of empirical economics. Valickova et al.'s (2015) meta-analysis of the financial development and growth nexus finds that studies investigating such a relationship over the long run report higher estimates. (Nicola Camatti, Luca Salmasi, Jan van der Borg, 2021).

In the context of the TLGH, the impact of tourism on economic growth becomes more prominent in the long-run (Balaguer and Cantavella-Jordá 2002). Tourism, through its multiplier effects, achieves its full potential in the long run by bringing in foreign exchange that facilitates the purchase of capital goods for producing other goods and services that are necessary for promulgating economic growth. Thus, economies are not likely to derive the full benefits of tourism in the short run, but rather in the long run, although findings with respect to the time varying impact of tourism on economic growth is still inconclusive. While C. F. Tang (2013) finds no evidence that tourism contributes to economic growth in the short run, Jin (2011) finds tourism to have a positive effect in the short run but a negative effect in the long run.

The results of the study also suggest that the estimation techniques used by the various studies influence the reported coefficient. Studies using dynamic econometric models such as ARDL are likely to report a higher estimate than those using static models. An ARDL framework considers time-based variances among the explanatory variables and includes lagged dependent variables and causal variables (Hill, Griffiths, and Lim 2010). Dynamic models of TLGH based on an ARDL framework embed the notion that economic growth is dynamic, where growth in one period fosters tourism in another period, which in turn contributes to economic growth in the long run. (Nicola Camatti, Luca Salmasi, Jan van der Borg 2021).

The circular economy is based on some basic principles such as preserving and improving natural capital, optimizing resource returns, and promoting the eco-efficiency of systems. In this sense, the research carried out by Kirchherr et al. (2017) comprehensively addresses the concept of the circular economy and increasingly describing it as a combination of reduction, reuse, and recycling activities with some but few explicit links to sustainable development.

The main conclusion of this research focuses on the debate on how to use of the Circular Economy as a critical element in achieving quality environmental sustainability. In this way, negative impacts on the tourism industry, natural resources and land environment resulting from this industry could be avoided. The recycling and waste treatment sectors are essential to support the application of the circular economy to the sector and specifically to its institutional and business interests. For instance, on the issue of infrastructures, ports should inform their users about available waste reception facilities and that ports exempt from this responsibility should be registered in an electronic system to allow a minimum level of control; boat scrap yards or naval workshops should be equipped with contingency plans to avoid risks arising from the handling and storing of waste.

The main contribution of this research relates to the problems and solutions encountered in developed and developing countries where tourism growth is an essential activity for economic development. It follows that demand for this type of market activates the scrapping industry of many products that have reached the end of their life cycle, starting

the process of dismantling, scrapping, depositing, and recycling in a circular economy point of view. Therefore, the importance of integrating these circular economy strategies into the scrapping of recreational boats and many other tourism unused products in a way that ensures the sustainability of this industry promotes environmental responsibility and preserves the environment where these activities are borne out.

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Therefore, the importance of integrating these circular economy strategies into the scrapping of recreational boats and many other tourism unused products in a way that ensures the sustainability of this industry promotes environmental responsibility and preserves the environment where these activities are borne out. It fills a gap in the tourism literature.

One of the recommendations of this article related to the tourism sector to the policymakers is to move from a linear economy (based on manufacturing, use, and discarding) to a model that opts to reuse equipment, materials, and components, minimizing waste at the end of the process.

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