PESA Center for Political, Economic and Social Research PUBLICATIONS

INTERNATIONAL JOURNAL OF ECONOMIC STUDIES

ULUSLARARASI EKONOMİK ARAŞTIRMALAR DERGİSİ

December 2017, Vol:3, Issue:4 *Aralık 2017, Cilt:3, Sayı:4*
e-ISSN: 2149-8377 p-ISSN: 2528-9942
journal homepage: www.ekonomikarastirmalar.org

Panel Analysis of Tourism - Economic Growth Nexus

Adnan MUSLIJA, MBA
PhD candidate, University of Sarajevo, Bosnia and Herzegovina, adnanmuslija@msn.com
Elma SATROVIC, PhD
Assistant professor, Çağ University, Turkey, elmasatrovic@cag.edu.tr
Cansu ÜNVER ERBAŞ, PhD
Assistant professor, Çağ University, Turkey, cansu.u.e@cag.edu.tr

ARTICLE INFO

Article History:
Received 10 September 2017
Received in revised form 5 October 2017
Accepted 15 November 2017

Keywords:
Economic Growth, Tourism, Dynamic Panel Data, Income Disparities

ABSTRACT

Over the past several decades, the relationship between tourism and economic growth, for both developing and developed countries, has been a popular issue of debate. Taking into account the fact that the tourism is an important sector in the world economy, the knowledge of the sign and size of the impact of tourism earnings on economic growth is of particular importance to policy makers. This paper aims to explore the impact of tourism earnings on economic growth. Panel data of 113 countries are used for the years that span from 1995 to 2015. The potential contribution of tourism to economic growth is analyzed within the conventional augmented Solow growth model. GMM method is employed to account for a dynamic phenomenon of economic growth. The obtained results indicate a significant positive impact of tourism on economic growth. Furthermore, the obtained results indicate that tourism-economic growth nexus differs among income disparity. The obtained findings imply that low-income countries should enhance their economic growth by strengthening their tourism industry.

INTRODUCTION

The World Tourism Organization (UNWTO) indicates that tourism continues to be one of the best positioned economic sectors to drive inclusive socioeconomic growth, provide sustainable livelihoods, foster peace and understanding and help to protect our environment. Millions of tourist travel abroad and significantly affect the income level of countries. Thus tourism is considered to be a crucial sector nowadays. This paper will look at how tourism affects economic growth across 113 countries around the world for the years capturing 1995 to 2015. In order to confirm the importance of tourism industry, some statistical facts from 2015 as well as 2016 are presented.

According to UNWTO Annual report (2015), tourism arrivals has grown by 4% reaching up to 1,184 million tourists- only in France it is 84.5 million, in USA 77.5, in Spain 68.5, in China 56.9 and in Italy 50.7 million arrivals- in 2015 across the world comparing to the previous year, and this was expected to grow by another 4% in 2016. Indeed, the number of tourist arrivals increased by another 4% in 2016 (UNWTO, 2016) in which the total contribution of tourists for only China was 261 US$ billion, for USA, Germany, UK and France it was 122, 81, 64 and 41 US$ billion, respectively. With the figures such high, tourism has been considered a leading economic sector, contributing 10% of global GDP and 6% of the world's total exports (UNWTO, 2016). Representing more than just economic strength, these numbers reflect tourism´s vast potential and increasing capacity to address some of the world´s most pressing challenges, including socioeconomic growth, inclusive development and environmental preservation.

Due to the dynamic formation of the influx of people all around world throughout the year, we applied Generalized Method of Moments (GMM) which broadly will be justified in the methodology section. This paper, by far, has the widest range of sample size with a panel of 113 countries and 21 years of data (i.e. 2373 observation), and it is the latest data update. By disaggregating destination countries based on income disparity, we found that the results vary. In general, our findings confirm the significant impact of tourism on the economic growth of destination countries especially in low-income countries.

The paper proceeds as follows. Section 2 reviews the literature. Section 3 provides the source of data and the econometric model. Section 4, will cover the empirical results by providing interpretations, and finally section 5 will conclude the paper. The list of countries sampled will be presented in Appendix 1.

1. Literature review

Multiple numbers of scholars have looked at whether there is any link between tourism activity and economic growth of a country and the findings vary for the reasons such as the country's well-being based on its GDP, or whether tourism has an impact on the economic growth through other channels, or whether it has an impact on the productivity which eventually result in the economic growth. Popescu and Nisuleşcu, (2013) defined tourism as a reinforcing effect of economic system which might be results of the fact that tourism is a sector that enables cash flows in a country.

Also for undeveloped and developing countries it might be a motivation to keep the country better off in terms of the outlook of a country. Indeed, Eugenio-Martin *et al.* (2004), showed that to be able to attract tourists both low and medium income countries should improve the level of infrastructure and social development, which eventually result in economic growth in Latin American countries between 1985 and 1998.

Seetanah (2011), for instance, showed that tourism plays vital role in economic growth with conventional augmented Solow growth model by applying dynamic GMM for 19 island economies for 27 years of sample. This might be expected for other island economies as well since they mostly rely on tourism. Fayissa, *et al.* (2008) confirms that an increase in tourists spending result in a substantial increase in GDP level and the economic growth of sub-Saharan countries in Africa. Sequeira and MaçãsNunes (2008), indicate that tourism specialisation is of an important determinant of economic growth for poor countries, but is not as an effective factor for small countries as it is thought.

Brida*et al.* (2008), showed mixed results as such, in Brazil and Uruguay negligible impact of tourism on economic growth is observed while in Argentina and Mexico this impact is much higher and important for the years 1994-2004 as these are most tourism oriented countries amongst the countries sampled.

Durbarry (2004), found that in addition to the sugar and manufacturing sectors, there is a significant positive impact of tourism on economic growth of a small island Mauritius for the period 1970-1990. In an extensive literature survey by Pablo-Romero and Molina (2013) it has shown that the majority of the studies confirmed the tourism-led growth theories (i.e. tourism enhances economic growth of a country). Brida and Pulina (2010), in an extensive literature survey on tourism-led growth hypothesis, also show vast majority of the studies found tourism to be an important drive of economic growth both in developing and developed countries.

Narayan *et al.* (2010), showed that tourism-led growth hypothesis found to be valid in four small Pacific Island countries within the period of 1988 and 2004, as small countries have natural gifts in terms of weather and attractions. Belloumi, (2010) found that tourism-led hypothesis is held for Tunisia where tourism has a great share over total GDP, between 1970 and 2007.

Ghali (1976) looked at the relationship between tourism and economic growth from different perspective. As such, he investigated the economic growth in the presence and absence of tourism growth and showed, the economic growth has continued increasing in both cases while with tourism growth increased substantially more between 1953 and 1970. A similar approach is introduced by Ivanov and Webster (2007) as they compared the growth of GDP which is generated by tourism and by other industries, and concluded that although tourism is an important source of economic growth, other industries in total make greater contribution to the growth of GDP in Cyprus, Greece and Spain- where tourism is a vital economic source of these countries in late 1990s and early 2000s.

Ivanov and Webster (2013), looked at the overall perspective of whether tourism has any impact on economic growth over 174 countries –regardless of their well-being, size or such features- across the United Nations for the first decade of millennium. Their results suggest that the pattern for tourism and economic growth changes in line with political and social on-going in the world. For instance, a negative impact of tourism on economic growth is observed between 2001-2003 where 9/11 might have had an impact; a positive impact within 2004-2007 is observed with the exception of 2005 where the outbreak of SARS appeared; a negative impact of financial crisis between 2008-2009 result in a detrimental relationship between tourism and economic growth which then healed up again in 2010.

Dritsakis (2012), showed a significant impact on economic development of eight Mediterranean countries- where tourism is a substantial source of income- between 1980 and 2008. Lanza*et al.* (2003), found that comparing to other sectors, tourism is less powerful component of economics growth across 13 small open OECD countries, however, the growth of economy might be sifted if the terms of that trade is in their favour.

Almost similar approach is taken by Santana-Gallego*et al.* (2011), by showing that both in the short run and in the long run tourism has a positive impact on the country's economy through trade, as trade and tourism seem to have a bidirectional relationship and they eventually effect country's economy across OECD countries. Algeri (2006), found a positive and significant link between tourism and economic growth of countries in the vast majority of the countries sampled- which are mostly small but have high rate of natural attractions. This pattern is similar with particular small regions of countries. Soukiazis and Proença (2008) showed that tourism is an enhancing factor of economic growth in both 30 NUTS III Portuguese regions and 7 NUTS II regions for the period 1993 to 2001 under the condition that the tourism sector is improved.

Although, majority of studies found a definite relationship between tourism as a sector and economic growth, Vidal (2014) found no evidence as to tourism significantly enhance economic growth of 140 developing countries from 1995 to 2009, but still a positive relationship might be interpreted by the need of a better methodology. Holzner (2011),

suggested that any negative impact on economy which cause high inflow of foreign currency still do not effect positive tourism effect of country's economy for tourism-dependent countries within 134 countries over the period of 1970-2007 in the long run. Balaguer and Cantavella-Jorda (2002), showed a long run tourism effect on economic growth of Spain with a multiplier effect. Marrocu and Paci (2011) found that tourism enhance the knowledge diffusion which result in productivity growth of 199 European countries in their cross-sectional study.

2. Methodology and Variables

The growth model that has been adopted in this study is an augmented Solow growth model based on the principles of some earlier growth studies (Eugenio-Martı´n*et al*., 2004; Levine, *et al*., 2000; Seetanah, 2011; Fayissa, *et al*. 2011). Therefore, the conventional sources of economic growth are included namely: investment in physical capital as a percentage of GDP (*FC*), human capital (*HumCap*), household final consumption expenditure per capita as a measure of income (*CON*). International tourism receipts in (current US$) variable is taken as a proxy of tourism (*TOUR*). A measure of the openness of the economy (*EXPgdp*) and a proxy for economic freedom (*EFI*) are taken as control variables. Real GDP per capita in current US$ (*GDPpc*) as a proxy of economic growth is taken as a dependent variable. The model can be summarized as:

$$Y = f(\text{TOUR}, \text{FC}, \text{HumCap}, \text{CON}, \text{control variables}) \qquad (1)$$

Tourism development approximated using international tourism receipts in (current US$) is increasingly being recognized as an important source of revenues as well as a crucial tool in promoting economic growth, alleviating poverty, advancing food security, environmental protection and multicultural peace and understanding across the globe, more especially in developing or emerging economies. This is due to the fact that tourism consumption directly stimulates the development of traditional industries such as civil aviation, railway, highway, commerce, food, accommodation and further promotes the development of modern services such as international finance, logistics, information consultation, cultural originality, movie production, entertainment, conferences and exhibitions (Wang *et al*., 2012).

Investment in physical capital (*FC*) and human capital (*HumCap*) account for the conventional sources of economic growth. Uzawa (1965) has assumed that an education sector that produces human capital exists in the economy. The resources that are allocated in the education sector are expected to produce new knowledge (human capital), new knowledge increases the rate of production and are therefore expected to have positive impact on economic growth.

When it comes to physical capital (*FC*) it is expected that an advanced production technology can be obtained by increasing the investment in physical capital (Xiaoqing, 2005). On the one hand, if manufacturing sectors process physical capital and advanced production technology resources can be put too rational use, and all of these will enlarge the scale of production and increase employment; therefore, the level of the national income can be improved.

Seetanah (2011) indicates that the impact of household consumption expenditures on economic growth is controversial. Neoclassical economic theory assumes that higher household consumption expenditures tend to lower economic growth by lowering investment because of reduced savings. On the other hand, Myrdal (1969) argues that increased household expenditures on health, nutrition and education are actually economic growth enhancing rather than growth-retarding, as healthy and educated households are more productive, contributing to economic growth. Consequently, the effect of household consumption expenditures (*CON*) on economic growth cannot be determined *a priori*.

Seetanah (2011) and Fayissa, *et al*. (2011) have emphasized the necessity to analyze the economic freedom while analyzing tourism-economic growth relationship. This is why the impact of economic freedom is controlled in this paper. *EFI* is a measure of the economic freedom index. Owen (1987) and Sen (1999) have argued that freedom (political, economic, social, transparency and security) is a necessary condition for economic growth. Heritage Foundation defines economic freedom as the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please.

Furthermore, it is indicated that economic freedom brings greater prosperity. The Index of Economic Freedom, that is used as a proxy variable of economic freedom in this paper, documents the positive relationship between economic freedom and a variety of positive social and economic goals. The ideals of economic freedom are strongly associated with healthier societies, cleaner environments, greater per capita wealth, human development, democracy, and poverty elimination. Economic freedom measure is based on 12 quantitative and qualitative factors, grouped into four broad categories, or pillars, of economic freedom: Rule of Law (property rights, government integrity, judicial effectiveness); Government Size (government spending, tax burden, fiscal health); Regulatory Efficiency (business freedom, labor freedom, monetary freedom) and Open Markets (trade freedom, investment freedom, financial freedom). Each of the twelve economic freedoms within these categories is graded on a scale of 0 to 100. A country's overall score is derived by averaging these twelve economic freedoms, with equal weight being given to each. Taking into account its positive impact of national income, this variable is taken as control in this paper.

In order to capture the impact of trade or openness of the economy on economic growth, the variable *EXPgdp* is introduced. *EXPgdp* stands for exports of goods and services (% of GDP). Empirical results most often suggest that, more outward-oriented countries register better economic growth performance, therefore positive impact of *EXPgdp*on economic growth is expected. However, this empirical evidence continues to be questioned for at least two main reasons: there are still some discussions and doubts on the way countries' trade openness is measured. On the one hand, the debate on the estimation methodology is still open. Taking into account these debates the trade openness is taken as a control variable in this paper.

All data were obtained from the World Bank Development Indicators (WDI, 2017), except *EFI* (which is taken from the Heritage Foundation). Our focus will be on a sample of 113 countries for the period 1995–2015, but for better comparative insights and discussions, we also extended the study while testing for income disparity. The countries used in this analysis are listed in the appendix 1.

All of the variables are reported to deviate from normal distribution (skewness-kurtosis test). In addition, some of the variables (*TOUR, GDPpc* and *EXPgdp*) are reported to contain unit root. The presence of unit root is tested applying Harris–Tsavalis unit root test. Due to these issues, and in order to ease interpretation and comparison between models, variables are expressed in natural logarithmic form.

The econometric specification without control variables can be written as follows:

$$y_{it} = \beta_0 + \beta_1 TOUR_{it} + \beta_2 FC_{it} + \beta_3 HumCap_{it} + \beta_4 CON_{it} + \varepsilon_{it} \quad (2)$$

where $i$denotes the different countries in the sample, and $t$denotes the time dimension. The meaning of variables is described above. β_0 is a constant term , $\beta_1 - \beta_4$ regression parameters while ε_{it} represents error term.

The model that takes into account control variables can be summarized as:

$$y_{it} = \beta_0 + \beta_1 TOUR_{it} + \beta_2 FC_{it} + \beta_3 HumCap_{it} + \beta_4 CON_{it} + \beta_5 EFI_{it} + \beta_6 EXPgdp_{it} + \varepsilon_{it} \quad (3)$$

The meaning of variables is given above.

Besides these, models will be estimated for three different income groups. Models are initially estimated using fixed and random effects model. Hausman test is used to decide between fixed and random effect. Taking into account potential dynamic phenomenon of economic growth, GMM method is employed.

2.1 Generalized Method of Moments

To incorporate dynamics into the model, equations above can be rewritten as an AR (1) model in the following:

$$y_{it} = \alpha_t + (v+1)y_{it-1} + \beta x_{it} + u_i + \varepsilon_{it} \quad (4)$$

where $y_{it}$is the logarithm of real per capita GDP, y_{it-1} is the lagged value of the logarithm of real per capita GDP, x_{it} represents a vector of explanatory variables, u_i is individual effect, ε_{it} – error term while α_t represents the period specific intercept terms to capture changes common to all countries.

We derive the coefficients (equation (4)) using the Arellano–Bond (1991) two-step GMM estimator to evaluate the joint effects of tourism receipts and the other explanatory variables on the economic growth of 113 selected countries, while controlling for the potential bias due to the endogeneity of some of the regressors.

3. Empirical Results and Interpretations

This section starts by presenting descriptive statistics. Table 1 summarizes the obtained results:

Table 1: Descriptive statistics

stats	TOUR	GDPpc	FC	EFI	HumCap	EXPgdp	CON
mean	7330000000	13443.8	21.92	62.12	85.53	43.66	8928.77
sd	17500000000	17467.9	6.07	10.33	23.72	30.62	9081.41
max	250000000000	119173	48.41	90.50	166.81	231.20	41427.90
min	1000000	111.36	-2.42	31.60	9.86	0.01	208.21
skewness	7	2.06374	0.27	-0.10	-0.56	2.72	1.30
kurtosis	67	8.41105	4.72	3.26	4.17	13.41	3.95
unit of meas.	USD	USD	%	%	%	%	USD

Source: Authors

As noted before all of the variables are reported to deviate from normal distribution (skewness-kurtosis test), this is why variables are expressed in natural logarithmic forms. Furthermore, all of the models are estimated using fixed and random effects. Based on the Hausman test, one of the models is selected and these results are presented below.

The obtained results in Model (1) indicate a significant positive relationship between tourism and economic growth. Besides this, a significant positive impact is also reported for physical and human capital as well as consumption. Extended model controls for the impact of trade openness and economic freedom. After the inclusion of control variables, the obtained coefficients do not significantly differ in sign, size and significance from the initial model. However, trade openness is reported to have a negative impact on economic growth. Models (2)-(4) that control for the impact of income disparity indicate a significant positive relationship between tourism and economic growth in high-, middle- and low-income countries in both initial and extended models. However, the highest impact is reported for high-income countries. GMM method is employed to account for a dynamic phenomenon of economic growth and a potential bias due to the endogeneity of some of the regressors. Table 3 summarizes the obtained results. Due to the low number of countries, model 4 is estimated using only static panel data estimators. Therefore, conclusion is based on these results.

Table 2: The estimation of static models, dependent variable *GDPpc*

	Model 1	Extended	Model 2	Extended	Model 3	Extended	Model 4	Extended
TOUR	0.320 (0.010)*	0.328 (0.010)*	0.342 (0.016)*	0.329 (0.018)*	0.303 (0.013)*	0.316 (0.013)*	0.074 (0.027)*	0.069 (0.024)*
FC	0.220 (0.033)*	0.206 (0.034)*	0.032 (0.052)	0.052 (0.053)	0.245 (0.041)*	0.228 (0.041)*	0.868 (0.200)*	0.308 (0.213)
HumCap	0.270 (0.033)*	0.261 (0.033)*	0.108 (0.063)	0.120 (0.063)	0.460 (0.049)*	0.422 (0.049)*	0.238 (0.054)*	0.195 (0.050)*
CON	0.264 (0.020)*	0.274 (0.020)*	0.913 (0.050)*	0.894 (0.051)*	0.268 (0.029)*	0.272 (0.028)*	-0.060 (0.037)	-0.003 (0.035)
EFI		-0.039 (0.042)		-0.012 (0.042)		-0.021 (0.061)		-0.264 (0.180)
EXPgdp		-0.088 (0.023)*		0.091 (0.051)		-0.133 (0.028)*		-0.580 (0.123)*
Cons.	-2.334 (0.251)*	-2.015 (0.307)*	-6.966 (0.503)*	-6.898 (0.532)*	-3.131 (0.317)*	-2.791 (0.406)*	1.593 (0.726)**	5.943 (1.196)*
R-sq	0.698	0.681	0.787	0.808	0.569	0.808	0.214	0.258
W. chi2	538.02	538.02	442.13	295.76	332.91	229.01	24.41	24.19
Prob	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Estimat.	FE	FE	FE	FE	FE	FE	FE	FE
Explanat.	Overall		High-income		Middle-income		Low-income	
Countries	113		42		66		5	

Note: * significant at 1% level, ** significant at 5% level
Source: Authors

Referring to the estimates of model (1) from Table 3, the tourism development indicator implies that the tourism has been an important factor in explaining economic performance in selected countries. The coefficient with the tourism proxy variable varies from 0.057 to 0.061, indicating a positive significant impact. The obtained results are consistent with up to date studies (Eugenio-Martı´n*et al.*, 2004; Levine *et al.*, 2000; Seetanah, 2011; Fayissa, *et al.* 2011).

Table 3: Arellano-Bond two step estimator, dependent variable *GDPpc*

	Model 1	Extended	Model 2	Extended	Model 3	Extended
GDPpc L1.	0.858 (0.001)*	0.856 (0.001)*	0.711 (0.009)*	0.708 (0.012)*	0.851 (0.004)*	0.853 (0.005)*
TOUR	0.061 (0.001)*	0.057 (0.001)*	0.090 (0.006)*	0.088 (0.011)*	0.065 (0.002)*	0.061 (0.002)*
FC	0.116 (0.001)*	0.125 (0.002)*	-0.001 (0.009)	0.010 (0.012)	0.133 (0.004)*	0.136 (0.006)*
HumCap	0.020 (0.018)*	0.019 (0.001)*	0.004 (0.011)	0.007 (0.026)	0.059 (0.003)*	0.058 (0.004)*
CON	0.068 (0.002)*	0.066 (0.002)*	0.436 (0.032)*	0.421 (0.006)*	0.043 (0.003)*	0.036 (0.008)*
EFI		0.004 (0.001)**		-0.002 (0.001)		0.009 (0.004)**
EXPgdp		0.057 (0.001)*		0.040 (0.013)*		0.047 (0.002)*
Cons.	-1.040 (0.013)*	-1.175 (0.026)*	-3.242 (0.220)*	-3.244 (0.256)*	-1.121 (0.028)*	-1.212 (0.067)*
Prob> chi2	0.000	0.000	0.000	0.000	0.000	0.000
Sargan test *p*	1.000	1.000	1.000	1.000	1.000	1.000
Autocor. test *p*	0.217	0.207	0.198	0.189	0.809	0.189
Explanat.	Overall		High-income		Middle-income	
Countries	113		42		66	

Note: * significant at 1% level, ** significant at 5% level
Source: Authors

It is worthy noticing that the contribution of tourism to economic growth is relative lower as compared to the classical ingredients of growth. In fact, based on its strong theoretical prediction, investment in physical capital (Xiaoqing, 2005 and Seetah, 2011) is reported to have played the most important role (reported coefficient of around 0.11). Human capital is reported to have a significant positive impact on economic growth which is supported by Uzawa (1965). Furthermore, the obtained results indicate a significant positive impact of consumption on economic growth that is in line with Myrdal (1969). These results that do not control for the impact of control variables do not significantly differ from extended models. Notwithstanding this it is important to emphasize the significant positive impact of trade openness which appears to be as important as tourism in enhancing economic growth.

As such consistent with Sen (1999) and Owen (1987), it is important to emphasize that an improvement in the index of economic freedom would lead to an improvement in GDP of selected countries. Interestingly, the positive significant coefficient with the lagged dependent variables in both cases denotes the presence of important dynamics in the tourism-growth hypothesis. This is in line with the findings of, Eugenio-Martı´n*et al.* (2004), Seetah (2011) and Fayissa*et al.* (2011).

Models (2)-(4) control for the impact of income disparities. Due to the low number of countries, model 4 is only estimated using static panel data estimators. Therefore, conclusion is based on these results. Taking into account results from tables 2 and 3, it can be concluded that tourism has a significant positive impact in high-, middle- as well as low income countries. In table 2, the strongest coefficient with tourism proxy is reported for high-income countries. The same holds true for table 3 (low-income countries are not taken into consideration taking into account aforementioned issue). Even though there are differences in obtained coefficients, these differences are not huge which implicates that tourism has been an important factor in explaining economic performance in all high-, middle- as well as low income countries. These findings support the fact that tourism has become a leading economic sector, contributing 10% of global GDP and 6% of the world's total exports (UNWTO, 2016). It is worthwhile noticing that the impact of variables significantly decreases after controlling for potential dynamics and endogeneity issue.

These results provide valuable insights and implications in assisting the development of low-income countries in a world of constraints related to their poorness, geographical dispersion, vulnerability to exogenous economic and financial shocks, small domestic market, lack of natural resources etc. It is worthwhile noticing that the consistency of the estimation using GMM depends on whether lagged values of the endogenous and exogenous variables are valid instruments in the estimated models and whether error terms are autocorrelated (Seetah, 2011). In this line, a test for autocorrelation and the Sargan test for over-identifying restrictions are conducted. Failure to reject the null hypothesis related to Sargan test of over-identifying restrictions (suggesting no invalid over-identifying restrictions) and the Arellano-Bond test of the second order autocorrelation (validating the use of the suitably lagged endogenous variable as instrument) give support to a correct model specification.

CONCLUSION

*This paper aims to explore the impact of tourism earnings on economic growth. Panel data on 113 countries is collected over the period 1995-2015.*Solow growth model is adopted in this study. Therefore, the impact of conventional sources of economic growth namely: investment in physical capital as a percentage of GDP (*FC*), human capital (*HumCap*), household final consumption expenditure per capita as a measure of income (*CON*) is explored. International tourism receipts in (current US$) variable is taken as a proxy of tourism (*TOUR*). A measure of the openness of the economy (*EXPgdp*) and a proxy for economic freedom (*EFI*) are taken as control variables. Real GDP per capita in current US$ (*GDPpc*) as a proxy of economic growth is taken as a dependent variable.

Models are initially estimated using static panel data estimators. The obtained results in model (1) indicate a significant positive relationship between tourism and economic growth. Besides this, a significant positive impact is also reported for physical and human capital as well as for consumption. Extended model controls for the impact of trade openness and economic

freedom. After the inclusion of control variables, the obtained coefficients do not significantly differ in sign, size and significance from the initial model. However, trade openness is reported to have a negative impact on economic growth. Models (2)-(4) that control for the impact of income disparity indicate a significant positive relationship between tourism and economic growth in high-, middle- and low-income countries in both initial and extended models. However, the highest impact is reported for high-income countries.

Moreover, GMM method is employed to account for a dynamic phenomenon of economic growth and a potential bias due to the endogeneity of some of the regressors. Table 3 summarizes the obtained results. Due to the low number of countries, model (4) is estimated using only static panel data estimators. Therefore, conclusion is based on these results. Referring to the estimates of model (1), tourism is reported to be an important drive of economic growth in selected countries.

It is worthy noticing that the contribution of tourism to economic growth is relative lower as compared to the classical drivers of growth. Human capital and consumption are reported to have a significant positive impact on economic growth. These results with(out) control variables do not significantly differ. Notwithstanding this it is important to emphasize the significant positive impact of trade openness which appears to be as important as tourism in enhancing economic growth. It is also important to emphasize that an improvement in the index of economic freedom would lead to an improvement in GDP of selected countries.

Models (2) and (3) estimated using GMM control for the impact of income disparities. Results indicate that tourism has a significant positive impact on economic growth in high- and middle- income countries. The strongest impact is reported for high-income countries. Failure to reject the null hypothesis related to Sargan test of over-identifying restrictions and the Arellano-Bond test of the second order autocorrelation give support to a correct model specification.

Results obtained using static panel data estimators indicate a significant impact of tourism on economic growth of low-income countries. Hence, these results provide valuable insights and implications in assisting the development of low-income countries in a world of constraints related to their poorness, geographical dispersion, vulnerability to exogenous economic and financial shocks, small domestic market, lack of natural resources etc.

REFERENCES

Algieri, B., 2006. International tourism specialisation of small countries. *International Journal of Tourism Research*, *8*(1), pp.1-12.

Apergis, N. and Payne, J.E., 2012. Tourism and growth in the Caribbean–evidence from a panel error correction model. *Tourism Economics*, *18*(2), pp.449-456.

Balaguer, J. and Cantavella-Jorda, M., 2002. Tourism as a long-run economic growth factor: the Spanish case. *Applied economics*, *34*(7), pp.877-884.

Belloumi, M., 2010. The relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia. *International journal of tourism research*, *12*(5), pp.550-560.

Brida, J.G. and Pulina, M., 2010.A literature review on the tourism-led-growth hypothesis. Source: http://crenos.unica.it/crenos/sites/default/files/WP10-17.pdf.

Brida, J.G., Pereyra, J.S. and Devesa, M.J.S., 2008. Evaluating the contribution of tourism to economic growth. *Anatolia*, *19*(2), pp.351-357.

Dritsakis, N., 2012. Tourism development and economic growth in seven Mediterranean countries: A panel data approach. *Tourism Economics*, *18*(4), pp.801-816.

Durbarry, R., 2004. Tourism and economic growth: the case of Mauritius. *Tourism Economics*, *10*(4), pp.389-401.

Eugenio-Martı´n, J. L., Morales, N. M., &Scarpa, R. 2004. Tourism and economic growth in Latin American countries: a panel data approach. FEEM Working Paper No. 26.

Fayissa, B., Nsiah, C., Tadasse, B. 2011. Impact of tourism on economic growth and development in Africa.*Tourism Economics*, Vol. 14 (4), 1-12.

Ghali, M.A., 1976. Tourism and economic growth: an empirical study. *Economic Development and Cultural Change*, *24*(3), pp.527-538.

Holzner, M., 2011. Tourism and economic development: The beach disease?. *Tourism Management*, *32*(4), pp.922-933.

Ivanov, S. and Webster, C., 2007.Measuring the impact of tourism on economic growth. *Tourism Economics*, *13*(3), pp.379-388.

Ivanov, S.H. and Webster, C., 2013. Tourism's contribution to economic growth: a global analysis for the first decade of the millennium. *Tourism Economics*, 19(3), pp.477-508.

Lanza, A., Temple, P. and Urga, G., 2003. The implications of tourism specialisation in the long run: an econometric analysis for 13 OECD economies. *Tourism Management*, *24*(3), pp.315-321.

Levine, R., Loayza, N., & Beck, T. 2000. Financial intermediation and growth: causality and causes. *Journal of Monetary Economics*, Vol. 46, pp. 31-77.

Marrocu, E. and Paci, R., 2011. They arrive with new information. Tourism flows and production efficiency in the European regions. *Tourism Management*, *32*(4), pp.750-758.

Myrdal, G. 1969. *Asian Drama: An Inquiry into the Poverty of Nations*, Pantheon Books, New York.

Narayan, P.K., Narayan, S., Prasad, A. and Prasad, B.C., 2010. Tourism and economic growth: a panel data analysis for Pacific Island countries. *Tourism economics*, *16*(1), pp.169-183.

Owen, E. 1987.*The future of freedom in the developing world*. Oxford: Pergamon

Pablo-Romero, M.D.P. and Molina, J.A., 2013. Tourism and economic growth: A review of empirical literature. *Tourism Management Perspectives*, *8*, pp.28-41.

Popescu, L.M. and Nisuleşcu, I., 2013. Tourism in time of crisis and influence in the process of economic increase. Comparative analysis Romania-Bulgaria-Greece. *SEA: Practical Application of Science*, *1*(2).

Santana-Gallego, M., Ledesma-Rodríguez, F. and Pérez-Rodríguez, J.V., 2011. Tourism and trade in OECD countries. A dynamic heterogeneous panel data analysis. *Empirical Economics*, *41*(2), pp.533-554.

Seetanah, B., 2011. Assessing the dynamic economic impact of tourism for island economies. *Annals of Tourism Research*, *38*(1), pp.291-308.

Sen, A. N. 1999. *Development as Freedom*. New York: Alfred A. Knopf.

Sequeira, T.N. and MaçãsNunes, P., 2008. Does tourism influence economic growth? A dynamic panel data approach. *Applied Economics*, *40*(18), pp.2431-2441.

Soukiazis, E. and Proença, S., 2008. Tourism as an alternative source of regional growth in Portugal: a panel data analysis at NUTS II and III levels. *Portuguese Economic Journal*, *7*(1), pp.43-61.

Uzawa, H. 1965. Optimum technical change in an aggregative model of economic growth. *International Economic Review*, Vol. 6 (1), pp. 18-31.

Vidal, G., 2014. Global conference on Business and Finance Proceedings. *Liderazgo y autoevaluación, paramejorar la gestióndirectivaeducacional*, pp.1314-1325.

Wang, L., H. Zhang, and W. Li. 2012.Analysis of causality between tourism and economic growth based on computational econometrics. *Journal of Computers*, Vol. 7 (9), pp. 2152–9.

Xiaoqing, X. 2005.Investment in physical capital, investment in health and economic growth in China.*Investment Management and Financial Innovations*, Vol. 1, pp. 23-29.

APPENDIX 1: List of the Countries

Algeria	Croatia	Iraq	Moldova	Slovak Republic
Argentina	Cuba	Ireland	Mongolia	Slovenia
Armenia	Cyprus	Italy	Morocco	Spain
Australia	Czech Republic	Jamaica	Namibia	Sri Lanka
Austria	Denmark	Japan	Nepal	Sudan
Bahamas	Dominican Rep	Jordan	Netherlands	Sweden
Bahrain	Ecuador	Kazakhstan	New Zealand	Switzerland
Bangladesh	Egypt, Arab Re	Kenya	Nicaragua	Syrian Arab Republic
Barbados	Estonia	Korea, Rep.	Nigeria	Thailand
Belarus	Ethiopia	Kuwait	Norway	Trinidad and Tobago
Belgium	Fiji	Kyrgyz Republ	Oman	Tunisia
Brazil	Finland	Lao PDR	Pakistan	Turkey
Bulgaria	France	Latvia	Panama	Uganda
Cambodia	Germany	Lebanon	Paraguay	Ukraine
Cameroon	Ghana	Libya	Peru	United Arab Emirates
Canada	Greece	Lithuania	Philippines	United Kingdom
Cen. African R	Honduras	Luxembourg	Poland	United States
Chile	Hong Kong SA	Macedonia, FY	Portugal	Uruguay
China	Hungary	Malaysia	Romania	Venezuela, RB
Colombia	Iceland	Mali	Russian Fed.	Yemen, Rep.
Congo, Rep.	India	Malta	Senegal	Zimbabwe
Costa Rica	Indonesia	Mauritius	Sierra Leone	
Cote d'Ivoire	Iran, Islamic Re	Mexico	Singapore	