The Curse of Tourism?*

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Abstract

The purpose of this paper is to investigate the effect of tourism on economic growth. Our analysis covers 133 countries over the period 1995 to 2007, including 32 countries highly dependent on tourism during that period. The results show that specialization in tourism *per se* had no significant effects on economic growth. However, countries that are both highly dependent on trade and on tourism tend to report significantly lower growth. These findings are consistent with tourism having an effect analogous to the Dutch Disease.

Keywords: tourism; economic growth; Dutch Disease; tourism specialization; panel data.

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1. Introduction

Tourism is an important sector of many countries' economies, and its significance is likely to increase also in the future (Goeldner & Brent Ritchie 2012). For a small number of countries, receipts from tourism are an important, if not the most important, source of income. Tourism bestows a number of social and economic benefits on the countries involved. Besides being a source of economic revenue, the process of cultural exchange between the host population and tourist visitors is often cited as a potential source of social benefits (Armenski *et al.* 2011). In addition, tourism is a relatively 'clean' industry as regards the environment, although many debates surround this issue (Kreag 2011; Bastola 2012).

The economic effects are perhaps the most tangible outcome of tourism, since the receipts from tourism not only increase the inward flow of foreign exchange income but also help generate employment opportunities (Zortuk 2009; Polat *et al.* 2010) and stimulate the level of economic activity in the country (Ivanov & Webster 2006). According to the World Tourism Travel Council (WTTC), the world tourism industry accounted for 10 per cent of the world's GDP in 2004 (WTTC 2013).

In spite of the aforementioned benefits of tourism, there is a possibility that tourism can also exert negative effects such as causing deterioration of the environment through the physical impact of tourist visits and over-exploitation of natural resources (Capó *et al.* 2007). Moreover, tourism can cause unwanted lifestyle changes that might have negative impacts on the traditions and customs of the host community (Cooper *et al.* 1993). Since tourism is often highly seasonal, it can lead to undesirable fluctuations in economic activity (and associated seasonal changes employment, wages, price level and the like) over time. Last but not least, receipts from tourism can be quite volatile as they depend on economic situation in the source countries of tourists, are subject to spillover effects from nearby countries, and can change

dramatically in response to political uncertainty or upheavals in the destination countries. The changes in volume and destinations of tourist flows during the recent global financial crisis, and the effects of the recent political instability in the Middle East, demonstrate the volatility of tourist flows.

In this paper, we explore the effect of tourism on economic growth in a broad panel of countries. Since receipts from tourism are a component of trade, we consider the marginal effect of tourism after accounting for trade. In the next section, we present a review of the literature on the relationship between economic growth and tourism. In Section 3 we describe the data, variables and methodology employed in this paper. The empirical findings will be presented in Section 4, followed by concluding remarks in Section 5.

2. Tourism and Economic Growth

Many studies investigate the relationship between tourism and economic growth in the recipient countries. Often, studies that examine this relationship by concentrating on a single recipient country report findings that indicate positive effects. For instance, Dritsakis (2004) finds long-term positive effects exerted by tourism on economic growth in Greece. Similarly, Balaguer & Cantavella-Jordá (2002) find positive effects for Spain's economy. Studies on Turkey by Tosun (1999) and Guduz & Hatemi (2005) also support the tourism-led growth hypothesis. Other studies showing similar findings include that of Durbarry (2004) for Mauritius, Kim *et al.* (2006) for Taiwan, Mishra *et al.* (2011) for India, and Kadir & Karim (2012) for Malaysia.

Brau *et al.* (2003) discuss whether specializing in the tourism industry is a good option for less-developed countries and regions. They document that tourism-specializing countries display significantly faster growth than any of the other sub-groups of countries within their sample (OECD, Oil, LDC, and small countries). In a panel analysis of African countries for

the period 1995 to 2004, Fayissa *et al.* (2008) show a positive relationship, with tourism receipts making a significant contribution to both GDP levels and general economic growth in sub-Saharan countries. A similar result was found by Eugenio-Martin *et al.* (2004) for a panel of Latin American countries from 1985 to 1998. Tourism is frequently viewed as an important engine of economic growth and development, especially for less-developed countries (Brida & Risso 2009; Tang & Tan 2013), helping to increase the economic welfare of local populations.

In contrast to the aforementioned studies, Oh (2005, considering South Korea), Payne & Mervar (2010, Croatia), and Lee (2012, Singapore) find no discernible link between tourism development and long-term economic growth. Figini & Vici (2009) conduct a cross-sectional analysis to investigate the relationship between tourism specialization and economic growth, and conclude that tourism-based countries do *not* grow at a higher rate than non-tourism-based countries.

The discrepancies between these findings can be explained by the methodological choices made by the authors. There is an extensive empirical literature on the robustness (or the lack thereof) of standard growth regressions (see, for example, Sala-i-Martin 1997; Fernández *et al.* 2001) and on biases associated with the use of ordinary least squares coefficients (e.g. Ray & Rivera-Batiz 2002).

Another possible reason for the multitude of findings on the relationship between tourism and growth is the fact that countries heavily dependent on tourism can suffer from effects akin to the Dutch Disease. This is a phenomenon typically associated with exports of natural resources (originally observed in the context of Dutch exports of North Sea gas, hence the name). The Dutch Disease occurs, in this context, because the exports of natural resources boost wealth and therefore increase domestic demand (Corden and Neary, 1982). This, in

turn, increases the prices of non-tradeable goods. The resulting higher price level leads to real appreciation of the domestic currency. Since the prices of the traded sector are set at the international markets, they cannot increase to compensate for the rising domestic price level. As a result, the competitiveness of the traded sector deteriorates, leading to its decline.[4]

In principle, any inflow of foreign exchange can have similar implications, and Dutch-Disease type of effects have been suggested in association with inflows of foreign capital, migrant remittances, or foreign aid (Magud and Sousa, 2010). The decline of the traded sector (manufacturing) can explain why developments that should constitute economic improvements can fail to give the expected boost to economic growth: the positive effect of the inflow of natural-resource revenue, aid, remittances or tourism income is outweighed by the decline of manufacturing output and exports. Indeed, the broad literature review by Magud and Sousa (2010) find that inflows of foreign capital, revenue from natural resources, remittances and foreign aid cause real exchange-rate appreciation, decline of the tradable sector relative to the non-traded sector, and shift of factors of production from the tradable to the non-traded sector. They find no evidence of a negative effect on economic growth, which is consistent with the aforementioned argument about positive and negative effects of such inflows cancelling each other. This is consistent with the finding of Ivanov and Webster (2013), who, focusing on the interaction between globalization and the growth impact of tourism, find that the recent increase in globalization has not led to an increase in the contribution of tourism to economic growth.[5]

In relation to tourism, the Dutch Disease is sometimes called the 'Beach Disease' (Holzner, 2010). Capó *et al.* (2007) investigate whether tourism causes Dutch Disease in two

[4] See in particular Corden (1981, 1984), Corden and Neary (1982), and Van Wijnbergen (1984).
[5] In particular, Ivanov and Webster (2013) conclude that "[w]hether a country is open to the world and the degree of its openness in economic, social and political aspects does not seem to influence how much per capita economic growth its tourism industry will generate" (p. 7).

regions of Spain, the Balearics and the Canary Islands, both noted for very high and long-standing exposure to tourism. They find that the tourist inflow boom of the 1960s induced a significant increase in wealth in Spain generally, whilst the increased focus on tourism and non-traded goods has led to a decline of manufacturing and agriculture in these two regions. While this change in production did lead to an increase in incomes, there is evidence that these two regions might not be able to maintain high economic growth for much longer. The reduction in natural resources such as beaches or natural areas is not the sole driver of growth slow down. Rather, it is the heavy focus on the tourism sector that has led to the neglect of other sectors that might provide economic activity and employment during a recession in the tourism industry. The decline of the traditional sectors (manufacturing and agriculture) has deprived these tourism-dependent regions of much-needed economic diversity. The failure to introduce economic diversification into these regions could lead to their becoming mono-industrial areas whose populations might find it difficult to gain competence in activities unconnected with tourism. The neglect of economic diversification, on-going education and training, combined with a lack of technological innovation at the local level are symptoms and drivers of the Dutch Disease for these regions.

Using a theoretical model, Chao *et al.* (2006) discuss the existence of the Dutch Disease through a demand shock from a tourism boom using a dynamic framework, examining the impacts of tourism on capital accumulation, sectoral output and resident welfare in an open dynamic economy. The authors show that the expansion of tourism causes an increase in revenue and improvement in trade as a result of price rises in non-traded commodities. Nevertheless, the rise in the price of goods transfers the exploitation of resources from the manufacturing sector to other sectors in the economy. Meanwhile, the demand for domestic capital declines, creating pressure on the manufacturing sector, which causes de-industrialization and the Dutch Disease. Thus, this model indicates that demand-induced

Dutch Disease is likely to lead to a decline of capital stock that may cause a loss in resident welfare in the long-run, as a result of the existence of externality that impedes diversification in other economic sectors.

Also using a theoretical framework, Nowak *et al.* (2004) investigate the impact of a tourism boom on structural adjustment, commodities, factor prices and welfare. Their analysis used a hybrid of the Ricardo-Viner-Jones and the Heckscher-Ohlin models under the assumption of full employment. In this open economy, the terms of trade were given exogenously. Three sectors represent the economy in the model: a non-traded goods sector, an agricultural sector producing an exportable good, and a manufacturing sector producing an importable good. They find that a tourist boom may cause immiserization of residents: that is, that they may be rendered poorer than before the tourism boom. Tourist consumption consists largely of non-traded goods and services. When a tourism boom occurs, there is first an immediate, local and favorable effect owing to increases in the relative price of such non-traded goods. However, in the longer term a negative effect is encountered owing to the efficiency loss that occurs in the presence of increasing returns to scale in manufacturing. Whenever this negative effect outweighs the initially positive effect, immiserization is the result. Nowak & Sahli (2007), in turn, examine the relation between the Dutch Disease and coastal tourism in a small island economy in a general equilibrium model. They find that boom of inbound tourism may cause a loss of welfare when tourism uses coastal land intensively.

Holzner (2005) examines whether Dutch Disease has an impact on the tourism sector in more than 100 countries. The results indicated a negative effect of tourism on both real exchange rate variability/distortion and economic growth. One explanation given is that countries drawing high incomes from tourism tend to be more outward oriented. Tourism

might generate high levels of final-goods imports, such as those to which tourists are accustomed in their countries of origin and for which they create a demand in the tourism host country. This effect would strengthen import lobbies and the advocates of trade liberalization.

In a related later study, Holzner (2011) examines the impact of the Dutch Disease on tourism-dependent countries. His results show that, when controlling for initial output level, physical capital and human capital, countries with higher shares of tourism income in GDP enjoy faster growth than other countries. His findings indicate that tourism-dependent countries do not face real-exchange-rate distortion and deindustrialization but higher-than-average economic growth rates. Investment in physical capital, such as transport infrastructure, is complementary to investment in tourism: higher economic growth, higher levels of investment and secondary school enrolment are all observed in countries deriving high share of income from tourism. Furthermore, Holzner also considers the transmission channels allowing for an indirect effect of tourism of growth. He finds the indirect positive effects to occur primarily through tourism boosting the accumulation of human and physical capital.

In summary, while a number of previous studies find evidence of a positive effect of tourism on growth, such an effect is far from being universally observed. A potential reason for this variation in outcomes is the possibility that high dependence on tourism leads to Dutch-Disease type of effects. In the remainder of this paper, we build on the insights of this previous literature to explore how economic growth is affected by revenue from tourism and whether tourism can have Dutch-Disease types of effects. In doing so, we specifically allow for the possible interactions between reliance on tourism and openness to trade: if tourism does cause the Dutch Disease, this should be more apparent in countries that are highly open to trade.

4. The Curse of Tourism?

4.1 Data and variables

In the present study, we include 133 countries; the choice of countries is determined by availability of data. The analysis covers the period from 1995 to 2007. All variables and data were obtained from the World Development Indicators (henceforth WDI, see World Bank 2013). We follow Figini & Vici (2007) and Holzner (2011) who defined tourism specialization as the share of receipts from international tourism in GDP. Since some countries are much more heavily dependent on revenue from tourism than others, we first pool all countries together and then split the sample into two subsets based on their dependence on tourism. To this effect, we consider three alternative thresholds: the average share of receipts from tourism in GDP (5.72 per cent), and the average and median shares of tourism receipts in exports (14.1 and 8.9 per cent, respectively). In addition we divide the countries also according to the level of economic development into developed and developing, on the basis of IMF (2014) classification.[6] This distinction has been made to see whether the impact of tourism specialization on growth might be conditional on the level of economic development.

To analyze the effect of tourism on economic growth, we estimate an augmented Solow growth regression, accounting for tourism specialization alongside a number of variables recognized as robust determinants of growth. The dependent variable is the growth rate of GDP per capita at constant prices. Tourism receipts as a share of GDP are calculated by combining two variables available from WDI: the international tourism receipts as a percentage of exports (T/X) and the ratio of exports of goods and services to GDP (X/Y):

$$\frac{T}{Y} = \frac{T}{X} * \frac{X}{Y}.$$

[6] Specifically, we consider countries that the IMF classifies as advanced as being developed while all remaining countries are considered developing (see IMF, 2014, Statistical Appendix).

The additional control variables that we include in the regression are: Education measured as the share of population in a secondary education; Trade, defined as the sum of exports and imports as a share of GDP; Gross fixed capital formation as a share of GDP to measure investment in physical capital; General government final consumption expenditure as a percentage of GDP; population growth; and, finally, life expectancy at birth used as an alternative proxy for human capital. Table 1 lists the variables used while Table 2 displays the descriptive statistics.

4.2 An Empirical Model of Economic Growth with Tourism

The standard Solow model of growth assumes output to be the product of labor and capital, $Y=K^{\alpha}(AL)^{1-\alpha}$, where $0 < \alpha < 1$, K stands for the stock of physical capital, L represents labor and A is a catch-all parameter reflecting technological progress, quality of institutions and any other factors that increase output for given stocks of labor and capital. Mankiw, Romer and Weil (1992) use this basic formulation of the Solow model to derive a growth regression that can be estimated:

$$ln\frac{Y}{L} = a + gt + \frac{\alpha}{1-\alpha}\ln(s) + \frac{\alpha}{1-\alpha}\ln(\delta + n + g) + \varepsilon$$

where s is the savings rate, n is the rate of population growth, δ is the depreciation rate, g is the rate of technological progress, and ε is the error term; δ and g are not observed but their sum is proxied as 0.05. This growth regression can be further augmented to add additional factors of production: Mankiw et al. (1992) add human capital, and Li, Liu and Rebelo (1998) include also foreign direct investment. Many other conditioning variables have been proposed in the literature. The initial output per capita helps account for the fact that countries that are relatively poor tend to grow faster: it is easier to catch up than to lead. Government consumption can be included to account for the distortionary effects of taxation and the dead-weight loss of government spending (see Barro, 1991, and others). Openness to trade has

been shown to make countries more productive, holding other determinants of growth constant (Sachs and Warner, 1995).[7] Given their nature, as factors of growth augmenting the productivity of labor and capital, most of these variables can be seen as falling within the term A in the above production function.

In our analysis, we build on this literature and include three basic factors of production, physical and human capital and labor; two productivity-augmenting parameters, government consumption and openness to trade, and our variable of interest, the share of tourism revenue in output. Therefore, we estimate the following baseline regression:

$$g_{it} = \beta_0 + \beta_1 tourism_{it} + \beta_2 school_{it} + \beta_3 trade_{it} + \beta_4 inv_{it} + \beta_5 gov_{it} + \beta_6 popgr_{it} + \varepsilon_t$$

where g is the growth of GDP per capita at constant prices, *tourism* is tourist receipts as a percentage of GDP, *school* captures the percentage of the relevant-age population enrolled in secondary school, *trade* is the sum of exports and imports of goods and services as a share of GDP, *inv* is the gross fixed capital formation as percentage of GDP, *gov* measures the general government final consumption expenditure as percentage of GDP, *popgr* is the annual population growth rate, and ε_{it} is the error term. Furthermore, note that as an alternative specification, we replace schooling with life expectancy at birth (*le*).

Tourism is a part of exports so that including tourism and trade in the same regression may result in double counting of tourism. Therefore, we subtract tourism as share of GDP from trade as share of GDP and denote the resulting variable *tradec*.

Our data take the form of a panel. Therefore, we use the Hausman Specification Test to determine whether a random-effects model or a fixed-effects model is to be preferred. In other words, this test examines whether fixed effects are correlated with the regressors, since the null hypothesis is one of no correlation. The results are reported in Table 3: panels A and B for the models with schooling and life expectancy, respectively, whiles panels C and D

[7] For a broad overview of these attempts, see Levine and Renelt (1992), and Sala-i-Martin (1997), and the subsequent replications of their assessments.

present analogous results while replacing trade with trade cleared of tourism receipts. The test results suggest clearly that a fixed-effects model is appropriate for our analysis: we reject the null hypothesis in favor of the fixed-effects model at $p<0.05$. Therefore, in the remainder of the paper, we only present and discuss fixed-effects results.

Table 4 presents the baseline results: with human capital measured by schooling (columns 1 and 3) and, alternatively, by life expectancy (columns 2 and 4), and with overall trade (columns 1-2) and trade cleared of tourism receipts (columns 3-4). In all four specifications, tourism share in output has no significant effect on economic growth. This stands in contrast with the findings of Sequeira & Nunes (2008), Arezki *et al.* (2009) and Holzner (2011) and others, who find a positive relationship between tourism and economic growth. Trade, on the other hand, has a positive and strongly significant effect on economic growth. Moreover, it makes little difference whether we use overall trade or trade cleared of tourism.

The other explanatory variables all have highly significant coefficients, all of which have the expected signs. Government consumption and population growth are negatively related to economic growth, while investment and trade show positively effects: these findings are in line with the economic growth literature.

Next, we divide the sample into countries with below and above average dependence on tourism (the average share of tourism in GDP in our sample is 5.72 per cent). This is to account for the fact that most countries derive only a small share of output from tourism, which may explain the insignificant finding in Table 4. The findings for the resulting two subsamples are reported in Table 5. However, tourism again has no significant effect on economic growth, not even among countries that rely relatively heavily on tourism. This contrasts with previous studies such as Chang *et al.* (2010). These results again suggest that tourism is not a factor fostering economic growth in countries that rely to a significant extent

on it. Somewhat surprisingly, trade also does not have a significant relationship with economic growth in the countries dependent on tourism.

Next, Table 6 shows the results for developed and developing countries, based on IMF (2014) categorization. Again, we find that tourism does not affect growth in either subsample.

Finally, we turn to examine the possible presence of Dutch-Disease type of effects. The real appreciation associated with the Dutch Disease affects the economy by undermining the competitiveness of its exports. Therefore, a relatively simple and straightforward test of whether tourism has this kind of effect is to include the interaction between tourism specialization and openness to trade. While this is an indirect test, it has the advantage that it directly captures the inter-relation between exports overall and tourism specialization. An alternative would be to measure the effect of tourism on the real appreciation of the currency. However, a number of other factors may contribute to real appreciation, most notably receipts from exports of natural resources, receipts of foreign aid, or remittances from emigrants. Unless we account for these, our results might be inconclusive.

We therefore introduce an interaction term constructed by multiplying trade as a share of GDP by tourism specialization. The results are given in Table 7. Both tourism and trade now have positive and significant effects on economic growth. This confirms the finding of Holzner (2011) and others who also found a positive effect of tourism on growth. Their interaction, however, is significant and negative. Hence, while tourism and trade each have a positive effect, the countries that rely heavily on both tend to experience lower growth. This is consistent with countries that rely heavily on tourism suffering from Dutch-Disease type of effect of tourism.

To explore this result further, we estimate again separate regressions for various subsamples, splitting the countries both according to their dependence on tourism. These results are reported

in Table 8. For the sake of checking robustness, we consider two alternative thresholds: the median and average share tourism in overall exports: 8.9 and 14.1 per cent, respectively.

Looking first at countries with above-median share of tourism in exports, we see that the effect of tourism on growth is positive but insignificant (although it is close to being significant at the 10 per cent level) when we measure human capital with schooling, and significantly positive when using life expectancy. The effect of trade on growth is positive and significant. The interaction term again has a negative and significant effect on economic growth. Very similar pattern is obtained when considering countries with above-average tourism specialization.

In contrast, in countries with low dependence on tourism, we find no significant relationship between tourism and economic growth. The interaction term between tourism and trade is not significant either. The effect of trade, however, remains strongly significant and positive. Hence, there is no evidence of the Dutch Disease in the countries with limited dependence on tourism. Instead, the effect of tourism is negative only in economies that are highly dependent on both exports and tourism.[8]

A potential weakness of results is that they may be affected by endogeneity bias: tourism may be also driven by economic growth, so that the relationship between then becomes bidirectional.[9] This is especially likely in the source countries of tourism; given that we look at revenue from receiving tourists, this possibility is less acute in our case. Nevertheless, to successfully account for the possibility of tourism being endogenous, we would need to identify suitable instruments. Since we use interaction terms involving both trade and tourism revenue, the resulting analysis would become rather complex. For the sake of keeping it simple and tractable, we leave this issue up to future work.

[8] The results obtained after removing tourism from trade are very similar, and the interaction term has a again significantly negative coefficient.
[9] We are grateful to an anonymous referee for suggesting this possibility.

5. Concluding Remarks

In this study, we investigate the relationship between tourism and economic growth using annual data for 133 countries covering the period 1995 to 2007. Our results suggest that tourism specialization overall has no significant effects on economic growth. This finding can be attributed to the fact that receipts from tourism may undermine competitiveness of manufacturing exports, in a manner akin to the Dutch Disease. When we account for this possibility, we find that, on the one hand, both trade and tourism foster growth, but, on the other hand, that high dependence on both tourism and trade is associated with significantly lower economic growth. The same pattern is obtained in the sub-sample of countries with above-average reliance on tourism but not in the sub-sample of countries with limited dependence on tourism. Hence, dependence on exports of the non-traded sector (tourism) can undermine the competitiveness of the traded sector.

This finding complements the previous literature and helps reconcile the seemingly contradictory findings, whereby some studies report a positive effect of tourism while others find no significant effect. Reliance on tourism has a positive impact on growth, except when countries are highly open to both trade and tourism.

REFERENCES

Arezki R, Cherif R, Piotrowski J (2009). 'Tourism Specialization and Economic Development: Evidence from the UNESCO World Heritage List'. *International Monetary Fund*, IMF Institute and Fiscal Affairs Department: IMF Working Paper WP/09/176.

Armenski T, Dragičević V, Pejović L, Lukić T, Djurdjev B (2011). 'Interaction between Tourists and Residents: Influence on Tourism Development'. *Polish Sociological Review*. 173:107–118.

Balaguer J, Cantavella-Jordá M (2002). 'Tourism as a long-run economic growth factor: The Spanish case'. *Applied Economics* **34**(7):877–884.

Barro, R.J. (1991). "Economic Growth in a Cross Section of Countries." *Quarterly Journal of Economics* 106(2), 407-443.

Barquet A, Brida JG, Risso WA (2009). 'Causality between economic growth and tourism expansion: Empirical evidence from Trentino-Alto Adige'. *TOURISMOS: An International Multidisciplinary Journal of Tourism* **5**(2):87–98.

Bastola RK (2012). *The Impact of the Development of the Tourism Industry on the Lifestyle of the Host Community: Case Study in Pietarsaari.* Karleby, Finland: Centria University of Applied Sciences; Thesis, Degree Programme in Tourism, December 2012.

Brau R, Lanza A, Pigliaru F (2003). 'How fast are small tourism countries growing? The cross-country evidence'. FEEM Working Paper no. 85.

Brida JG, Sanchez Carrera EJ, Risso WA (2008). 'Tourism's Impact on Long-Run Mexican Economic Growth'. *Economics Bulletin* **3**(21):1–8.

Brida JG, Risso WA (2009). 'Tourism as a factor of long-run economic growth: An empirical analysis for Chile'. *European Journal of Tourism Research* **2**(2):178–185.

Capó J, Font AR, Nadal JR (2007). 'Dutch Disease in Tourism Economies: Evidence from the Balearics and the Canary Islands'. *Journal of Sustainable Tourism* **15**(6):615–627.

Caselli F, Esquivel G, Lefort F (1996). 'Reopening the convergence debate: A new look at cross-country growth empirics'. Journal of Economic Growth 1(3):363–389.

Chang C-L, Khamkaew T, McAleer M (2010). 'IV Estimation of a Panel Threshold Model of Tourism Specialization and Economic Development'. Kyoto University, Institute of Economic Research: KIER Working Papers #708.

Chao C-C, Hazari BR, Laffargue J-P, Sgro PM, Yu ESH (2006). 'Tourism, Dutch disease and welfare in an open dynamic economy'. *Japanese Economic Review* **57**(4):501–515

Chen C-F, Chiou-Wei SZ (2009). 'Tourism expansion, tourism uncertainty and economic growth: New evidence from Taiwan and Korea'. *Tourism Management* **30**(6):812–818.

Cooper CH, Gilbert D, Fletcher J, Wanhill S (1993). *Tourism: Principles and Practice* [second edition]. New York: Addison Wesley Longman.

Corden, WM (1981), "The Exchange Rate, Monetary Policy and North Sea Oil," *Oxford Economic Papers* 23-46.

Corden WM (1984). 'Booming Sector and Dutch Disease Economics: Survey and Consolidation'. *Oxford Economic Papers* **36**:339–380.

Corden WM, Neary JP (1982). 'Booming Sector and De-industrialisation in a Small Open Economy'. *Economic Journal* 92:825–848.

Dritsakis N (2004). 'Tourism as a long-run economic growth factor: An empirical investigation for Greece using causality analysis'. *Tourism Economics* **10**(3):305–316.

Durbarry R (2004). 'Tourism and economic growth: The case of Mauritius'. *Tourism Economics* **10**(4):389–401.

Eugenio-Martin JL, Morales NM, Scarpa R (2004). 'Tourism and economic growth in Latin American countries: A panel data approach'. Fondazione Eni Enrico Mattei.

Fayissa B, Nsiah C, Tadasse B (2008). 'The impact of tourism on economic growth and development in Africa'. Tourism Economics 14(4):807–818.

Fernández C, Ley E, Steel MFJ (2001). 'Model uncertainty in cross-country growth regressions'. Journal of Applied Econometrics 16(5):563–576.

Figini P, Vici L (2009). 'Tourism and growth in a cross-section of countries'. Working Paper Series 01_09, The Rimini Centre for Economic Analysis, republished in Tourism Economics 16(4):789–805.

Goeldner CR, Brent Ritchie JR (2012). *Tourism: Principles, Practices, Philosophies* [12th edition]. Hoboken, New Jersey: John Wiley &Sons, Inc.

Guduz L, Hatemi A (2005). 'Is the tourism-led growth hypothesis valid for Turkey?' *Applied Economics* **12**(8):499–504.

Holzner M (2005). 'Fear of Croatian Disease: Is there a danger of a Dutch Disease Effect with respect to a boom in the tourism sector in Croatia in the long run—"The Croatian Disease"?' Doctoral thesis, WU Vienna University of Economics and Business.

Holzner M (2011). 'Tourism and Economic Development: the Beach Disease?' *Tourism Management* 32, 922-933.

IMF (2014). *World Economic Outlook April 2014: Recovery Strengthens, Remains Uneven,* International Monetary Fund, Washington, DC.

Islam, N., (1995), Growth Empirics: A Panel Data Approach. *Quarterly journal of Economics* 110, 1127-1170.

Ivanov S, and Webster C (2006). 'Measuring the Impact of Tourism on Economic Growth', pp 21–30 in *Proceedings of GEOTOUR 2006 Conference*, Kosice, Slovakia 7–8 October 2006.

Ivanov, S. and Webster, C. (2013). "Tourism's impact on growth: The role of globalisation." *Annals of Tourism Research* 41, 231-236.

Kadir N, Karim MZA (2012). 'Tourism and economic growth in Malaysia: Evidence from tourist arrivals from ASEAN-5 countries'. *Ekonomska Istrazivanja-Economic Research* **25**(4):1089–1100.

Kim HJ, Chen M-H, Jang SS (2006). 'Tourism expansion and economic development: The case of Taiwan'. Tourism Management 27:925–933.

Kreag G (2011). 'The Impacts of Tourism'. University of Minnesota: Publication T13, [http://www.seagrant.umn.edu/tourism/pdfs/ImpactsTourism.pdf, accessed 25 Feb 2014].

Kweka J, Morrissey O, Blake A (2001). 'Is tourism a key sector in Tanzania: Input–output analysis of income, output, employment and tax revenue'. Christel DeHaan Tourism and Travel Research Institute, *Discussion Papers 2001/1*.

Lee CG (2012). 'Tourism, trade, and income: evidence from Singapore'. *Anatolia: An International Journal of Tourism and Hospitality Research* **23**(3):348–358.

Levine, R. and D. Renelt (1992). "A Sensitivity Analysis of Cross-Country Growth Regressions." *American Economics Review* 82 (4), 942-63.

Li, H., Z. N. Liu and I. Rebelo, (1998), Testing the Neoclassical Theory of Economic Growth: Evidence from Chinese Provinces. *Economics of Planning* 31, 117-132.

Magud, N and S Sosa (2010), "When and Why Worry About Real Exchange Rate Appreciation? The Missing Link between Dutch Disease and Growth", IMF Working Paper 10/271, December.

Mankiw, N. G., D. Romer and D. N. Weil, (1992), A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics* 107, 407-437.

Mieiro S, Nogueira Ramos P, Alves J (2012). 'Gaming Tourism Boom, Foreign Currency Inflows, and Dutch Disease Effects: an Empirical Model for Macau'. *International Journal of Trade, Economics and Finance* **3**(6):421–427.

Mishra PK, Rout HB, Mohapatra SS (2011). 'Causality between Tourism and Economic Growth: Empirical Evidence from India'. *European Journal of Social Sciences* **18**(4):518–527.

Nowak J-J, Sahli M, Sgro P (2004). 'Tourism, Trade and Domestic Welfare*'. FEEM Working Paper* 24.

Nowak J-J, Sahli M (2007). 'Coastal tourism and "Dutch disease" in a small island economy'. *Tourism Economics* **13**(1):49–65.

Oh C-O (2005). 'The contribution of tourism development to economic growth in the Korean economy*'. Tourism Management* **26**(1):39–44.

Payne JE**,** Mervar A (2010). 'Research Note: The Tourism-Growth Nexus in Croatia'. *Tourism Economics* **16**(4):1089–1094.

Po C-W, Huang B-N (2008). 'Tourism development and economic growth—A nonlinear approach'. Physica A: Statistical Mechanics and its Applications 387(22):5535–5542.

Polat E, Turkan S, Gunay S (2010). 'Relationship between Tourism and Trade in Turkey'. Paper presented to the *International Conference on Applied Economics–ICOAE 2010*, Athens, 26–28 August 2010 [http://kastoria.teikoz.gr/icoae/?p=389, accessed 25 February 2014].

Ray J, Rivera-Batiz FL (2002). 'An Analysis of Sample Selection bias in cross-country growth recessions'. Columbia University, Department of Economics, Discussion Paper Series; *Discussion Paper #:0102-10.*

Sachs, J. D. and A. Warner (1995). "Economic Reform and the Process of Global Integration." Brookings Papers on Economic Activity 1995(1): 1-118.

Sala-i-Martin X (1997). 'I Just Ran Two Million Regressions'. American Economic Review 87 (2): 178–183.

Sequeira TN, Campos C (2005). 'International Tourism and Economic Growth: A Panel Data Approach', The Fondazione Eni Enrico Mattei Note di Lavoro Series.

Sequeira TN, Nunes PM (2008). 'Does tourism influence economic growth? A dynamic panel data approach'. *Applied Economics* **40**(18):2431–2441.

Tang CF, Tan EC (2013). 'How stable is the tourism-led growth hypothesis in Malaysia? Evidence from disaggregated tourism markets'. *Tourism Management* **37**:52–57.

Tosun C (1999). 'An analysis of contributions of international inbound tourism to the Turkish economy'. Tourism Economics 5(3):217–250.

van Wijnbergen, S (1984), "The 'Dutch Disease': A Disease After All?", *Economic Journal* 94(373), 41-55.

Warr B, Ayres R (2006). 'Economic growth, technological progress and energy use in the US over the last century: Identifying common trends and structural change in macroeconomic time series'. Paper for *INSEAD Session 49* in Helsinki 2006.

World Bank (2013). 'World Development Indicators' [available at http://data.worldbank.org/data-catalog/world-development-indicators accessed various dates 2013 & 2014].

WTTC (2013). 'Benchmarking Travel & Tourism—Global Summary' (November 2013) [http://wttc.org/site_media/uploads/downloads/2013_Global_summary_1.pdf accessed 25 February 2014].

Zahidi S (2014). 'The Human Capital Index'; Chapter 12, pp 92–96 in Education and Skills 2.0: New Targets and Innovative Approaches. Geneva: World Economic Forum [available at http://www3.weforum.org/docs/GAC/2014/WEF_GAC_EducationSkills_TargetsInnovativeApproaches_Book_2014.pdf accessed 10 March 2014].

Zortuk M (2009). **'**Economic Impact of Tourism on Turkey's Economy: Evidence from Cointegration Tests', *International Research Journal of Finance and Economics* **25**:231–239.

Table 1: Variables used in the present study

Label	Definition
g	Growth of GDP per capita at constant prices
gov	General government final consumption expenditure
inv	Gross fixed capital formation as percentage of GDP
le	Life expectancy at birth (total years)
popgr	Annual population growth rate
school	Percentage of relevant-age population enrolled in secondary school
tourism	Tourism receipts as a percentage of GDP
trade	Exports and imports of goods and services as a share of GDP

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
gov	1695	15.68838	5.778925	3.364233	39.19374
inv	1670	21.78991	6.848701	3.480034	64.14175
popgr	1724	1.336841	1.219802	–3.93064	10.04283
trade	1680	86.16208	49.27788	14.77247	456.6461
tourism	1647	5.726809	8.121327	0.018056	66.11868
g	1592	2.900116	4.036521	–29.6301	33.03049
le	1688	67.82511	9.830611	31.23919	85.16341
school	1191	74.75916	31.5836	5.177891	161.6618

Table 3: Hausman Test

A	(b)	(B)	(b–B)	sqrt(diag(V_b–V_B))
	fixed	random	Difference	S.E.
gov	–0.23084	–0.19333	–0.03751	0.047879
inv	0.128933	0.139141	–0.01021	0.017354
popgr	–1.00429	–0.94621	–0.05809	0.162481
trade	0.065401	0.014389	0.051012	0.009334
tourism	–0.0735	–0.02653	–0.04697	0.071678
school	0.071651	0.007993	0.063658	0.015347

Notes: chi2(6) = (b–B)'[(V_b–V_B)^(–1)](b–B) = 62.53. Prob>chi2 = 0.0000

B	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
gov	-0.191302	-0.1325	-0.0587991	0.0371044
inv	0.1319004	0.126537	0.0053629	0.0137637
popgr	-0.4889279	-0.69137	0.2024439	0.1263897
trade	0.0551769	0.011212	0.0439647	0.0077354
tourism	0.0213225	0.003616	0.0177063	0.0593293
le	0.2235523	0.014577	0.2089751	0.0606015

Notes: chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 80.07 Prob>chi2 = 0.0000

C	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
gov	-0.2308441	-0.1933345	-0.0375096	0.0478786
inv	0.1289333	0.1391407	-0.0102074	0.0173537
popgr	-1.004292	-0.9462066	-0.0580856	0.1624813
tradec	0.0654014	0.014389	0.0510124	0.0093337
tourism	-0.0080984	-0.0121457	0.0040473	0.069046
school	0.0716514	0.0079931	0.0636583	0.0153469

Notes: chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 62.53 Prob>chi2 = 0.0000
Trade* corresponds to trade cleared of tourism receipts.

D	(b)	(B)2	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
gov	-0.1913	-0.1325	-0.0588	0.0371044
inv	0.1319	0.126537	0.005363	0.0137637
popgr	-0.48893	-0.69137	0.202444	0.1263897
tradec	0.055177	0.011212	0.043965	0.0077354
tourism	0.076499	0.014828	0.061671	0.0573074
le	0.223552	0.014577	0.208975	0.0606015

Notes: chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 80.07 Prob>chi2 = 0.0000
Trade* corresponds to trade cleared of tourism receipts.

Table 4: Baseline results

	(1)	(2)	(3)	(4)
VARIABLES	growth	growth	growth	growth
Gov	–0.231***	–0.191***	–0.231**	–0.191**
	(0.0585)	(0.0458)	(0.0940)	(0.0783)
Inv	0.129***	0.132***	0.129**	0.132***
	(0.0290)	(0.0242)	(0.0581)	(0.0380)
Popgr	–1.004***	–0.489***	–1.004***	–0.489
	(0.236)	(0.174)	(0.374)	(0.332)
Tourism	–0.0735	0.0213	–0.00810	0.0765
	(0.0761)	(0.0633)	(0.113)	(0.0946)
Trade	0.0654***	0.0552***		
	(0.0104)	(0.00845)		
Trade net of tourism			0.0654***	0.0552***
			(0.0144)	(0.0121)
School	0.0717***		0.0717***	
	(0.0171)		(0.0244)	
Le		0.224***		0.224**
		(0.0631)		(0.102)
Constant	–5.507***	–16.37***	–5.507**	–16.37**
	(1.792)	(4.202)	(2.781)	(6.470)
Observations	1,018	1,455	1,018	1,455
R-squared	0.140	0.104	0.140	0.104
Number of countries	131	132	131	132

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Split samples depending on tourism share in GDP

	Tourism > 5.72%	Tourism < 5.72%	Tourism > 5.72%	Tourism < 5.72%
VARIABLES	growth	growth	growth	growth
Gov	–0.507***	–0.217**	–0.268***	–0.244***
	(0.124)	(0.106)	(0.0955)	(0.0855)
Inv	0.180***	0.0961	0.115***	0.141**
	(0.0498)	(0.0825)	(0.0378)	(0.0569)
Popgr	–1.462***	–0.592	–1.042***	–0.397
	(0.462)	(0.369)	(0.286)	(0.314)
Tourism	–0.0757	–0.247	–0.0222	–0.199
	(0.125)	(0.272)	(0.0902)	(0.244)
Trade	–0.000152	0.112***	0.0309	0.0780***
	(0.0191)	(0.0212)	(0.0203)	(0.0184)
School	0.0888***	0.0501*		
	(0.0309)	(0.0257)		
Le			–0.103	0.234*
			(0.160)	(0.122)
Constant	3.539	–6.526**	10.01	–17.27**
	(4.136)	(3.202)	(11.30)	(7.206)
Observations	253	765	354	1,101
R-squared	0.212	0.150	0.105	0.113
Number of countries	43	107	47	111

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Split samples based on economic development

VARIABLES	Developed countries	Developing countries	Developed countries	Developing countries
Gov	–0.446***	–0.227**	–0.250*	–0.190**
	(0.157)	(0.0976)	(0.137)	(0.0825)
Inv	0.101	0.119*	0.0971	0.132***
	(0.105)	(0.0635)	(0.0818)	(0.0425)
Popgr	–0.963	–0.965**	–0.907*	–0.328
	(0.945)	(0.404)	(0.453)	(0.375)
Tourism	–0.364	–0.0836	–0.0448	–0.00228
	(0.334)	(0.122)	(0.109)	(0.107)
Trade	0.0548***	0.0624***	0.0560***	0.0614***
	(0.0119)	(0.0202)	(0.0110)	(0.0193)
School	–0.00873	0.119***		
	(0.00951)	(0.0311)		
Le			–0.323***	0.304***
			(0.0790)	(0.108)
Constant	6.641**	–7.239**	24.45***	–21.73***
	(2.946)	(2.838)	(6.045)	(6.718)
Observations	247	771	332	1,123
R-squared	0.271	0.144	0.265	0.105
Number of countries	28	103	29	103

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Interaction term between tourism and trade

	(1)	(2)
VARIABLES	growth	growth
Gov	–0.251***	–0.221***
	(0.0942)	(0.0768)
Inv	0.129**	0.126***
	(0.0594)	(0.0374)
Popgr	–1.045***	–0.508
	(0.374)	(0.323)
Tourism	0.224	0.303**
	(0.158)	(0.134)
Trade	0.0833***	0.0716***
	(0.0161)	(0.0142)
School	0.0631***	
	(0.0232)	
Tourism*Trade	–0.201***	–0.209***
	(0.0584)	(0.0595)
Le		0.213**
		(0.103)
Constant	–6.425**	–16.70**
	(2.801)	(6.571)
Observations	1,018	1,455
R-squared	0.148	0.112
Number of countries	131	132

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Effect of tourism on growth depending on share of tourism in exports

VARIABLES	tourism > 8.9%	tourism > 8.9%	tourism > 14.1%	tourism > 14.1%	tourism < 8.9%	tourism < 8.9%	tourism < 14.1%	tourism < 14.1%
Gov	-0.379**	-0.166	–0.469***	–0.160	-0.204	-0.277***	–0.236**	–0.279***
	(0.152)	(0.131)	(0.114)	(0.165)	(0.126)	(0.102)	(0.107)	(0.0866)
Inv	0.195***	0.134***	0.199***	0.137***	0.0771	0.143*	0.0776	0.122**
	(0.0438)	(0.0322)	(0.0487)	(0.0322)	(0.114)	(0.0722)	(0.0843)	(0.0542)
Popgr	-1.145***	-0.411	–1.080***	–0.466	-1.015	-0.866	–0.976	–0.639
	(0.392)	(0.387)	(0.391)	(0.429)	(1.091)	(0.587)	(0.857)	(0.442)
Tourism	0.204	0.335**	0.0936	0.302**	-0.164	-0.628	0.378	0.0260
	(0.174)	(0.132)	(0.190)	(0.141)	(0.592)	(0.679)	(0.409)	(0.394)
Trade	0.0621*	0.0780***	0.0229	0.0686**	0.0970***	0.0678**	0.0954***	0.0723***
	(0.0338)	(0.0229)	(0.0333)	(0.0328)	(0.0328)	(0.0268)	(0.0238)	(0.0220)
Tourism*Trade	-0.193**	-0.227***	–0.108	–0.203***	-0.225	-0.00910	–0.292	–0.123
	(0.0876)	(0.0526)	(0.0773)	(0.0613)	(0.305)	(0.279)	(0.228)	(0.210)
School	0.0353		0.0526		0.0626*		0.0576**	
	(0.0268)		(0.0321)		(0.0364)		(0.0285)	
Le		0.0827		0.0239		0.281**		0.248**
		(0.120)		(0.163)		(0.130)		(0.125)
Constant	-1.663	-9.734	1.985	–5.299	-6.651	-18.64**	–6.530*	–17.34**
	(3.881)	(8.622)	(4.018)	(12.30)	(5.111)	(7.641)	(3.822)	(7.276)
Observations	509	731	333	485	509	724	685	970
R-squared	0.174	0.101	0.174	0.072	0.136	0.135	0.142	0.126
Number of countrycode	83	86	57	60	78	86	99	103

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1