



Munich Personal RePEc Archive

**Do foreign visitors reward
post-communist countries? A panel
evidence for tourism-growth nexus.**

Salahodjaev, Raufhon and Safarova, Nilufar

20 August 2015

Online at <https://mpra.ub.uni-muenchen.de/66215/>
MPRA Paper No. 66215, posted 21 Aug 2015 09:11 UTC

Do foreign visitors reward post-communist countries?

A panel evidence for tourism-growth nexus.

Raufhon SALAHODJAEV¹

Westminster International University in Tashkent

Nilufar SAFAROVA

Institute of Forecasting and Macroeconomic Research

Abstract: Using cross-country panel data for 23 post-communist countries, we provide novel empirical evidence that tourism exerts a positive and significant effect on economic growth after controlling for conventional determinants in the growth equation. The system GMM results suggest that per-capita tourism receipts increase by 10 percent, the per-capita growth rate increases by 1.36% points, ceteris paribus. The results remain robust under various estimation methods.

Keywords: tourism, economic growth, post-communist, GMM, PCSE.

HIGHLIGHTS:

- Estimate the effect of tourism on economic growth in post-communist countries.
- Use various techniques such as panel-corrected standard error and system GMM.
- Results are in line with related cross-country studies.

¹ Corresponding author's email: rsalahol@binghamton.edu
Corresponding author's web-page: www.salahodjaev.com

1. Introduction

Economists increasingly pay attention to tourism as an important driver of development. The increase in tourism receipts has been recognized as the source for household income, tax revenue and foreign exchange earnings (Sinclair, 1998; Lee & Chang, 2008). Naturally, tourism has important implications for sustainable development, as it is considered as an effective tool for poverty reduction (de Kadt, 1979), employment generation (Lim, 1997) and women empowerment (Tucker & Boonabaana, 2011).

In addition, since the seminal works of Lanza and Pigliaru (2000), Balaguer and Cantavella-Jordà (2002), the empirical literature on the relationship between tourism and economic growth has mushroomed. By and large, cross-country (Lanza et al., 2003; Eugenio-Martin et al., 2004; Holzner, 2011) and time series (Dritsakis, 2004; Massida & Mantana, 2013) studies lend support to the positive effect of tourism on economic growth. A celebrated paper by Lee & Chang (2008) reports that 1% increase in tourism is associated with 0.13-0.36% point increase in domestic real income in OECD countries and an estimated increase of 0.17-0.61% in non-OECD countries.

More recently, a meta-study of 87 papers by Castro-Nuño et al. (2013) shows that tourism contributes to economic growth and concludes with the statement “future research focused on specific groups of countries (from specific geographic regions, with a similar income level) would likely extend their findings”. Similarly, Chou (2013 p.227) argues that tourism spending growth relationships may be country-specific; therefore, it is necessary to recognize the heterogeneous nature of the countries under investigation. Within the outstretched discussion over the increasing relevance of tourism as a determinant of economic growth, yet there is no evidence on the link between tourism and economic growth in post-communist economies. Albeit the share of tourism in GDP of post-communist countries has been small compared to global averages, the region has witnessed an immense increase in tourism receipts in recent years. Recorded average real per capita tourism receipts in post-communist nations increased from nearly US\$180 in 1990 to an estimated US\$471 in 2012.

During the last 25 years, the nature of tourism in post-communist society has significantly changed in terms of relationships between tourism product supply and demand, dominant modes of tourism activities, industry’s organizational structure and many other major characteristics. If communist states had a monopolistic power over all aspects of tourism, after 1990s they began to deregulate tourism activities in addition to liberalizing respective economies and integrate into dynamic domestic and global tourism markets. Transformation process from social tourism to market-oriented tourism industry has been investigated by Hall (1991; 1995),

Ibrahimova (2014), Richards (1996) and others. However, these studies, mainly concentrate on description nature of those processes and there is a considerable lack of critical evaluation and analysis of tourism-growth behavior in post-communist society.

The main objective of this paper is to foster a fresh debate on how tourism development influences economic growth in post-communist countries. We empirically investigate the long-run relationship between tourism and economic growth in a multivariate model with tourism real receipts per capita and real GDP growth rates using panel data for 23 post-communist countries that span over the period 1991-2012. Post-communist countries considered in this paper make up the former Soviet bloc republics together with other Central and Eastern European countries with common political history².

The rest of the paper is structured as follows. The next section provides a review of relevant literature on the relationship of tourism and growth while section 3 discusses recent trends and characteristics of tourism in post-communist countries, section 4 describes data and methodology and section 5 presents econometric results. Section 6 concludes the paper.

2. Literature review

Since Shan and Wilson (2001) proposed Tourism led Growth (TLG) hypothesis, it has been subject to substantial attention during the last two decades. Empirical evidence that aims to identify tourism-growth relationship behavior has been accumulated in various empirical research traditions.

Some cross-country studies have been conducted as they provide opportunity to eliminate the effects of economic cycles and possible structural changes on relationship between tourism specialization and economic growth (Pablo-Romero & Molina, 2013). However, cross-country techniques criticized due to heterogeneity and endogeneity problems together with possible spurious contemporaneous correlation between the time-averaged data.

Brau et al. (2007) is an early cross-country study, examining the hypothesis for a data sample of 143 countries, differentiating between small countries, OECD members, oil-producing countries and countries specialized or not in tourism over the period 1980-2003. Authors presented higher positive correlation between the average tourism receipts and the average rate of growth in real GDP in small countries only when they specialized in tourism. Moreover, they showed that the positive correlation between tourism specialization and growth has not weakened even after controlling for initial per capita income and for trade openness.

²Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Ukraine, Uzbekistan

Another paper by Singh (2008) verified whether a link exists between tourism and economic development and the extent of the industry's contribution among 37 small developing islands. This study applied simple cross-sectional regression model to estimate the relationship between economic development and tourism receipts, additionally, tourism income multipliers estimated for several of the islands.

Po and Huang (2008) examined nonlinear relationships between tourism and economic growth using a sample of 88 countries divided into three groups based on the tourism receipts contribution to the GDP. According to their results, significant positive relationship between tourism and economic growth exists when the relative share of tourism receipts in GDP is below 4.05% or above 4.73%, otherwise, empirical results do not support TLG hypothesis.

In the course of time, as more statistics became attainable in developed and lower income nations the nature of research has shifted to cross-section time series studies. In this sub-section we provide overview of several prominent and recent evidences.

Lanza et al. (2003) is an early empirical study, presenting the link between tourism and economic growth using panel data for 13 OECD nations over the period 1977 – 1992. Authors argue that tourism has a stronger effect on economy in less-industrialized nations and “international tourism is a luxury [factor of growth] in industrialized countries” (p. 319). Sequeira and Nunes (2008), using conventional growth specification by Barro (1991) and empirical panel data approach by Islam (1995) document that tourism has a significant positive impact on economic growth in a broad sample of countries and in a sample of low income countries. Eugenio-Martín et al. (2004), while commenting on extant study limit the sample only for Latin American countries and investigates the link between tourism and economic growth since 1985 until 1998. By also relying on the methodology of Islam (1995) and controlling for endogeneity of the right hand side variables, they find that tourist arrivals have positive effect on real GDP per person growth only in low and medium income countries. The further evidence on the link between tourism and economic growth in world panel data of countries is reported by Sequeira & Campos (2007) and Holzner (2011).

More recent panel evidence focuses on heterogeneity of countries. For example, Fayissa et al. (2008) provide evidence on the positive impact of tourism on economic growth in 42 sub-Saharan countries. They apply Arellano & Bond (1991) estimator with autocorrelation. Their estimates show that a 10% increase in tourism receipts leads to a 0.4% increase in the GDP per capita.

Pratt (2015) explores the between tourism-growth nexus in Small Island Developing States, by using Computable General Equilibrium model to estimate the macroeconomic and industry impacts of increased tourism in these nations. The authors conclude that “\$1 million [of

tourism expenditure] would generate economic output from a high of \$1.8 million in the Seychelles to only \$1.03 million in American Samoa in direct and indirect impacts” (p. 155).

In this vein similar studies report the positive effect of tourism on economic growth in non-OECD (Lee & Chang, 2008), southern European (Proenca & Soukiazis, 2008), Pacific islands (Narayan et al., 2010), Mediterranean (Dritsakis, 2012) and Caribbean countries (Apergis & Payne, 2012).

It is noteworthy that the number of studies that have examined tourism and economic growth relationship in post-communist society is limited, namely, to those by Payne & Mervar (2010) for Croatia, Surugiu & Surugiu (2013) for Romania and Chou (2013) for 10 countries in Central and Eastern Europe. In addition, these studies have several limitations enumerated here. First, they use a small dataset. Second, as countries in empirical analysis are limited to Central and Eastern Europe representatives, omitting the former Soviet Union members, there may be some regional bias in the empirical results. Finally, the statistical robustness of the estimation results has not been examined comprehensively. We attempt to overcome above-stated issues by employing more rigorous panel data techniques using long-term panel data covering almost all post-communist countries.

3. Recent trends and characteristics of tourism in post-communist countries

The collapse of the USSR and the end of the communist rule has led to emergence of a number of newly independent nations in Eastern Europe and Central Asia, which have undergone transformation in all facets of their society, as well as tourism. While prior to 1991 tourism along with other industries in Soviet Union was centrally planned from Moscow, with the demise of the “Iron curtain” independent countries were able to institute own economic policies and reforms in tourism development planning and promotion.

Nevertheless, all the countries have experienced large influxes of foreign tourists over the past decades. For example, in 2012 post-communist nations reported 124,983,000 tourists (up from 49,013,000 in 1995). In some countries, the increase in the tourism arrivals was even more dramatic. In Uzbekistan the number of tourism arrivals has risen to more than 21-fold since 1995 (see Table 1).

[Table 1 about here]

In 2012, tourism receipts in 22 post-soviet countries were estimated at about US\$83 billion. Tourism receipts in the region comparably small, 6% of total global receipts and only 38% of those to the USA, which receives the most.

Relative to GDP, too, the contribution of tourism development in post-soviet nations is also generally smaller than in other developing countries. In 2012 the total contribution of tourism to GDP in Russia was 5.75%, compared to 9.3% in China and 9.1% in Brazil. In addition, the estimated total contribution of tourism to GDP was less than 6% in Kazakhstan, Kyrgyzstan and Uzbekistan. In absolute terms Russia, Poland and Croatia recorded the largest volume of tourism receipts in the region.

For some nations tourism is also an essential source of foreign currency. For, Georgia, Armenia and Croatia, for instance, in 2012 international tourism receipts amounted to more than 15% of export earnings (Figure 1).

[Figure 1 about here]

4. Data and methodology

The aim of this study is to explore if tourism has effect on economic growth in a sample of post-communist countries. To test this, we use conventional growth model derived from extant literature. Our dataset contains annual observations at the country level over the years 1991-2012 for up to 23 post-communist countries.

Dependent variable

This paper mainly concentrates on single dependent variable: GDP growth measured as annual percentage growth rate of GDP at market prices based on constant local currency. The data is from World Development Indicators (WDI)³. According to the data 1991-2012 was period of somewhat diverse (stable and sluggish) economic growth across post-soviet nations. For Central Asian countries, 1995 signified recovery after the demise of Soviet Union. Among Eastern European nations, some suffered severe downturns – particularly Serbia and Moldova – but most have maintained stable (positive) growth rates in the 2000's.

Independent variable

³<http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>

The main independent variable in our study is per-capita tourism receipts. This variable has been successfully used as a proxy for tourism development in empirical literature (e.g. Dritsakis, 2012; Fayissa et al., 2008). For example, Ridderstaat et al. (2014) documents that a 1% growth in tourism receipts would lead to a 0.49% increase in real GDP of Aruba in the long-run, *ceteris paribus*. We draw data on tourism receipts from World Tourism and Travel Committee (WTTC). We log this variable to correct for skewness.

Control variables

We add other variables to the econometric model that are standard in the growth literature. First, we include lagged dependent variable as a conventional scenario to eliminate potential autocorrelation in the residual. Lagged level of economic development is the logarithm of GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. We also control for investment as a share of GDP, inflation rate and population growth rates. The data is from WDI.

Methodology

Based on the above theoretical discussion we estimate following econometric model the aim of which is to investigate the impact of tourism development on economic growth:

$$growth_{i,t} = \alpha_i + \alpha_t + \alpha_1 T_{i,t} + \beta X'_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the i th country's economic growth at year t is a function of tourism development, the vector of control variables, X , and the random error term, $\varepsilon_{i,t}$ ⁴.

We investigate the impact of tourism on economic growth by various techniques: (a) individual random effects (RE), (b) individual fixed effects (FE), (c) random-effects estimator with an assumed first-order autoregressive error (REGAR), (d) panel-corrected standard error (PCSE) estimates and (e) system generalized method of moments (GMM).

5. Empirical evidence

Table 2 presents the main results. Looking at benchmark RE estimates in column 1, we find that coefficient for logged per-capita tourism receipts is positive and statistically significant at the 1% level. Considering the linear-log specification, this suggests the following: if per-capita tourism receipts increase by one standard deviation, the GDP growth rate increases by 1.37% point, *ceteris paribus*. The overall fit of the model is sufficient as supported by statistically

⁴ α_i and α_t are country and year fixed effects, respectively.

significant F-test and the amount variance in dependent variable explained by the independent variables ($R^2=0.38$).

The corresponding estimates for control variables establish the following notable points:

- The lagged GDP per capita is negative and statistically significant at the 1% level. These findings are in line with the convergence hypothesis of neoclassical growth models (e.g. Barro, 1991).
- Investment rate has positive effect on economic growth at the 1% level of significance. When investment ratio increases by 1% point, the growth rate increases by 0.26% point.
- In line with intuition and extant empirical evidence inflation, rate and population growth rate are inversely related to economic growth. As suggested by Bittencourt (2012 p. 334) “high inflation is detrimental to growth ...[I]t either outweighs the Mundell–Tobin effect, or creates particular distortions, including increased volatility and uncertainty, which results in a shift to less productive activities and consequently slower growth rates”.

Taking into account cross-sectional time-series data, we re-estimate our regression model using fixed effects (column 2 in Table 2). The estimated coefficient for tourism remains positive and significant, albeit it has quantitatively increased. A one standard deviation increase in tourism development increases economic growth by about 2.2 percent, *ceteris paribus*.

As suggested by Eq. (1) the residual ($\varepsilon_{i,t}$) is believed to be white noise, fulfilling the conventional I.I.D. $\sim(0, \sigma^2)$ assumption. On the other hand, if the premise of zero serial correlation is false, then standard errors obtained in Eq. (1) are biased. Econometric literature suggests to employ AR(1) to address this issue. Thus, in column 3 we use a random-effects estimator with an assumed first-order autoregressive error to control for potential autocorrelation in our sample (e.g. Baltagi & Wu, 1999). As before, tourism has a positive and statistically significant effect on economic growth.

Moreover, one may argue that using a sample of 23 post-communist nations in the empirical exercise leads to a commonly known small-N problem in econometrics (see e.g. Beck & Katz, 1995). In particular, considering similarity across countries errors may be heteroscedastic and contemporaneously correlated across units. To deal with this issue, we use panel-corrected standard error (PCSE) method (column 4 in Table 2). As can be seen, the results for tourism development and the vector of control variables are very similar to those just discussed.

Finally, as tourism receipts can be affected by economic growth, we present results based on system GMM estimation that control for the potential endogeneity of the explanatory variables (column 5 in Table 2). The estimate for per-capita tourism receipts is 1.359 and

statistically significant at the 1% level. Furthermore, the “Sargan test” indicates that our model is correctly specified and the instruments are valid.

Therefore, the results in Table 2 provide evidence that tourism is significantly related to economic growth in post-communist countries.

[Table 2 about here]

6. Conclusion

This study attempts to investigate the validity of the tourism-led-growth (TLG) hypotheses in post-communist countries in 1990-2012. While a large strand of studies documents that tourism is an important determinant of economic growth, at the same time the related literature has not produced empirical evidence taking advantage of the cross-section and time series data for post-communist countries. Our findings indicate if per-capita tourism receipts increase by one standard deviation, the GDP growth rate increases by 1.37% point, *ceteris paribus*.

Furthermore, we find that tourism development yields statistically significant effect, at the 1% level, on economic growth after controlling for potential endogeneity of the right hand side variables.

Related literature provides several different channels, both direct and indirect, through which tourism development may have effect economic growth in post-communist countries. First, international tourism expansion increases economic growth via foreign exchange earnings, which contribute to capital goods that can be used in the production process (McKinnon, 1964). Increasing foreign exchange earnings used to pay for import of goods and innovative technologies for manufacturing sector, maintaining the level of international reserves is among top priorities for post-communist government authorities.

Second, tourism as a significant employment generator increases and activates income for residents through multiplier effects (Brida et al, 2014). This channel has important implication for inclusive economic growth as it attracts impoverished into productive employment and generate public welfare. Since tourism spillovers often go to impoverished households and increase earnings, they could become a large-scale resource transfer tool, able to alleviate poverty levels and increase final consumption.

Third, tourism stimulates private and public investments in new infrastructure, technology and human resources (e.g. Eugenio-Martin et al, 2004; Sakai, 2009). Technology and human capital play a critical role in explaining economic growth (e.g. Romer, 1990; Hall and

Jones, 1999; Barro, 2001). Improved physical (e.g. Feng & Morrison, 2007; Lemmetyinen & Go, 2009) and human capital (e.g. Blake et al., 2006) in tourism leads to efficient allocation of production factors and reduces inequality (e.g. Haddad et al., 2013) via innovation diffusion, enhancement in competitiveness (e.g. Krueger, 1980; Helpman & Krueger, 1985) and economies of scale (e.g. Andriotis, 2002; Croes, 2006). Indeed, increase in economies of scale enables businesses to reduce average production cost and diversify tourism facilities and products (Weng & Wang, 2004)

Fourth, tourism stimulates other industries by direct, indirect and induced effects (Syriopoulos, 1995; Spurr, 2009). Changes in tourist spending impact many sectors of the economy and produces multiplier effect of tourism. The magnitude of tourism multiplier depends on the country's size of territory and self-sufficiency. Higher propensity of business and households to buy goods and services from local suppliers supports higher tourism multiplier in the destination. According to World Tourism and Travel committee (2015), every one dollar spent on Travel & Tourism sector generates 3.2 dollars in GDP across the entire economy. In post-communist countries tourism multiplier varies between 2.25 in Czech Republic to 4.1 in Serbia. Overall, tourism has many other socio-economic benefits, which positively transmit to economic growth, particularly in post-communist countries.

Thus, post-soviet countries need to promote tourism development and exploit its direct and indirect social and economic benefits. On the other hand, inflation must be curbed in the long-run to escape its negative effect on economic growth.

References

- Andriotis, K. (2002). Scale of hospitality firms and local economic development – evidence from Crete. *Tourism Management*, 23(4), 333-341.
- Apergis, N., & Payne, J. E. (2012). Tourism and growth in the Caribbean—evidence from a panel error correction model. *Tourism Economics*, 18(4), 449–456.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, 58(2), 277-297.
- Balaguer, J., & Cantavella-Jordà, M. (2002). Tourism as a long-run economic growth factor: The Spanish case. *Applied Economics*, 34, 877–884.
- Baltagi, B.H. & Wu, P.X. (1999). Unequally Spaced Panel Data Regression with AR (1) Disturbances. *Econometric Theory*, 15, 814-823.

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

Barro, R. J. (2001). Human capital and growth. *American Economic Review*, 91, 12–17.

Beck, N., & Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. *American political science review*, 89(03), 634-647.

Bittencourt, M. (2012). Inflation and economic growth in Latin America: Some panel time-series evidence. *Economic Modelling*, 29(2), 333-340.

Blake, A., Sinclair, T.M. & Campos Soria J.A. (2006). Tourism productivity. Evidence from the United Kingdom. *Annals of Tourism Research*, 33(4), 1099-1120.

Brau, R., Lanza, A., & Pigliaru, F. (2007). How fast are small tourism countries growing? Evidence from the data for 1980–2003. *Tourism Economics*, 13(4), 603–613.

Brida J.G., Cortes-Jimenez I. & Pulina M. (2014). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*, 1.

Castro-Nuño, M., Molina-Toucedo J.A. & Pablo-Romero M.P. (2013). Tourism and GDP: a meta-analysis of panel data studies. *Journal of Travel research*, 52, 745-759.

Chou M. C. (2013). Does tourism development promote economic growth in transition countries? A panel data analysis. *Economic Modelling*, 33, 226-232.

Croes, R. (2006). A paradigm shift to a new strategy for small island economies: Embracing demand side economics for value enhancement and long term economic stability. *Tourism Management*, 27, 453-465.

deKadt, E. (ed.). (1979). *Tourism: Passport to Development?* New York: Oxford University Press.

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.

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

Eugenio-Martín, J. L., Morales, N. M., & Scarpa, R. (2004). Tourism and economic growth in Latin American countries: A panel data approach. FondazioneEni Enrico Mattei Working Paper Series, Nota di Lavoro, 26.

Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. *Tourism Economics*, 14(4), 807–818.

Feng, R. & Morrison, A.M. (2007). Quality and value network. Marketing travel clubs, *Annals of Tourism Research*, 34(3), 588-609.

Haddad, E, P., Alves, A., Rabahy, W. (2013). Domestic tourism and regional inequality in Brazil. *Tourism Economics*, 19(1), 173-186.

Hall, D. R., ed. (1991). *Tourism and Economic Development in Eastern Europe and the Soviet Union*. Belhaven Press, London.

Hall, D. R. (1998). Tourism development and sustainability issues in Central and South-eastern Europe. *Tourism Management*, 19(5), 423-431.

Hall, R. E., & Jones, C. I. (1999). Why do some countries produce so much more output per worker than others. *Quarterly Journal of Economics*, 114, 83-116.

Helpman, E. & Krugman, P. (1985). *Innovation and growth in the global economy*, MIT Press, Cambridge.

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

Ibrahimova G. (2014). *Tourism development challenges in Central and Eastern Europe*. LAP (Lambert Academic publishing).

Islam, N. (1995). Growth empirics: a panel data approach. *The Quarterly Journal of Economics*, 1127-1170.

Krueger, A. (1980). Trade policy as an input to development. *American Economic Review*, 70, 188-292.

Lanza, A., & Pigliaru, F. (2000). Tourism and economic growth: Does country's size matter? *Rivista Internazionale di Scienze Economiche e Commerciali*, 47, 77-85.

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

Lee, C.C., & Chang, C.P. (2008). Tourism development and economic growth: A closer look to panels. *Tourism Management*, 29, 80-192.

Lee, C.C., & Chang, C.P. (2008). Tourism development and economic growth: a closer look at panels. *Tourism Management*, 29, 180-92.

Lemetyinen, A. & Go, F.M. (2009). The key capabilities required for managing tourism business networks. *Tourism Management*, 30, 31-40.

Lim, C. (1997). Review of International Tourism Demand Models. *Annals of Tourism Research* 24, 835-849.

Massidda, C., & Mattana, P. (2013). A SVECM analysis of the relationship between international tourism arrivals, GDP and trade in Italy. *Journal of Travel Research*, 52(1), 93-105.

McKinnon, R. (1964). Foreign exchange constraint in economic development and efficient aid allocation. *Economic Journal*, 74, 388-409.

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

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

Payne, J. E., & Mervar, A. (2010). The tourism–growth nexus in Croatia. *Tourism Economics*, 16(4), 1089–1094.

Po, W. C., & Huang, B. N. (2008). Tourism development and economic growth, a nonlinear approach. *Physica A*, 387, 5535–5542.

Pratt, S. (2015). The economic impact of tourism in SIDS. *Annals of Tourism Research*, 52, 148-160.

Proenca, S., & Soukiazis, E. (2008). Tourism as an economic growth factor: A case study for Southern European countries. *Tourism Economics*, 14(4), 791–806.

Richards, G. (1996) *Tourism in Central and Eastern Europe: Educating for Quality*. Tilburg University Press, Tilburg.

Ridderstaat, J., Croes, R., & Nijkamp, P. (2014). Tourism and Long-run Economic Growth in Aruba. *International Journal of Tourism Research*, 16(5), 472-487.

Romer, P. M. (1990). Human capital and growth: Theory and evidence. *Carnegie-Rochester Conference Series on Public Policy*, 32, 251–286.

Sakai, M. (2009). Public sector investment in tourism infrastructure, in Larry Dwyer and Peter Forsyth, *International Handbook on the Economics of Tourism*, eds., (Cheltenham, UK: Edward Elgar).

Sequeira, T. N., & Campos, C. (2007). International tourism and economic growth: A panel data approach. In *Advances in Modern Tourism Research*, 153-163.

Shan, J. & Wilson K. (2001). Causality between trade and tourism: empirical evidence from China. *Applied Economics Letters*, 8, pp.279-283.

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

Sinclair, M. T. (1998). Tourism and economic development: A survey. *The Journal of Development Studies*, 34, 1–51.

Singh, D. R. (2008). Small island developing states (SIDS). Tourism and economic development. *Tourism Analysis*, 13, 629–636.

Spurr, R. (2009). Tourism Satellite Accounts, in *International Handbook on the Economics of Tourism*. Larry Dwyer and Peter Forsyth, eds. (Cheltenham, UK: Edward Elgar).

Surugiu, C., & Surugiu, M. R. (2013). Is the tourism sector supportive of economic growth? Empirical evidence on Romanian tourism. *Tourism Economics*, 19(1), 115–132.

Syriopoulos, T.C. (1995). A dynamic model of demand for Mediterranean tourism. *International Review of Applied Economics*, 9(3), 318-336.

Tucker, H. & Boonabaana, B. (2011). A critical analysis of tourism, gender and poverty reduction. *Journal of Sustainable Tourism*, 20(3), 437-455.

Weng, C.C. & Wang, K.K. (2004). Scale and scope economies of international tourist hotels in Taiwan. *Tourism Management*, 25, 761-769.

WTTC. (2015). Global Benchmarking: Travel & Tourism. How does Travel & Tourism compare to others? The World Tourism and Travel Council report.

APPENDIX

Table 1. International tourist arrivals and receipts in post-communist countries.

	International arrivals (Thousand people)					International tourism receipts (in mln. USD)				
	1995	2000	2005	2010	2012	1995	2000	2005	2010	2012
Central Europe										
<i>Czech Republic</i>	1650	NA	9404	8185	8908	2880	2973	4813	7121	7039
<i>Slovakia</i>	730	NA	6184	5415	6235	623	433	1210	2228	2295
<i>Hungary</i>	NA	NA	9979	9510	1035	2928	3733	4120	5929	5114
<i>Poland</i>	19215	17400	15200	12470	14840	6614	5677	6274	9526	10938
South-eastern Europe										
<i>Bosnia-Herzegovina</i>	NA	171	217	365	439	NA	233	519	589	618
<i>Bulgaria</i>	3466	2785	4837	6047	6541	473	1074	2412	3571	3689
<i>Croatia</i>	1485	5831	7743	9111	10369	1349	2758	7370	8051	8637
<i>Macedonia</i>	147	224	197	262	351	19	38	89	197	234
<i>Romania</i>	5445	5264	5839	7489	7937	590	359	1052	1136	1463
<i>Slovenia</i>	732	1090	1555	1869	2156	1084	961	1795	2540	2674
Former Soviet Union										
<i>Armenia</i>	12	45	319	684	963	1	38	223	411	454
<i>Azerbaijan</i>	NA	NA	693	1280	1986	70	63	78	657	2433
<i>Belarus</i>	161	60	91	120	119	23	93	253	440	685
<i>Estonia</i>	530	1220	1917	2372	2744	357	508	971	1065	1221
<i>Kazakhstan</i>	NA	1471	3143	3196	4807	122	356	701	1005	1347
<i>Kyrgyzstan</i>	36	59	319	855	2406	5	15	73	160	434
<i>Latvia</i>	539	509	1116	1373	1435	20	131	341	640	745
<i>Lithuania</i>	650	1083	2000	1507	1900	77	391	921	958	1317
<i>Moldova</i>	32	18	23	8	11	57	39	103	163	198
<i>Russia</i>	10290	21169	22201	22281	28177	4312	3429	5870	8830	10759
<i>Ukraine</i>	3716	6431	17631	21203	23013	191	394	3125	3788	4842
<i>Uzbekistan</i>	92	302	242	975	1957	NA	27	28	270	675

Source: UNWTO

Table 2
Regression results

	(1) RE	(2) FE	(3) REGAR	(4) PCSE	(5) GMM
Tourism development _t (log)	0.854*** (0.321)	1.354** (0.547)	1.760*** (0.557)	1.039*** (0.313)	1.359*** (0.385)
Growth _{t-1}	0.458*** (0.040)	0.424*** (0.041)	0.364*** (0.036)	0.378*** (0.061)	0.450*** (0.037)
GDP per capita _{t-1} (log)	-3.484*** (0.709)	-8.322*** (1.318)	-5.869*** (1.197)	-3.969*** (0.838)	-5.355*** (0.860)
Investment (% of GDP) _t	0.264*** (0.059)	0.251*** (0.065)	0.156*** (0.060)	0.315*** (0.081)	0.305*** (0.058)
Population growth rate _t	-1.062*** (0.395)	-0.666 (0.623)	0.090 (0.553)	-1.075** (0.517)	-1.318*** (0.387)
Inflation rate _t	-0.003*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
Constant	27.736*** (6.259)	72.261*** (11.990)	48.001*** (10.397)	31.212*** (7.492)	43.853*** (7.567)
<i>N</i>	448	448	425	448	448
adj. <i>R</i> ²	0.405	0.322	0.387	0.341	-
Sargan test	-	-	-	-	<i>p</i> =0.069

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Standard errors are in parentheses

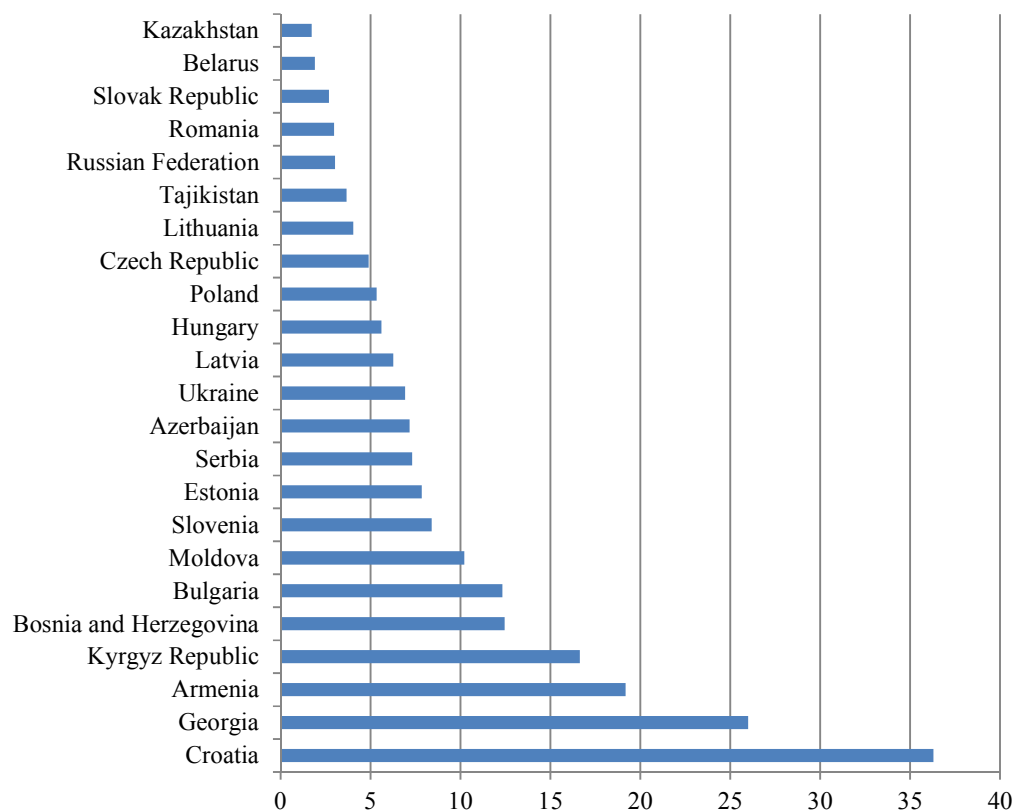


Figure 1 International tourism receipts (% of total exports)
Source: World Bank, 2013