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ASSESSING INBOUND TOURISM CONSIDERING GHG EMISSIONS AND RENEWABLE ENERGIES (THE CASE OF ROMANIA)

This paper investigates the impact of greenhouse gas (GHG) emissions and renewable energies on Romanian inbound tourism along with other economic, social and geographical variables, such as bilateral trade, population, distance and education. It aims to stress the need of respecting green environmental principles as the main instrument of attracting foreign tourists to Romanian destinations, for the future sustainable development of the sector. A panel analysis, including 3 models, was used to study the impact of GHG emissions in 23 generating countries for the period 1993-2008. All 3 models proved to be significant and underlined a medium-high influence of GHG emissions and a low-medium influence of renewable energies on international tourism flows to Romania. Greater attention is required to study of impact of GHG emissions and the use of renewable energy in tourism, to better understand the mechanism that could support sustainable tourism development.

Keywords: international demand; Romania; GHG emissions; tourism; modeling.

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ОЦІНЮВАННЯ В'ЇЗНОГО ТУРИЗМУ З УРАХУВАННЯМ ВИКИДІВ ПАРНИКОВИХ ГАЗІВ І ВІДНОВЛЮВАНИХ ДЖЕРЕЛ ЕНЕРГЇЇ (НА ПРИКЛАДІ РУМУНЇЇ)

У статті досліджено вплив викидів парникових газів (ПГ) і відновлюваних джерел енергії на румунський в'їзний туризм поряд з іншими економічними, соціальними і географічними змінними, такими як двостороння торгівля, населення, відстань і освіта. Підкреслено необхідність дотримання екологічних принципів як основного інструменту залучення іноземних туристів до Румунії, для майбутнього стійкого розвитку галузі. Панельний аналіз, що включає 3 моделі, використано для вивчення впливу викидів парникових газів у 23 країнах за період 1993-2008 років. Всі 3 моделі виявилися значущими і підкреслили середньовисокий вплив викидів парникових газів і низькосередній вплив відновлюваних джерел енергії на міжнародні туристичні потоки в Румунії. Великої уваги вимагає вивчення дії викидів парникових газів і використання відновлюваних джерел енергії на туристичні потоки, для кращого розуміння механізму, який міг би підтримати стійкий розвиток туризму.

Ключові слова: міжнародний попит; Румунія; викиди парникових газів; туризм; моделювання.

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ОЦЕНКА ВЪЕЗДНОГО ТУРИЗМА С УЧЕТОМ ВЫБРОСОВ ПАРНИКОВЫХ ГАЗОВ И ВОЗОБНОВЛЯЕМЫХ ИСТОЧНИКОВ ЭНЕРГИИ (НА ПРИМЕРЕ РУМЫНИИ)

В статье исследуется влияние выбросов парниковых газов (ПГ) и возобновляемых источников энергии на румынский въездной туризм наряду с другими экономическими,

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социальными и географическими переменными, такими как двусторонняя торговля, население, расстояние и образование. Подчеркнуто необходимость соблюдения экологических принципов в качестве основного инструмента привлечения иностранных туристов в Румынию, для будущего устойчивого развития отрасли. Панельный анализ, включающий 3 модели, использован для изучения влияния выбросов парниковых газов в 23 странах за период 1993-2008 годов. Все 3 модели оказались значимыми и подчеркнули средневысокое влияние выбросов парниковых газов и низкосреднее влияние возобновляемых источников энергии на международные туристические потоки в Румынии. Большого внимания требует изучение воздействия выбросов парниковых газов и использования возобновляемых источников энергии на туристические потоки, для лучшего понимания механизма, который мог бы поддержать устойчивое развитие туризма.

Ключевые слова: международный спрос; Румыния; выбросы парниковых газов; туризм; моделирование.

1. Introduction. The effects of greenhouse gas (GHG) emissions pose real challenges for the tourism industry. On the other hand, the increase in tourist activities also means an increase in resource consumption. Tourism is a very energy-intensive activity, contributing to GHG emissions and the build-up of these gases in the atmosphere (Dubois and Ceron, 2005). The UNWTO (United Nations World Tourism Organization) estimates that the tourism industry is responsible for about 5% of global carbon dioxide (CO_2) emissions. Therefore, it also adds to the exacerbation of climate change, which, in turn, impacts tourism activities and flows.

OECD (2010) underlines that, among the common themes for governments of all countries in tourism development, "environmental sustainability for green growth" plays a significant role, as it needs to meet the challenge of reducing GHG emissions and raise awareness on the "importance of environmentally-responsible tourism and encouraging lower carbon activities".

As underlined by international organizations and research studies, GHG emissions and, as a consequence, global warming put a lot of pressure on tourism, especially on international tourism, highly dependent on transportation which is greatly pollutant.

It is obvious that future sustainable development of economies and human life will be closely related to GHG emissions and the nations' ability to cope with renewable energy technologies. The GHG emissions and renewable energy use have implications for the tourism sector, however these influences have not been deeply analysed to see the consequences on tourism flows.

Consequently, not only the GHG emissions, influencing the quality of the environment, have effects on tourism activity, but also tourism operations impact the environment, generating considerable GHG emissions, derived especially from transport and accommodation activities.

GHG emissions are thus dually related to tourism, but the present paper is aiming to investigate just one side, less analysed in the literature, which refers to the effects of GHG emissions on the tourism activity. More precisely, it analyses their effects on inbound flows of Romanian tourism, using econometric models. Secondly, an emphasis should be put on the use of renewable energies and their effects on the tourism activity.

Academic literature comprises a significant amount of papers on international tourism demand modeling (i.e., Garin-Munoz and Amaral, 2000; Turner and Witt, 2001; Eilat and Einav, 2004; Garin-Munoz, 2007; Song and Fei, 2007; Muhammad and Andrews, 2008; Habibi et al., 2009; Leitao, 2010; Hanafiah and Harun, 2010; Surugiu et al., 2011). In the case of Romania, there are previous studies that analyse different aspects of tourism, especially related to sustainable tourism (Nistoreanu, 2005; Chasovschi et al., 2008; Constantin and Mitrut, 2008; Gherasim et al., 2011). However, research is still needed to model the impact of various variables on inbound tourism, namely economic and social ones and, more specifically, GHG emissions and renewable energy use, which are closely linked with environmental sustainability.

This paper aims to analyse the relationship between international tourism demand in Romania and various economic, social and environmental variables using 3 types of data analysis models. The following section presents the literature review on modeling tourism flows. Section 3 presents the objectives and some theoretical aspects of the methodology of the data analysis, followed in section 4 by the models' presentation and the discussions of the obtained results. The last section concludes the article.

2. Literature review. In the coming decades, climate change will have a significant role in tourism development and management, as the tourism sector is very sensitive to climate conditions. GHG emissions, significantly caused by the burning of fossil fuel, contribute to global warming, and, as a consequence, are an important driving force of climate change. CO_2 is the most important anthropogenic GHG (IPCC, 2007). Actions to reduce current levels of GHG emissions will not only minimise the threat of climate change, but also provide an opportunity to develop a sustainable global economy (Cabrini, 2009). Some authors (i.e., Becken, 2002; Pentelow and Scott, 2010) tried to estimate the impact of GHG emissions on tourism demand, while others estimated their impact on various economic variables, such as intra-industry trade (Leitao et al., 2011).

Climate change concerns and willingness to support sustainable development readdress the production of renewable energy, which plays a crucial role in reducing GHG emissions and other forms of pollution, diversifying and improving the security of energy supply and maintaining a world-leading and clean-energy technology industry (European Commission, 2011). Analysis of both actual and modeling results demonstrated that renewable energies' supply can effectively meet the power demand for stand-alone to medium-scale tourist accommodations, which are most likely to be located in peripheral and environmentally sensitive areas (Dalton et al., 2009). Still, renewable energy production remains expensive. Some industry professionals believe that although consumers are paying attention to accommodations that use renewable energy, they are not willing to pay more for it (Renewable Energy in Tourism Initiative, 2008)

Education has an important role to play in achieving sustainable tourism. The role of education and training in the context of transitory working lives, both within the external college environment and in the industry itself, is to support mobility, mid-life entry and re-entry to the sector and development in relation to new technologies and products (Baum, 2007). The attempt to educate for sustainable

tourism development must necessarily precede any finalisation of principles that might guide it, then such further work might be hoped, over time, to contribute to an archive of experience (Gough and Scott, 1999). Through education, people are more aware of the critical issues of their tourism area, gathering knowledge and understanding of the environment, green environmental principles, being further empowered to participate in decision-making processes and work on sustainable development.

The empirical results show that the volume of bilateral trade sustains tourism flows between two countries (Shan and Wilson, 2001; Turner and Witt, 2001; Phakdisoth and Kim, 2007; Habibi et al., 2009; Leitao, 2010), with a country's exports having a positive effect on tourist arrivals (Muhammad and Andrews, 2008). Bilateral trade supports sustainable tourism, but negative pressure could be put on the environment as a result of extra-utilization of natural resources, pollution and increased traffic congestion.

The impact of population changes in a country is important to analyse. Population growth puts pressure on long-term sustainable development. The sustainability of tourism and communities depends on the growth of population, which, in turn, means increased demand and extra-pressure on the environment, scarcer resources (e.g. food, energy, water), irreversible damage to environmental life support systems (Park, 2001).

Distance from origin countries to destination country is a powerful motivation for travellers. The distance increases transportation costs, puts pressure on the quality of the environment, as GHG emissions increase. On long distances, environmentally friendly means of transportation (e.g., bikes) are less probably to be used.

3. Objectives and Methodology. This study is based on rigorous cross-sectional time series analysis and assesses the role of GHG emissions, renewable energies, education expenditure, along with other variables of influence (such as bilateral trade, population and distance) on inbound tourism.

The analytical approach is based on the evidence gathered from the literature review, which suggests that not only income, prices, exchange rates and distance have a significant influence on tourism demand, as underlined in previous research econometric studies, but also the quality of the environment and air pollution. Another starting point in previous research papers (i.e., Gough and Scott, 1999; Baum, 2007) was underlining the importance of education and awareness in developing sustainable tourism.

International tourism arrivals are seen as a demand system, and each generating country is considered as a separate demand market. For each tourism market, the determinants are influencing the consumer behaviour and their preferences on Romania as a tourism destination.

The first step in elaborating the model was to choose the dependent variable, which in our case referred to the number of international arrivals in Romania. Concerning the selection of the explanatory variables in the theoretical model, several studies were considered and analyzed (i.e., Turner and Witt, 2001; Becken, 2002; Eilat and Einav, 2004; Phakdisoth and Kim, 2007; Dalton et al., 2009; Pentelow and Scott, 2010; Leitao et al., 2011), starting from the availability of data.

The proposed models challenge, besides classical economic and social variables frequently used in econometric modeling, other variables closely related to the sustainable pattern of tourism development, such as GHG emissions, renewable energies and education expenditure (Table 1).

$$TOU_{it} = f(CO2, REWE, TRADE, POP, DIST, ED), \tag{1}$$

where TOU_{it} is the number of foreign tourist arrivals; $CO2$ is the greenhouse gas emissions; $REWE$ is the renewable energies; $TRADE$ is the bilateral trade; POP is the total population in tourist outbound countries; $DIST$ is the geographical distance between Romania and tourist-generating countries; ED is the education level.

Following the literature review, it was postulated that foreign tourism demand for travel exports in Romania is a function of GHG emissions, renewable energies, trade openness, population, distance between an origin country and Romania, and education levels.

Therefore, the econometric model on estimating tourism demand takes the following representation:

$$LogTOU_{it} = \alpha + \beta_1 \times LogCO2_{it} + \beta_2 \times LogREWE_{it} + \tag{2}$$
$$\beta_3 \times LogTRADE_{it} + \beta_4 \times LogPOP_{it} + \beta_5 \times LogDIST_{it} + \beta_6 \times LogED_{it} + \varepsilon_{i,}$$

where the variables were expressed in logarithm form: α is the constant term, β_m are the coefficients of each variable taken into consideration, ε_i is the error term; (for $i = 1, 2, ..., M$ cross-sectional units observed for a period $t = 1, 2, ..., T$), i is the number of cross sections, and t is the time period.

Table 1. **Variables used in the proposed models**

Abbreviation	Description
TOU	No. of foreign tourists arrived in Romania by country of origin
TRADE	Bilateral trade $$BILATERALTRADE_{it} = \frac{X_i + M_i}{GDP_{Romania} + GDP_k},$$ where X_i represents the annual exports of Romania to the country of origin of each tourist at time t and M_i represents the annual imports of Romania from each tourist's country of origin at time t. GDP_k is the GDP per capita in tourism generating countries (constant 2000 USD). The data for exports and imports were collected from Romanian National Institute of Statistics.
REWE	Renewable energies, thousand tonnes of oil equivalent (TOE)
CO2	Greenhouse gas emissions (CO2 equivalent), thousands of tonnes
POP	Total population in tourism generation countries
ED	Education expenditure (USD)
DIST	Geographical distance between Romania and tourism-generating countries (km)

The variables described above were combined in creating econometric models aiming to study the influence exerted on international arrivals. For a good control of the dependent variable, 3 types of models were developed to estimate the international tourism demand for Romania, namely two using pooled least squared and the third panel using least squares. The following sections discuss the results of each econometric model.

4. Models presentation and results. Using the variables described above, international tourist demand for Romania was estimated. First, two pooled least squared

models were run, with the second model introducing an additional variable, allowing one to arrive at a better understanding of the general influences exerted on Romanian international tourism flows. Secondly, a new model was computed for the analysis of international demand.

Estimation of international tourism demand in Romania from 23 different countries[1], which represent over 65% of all foreign arrivals in Romania, between the years 1993 and 2008, was finished. Data used to create the foreign tourists number series, as dependent variable, are annually collected from the Romanian National Institute of Statistics. Annual data were used because of their availability in the long run and to avoid the seasonality problems.

The novelty of the model is the introduction of the GHG emissions together with renewable energies, education expenditure as the variables of sustainable environmental behaviour applied for Romanian tourism sector.

Testing the impact of various economic, environmental, geographical and social variables in tourism and highlighting the evolution of asymmetric effects induced by shocks in the manipulated variables require a methodology that provides a flexible framework of analysis. In the end, two pool-least squares models were developed. To complete the general picture, an additional panel model was added.

3 models were developed to allow the analysis of the influences on the variation of foreign tourism in Romania to underline the variables of influence related to pollution, renewable energies, education, but also trade, population and distance.

Pooling cross sections of various countries from different years is often an effective way of analysing the effects of certain economic, social and environmental influences, to observe how a key relationship has evolved over time and to underline the effects of certain modelled variables on the evolution of other variables.

Models 1 and 2 show the results of the pooled least squares estimation, while Model 3 shows the panel least squares estimates (Table 2). Model 1 estimates the pooled equation by using white cross-section standard errors to allow for general contemporaneous correlation between firm residuals. The "cross-section" designation is used to indicate that non-zero covariance is allowed across cross-sections (clustering by period). This model uses, as explanatory variables, GHG emissions, renewable energies, bilateral trade, population and education. Model 2 adds, as explanatory variable, the distance. Model 3 is the least squares panel data model using as explanatory variables for Romanian international tourism demand GHG emissions, renewable energies, bilateral trade, population and distance.

The estimated coefficients in Models 1 and 2 are relatively close to each other. Regarding Model 3, the results keep the sign of the influence, but the coefficient is higher, as the model is different from the previous two models.

As expected, GHG emissions in the country of origin have a positive impact on the number of international arrivals in Romania. This suggests that the most polluting countries contributed with more visitors to Romania (ceteris paribus). The GHG emission effect on origin-specific arrivals was 0.328 in Model 1 and 0.299 in Model 2. For the panel model, the estimated coefficient was 0.584. The coefficients for

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[1]The countries selected are Austria, Belgium, Bulgaria, Denmark, Switzerland, Finland, France, Germany, Ireland, Italy, Luxembourg, Norway, the Netherlands, Poland, Portugal, Czech Republic, United Kingdom, Slovakia, Slovenia, Spain, Sweden, Turkey, and Hungary.

GHG emissions in all 3 models are significant. Thus, it would make sense to try not to be very dependent on any single country or a small group of countries but try to promote Romania as a tourism destination on the markets mostly affected by air pollution, counting on those generating countries and capitalizing the green environment for tourism purposes.

Table 2. Estimation results for Romanian international tourism demand (1993-2008). Dependent variable: logarithm of the tourists' number

| | Model 1 | | Model 2 | | Model 3 | |
| | Pooled Least Squares | | Pooled Least Squares | | Panel Least Squares | |
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
CO2	0.328***	(0.035)	0.299***	(0.098)	0.584***	(0.148)
REWE	0.067***	(0.018)	0.107***	(0.040)	0.302***	(0.039)
TRADE	0.328***	(0.035)	0.574***	(0.058)	0.739***	(0.053)
POP	-0.322***	(0.045)	-0.367***	(0.087)	-0.645***	(0.155)
DIST			0.309**	(0.145)	0.776***	(0.121)
ED	0.398***	(0.016)	0.319***	(0.052)		
C					3.129***	(1.071)
Coef. covariance method	White cross-section standard errors and covariance (d.f. corrected)		Ordinary			
R-squared	0.725		0.729		0.707	
Adjusted R-squared	0.722		0.725		0.703	
No. of observations	368					

Note:* significant at 10%, ** significant at 5%, *** significant at 1%.
Source: data processed by the authors.

The estimated coefficient for renewable energies in the generating countries is positive and significant at 1% level, implying that international tourism in Romania is responsive to this variable. Still, the coefficients are smaller, suggesting that the influence has no high amplitude. Looking from the perspective of the environment, renewable energies mean a cleaner environment for the generating countries and more reasons for tourists to remain in their region of origin, thus the tourism demand for Romania should decrease. But looking at costs, renewable energies are more expensive, at least for the moment, and tourists may prefer cheaper destinations and thus Romanian international demand could increase, and thus the expected sign from this variable is positive.

It was expected that bilateral trade would have a positive impact on the number of arrivals from any given country. In fact, a 1% increase in bilateral trade between Romania and the analysed countries leads to a 0.328% increase in tourism demand for Model 1 and 0.574% for Model 2. Therefore, efforts could be made by national authorities to promote Romania in those countries with whom Romania has strong commercial relationships.

For the variable, of population, the estimated coefficients are negative and significant at 1% level. On the long run, tourism promotion of Romania should be considered in those countries where population growth is accompanied with welfare and improvement of life conditions and in the quality of the environment. It is worth mentioning that sustainable tourism development in Romania should be based on a

qualitative increase of tourists, more interested in green environmental principles and in preservation of the country's natural capital.

The distance effect on arrivals suggests that neighbour countries are not the main generating tourist markets for Romania. Distance is not a barrier for tourists coming from far away countries in Europe. The reality is that neighbouring countries in Eastern Europe are more attractive for West European visitors, and even for Romanian tourists. This variable needs a more profound analysis as it is connected with the quality of infrastructure, which in Romania is still poor, and transportation costs.

The coefficient of education confirms the sensitivity of international tourism in Romania to this variable. The positive and significant relationship existing between education and international arrivals underlines the fact that a sustainable long-term development of tourism should consider education, training and awareness of visitors. As education expenditures in the generating country are a positive stimulating variable and an important advantage for supporting green environmental principles, future tourism policy should closely consider these aspects when promoting Romanian tourism.

5. Conclusions and future discussions. Increasing recognition of climate change as a major environmental issue that must be addressed in a concerted manner (Becken and Hay, 2007), induced a consensus on the need to study the impact of GHG emissions on tourism activities, derived especially from transport and other industry-related activities. The second emphasis should be put on the use of renewable energies, as further impacts tourist flows.

These two consistent variables, GHG emissions and the use of renewable energies, were integrated in a larger cross-sectional time series analysis, including other variables, such as bilateral trade, population, distance, and education, which have an important role in achieving sustainable tourism.

In this paper, the authors elaborated 3 panel data models applied to international tourism demand in Romania, with results being similar to each other. GHG emissions and renewable energies have positive impact on the number of international arrivals in Romania, suggesting that the country attracts tourists from other more polluted European countries and that tourists are less responsive to renewable energies. As compared with other indicators having positive influences on Romanian inbound tourism (bilateral trade and education), GHG emissions have a moderate to high have influence and renewable energies have a relatively low influence. The coefficient of education indicates a significant relationship with international arrivals.

In the years to come, lower-carbon activities, more efficient and renewable sources of energy will offer tourism the opportunity for adaptation and rejuvenation, putting great hopes on tourism as a driver of sustainable development.

Previous international agreements between world nations highlighted the need to promote and undertake investments in energy-efficiency programmes and use of renewable energy resources, with the aim of reducing the carbon footprint. Renewable energy technologies can be used as a leverage for tourism development.

The results may be a valuable source of information for central administrations in the decision-making process to implement the best suitable measures to reduce GHG emissions and implement green environmental principles.

References:

Baum, T. (2007). Human resources in tourism: Still waiting for change. Tourism Management, 28, 1383-1399.

Becken, S. (2002). Analysing international tourist flows to estimate energy use associated with air travel. Journal of Sustainable Tourism, 10, 114-131.

Becken, S. and Simmons, D. (2002). Understanding energy consumption patterns of tourist attractions and activities in New Zealand. Tourism Management, 23, 343-354.

Becken, S. and Hay, J.E. (2007). Tourism and climate change: Risks and opportunities. Clevedon: Channel View Publications.

Cabrini, L. (2009). From Davos to Copenhagen and beyond: Advancing tourism's response to climate change, UNWTO Background Paper, http://www.unwto.org/pdf/From_Davos_to%20Copenhagen_beyond_UNWTOPaper_ElectronicVersion.pdf

Chasovschi, C., Nastase, C., and Hildebrandt, W. (2008). Romania as tourism destinations - an external perspective. Journal of Tourism, 5, 38-42.

Constantin, D.L., and Mitrut, C. (2008). Tourism, cultural resources and regional competitiveness: a case study in Romania. International Journal of Services Technology and Management, 10, 48-60.

Dalton, G.J., Lockington, D.A. and Baldock, T.E. (2009). Case study feasibility analysis of renewable energy supply options for small to medium-sized tourist accommodations. Renewable Energy, 34, 1134-1144.

Dubois, G. and Ceron, J.P. (2005). Greenhouse gas emissions from tourism under the light of equity Issues. In: C. M. Hall and J. Higham (Eds.), Tourism, Recreation and Climate Change. Clevedon: Channel View Publications.

Eilat, Y. and Einav, L. (2004). Determinants of international tourism: A three-dimension panel data analysis. Applied Economics, 36: 1315-1327.

European Commission (2010). The EU climate and energy package. Retrieved from http://ec.europa.eu/clima/policies/package/index_en.htm

European Commission (2011). Renewable make the difference, Directorate-General for Energy, European Union, Available on-line http://ec.europa.eu/energy/publications/doc/2011_renewable_difference_en.pdf

Garin-Munoz, T. and Amaral, T.P. (2000). An econometric model for international tourism flows to Spain. Applied Economics Letters, 7, 525-529.

Garin-Munoz, T. (2009). Tourism in Galicia: domestic and foreign demand. Tourism Economics, 15, 753-769.

Gherasim, V., Toderas, T., Cracea, T., Costea, M., Raduly, I., and Dombay, S. (2011). The Tourism Activities of Romania in The Context of Sustainable Development Necessity. International Journal of Energy and Environment, 5, 257-265.

Gough, S. and Scott, W. (1999). Education and training for sustainable tourism: problems, possibilities and cautions first steps. Canadian Journal of Environmental Education, 4, 193-212.

Habibi, F., Rahim, K.A., Ramchandran, S., and Chin, L. (2009). Dynamic model for International Tourism Demand for Malaysia: Panel Data Evidence. International Research Journal of Finance and Economics, 33, 207-217.

Hanafiah, M.H.M. and Harun, M.F.M. (2010). Tourism demand in Malaysia: A cross-sectional pool time-series analysis. International Journal of Trade, Economics, and Finance, 1, 80-83.

Intergovernmental Panel on Climate Change - IPCC (2007), IPCC Fourth Assessment Report, Available at: http://www.ipcc.ch/

IPPC (2001). Special Report Renewable Energy Sources: Summary for Policymakers, Available at: http://www.ipcc.ch/

IPPC (2008). Mitigation of Climate Change, Available at: http://www.ipcc.ch/

Leitao, N.C. (2010). Does trade help to explain tourism demand? The case of Portugal. Theoretical and Applied Economics, 544, 63-74.

Leitao, N.C., Dima, B., and Dima, C.S. (2011). The Environment Effect and Intra-Industry Trade. World Applied Sciences Journal, 12, 243-249.

Muhammad, A. and Andrews, D. (2008). Determining tourist arrivals in Uganda: The impact of distance, trade and origin-specific factors. African Journal of Accounting, Economics, Finance and Banking Research, 2, 51-62.

Nistoreanu, P. (2005). The ecotourism - element of the sustainable development of the local rural communities in Romania. Amfiteatru Economic, 18, 42-47.

Organisation for Economic Co-operation and Development (2010). OECD Tourism Trends and Policies 2010, OECD Tourism Committee.

Pentelow, L., and Scott, D. (2010). The Implications of Climate Change Mitigation Policy and Oil Price Volatility for Tourism Arrivals to the Caribbean, Tourism Planning and Development, 7, 301-315.

Phakdisoth, L. and Kim, D. (2007). The determinants of inbound tourism in Laos, ASEAN Economic Bulletin, 24, 225-237.

Park, C. (2001), The environment: principles and applications, 2nd ed., Routledge, London.

Renewable Energy in Tourism Initiative (2008). Best Practices in the Accommodation Sector, University of Colorado at Boulder, National Renewable Energy Laboratory, East Carolina Univesity, Available at http://www.research2.ecu.edu/renewabletourism/pdf/Accommodation%20080601.pdf

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

Song, H. and Fei, B. (2007). Modelling and forecasting international tourist arrivals to mainland China. China Tourism Research, 3, 20-40.

Surugiu, C., Leitao, N.C. and Surugiu, M.R. (2011). A panel data modelling of international tourism demand: evidences for Romania. Economic Research, 24, 134-145.

Turner, L.W., and Witt, S.F. (2001). Factors influencing demand for international tourism: tourism demand analysis using structural equation modelling. Tourism Economics, 7, 21-38(18).

UNWTO (2007). Davos Declaration: Climate change and tourism responding to global challenges. Davos: UNWTO.

http://www.cepii.fr/anglaisgraph/bdd/bdd.htm. (15.01.2011)

www.worldbank.org/. (23.02.2011)

www.insse.ro. (18.01.2011)

http://www.eea.europa.eu/publications/eea_report_2007_5/Romania.pdf (28.03.2011)

http://www.eea.europa.eu/themes/climate/ghg-country-profiles/tp-report-country-profiles/romania-greenhouse-gas-profile-summary-1990-2020.pdf (29.05.2011)