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**ORIGINAL ARTICLE**

# Co2 Emissions and International Tourism in Some Developed Countries

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Younes Nademi and Seyed Mohammad Rahim Najibi; Co2 Emissions and International Tourism in Some Developed Countries

## ABSTRACT

The purpose of present paper is to estimate and evaluate the relationship between Pollution Index ($CO_2$ emissions) and International tourism in selected developed countries consist of Austria, Belgium, Canada, Chile, Denmark, France, Ireland, Japan, Korea Rep., Sweden and United States. Results indicate that the effect of CO2 emissions on International tourism in some Developed Countries is significantly negative. So, governments in these countries should decrease pollution (CO2 emissions) by policies. This policies consist of enforce industrial firms to green ways in production process, Tax on polluters products, subsides to firms for using a new filters to constrain the pollutions.

***Key words:*** CO2 emissions, International tourism, Developed Countries.

## Introduction

The relationship between economic development and environmental quality has been extensively explored in recent years. The shape of this relationship has implications for the definition of an appropriate joint economic and environmental policy: depending on whether there is a negative or a positive influence of economic development on environmental quality, policy recommendations will differ. In the literature, this animated debate revolves around the existence of an Environmental Kuznets Curve (or inverted-U shaped curve, EKC), which implies that, starting from low levels of income per capita, environmental degradation increases, but after a certain level of income (turning point) it diminishes. Despite some exceptions, empirical studies are generally based on ad hoc parametric specifications with little attention paid to model robustness; yet different parametric specifications can lead to significantly different conclusions, and a functional misspecification problem is likely to occur. Popular parametric functional forms are linear, quadratic, and cubic polynomials in GDP per capita [1,3,4].

Sustainable tourism has been a key concept for tourism researchers and tourist industry alike since the early 1990s. There is now broad consensus that tourism development should be sustainable; however, the question of how to achieve this remains an object of debate. It is clear that in order to be sustainable, environmental effects of tourism–the focus of this paper–need to be kept below critical threshold levels, which can only be achieved if these can be quantified. A major goal of tourism studies has thus been to quantify the environmental impacts of leisure related activities and to compare these with acceptable levels of pollution. Expressing resource use in terms of energy (MJ), greenhouse gas emissions (carbon dioxide [CO2] or carbon dioxide equivalents [CO2-e]), or area-equivalents (ha), studies have sought to evaluate the sustainability of journeys, destinations, or sectors of the tourism industry, such as leisure-related aviation [2,5,6].

The main reason for studying CO2 emissions is that they play a focal role in the current debate on environment protection and sustainable development. CO2 has been recognized by most scientists as a

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major source of global warming through its greenhouse effects. Pollutants like sulphur oxides or oxides of nitrogen, have a more local impact on the environment. Another reason is that CO2 emissions are directly related to the use of energy, which is an essential factor in the world economy, both for production and consumption. Therefore, the relationship between
CO2 emissions and economic growth has important implications for environmental and economic policies [1,7,9].
In this paper, I have considered the effect of CO2 emissions on International tourism in some Developed Countries consist of: Austria, Belgium, Canada, Chile, Denmark, France, Ireland, Japan, Korea Rep., Sweden and United States countries at 2000-2007 periods.

*Model Specification:*

I have used the following model for considering the effect of CO2 emissions on International tourism in some Developed Countries based on panel data:

$$International\ Tourism_{it} = \alpha_i + \beta CO2\ emissions_{it} + \varepsilon_{it} \quad (1)$$

where i and t are symbol country and time period for Austria, Belgium, Canada, Chile, Denmark, France, Ireland, Japan, Korea Rep., Sweden and United States countries at 2000-2007 period.

I have the World Development Indicators (WDI2009) data base for these countries.

*Results:*

Table 1 indicates the estimates results. Results indicate that the effect of CO2 emissions on International tourism in some Developed Countries is significantly negative. So, governments in these countries should decrease pollution (CO2 emissions) by policies. This policies consist of enforce industrial firms to green ways in production process, Tax on polluters products, subsides to firms for using a new filters to constrain the pollutions.
Economic evaluations of pollution control policies have traditionally focused on pure efficiency
effects- either a comparison of their economic costs and environmental benefits, or a comparison of their costs relative to those of alternative control policies. However, the distribution of policy costs and benefits across households and firms is receiving increasing attention among researchers and policymakers. One reason is concern about whether a policy is “fair” or not. Another is political feasibility a policy justifiable on efficiency grounds may be impractical if it imposes a disproportionate burden on a politically influential group. Often the two are critically related; for example, political opposition to higher fuel taxes, carbon taxes, or other emissions
taxes in the United States is frequently based on the claim that such taxes fall most heavily on low-income groups.[1,8]

**Table 1:** Estimation Results Dependent Variable: TOURISM Method: Panel EGLS (Cross-section weights) Sample: 2000 2007 Periods included: 8 Cross-sections included: 11 Total panel (balanced) observations: 88 Linear estimation after one-step weighting matrix.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 4.14E+10 | 1.98E+09 | 20.92319 | 0.0000 |
| CO2 | -4.34E+10 | 4.44E+09 | -9.786589 | 0.0000 |
| Effects Specification | | | | |
| Cross-section fixed (dummy variables) | | | | |
| Weighted Statistics | | | | |
| R-squared | 0.950437 | Mean dependent var | 3.01E+10 | |
| Adjusted R-squared | 0.943264 | S.D. dependent var | 2.09E+10 | |
| S.E. of regression | 5.00E+09 | Sum squared resid | 1.90E+21 | |
| F-statistic | 132.4920 | Durbin-Watson stat | 0.886716 | |
| Prob(F-statistic) | 0.000000 | | | |
| Unweighted Statistics | | | | |
| R-squared | 0.974084 | Mean dependent var | 2.21E+10 | |
| Sum squared resid | 2.44E+21 | Durbin-Watson stat | 0.520109 | |

*Conclusion:*

The relationship between economic development and environmental quality has been extensively explored in recent years. In this paper, I have considered the effect of CO2 emissions on International tourism in some Developed Countries consist of: Austria, Belgium, Canada, Chile, Denmark, France, Ireland, Japan, Korea Rep., Sweden and United States countries at 2000-2007 periods. . Results indicate that the effect of CO2 emissions on International tourism in some Developed Countries is significantly negative. So, governments in these countries should decrease pollution (CO2 emissions) by policies. This policies consist of enforce industrial firms to green ways in production process, Tax on polluters products, subsides to firms for using a new filters to constrain the pollutions.

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