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# The Impact of Tourism Quality on Economic Development and Environment: Evidence from Mediterranean Countries

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**Abstract:** This paper is the first of its kind to measure the income level of a country's tourist arrival and empirically examine its impact on economic growth and environmental pollution in a sample of eight Mediterranean countries. The paper undertakes annual data from 1995 to 2014 and employs quantile regression models, autoregressive distributed lag (ARDL) estimations, and a heterogeneity causality test. The empirical results show that the income level of a country's tourist arrival, across all quantiles, plays an important role in promoting economic development. However, the role of the income level of a country's tourist arrival on environmental pollution varies with the changes in quantiles. More specifically, income level of a country's tourist arrival has a positive impact on environmental pollution for the lower quantiles, while it has a negative impact for higher quantiles. The findings from panel ARDL models confirm that the income level of a country's tourist arrival has positive and negative impacts on economic growth and emissions, respectively. Given these results, these findings provide information to take the necessary actions to ensure sustainable tourism development, i.e., the expansion of the tourism industry without harming the environment in the Mediterranean countries.

**Keywords:** income level of tourist arrivals; economic growth; environmental pollution; Mediterranean region; quantile regression models; panel ARDL estimations

**JEL Classification:** C23; Z32; Z38

## 1. Introduction

The tourism sector has seen tremendous growth in the last few decades. More specifically, the share of the tourism sector in the World Gross Domestic Products has grown significantly over the last few decades [1] In this sense, the tourism industry has become one of the most significant tools in achieving sustainable economic growth in most of countries. The tourism sector not only makes a considerable contribution to the GDP but also plays an important role in terms of providing employment opportunities, reducing poverty, increasing income distribution, creating additional demand for goods and services, providing additional tax revenues and foreign exchange reserves for the governments. Therefore, all these factors play an essential role for the sustainable economic development of any given country. With increasing globalization and opportunities around the world, most countries are initiating several policies to reach their targets of economic growth, and tourism has become one of the most significant tools for achieving this purpose. This argument is consistent with a number of empirical studies [2–5], which document that the tourism sector plays an essential role in promoting economic development across the developed and developing economies around the world.

In the above studies, scholars have accepted inbound tourism as an export item since tourism provides foreign exchange earnings like any other export products. These earnings can be used to pay off the imported capital goods, which are certainly necessary inputs in the production process. The authors also introduced the "tourism-led growth hypothesis "by using the international trade literature, known as the "export-led growth hypothesis" [6]. In the export-led growth hypothesis, the volume of export plays a vital role in promoting economic growth. However, in recent years, scholars have indicated that not only the volume of exports is important for promoting economic growth, but also the income level of a country's exports [7–9]. For instance, a study [8] has tested the effect of the income level of a country's exports on economic growth and their results revealed that the upgrading of the export basket positively contributed to economic growth. According to [8], it is not the volume of exports that matter; rather it is the income level of a country's exports that matter for economic prosperity. In other words, recent papers pay attention to the "income level of a country's exports baskets" rather than the "volume of exports".

In this context, this paper initiates a similar approach that can be applied to tourism literature. More specifically, the paper seeks to construct a measure of the "income level of a country's tourist inflows". Income level of a country's tourist arrivals and income level of a country's inbound tourism basket will be used interchangeably. Most of the previous studies in the tourism literature consider tourist arrivals as the measure of international tourism demand [5]. However, in this paper, we measure the income level of a country's tourist arrivals/income level of a country's inbound tourism basket by taking into account of tourist arrivals and their level of income.

To the best of our knowledge, our paper is the first one to measure the income level of a country's tourist arrivals in the literature, and this is the main novelty of our paper. The detailed discussion on the measurement of income level of a country's tourist arrivals can be seen in Section 3. The current research paper aims to examine the effect of the income level of a country's inbound tourism basket on economic growth and environmental pollution in a sample of eight Mediterranean countries (Egypt, France, Greece, Italy, Morocco, Spain, Tunisia, and Turkey). This study uses annual data from 1995 to 2014 and employs a quantile-based regression framework and heterogeneity causality test for the empirical investigation. The reason for taking Mediterranean countries as a focal point is that the recent developments in the Mediterranean region have shown that international tourist inflows could be sharply affected by external shocks [10]. Therefore, these countries should upgrade their market portfolios (inbound tourism basket) to attract tourists from richer countries. These adverse external shocks can be even more problematic for some of these countries, where economies largely depend on tourism earnings. This is the major motivation for our research paper.

Given that our study contributes to the body of knowledge on the measure of income level of a country's inbound tourism basket, it also adds a significant value to policy and practice. More specifically, the empirical findings confirmed that the income level of a country's inbound tourism basket has a considerable positive and negative impact on economic output and carbon emissions, respectively. Based on these results, we argue that the income level of a country's inbound tourism basket not only boosts the economic development but also works effectively to reduce adverse effects on the environment. Precisely, as the income level of a country's tourist arrivals increases, then the revenue generated from these tourists also increases, which fosters economic development. As a result of higher income generation, the tourism companies not only invest more money in developing attractive tourism spots but also eco-friendly infrastructure facilities. This investment will then improve the access to renewable energy sources, energy efficiency technologies and help to adapt to more environmentally friendly activities by the tourists and tourism companies. In this way, the income level of a country's tourist arrivals helps to achieve higher levels of economic growth rates, and also contributes to lower level of emissions.

The rest of the paper is organized as follows. Section 2 briefly reviews the previous literature on the tourism-growth nexus and tourism-carbon emission nexus. Section 3 introduces a new measure of the income level of a country's tourist arrivals and explains the data, the empirical models, and the econometric methodology. Section 4 reports the results of empirical applications and provides detailed discussion on the implications of the findings. Finally, a summary of the paper and concluding remarks are provided in Section 5.

## 2. Literature Review

### 2.1. Tourism and Economic Growth Nexus

"Income level of a country's exports" is an important term in the international trade literature. When this term is considered in tourism economics literature, it can be suggested that "income level of a country's tourist arrivals" can increase the rate of economic growth and decrease the level of environmental degradation. With respect to the international trade literature, developed countries are able to export the goods with a higher unit value, compared to the developing countries [7]. In addition, developing countries specialize in traditional products while developed countries are able to specialize in sophisticated products. These conditions lead to significant gains from exports in developed countries, compared to the developing countries [11]. In this context, by following the international trade literature, the income level of a country's tourist arrivals approach can also be applied to tourism literature, i.e., attracting more tourists from countries with a higher income level can lead to a higher rate of GDP growth. In addition, the income level of a country's tourist arrivals may have a positive impact on the environment by reducing the $CO_2$ emissions.

There are four approaches in tourism literature to examine the relationship between tourism and economic growth: the tourism-led growth hypothesis: tourism causes growth; the conservation hypothesis: growth causes tourism; the feedback hypothesis: bidirectional causality; and the neutrality hypothesis: no significant causality. However, there is no consensus about the effect of tourism on economic growth [5]. Most of the panel data studies in Mediterranean countries have confirmed the validity of the tourism-led growth hypothesis. For instance, [12] has used the panel cointegration approaches (cointegration tests of Johansen–Fisher, Kao, and Pedroni) to analyze the long-run relationship between tourism and growth in seven Mediterranean countries (Cyprus, France, Greece, Italy, Spain, Tunisia, and Turkey) over the period 1980–2007. The study findings reveal that tourism positively affects growth. By using the Fully Modified Ordinary Least Square (FMOLS) method, [13] empirically investigated the relationship between tourism and economic growth in the Organization for Economic Co-operation and Development (OECD) and the non-OECD samples. Their results show that tourism positively contributes to economic growth in both the country groups. In addition, the causality test based on the Vector error correction mechanism (VECM) indicates that tourism causes growth in the OECD sample, although there is a bidirectional relationship in the non-OECD sample. Likewise, [14] documents a one-way causality between tourism and economic development in Haiti.

Similarly, [15] has examined the effect of tourism on economic growth in 134 countries over the period 1970–2007 and the study concluded that tourism positively affects growth in the long run. In the panel data sample of 21 countries in the Mediterranean region (African, Asian and European countries), [16] tested the causality (using the approach suggested by [17]) between tourism and growth over the period 1998–2011. The empirical results indicate that there is a bidirectional relationship between the variables of European and Asian countries. However, the paper also concludes that there is no relationship between tourism and growth in a sample of African countries. Focusing on the data of 19 Island countries from 1990 to 2007, [18] has examined the effect of tourism on economic growth. The empirical results, based on the GMM, show that tourism positively affects economic growth. In their research, included 167 countries, [19] have used cross-sectional analysis and tested the effects of tourism on economic growth. They conclude that tourism has a more positive impact on economic growth in countries, which are more globalized compared to the less globalized countries. [20] discuss the economic impacts of foreign tourism, which is a crucial factor in economic prosperity and development.

Finally, [21] have analyzed the impact of tourism on economic growth in 24 Middle East and North African (MENA) countries over the period 2001–2009. The findings demonstrate that tourism has a positive impact on growth. Using a quantile-on-quantile model, [22] have investigated the impact of tourism on growth in the top ten tourism destinations over the period 1990 Q1–2015 Q4. The authors have concluded that tourism has a positive and important contribution to economic growth for the country group, including China, France, Germany, Italy, Mexico, Russia, Spain, Turkey, the United Kingdom, and the United States. Another recent study, by [23], has confirmed that tourism has a considerable positive impact on economic growth across the panels of developed and developing economies around the world. Several previous studies [24,25] also highlight the issue of overtourism, though our focus in this paper is to empirically examine the impact of tourism quality on economic development and environment. However, future studies may consider the concept of overtourism in their investigations.

### *2.2. Tourism and Carbon Emission Nexus*

Transportation and infrastructure services have a vital role in tourism economics. In order to get more benefits from tourism, a country needs airports, ports, railways or a well-designed road network. These are not only needed for the international transportation of tourists, but also for their domestic transportation from one destination to the other. Therefore, transportation has an essential part in developing the tourism industry in any given country. In addition, increasing the quantity and quality of services (including the construction of new resorts, hotels and restaurants) in tourism will have a serious contribution to sustainable tourism development. However, these factors may also suppress the environmental degradation [26,27].

There are several studies to test this hypothesis. For example, [28] have investigated the influence of tourism on carbon emissions in the European Union (EU) member countries for the period from 1988 to 2009. The empirical results from the fixed-effect estimations reveal that tourism decreases $CO_2$ emissions. [29] have analyzed the effects of tourism on environmental degradation in the Eastern and Western EU countries. The empirical results from FMOLS estimation shave shown that tourism decreases $CO_2$ emissions in the Western countries while tourism increases the level of carbon dioxide emissions in the Eastern members of the EU. [30] also tested the impact of tourism on $CO_2$ emissions for the less developed and developed countries over the period 1998–2006. Using the Stochastic Impacts by Regression on Population, Affluence, and Technology (STIRPAT) approach, the results illustrate that the tourism sector contributes to environmental degradation in both groups of countries. Using the two-stage least squares and the two-stage generalized least squares estimations, [31] have investigated the effects of tourism on $CO_2$ emissions in a panel data of 34 developed and developing countries over the period 2005–2013. The empirical results reveal that tourism increases $CO_2$ emissions. Focusing on the OECD countries over the period 1960–2009, [32] have tested the contributions of tourism on the gas emissions. The empirical results from the dynamic ordinary least squares (DOLS) estimation indicate that tourism has increased gas emissions. [33] also examined the effect of tourism on environmental degradation in a sample of the EU countries over the period of 1995–2011. Authors used ordinary least squares (OLS), FMOLS and DOLS approaches. The empirical findings demonstrate that tourism decreases the carbon emissions. [34] empirically examine the impact of tourism investments on carbon emissions in a sample of 10 major tourism-based economies. Their results suggest that the tourism investments play an important role in reducing the carbon emissions in these economies. Similarly, another study, by [35], explores the impact of tourism investments on carbon emissions in a sample of 28 EU nations. The findings of this study indicate that higher tourism investments are leading to lower the $CO_2$ emissions. Both of these studies signify the importance of tourism investments in fighting the growth of carbon emissions. On the other hand, a recent study, [36], highlights the significance of using electric vehicles to promote sustainable tourism in the island of Lanzarote.

As it is observed in the aforementioned literature review, there is much literature on the tourism-growth nexus and tourism-environment nexus. All of these studies have used tourist arrivals or tourism expenditure as a proxy for tourism. In other words, the volume of tourism is treated as the proxy of the tourism sector within these studies. However, as it is mentioned in the introduction section, not only the volume of tourist inflows, but also the "income level of a country's tourist arrivals" are crucial for sustainable economic development and the reduction of environmental degradation. Needless to say, the previous studies have completely neglected the role of the income level of a country's inbound tourism basket. For this purpose, this paper aims to fill this gap in the literature and contribute to the existing literature in two ways. First, the main purpose of this study is to investigate the effect of the income level of a country's inbound tourism basket both on economic performance and environmental degradation. To this end, this might be the first paper to build up a measure of the income level of a country's tourist arrivals in the literature. Second, this paper focuses on eight Mediterranean countries, which have similar tourism characteristics but are at different stages of economic development. The tourism sector in these economies heavily depends on beach-tourism. Further, according to the World Bank's country and lending groups, France, Greece, Italy and Spain are the high-income; Turkey is the upper-middle income; Egypt, Morocco and Tunisia are the lower-middle-income economies. Therefore, findings obtained from this analysis will be indispensable and unique for the policy and practice.

## 3. Methodology and Empirical Implementation

### *3.1. Introducing a New Approach for the Income Level of a Country's Tourist Arrivals*

In this section, our paper introduces a new method for measuring the income level of a country's tourist arrivals in the literature for the first time. However, this approach requires tourism data on a cross-country basis over a period of time. Given the limitation of cross-country tourism data, this study focuses on Mediterranean countries. To calculate the new index, we follow the approach suggested by [8], which is popularly known as the PRODY measure" for calculating the income level of a country's exports.

In a year, a country is visited by tourists having different income levels from various countries. Further, every country has a tourism basket consisting of tourists from different countries. In the literature, scholars have generally used tourism expenditure (or tourist arrivals) as a proxy of tourism. However, with these approaches, it is impossible to observe every visitor country's economic contribution to host country's tourism basket. In this new approach, we can observe the contribution of every country to host country. In addition, tourist expenditure is dependent on a number of factors, such as average length of stay. Therefore, our paper focuses on the number of tourism arrivals instead of tourism expenditures.

We define the measurement of income level of a country's tourist arrivals using the following equation:

$$ILTA = \sum_{1}^{n} \left( \frac{x_{jit}}{X_{it}} \right) Y_{jt} \tag{1}$$

where *ILTA* is the measure of income level of a country's tourist arrivals. More specifically, a country $i$ attracts tourists from various countries, and thus, $n$ is the number of countries from which, country $i$ attracts tourists. $x_{jit}$ is the number of tourist inflows (arrivals) from country $j$ to country $i$ at time $t$, and it needs to be divided by the total tourist inflows of country $i$ at time $t$ ($X_{it}$). $Y_{jt}$ is the (constant US$) per capita GDP of country $j$ at time $t$.

To make this process more simplified, let us give a numerical example to explicitly introduce our measure of income level of a country's tourist arrivals: For instance, Spain (country $i$) attracts tourists from 24 countries ($n$) in 2014 ($t$). According to the statistical database of the World Tourism

Organization (UNWTO), the total number of tourist inflows (from 24 countries) to Spain in 2014 is 60,011,074 ($X_{it}$), and 10,615,746 ($x_{jit}$) of them came from France (country *j*) in 2014. In addition, according to the World Development Indicators (WDI) the per capita GDP (constant US$) of the France (country *j*) in 2014 is US$ 35,667 ($Y_{jt}$).

Note that similar calculations need to be done for other 23 countries that Spain attracts tourists from to calculate the income level of a country's tourist arrivals for Spain in 2014. In this example, our income level of a country's tourist arrivals measure for Spain in 2014 can be calculated as below:

$$\begin{aligned} ILTA\sum_{1}^{24} &= \left(\tfrac{10{,}615{,}746}{60{,}011{,}074}\right)35,667 \\ &+\left(\frac{tourist\ arrivals\ from\ country2}{60{,}011{,}074}\right)GDP\ per\ capita\ of\ country2 \\ &+\left(\frac{tourist\ arrivals\ from\ country24}{60{,}011{,}074}\right)GDP\ per\ capita\ of\ country24. \end{aligned} \quad (2)$$

These calculations are done for every year from 1995 to 2014 and for each of the 8 countries in the sample. Thus, our measure of the income levels of a country's tourist arrivals is simply a weighted average of the per capita GDPs of countries in terms of their share of tourist inflows to the visiting country. In other words, it represents the average income level of tourism attraction associated with the share of tourist inflows. Our measure of *ILTA* in Equation (1) is not sensitive to the number of partner markets ($n$). The different number of partner markets is related to the data availability of the Tourism Statistics Database of the UNWTO. A higher level of measure indicates that a country attracts tourists from countries that have higher levels of income. Therefore, the income level of a country's tourist arrivals (*ILTA*) is a real measure of attraction of tourist inflows from high-income countries (partners). It is noteworthy to mention that this measurement is calculated over time and it is subject to cross-country comparisons; therefore, a rise in the calculation is an indication of an upgrade to the income level of a host country's tourist arrivals via a broader tourism partnership (e.g., common market deal and visa freedom), especially with high-income economies.

Furthermore, a lower level of *ILTA* can provide risks for the sustainability of tourist inflows and earnings. Further, low *ILTA* implies that "the tourism basket" consists of tourist inflows from poor countries, and this sort of tourism partner can increase barriers due to its instability. For example, if a poor tourism partner faces a financial or political crisis, the people live in such a country that can easily postpone or forego their international tourism demand due to the uncertainty or rising of the real value of their exchange rate (i.e., depreciation of local currency). In addition, demand for international tourism is elastic; that is, the income elasticity of international tourism demand is higher than one [37]. This issue can also be related to the evidence that households in low-income countries have a limited budget for tourism spending, and thus they can easily postpone or forego the demand for international tourism, since their main spending has to be on "compulsory goods and services" (e.g., clothing, food, housing, health, etc.).

However, this can be a less serious issue for the international tourism demand of high-income countries. For instance, the average tourism budget in high-income countries is generally greater than the average tourism budget in low-income countries. The price stability and other kinds of uncertainties can also be successfully tolerated in high-income economies due to their strong institutional set up (e.g., bureaucracy quality, central bank independence, less-corruption, etc.). For all of these reasons, it can be suggested that attracting tourists from high-income economies will be more beneficial for a host country. In other words, a higher level of income level of a country's tourism basket can be crucial in providing a sustainable tourism market, especially for countries whose economic growth depends on substantial tourism earnings.

### *3.2. Nature of Data and Measurement*

The present study constructs a balanced panel dataset using annual data from 1995 to 2014 in eight Mediterranean countries, namely Egypt, France, Greece, Italy, Morocco, Spain, Tunisia and

Turkey. Since our tourism data is only available from 1995, we begin our sample period from there. Our variables are measured as follows: economic output (*EO*) is measured through GDP in constant 2010 US$; environmental pollution (*EP*) is the total $CO_2$ emissions in million metric tons; income level of a country's tourist arrivals (*ILTA*) (The annual data for tourist inflows (arrivals) were obtained from the Tourism Statistics Database of the UNWTO) is as per the authors' calculation, which we defined in the previous section; non-renewable energy consumption (*NREC*) is the sum of coal, gas, and petroleum in Quad Btu; renewable energy consumption (*REC*) is the sum of all renewable energy sources in kilotons of oil equivalent; capital (*CAP*) is the gross fixed capital formation in constant 2010 US$; labor (*LBR*) is the total labor force; per capita (*PI*) is the GDP per capita in constant 2010 US$; and finally, population (*POP*) is the total population. The required data on *EO*, *CAP*, *LBR*, *PI*, and *POP* are sourced from the World Development Indicators (WDI), while data on the *EP* and *NREC* are obtained from the International Energy Statistics (IES), and finally, data on the *REC* is acquired from the OECD online data source. Thus, our variables are measured in different units, hence we convert the dataset into natural logarithms before our empirical analysis begins to avoid the issues that are associated with the distributional properties of the data series. Precisely, if the variables are measured in different units, as in our case, it would be difficult to interpret the estimated parameters; hence we convert our variables into natural logarithms.

### *3.3. Estimation Strategy*

The main purpose of this research is to investigate the impact of the income level of a country's tourist arrivals on economic output and environmental pollution in a sample of eight Mediterranean countries. To achieve these objectives, we built our empirical models by making use of theoretical frameworks such as growth model and environmental model i.e., STIRPAT (Stochastic Impacts by Regression on Population, Affluence and Technology). Using these theoretical approaches, our empirical models are defined in the following:

$$EO_{it} = f\ (CAP_{it}, LBR_{it}, NREC_{it}, REC_{it}, ILTA_{it}, v_i) \tag{3}$$

$$EP_{it} = f\ (POP_{it}, PI_{it}, NREC_{it}, REC_{it}, ILTA_{it}, v_i) \tag{4}$$

where, *EO*, *CAP*, *LBR*, *NREC*, *REC*, *ILTA*, *EP*, *POP*, *PI* represent the economic output, capital, labor, non-renewable energy consumption, renewable energy consumption, income level of a country's tourist arrivals, environmental pollution, population and per capita income, respectively. Our main focus in this paper is to examine the impact of tourism quality on economic growth and carbon emissions, so we are not focusing on the "country level innovative policies which aim to promote sustainable tourism" across these economies. However, future studies may consider addressing this issue. The purpose of Equation (3) is to examine the role of income level of a country's tourist arrivals on economic output by accounting other important factors in the model, such as capital, labor, non-renewable energy and renewable energy consumption. Similarly, Equation (4) explores the effect of income level of a country's tourist arrivals on environmental pollution along with population, per capita income, non-renewable and renewable energy uses. On the other hand, vi in Equations (3) and (4) represents individual fixed country effects; cross-sections and time periods are denoted by the subscripts $i$ $(i = 1, \ldots\ldots, N)$ and $t$ $(t = 1, \ldots\ldots, T)$, respectively. See also the STIRPAT approach and the tourism-led growth hypothesis literature for the motivation of the empirical models in Equations (3) and (4).

We began our analysis by employing two panel unit root tests to explore the order of integration of the considered variables. More specifically, we employed the Levin, Lin and Chu (LLC) [38] unit root test under the assumption of a common unit root process. On the other hand, Im, Pesaran, and Shin (IPS) [39] test works under the assumption of an individual unit root process. Both of these tests have the same null hypothesis i.e., a unit root, while they slightly differ in terms of the alternative hypothesis. For instance, the alternative hypothesis for the LLC test is 'no unit root', whereas for the IPS test 'some cross-sections may not have a unit root'. The findings obtained from these panel unit root tests helped us to select the appropriate econometric techniques to achieve the study objectives. Given the nature of our variables, which were confirmed from the panel unit root tests, we then applied the following methods for the empirical investigation.

Most of the regression models use the conditional mean of a dependent variable while estimating the cause and effect relationship among the variables in the models. However, there is an increasing interest among the econometricians and researchers to employ a quantile regression framework to understand the varying association between dependent and independent variables. More specifically, [40] proposed a quantile regression technique, which provides the estimates of linear association between independent variables and a specified quantile of the dependent variable. This approach helps us to understand how the 10th or 90th percentile of the dependent variable is affected by the right-hand side variables. Despite these advantages, the empirical studies in the tourism literature fail to employ a quantile regression approach. Therefore, our study employs a pooled quantile regression framework to estimate the effect of the income level of a country's tourist arrivals on economic performance and environmental pollution at a varying percentile, i.e., from 0.1 to 0.9.

Finally, our study explores the direction of (short-run) causalities by employing a method that allows and accounts heterogeneity across the given cross-sections. For this reason, we follow the approach recommended by [17]. The detailed discussion of this model can be found in [17]. These authors develop a simple framework to test the null hypothesis of homogeneous non-causality against the alternative hypothesis of heterogeneous non-causality. More specifically, the null hypothesis of no causality in any cross-section is tested against the alternative hypothesis of causality at least for a few cross-sections. Since this test is designed to examine the short-run dynamic causalities between the variables, we apply this test on the first difference data series. The detailed discussion of the empirical models is avoided to conserve the space in the paper.

## 4. Empirical Results and Policy Implications

### *4.1. Preliminary Analysis of the Data*

We start with the summary statistics on the selected variables of the sample countries. The summary statistics are displayed in Table 1. Among the sample countries, the GDP is significantly higher in France, while other higher GDP countries are Italy and Spain. As expected, Italy and France have the highest carbon emissions (*EP*) and non-renewable energy consumption (*NREC*). Interestingly, those countries have the highest renewable energy consumption (*REC*) as well, whereas Tunisia is the least renewable energy consumer. The averages of capital (*CAP*) and labor (*LAB*) are significantly higher in France and Italy, while the lowest is found in Tunisia. Finally, countries such as France and Italy have more than 35,000 US$ of GDP per capita (*PI*), whereas Morocco and Tunisia have less than 4000 US$ per annum. Finally, on average, Egypt has a higher population (*POP*), while Tunisia has the lowest among the considered sample countries.

We further provide average annual growth rates on the selected variables across the individual sample countries during the study period, i.e., 1995–2014. The average growth rates are displayed in Table 2. The growth rates indicate that Turkey, Egypt, Morocco and Tunisia have more than a four percent growth in GDP, while Italy and Greece have less than a one percent growth. However, none of the sample countries have negative growth in GDP. On the other hand, France, Greece and Italy have negative growth in carbon emissions, whereas all other countries have shown positive growth. More specifically, Morocco and Egypt have more than four percent growth in carbon emissions. Similarly, the growth rates on income level of a country's tourist arrivals show that Tunisia, Egypt, and Greece have negative growth rates, while all other countries have demonstrated positive growth. As expected, France, Greece and Italy have negative growth in non-renewable energy consumption. All of our sample countries have shown significant positive growth in renewable energy uses. Finally, the considered countries also demonstrated positive growth rates in per capita incomes. In summary, these growth rates indicate that the Mediterranean countries have had heterogeneous growth rates in the income level of a country's tourist arrivals, economic performance, carbon emissions and non-renewable and renewable energy uses.

**Table 1.** Summary statistics on the selected variables (1995–2014).

| Country | *EO* | *EP* | *ILTA* | *NREC* | *REC* | *CAP* | *LBR* | *PI* | *POP* |
|---|---|---|---|---|---|---|---|---|---|
| Egypt | 169,088.39 | 154.95 | 24,765.09 | 2.49 | 2626.01 | 29,632.36 | 23.81 | 2173.66 | 76.56 |
| France | 2,468,584.02 | 388.95 | 36,298.35 | 6.11 | 17,490.45 | 540,668.21 | 28.40 | 39,194.67 | 62.86 |
| Greece | 271,173.09 | 91.68 | 29,578.55 | 1.19 | 1724.07 | 52,434.55 | 4.86 | 24,824.97 | 10.91 |
| Italy | 2,072,317.34 | 426.48 | 35,256.76 | 6.69 | 15,374.87 | 414,787.98 | 24.07 | 35,666.55 | 58.10 |
| Morocco | 75,025.91 | 34.70 | 31,064.56 | 0.51 | 1644.89 | 21,424.44 | 10.77 | 2398.75 | 30.48 |
| Spain | 1,265,161.30 | 318.91 | 36,020.32 | 4.65 | 10,201.94 | 312,649.07 | 20.64 | 29,068.90 | 43.35 |
| Tunisia | 35,154.65 | 19.39 | 20,615.40 | 0.31 | 1047.91 | 7510.03 | 3.49 | 3445.03 | 10.11 |
| Turkey | 657,616.46 | 255.74 | 23,134.36 | 3.60 | 10,761.03 | 156,530.85 | 23.42 | 9613.59 | 67.44 |
| Panel Data | 876,765.14 | 211.35 | 29,591.67 | 3.19 | 7608.90 | 191,954.68 | 17.43 | 18,298.27 | 44.98 |

Notes: *EO*—GDP in constant 2010 million US$; *EP*—$CO_2$ emissions in million metric tons; *ILTA*—income level of a country's tourist arrival; *NREC*—sum of coal, gas and petroleum in Quad Btu; *REC*—all renewable energy sources in kilotons of oil equivalent; *CAP*—gross fixed capital formation in constant 2010 million US$; *LBR*—total labor force in millions; *PI*—GDP per capita in constant 2010 US$ and *POP*—total population in millions.

**Table 2.** Average annual growth rates (1995–2014).

| Country | *EO* | *EP* | *ILTA* | *NREC* | *REC* | *CAP* | *LBR* | *PI* | *POP* |
|---|---|---|---|---|---|---|---|---|---|
| Egypt | 4.40 | 4.04 | −0.94 | 4.62 | 1.88 | 5.29 | 2.83 | 2.42 | 1.94 |
| France | 1.61 | −0.58 | 1.06 | −0.49 | 1.47 | 1.91 | 0.66 | 1.03 | 0.57 |
| Greece | 0.91 | −0.47 | −0.37 | −0.31 | 3.61 | −0.29 | 0.38 | 0.73 | 0.16 |
| Italy | 0.50 | −1.10 | 0.57 | −0.95 | 6.85 | 0.01 | 0.55 | 0.15 | 0.35 |
| Morocco | 4.52 | 4.29 | 0.85 | 4.30 | 2.96 | 5.74 | 1.55 | 3.20 | 1.26 |
| Spain | 2.03 | 0.26 | 1.02 | 0.61 | 7.09 | 1.89 | 1.73 | 1.19 | 0.83 |
| Tunisia | 4.12 | 2.49 | −2.39 | 3.21 | 2.43 | 5.21 | 1.77 | 3.02 | 1.06 |
| Turkey | 4.82 | 2.98 | 0.48 | 3.57 | 0.83 | 8.31 | 1.71 | 3.31 | 1.46 |
| Panel Data | 2.86 | 1.49 | 0.03 | 1.82 | 3.39 | 3.51 | 1.40 | 1.88 | 0.96 |

Note: The growth rates were calculated using before log conversion data.

### *4.2. Findings on Order of Integration of the Variables*

To begin our empirical analysis, we identified the order of integration of the variables, which is a crucial step for selecting the appropriate empirical models to achieve our objectives. For this purpose, we employed the panel unit root tests of the LLC and the IPS. The LLC test functions by assuming a common unit root process, while the IPS test assumes an individual unit root process. The LLC and IPS tests use the constant and time trend indicators in the models. The results of unit root tests for the level and first difference data series are provided in Table 3.

The results from these panel unit root tests show that the null hypothesis of a unit root cannot be rejected across all variables. In other words, none of the selected variables are stationary at the levels using 5% significance levels. Therefore, these unit root tests are applied on the first order difference of the data series. The results confirm the rejection of the null hypothesis of a unit root for all of the variables at the first order differences. Given these results, we argue that all of our considered variables have the same order of integration I (1). Therefore, we explore the long-run cause and effect relationships among our variables of Equations (3) and (4) in the following.

**Table 3.** Panel unit root test results.

| | Level | | | | First Differenced | | | |
|---|---|---|---|---|---|---|---|---|
| | LLC | | IPS | | LLC | | IPS | |
| **Variable** | **Statistic** | **Prob.** | **Statistic** | **Prob.** | **Statistic** | **Prob.** | **Statistic** | **Prob.** |
| *EO* | 0.085 | 0.534 | −0.108 | 0.457 | −1.605 [c] | 0.054 | −3.282 [a] | 0.001 |
| *EP* | 0.563 | 0.713 | 1.434 | 0.924 | −7.288 [a] | 0.000 | −5.714 [a] | 0.000 |
| *ILTA* | −0.038 | 0.485 | 3.583 | 1.000 | −6.129 [a] | 0.000 | −4.722 [a] | 0.000 |
| *NREC* | 2.133 | 0.984 | 4.036 | 1.000 | −8.951 [a] | 0.000 | −6.988 [a] | 0.000 |
| *REC* | −1.308 | 0.094 | 0.573 | 0.717 | −6.384 [a] | 0.000 | −6.516 [a] | 0.000 |
| *CAP* | 0.607 | 0.728 | 1.183 | 0.882 | −5.746 [a] | 0.000 | −3.908 [a] | 0.000 |
| *LBR* | 2.363 | 0.991 | 1.657 | 0.951 | −4.395 [a] | 0.000 | −3.406 [a] | 0.000 |
| *PI* | 0.204 | 0.581 | 0.249 | 0.598 | −1.425 [c] | 0.077 | −3.290 [a] | 0.001 |
| *POP* | 4.131 | 1.000 | 1.203 | 0.886 | −2.091 [b] | 0.018 | −2.067 [b] | 0.019 |

Notes: Unit root tests were estimated using the constant and the trend variables. [a], [b] and [c] indicate rejection of the null hypothesis of a unit root at the 1%, 5% and 10% significance levels, respectively.

### *4.3. Findings of Long-Run Elasticities*

To estimate the long-run economic output and carbon emission elasticities, we make use of a pooled panel quantile regression analysis. This could be a noteworthy analysis, since it provides the findings on how the 10th or 90th percentile of the dependent variable is affected by the right-hand side variables. The results of these pooled panel quantile regressions are reported in Table 4.

The empirical results on long-run estimates reveal that the income level of a country's tourism basket, across all quantiles, plays an important role in promoting economic development. The findings from all these quantiles are statistically significant at either a 1% or 5% significance level. Similarly, capital positively drives economic performance and the coefficients for all quantiles are statistically significant at the 1% level. Although non-renewable energy consumption, renewable energy consumption and labor positively contribute to the economic performance in all quantiles, their coefficients are not statistically significant in every quantile. However, the effects of all explanatory variables for the 10th quantile are statistically significant at the 5% level at least.

However, the role of the income level of a country's tourism basket on environmental pollution varies with changes in quantiles. More specifically, the income level of a country's tourism basket has a positive impact on environmental pollution for the lower quantile values (until the 50th quantile); while it has a decreasing impact for higher quantile values from the 60th quantile. These findings suggest the significance of the usage of quantile regression models for the effects of income level of a country's tourism basket on environmental pollution. Similarly, population, per capita income, and non-renewable energy consumption positively affect environmental pollution and their coefficients for all of the quantiles are statistically significant at the 1% level. On the other hand, renewable energy consumption plays the opposite role. More specifically, it has a considerable negative impact on environmental pollution across all the quantiles, and is statistically significant in most cases.

**Table 4.** Quantile regression analysis of the long-run estimates.

| | tau = 0.1 | | tau = 0.2 | | tau = 0.3 | | tau = 0.4 | | tau = 0.5 | | tau = 0.6 | | tau = 0.7 | | tau = 0.8 | | tau = 0.9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** | **Coeff.** | **Prob.** |
| ***EO* = f (*CAP*, *LBR*, *NREC*, *REC*, *ILTA*)** | | | | | | | | | | | | | | | | | | |
| *CAP* | 0.639 [a] | 0.000 | 0.751 [a] | 0.000 | 0.781 [a] | 0.000 | 0.812 [a] | 0.000 | 0.821 [a] | 0.000 | 0.858 [a] | 0.000 | 0.877 [a] | 0.000 | 0.864 [a] | 0.000 | 0.832 [a] | 0.000 |
| *LBR* | 0.168 [b] | 0.027 | 0.056 | 0.697 | 0.007 | 0.893 | 0.010 | 0.789 | 0.046 | 0.234 | 0.089 [b] | 0.042 | 0.105 [a] | 0.000 | 0.118 [a] | 0.000 | 0.073 [b] | 0.045 |
| *NREC* | 0.230 [a] | 0.001 | 0.197 | 0.107 | 0.193 [b] | 0.019 | 0.171 [a] | 0.002 | 0.118 [b] | 0.021 | 0.071 | 0.166 | 0.026 | 0.315 | 0.049 [b] | 0.038 | 0.040 | 0.336 |
| *REC* | 0.246 [a] | 0.004 | 0.125 | 0.300 | 0.058 | 0.419 | 0.000 | 0.998 | 0.009 | 0.829 | 0.004 | 0.922 | 0.018 | 0.582 | 0.005 | 0.870 | 0.025 | 0.650 |
| *ILTA* | 0.520 [a] | 0.000 | 0.536 [a] | 0.002 | 0.606 [a] | 0.000 | 0.582 [a] | 0.000 | 0.501 [a] | 0.000 | 0.358 [b] | 0.023 | 0.275 [a] | 0.000 | 0.307 [a] | 0.000 | 0.443 [a] | 0.001 |
| ***EP* = f (*POP*, *PI*, *NREC*, *REC*, *ILTA*)** | | | | | | | | | | | | | | | | | | |
| *POP* | 0.192 [a] | 0.000 | 0.185 [a] | 0.000 | 0.172 [a] | 0.000 | 0.170 [a] | 0.000 | 0.193 [a] | 0.000 | 0.267 [a] | 0.000 | 0.315 [a] | 0.000 | 0.323 [a] | 0.000 | 0.358 [a] | 0.000 |
| *PI* | 0.147 [a] | 0.000 | 0.137 [a] | 0.000 | 0.124 [a] | 0.000 | 0.143 [a] | 0.000 | 0.163 [a] | 0.000 | 0.213 [a] | 0.000 | 0.243 [a] | 0.000 | 0.247 [a] | 0.000 | 0.275 [a] | 0.000 |
| *NREC* | 0.887 [a] | 0.000 | 0.877 [a] | 0.000 | 0.869 [a] | 0.000 | 0.891 [a] | 0.000 | 0.874 [a] | 0.000 | 0.814 [a] | 0.000 | 0.774 [a] | 0.000 | 0.774 [a] | 0.000 | 0.733 [a] | 0.000 |
| *REC* | −0.144 [b] | 0.024 | −0.125 [c] | 0.075 | −0.094 | 0.105 | −0.139 [a] | 0.000 | −0.144 [a] | 0.000 | −0.138 [a] | 0.000 | −0.131 [a] | 0.000 | −0.129 [a] | 0.000 | −0.118 [a] | 0.000 |
| *ILTA* | 0.071 [c] | 0.064 | 0.078 [c] | 0.085 | 0.088 | 0.126 | 0.112 [a] | 0.001 | 0.063 | 0.576 | −0.107 | 0.396 | −0.215 [b] | 0.016 | −0.234 [a] | 0.002 | −0.320 [a] | 0.000 |

Note: [a], [b] and [c] indicate the significance levels at the 1%, 5%, and 10%, respectively.

To further confirm these long-run estimates, we employed panel autoregressive distributed lag (ARDL) models to investigate the effect of the income level of a country's tourism basket on economic output and environmental pollution. The results of these panel ARDL models are provided in Table 5. The results from the long-run elasticities of Equation (3) show that a one percent growth in the income level of a country's tourist arrivals increases economic performance by 0.272 percent. In addition, a one percent growth in renewable energy consumption and non-renewable energy consumption increases economic growth by 0.395 percent and 0.178 percent, respectively. As theoretically expected, both the capital and labor make positive contributions to the economic development in the considered sample countries. All of these variables are statistically significant.

**Table 5.** Long-run Estimates Using the Panel autoregressive distributed lag (ARDL) Models.

| Variable | Coefficient | t-Statistic | Prob. |
|---|---|---|---|
| ***EO* = f (*CAP*, *LBR*, *NREC*, *REC*, *ILTA*)** | | | |
| *CAP* | 0.457 [a] | 6.507 | 0.000 |
| *LBR* | 1.425 [a] | 5.726 | 0.000 |
| *NREC* | 0.178 [c] | 1.688 | 0.097 |
| *REC* | 0.395 [a] | 3.811 | 0.000 |
| *ILTA* | 0.272 [b] | 2.093 | 0.041 |
| ***EP* = f (*POP*, *PI*, *NREC*, *REC*, *ILTA*)** | | | |
| *POP* | 1.220 [a] | 15.430 | 0.000 |
| *PI* | −0.161 [a] | −5.752 | 0.000 |
| *NREC* | 1.004 [a] | 46.772 | 0.000 |
| *REC* | −0.077 [a] | −3.908 | 0.000 |
| *ILTA* | −0.053 [a] | −5.194 | 0.000 |

Note: [a], [b] and [c] indicate the significance levels at the 1%, 5%, and 10%, respectively.

Similarly, the long-run elasticities from Equation (4) indicate that a one percent growth in the income level of a country's tourism basket decreases environmental pollution by 0.053 percent. Likewise, both renewable energy consumption and per capita income also decrease environmental pollution by 0.077 percent and 0.161 percent, respectively. However, both population and non-renewable energy consumption positively contribute to environmental degradation by 1.220 percent and 1.004 percent, respectively. These results confirm that the income level of a country's tourism basket along with renewable energy and per capita income play a considerable role in fighting the growth of environmental pollution. Overall, these results suggest that the income level of a country's tourism basket plays an essential role in promoting economic growth and environmental quality in the considered sample countries.

### 4.4. Findings on Short-Run Causal Relationships

Finally, the short-run causalities among the related variables are analyzed. To this end, the empirical analysis considers the heterogeneous causality test framework of [17] to investigate the short-run dynamics among the variables. The results of these causal relationships are displayed in Table 6. The results confirm significant bidirectional causality between renewable energy consumption and economic performance. This result suggests the "feedback" hypothesis for the relationship between renewable energy consumption and economic performance. Here, we find unidirectional causality that runs from non-renewable energy consumption to economic performance. Similarly, both per capita income and non-renewable energy consumption Granger cause environmental pollution, while environmental pollution causes renewable energy consumption. These short-run results indicate that there is no significant short-run causal relationship among the income level of a country's tourism basket, economic output, and environmental pollution. However, these variables have considerable long-run associations as we reported in the preceding section. This result further indicates that these variables are more likely to have a long-run, rather than short-run, cause and effect relationship.

**Table 6.** Short-run heterogeneous non-causality results.

| Null Hypothesis: | Zbar-Statistic | Probability |
|---|---|---|
| *EO* does not homogeneously cause *CAP* | 0.415 | 0.678 |
| *CAP* does not homogeneously cause *EO* | 0.468 | 0.640 |
| *EO* does not homogeneously cause *LBR* | 0.932 | 0.351 |
| *LBR* does not homogeneously cause *EO* | −1.015 | 0.310 |
| *EO* does not homogeneously cause *NREC* | −0.156 | 0.876 |
| *NREC* does not homogeneously cause *EO* | 2.173 [b] | 0.030 |
| *EO* does not homogeneously cause *REC* | 2.134 [b] | 0.033 |
| *REC* does not homogeneously cause *EO* | 1.947 [c] | 0.052 |
| *EO* does not homogeneously cause *ILTA* | 0.121 | 0.904 |
| *ILTA* does not homogeneously cause *EO* | −0.913 | 0.361 |
| *EP* does not homogeneously cause *POP* | −0.270 | 0.787 |
| *POP* does not homogeneously cause *EP* | 0.756 | 0.450 |
| *EP* does not homogeneously cause *PI* | −1.168 | 0.243 |
| *PI* does not homogeneously cause *EP* | 2.613 [a] | 0.009 |
| *EP* does not homogeneously cause *NREC* | 0.403 | 0.687 |
| *NREC* does not homogeneously cause *EP* | 3.418 [a] | 0.001 |
| *EP* does not homogeneously cause *REC* | 3.227 [a] | 0.001 |
| *REC* does not homogeneously cause *EP* | 1.207 | 0.227 |
| *EP* does not homogeneously cause *ILTA* | 0.077 | 0.938 |
| *ILTA* does not homogeneously cause *EP* | 0.223 | 0.824 |

Note: [a], [b] and [c] indicate the significance levels at the 1%, 5%, and 10%, respectively.

### *4.5. Discussion and Policy Implications*

In this section, we discuss the findings and their relevant policy implications. For instance, our results establish tourism-led growth hypothesis, i.e., the income level of a country's tourist arrivals positively contributes to economic growth. Our results confirm the tourism-led-growth hypothesis and are also consistent with the previous empirical studies [5,23], which document that the tourism has a significant positive impact on economic growth. Therefore, to ensure a solid growth performance, the policymakers in these countries can implement some policies to upgrade the income level of a country's tourist arrivals. Indeed, the economic growth performance of some countries in the panel dataset is mainly based on the tourism sector. In addition to this, concepts such as climate change, country size, economic policies, historical relationships (common language, common religion), political instability and real exchange rates can play a significant role in the income level of a country's tourist arrivals.

The findings of our paper can also be associated with some implications for executives and society, and indeed several implications can be drawn for upgrading the income level of a country's tourism basket. Economic or political cooperation (e.g., common market, customs unions, monetary union or visa freedom) between the host country and its tourism partners can upgrade the income level of a country's tourist arrivals. Economic or political cooperation can also build up transculturation that can also positively affect the level of income level of a country's tourist arrivals. Since the income level of a country's tourism basket is an indicator of the "income level of a country's tourist inflows", a cooperation among developed countries can be more crucial for increasing income level of country's visitors, and thus, the growth performance. It can be suggested that the positive effect of income level of a country's tourism basket on economic growth can be related to cooperation within the developed countries, especially within the European Union (EU). It is an obvious fact that we need further research to get more satisfactory empirical results in terms of income level for the economic growth nexus of a country's tourism basket, both in developing and developed economies. Similar issues are valid for the effects of the income level of a country's tourism basket on environmental degradation. It can be suggested that the suppressing effect of the income level of a country's tourist arrivals on environmental pollution can be sustained with mutual cooperation among developed countries, especially within the EU.

In addition, the Ministry of Tourism of the host country should aim at some specific high-income countries (e.g., Australia, Japan, Singapore and the United States) to attract tourists in order to upgrade the income levels of their tourism baskets, and implement promotional activities and advertisement policies towards the target countries. Executives in the Ministry of Tourism can also encourage tourism companies to attend international tourism activities related to the target countries in order to upgrade the income level of their tourism baskets. For example, they can engage in incentive policies (e.g., tax incentives) for the domestic tourism companies and hotels, if those policies will be able to attract more tourists from the target countries. If such policies can successfully be implemented, the income level of a country's tourism basket will be upgraded and the host country can experience a more solid economic performance and less environmental pollution from the tourist inflows. This argument is consistent with our empirical findings, where our results show that the quality of tourists' inflow leads to a reduction in carbon emissions. Our results are also consistent with the previous empirical studies. For example, [28] document that tourism reduces carbon emissions in the European Union (EU). [29] discovered an interesting finding. The Authors suggest that tourism decreases carbon emissions only in highly developed countries (Western EU) but leads to more carbon emissions in less developed economies (Eastern EU). Given this result, our paper is very much consistent with the findings of [29].

For instance, the probability of a political or financial crisis in low-income countries is greater than in high-income countries. Another explanation of this argument is that tourism is a luxury good, and therefore, the income elasticity of the international tourism demand is larger than one and the tourists in the low-income countries can show a more negative reaction to adverse conditions than those of the high-income countries' tourists. In short, during an adverse condition, the host country can lose more tourists from the low-income countries than from high-income countries; therefore, tourism revenue might eventually decline. A decline in tourism revenue, and its negative effects on economic performance, will bring more problems to developing countries, especially developing countries whose economies mainly depend on tourism revenue. At this stage, a visa liberalization policy for high-income economies can upgrade the income level of their tourist inflows, and this can sustain economic and environmental performance. In addition, higher infrastructure spending (e.g., building new airports, highways and tourism facilities) can upgrade the level of their tourism baskets, thereby increasing the economic and the environmental performance.

Put another way, providing a stable tourism revenue via upgrading the level of tourism baskets is one of the most significant sources of foreign exchange earnings. Therefore, the income level of their tourist inflows can also associate with the volatility of exchange rate earnings, i.e., a higher level of income level of a country's tourist arrivals can make the real value of the exchange rate less volatile. Consequently, upgrading tourism baskets can also ensure less volatile exchange rate markets. However, the exchange rate system (e.g., the flexible or fixed systems) can also affect the value of the income level of a country's tourist arrivals, and this issue also merits a future study. At this stage, exchange rate volatility is mainly related to the sustainability of current account imbalances, especially current account deficits. Therefore, upgrading tourism baskets can be crucial for countries whose current account deficit has been a structural problem over the last couple of decades (e.g., Morocco, Tunisia and Turkey).

## 5. Conclusions

This paper constructed a measure of the income level of a country's tourist arrivals. By using this measure, the paper analyzed its effects on economic growth and environmental pollution in a panel dataset of Egypt, France, Greece, Italy, Morocco, Spain, Tunisia and Turkey for the period from 1995 to 2014. The results of long-run estimates from the quantile regression models indicated that income level of a country's tourist arrivals, across all quantiles, played an important role in promoting economic development. However, the income level of a country's tourist arrivals has a positive impact on environmental pollution for the lower quantile values but a negative effect on the higher quantile values. Similarly, the findings of panel ARDL models also confirm that the income level of a country's tourist arrivals has a significant positive and negative impact on economic output and environmental pollution, respectively. Given these findings, we argue that the policymakers and practitioners of the sample countries should pay attention to the income level of their tourism basket, as it determines the economic output and environmental quality. Overall, our findings are consistent with those of previous studies [5,23], which argued that the tourism has a significant positive impact on economic growth. Similarly, our results are consistent with the previous literature [28,29], who suggested that tourism reduces carbon emissions in high income economies.

In the present study, we only measure the income level of tourism basket and its impact on economy and environment. However, our study did not focus on identifying the factors that affect the income level of the tourism basket. Therefore, future research may focus on identifying the determinants of income level of tourist arrivals by focusing on institutional factors (such as corruption and government stability) and globalization factors (economic, political and social). Future studies could also look at the relationship between the income level of the tourism basket and leading economic indicators in other countries. These future studies could provide further insights into measuring the income level of the tourism basket and its effect on economic output and the environment.

**Author Contributions:** T.R. has written the methodology, M.C. has written the introduction and literature review, S.R.P. has done the analysis, J.F. has done the interpretation of the results, W.W. has organized the paper including the tables and references.

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