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# Who performed more on worth going to see? Country-wide Ranking and Categorization based on Performance in Travel and Tourism

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## *Abstract*

*This study attempts to rank different countries based on their performance in terms of travel and tourism and to categorize them into assemblages. The overall design of the study consists of a review of literature and analysis of secondary data as given on the website of World Development Indicators (WDI). It is a quantitative research study that uses Grey Relational Analysis (GRA) as a technique of investigation. On basis of the results of GRA, a classification has been made under a predetermined scheme of ensigns like exceptionally high, excellent, above average, average, below the average, poor, and very poor performance of countries in travel & tourism. Findings of the study show that under exceptionally high ensign majorly, there are member countries of European Union (EU), whereas, under very poor ensign mainly member countries of Economic Co-operation and Development (OECD) are categorized. It is an original research study based on country-level data analyzed through a valid mathematical technique of investigation that can generate objective results. This study is useful for the international community/institutions, policymakers, local governments, researchers, tourists & travelers, and society at large since it provides deeper insights into the phenomenon.*

**Keywords**:     Countries, GRA, Performance, Travel & Tourism, Worldwide
## Introduction

Travel & tourism is considered as one of the key drivers of social development and economic growth that also promotes peace (Sofronov, 2018; Khan et al. 2020). It is also a source of job creation since millions of people around the globe are employed in and are dependent on this sector (Aynalem, Birhanu, & Tesefay, 2016). Travel & tourism significantly contributes by way of financial revenues, cultural change, and happiness (FaladeObalade & Dubey, 2014). With the development of rapid means of communication and traveling, travel & tourism has tremendously enhanced. Apart from recreation, it has become a building block of plenty of economies (Khan et al., 2020). Travel & tourism has become a full-fledged industry in many countries and it is one of the biggest and effective employers (Manzoor, Wei, & Asif 2019). As a recognizant of travel & tourism, many associations (e.g. Travel and Tourism Research Association) also surged to promote tourism (Goeldner, 2015). Ahmed et al. (2011) asserted that the tourism industry is a great source of earning for the countries. Country-level comparisons can give a significant contribution to the literature on tourism (Boccella & Salerno, 2018). Particularly, inbound tourism and outbound tourism in terms of money and the number of tourists need to be analyzed rather comprehensively. It is also a matter of concern to have up-to-date correct data and insights on travel and tourism (Khan et al. 2017). Literature is rich on this subject but there is a severe need for evaluation of country level comparative studies (Durko & Petrick 2013; Stone & Petrick 2013; Chang & Katrichis 2016; Chen & Petrick 2013; Leung et al. 2013). The theoretical literature on travel and tourism is espoused in theories of marketing, communication, management, psychology, etc. Some of the theoretical inferences have been equated with statistical analysis (Smith et al., 2013). Contemporary studies have revelatory theoretical contributions based on empirical studies. The theory of tourism practices is often studied in isolation from the theory of travel and tourism (Bargeman & Richards, 2020). There are empirical studies on

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different aspects of travel and tourism but hardly any study can be found on comparison and competitiveness of the countries in this sector. Relegating back to the theory it can describe and highlight that the issue of country-level comparative studies has become a matter of concern to beneficially exploit cross-cultural differences and similarities. It is the underlying inspiration for conducting the current study. There is ongoing controversy on tourism theory in literature and refinement and clarity are also call of the day (Stergiou & Airey 2018). We could not find any study evaluating the country-level positions of different countries that would have given insights to the stakeholders. Hence, this study compares the performance of ninety-one countries of the world, ranks, and categorizes them into assemblages. To be more precise objectives of the study are:

- To rank the countries based on performance in the travel and tourism using composite indices.
- To categorize the countries on the continuum of performance (i.e. exceptionally high to very poor).

The study also enlightens upon the performance of economic and regional blocs based on grey relational grades. The study considered quite a several methodological choices like ISM/TISM, SEM, GMM, TOPSIS, VIKOR, and other statistical/mathematical techniques and found the Grey Relational Analysis (GRA) appropriate to investigate the phenomenon. GRA is a mathematical methodology that is espoused in grey systems theory. The rest of the paper is arranged as a literature review, methodology, analysis, results & discussion, and conclusion.

**Literature Review**

We have surveyed renowned research data basis viz Science Direct (Elsevier), Emerald, Taylor & Francis, Wiley-Blackwell & Springer Link, etc. A plethora of diverse published literature is documented across the globe in the domain of travel & tourism. Findings of relevant studies are reported here in chronological order ranging from 2011 to 2021. Leung et al., (2011) examined research literature of top tourism journals of Asia from 1999 to 2008 concerning travel & tourism and revealed that Asian research productivity and contributions significantly increased over time. Khare and Khare (2011) emphasized that customers are influenced by the service and trust attributes of travel-related websites. Mancini-Cross et al. (2012) asserted that a regular university travel & tourism undergraduate course helped in the development of intercultural competence. Demirović (2013) concluded that tourism resources, chief geographical principles, demand, and supply of each destination are unique. Jucan and Jucan (2013) asserted that economic conditions significantly affect on travel & tourism industry. Leung and Law (2013) buttressed the importance of the role of information technology in the travel & tourism industry and the opportunities & challenges faced by e-Tourism. Mathe and Scott-Halsell (2013) carried an empirical study to unearth key issues in the travel & tourism industry of Oklahoma state including technology, community information, transportation, PRIDE (i.e. producing resourceful/skilled, informed, devoted training programs for employees), satisfaction, perception, and authenticity. It sorted out the issues that need to be addressed on priority for the development of tourism in this state. Cîrstea (2014) examined the tourism competitiveness of the top fifteen most competitive countries of the world from an economic perspective and argued that they have distinct strengths and weaknesses. Seetaram et al. (2014) asserted that there is a relationship between duty on passenger air travel and outbound tourism in the UK. Standing et al. (2014) analyzed research published in chief travel & tourism journals from 2001 to 2010 and bi-furcated it into seven major categories. It also concluded that the internet has a significant impact on tourism. Buhalis and Foerste (2015) proposed a social context mobile marketing framework for co-creating and proclaimed that it would change the dynamics of the travel & tourism industry. English vocabulary and English teaching language to students of travel & tourism management in the Czech Republic have a positive effect on the growth of travel and tourism (Kacetl & Frydrychova-Klimova, 2015); Semradova & Hubackova, 2013). Sethuraman et al. (2015) proposed algorithms augmented with a geographic information system to integrate travel & tourism resources for assisting tourists with reliable and complete information. Forno and Garibaldi (2015) asserted that tourism has a visible contribution to the economy of Italy. Stone and Duffy (2015) conducted a systematic review of literature on travel & tourism research by using Transformative Learning Theory (TLT) as a filtering criterion and sorted main themes. Krstic et al. (2016) has investigated travel & tourism competitiveness in the context of the national economic competitiveness of sub-Saharan African countries. Eugenio-Martin and Inchausti-Sintes (2016) evaluated and compared tourism expenditure at origin and destination in the Canary Islands of Spain. Bowen and Whalen (2017)

uncovered four trends (i.e. big data analytics, artificial intelligence, online communities/social media, and sharing economy) that have changed the dynamics of the travel & tourism industry. Mackay and Spencer (2017) ascertained the challenges faced by Caribbean tourism. Hsu (2017) has evaluated the travel & tourism market Cycle of Taiwan. Sreejesh and Abhilash (2017) established that e-loyalty plays a pivotal role in travel & tourism in India. Tan et al. (2017) carried a study on the travel & tourism industry (hotels, casinos, restaurants, and airlines) of different economic regions from 2003 to 2014 to examine the impact of different dimensions of travel and tourism on financial performance. Remington et al. (2018) examined experiences and obstacles faced by successful female leaders in the hospitality and travel & tourism industry in the USA. Kim and Pan (2018) hold that "seeing is believing" and visual media (and audio) have a strong significant impact on the tourism industry. Niazi et al. (2019) conducted a study on barriers in promoting tourism in Pakistan and extracted a list of sixteen barriers and found communication barriers and unfavorable government policies as key hindrances to promote tourism in Pakistan. Nazmfar et al. (2019) analyzed the tourism competitiveness of Middle East countries. Ozdemir et al. (2019) evaluated applications of block-chain technologies in the travel & tourism industry in Turkey. Chi et al. (2019) affirmed that positive tourism perception, manager's attachment with place and heritage positively impact CSR; however, it also found that there is an insignificant relationship between negative effects of tourism and CSR attitudes.  Chi et al. (2019) asserted the relationship between the negative effects of tourism and CSR attitudes in China. Guachalla and Gledhill (2019) argued that the experiential nature of the model emphasizing interview techniques, CV/cover writing skills and other recruitment/selection tools are prerequisites for developing employability opportunities for the students of travel & tourism. Madhukar and Sharma (2019) bolstered that information technology has a significant impact on the profitability of the Indian travel & tourism industry. Mancini-Cross et al. (2019) asserted that like other technological mediums, chat-bots are the latest technology employed by airline firms, travel agencies, and hotels. Data analysis of 476 travelers for the past year revealed that factors like chat-bots using habit, self-service technology using inclination, expected performance of chat-bots, personify as human and social influences directly affect intentions of using chatbots. Pencarelli (2019) claimed that digital transformation/revolution has changed the paradigms of the tourism industry and it is the call of the day to consider smart tourism destinations and quality of life for both travelers and residents. The role of IT in the profitability of the travel & tourism industry of India is pivotal and noteworthy (Madhukar & Sharma, 2019; Mandal et al., 2017). Kang et al. (2019) asserted that travel & tourism has a significant share in the economic growth of South Korea.  Gibson et al. (2020) stated that family obligations, socio-culture, tourism, and leisure goals influence travel motilities of Samoans that argued the boundaries between travel & tourism and other types of mobility. Mkono et al. (2020) concluded that environmental and climate change may cause deterioration in the contribution of the travel & tourism industry towards the economy. Mu et al. (2020) evaluated landscapes, spiritual values, and tourism in Nepal. Berhanu & Raj, (2020) investigated visitors' perception of the trustworthiness of social media in the context of Ethiopian video clips. Due to the outbreak of the COVID-19 pandemic, there is a paradigm shift in the dynamics of travel & tourism and researches and novel aspects of tourism have also surged. Baum and Hai (2020) stated that the COVID-19 pandemic adversely affected hospitality and tourism in Europe, North America, and major parts of Asia during unprecedented peacetime. Galvani et al. (2020) focused on the COVID-19 pandemic in the context of sustainability of travel & tourism and argued that the COVID-19 epidemic turned sustainability claim into failure and brought an exponential change in human minds, experiences, beliefs, knowledge, desires, and consciousness. Lew et al. (2020) asserted that tourism has suffered the most in the COVID-19 epidemic. Nepal (2020) proclaimed that the COVID-19 outbreak has provided an opportunity for to global adventure tourism industry to re-conceptualize the term "Adventure" by the inclusion of current natural and cultural experiences.

## Theoretical Framework

Keeping in view the phenomenon under investigation it is imperative to set the theoretical framework of the study. The theoretical framework of a study fixes the limits of the scope of the study. Variables to be studied, data set and methodology are also dictated by the theoretical framework. Numerous studies are using inbound and outbound variables to gauge the performance of travel and tourism but this study reckons countries based on comparative indices generated from inbound and outbound country-level data of travel and tourism. Khan et al. (2017) found that transport and travel have a

negative impact on the tourism index while trade openness and the presence of railways/air transportation have a positive impact on the inbound tourism competitive index. The causality results of the outbound index show a bidirectional relationship with railways/air transportation and transport & travel services. Findings of decomposition variance identified air transportation freight is a major contributor that largely impacts on inbound-outbound tourism index while trade openness and railways passenger are minors that have minor impacts on railways/air transportation. Prideaux (2000) revealed a direct relationship between the transportation segment and inbound tourism. Seetaram et al. (2014) examined the impact of Air Passenger Duty (ADP) on UK outbound tourism and found a negative relationship between them.

**Table 1:** Specification of Variables

| Code | Variable of Travel and Tourism | Measure | Criteria |
|---|---|---|---|
| 1 | Inbound tourism expenditure in dollars | In US Dollars | Larger is the best |
| 2 | Inbound tourism expenditure in percentage | % of exports | Larger is the best |
| 3 | Outbound tourism expenditure in dollars | In US Dollars | Smaller is the best |
| 4 | Outbound tourism expenditure in percentage | % of Imports | Smaller is the best |

Keeping in view the aforementioned studies the authors selected variables of inbound and outbound to evaluate the performance of the countries on travel & tourism and then used a composite measure to rank and categorize them.

**Methodology**

The study follows positivism as a research philosophy and deduction as a research approach. It is a cross-sectional secondary data-based statistical descriptive study. It is a country-level comparative inquiry that is envisaged on a set of ninety-one countries. The data has been elicited from the website of World Development Indicators (WDI, 2020) available as of April 12, 2020. We have been able to find complete data of only ninety-one countries of the world on the website of WDI. Therefore, the analysis performed in this study is limited to the data set available. The methodological approach of the study follows grey system theory having privilege on statistical techniques as it processes a large amount of data to get meager results (Julong, 1989). This theory has five parts i.e. grey prediction, grey relational analysis, grey decision, grey programming, and grey control (Hamzacebi et al., 2011; Kuo et al., 2008; Tayyar et al., 2014; Wu, 2002; Wei, 2011; Zhang et al., 2011). This study uses grey relational analysis as a research methodology. For further elaboration and systematically interpreting the results, this method has been augmented by a method of ensigns introduced by Niazi et al. (2020) that gives better and informed insights to the readers. The methodology proceeds step-wise and the procedure and symbols have been adopted from Ertugrul et al. (2016) and Niazi et al. (2020).

**Grey Relational Analysis**

*Step 1:* Representation of original data set in form of:

$$x_i(k) = \begin{bmatrix} x_1(1)x_1(2) & \cdots & x_1(m) \\ \vdots & \ddots & \vdots \\ x_n(1)x_n(2) & \cdots & x_n(m) \end{bmatrix} \qquad (1)$$

This is a generic formula to represent matrix-type data in general. Since we have obtained data in matrix form WDI 2020 that has simply been presented here in this form.

**Table 2:** Original Data Set on Travel and Tourism

| Sr. | Country | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1 | Albania | 2,050 | 49.5 | 1,473 | 24.1 |
| 2 | Algeria | 172 | 0.5 | 632 | 1.1 |
| … | ………. | … | … | … | … |
| … | ………. | … | … | … | … |
| 64 | Pakistan | 866 | 3 | 3,401 | 5.3 |
| 65 | Panama | 6,824 | 25.1 | 1,184 | 4.4 |
| … | ………. | … | … | … | … |
| … | ………. | … | … | … | … |
| 90 | Vanuatu | 289 | 70.6 | 19 | 4 |
| 91 | Zimbabwe | 158 | 3.4 | 338 | 5.2 |

Source of Data: (WDI, 2020)

*Step 2:* Created reference and comparison sequences:

$$x_0 = [x_0(k) \ldots \ldots \ldots \ldots x_0(n)] \qquad (2)$$

The first two variables possess 'larger acceptable' characteristics whereas the other two variables possess 'smaller acceptable' characteristics and values based on acceptability have been made as a reference sequence.

**Table 3:** Reference Sequence and Comparable Sequences

| Sr. | Country | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 | Reference Sequence | 251,544 | 89.90 | 4 | 0.50 |
| 1 | Albania | 2,050 | 49.5 | 1,473 | 24.1 |
| 2 | Algeria | 172 | 0.5 | 632 | 1.1 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 64 | Pakistan | 866 | 3 | 3,401 | 5.3 |
| 65 | Panama | 6,824 | 25.1 | 1,184 | 4.4 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 90 | Vanuatu | 289 | 70.6 | 19 | 4 |
| 91 | Zimbabwe | 158 | 3.4 | 338 | 5.2 |

*Step 3:* Normalized the data according to inherited data characteristics:

1- For inbound variables having characteristic larger the better

$$x_i^*(k) = \frac{x_i^{(0)}(k) - min x_i^{(0)}(k)}{max\ x_i^{(0)}(k) - min x_i^{(0)}(k)} \qquad (3)$$

2- For outbound variables having characteristic smaller the better

$$x_i(k) = \frac{max\ x_i^{(o)}(k) - x_i^{(0)}(k)}{max\ x_i^{(0)}(k) - min x_i^{(0)}(k)} \qquad (4)$$

**Table 4:** Normalized Comparable Sequences

| Sr. | Country | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 | Reference Sequence | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1 | Albania | 0.0081 | 0.5481 | 0.9943 | 0.0000 |
| 2 | Algeria | 0.0006 | 0.0000 | 0.9976 | 0.9746 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 64 | Pakistan | 0.0034 | 0.0280 | 0.9868 | 0.7966 |
| 65 | Panama | 0.0271 | 0.2752 | 0.9954 | 0.8347 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 90 | Vanuatu | 0.0011 | 0.7841 | 0.9999 | 0.8517 |
| 91 | Zimbabwe | 0.0006 | 0.0324 | 0.9987 | 0.8008 |

Keeping in mind the acceptability characteristics of variables the data series of all variables have been normalized (i.e. values have been standardized into the range of 0 to 1) using the appropriate formulae aforementioned. For instance, calculation of Albania; Inbound Tourism Expenditure in Dollars; larger is the best is:

$$x_1^*(1) = \frac{x_1^0(1) - min\ x_1^0(1)}{max\ x_1^0(1) - min\ x_1^o(1)} = \frac{2050 - 13}{251544 - 13} = 0.0081$$

*Step 4:* Deviation Sequence is calculated by using the formula:

$$\Delta_{0i}(k) = |x_0^*(k) - x_i^*(k)| \qquad (5)$$

For biggest deviation:

$$\Delta_{max} = \frac{max}{\forall j \varepsilon i}\ \frac{max}{\forall k}\ |x_0^*(k) - x_j^*(k)| \qquad (6)$$

For smallest deviation:

$$\Delta_{min} = \frac{min}{\forall j \varepsilon i}\ \frac{min}{\forall k}\ |x_0^*(k) - x_j^*(k)| \qquad (7)$$

**Table 5:** Deviation Sequences

| Sr. | Country | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 | Reference Sequence | 0.000 | 0.0000 | 0.0000 | 0.0000 |
| 1 | Albania | 0.9919 | 0.4519 | 0.0057 | 1.0000 |
| 2 | Algeria | 0.9994 | 1.0000 | 0.0024 | 0.0254 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 64 | Pakistan | 0.9966 | 0.9720 | 0.0132 | 0.2034 |

| 65 | Panama | 0.9729 | 0.7248 | 0.0046 | 0.1653 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 90 | Vanuatu | 0.9989 | 0.2159 | 0.0001 | 0.1483 |
| 91 | Zimbabwe | 0.9994 | 0.9676 | 0.0013 | 0.1992 |

Deviation sequences (i.e. distance from reference value) are calculated by applying the standard procedure of GRA. For instance, calculation of deviation for "Inbound Tourism Expenditure in Dollars" Albania is calculated:

$$\Delta_{01}(1) = |x_0^*(1) - x_1^*(1)| = |1 - 0.0081| = 0.9919$$

*Step 5:* Grey relational coefficient is calculated by using the below-mentioned formula. Term $\xi$ is a co-efficient distinguishing 0 from 1 which is 0.5 in literature usually.

$$\gamma[x_0^*(k), x_i^*(k)] = \frac{\Delta_{min} + \xi\Delta_{max}}{x_{0i}(k) + \xi\Delta_{max}}, \ 0 < \gamma[x_0^*(k), x_i^*(k)] \leq 1 \tag{8}$$

**Table 6:** Grey Relational Co-efficient

| Sr. | Country | 1 | 2 | 3 | 4 |
|-----|---------|---|---|---|---|
| 0 | Reference Sequence | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1 | Albania | 0.3351 | 0.5253 | 0.9887 | 0.3333 |
| 2 | Algeria | 0.3335 | 0.3333 | 0.9952 | 0.9516 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 64 | Pakistan | 0.3341 | 0.3397 | 0.9743 | 0.7108 |
| 65 | Panama | 0.3395 | 0.4082 | 0.9909 | 0.7516 |
| … | ……….. | … | … | … | … |
| … | ……….. | … | … | … | … |
| 90 | Vanuatu | 0.3336 | 0.6984 | 0.9999 | 0.7712 |
| 91 | Zimbabwe | 0.3335 | 0.3407 | 0.9974 | 0.7152 |

Grey relational co-efficient has been calculated by manipulating minimum and maximum difference according to the classical procedure of GRA. For instance, calculation of Grey Relational Co-efficient deviation for "Inbound Tourism Expenditure in Dollars "Albania is calculated:

$$\gamma[x_0^*(1), x_1^*(1)] = \frac{\Delta_{min} + \xi\Delta_{max}}{\Delta_1(1) + \xi\Delta_{max}} = \frac{0 + (0.5) \times 1}{0.9919 + (0.5) \times 1} = 0.3351$$

*Step 6:* Calculated Grey Relational Grade (GRD):

$$\gamma(x_0^*, x_i^*) = \sum_{k=1}^{n} \beta_k \gamma[x_0^*(k), x_i^*(k)] \tag{9}$$
$$\sum_{k=1}^{n} \beta_k = 1 \tag{10}$$

**Table 7:** Grey Relational Grades

| Sr. | Country | Grey Relational Grades |
|-----|---------|------------------------|
| 0 | Reference Sequence | 1.0000 |
| 1 | Albania | 0.5456 |
| 2 | Algeria | 0.6534 |
| … | ……….. | … |
| … | ……….. | … |
| 64 | Pakistan | 0.5897 |
| 65 | Panama | 0.6226 |
| … | ……….. | … |
| … | ……….. | … |
| 90 | Vanuatu | 0.7008 |
| 91 | Zimbabwe | 0.5967 |

Grey relational grades have been calculated by way of weighted allocating equal weights to every variable using the aforementioned formulas. For instance, the grey relational grade for Albania is calculated as under

$$\gamma(x_0^*, x_1^*) = \sum_{k=1}^{n} \beta_k \gamma[x_0^*(1), x_1^*(k)]$$
$$= 0.25 \times (0.3351 + 0.5253 + 0.9887 + 0.3333) = 0.5456$$

*4.2 Method of Presenting Results:* The methodology of grey relational analysis has been augmented with the method of ensigns to build an informed understanding of the readers. The authors used an ordinal type of scale having seven items (i.e. *exceptionally high, excellent, above average, average, below average, poor, very poor)* and divided the countries under investigation into seven groups. As

against each item of the scale authors also expounded the brackets of grey relational grades to which they relate (Table 8).

**Table 8:** Scheme of Grouping the Countries under Different Ensigns

| Sr. | Ensign | Description |
|---|---|---|
| 1 | Exceptionally high | Countries having grey relational grades ranging from 0.7401 to 0.6230 are considered to have exceptionally high performance concerning Travel & Tourism. |
| 2 | Excellent | Countries having grey relational grades ranging from 0.6228 to 0.6120 are considered to have excellent performance. |
| 3 | Above Average | Countries having grey relational grades ranging from 0.6099 to 0.5984 are considered above having average performance. |
| 4 | Average | Countries having grey relational grades ranging from 0.5977 to 0.5812 are considered to have average performance. |
| 5 | Below Average | Countries having grey relational grades ranging from 0.5806 to 0.5668 are considered to have below-average performance. |
| 6 | Poor | Countries having grey relational grades ranging from 0.5654 to 0.5372 are considered to have poor performance. |
| 7 | Very Poor | Countries having grey relational grades ranging from 0.5342 to 0.3884 are considered to have very poor performance. |

This method of classification of countries on an ordinal scale helps the readers to form a better understanding of the comparative performance of the different countries in the travel and tourism sector.

**Results and Discussion**

*Results:* Since travel and tourism have become a driver of social & economic growth, a prominent source of job creation, and the imperative building block of economies. It is also worthwhile to put the countries in some order of performance in travel & tourism. Therefore, the study is aimed to rank and categorized the countries based on their consolidated performance on travel & tourism. The data was obtained from the WDI website & analysis/ranking was done through GRA. The results of the analysis are represented in Table 9. The results provide an understanding of the country-wise position to the discerners.

**Table 9:** Results of Grey Relational Analysis

| Country | GRG* | Rank | Country | GRG* | Rank | Country | GRG* | Rank |
|---|---|---|---|---|---|---|---|---|
| Reference Sequence | 1.0000 | 0 | Chile | 0.6066 | 30 | New Zealand | 0.5740 | 61 |
| *Exceptionally High* | | | Slovenia | 0.6056 | 31 | Denmark | 0.5722 | 62 |
| Macao SAR, China | 0.7401 | 1 | Paraguay | 0.6051 | 32 | Finland | 0.5707 | 63 |
| Samoa | 0.7230 | 2 | Morocco | 0.6041 | 33 | Bolivia | 0.5677 | 64 |
| Vanuatu | 0.7008 | 3 | Poland | 0.6034 | 34 | Oman | 0.5668 | 65 |
| Tajikistan | 0.6770 | 4 | Guatemala | 0.6034 | 35 | *Poor* | | |
| Algeria | 0.6534 | 5 | Ecuador | 0.6025 | 36 | Switzerland | 0.5654 | 66 |
| Fiji | 0.6459 | 6 | Thailand | 0.6021 | 37 | Uruguay | 0.5653 | 67 |
| Turkey | 0.6451 | 7 | Romania | 0.5994 | 38 | Singapore | 0.5641 | 68 |
| Dominican Republic | 0.6353 | 8 | Portugal | 0.5984 | 39 | Colombia | 0.5610 | 69 |
| Ireland | 0.6315 | 9 | *Average* | | | Israel | 0.5506 | 70 |
| Malta | 0.6296 | 10 | Costa Rica | 0.5977 | 40 | Sweden | 0.5503 | 71 |
| Croatia | 0.6284 | 11 | Bulgaria | 0.5970 | 41 | Canada | 0.5467 | 72 |
| Hungary | 0.6276 | 12 | Zimbabwe | 0.5967 | 42 | Italy | 0.5467 | 73 |
| Lithuania | 0.6230 | 13 | Nepal | 0.5948 | 43 | Albania | 0.5456 | 74 |
| *Excellent* | | | Georgia | 0.5942 | 44 | Iceland | 0.5421 | 75 |
| Belarus | 0.6228 | 14 | Japan | 0.5913 | 45 | Korea, Rep. | 0.5418 | 76 |
| Panama | 0.6226 | 15 | Pakistan | 0.5897 | 46 | Lao PDR | 0.5405 | 77 |
| Slovak Republic | 0.6219 | 16 | Spain | 0.5886 | 47 | France | 0.5372 | 78 |
| Greece | 0.6212 | 17 | Peru | 0.5862 | 48 | *Very Poor* | | |
| Luxembourg | 0.6205 | 18 | Moldova | 0.5858 | 49 | Saudi Arabia | 0.5342 | 79 |
| El Salvador | 0.6193 | 19 | India | 0.5845 | 50 | Ukraine | 0.5314 | 80 |
| Sierra Leone | 0.6189 | 20 | Mauritius | 0.5837 | 51 | Azerbaijan | 0.5296 | 81 |
| Seychelles | 0.6178 | 21 | Hong Kong SAR, China | 0.5812 | 52 | Armenia | 0.5198 | 82 |

| United States | 0.6172 | 22 | **Below Average** | | | Brazil | 0.5193 | 83 |
|---|---|---|---|---|---|---|---|---|
| Cambodia | 0.6158 | 23 | Estonia | 0.5806 | 53 | Bahrain | 0.5125 | 84 |
| Jordan | 0.6141 | 24 | Cyprus | 0.5800 | 54 | Norway | 0.5104 | 85 |
| Latvia | 0.6125 | 25 | Kyrgyz Republic | 0.5796 | 55 | Argentina | 0.5066 | 86 |
| Eswatini | 0.6120 | 26 | Belgium | 0.5775 | 56 | United Kingdom | 0.5035 | 87 |
| **Above Average** | | | Indonesia | 0.5757 | 57 | Russian Federation | 0.5009 | 88 |
| Czech Republic | 0.6099 | 27 | Netherlands | 0.5754 | 58 | Australia | 0.4967 | 89 |
| Nicaragua | 0.6093 | 28 | Sri Lanka | 0.5752 | 59 | Germany | 0.4900 | 90 |
| Mexico | 0.6073 | 29 | Austria | 0.5751 | 60 | China | 0.3884 | 91 |

*Grey Relational Grades

Grey relational analysis is a mathematical technique of data analysis with the capability of handling a multitude of variables, cases, and periods. The study has categorized ninety-one countries of the world into seven different categories. From the result of GRA, it can be learned that there is a total of thirteen countries categorized as countries having *exceptionally high* performance concerning travel & tourism. Most of the countries under this ensign are member countries of the European Union (EU). Thirteen countries fall under the *excellent* and *above-average* ensigns, most of which are member countries of the Organization for Economic Co-operation and Development (OECD). Thirteen countries fall under the ensign of *average*, most of which are member countries of Asia Pacific Economic Cooperation (APEC) and South Asian Association for Regional Cooperation (SAARC). Thirteen under the ensign of *below average*, most of which are member countries of EU and OECD. Thirteen countries fall under the ensigns of *poor* and *very poor*, most of which are member countries of OECD.

***Discussion:*** This study is different in terms of methodological choice from the contemporary literature because it has used a multitude of criteria and cross-sections. It is different from studies contrasted in Table 10 in terms of objectives, method, variables, data set, and scope. This study provides comparatively more informed insights. It provides unique information and creates different categories on an ordinal scale and correlates the same with composite grey relational grade. Results are logical and aligned with the existing literature.

***Table 10:*** *Comparison with Contemporary Studies*

| Studies | Focus | Variables | Methodology | Result |
|---|---|---|---|---|
| Current | Reckoning of ninety-one countries based on performance on travel and tourism. Evaluate Pakistan's position in the Pakistan qua world. Classifying the countries into different groups based on performance and to enlighten upon bloc-wise performance | Inbound and outbound tourism. | Grey Relational Analysis (GRA) | Pakistan has average performance in Travel & Tourism. |
| Khan et al. (2017) | Assess the effect of railway & air transportation and transport & travel services on international inbound and outbound tourism | International inbound & outbound tourism index, air transportation, trade openness, railways transportation, transport services, and travel services. | Principal Component Analysis (PCA) | Transport and travel have a negative impact on the tourism index; trade openness and presence of railways/air transportation have a positive impact on inbound tourism competitive index; causality results of the outbound index show a bidirectional relationship with railways/air transportation and transport & travel services. |
| Seetaram | Examine the effect of air | Income, price, | Autoregressive | Air passenger duty hurts |

| et al. (2014) | passenger duty on outbound tourism. | tax elasticity, and outbound tourism. | Distributed Lag Model. | UK outbound travel. |
|---|---|---|---|---|
| Prideaux (2000) | Role of the transport system in tourism development. | Transport, accommodation, market sectors, attraction, and destination. | Transport Cost Model | There is a direct relationship between the transportation segment and inbound tourism. |

## Conclusion

Travel & Tourism is an important building block of social & economic development of the countries. It is the source of revenue, jobs, and recreation. It is a fertile area of contemporary research. Tourism-oriented countries tend to generate more revenues. Comparison among the countries from time to time-based on real data is also a matter of grave concern. It used secondary data of inbound and outbound variables available on the website of WDI. As a methodology grey relational analysis is used. Results of the study entail ninety-one countries of the world into seven different categories. Results show that there is a total of thirteen countries categorized as countries having *exceptionally high* performance in the sector of travel & tourism. Most of the countries under this ensign are member countries of the European Union (EU). Thirteen countries fall under the *excellent* and *above-average* ensigns, most of which are member countries of the Organization for Economic Co-operation and Development (OECD). Thirteen countries fall under the ensign of *average*, most of which are member countries of Asia Pacific Economic Cooperation (APEC) and South Asian Association for Regional Cooperation (SAARC). Thirteen under the ensign of *below average*, most of which are member countries of EU and OECD. Thirteen countries fall under the ensigns of *poor* and *very poor*, most of which are member countries of OECD. Overall results of the study reveal that European countries are high performers in travel and tourism as compared to the rest of the countries, however, some of them are at the bottom as well. Applying GRA on aforementioned country-level data the study has achieved the objectives of ranking countries and classification thereof. It has embraced the objectives by way of ranking countries based on GRG and method of ensigns. The study has significant revelatory theoretical contribution towards current literature by way of GRGs, classification under the scheme of ensigns & enlightenment on country-wise position by way of discussion & comparison. It also has empirical contribution since it offers evidence-based quantitative analysis relevant to the field of travel and tourism. . This study has practical implications by way of contributing new information like grey relational co-efficient, grey relational grades, and classification. The readers can benefit from classification further analyzing from viewpoint performance of travel and tourism at the level of different economic blocs. This study is useful for policymakers, management of the tourism companies/departments, the international community, restaurants/hotel industry, and researchers of the domain because it provides material policy level insights hauled out from composite indices and analysis. There are certain limitations of this study that could be taken as insight for future studies. Firstly, it is suggested for future researchers to use longitudinal design as compared to the cross-sectional design used in the current study, it will extend the frontiers of the study. Secondly, the study uses a grey incidence analysis model as a methodology but other ranking methods are also available for future studies. Thirdly, the study used equal weights for each criterion future studies may use the entropy method or AHP, etc. to be more objective in weights. Lastly, in the future rather larger number of countries can be compared by using some other datasets.

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