An Econometric Analysis of Global Muslim Travel Index: A Study on the Perspectives of Permitted Tourism Industry in the Global Context

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Received: 27 June 2019  Accepted: 29 August 2019  DOI: https://doi.org/10.32479/ijefi.8537

ABSTRACT

The prime objective of this study is to assess the relationship between rank of Global Muslim Travel Index (GMTI) and the services composed into GMTI such as Prayers Places (PRPL), Airport Facilities (AIRP), Unique Experiences (UNIQ), Hotel (HOTE), and Restaurant (REST) which are the independent variables. Cross sectional quantitative data of 30 countries connected to components of the Permitted tourism services are collected from the Institution of Crescent Rating 2018. The dependent variable is RANK: Global Rank of GMTI - 2018. The prime tools used in this study are Correlation, ANOVA, Multiple Regression, Histogram, and PP-Plot. It is found that As Hotel (HOTE): Hotel facilities are increased by one unit, Global Rank of GMTI (RANK) of the respective country is lowered by 0.352. Inverse linear relationship between Global Rank of GMTI 2018 and other factors are significantly estimated in the different degrees of strength.

Keywords: Global Muslim Travel Index, Global Rank, Permitted Tourism, Regression

JEL Classifications: F01, L83, Z32

1. INTRODUCTION

“Global Muslim Travel Index (GMTI)” is found as an Index which measures and observes growth and development of Permitted tourism industry in the global context. This GMTI is now used to analyze the behavioral pattern of Muslim travelers in the world arena (Crescent Rating, 2015). The Permitted tourism market is analyzed by Crescent Rating (Pvt.) Limited since year 2011. The destinations of tourism and the Permitted tourism market are evaluated by the annual GMTI. The Muslim friendly destinations all over the world are assessed according to the GMTI which is composed of a set of factors which measure and indicate the friendliness of travel and tourism nature in connection with the concept of Permitted/Muslim tourism. GMTI is composed of the factors such as Access, Communications, Environment, and Services. The factor of Access is further divided into such factors such as Requirements of Visa, Connectivity of Air, and Infrastructure of Transport. The factor of Communications is further divided into the sub factors such as Outreach, Ease of Communication, and Digital Presence. Safely and Culture, Arrivals of Visitors, and Enabling Climate are the sub factors of Environment. Prayers and Permitted food (Core Needs), Airports and Hotels (Core Services), and Unique Experiences are categorized as the sub factors of Services (Crescent Rating, 2018).

These factors are now and then reviewed by Crescent Rating Pvt. Limited in order to fit the current and future requirements of the Permitted/Muslim tourism industry in the tourism destinations which prominently are targeting the arrivals of the Permitted tourists. Accordingly, GMTI in 2018 is further revised and added with some more new factors which measure the latest indications...
of the better Permitted tourism destinations and to promote the current nature of Permitted tourism in the respective destinations.

The factors such as Transport Infrastructure, Digital Presence, Enabling Climate, and Unique Experiences are newly added with GMTI in year 2018. The factors such as Visa Requirements, Outreach, and Ease of Communication are currently updated in GMTI with the existing factors in year 2018 (Crescent Rating, 2018). Figure 1 shows the key composite of GMTI updated by Crescent Rating in year 2018.

Some of the instrumental changes have been made in GMTI – 2018. The expansion in the measurement of Access to the respective Permitted touristic destinations has been expedited by increasing the magnitude of transportation infrastructural structure presently found in these destinations. Accordingly, the modes of transports such as land, air, and port which are found essential to the determination of the sustainable channels to improve the Permitted-touristic destinations are considered in the expansion of Access. There is an update in the scoring requirements of Visa to the Permitted touristic destinations. In the future GMTI, the likelihood of including nautical and land connectivity will be positively perceived by Mastercard-Crescent rating Pvt. Ltd. In year 2018, the measurement in Communications which is one of the key factors of GMTI - 2018 has been considerably changed by Masercard. The weightage of this factor was 10% in year 2017. That much of percentage of Communication is increased to 15% in GMTI – 2018. It is one of the key changes in the GMTI – 2018 included and also it reflects that the Muslim travelers in the Permitted tourism are more facilitated throughout their respective Permitted tourism spots in the tourism world. Thus, it is perceived as one of the influencing factors among the Muslim travelers/tourists.

The presence of digital technology in the respective destination is found as one of the instrumental signal in order to value the availability of access of internet and the initiatives of new media. Through the changes in the communications, the travel market of Muslim can be served with the touch-sensitive area along with the Muslim friendly technology. In addition, Muslim outbound tourists markets topped up within the rank of 30 are facilitated with the inclusion of some of more communication languages such as English, Arabic, Bahasa Indonesia, Malay, Russian, Turkish, Urdu/Hindi, German, Persian, and French. Enabling Climate is another one of the new factors which is added with the GMTI – 2018 along with other existing factors measure the ranking position of the Permitted touristic destinations in the world. Legal institutions, education level, R&D, and development of information and technology are added in this factor as this factor is a causal and significant relationship with innovative and sustainable development in the Permitted touristic sector.

“Services” is one of the indicators included in the GMTI – 2018. The weightage of this indicator is to be subject to the increase from 40% in 2017 to 45% in GMTI – 2018. The services touch-points connected to the Muslim tourists are signified by the increase of the weightage of this indicator. In addition to the services of “Need to Have”, the services of “Nice to Have” and “Good to Have” in connection with the core faith of Muslims can make the Muslim travelers to accessibly, affordably, and authentically experience the different destinations. In addition, the heritage sites found as Islamic novelty in the Permitted touristic destinations are expected to be unique experiences under this upgrade of the indicator. The GMTI is further strengthened by the above changes enabling and providing comprehensive benchmarks for the respective destinations which offer the services being fitted with requirements of Permitted/Muslim travel and tourism. The Permitted/Muslim tourism industry should be proactively developed and improved by the tourism businesses, tourist markets, and the entities related with the travel and tourism in the global arena to attract the Muslim tourists to the respective tourism destinations as it is expected that the Permitted/Muslim travel and tourism market is growing in its fastest rate to achieve the earnings of US$220 billion by year 2020. Further, US$300 billion is expected to be earned by

![Figure 1: The key composite of Global Muslim Travel Index – 2018](image-url)
this travel and tourism in year 2026. An estimate of 131 million of Muslim tourist arrivals is a globally recognized instrumental record in year 2017. It is now forecast that around 156 million of Muslim tourist will be increased by year 2020(Crescent, 2018).

In relation to the context of development of tourism industry in the global context as per the compatibility of the Shari’a, drawing a phenomenon which is compatible with the rules and regulations of Shari’a is recognized as one of the challenges in accordance with the significant trend of increased Permitted tourism industry in the global arena. The Islamic Shari’a is defined by the principles of Islamic law and order set as Fatwa according to the Holy Qur’an and the traditions of the apostle, Muhammad (PBUH) and accordingly approved by the respective Islamic nations. In the context of Permitted tourism industry, the business of hotel should be planned and designed along with the implementation such Shari’a criteria. In addition, the aspects such as the services, the products, and the management should be qualified and classified according to such Sahri’a rules and regulations (Aan, 2016). Permitted services and products along with Permitted food, Islamic finance, and Islamic tourism are supplied in the global market according to the rules and regulations of Shari’a and have been considered as one of the prominent components of the economies in the global context over the decades. Due to the increasing awareness among the Muslim tourists, the tourism operations all over the world have concentrated on supplying Permitted products and Permitted services compliant with the Islamic Shari’a. Accordingly, catering the needs and wants of the Muslim tourists is to be fulfilled by the operators in line with Islamic principles. The OIC with Muslim concentrated courtiers is presently sourced with the markets of supplying the expenditure connected with the Islamic tourism industry and the renowned touristic destinations. As a result, it is believed that the revitalization of economic growth and development can be achieved by the Islamic tourism industry and the prosperity is spread over the OIC countries (SESRIC, 2017). The world tourism industry has been growing by higher than 37% from year 2009, but the world GDP has been growing by 21 % from year 2009. Ten per cent of expenditures of world tourism have been generated by the international Muslim tourists from every nook and corner of the world. Accordingly, the expenditure of international tourism industry is accounted for around $ 145 billion by the international Muslim tourism market (Salam Standard, 2016).

The objective of the Study is to assess the relationship between the rank in GMTI and the components of the services composed into the GMTI.

2. LITERATURE REVIEW

Siti et al. (2018) explored the challenges and issues of determinants which are instrumental to implement Permitted tourism in a large scale in Malaysia by using qualitative method. There are three challenges and issues such as modesty, the Permitted foods, and package found in the implementation of the Permitted tourism in Malaysia in a large scale. COMCEC (2016) states that the Muslim travelers are growing all over the world. Thus, the Muslim tourism industry in the global arena is immensely affected by the Muslim touristic sector. As per the Pew Research, one individual born out three individuals between year 1990 and year 2030 is Muslim. As a result, by 2030, the global Muslim population can increase to 2.2 bn. The OIC member countries are having the great strengths and opportunities due to the increased tourist arrivals to their touristic destinations. SESRIC (2017) finds that the market of Islamic life style is moving towards Sharia ‘oriented goods and services which are the significant components of the global market. Many touristic players in the respective destinations started to supply the goods and services compliant with the Islamic norms. The OIC member countries can grow and develop their economies if there is a proper plan and management in the Islamic tourism.

Lee et al. (2017) aimed to report the evolution of Halal Tourism in Islamic and Non-Islamic countries by using the secondary sources. They found that the restaurants with Halal certification, the environment with Islamic friendly travel, the hotels with Shari’a compliance, the facilities of prayers, and the enhancement of Islamic culture are the significant features found in the Islamic economies. The awareness about the Halal concept is rapidly spreading around the Non-Islamic countries as well. There are a number of empirical literatures found on the theme of the Islamic/Permitted/Spiritual/Religious tourism industry. Around all these literatures are focusing the impacts of this tourism on the economic growth and development of the respective countries and its significant contribution to the global Muslim travel market. This study is prominently focusing the relationship between the global position of the countries in relation to the Global Muslim Travel and Tourism index which is composed of a number of influencing factors which can be improved and developed by the respective countries to achieve the target of increasing their position with the use of econometric model. This is the prime gap which is being filled by this study.

3. METHODOLOGY

The cross-sectional quantitative data of 30 countries have been collected from annual report – 2018 of Crescent Rating Private Limited. The data of (GMTI - 2018) are used in the econometric analysis of this study. The relevant literatures have been collected from the secondary sources. Six variables have been identified and used in this study to fulfill the objective of the study. RANK is the dependent variable in the model used in this study and the variables such as PRPL, AIRP, UNIQ, HOTE, and REST are used as the independent variables in the model of the study. The statistical tools such Correlation Analysis, Multiple Regression Analysis, Analysis of Variance (ANOVA), Analysis of Multicolinearity, Variance of Inflation Factor (VIF), Tolerance, and Analysis of Residuals (Histogram and PP-Plot). The nature of the linear positive or negative relationship between the dependent and independent variables is analyzed by the analysis of Correlation. The value of coefficient estimated through the Multiple Regression Analysis is used to find the impact of magnitude of the respective variables on the dependent variable. ANOVA is the tool used to find the sampling error. The test of Multicolinearity is to find the overlapping of the independent variables used in this study. Accordingly, the uniqueness of the independent variables can be identified by this test. To test Multicolinearity, the specific tools.
such as VIF and Tolerance are used in this study. Analysis of residuals is used to find the nature of distribution of the dependent variable. By this test, the normal distribution of residuals of the dependent variable is statistically estimated.

Accordingly, the following multiple regression model is estimated to achieve the objective of this study.

\[ RANK = \beta_0 + \beta_1 PRPL + \beta_2 AIRP + \beta_3 UNIQ + \beta_4 HOTE + \beta_5 REST + \epsilon \]  

\[ RANK = f (PRPL, AIRP, UNIQ, HOTE, REST) \]  

\[ RANK = \varphi_0 + \varphi_1 PRPL + \varphi_2 AIRP + \varphi_3 UNIQ + \varphi_4 HOTE + \varphi_5 REST + \epsilon \]

4. DATA PRESENTATION AND ANALYSIS

To achieve the first objective of this study, correlation analysis, ANOVA, analysis of coefficients (multiple regression), analysis of multicollinearity, analysis of residuals are used elaborately under data presentation and analysis in which \( RANK \) is used as the dependent variable in the first model of this study.

4.1. Correlation Analysis

Table 1 shows the correlation status between the dependent variable: \( RANK \) and the independent variables: \( PRPL, AIRP, UNIQ, HOTE, \) and \( REST \). The strength of the correlations between \( RANK \) and \( AIRP \) and \( HOTE \) are strong as the correlation coefficients are 0.593 and 0.647 respectively. Further, the strength of the correlations between \( RANK \) and \( PRPL \) and \( REST \) are perceived as moderate as the values of correlation coefficient \( r \) are 0.377 and 0.332 respectively. It means the strength of the linear inverse relationship between the dependent variable \( RANK \) and the above independent variables \( (AIRP, HOTE, PRPL, \) and \( REST) \) are varied from strong to moderate. The direction of the correlation between this dependent and all the independent variables is inversely. Thus, both of them are inversely related.

Thus, the dependent variable is inversely related with the independent variables. As one of the independent variables increases, the dependent variable decreases by certain quantity. The significance of the correlational relationships between the dependent and the independent variables except \( UNIQ \) are high at 5% level (Sig.<0.05).

Table 2 delineates the summary of the multiple regression model. The value of \( R^2 \) is 0.643 of the regression models. It means the percentage of the variance shared by all the independent variables to explain the dependent variable \( (RANK) \) is 64.3%. Accordingly, the independent variables \( (HOTE, PRPL, UNIQ, REST, \) and \( AIRP) \) used in the multiple regression model used in this study to achieve the objective of the study represents the contribution 64.3% to influence the dependent variable \( (RANK) \) of the model. The estimated \( R^2 \) of the model is more than 60% (\( R^2 > 60\%) \).

The rest of 35.7% of the external factors are left unexplained in this regression model to explain the dependent variable \( (RANK) \).

4.2. ANOVA: Multiple Regression Analysis

Table 2 shows the ANOVA of the regression model and the residuals of the model. ANOVA is used to find out whether the findings from the multiple regression analysis of this study are free from sampling error (Ajai and Sanjaya, 2008). Accordingly, the value of \( F \) and Sig. are studied in the ANOVA. \( F \) value and Sig. value are equal to 8.661 and 0.000 (p<0.05) respectively. The value of confidence (p<0.05) is higher while looking to the occurrence of sampling error within the variables and between the variables used in the multiple regression model. Therefore, the results of the regression model are not entitled to occur merely by chance.

According to the magnitude of \( F \)-ratio (8.661), the variance between all the variables used in the regression model is high. As the value of probability is <5% (Sig.<0.05), the null hypothesis of “there is no relationship between the dependent variable: \( RANK \) and other independent variables” is rejected whereas the alternative hypothesis is confirmed. Thus, all the independent variables are playing significant roles on the dependent variable (Table 3).

Table 4 expresses the values of coefficients of the independent variables used in the multiple regression model. Accordingly, the following multiple regression model is estimated:

\[ RANK = 48.904 - 0.098(PRPL) - 0.101(AIRP) - 0.106(UNIQ) - 0.352(HOTE) - 0.005(REST) \]
As per the above estimated multiple regression model, the dependent variable \( RANK \) is inversely connected with all the independent variables: \( PRPL, AIRF, UNIQ, HOTE, \) and \( REST \) influencing on the \( RANK \) by the various quantity. As all the independent variables are increased, the dependent variable is lowered by the certain degree being affected by the value of the coefficients of the independent variables.

As \( HOTE \): Hotel facilities are increased by one unit, the \( RANK \) of the respective country is lowered by a unit of 0.352. And also, as \( UNIQ \): Unique experiences, \( AIRF \): Airport facilities, \( PRPL \): Prayer places and \( REST \): Restaurants are increased by one unit, \( RANK \): Global rank is lowered by 0.106, 0.101, 0.098, and 0.005 respectively. Accordingly, the most influencing factor affecting on the determination of the global rank is \( HOTE \): Hotel. And also, the factor - \( HOTE \): Hotel is significant at 5% (Sig.<0.05). The null hypothesis of “there is no significant relationship between \( RANK \): Global rank and \( HOTE \): Hotel” is rejected. The alternative hypothesis of “there is a significant relationship between \( RANK \): Global rank and \( HOTE \): Hotel” is highly confirmed at <5% significant level (Table 4).

Table 4 shows the test of multi co linearity exiting among the independent variables of the estimated multiple regression model. To find the problem of multicolinearity in the estimated model, the values of Tolerance and VIF (Variance Inflation Factor) are used. As the criteria, the value of Tolerance should be higher than 0.4 and the value of VIF should be <10. These criteria are ensured by the results of the test of multicolinearity as shown in Table 5.

As a result of the analysis, there is no problem of multi co linearity found in the estimated model. Due to the absence of the problem of multi co linearity in the estimated multiple regression model, the dependent variable uniquely explained by the each of the independent variables in the respective model is very higher. Thus, the overlapping nature is hardly found between the independent variables used in the estimated model. Further, the independent variables are not highly correlated in this model. Figure 2 represents and reflects the distribution of residuals (the difference between the observed values and the estimated values of the dependent variable: \( RANK \)). As the criteria, the value of residuals are normally distributed around the value of central point of zero and the dispersion of the value of residuals should be in the bell-shaped (Ciaran et al., 2008). The nature of normal distribution of the residuals is ensured by the pictorial test of histogram as shown in Figure 2.

The normal distribution of the residuals is further ensured by the pictorial representation as shown in Figure 3. As a criterion, the scatterplot of standardized residuals against standardized estimated/predicted values should confirm a form of straight line running at 45-degree angle from (0, 0) on the lower left corner to (1.0, 1.0) on the upper right corner. In Figure 3, actual plot adapts very closely to this nature.

Table 5: Muticolinearity

<table>
<thead>
<tr>
<th>Model</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REST</td>
<td>0.893</td>
</tr>
<tr>
<td></td>
<td>PRPL</td>
<td>0.864</td>
</tr>
<tr>
<td></td>
<td>AIRP</td>
<td>0.666</td>
</tr>
<tr>
<td></td>
<td>UNIQ</td>
<td>0.895</td>
</tr>
<tr>
<td></td>
<td>HOTE</td>
<td>0.733</td>
</tr>
</tbody>
</table>

a. Dependent Variable: \( RANK \)

Table 4: Analysis of coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>48.904</td>
<td>5.676</td>
<td>8.615</td>
</tr>
<tr>
<td></td>
<td>( PRPL )</td>
<td>-0.098</td>
<td>0.048</td>
<td>-0.267</td>
</tr>
<tr>
<td></td>
<td>( AIRF )</td>
<td>-0.101</td>
<td>0.068</td>
<td>-0.221</td>
</tr>
<tr>
<td></td>
<td>( UNIQ )</td>
<td>-0.106</td>
<td>0.069</td>
<td>-0.200</td>
</tr>
<tr>
<td></td>
<td>( HOTE )</td>
<td>-0.352</td>
<td>0.092</td>
<td>-0.542</td>
</tr>
<tr>
<td></td>
<td>( REST )</td>
<td>-0.005</td>
<td>0.007</td>
<td>-0.084</td>
</tr>
</tbody>
</table>

a. Dependent Variable: \( RANK \)
5. FINDINGS AND CONCLUSION

The main objective of this study is to assess the relationship between the rank in GMTI and the components of the services composed into the GMTI. In this study, this assessment is basically looked into the impact on RANK – Global Rank of GMTI – 2018 due to the changes in PRPL – Prayer Places, AIRP – Airport Facilities, UNIQ – Unique Experiences, HOTE – Hotel, and REST – Restaurant. Thus, the strength of the inverse linear relationship between the independent variables such as AIRP and HOTE and the dependent variable such as RANK is strong and the strength of PRPL and REST are moderate. The percentage of the variance shared by all the independent variables to explain the dependent variable (RANK) is 64.3%. The null hypothesis of “there is no relationship between the dependent variable: RANK and other independent variables” is rejected whereas the alternative hypothesis is confirmed. As all the independent variables are increased, the dependent variable is lowered by the certain degree being affected by the value of the coefficients of the independent variables. As HOTE: Hotel facilities are increased by one unit, the RANK of the respective country is lowered by a unit of 0.352. And also, as UNIQ: Unique experiences, AIRP: Airport facilities, PRPL: Prayer places and REST: Restaurant are increased by one unit, RANK: Global rank is lowered by 0.106, 0.101, 0.098, and 0.005 respectively. Accordingly, the most influencing factor affecting on the determination of the global rank is HOTE: Hotel. There is no problem of multi co linearity found in the estimated model. The normal distribution of the residuals of the dependent variable (RANK) is ensured by the Histogram and Normal P-P Plot.

The multiple regression model confirms the significant contribution of the factors such as Prayers Places - PRPL and Hotel –HOTE to the Global Rank of GMTI – 2018. The Hotel – HOTE is the most influencing factor paving the way to affect the Global Rank of GMTI – 2018. Thus, the Global Rank of the countries is mostly determined by the factor of Hotel – HOTE. In connection with the degrees of the effect on the Global Rank of GMTI – 2018, the other two factors such as AIRF - Airport Facilities and UNIQ – Unique Experiences are equally affecting the Global Rank of the countries. The inverse linear relationship between the Global Rank of GMTI – 2018 and other factors are significantly estimated in the different degrees of strength. All these considerably prove the determination of the factors which are influencing the Global Rank of GMTI – 2018.

The findings and conclusions of this study can be utilized by the government and policy makers or officials, the entrepreneurs, the Muslim tourists, the general public of the respective countries who are operating Permitted tourism industry. They are vividly made aware of the factors which are lowering Global Rank of GMTI of the countries. One of the prime factors which are considerably lowering the Global Rank of Global Muslim Truism Index – GMTI is Hotel facilities entirely compatible to the coincidence of promoting Permitted tourism nature in the countries considered in this study. Further, the components of Airport Facilities and Uniqueness the second influencing factors which are contributing the position the countries in GMTI.

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