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Effect of Real Exchange Rate and Income on International Tourist Arrivals for Turkey

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Abstract

Tourism has been one of the fastest growing sectors in the world economy for decades. It has been the third biggest export item in the world economy. According to World Tourism Organization (UNWTO), total 1.34 billion tourist arrivals has recorded in destinations around the world and total international tourism receipts has reached %10 of World GDP in 2017. By 2030, total number of international tourist arrivals is expected to be 1.8 billion. Beyond its effect on country’s brand value and image, tourism has significant contribution on every host country’s economy. Particularly, international tourism receipts stand as an important foreign exchange resource for Turkey as a country which constantly suffers from current account deficit. In this perspective, this paper tries to estimate the effects of visiting countries GDP and real exchange rates of host countries on tourist arrivals from about 65 different countries for Turkey. To achieve this aim, panel co-integration analysis under cross sectional dependence with common correlated effects (CCE) method has employed over the period 2002Q1-2017Q4. Preliminary results of our study implies both the real exchange rate and the GDP are effective on the international tourist arrivals for Turkey. However, the degree of effect differs across the examined countries.

Keywords: tourism, real exchange rates, growth

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Introduction

There are several factors to answer the question why tourism matters. Currently, it stands as the third largest export category in the world economy. It follows chemicals and fuel. It is already ahead of automotive industry. Tourism counts 30 percent of services export in the world. Almost 10 percent of the world GDP is produced directly and indirectly by tourism. Similarly, 10 per cent of employment in the world economy is created by the sector. The huge size of the tourism is the main motivation of this study to better understand an aspect of the sector on the economic performance of Turkey, one of the major centers of international tourist arrivals in Middle East and Mediterranean Region.

In addition, for being one of the top sectors of the world economy, the growth rate of the international tourist arrivals started to exceed long term forecasts and also the average growth rate of many sectors. According to world tourism organization, expected long term growth rate of international tourist arrivals is 3.8 percent for the period 2010 – 2020. It grew 7 percent in
2017 and reached 1,326 million. Total international tourism receipts grew 5 percent and reached 1,340 billion USD in 2017.

Main destination of tourists in all over the world is Europe. The share of Europe in total arrivals is 51 percent. Asia and Pacific follow Europe with 24 percent share and the share of Middle East is 4 percent. On the other hand, the share of Europe in total receipts is 39 percent. Also, Asia and Pacific follow Europe in total receipts with a 29 percent share. The share of Middle East is 5 percent. It is observed that Asia and Pacific is much better than Europe at generating revenue per arrivals. Middle East Region is also raising its share in terms of total receipts. However, Americas is better at generating revenue relative to arrivals. Although the share of Americas at international arrivals is 16 percent, its share in total receipts is 24 percent.

Main mode of transportation has been air with a share of 57 percent. Road transportation follows the air transportation with a share of 37 percent. Main purpose of the visit seems to be Leisure, Recreation and Holidays. The second main purpose of visit is visiting friends, relatives, health and religion. If one looks at international tourist arrivals by sub region, it is observed that the share of advanced economies is 55 percent whereas the share of emerging economies 45 percent. France, Spain and USA are the top destinations in terms of International Arrivals. Emerging Economies seems to catch up advanced economies as annual growth rate at emerging economies stands at 4.8 percent relative to advanced economies 3.7 percent growth rate between the period 2005-2017. Europe is the main international arrival destination. Within Europe Southern and Mediterranean Europe has the largest share with 20 percent. Southern and Mediterranean Europe has the largest share in the World Tourism as well. That also raises the importance of Tourism on Turkish Economy.

Being as the world’s third largest export category, total exports from tourism reached to approximately 1,4 trillion USD in 2017. That meant 4 billion USD per day on average. As a whole, advanced economies generated 870 billion USD and remaining 470 billion USD left to Emerging Economies. Receipts per arrival for Advanced Economies reached 1,200 USD and 790 USD for Emerging Economies. Oceania has the highest receipt per arrival as 3,440 USD though the market share is only 4 percent. North America and South Asia have 1,870 USD and 1,490 USD receipts per arrival respectively. The lowest figure is for North Africa as 460 USD. The figure for Middle East is 1,160 USD whereas for Southern and Mediterranean Europe is 750 USD. In terms of Country Rankings related to International Tourism Receipts, USA, France and Spain are also top countries. USA generates 211 billion USD revenue with 77 million arrivals.

Middle East Region attracted 58 million tourists and generated 68 billion USD in 2017. Saudi Arabia and United Arab Emirates have the shares almost 27 percent separately in terms of arrivals. Egypt ranks as the third main destination in the region with a share 14 percent. The share of Lebanon is 3.2 percent. On the other hand, in terms of international tourism receipts United Arab Emirates has the biggest share with a ratio 31 percent. Saudi Arabia ranks with share 17.8 percent. Egypt and Lebanon follow those two countries with approximately 11 percent.

The main purpose of the study is estimating the effects of visiting countries GDP and real exchange rates of host countries on international tourist arrivals to Turkey. Within this framework, next section discusses the empirical literature of tourism demand. Following section
discusses the methodology of this study to measure tourism demand of Turkey and presents our preliminary empirical results. Conclusion part covers a short assessment of this study.

**Literature Review**

The empirical literature on tourism demand analysis mainly divided into two categories about which variable will be chosen as an indicator of international tourism. Studies from the first category have employed international tourism receipts as dependent variable and the studies from second category have utilized international tourist arrivals. According to Ahmed (2014), among 400 previous studies, share of international tourist arrivals as dependent variable is %43 and share of international tourism receipts is %26. This study will add to the first category. Real GDP and exchange rates steps forward in the literature as independent variables to capture income and relative price effects according to Lim (1999), Peng et al. (2014) and Ongan et al. (2017). As an example, Dristakis (2004), in order to explain the German and British tourism demand for Greece, has employed cointegration analysis by using tourist arrivals as dependent variable and real GDP per capita, tourism prices, transportation cost, exchange rates as independent variables. Dristakis (2004) found that real GDP per capita and tourism demand are negatively related for Germany and Great Britain.

Another example is Leitao (2009). That study employed static and dynamic panel data models comparatively with each other for explaining Portuguese tourism demand. Results suggested that there is a positive relationship between real GDP growth and tourism demand. Besides when relative prices of destination country fall with respect to tourist generating country, tourism demand for Portugal increases. Surugiu et al. (2011) utilized panel data approach to estimate European countries tourism demand for Romania and they found that trade, population and income are more important variables than distance and relative prices. Habibi et al. (2011) applied dynamic panel data analysis to reveal European tourism demand for Malaysia. In this sense, they found that, income and relative prices are positively effects tourism demand for Malaysia. Kusni et al. (2013) employed panel data approach to investigate the tourism demand for Malaysia from OECD countries and their estimation results suggest that relative price changes have statistically significant effect on tourism demand for Malaysia. On the other hand, real income changes in OECD countries does not affect tourism demand. Yazdi et al. (2016) utilized gravity approach under panel data framework for tourism demand for USA. According to their estimation results, real GDP have positive and real exchange rates have negative effect on the tourism demand for USA. Ongan et al. (2017) employed common correlated effect method under panel data framework to investigate seven European countries tourism demand for USA. According to their estimation results, real exchange rates have bigger impact than real GDP on tourism demand for USA.

As an example of empirical studies on tourism demand for Turkey, Halıcıoğlu (2004) employed ARDL method under time series framework to capture tourism demand for Turkey. According to estimation results, income has positive effect on international tourist arrivals and it is the most important factor in explaining the tourism demand. Saray et al. (2010) utilized gravity approach under panel data framework to determine which factors affect tourism demand for Turkey. According to their estimation results, real GDP per capita, population and distance have positive and significant impact on tourism demand for Turkey. Ketenci (2010) employed panel data approach for explaining 14 European countries tourism demand for Turkey and found that effect
of income on tourism demand for Turkey is more significant than relative prices. Fidanboy (2018) applied gravity approach under panel data framework to capture main determinants of tourism demand for Turkey. Also, this study extends the familiar model which in use at the gravity framework literature by adding political variables such as terror and democracy index. According to estimation results, real GDP and relative prices have significant impact on tourism demand for Turkey. On the other hand, political variables are statistically insignificant.

Data, Econometric Methodology and Empirical Results

Data

In order to capture tourism demand, two variables stand out in literature: international tourism receipts and international tourist arrivals. However, because of the fact that international tourism receipts data does not available in the country-to-country breakdown for each case, we used international tourist arrivals as dependent variable in this study. Real GDP with constant local prices and real exchange rate between tourist generating country and destination country variables are used as dependent variables. In this context, international tourist arrivals data for Turkey between 2002Q1-2017Q4 obtained from Turkish Statistical Institute (TURKSTAT). Moreover, real GDP and real exchange rate data received from IMF’s International Financial Statistics Database (IFS) and CEIC Data respectively. On the other hand, all of the variables mentioned above contain seasonality therefore by using TRAMO/SEATS method we eliminated seasonal patterns before estimation process. Finally, dataset consists of 65 countries.

Methods and Empirical Results

The methods used in applied panel data analysis literature mostly consists of micro level datasets, more explicitly small time dimension - large cross-section units (small T, large N). In models based on this type of data, the assumption of cross-sectional independence might be reasonable, however at macro level datasets where the cross-section dimension represented by countries or states and time dimension at least as large as cross-section units, it is more plausible that thinking of there is correlation among cross-section units (Eberhardt, 2012).

In this context, under cross-section dependency by assuming following simple model, where; \( t = 1, \ldots, T \) and \( i = 1, \ldots, N \)

\[
\begin{align*}
y_{it} &= \beta_i x_{it} + u_{it} \\
u_{it} &= \gamma_{1i} + \lambda_i f_t + \epsilon_{it} \\
x_{it} &= \gamma_{2i} + \lambda_i f_t + \delta_i z_t + \epsilon_{it}
\end{align*}
\]  

where \( x_{it} \) and \( y_{it} \) are observable dependent and independent variables respectively, \( \beta_i \) is the country specific slope of the independent variable. On the other hand, it can be seen from the equation (2) \( u_{it} \) contains time-invariant heterogeneity across groups \( (\gamma_{1i}) \) and unobservable time-variant heterogeneity with cross-section dependence \( (\lambda_i f_t) \) which means the presence of \( f_t \) directly cause arises out endogeneity problem. In this sense, common correlated effects (CCE) mean group estimator which developed by Pesaran (2006) solves this problem by adding cross section averages of dependent and independent variables \( (\bar{y}_t \text{ and } \bar{x}_t) \) as additional regressor to
the model. Thus, by this innovation biasing impact of unobservable common factor can be cancelled out (Eberhardt, 2012). Besides, with this method, it is also possible to make individual interpretations of the specific cross-section units, namely countries.

Within this context, in this study we followed CCE methodology to examine the income and price effects on tourism demand. Following equation represents our base model,

\[
\log(\text{tourist})_{it} = A_{it} + \alpha_1 \log(r_{gdp}) + \alpha_2 \log(r_{er}) + \epsilon_{it}
\]  

(4)

Before the estimation process, the existence of cross-section dependency has tested. Table 1. illustrates this test results for Turkey.

Table 1. Cross Sectional Dependence (CD) Test for Variables

| Variables  | CD Test  | p-value |
|------------|----------|---------|
| log(tourist) | 198.150  | 0.000   |
| log(r_{gdp}) | 246.730  | 0.000   |
| log(r_{er})  | 164.470  | 0.000   |

As we can see from the Table 1., cross sectional dependence test results assure that we can reject to null hypothesis which assumes cross sectional independence. Similarly, CD test results for the regression model from Table 2. ensures that there is cross sectional dependence in all model specifications.

Table 2. Cross Sectional Dependence Test for Model

Model : \[
\log(\text{tourist})_{it} = A_{it} + \alpha_1 \log(r_{gdp})_{it} + \alpha_2 \log(r_{er})_{it} + \epsilon_{it}
\]

| CD Test | p-value |
|---------|---------|
| 6.28    | 0.000   |

As a second step before the estimation, we employed Covariate Augmented Dickey Fuller (CADF) test to determine the variables are stationary or not. According to test results, which can be seen at Table 3., all variables are difference stationary processes, in short I(1).

Table 3. Covariate Augmented Dickey Fuller (CADF) Test Results

| Constant Variables | Statistic | p-value | Constant + Trend Variables | Statistic | p-value |
|--------------------|-----------|---------|-----------------------------|-----------|---------|
| log(tourist)       | -1.254    | 1.000   | log(tourist)                | -2.344    | 0.524   |
| log(r_{gdp})       | 0.794     | 0.786   | log(r_{gdp})                | 2.773     | 0.997   |
| log(r_{er})        | 3.553     | 1.000   | log(r_{er})                 | -1.022    | 0.153   |
| \Delta log(tourist) | -4.525    | 0.000   | \Delta log(tourist)         | -4.643    | 0.000   |
| \Delta log(r_{gdp}) | -16.752   | 0.000   | \Delta log(r_{gdp})         | -14.953   | 0.000   |
| \Delta log(r_{er}) | -18.875   | 0.000   | \Delta log(r_{er})          | -17.443   | 0.000   |

Table 4. Westerlund Panel Cointegration Test Results

| Statistic | Value | Robust p-value |
|-----------|-------|----------------|
| \hat{g}_{tau} | -1.898 | 1.000          |
| \hat{alpha}  | -8.517 | 0.990          |
| \rho_{tau}   | -14.804 | 0.880         |
| \rho_{alpha} | -8.238 | 0.740          |

As a last step before estimation, we examine cointegration relation between variables with Westerlund test for choosing appropriate model is panel ECM or not. According to test results from Table 4, we failed to find cointegrated relation between variables in the long run. Therefore, to achieving non-stationarity we took first difference of the series.
By taking first difference of logarithmic variables our variables in the base model, turned into terms of percentage change. From this point we employed CCE method to this short-run model to explain tourism demand. Model results can be seen at Table 5. According to the results, model implies that at the general level real GDP growth of tourist generating country has no effect on the percentage change of international tourist arrivals to destination country. On the other hand, real exchange rate growth which means that destination country getting cheaper from tourist generating countries perspective, has positive effect on growth of international tourist arrivals. More explicitly, a %1 increase in the real exchange rate growth leads to %0.32 increase in international tourist growth.

Table 5. Common Correlated Effects (CCE) Estimation Results

| Variables         | Coefficient | Std. Err. | z    |
|-------------------|-------------|-----------|------|
| Δlog(tourist)     | A_1 + α_1Δlog(rgdp)_t + α_2Δlog(rer)_t + ε_t |
| Δlog(rgdp)        | -0.194      | 0.253     | -0.77|
| Δlog(rer)         | 0.318***    | 0.071     | 4.50 |
| RMSE              | 0.146       |           |      |
| N                 | 3,740       |           |      |

*, **, *** are indicates %10, %5 and %1 significance levels respectively.

Table 6. shows the country specific coefficient estimations for Turkey from the model at Table 5. According to this, real GDP growth of tourist generating countries such as Lithuania, Malaysia, Romania, South Korea and Ukraine have positive effect on international tourist arrivals growth in Turkey. Real GDP growth negatively affect tourist arrivals from countries such as Australia, Hong Kong and Italy. As those countries are mostly high-income group of countries, further increase of income would lead the consumers of those countries to diversify their demand and also move more expensive destinations. On the other hand, in line with theoretical expectations, real exchange rate growth has positive effect on tourist arrivals from countries like Brazil, China, Georgia, Greece, Ireland, Israel, Kenya, Lithuania, Netherlands, Poland and USA to Turkey.

Conclusions

In this study, we attempted to estimate the effects of visiting countries real GDP and real exchange rates on tourism demand for Turkey. To achieve this aim, we applied panel data framework and as a key contribution to literature, we employed common correlated effects (CCE) approach by taking into account cross-sectional dependence between countries, in the light of Pesaran (2006). According to results of the study, we found that real exchange rates between tourist generating country and destination country has more important impact than visiting countries GDP (income) and positively affect tourism demand for Turkey in generalized level. From the country specific estimation part, real income has negatively affect tourism demand of high-income countries to Turkey. On the other hand, effect of real exchange rates does not contain any distinction about high- or low-income countries tourism demand. In addition, we utilized Westerlund panel cointegration test and we fail to find any long-run relationship between variables which affect to tourism demand.
As a result, Turkey is one of the major tourism destinations in Mediterranean Region and as is discussed in the introduction part, Southern and Mediterranean Europe has the largest share in the World Tourism as well. That also raises the importance of tourism on Turkish Economy. As tourism is expected to grow faster than many other sectors in the next coming decades, the importance of the sector will rise for growth and development of the two country. Country specific policies at micro level to attract tourists will be much more important in forming tourism policies. There will of course be several factors to form country specific policies. This study discussed the GDP growth of tourist generating country and relative price of the destination country. Relative price of the destination country seems to be much more matter than the income of the origin country. As one cannot control the income growth of the origin countries, pricing policy of the destination country seems to be an important tool of tourism policy. Creating alternatives and / or price discrimination would be considered at micro level tourism policies.

Table 6. Country Specific Coefficient Estimates for Turkey

| Country          | ∆log(gdp) | ∆log(reer) | Country          | ∆log(gdp) | ∆log(reer) | Country          | ∆log(gdp) | ∆log(reer) |
|------------------|-----------|------------|------------------|-----------|------------|------------------|-----------|------------|
| Albania          | -0.332    | 0.113      | Hungary          | 0.294     | 0.341      | Poland           | 1.630     | 0.721*     |
| Armenia          | -0.018    | 0.184      | Iceland          | -0.006    | -0.096     | Portugal         | 0.680     | 0.659      |
| Australia        | -2.175*   | 0.679      | India            | -1.18     | 0.265      | Qatar            | -1.620    | 0.065      |
| Austria          | -2.994    | 0.011      | Indonesia        | -1.905    | -0.079     | Romania          | 0.813*    | 0.557*     |
| Belgium          | 0.270     | 0.670      | Ireland          | 0.152     | 0.941*     | Russia           | 2.865     | 0.055      |
| Bosnia and Herz. | 0.485     | 0.146      | Israel           | -1.052    | 3.562**    | Saudi Arabia     | -0.022    | 0.034      |
| Brazil           | 2.047     | 0.835***   | Italy            | -5.410**  | -0.311     | Serbia           | 0.251     | -1.149     |
| Bulgaria         | -0.511    | 0.427      | Japan            | 2.638     | 0.426      | Singapore        | 0.187     | 0.230      |
| Canada           | -3.163    | 0.142      | Kenya            | 2.775     | 0.985*     | Slovakia         | -0.005    | 0.088      |
| Chile            | -3.920    | 0.462      | Kyrgyzstan       | -0.257    | 0.066      | Slovenia         | -0.630    | 0.853      |
| China            | -1.403    | 2.004*     | Latvia           | 1.009     | 0.386      | South Africa     | -5.282    | -0.330     |
| Croatia          | -1.965    | 1.556      | Lithuania        | 2.032**   | 1.794**    | South Korea      | 6.484*    | 1.141      |
| Czech Republic   | 2.601     | 0.349      | Luxembourg       | -3.702    | -2.143     | Spain            | 6.442     | -0.566     |
| Denmark          | -0.485    | 0.128      | Macedonia        | -0.549    | -0.012     | Sweden           | -1.687    | 0.054      |
| Egypt            | 1.160     | -0.512     | Malaysia         | 1.892***  | 0.800      | Switzerland      | -4.453    | 0.365      |
| Estonia          | -1.501    | 0.487      | Mexico           | -0.143    | -0.752     | Thailand         | -0.577    | 1.598      |
| Finland          | -1.891    | 0.258      | Moldova          | -0.527    | -0.229     | Tunisia          | 0.557     | -0.04      |
| France           | 4.694     | 0.653      | Morocco          | 0.690     | -1.527     | USA              | -0.365    | 0.729**     |
| Georgia          | 0.663     | 0.627**    | Netherlands      | -1.560    | 1.059*     | Ukraine          | 0.899***  | 0.131      |
| Germany          | -0.126    | 0.429      | New Zealand      | -0.720    | 0.085      | United Kingdom   | 0.557     | -0.112     |
| Greece           | 0.610     | 1.150*     | Norway           | -1.390    | 0.415      | Venezuela        | 2.080     | 0.265      |
| Hong Kong        | -13.552*  | -0.700     | Philippines      | -3.099    | -0.090     | Positive Relationship |

T statistics are given in parenthesis. Also; *, **, *** are indicates %10, %5 and %1 significance levels respectively.
Studies on different factors in attracting tourists at country specific and at micro level analysis would contribute a lot in forming productive tourism policies.

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