

Empirical examination of the determinants of Cyprus tourist arrivals

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Abstract

Tourism is defined as the commercial organization and operation of holidays to locations of interest. This paper analyses the economic, social and political factors which influence the demand for tourism in Cyprus. The empirical analysis is based on a dynamic panel model which examines seven forms of gravity models. The results of all seven estimations have proven that lagged tourist arrivals and GPD per capita are the main determinants of tourist arrivals, whereas for trade the results are ambiguous. The outcome of this research is mostly in line with the theoretical literature, elucidating a general explanation for the patterns of foreign tourist flows. Data includes a sample of 37 countries from 2008 to 2014, except the third estimation that includes a sample of 55 countries from 1996 to 2014.

1. Introduction

World Tourism Organization (2000) forecasted that tourist arrivals in Europe would expand from 338.4 million in 1995 to 717 million in 2020, with an annual growth rate of 3 per cent. Despite the credit crunch, according to WTO (2018) tourist arrivals in Europe reached approximately 670 million in 2017. KPMG (2017) reported that tourism is one of the most critical sources of Cyprus wealth, as its contribution to Cyprus GDP corresponded to 6.4 per cent. The increase in tourist arrivals has been a long term strategy for Cyprus. Kerry B. Godfrey (1996) mentioned that the organised effort to ameliorate Cyprus tourism product, such as with the creation of Cyprus Tourism Organization in 1969, proved critical for the country's economy. However, tourist arrivals have shown significant volatility over the years. In 2001, total tourist arrivals amounted to 2.70 million, a number that was exceeded in 2016, by only reaching 3.19 million.

The paper tries to empirically identify the determinants of tourist arrivals in Cyprus, based on data that includes 55 and 37 countries, which in 2014 constituted more than 98 per cent and 90 per cent of the total tourist arrivals to the country, respectively. The estimation of seven gravity models is used to identify the effect of nine independent variables on the dependent variable, which is the inbound tourist arrivals.

The paper attempts to differentiate itself from the previous theoretical literature, by including an increased number of countries and by testing a new variable, which is the competitive price. The competitive price is examined in relation to Cyprus tourism product competitors, namely Croatia, Greece, Malta and Portugal. The empirical results have proven that GDP per capita, lagged tourist arrivals and trade are the main factors which influence the demand for tourism in Cyprus, while it is worth to mention that their coefficient changes according to the period that is being examined. Relative prices are statistically significant only with the inclusion of the competitive prices in the same estimation.

2. Empirical Literature

Different forms of gravity models appear in the bibliography. Den Butter et al. (2014) uses the model below, based on the argument that lagging the lagged dependent variable by two or more periods forms a valid instrument for the variable. Differencing procedure eliminates the unobserved country's specific effects. With first differencing, non-stationery of all variables is removed.

Den Butter et al. (2014) gravity model:

$$\Delta \ln TA_{b,t} = \beta_1 \Delta \ln TA_{b,t-1} + \beta_2 \Delta \ln GDP_{b,t} + \beta_3 \Delta \ln TRV_{b,t} + \beta_4 \Delta \ln Dis_{b,t} + \beta_5 \Delta \ln RP_{b,t} + \Delta \varepsilon_{b,t}$$

Symbol interpretation:

$\Delta \ln TA_{b,t}$ = Total tourist arrivals from country B to country A at time t

$\beta_1 \Delta \ln TA_{b,t-1}$ = Lagged total arrivals from country B to country A at time t

$\beta_2 \Delta \ln GDP_{b,t}$ = GDP per capita of country B at time t

$\beta_3 \Delta \ln TRV_{b,t}$ = Trade volume between country A and country B at time t

$\beta_4 \Delta \ln Dis_{b,t}$ = Distance between country A and country B at time t

$\beta_5 \Delta \ln RP_{b,t}$ == Relative prices between country A and country B at time t

$\Delta \varepsilon_{b,t}$ = Error term

Furthermore, Keum (2008) examined the aggregate tourist flow and the sub-flows, indicating direction and purpose. The model takes a log-linear form.

Keum (2008) gravity model:

$$\ln(Tourism_{abt}) = \beta_0 + \beta_1 \ln(GDP_{at}) + \beta_2 \ln(GDP_{bt}) + \beta_3 \ln(DIS_{aj}) + \beta_4 \ln(LD_{abt}) + \psi_{abt}$$

Symbol interpretation:

$\ln(Tourism_{abt})$ = Tourism between countries A and B at time t

β_0 = Constant

$\beta_1 \ln(GDP_{at})$ = The real gross domestic product of country A at time t

$\beta_2 \ln(GDP_{bt})$ = The real gross domestic product of country B at time t

$\beta_3 \ln(DIS_{aj})$ = Distance between the capital cities, measured in nautical miles

$\beta_4 \ln(LD_{abt})$ = Linder variable, which is the difference between a pair of countries' real GDP per capita.

ψ_{abt} = Error term

A gravity model is used to examine which determinants are statistically significant. Tinbergen (1962), in an effort to examine the bilateral trade between Britain and the Benelux, introduced the modern form of a gravity model. The initial gravity model included the distance factor as having an inverse relation with trade.

Tinbergen equation (1962):

$$T_{A,B} \propto \frac{(Y_A)^\alpha (Y_B)^\beta}{(Dist_{AB})^\zeta}$$

Symbol interpretation:

T_{AB} = Volume of trade

Y_A = GDP of country A

Y_B = GDP of country B

$Dist_{AB}$ = Distance between countries A and B

Based on Tinbergen (1962), the classical, simplified equation of a gravity model takes the form of a fraction. It consists of the numerator, which is the product of the Gross Domestic Product (Y) of country A (Y_A)^α and country B (Y_B)^β. The denominator refers to the distance between the countries A and B ($Dist_{AB}$)^ζ. The greater the product of country A's GDP and country B's GDP, the less of an obstacle to their bilateral trade would be their distance between them.

The empirical literature suggests a variety of factors that influence Cyprus tourist arrivals, some of which are included below.

1. Tourist arrivals: There is inconsistency as to how economic analysts define the term. One side of the bibliography, which includes Kiyong Keum (2008), Naude and Saayman (2005), supports that inbound tourist arrivals should be defined as the total number of non-residents tourists in the examined country. On the other side, Leitao (2010) suggests that tourist arrivals should be defined as the number of arrivals of residents and non-residents at tourist accommodation establishments. For the purpose of this research, the first method has been chosen, as it is the only type of data available for the examined period by the Cyprus Statistical Service. Den Butter et al. (2014) supported that lagged tourist arrivals, is a determinant of tourist arrivals and its coefficient has a positive sign.

2. Trade: It is supported that the existence of trade between the destination country and the tourists' origin country, helps the promotion of each other's tourism product and leads to an improvement in their transport connections (see Eilat and Einav, 2004; Leitao 2010 for more information). As a result, in an estimation it is expected that trade and tourist arrivals will be proved to have a positive relation.

3. Relative Prices: In many literature streams, including Morley (1994), the comparison between the living costs in the destination country and the origin country of tourists are a determinant of tourist arrivals. However den Butter et al. (2014), in their examination of the factors that influence tourist arrivals in Greece, a country that is geographically close to Cyprus, have rejected the statistical significance of relative prices.

4. GDP per capita: Personal income can determine the ability of a tourist to visit a particular tourist destination or follow a certain type of tourism. Keum (2008) discovered a positive relation between GDP per capita and tourist arrivals, which means that tourists choose to spend their holidays in countries where the existing incomes are similar to their own countries.

5. Polity: According to Naude and Saayman (2005), political stability, freedom and rights influence and have a positive relation with inbound tourist arrivals. Alternatively, politically instable countries, which experience destabilized governments and internal violence, are unattractive to tourists. Peter Rosendorff (2000) stated that a country's level of democracy affects its volume of trade. He added that democratic countries advocate the liberalization of trade, which allows them to trade even more. Even though Cyprus has been receiving most of its tourist arrivals from EU countries, which according to the latest data they score a relatively higher polity index, due to the geographical position of the country, the specification employed and the time horizon analysed, the statistical significance of this variable and its coefficient could be uncertain.

3. Methodology

The model was estimated using Arellano and Bond (1991)¹. All variables entered the specification in year-on-year changes (except for the case of polity index), in order to avoid any seasonality effects. Given the limited data for the Cyprus pound exchange rate, estimations that include relative and competitive prices are based on data that spans from 2008 to 2014. All variables were tested for stationarity, using Fisher-type unit-root test (see Maddala et al. 1999 for more information), which is based on the Augmented Dickey Fuller unit-root test and takes into consideration the inverse-chi squared. Inverse chi-square shows a random set of probabilities, which would return high number. All variables that are included in the test, are expressed in levels, except polity index which is stationary, only if the first difference is applied. As table 2 depicts, p-value for all variables is smaller than 1 per cent, which indicates that there are no unit roots in the panel under the test conditions

Table 1: Stationarity Test: Fisher unit-root test

	Statistic	P-value		Statistic	P-value
Tourist Arrivals	233.50***	0.000	CP - Croatia	150.81***	0.000
Trade	2546.79***	0.000	CP - Greece	188.57***	0.000
GDP per capita	4498.77***	0.000	CP - Malta	162.27***	0.000
Polity <i>Lagged - 1</i>	424.33***	0.002	CP - Portugal	296.48***	0.000
Relative Prices	198.88***	0.000			

1. Null Hypothesis: variable has a unit root

2. *, **, *** indicate a level of significance of 10%, 5% and 1% respectively, using McKinnon (1996) one sided p-values

¹ The software package used was STATA.

Therefore the final equation is:

$$\begin{aligned} \ln(\mathbf{TourstArrivals}_{abt}) = & \beta_0 + \beta_1 \ln(\mathbf{TouristArrivals}_{ab,t-1}) + \beta_2 \ln(\mathbf{Trade}_{abt}) \\ & + \beta_3 \ln(\mathbf{GDP\ per\ capita}_{bt}) + \beta_4 \mathbf{Polity}_{bt} + \beta_5 \ln(\mathbf{RelativePrices}_{bt}) \\ & + \beta_6 \ln(\mathbf{CompetitivePrices}_{bt}) + \varepsilon_{abt} \end{aligned}$$

Dependent Variable:

TourstArrivals_{abt}: Tourist arrivals in Cyprus from country B. Tourist arrivals are measured in thousands of people and country B is defined as tourists' country of usual residence. For the purposes of this analysis, a year-to-year change in tourist arrivals is used (Source: Cystat, author's own calculations).

Independent Variables:

TourstArrivals_{ab,t-1}: Tourist arrivals in Cyprus from country of B, lagged by one period. A year-to-year change in lagged tourist arrivals is used (Source: Cystat, author's own calculations).

Trade_{abt}: Trade is measured as the total sum of imports and exports between Cyprus and the country B, with 2010 as a base year. For the purpose of this analysis, a year-to-year change in the total bilateral trade is used (Source: International Trade Organization, author's own calculations).

GDP per capita_{bt}: GDP per capita is the quotient of foreign country B' Gross Domestic Product over its total population. GDP is expressed in millions of dollars, with 2010 as a base year. For the purpose of this analysis, a year-to-year change in the GDP per capita of country B is used (Source: World Development Indicators, author's own calculations).

Polity_{bt}: Polity index it is calculated based on the existence of pluralism and democracy within a country, using a numerical scale that ranges from -10 to 10. Number 10 corresponds to the existence of full transparency, alternative choices of governance, freedom of press and the highest level of political participation (Source: Polity IV Annual Time-Series, author's own calculations).

RelativePrices_{bt}: It is the quotient of Consumer Price Index of Country A ($CPI_{a,t}$) over the numerator, which is the product of Consumer Price Index of origin country B ($CPI_{b,t}$) and the exchange rate between country A and B ($EX_{b,t}$). It is measured in year-to-year changes (Source: OECD, World Bank, author's own calculations).

$$RelativePrices_{b,t} = \frac{CPI_{a,t}}{CPI_{b,t}EX_{b,t}}$$

CompetitivePrices_{bt}: It is the quotient of Cyprus' consumer price index over its competitors, by using 2010 as a base year. According to Ron Ayres (2000), small countries and in particular island economies, perceive tourism as a convenient and less costly option to drive socioeconomic improvement. Jafari (1990) and Harrison (1992) stated that small countries, which proportionally receive more tourists, face the same challenges and uncertainties if they become over dependent on tourism as a source of income. Challenges could be economic, environmental, social and cultural. For the purpose of examining the competitive prices, four southern European countries have been used, which are considered to offer similar tourism product to Cyprus, namely Croatia, Greece, Malta and Portugal. A negative sign is expected for both Relative Prices and Competitive Prices (Source: European Central Bank, OFX, OECD, World Bank, author's own calculations).

$$CompetitivePrices_{b,t} = \frac{CPI_{Cyprus,t}}{CPI \frac{Croatia,t}{\frac{Greece,t}{\frac{Malta,t}{Portugal,t}}}}$$

Generalized Method of Moments (GMM) Arellano and Bond (1991)

The most suitable method for estimating parameters for a dynamic panel model, which examines a short period of time for a large number of countries, specifically the periods 1996-2014 and 2008-2014 for 55 and 37 countries, respectively, is the generalized method of moments (GMM) Arellano and Bond. Unobservable heterogeneity leads to the formation of a lagged model. A typical regression appears to create a bias problem between the mean difference of the estimators and the error term, due to the correlation of the estimators. Arellano and Bond is considered to be an effective solution to the bias problem.

The typical econometric model with which Arellano and Bond can be estimated is the following:

$$y_{it} = \delta y_{i,t-1} + \chi'_{it} \beta + \varepsilon_{it}$$

Symbol interpretation:

y_{it} = Depended variable

$\delta y_{i,t-1}$ = Degree of correlation between the dependent variable with the value of its lag over the period of time t-1

χ'_{it} = Vector $1 \times K$ independent variables with $I = 1, 2, \dots, N$, $t = 1, 2, \dots, T$

β = Vector $K \times 1$ of estimated parameters

ε_{it} = Error term

The error term is written as:

$$\varepsilon_{it} = \mu_i + u_{it}$$

μ_i = Individual unobserved impacts

u_{it} = Original random error term

4. Descriptive Statistics

Table 2 below includes descriptive statistics for the variables that were proven to be stationary through Fisher-type unit-root test.

Table 2: Descriptive statistics

	Mean	Min	Max	Observations	Standard Deviation
Tourist Arrivals	47205	0	1486703	1055	167651.7
Trade	37.29	1	3198.9	8275	144.4
Relative Prices	0.547	0.003	1.493	266	0.427
GDP per capita	9924.09	93.029	195456.9	8754	16627.1
Polity	0.79	-10	10	8093	7.4

Chart 1 depicts the total tourist arrivals of Croatia, Cyprus, Greece, Malta and Portugal. Despite their population differences, in 2007 the range of tourist arrivals of non-residents at tourist accommodation establishments was approximately 7 million, whereas in 2017 the range of tourist arrivals surged to approximately 16 million. This shows a variability of trends during the examined period.

Chart 1: Total arrivals of non-residents at tourist accomodation establishments (Period: 2007-2017)
Source: Eurostat

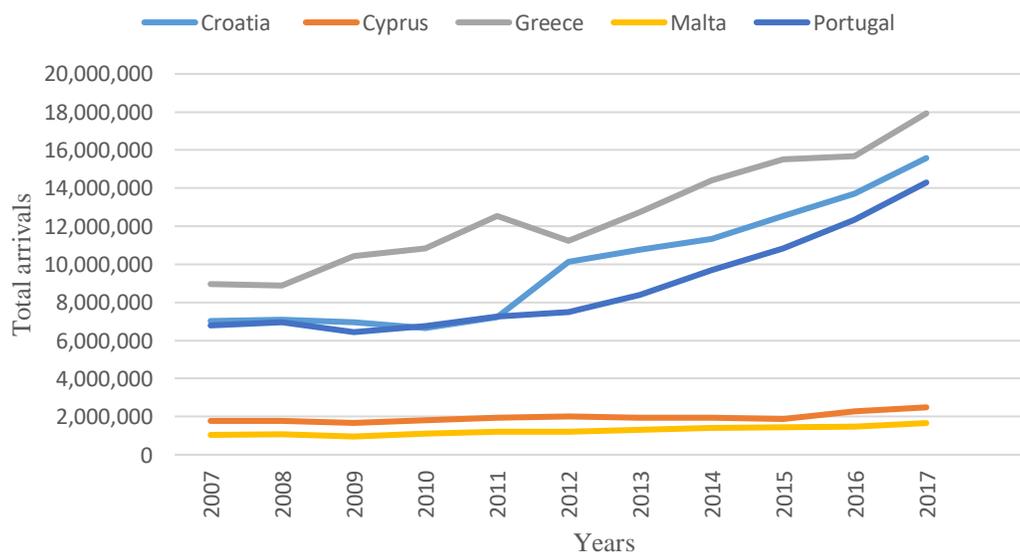


Chart 2 depicts the changes in total arrivals of non-residents from 2008 to 2017 and it can be inferred that Cyprus from 2008 to 2012 enjoyed relatively higher positive changes in its tourist arrivals than most of the examined countries, whereas for the following three consecutive years, 2013-2015, it suffered negative changes to its arrivals. It should be noted, that despite experiencing a negative change in its total arrivals in 2011, Croatia achieved a 40 per cent increase in its tourists' arrivals in 2012, a relatively high percentage during a period that was being affected by the recent economic crisis.

Chart 2: Change in total arrivals of non-residents at tourist accomodation establishments, expressed as a percentage (Period 2008-2017)

Source: Eurostat, author's own calculations

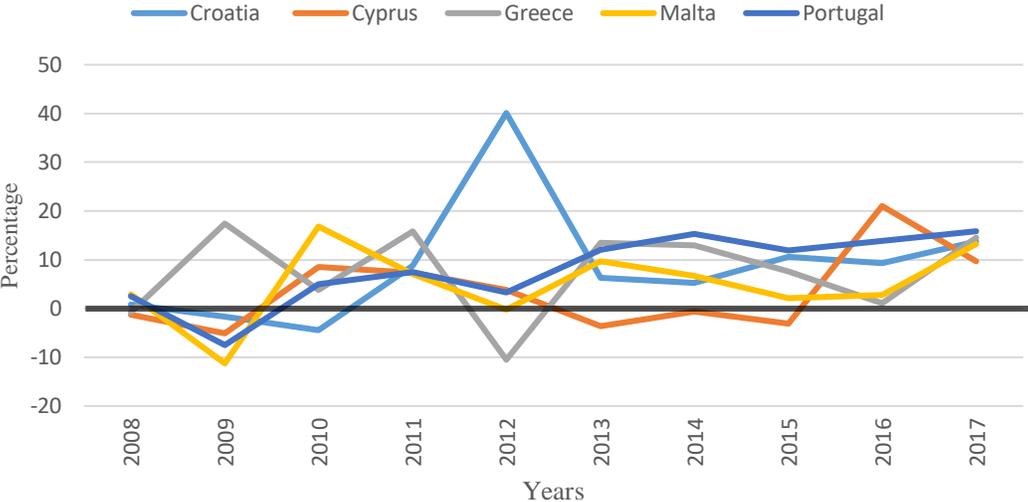


Chart 3 and 4 depict the main origin countries of Cyprus tourist arrivals in 2008 and 2014, respectively. In 2008, more than 65 per cent of the total tourist arrivals corresponded to arrivals from four EU countries, namely the UK, Germany, Greece and Sweden. Notably, in 2008 tourist arrivals from the UK corresponded to more than 50 per cent of the total tourist arrivals. However, in 2014 the four EU countries' share dropped to less than 50 per and UK's share shrunk to approximately 35 per cent of the total tourist arrivals. This phenomenon can be related to the increase of tourist arrivals from Russia and other countries. The changing pattern of tourist arrivals suggests that loyal customers to Cyprus tourism product had not been visiting the island on an annual basis from 2008 to 2014, thus it could be predicted that lagged tourist arrivals would be less statistically significant in an estimation.

Chart 3: Main origin countries of tourist arrivals - 2008

Source: Cystat, author's own calculations

■ UK ■ Germany ■ Greece ■ Russia ■ Sweden ■ Other countries

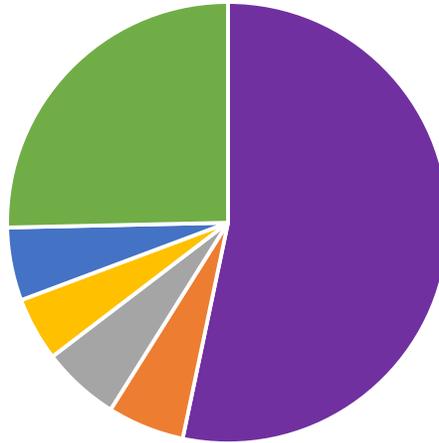
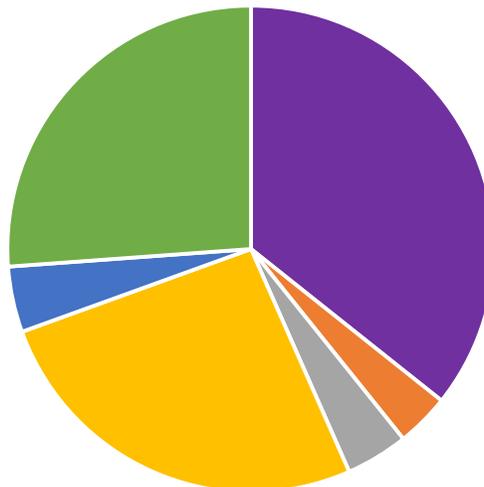


Chart 4: Main origin countries of tourist arrivals - 2014

Source: Cystat, author's own calculations

■ UK ■ Germany ■ Greece ■ Russia ■ Sweden ■ Other countries



Charts 5 and 6 separate tourist arrivals into age groups, expressed as a percentage. Although, during this period there has been a rise of tourists for the age groups 20-31 and 32-44, against the other two groups, percentage which corresponds to each of the four groups remained relatively constant. The little variations of the percentages between 2008 and 2014 is strengthening the prediction that lagged tourist arrivals would be statistically significant.

Chart 5: Inbound tourist arrivals in 2008 by age group

Source: Cystat, author's won calculations

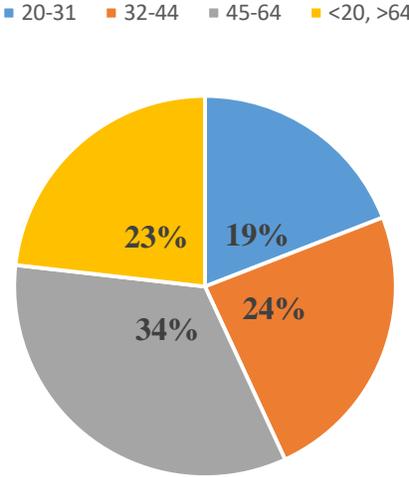
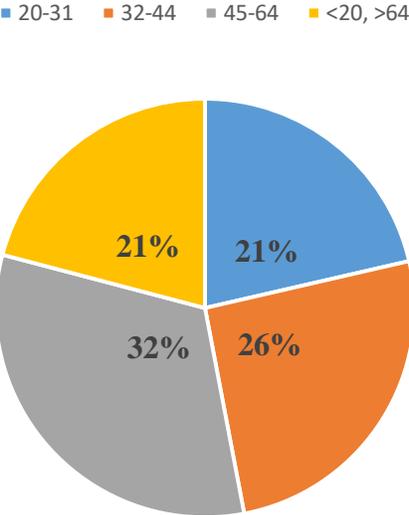


Chart 6: Inbound tourist arrivals in 2008 by age group

Source: Cystat, author's won calculations



Before proceeding with the econometric analysis, simple correlation coefficients between the tourist arrivals and the different variables are available in the plots below, calculated for the period 2008-2014. The variables with the highest simple correlation coefficients are as follows: trade volume, inflation and GDP. It is worth to mention, that the positive coefficient between the level of inflation and the tourist arrivals suggests that Cypriot tourism product is a luxury or normal good, despite the deviation that can be observed in 2014.

Chart 7: Change in trade volume and tourist arrivals, expressed as a percentage.

Correlation = 0.69

Sources: Eurostat, OEC, author's own calculations

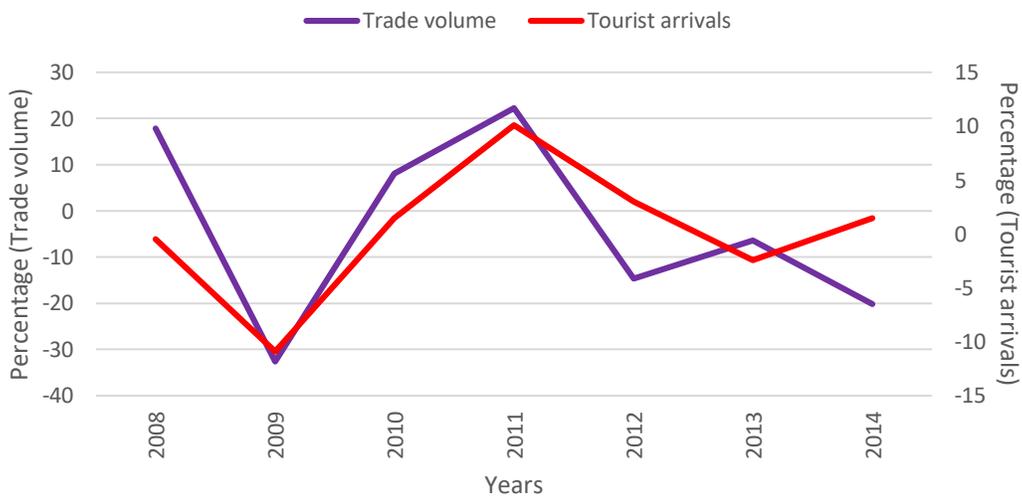


Chart 8: Inflation (CPI, base year 2010) and change in tourist arrivals, expressed as a percentage.

Correlation = 0.41

Sources: Cystat, author's own calculations

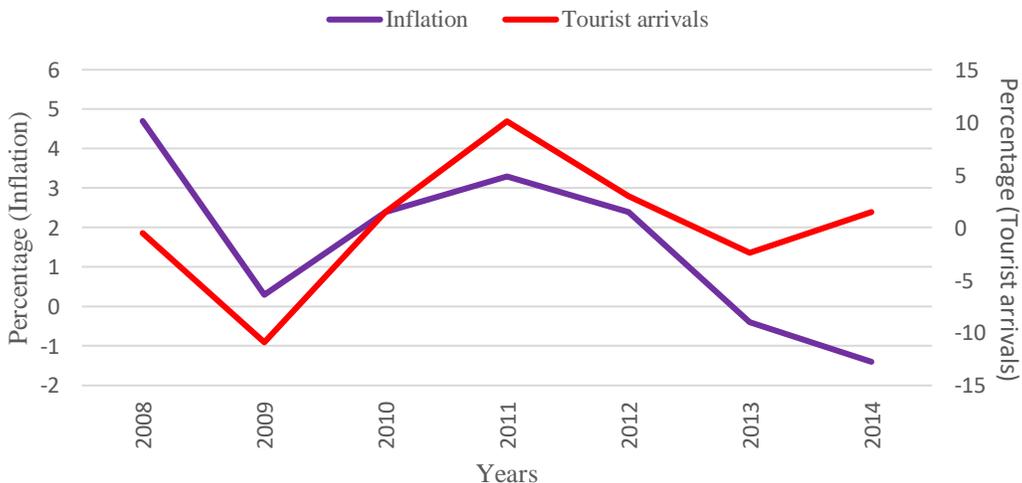
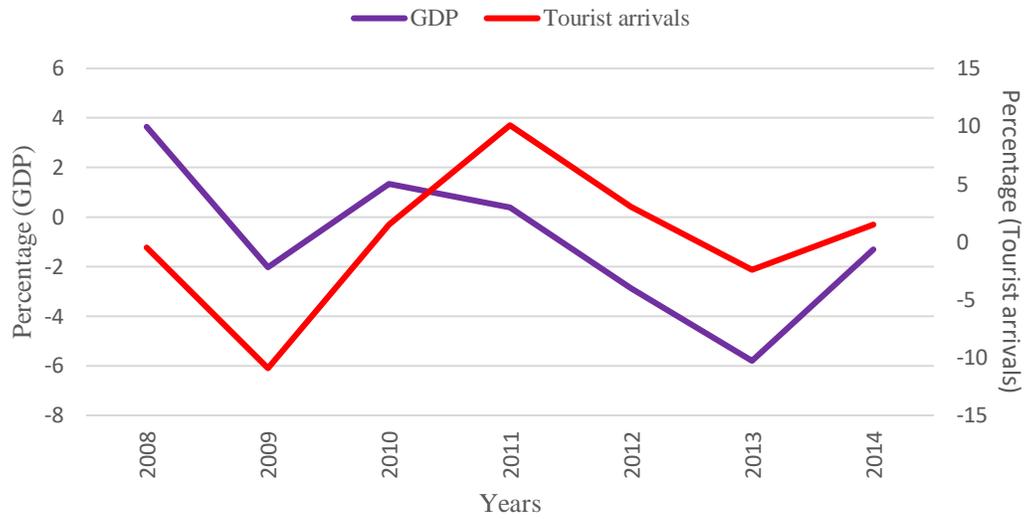


Chart 9: Change in GDP and tourist arrivals, expressed as a percentage.

Correlation = 0.27

Sources: Eurostat, Cystat, author's own calculations



5. Results and Analysis

The statistical significance of the following explanatory variables was examined. All variables enter the regression in year-on-year percent change, except from polity, for which an index was used.

Table 3: Estimation results

	Model 1	Model 2	Model 3
	Tourist Arrivals	Tourist Arrivals	Tourist Arrivals
<i>ln</i>Tourist Arrivals <i>Lagged</i>	0.158*** (0.061)	0.158*** (0.007)	0.387*** (0.047)
<i>ln</i>Trade	0.145** (0.060)	0.146** (0.068)	-0.048 (0.0315)
<i>ln</i>GDP per capita	0.782*** (0.279)	0.878*** (0.271)	0.878*** (0.271)
Polity		-0.007 (0.049)	0.039 (0.028)
<i>ln</i>Relative Prices	-0.003 (0.002)	-0.003 (0.003)	
Constant	-0.775 (2.812)	-1.628 (2.783)	3.433*** (0.654)
Observations	167	159	759

Notes:

1) Robust Standard Errors in brackets.

*** Statistically significant variable with 1% significance level test

** Statistically significant variable with 5% significance level test

* Statistically significant variable with 10% significance level test

	Model 4	Model 5	Model 6	Model 7
	Tourist Arrivals	Tourist Arrivals	Tourist Arrivals	Tourist Arrivals
<i>ln</i>Tourist Arrivals <i>Lagged</i>	0.169*** (0.06)	0.163*** (0.061)	0.153** (0.060)	0.108* (0.061)
<i>ln</i>Trade	0.104** (0.062)	0.130** (0.061)	0.083 (0.061)	0.143** (0.060)
<i>ln</i>GDP per capita	0.723*** (0.280)	0.775*** (0.278)	0.762*** (0.274)	0.572** (0.280)
<i>ln</i>Relative Prices	-0.037*** (0.014)	-0.035** (0.016)	-0.074*** (0.019)	0.003 (0.004)
<i>ln</i>Competitive Price - Croatia	-0.033** (0.013)			
<i>ln</i>Competitive Price - Greece		0.032** (0.015)		
<i>ln</i>Competitive Price - Malta			0.069*** (0.018)	
<i>ln</i>Competitive Price - Portugal				0.003 (0.001)
Constant	-0.069 (2.822)	-0.692 (2.799)	-0.198 (2.759)	1.878 (2.868)
Observations	167	167	167	166

Notes:

1) Robust Standard Errors in brackets.

*** Statistically significant variable with 1% significance level test

** Statistically significant variable with 5% significance level test

* Statistically significant variable with 10% significance level test

The signs of the coefficients in the first three regressions are in line with the theoretical expectations. Model 1 includes the main variables that are examined for their effect on tourist arrivals. Lagged tourist arrivals and GDP per capita are statistically significant with 1 per cent significance level test, whereas trade is statistically significant with 5 per cent level test. Relative prices have not been proven to have an effect on tourist arrivals. Analytically, an increase in the tourist arrivals of the previous period by 1 per cent, increases the tourist arrivals by 0.158 per

cent. Additionally, a 1 per cent increase in the GDP per capita of the foreign country, increases tourist arrivals by 0.782 per cent and a 1 per cent increase in the bilateral trade, increases the tourist arrivals by 0.145 per cent.

Moreover, model 2 includes polity as a new variable, which appears not to be statistically significant, contradicting the theory of Naude and Saayman (2005), who supported that political stability is critical and has a positive relation with tourist arrivals. A possible reason could be the geographical position of Cyprus that leads to a heterogeneous sample of tourists' origin countries.

Furthermore, the exclusion of relative prices as an independent variable in model 3, allowed a closer examination of the other main determinants of tourist arrivals as data spans from 1996 to 2014. Results are depicting an increase in tourist arrivals coefficient by more than two times than what existed during the period 2008-2014. A larger coefficient for lagged tourist arrivals is based on the fact that the period covers 1996-2003, which is prior to the accession of Cyprus to an economic union, thus the country's tourism was more dependent on its traditional customers.

What is more, models 4 to 7 include the competitive prices for the cases of four southern European countries that are considered competitors to Cyprus tourism product. Croatia, Greece and Malta have proven to be statistically significant. Specifically, Malta has proven to be statistically significant at 1 per cent, whereas Croatia and Greece at 5 per cent significant level test. Competitive price of Portugal is not statistically significant, and the reason could be the geographical distance between Portugal and Cyprus, which is more than double the distance between Cyprus and Malta, the third furthest country to Cyprus.

In the case of Croatia, the coefficient of the competitive price is negative, which depicts that both countries share the same type of tourism product. This does not apply in the cases of Malta and Greece, whose coefficients have positive signs. This reiterates den Butter et al. (2014) analysis, which estimated that Greek tourism product is not a luxury service. As a consequence, it can be assumed that tourism in Cyprus is based on consumers with high living standards and the tourism product provided is a luxury service. Analytically, in the case of Croatia, a 1 per cent

increase in the competitive price leads to a decrease in tourist arrivals by 0.032 per cent. In the case of Greece, a 1 per cent increase in the competitive price, leads to an increase in tourist arrivals by 0.032 per cent. Finally, in the case of Malta, a 1 per cent increase in the competitive, leads to an increase of tourist arrivals by 0.069 per cent.

6. Conclusion

The research examines the determinants of tourist flows to Cyprus, based on a data that spans between 2008-2014 and 1996-2014. All models underscore that lagged tourist arrivals and GDP per capita have an effect on tourist arrivals in Cyprus. Furthermore, it has been proven that in the cases of Croatia, Greece and Malta, competitive price is influencing tourist arrivals. The negative sign in the case of Croatia and the positive signs in the cases of Greece and Malta lead to the assumption that Cyprus' tourism product is a luxury service and Croatia's tourism product is its sole substitute.

The models can be estimated during the post 2015 period, after the recent banking crisis in the Cyprus economy, in order to evaluate the robustness of our analysis as well as evaluate if the crisis led to a change in the tourism patterns. Moreover, the increasing gap between the tourist arrivals of Croatia, Greece, Portugal and Cyprus should raise questions as to the efficiency of Cyprus to execute an effective marketing of its tourism product. For this reason, a future research could add proxies for estimating the marketing and promotional expenditure of Cyprus, in comparison to the expenditure utilized by the other four countries. Lastly, an alternative research could set the age groups of tourists as its primary focus. Consequently, the results of this research will help marketing mechanisms to better realise towards which age groups they should primarily be focusing and thus allocate their resources correctly.

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