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## CHAPTER 1

# MODELLING WEALTH EFFECT AND DEMAND FOR TOURISM DEPARTURE IN EUROPE: A PANEL DATA APPROACH

### 1. Introduction

Any consumption activity, including the holiday, implies the use of money. For this reason, we cannot achieve a complete understanding of the tourist's choice by neglecting the role money and personal wealth in the decision process to depart on holiday trip linked, very closely, to the concept propensity to consume. While the average propensity to consume current income of private economic agent tends to be constant in the end, it fluctuates in the short run. Short-run changes in the expected growth rate of income, wealth-income ratio, and changes in the real rate of interest are main factors behind consumption variability. According to that, a higher expected income growth or a rise in the market value of financial wealth relative to current income would increase the propensity to consume tourist service. Positive changes in income and wealth will often

go hand-in-hand, since a higher expected income growth is likely to drive up the market prices of stocks, owner-occupied housing, thereby increasing stock of real financial wealth, because a higher expected growth rate will tend to raise future corporate dividends and to drive up demand for housing, travelling abroad etc. Outbound tourism is considered a luxury good that carries certain prestige to the some part of people or encompassed nations in our analysis. However, another stream of studies on consumption argues that current earnings alone do not sufficiently explain consumers' spending behaviours. Expecting an increase in future income can also stimulate consumption of goods (Campbell and Cocco, 2007). This conjecture allows us to study how the tourist's choice is affected by changes in the income. In particular, an increase in wage (source of income) generates two effects. First, it lowers the marginal utility of money by making the tourist richer than before; this is the well – know wealth effect. Second, it increases the full price of the holiday, since one day spend away from work become relatively more expensive in terms of foregone income, the so-called substitution effect. Commonly cited as the 'wealth effect', the phenomenon linked to tourism demand as a topic of this paper has been put to test by a very few number of studies. In the paper Fereidouni et al (2017) using quarterly data from Malaysia (2000-2011), examine the relationship between the wealth effect from real estate and outbound tourism while controlling for other relevant outbound tourism determinants. By applying time-series co integration regressions, their results show that the wealth effect from real estate has a positive and significant impact on Malaysian outbound travel demand. Kim et al (2012) try to test for the wealth effect on Korean outbound travellers between 1989 and 2009, as Korean households hold housing assets and financial assets actively traded in markets. The results in this study support that housing had a significant effect on Korean outbound travellers, but financial assets seemed to have no effect.

Therefore, we give serious attention to the study of the “income and wealth effect” factors that affect demand for tourism departure.

Accordingly, the hypotheses of the study were formulated:

Hypothesis 1: Increase of income in Europe will increase outbound travel demand.

Hypothesis 2: Price gains of capital assets in Europe will increase outbound travel demand.

In this general context, this paper constructs a panel model for tourist departure in selected European countries for the period from 1995 to 2015. We analyse the determinants of income and wealth effect that cause outgoing tourism in Europe, taking into consideration a series of variables.

The objectives of this paper are the identification of “income and wealth” trends of outgoing tourism generating countries that can explain and predict the tourism demand in Europe. The paper is organized as follows. After the first section describes the methodological approach, the second section discusses the variables that influence departure demand, construction of the variables and the data sources. The third section presents the results. The last section summarizes the study’s results and underlines the policy implications of the main findings.

## 2. Methodological approach and model specification

In our empirical analysis, the estimation of wealth effect in demand for outbound tourism from different countries, which represent almost all tourism departures in Europe between the years 1995 and 2015, was performed. The data used to create the total tourist departures series by countries, as a dependent variable as well as other independent variables, are collected annually from World Bank collection of development indicators (WDI). A panel was compiled of 31 countries. Following the

literature review, we consider that wealth effect in demand for outbound tourism is a function of population, age, gender, urbanization and economic openness between the origin country and Croatia.

$$\text{DEPART}_{it} = f(\text{INC}_{it}, \text{SAV}_{it}, \text{STOCK}_{it}, \text{REER}_{it}, \text{FUEL}_{it}, \text{DUMMY}_{it})$$

$$+ \quad ? \quad + \quad ? \quad - \quad -$$

where  $i = 1, \dots, 21$  (1 = Austria, 2 = Belgium, 3 = Bulgaria, 4 = Switzerland, 5 = Cyprus, 6 = Czech Republic, 7 = Germany, 8 = Denmark, 9 = Estonia, 10 = Spain, 11 = Finland, 12 = France, 13 = UK, 14 = Greece, 15 = Croatia, 16 = Hungary, 17 = Ireland, 18 = Iceland, 19 = Italy, 20 = Lithuania, 21 = Luxemburg, 22 = Malta, 23 = Netherlands, 24 = Norway, 25 = Poland, 26 = Portugal, 27 = Romania, 28 = Russian Federation, 29 = Slovenia, 30 = Slovak Republic, 31 = Sweden); and  $t = 1, \dots, 15$  (1 = 1995, ..., and 15 = 2015).

DEPART is the international tourism measured by millions of departure; INC is real adjusted net national income per capita (in US\$) as a proxy variable for the average household income, SAV is real adjusted savings: net national savings (in US\$), STOCK is the stocks traded in real terms, REER is the real effective exchange rate that accounts for changes in purchasing power parity in both prices and currency valuation, FUEL is the pump price for diesel fuel (US\$ per litre) in real terms, DUMMY08-09 is the dummy variable for macro event e.g. the shock of the great recession in Europe. Subscripts  $i$  and  $t$  denote country and year, respectively.

The real income per capita and its relationship between DEPART is expected to be positive (Garín-Muñoz and Amaral, 2000; Luzzi and Fluckiger, 2003; Phakdisoth and Kim, 2007; Muhammad and Andrews, 2008; Habibi et al, 2009; Hanafiah and Harun, 2010; Leitão, 2010). The research of the tourism demand frequently includes the role of

real GDP per capita in the analysis, under the assumption that country with higher standard of living level tends to more frequently spend one fraction of income on holiday vacation.

Table 1. Summary of Variables (1996-2010 year average) used in the Regression

	MIN	MAX	MEAN	STDEV
DEPART	0.157 (Malta)	87.46 (Germany 2013)	13.756	17.844
INC	70.33 (Estonia 2000)	851.92 (Germany 2014)	497.1	7250.5
SAV	-785.83 (Romania 1995)	5290.32 (Russia 2008)	398.85	728.3
STOCK	0.0005 (Latvia 1995)	8719.56 (GB 2007)	3410.14	6495
REER	44.99 (Bulgaria 1996)	152.77 (Island 2010)	96.06	13.445
FUEL	0.18 (Russia 1998)	2.35 (Norway 2012)	1.17	0.490

Source: Author's calculations

Some authors have employed this variable in attempt to explain the variation in international tourists arrival to Thailand and supported that hypothesis due to finding that the long-run results indicated that growth in income of Thai's Asia major tourist source markets (Malaysia, Japan, Korea, China, Singapore and Taiwan) have a positive impact on international tourists arrival to Thailand (Chaiboonsri, C.; Sriboonjit, J.; Sriwichailamphan, T.; Chaitip, P.; Sriboonchitta, S., 2010). In study of international tourism demand of Izmir, Turkey using time series data from 1980 to 2005 the authors find income (and prices) of the tourist generating country as a main determinant of

tourism demand (Özlem Önder, Aykan Candemir, Neşe Kumral, 2009). Since the frequency of the inclusion of these variables in the model specifications tourism demand is high, we included them in the specification. Of course, we do not expect a surprise. The long-run elasticity estimates indicate that tourism demand is positive and highly elastic with respect to the income of tourist-generating countries in the case of Croatia (Mervar, A.; Payne, J.E. 2007). On average, the tourists that depart their own country covered in this study are from a medium-income category as the average per capita income. However, there is a significant variation in this variable (a standard deviation of USD 7250.5), with the minimum USD 70.33 (Estonia, 2000) and the maximum USD 851.92 (Germany, 2014).

The hypotheses on wealth effect from financial assets, in the proceedings, were tested by coefficients on SAV and STOCK respectively. Any use of personal income that a person does not spend in a way that directly results in the employment of workers to produce consumer goods and services is considered to be personal savings. The mutual relationship between the DEPART and the SEV in our model of tourism demand for departure is unknown. Obviously how much tourist travelling abroad depends on such things as their saving (e.g. financial wealth), but also on their personal income, and the amounts of money and credit they are willing and able to borrow. There are difficulties and complexities inherent in the saving and tourism interrelating concept because excessive savings can mean a low propensity to consume goods and services in general, and tourism services, too. However, there are specific cultural factors in some countries that interfere in just opposite behaviour. Germany has chronically weak consumer spending, a reflection of its aging populations and a national obsession with saving. Germany stores don't open on Sunday unless they're in railway or gas stations and can only have sales on certain days of the year (Ip, 2010). The Germans save for "das Urlaub" (even more amount relative saving in

Denmark, Sweden). As can be seen from Table 1 and our figure, there is enormous variation among the thirty-one economies in the sample in their domestic saving rates, with the nominal domestic saving per capita ranging from 5290.32 USA\$ in Russia in 2008 to even negative saving: about -785.83USA \$ in Romania in 1995 during the 1995-2015 period as a whole.

STOCK is the stock trade value. The stock and their prices are, an indicator as to how well an economy is doing: profits and revenues, and thus the prices of stocks and bonds, tend to be higher when an economy prosper, and lower when recession occur. The dynamics of illusion of wealth due to STOCK fluctuating can influence on how much the residents travel abroad, under that circumstances. The relationship between DEPART and STOCK is expected to be positive because the increase of stock trade volume increases optimism and stimulate job creation and greater opportunities. As one of the European countries, especially countries of the Eastern Circuit, which rarely traded, the Latvia was at a bottom of stocks and bonds trading in the 1995th. A country that captures maximum STOCK is the UK in the 2007th. In the same year in August, the LIBOR began to climb steeply and shortly following the fall of Northern Rock (one of the five largest mortgage lenders in the UK), the global financial system underwent a meltdown that had not been seen since the 1930s (Farmer, 2010). That event triggered the start of the great recession in the same country, which later spilled all over the world.

Every recession begins after the peak of the financial trade is over. The dummy variable 2008-2009 is included to control for the effects of macro socioeconomic event on demand for tourism departures, namely the Great Recession.

The real exchange rate, is the trade-weighted average of the price levels of trading partners relative to the general price level of the domestic economy (Wickens, M., 2012). The sign of the mutual relationship between the REER and the DEPART is

unknown because the real exchange rate variable REER captures two effects on the price of international tourism: first, the influence the nominal exchange rate movements; and second, the influence of the relative price between country  $i$  and the rest of the world (Song, Witt, 2000).

Following Wang's (2008) approach, where jet fuel price was used as a proxy for airfare but instead we used the pump price for diesel fuel priced within the country. Fuel price is another relative price variable in tourism demand theory. It is an important variable in modern society since fuel price reflects the real costs involved in travelling within the country and can give more or less interchangeable sense of income value remain after spending someone on fuel liquid. More or less cost translates on wealth illusion. Otherwise, this variable is a useful variable to measure travel demand by tourists because it can be easily converted into energy consumption which is translated into the price of transport and carbon dioxide emissions (negative externality for society). Transportation costs, for example because of changes in oil prices and the emergence of low-cost airlines, have changed substantially in the last decade and influenced tourist behaviour (Gillen & Lall, 2004). If all else remains equal, travellers will choose a destination that takes less cost to reach there (Phakdisoth and Kim, 2007). We therefore expect a negative sign for FUEL and TOUR.

### 3. Regression results

To explore the factors behind the international dynamics in generating demand for outbound tourism in European selected countries, we developed a simple model, as previously mentioned. The empirical analysis was based on the annual 1995-2015 data with countries as cross-sectional units.



Although, practically all of classical panel data econometrics assumes cross-section independence, the dependent variable was submitted to the battery of panel unit root tests in order to detect whether there would be possible co integrations with other variables. When the level of significance obtained from the test results is smaller than 0.05, the null-hypothesis is rejected, and the series said to be is stable. However because all the tests rejected the hypothesis of the unit root, cases that can be seen in

Table 2 analysis proceeded with the estimation of the models in log levels.

Table 2. Results of panel unit root testing for the dependent

PANEL UNIT ROOT TEST				
	Maddala-Wu	Levin-Lin-Chu	Im-Pesaran-Shin	Hadri Test
log(DEPAR)	286.88***	-15.79**	-2.80***	24.73***

Source: Author's calculations

Note: reject the null of unit root at the level of significance \*\*\* 1%, \*\* 5%.

With panel data, the issue is whether to use random effects or fixed effects estimation approaches. The random effects approach for estimating exploits the correlation in the composite error composed by unobserved heterogeneity and the error term. This approach includes the idiosyncratic error term assuming that unobserved heterogeneity (or specific country effect) is orthogonal to a particular country's input variables in time dynamics and uses a Generalized Least Squares (GLS) estimator to take into account serial correlation in the composite error.

There can however, be many instances where this assumption is incorrect. Specifically, unobserved heterogeneity (country's individual effects) can be correlated with explanatory variables in the present model if the country's individual effects influence

the vector of explanatory variables. In such a case, the fixed-effects estimator may be more appropriate to use. Wooldridge (2001:266) shows that a fixed effect estimator is more robust than a random effects estimator. A shortcoming of the approach is, however, that time constant factors (almost all explanatory variables in our model) possess a time-constancy feature and cannot be included as an explanatory variable. Otherwise there would be no way to distinguish the effects of these variables from the effects of the unobservable variable. Another shortcoming of the fixed effects estimator is that it is less efficient than the random effects estimator. It has fewer degrees of freedom and takes into account only the variation “within” units, not between units.

Accordingly, in order to not exclude intuitively hypothesized issues, such as an important explanatory variable in determination of the factors involved in demand for outbound tourism for selected countries, it is natural to exclude the fixed effects estimator. However, prior to opting for the random effects estimator, we need to diagnostically test the question of whether the effects are really random using an F test (Baltagi, 2001:15).

By comparing the fixed effects and the benchmark pooled OLS fits by means of an F test for individual effects ( $F = 27.48$ ,  $df1 = 31$ ,  $df2 = 634$ ,  $p\text{-value} < 2.2e-16$ ), our results indicate that there is substantial inter-country variation in regard to departure trends in the European tourist market that impacts the demand for exit from native country travelling in abroad. Such a result indicates that the fixed effects model approach is not needed. It is more appropriate to choose the competitive random effects model, according to the exclusion principle. This result is not surprising because the selected countries that generate the tourist departure in our sample are not in a certain economic group. It was intuitively obvious that individual effects would be unstable for the very different groups of countries in the studied period. Accordingly, to determine which of these estimators are more appropriate to use in the present case, both a fixed effects (FE)

and random effects (RE) estimator were initially used to model tourist saturation, and the Hausman specification test was performed to support the assumption in the random effects model that unobserved variables are orthogonal to the explanatory variables. We also used the Breusch-Pagan Lagrange Multiplier (LM) test to see if the variance of the intercept components of the composite error term is zero. Rejection of the null hypothesis in both of these cases would lead to rejection of the random effects estimator.

Table 3. FE vs. RE Estimator: Diagnostic Results

DEPENDENT VARIABLE (MODEL)	BREUSCH-PAGAN LM TEST	HAUSMAN SPECIFICATION TEST
log(DEPAR)	$\chi^2(2) = 1567.7***$	$\chi^2(6) = 11.372$

Source: Author's calculations.

Note: \*\*\* Null hypothesis rejected.

A log regression of demand for tourism departure on all six explanatory variables gives  $LM = 1567.7$ , which is greater than the critical value at the 1% level of significance. In Table 3 above, the Hausman Specification Test fail to rejects the null hypothesis that the difference in coefficients between the FE and RE estimators is not systematic, so this result implies that our tourism departure model has REs (while the calculated Hausman statistic is 11.37, which is less than the critical value of 15.09 at the 1% significance level). Thus, the result of the Breusch-Pagan test, which strongly indicates the existence of REs, is revalidated by the Hausman test, which finds in favour of the RE. These findings would suggest that the RE estimator can be used without the possibility of producing biased estimates. Since the RE assumptions in our panel regression is satisfied it is consistent and efficient. As we know, RE is one particular way of estimating a feasible GLS model. We will also estimate a more flexible FGLS

model that allows for heteroscedasticity and autocorrelation, as an alternative but less preferable model in our case. According to theory FGLS model would be just as efficient as RE if it is several times larger than it, which is not the occurrence in our sample. The results are contained in Table 4 below, which gives the estimation results for both the FE and FGLS models.

Table 4. Fixed and random effects models: estimation results

	UNRESTRICTED MODELS		RESTRICTED MODELS	
	FGLS	Random effects b)	FGLS	Random effects b
Constant	5.821*** (14.446) [0.000]	5.821*** (14.446) [0.000]	5.948 (15.632) [0.000]	5.130*** (23.731) [0.000]
Log (INC)	0.297*** (16.974) [0.000]	0.428*** (11.280) [0.000]	0.312*** (22.213) [0.000]	0.419*** (9.676 ) [0.000]
Log (SAV)	0.030 (1.435) [0.839]	0.104 * (2.090) [0.034]	0.032. (1.891) [0.058]	0.080 ( 1.734) [ 0.083] .
Log (STOCK)	0.036 *** (8.378) [0.000]	0.033* (2.415) [0.012]	0.039*** (11.606) [0.000]	0.032* ( 2.345) [ 0.022]
Log (REER)	-0.204*** (-3.367) [0.000]	-0.403 (-1.734) [0.082]	-0.153 *** (-2.992) [0.000]	
Log (FUEL)	0.117*** (10.812) [0.000]	0.139** (3.123) [0.001]	0.131*** (13.764) [0.000]	0.096 * (2.312) [ 0.021]

DUMMY08_09	0.117 (10.812) [0.839]	0.021 (0.531) [0.596]		
Number of observations	672  (32countries * 21 years)	672  (32countries * 21 years)	672  (32countries * 21 years)	672  (32countries * 21 years)
F-stat.	42.817 [0.000]	38.850 [0.000]	77.466 [0.000]	57.056 [0.000]
R-squared	0.87		0.87	
Adj. R-square		0.25		0.25
Breusch_Godfrey/ Wooldridge Test of serial correlation		13.556 [0.051]		16.146 [0.052] 7.304 0.000
Pasaran CD tests of independence	2.536 [0.011]	2.146 [0.034]	6.628 [0.000] 2.062 0.039	7.106 [0.000] 2.478 0.0132
Breusch-Pagan LM test of heteroskedasticity	22.413 [0.001]	22.413 [0.001]		

Source: Author's calculations.

Notes:

- Numbers within parentheses () denote asymptotic t-values, and those within [], p-values.

- Signif. codes: 0 '\*\*\*' 0.001 '\*\*', 0.01 '\*'

- The data set as a basis of regression is an unbalanced panel; imputation of missing values is done by Amelia 2 (R-GUI).

a) Based on the OLS estimates, tested for heteroskedasticity. The null hypothesis for the Breusch-Pagan test is homoskedasticity.

b) The bolded p-values are shown in brackets and were obtained from the standard errors of the coefficients, which were White-adjusted.

A comparison of the regression coefficients shows that FGLS- and RE methods yield somewhat different results for our data model. We would learning on the RE, interpreting the results accordingly. Approximately 25-% of the variations in departure model are explained by variations in the independent variables, according to adjusted R<sup>2</sup> in our RE models. The F test statistics clearly show that all the coefficients in the model(s) are different than zero. The estimation of RE models provides the Breusch-Godfrey/Wooldridge test for serial correlation in panel models. This test did not indicate the presence of serial correlation in the residuals. Pasaran CD (cross-sectional dependence) tests are used to test whether the residuals are correlated across entities (Hoechle, 2007). Namely, cross-sectional dependence can lead to bias in tests results (also called contemporaneous correlation). Our testing shows no cross-sectional dependence in final panel regressions.

We first estimated by OLS the tourist departure model in selected European countries on the international panel data set. Based on the OLS estimates, we tested for the presence of heteroskedasticity. Because heteroskedasticity was found to be present in the random unrestricted model, we re-estimated the RE regressions using White's heteroskedasticity-consistent covariance estimator to provide valid inference. In order to determine the importance of our set of independent variables with regards to demand for tourist departure the tests of significance using the t-distribution are used.

Coefficients on income are the greatest in size and highly significant, consistent with preceding studies. In our study we applied the crude income per capita variant Gross National Income. A one percent increase in average income per capita causes an approximately 4.2 percent increase in the number of outbound travellers. Hypothesis 1 is supported as the coefficient on income is significant and stable across both models. Accordingly the former result, we find that international tourism in selected country has a higher sensitivity to income than a normal good (income elasticity higher than unity)

opposing the finding of Ulrich and Smeral (2016), who recently found that income elasticity of international tourism for 1994-2003 and 2004-2013, decreased from period to period. For the last decade, the values of the income elasticity in their study were lower than 1. In our study the larger the income is, the higher the preference for departure, which corresponds to the results of Hanafiah and Harun (2010) and Leitão (2010).

The real domestic saving per capita (SEV) is significant at the 0.05-0.1 significance level, implying its statistical importance in the model. According to the elasticity as interpreted from the log-log model, a one percentage increase in the real saving per capita increases tourism departure to a various overboard destination in selected sample by approximately 8% in terms of number of departures. This robust relationship adheres to the our prior conceptualized ad-hoc theory of saving's impact on the demand for tourism services, which says that higher saving e.g. financial wealth is precondition or great trigger for tourism travelling in abroad. Thus, this study is consistent with that previous story which classifies some of high travelling, domineering nations as a big saver, and where obviously tourism demand rises faster than savings.

When the word is about the impact of financial wealth on tourism demand, in very similar position stands the dynamic of the stock trade (STOCK) and its relation to DEPART variable. So, hypothesis 2 on the wealth effect from the European stock market was accepted in both models with high probability. The coefficient implies a 3.2 percentage increase in the number of departures out of country with a one percentage increase in that country's stock trade. Most likely the statistical significance at the 0.05 level, which does correspond with the variable's presumed economic significance, implies one or more things. First, a relatively high allocation of personal wealth in the stock market by domineering travel nation in our sample may lead to a significant effect on consumption when their financial wealth is increased. Second, the stock prices are

highly volatile in nature, and majority of trading drowned after 2009. Departure demand tourism is not immune on global financial turbulences that occurred in last decade, and where financial wealth of very mighty people and institutions are melted away but because of very weak impact of that on middle class citizens, mutual relationship between the stock trade dynamics and departure demand remain significant.

Finally, the FUEL variable has a surprisingly positive sign. Beside, a high significance coefficient, according to the theoretical expectation of this coefficient was not expected. Yet, the price of fuel increases the transportation costs and thus the travel expenditure within domestic country. Here, we see so called pure substitution effect. As its inherent characteristic of financial burden or financial wealth let downing if prices go up in their own countries, tourists opted to more travelling abroad.

#### 4. Conclusion

We found from panel regressions analysis that the domestic saving rate and stock trade vivacity, as proxies for financial wealth and same type of wealth creation, are relevant predictors of demand to tourism departure in Europe. Namely, the international demand for travelling abroad in Europe is very sensitive to dynamics these indicators of financial assets. Any collapse in financial wealth can produce negative “wealth effect” shock and hinder demand for departures in Europe. Our regressions result did not reveal any significant impact of recession dummy on demand for departures. Although additional saving in times of recession and deep economic crisis for some of countries involved in panel dataset was build up as a result of precautionary saving reflex that positively impacted demand for departures. And at the end, we should underline the role of income effect in determination of the international tourism demand for departure, because higher living standard still ever express the potential for higher level of travelling abroad



across the Europe. We also found that the international demand for departures in selected countries as a whole sample will increase with fuel price inflation in selected country because the positive impact of raising transport costs in native country caused substitution effect in travelling.

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