



## **EXPLAINING TOURISTS' SUPPORT FOR ENVIRONMENTAL PROTECTION**

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### **Extended abstract**

Literature shows that heterogeneity in willingness to pay for traveling is explained by regional clusters because not all the tourists are equally sensitive to income and price adjustments. This paper demonstrated that such heterogeneity in tourist behavior is also shown in environmental considerations when they are making decisions about their holiday plans. Popular support for environmental protection among tourists from EU-27 countries were investigated. The findings are congruent with the hy-

pothesis that environment support depends not only on individual characteristics of themselves but also of certain contextual variables related to their place of residence.

The methodology proposed represents a new way of analysing the impacts of contextual and individual characteristics on explaining tourist support for environmental protection. On the one hand, macroeconomic data is usually explored to answer the question how differences among nations is shown (country effect). On the other hand, the microeconomic analysis of the household that may enrich the analysis, since proenvironmental attitudes can still be observed (compositional effect). If the econometric model takes into account both effects simultaneously, then the linkage between GDP changes and tourists' behaviour is enriched and it may be estimated more accurately. The econometric approach is a multilevel model, where the individual's level of support for the environment,  $y_{ij}$  is modelled at different stages. Model 1 is a null model without explanatory variables, where the tourists are grouped at country level:

$$y_{1,i} = \beta_0 + \eta_j + \varepsilon_{ij} \quad (1)$$

where,  $\beta_0$  is the global mean of environmental support, and  $\eta_j$  is a country specific effect. So, model 1, which is a random intercept null model, let to investigate how much of the total variance can be attributed to country level and how much to individual level. In model 2, the mean environmental support for

country  $j$ ,  $\beta_{0j}$  also is a random intercept, but we include all the individual characteristics of the tourists,  $x_{ij}$ . This model try to investigate how much of the variance within and among countries can be explained by compositional effect,  $\beta_1$ , which is controlled by the individual attributes of the tourists belonging to each country. In this model,  $\beta_1$  is fixed or “country independent”.

$$y_{1,i} = \beta_{0j} + \beta_1 x_{ij} + \varepsilon_{ij} \quad \text{where} \quad \beta_{0j} = \beta_0 + \eta_j \quad (2)$$

Finally, model 3, enrich the analysis adding contextual variables at country level,  $c_{ij}$ . In this way, we try to investigate whether differences in tourist environmental support among countries could be explained by either contextual effects, compositional effects or both of them. Again,  $\beta_1$  and  $\beta_2$  are fixed among countries.

$$y_{1,i} = \beta_{0j} + \beta_1 x_{ij} + \beta_2 c_{ij} + \varepsilon_{ij} \quad \text{where} \quad \beta_{0j} = \beta_0 + \eta_j \quad (3)$$

The analysis is carried out for EU-27 countries combining micro-data provided by households and macro-data belonged to different international surveys and statistics. Micro-data corresponds to Flash Eurobarometer 281 drawn from the European Commission and data from the European Value Survey. Macro-data considered in the study was collected from Eurostat, the Environmental Sustainability Index in collaboration with the

World Economic Forum, and finally, the United Nations Environment Program. In the sample, 48.7% of the interviewees reveal that they have considered environmental issues when making decisions about their holidays. However, the relative frequencies at the aggregated level differ according to country. On the one hand, Northern European countries like Denmark, The Netherlands, Ireland and Sweden show the lowest rates with 28.5, 35.9, 39.2 and 39.6%, respectively. On the other hand, Southern and Eastern countries like Romania, Poland, Portugal, Bulgaria or Greece, show the highest relative frequencies, with 75.5, 66.5, 64.7, 62.9 and 60.4%, respectively.

The results of the estimation of the random intercept logistic models proposed are carried out by maximum likelihood (ML) method using adaptive quadrature (by Stata). ML estimates are reasonably robust against mild violations of assumptions such as non-normal errors. All the estimates from Models 1, 2 and 3, which are shown in Table 1, are on the logit scale and consider the hierarchical structure of data through a multilevel approach. A general finding from the analyses indicated that significant variance exists within and among nations in the level of environmental support.

Tabla 1. Random Intercept Regression of Environmental Support of Tourists

<i>Variables</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<i>Individual-level variables</i>			
<b>Gender (male =1)</b>		-.03780***	-.03787***
<b>Age</b>		.00602***	.00605***

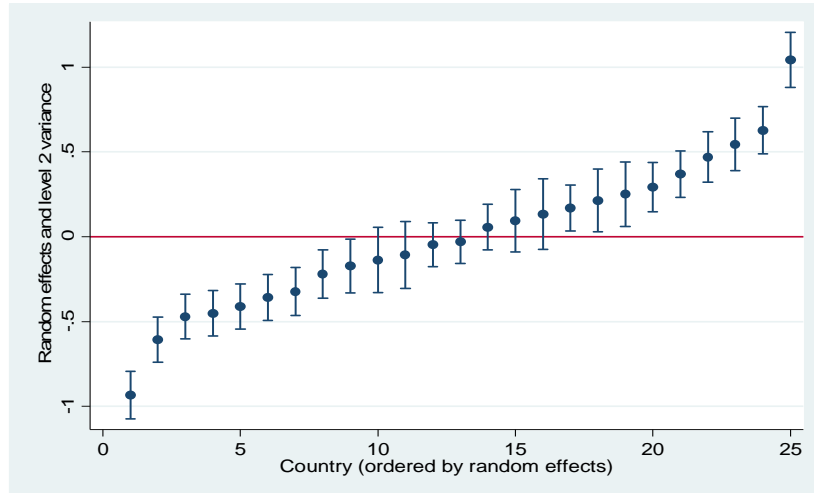
<b>Age2</b>		-.00005***	-.00005***
<b>Education</b>		.00408***	.00405***
<b>Employment<sup>(1)</sup></b>			
<b>Non-manual workers</b>		-.02796***	-.02772***
<b>Manual workers</b>		-.03183*	-.03175***
<b>Motivations for travelling<sup>(1)</sup></b>			
<b>Service quality</b>		.03284***	.03183***
<b>Price</b>		-.01499*	-.01633*
<b>Eco-friendliness</b>		.21092***	.20939***
<b>Social considerations</b>		.02532*	.02545*
<b>Safety and security</b>		.09055***	.08974***
<b>Destination<sup>(1)</sup></b>			
<b>Traditional</b>		-.03359***	-.03313***
<b>Destination<sup>(1)</sup></b>			
<b>Domestic</b>		.03895***	.03749***
<i>Contextual-level variables</i>			
<b>GDP pc (PPS)</b>			-.00165*
<b>GDP growth</b>			.00483***
<b>Environmental indicators</b>			
<b>Water quality</b>			-.01045***
<b>Air pollution</b>			3.07e-09**
<b>Protected areas</b>			.01041***
<b>Intercept</b>	.50023***	.28428***	1.1825***
<i>Variance (among countries)</i>	.01403	.01361	.00538
<i>Variance (among individu-</i>	.23404	.22438	.22432
<i>R<sup>2</sup> contextual-level</i>	.0000	.02981	.61608
<i>R<sup>2</sup> individual-level</i>	.0000	.04127	.04152

\* Level of significance 10%; \*\* Level of significance 5%; \*\*\* Level of significance 1%. (1) Omitted dummies variables are: "Self-employees", "Cultural attractiveness motivations", "A non-traditional or emerging destinations" and "abroad", in each case.

The findings are congruent with the necessity of simultaneously assessing the effect of individual and contextual levels variables on environmental support across European countries. In fact, intraclass correlation coefficient (ICC) obtained from model 1, which is 0.056, indicates that environmental attitudes could be explained by contextual and compositional effects. The intercept for country "c" varies randomly, with a between-group residual variance  $\sigma_u^2$  statistically significantly. So, these figures demon-

strate that tourists from different European countries present a heterogeneous pattern regarding the environmental support. Such heterogeneity is shown in Figure 1, where the random intercept and the between-group residual variance  $\sigma_u^2$  are presented across countries.

Figure 1: Country effect estimations in rank order (EU-27)



Model 2 and model 3 show the robustness of the compositional effect. The estimates show that men and young people are less likely to take into account environmental consideration in their holiday plans. Higher levels of educational attainment are positively related to environmental supportiveness. Motivations for travelling play an expected role. For instance, price and value for money considerations are negatively related to environmental protection, whereas eco-friendliness, social and safety and security considerations affect positively. People visiting tradi-

tional destinations and those who visit foreign countries are less likely to have proenvironmental attitudes. Regarding the contextual effect, estimates show that the higher the level of GDP, the lower the level of public support. These results could be explained because tourists of richer countries already have to pay more tax for environmental protection. Finally, the results prove that there is a direct relationship between several indicators of environmental problems in the place of residence and the tourism attitudes for environmental protection.