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Working Paper No. 225

February 2008

The Climate Preferences of Irish Tourists by Purpose of Travel

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Abstract: We estimate a pooled travel model for the destination choice of tourists from the Republic of Ireland in 2006. We distinguish between holidaymakers (further split into travelling with children, elderly, and other), visitors to family, visitors to friends, business travellers and other travellers. We show that the different types of tourist have very different preferences. Elderly holidaymakers and family visitors stand out most from the "average" tourist. Preferences for cultural heritage, population density, and temperature discriminate the most between tourist types. We find some evidence that destination preferences vary over the year, but limited data prevent a full investigation. All types of Irish tourists are indifferent to precipitation. Only holidaymakers respond to temperature differences. All holidaymakers dislike cold destinations, but only elderly holidaymakers dislike hot destinations as well.

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Keywords: International tourism, Ireland, Pooled Travel Model

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1. Introduction

Tourists are influenced by their expectation of the weather and climate at their destination. Although the effects of these variables on choice are complicated and diverse (Goessling and Hall, 2006a,b); Bigano *et al.*, 2006a), there are clear statistical patterns for the average tourist (Maddison, 2001; Lise and Tol, 2002; Hamilton, 2002; Bigano *et al*., 2006b). While the literature on the relationship between tourism and climate is focussed on holidaymakers, here we extend the analysis to other types of tourists, with a focus on tourists from Ireland.

In this paper, we define a tourist as anyone who spends at least 1 night and at most 365 nights away from home. We distinguish between holidaymakers, family visitors, visitors to friends, business travellers, and other tourists. The word "tourist" and "holidaymaker" are often used as synonyms, but here we use "tourists" to denote all travellers, and "holidaymakers" to denote holiday travellers.

While the causal link between holidays and climate is obvious – holidaymakers want to relax with sun, sand and sea, or enjoy the ski slopes (e.g., Amelung *et al*., 2007; Scott *et al*., 2004) – this is not true for other travellers. The main purpose of business travellers is business, not pleasure. At first sight, a cost conscious organisation would allow meetings to take place only when necessary, and in locations that are cheap. This does not explain, however, the success of Hawaii as a conference destination. Also, one may be more inclined to visit a client or subsidiary in a pleasant location. Indeed, organisations may use "business" trips as a perk for employees.

Visiting friends and family is another reason to travel without, at first sight, a dependence on climate. However, here too preferences may be influenced by climate: e.g. relatives that live in a beautiful area may find that they are more popular than other relatives. Indeed, grandparents are known to move to places that attract their grandchildren (Lindquist and Golub, 2004; Economist 2004). For other relations, weather and climate may be a factor in

deciding when or how often to visit, while friends who want to meet may choose the more attractive of their respective homes.

In this paper, these considerations are tested for travellers residing in the Republic of Ireland. The remainder of this paper is set out as follows. Section 2 presents the data and the methods. Section 3 presents the results of the pooled travel model. Differences in the results according to tourist type and quarters are underlined. Finally, Section 4 provides a discussion and concludes.

2. Data and methods

We use data from the Household Travel Survey (HTS) of the Central Statistics Office (CSO) of Ireland. Every quarter, some 12,000 households are surveyed about their travel in the previous three months – main destination, main purpose, costs, number of travellers, length of stay and so on. These postal surveys are conducted quarterly, rather than seasonally. A new sample of households is drawn every quarter; the data do not have a panel structure. The HTS was started in 2000, but for the first six years, many destinations were aggregated. Since the final quarter of 2005, every destination country has been recorded separately. Here we use the data for 2006 – the first and so far only full year with detailed destination data.

In total, 18,889 households returned the survey, for a total of 93,719 individual-trips. They provided information on the number of trips (domestic and international) taken in the last quarter, their chosen destinations, the purpose of their trip (holiday, business, visiting friends, visiting family or other) as well as the number of people travelling. An estimate of the costs of travel was also specified. Like all other variables, costs are self-reported and based on recollection. Costs include travel and subsistence. Costs are collected and reported per trip. Costs are collected for the whole travel party, but reported as an average per member of the travel party.

The data on travellers from the HTS was merged with data on the characteristics of destination countries. These include geographical variables such as the length of the coastline and reef area of the destination country, its size, population density, per capita income and

distance from Ireland. A cultural heritage variable was also included which represents the number of World Heritage Sites per square kilometre as well as a political stability variable. Finally, climatic variables such as monthly average temperature, temperature squared, and precipitation were also included. These variables were drawn from a range of sources (see Table 1).

[Insert Table 1 about here]

To identify the effects of destination characteristics on tourism preferences, we use a so-called pooled travel model (Maddison, 2001). That is, the dependent variable is (the natural logarithm of) the number of Irish travellers to a destination. In Lyons *et al.* (2007), we estimate an individual destination choice model on the HTS data for the 26 disaggregated destinations for 2000-2005; it is not feasible to estimate such a model for the 82 destinations recorded for 2006.

The pooled travel model is estimated using Ordinary Least Squares in Stata 10SE. We present two versions of each model. In the first one, the full model, all explanatory variables are included. In the second one, the parsimonious model, we use Hendry's general-to-specific stepwise elimination method to exclude all explanatory variables that are not significant at the 5% level.

We estimate the pooled travel model separately for holidaymakers, tourists visiting friends, tourists visiting family, business travellers, and other travellers. As mentioned in Section 1, we expect that the destination and household specific characteristics listed above will have different effects depending on the purpose of travel. Holidaymakers are further split into holidaymakers over 59, holidaymakers travelling with children under 13, and other holidaymakers. Separating the holidaymakers into three groups depending on the characteristics of the travelling party allows us to examine whether the composition of the household leads to choice differences. Finally, dummies for the United Kingdom and Ireland are included in each analysis. The UK has been and remains a traditionally popular destination for the Irish for three reasons: there is a substantial Irish community in the UK, both countries have strong trade ties and the UK is the closest country to Ireland in geographical sense. A dummy is included for the Republic of Ireland to allow for the

popularity of domestic holidays, particularly for short breaks (given that Ireland is an island, any international travel requires a plane or at least a ferry trip). The associated descriptive statistics are available in Tables A15 to A21. We also estimated the model for various aggregate tourist types, but the data reject these aggregations – see below for details.

3. Results

A summary comparison of the regression results can be found in Tables 2 and 3, and Figures 1 and 2. Details are shown in the Appendix, where the results are grouped by parameter of interest rather than type of tourist. Below, we first describe the findings per tourist type before discussing the differences between them. After that, we discuss how the results are affected when the analysis is conducted on quarterly sub-samples.

3.1. Description of the results

Elderly holidaymakers prefer large, rich countries with a lot of cultural heritage. They prefer warm destinations, but dislike destinations that are too hot. They are deterred by distance, and they may like sparsely populated countries. We find no evidence that they are influenced by the presence of reefs, the strength of political stability or quantity of precipitation in the destination country. There is no domestic bias, or a bias to the UK. Elderly holidaymakers appear to prefer expensive destinations. This may be because holidays are conspicuous consumption to them, or because they prefer quality and are able and willing to pay for it, or because they dislike the company of younger and poorer holidaymakers.

Holidaymakers travelling with children under 13 prefer rich and hot countries. They may like large, densely populated, and countries that are less politically stable. They may be deterred by distance, and show a bias towards the UK. They exhibit no significant reaction to costs, cultural heritage, reefs, coasts, or precipitation. There is no domestic bias.

Other holidaymakers prefer large, rich, hot and densely populated areas. They are deterred by distance. They may prefer locations with a lot of cultural heritage. Costs, reefs, coasts, precipitation, and political stability were not significant for this group. They prefer the UK, but show no bias towards domestic holidays.

Those **visiting friends** prefer large, rich, and densely populated countries. They are deterred by distance. Their choice is not significantly influenced by coasts, heritage, precipitation or temperature. They may dislike reefs, but higher costs do attract them.[1] This group shows a significant bias towards Ireland and the UK. We also included a dummy for Australia in this model, but it was not significant.

Those **visiting family** favour large, rich, and less stable countries. They are deterred by distance. They may like long coastlines and densely populated areas. There is no evidence that this group is affected by costs, the extent of cultural heritage, reefs, precipitation or temperature. There is a significant UK and Ireland bias.

Business travellers prefer large, rich, and densely populated countries. They are deterred by distance. Business travellers show no significant preference for costs, reefs, coasts, precipitation or political stability. They may prefer warm destinations, but avoid ones that are too hot. There is a significant bias towards the UK.

Other travellers prefer large, rich and hot countries with a lot of cultural heritage. They are deterred by distance. They may prefer densely populated destinations. Costs, reefs, coasts, precipitation and political stability are not significant for this group. They prefer the UK.

Qualitatively, there are similarities between types of tourists. Every type of tourist is deterred by distance and poverty, and large, densely populated countries attract more tourists of every type. Irish tourists are indifferent to reef area and precipitation. However, there are also dissimilarities. Only elderly holidaymakers and visitors of friends care about the costs. Coasts are attractive to family visitors only, and cultural heritage attracts the elderly and "other travellers" (possibly pilgrims). Lower political stability is associated with positive

[1] These findings are robust to the inclusion of an Australia dummy.

preferences for family visitors, but not for other categories of tourist. Only visitors to friends and family show a home bias, while only elderly holidaymakers do not show a UK bias. Holidaymakers and other tourists prefer warmer destinations, while visitors to friends and family, and perhaps business travellers, are indifferent. Only elderly holidaymakers show an aversion to weather that is too hot.

3.2. Differences between tourist types

Table 3 summarises the qualitative and quantitative differences between the determinants of the destination choice of the seven types of tourist. With a qualitative difference, we mean that an explanatory variable is significant for one type of tourist but not for another. With a quantitative difference, we mean the estimated coefficients for two types of tourists differ significantly from zero and from one another. For instance, holidaymakers travelling with children under 13 are indifferent to heritage. Other holidaymakers are attracted by heritage, but elderly holidaymakers much more so.

Overall, we find that patterns of preferences differ significantly across types of tourist. Every cell in Table 3 contains at least two entries. This means that travel preferences for each type of tourist differs from those of every other tourist type in two or more aspects. Most cells highlight more than two differences.

Figure 1 shows a dissimilarity index. It counts the number of explanatory variables that are different between one type of tourist and the remaining six types, and divides this by six times the number of explanatory variables. Family visitors and elderly holidaymakers stand out. They appear to have little in common with other types of tourist, while business travellers and holidaymakers with children under 13 have most in common with other types of tourist.

Figure 2 shows the dissimilarity index for our explanatory variables. It counts the number of times an explanatory variable qualitatively or quantitatively differs between tourist types, divided by the number of cells (21) in Table 3. Types of tourists disagree most on the importance of temperature, heritage, and population density. They disagree least on area,

cost, distance, political stability, and temperature squared. On area and distance, most tourist types agree that these are important, and the estimated parameters are similar. Tourist types seem to regard the other three explanatory variables (cost, political stability, temperature squared) as irrelevant.

3.3. Differences between quarters

To explore possible differences in preferences across time of year, we re-estimated the model separately for the four quarters and tested whether the estimated coefficients were different from the annual model. We used the full model for this. Table 4 shows the results.

Elderly holidaymakers seem to have the same preferences throughout the year. Holidaymakers travelling with children under 13 exhibit preferences that are very different in quarter 1 to those in the rest of the year. In Q1, coasts and reefs deter these holidaymakers, and sparsely populated, rich countries are more attractive. The desirable temperature is lower, and precipitation matters. This may be explained by demand for winter sport holidays among this group. In Q3, these tourists have a strong preference for hot destinations. The same pattern, but much weaker, is observed for other holidaymakers.

Visitors to friends show substantial variation over the year, but this may be a statistical artefact. For instance, in Q4, the UK bias is less strong, but the distance effect is stronger; in the end, most friends are visited in the UK. In Q1, travellers prefer to visit friends in larger countries with shorter coasts; again, these effects partly cancel. Family visitors reveal a different behaviour only in Q4. Reefs deter, and the income effect is much stronger. This probably means that parents will not visit their children in Australia over Christmas, but they may go and see their American cousins, perhaps while shopping in New York.

Business travellers and other tourists show a more distinct preference for warm but not too hot locations in Q2 than in the whole year. Other tourists also show an aversion to densely populated, politically stable destinations in Q3, a finding for which we have no interpretation.

It should be noted, however, that only a small number of observations was used to estimate the quarterly models; cf. Table A14. We cannot place too much faith in the quarterly results.

4. Discussion and conclusion

We estimated a pooled travel model of destination choices by Irish tourists. We distinguish between seven types of tourists and show that they have different preferences. Visitors of friends and family do not respond to the climate at destination, and business travellers show only a weak preference for higher temperatures. Other tourists and holidaymakers have a clear preference for higher temperatures. Elderly holidaymakers are the only ones that prefer warm destinations but shun countries that are too hot. Irish tourists are indifferent to precipitation, which may be because they are or because the average precipitation of a country is hard to define. We also find evidence that tourists behave differently at different times of the year, but the results are weak because of the limited number of observations.

Overall, we confirm the postulate of Goessling and Hall (2006a, b) that different tourists behave differently, also with regard to climate and weather. This confirms the earlier findings of Lise and Tol (2002) and Hamilton *et al*. (2005c). It shows that the results of Hamilton *et al*. (2005a, b) and Bigano *et al*. (2007) – who assume a single, representative tourist – should be interpreted with care. The study of the impact of climate change is therefore more complicated. On the one hand, Bigano *et al*. (2007) overstated the impact of climate change by assuming that all leisure travellers behave like holidaymakers. On the other hand, Bigano *et al*. (2007) ignore the effect of population ageing, while the results here suggest that elderly holidaymakers are most sensitive to climate.

In the introduction, we hypothesised that business travellers and visitors to friends and family should respond to weather and climate. We find little to no empirical support for this. This may be because our hypotheses are wrong, or because the effect is weak and our data do not have sufficient discriminatory power. Future research should cast more light on this. To examine these issues for Ireland, we will have to wait for additional data to be collected. Additional data would also allow us to test finer classifications of tourist types. An extended

questionnaire would enable classification of tourists along income classes and holiday activities.

Acknowledgements

The authors are grateful to Sheona Gilsenan at the Central Statistics Office for help with the data and useful comments, to John Fitz Gerald for useful discussion, and to Ireland's Environmental Protection Agency for funding under the ERTDI Programme (2006-SDM-2006-11).

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Table 1. Descriptions and sources for destination specific variables

Variable	Description	Source
Heritage	Number of world heritage sites per square kilometre	CIA World Fact Book
Precipitation	Average precipitation per month (mm)	New *et al*. (2002)
Temperature	Average temperature in month (degrees C)	Leemans and Cramer (1991)
Temp squared	$(\text{temperature})^2$	Generated from data
Population density	Number of people per square kilometre	CIA World Fact Book
Distance	Distance (great circles distance, as the crow flies) between capitals (km)	Generated from data; Latitude and longitude from Times World Atlas
Coastline	Length of coastline (km)	earthtrends.wri.org
Income	Per capita income (Geary-Khamis dollar per person per year)	earthtrends.wri.org
Reef	Square kilometre	www.reefbase.org
Area	Square kilometre	CIA World Fact Book
Stability	Political stability index	Kaufman *et al*. (2006)

Table 2. Signs of the significant explanatory variables, per type of tourist; a ++/-- denotes significance in both the full and parsimonious models; a +/- denotes significance in the full model only.

	Holiday makers			**Visitors**		**Business**	**Other**
	59+	13-	others	Friends	Family		
Cost	++			++			
Area	++	+	++	++	++	++	++
Coastline					+		
Reef area				-			
Heritage	++		++				++
Income	++	++	++	++	++	++	++
Population density	+	+	++	++	+	++	+
Stability		-			--		
Distance	--	-	--	--	--	--	--
Precipitation							
Temperature	++	++	++			+	++
Temp squared	--					-	
UK bias		+	++	++	++	++	++
RoI bias				++	++		

Table 3. Significant differences between types of tourists**

	Holiday, 59+	**Holiday, 13-**	**Holiday, other**	**Friends**	**Family**	**Business**
Holiday, with <13s	Cost* Heritage* TempSq* UK bias*					
Holiday, other	Cost* Heritage PopDens* TempSq* UK bias*	Heritage* PopDens*				
Friends	Heritage* Home bias* PopDens* Temperature* TempSq* UK bias*	Cost* Home bias* PopDens* Temperature*	Cost* Heritage* Home bias* Income Temperature*			
Family	Area Coast* Cost* Distance Heritage* Home bias* Income Stability* Temperature* TempSq* UK bias*	Area Coast* Distance Home bias* Income Stability* Temperature* UK bias	Area Coast* Distance Heritage* Home bias* Income PopDens* Stability* Temperature*	Area Coast* Cost* Income PopDens* Stability*		
Business	Cost* Heritage* PopDens* Temperature* TempSq* UK bias*	PopDens* Temperature*	Heritage* Temperature*	Cost* Home bias*	Area Coast* Distance Home bias* Income PopDens* Stability*	
Other	Cost* Income Temperature TempSq* UK bias*	Heritage* Income	Heritage* Income PopDens*	Cost* Heritage* Home bias* PopDens* Temperature*	Area Coast* Distance Heritage* Home bias* Income Stability* Temperature* UK bias	Heritage* PopDens* Temperature*

* Estimated coefficient is significantly different from zero for one type of tourist, but not for the other.

** Precipitation and reef area have been omitted as they are not significant for any type of tourist.

Table 4. Significant differences between annual and quarterly models, per type of tourists.

	Quarter 1	**Quarter 2**	**Quarter 3**	**Quarter 4**
Holiday, 59+				
Holiday, 13-	Coast Income PopDens Precipitation Reef Area Temperature TempSq	Precipitation	Temperature	
Holiday, other	Coast	Temperature TempSq	Temperature TempSq	
Friends	Area Coast		Cost	Coast Cost Distance Home bias UK bias
Family				Income Reef
Business		Heritage Temperature TempSq		
Other		Temperature	Cost PopDens Stability	

* Estimated coefficient for the quarter is significantly different from the estimated coefficient for the year.

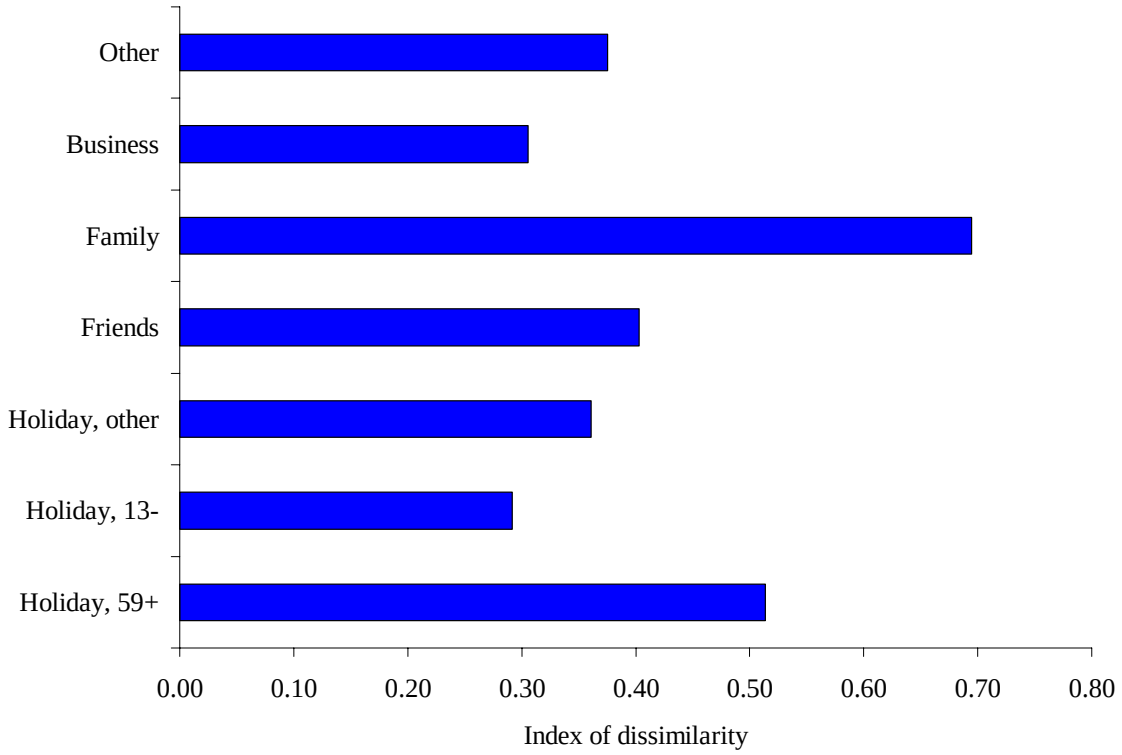

Figure 1. The dissimilarity between types of tourist. The index is defined as the number of explanatory variables that are different between tourists, divided by the total number of explanatory variables times the number of other tourist types.

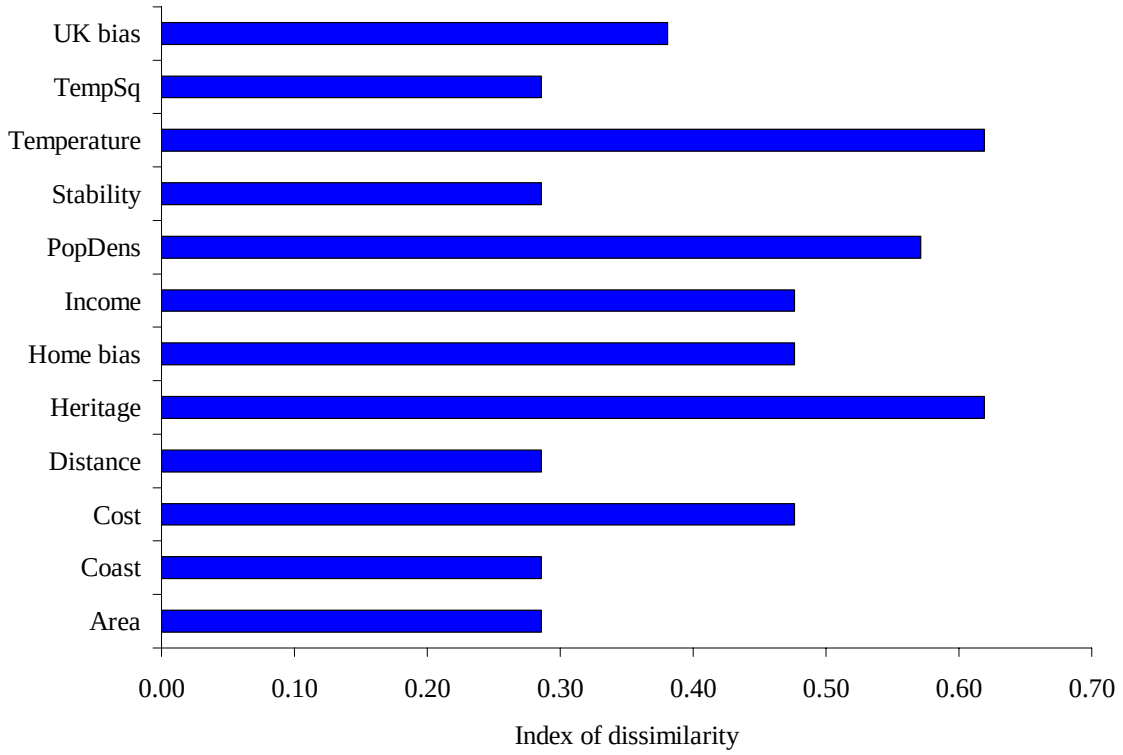

Figure 2. The dissimilarity between explanatory variables. The index is defined as the number of times an explanatory variable is different between two types of tourist, divided by the total number of distinct pairs (21).

APPENDIX

Table A1. Regression coefficients for area of the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.29	0.08	3.76	0.31	0.05	5.80
	13-	0.14	0.13	1.11	0.27	0.06	4.63
	Other	0.34	0.06	5.70	0.31	0.04	7.69
Visitor	**Friends**	0.33	0.09	3.63	0.30	0.05	5.72
	Family	0.19	0.08	2.47	0.11	0.05	2.44
Business		0.33	0.05	6.71	0.32	0.04	8.97
Other		0.46	0.09	5.26	0.44	0.07	6.52

Table A2. The regression coefficients for distance to the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	-0.74	0.23	-3.28	-0.68	0.07	-9.88
	13-	-0.59	0.31	-1.90	-0.63	0.07	-9.05
	Other	-0.87	0.17	-5.26	-0.68	0.07	-10.01
Visitor	**Friends**	-0.41	0.16	-2.58	-0.44	0.12	-3.63
	Family	-0.30	0.21	-1.40	-0.33	0.10	-3.41
Business		-0.79	0.13	-6.06	-0.62	0.04	-14.66
Other		-0.53	0.23	-2.36	-0.68	0.04	-15.16

Table A3. The regression coefficients for per capita income in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.66	0.19	3.41	0.68	0.14	4.80
	13-	0.95	0.26	3.58	0.69	0.17	3.98
	Other	0.55	0.14	4.02	0.71	0.10	7.09
Visitor	**Friends**	0.55	0.20	2.72	0.38	0.12	3.23
	Family	1.23	0.22	5.67	1.23	0.20	6.16
Business		0.42	0.10	4.30	0.49	0.07	7.10
Other		0.43	0.14	2.99	0.25	0.10	2.53

Table A4. The regression coefficients for heritage density in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.205	0.089	2.30	0.300	0.070	4.28
	13-	-0.022	0.128	-0.17			
	Other	0.091	0.058	1.58	0.119	0.047	2.54
Visitor	**Friends**	-0.055	0.104	-0.53			
	Family	0.026	0.093	0.28			
Business		-0.073	0.048	-1.52			
Other		0.276	0.122	2.26	0.273	0.080	3.39

Table A5. The regression coefficients for population density in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.66	0.19	3.41			
	13-	0.95	0.26	3.58			
	Other	0.55	0.14	4.02	0.25	0.08	3.34
Visitor	**Friends**	0.55	0.20	2.72	0.33	0.09	3.81
	Family	1.23	0.22	5.67			
Business		0.42	0.10	4.30	0.35	0.06	6.08
Other		0.43	0.14	2.99			

Table A6. The regression coefficients for temperature in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.093	0.026	3.58	0.096	0.026	3.73
	13-	0.098	0.041	2.39	0.053	0.014	3.69
	Other	0.069	0.022	3.17	0.052	0.010	5.20
Visitor	**Friends**	0.011	0.025	0.43			
	Family	0.028	0.018	1.53			
Business		0.023	0.012	2.03			
Other		0.042	0.013	3.15	0.037	0.008	4.81

Table A7. The regression coefficients for reef area in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	-0.039	0.048	-0.80			
	13-	-0.064	0.061	-1.04			
	Other	-0.025	0.035	-0.71			
Visitor	**Friends**	-0.084	0.040	-2.07			
	Family	-0.018	0.034	-0.53			
Business		0.012	0.028	0.43			
Other		-0.044	0.051	-0.87			

Table A7. The regression coefficients for coast length of the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.057	0.035	1.60			
	13-	0.032	0.052	0.63			
	Other	0.017	0.032	0.54			
Visitor	**Friends**	-0.017	0.030	-0.56			
	Family	0.068	0.036	1.90	0.073	0.032	2.24
Business		0.012	0.023	0.52			
Other		-0.022	0.029	-0.76			

Table A8. The regression coefficients for precipitation in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.00021	0.00250	0.08			
	13-	-0.00127	0.00258	-0.49			
	Other	-0.00090	0.00145	-0.62			
Visitor	**Friends**	0.00247	0.00257	0.96			
	Family	0.00106	0.00177	0.60			
Business		0.00037	0.00128	0.29			
Other		0.00149	0.00279	0.53			

Table A9. The regression coefficients for temperature squared in the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	-0.00250	0.00108	-2.33	-0.00278	0.00103	-2.69
	13-	-0.00187	0.00154	-1.21			
	Other	-0.00042	0.00087	-0.48			
Visitor	**Friends**	0.00027	0.00111	0.25			
	Family	-0.00048	0.00074	-0.65			
Business		-0.00072	0.00049	-1.47			
Other		-0.00018	0.00065	-0.28			

Table A10. The regression coefficients for political stability of the destination country.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.03	0.22	0.14			
	13-	-0.54	0.36	-1.50			
	Other	0.25	0.19	1.32			
Visitor	**Friends**	-0.23	0.32	-0.71			
	Family	-0.85	0.27	-3.11	-0.96	0.23	-4.09
Business		0.16	0.14	1.19			
Other		-0.21	0.18	-1.21			

Table A11. The regression coefficients for the Republic of Ireland dummy.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	-0.84	1.72	-0.49			
	13-	-0.03	2.37	-0.01			
	Other	-1.50	1.37	-1.09			
Visitor	**Friends**	2.44	1.23	1.99	2.26	0.92	2.47
	Family	3.40	1.64	2.07	3.14	0.90	3.47
Business		-1.24	1.06	-1.17			
Other		1.21	1.72	0.71			

Table A12. The regression coefficients for the United Kingdom dummy.

		Full model			Parsimonious model		
		Coef.	**StdErr**	**t-stat**	**Coef.**	**StdErr**	**t-stat**
Holiday	**59+**	0.47	0.58	0.82			
	13-	1.13	0.69	1.65	1.25	0.57	2.20
	Other	1.46	0.65	2.24	1.58	0.61	2.60
Visitor	**Friends**	2.45	0.41	5.92	2.52	0.38	6.71
	Family	2.97	0.51	5.82	3.04	0.48	6.36
Business		1.86	0.45	4.14	2.03	0.41	4.93
Other		1.87	0.43	4.35	1.78	0.35	5.10

Table A13. Adjusted R^2 of the full models and the parsimonious ones. Number of observations for the annual and the quarterly models.

		adj R^2 full	**adj R^2 pars.**	**N-Yr**	**N-Q1**	**N-Q2**	**N-Q3**	**N-Q4**
Holiday	**59+**	0.64	0.63	122	32	36	27	27
	13-	0.55	0.56	98	19	20	32	27
	Other	0.57	0.57	227	55	53	61	58
Visitor	**Friends**	0.80	0.80	93	25	25	24	19
	Family	0.77	0.78	110	29	24	31	26
Business		0.71	0.71	179	52	46	40	41
Other		0.78	0.79	97	22	25	27	23

Table A15. Descriptive statistics for the Holidaymakers, Aged 59+ full year model (122 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.471	1.545	0	6.229
Area	12.402	2.140	5.756	16.653
Heritage	3.464	1.724	0	9.158
Reef area	1.798	3.333	0	10.840
Cost	6.989	0.801	4.727	9.798
Income	9.549	0.668	7.843	10.539
Population density	4.325	1.215	0.933	7.130
Coast	7.466	3.381	0	12.489
Distance	7.637	1.650	0	9.834
Precipitation	64.695	39.074	0.133	211.167
Temperature	13.076	8.392	-11.333	28.2
Temp squared	240.827	217.101	0.218	795.240
Stability	0.328	0.697	-1.797	1.585
UK Bias	0.033	0.179	0	1
RoI Bias	0.033	0.179	0	1

Table A16. Descriptive statistics for the Holidaymakers, incl Age <13 full year model (98 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	2.504	1.653	0	7.450
Area	12.306	1.991	6.064	16.116
Heritage	3.354	1.638	0	5.786
Reef area	1.905	3.419	0	10.840
Cost	6.856	0.871	3.584	9.105
Income	9.643	0.743	6.747	10.539
Population density	4.416	1.261	0.277	8.842
Coast	7.769	3.022	0	12.489
Distance	7.474	1.798	0	9.834
Precipitation	75.057	54.245	0.7	318.967
Temperature	13.350	9.141	-6.567	31.7
Temp squared	260.917	257.215	0.36	1004.89
Stability	0.401	0.686	-2.816	1.484
UK Bias	0.041	0.199	0	1
RoI Bias	0.041	0.199	0	1

Table A17. Descriptive statistics for the Holidaymakers, Other full year model (227 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.835	1.771	0	7.282
Area	11.797	2.701	0.668	16.653
Heritage	2.925	1.890	0	9.158
Reef area	2.424	3.480	0	10.840
Cost	7.097	0.772	4.605	9.616
Income	9.309	0.897	6.429	10.539
Population density	4.518	1.435	0.933	9.701
Coast	7.274	3.297	0	12.489
Distance	8.011	1.399	0	9.834
Precipitation	84.344	64.255	0.133	387.933
Temperature	14.800	9.481	-14.067	33.433
Temp squared	308.550	257.896	0.001	1117.788
Stability	0.321	0.728	-1.417	1.585
UK Bias	0.018	0.132	0	1
RoI Bias	0.018	0.132	0	1

Table A18. Descriptive statistics for the Visiting Friends full year model (93 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.513	1.495	0	6.196
Area	12.213	1.850	6.064	16.116
Heritage	3.806	1.418	0	5.960
Reef area	1.408	3.095	0	10.799
Cost	6.454	.743	4.749	8.861
Income	9.791	.658	7.318	10.539
Population density	4.418	1.202	0.933	6.462
Coast	7.540	3.432	0	12.489
Distance	7.330	1.807	0	9.834
Precipitation	70.619	37.668	3.633	211.167
Temperature	11.349	8.390	-7.3	28.2
Temp squared	198.440	212.249	0.001	795.240
Stability	0.559	0.551	-1.160	1.484
UK Bias	0.0430	0.204	0	1
RoI Bias	0.0430	0.204	0	1
Australia Bias	0.0323	0.178	0	1

Table A19. Descriptive statistics for the Visiting Family full year model (110 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.669	1.763	0	7.444
Area	12.173	2.327	4.074142	16.116
Heritage	3.156	1.772	0	5.960
Reef area	2.117	3.560	0	10.799
Cost	6.518	0.888	4.408	8.644
Income	9.740	0.762	6.719	10.539
Population density	4.582	1.548	0.933	8.842
Coast	7.618	3.486	0	12.489
Distance	7.667	1.809	0	9.834
Precipitation	80.145	55.673	1.667	318.967
Temperature	12.444	9.486	-20.067	33.433
Temp squared	244.005	241.089	0.36	1117.788
Stability	0.494	0.660	-1.768	1.407
UK Bias	0.0364	0.188	0	1
RoI Bias	0.0364	0.188	0	1

Table A20. Descriptive statistics for the Business full year model (179 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.313	1.459	0	6.515
Area	12.027	2.643	0.668	16.653
Heritage	3.055	1.883	0	9.158
Reef area	2.240	3.481	0	10.799
Cost	7.241	0.879	5.566	10.309
Income	9.468	0.923	6.544	10.539
Population density	4.601	1.585	0.933	9.701
Coast	7.207	3.588	0	12.489
Distance	7.845	1.498	0	9.834
Precipitation	73.306	54.409	0.133	282.833
Temperature	12.406	10.077	-21.133	33.433
Temp squared	254.885	248.92	0.001	1117.788
Stability	0.382	0.736	-1.768	1.484
UK Bias	0.022	0.148	0	1
RoI Bias	0.022	0.148	0	1

Table A21. Descriptive statistics for Other Tourists full year model (97 observations).

Variable	Mean	Std. Dev.	Min.	Max.
Pers	1.261	1.430	0	5.784
Area	12.527	1.944	5.756	16.653
Heritage	3.591	1.574	0	9.158
Reef area	1.600	3.178	0	10.799
Cost	6.852	0.850	5.104	9.441
Income	9.583	0.766	6.885	10.539
Population density	4.417	1.238	0.933	7.130
Coast	7.293	3.637	0	12.489
Distance	7.430	1.771	0	9.754
Precipitation	63.572	29.463	0.133	167.5
Temperature	11.445	9.384	-21.133	30.233
Temp squared	218.151	204.908	0.218	914.054
Stability	0.334	.621	-1.164	1.407
UK Bias	0.041	.200	0	1
RoI Bias	0.041	.200	0	1

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