Tourism Travel within the European Union: The Impact of Personal Preferences and Perceptions on Vacation Destination and Travel Mode Choices

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ABSTRACT

The tourism industry has a strong impact on the world's economy and development. For this reason, it is important to study holiday travel behavior, including where individuals travel on vacation and what travel mode they use to get there. This paper jointly models travelers' choice of holiday destination and travel mode for the large scale tourism market characterized by multiple origins and multiple destinations within the European Union (EU). The data used in this analysis is drawn from a 1997 telephone survey conducted by the European Commission. The empirical results indicate the important effects of nationality, traveler demographics, travel companionship arrangement, traveler preferences and perceptions, and trip/destination characteristics on holiday destination and travel mode choice. These results have important policy implications not only for each country within the European Union, but also for countries and regions around the world.

1. INTRODUCTION

Tourism is a powerful and diverse industry that is directly associated with most regions' growth and economic vitality. In fact, many countries and regions' economies depend significantly on tourism-generated revenue, which exceeded $700 billion internationally in 2006 (World Tourism Organization, 2007). For example, 3.9% of the United States' GDP, 6.2% of Switzerland's GDP, and over 11% of the European Union's GDP are generated from tourism (Booz Allen Hamilton, 2007; EUROPA, 2008). However, the significance of recreational and leisure tourism extends beyond simply being a source of revenue: it provides substantial employment opportunities, influences regional infrastructure, supports local industry, contributes to traffic congestion, influences freight movements, and encourages urban development.

In an ideal world, tourism policy makers would be proactive about the growth and preservation of their industry. Knowing what kinds of travelers choose to holiday in their country and why travelers made this choice can help planners solidify demand for their current tourism services as well as expand and adapt services to attract new types of tourists. Unfortunately, tourism is a competitive and perishable economic product that shifts over time, depending on the changing needs and preferences of holiday travelers. These shifts in traveler behavior, in turn, make predicting tourism demand quite challenging (Witt, 1995).

Policy makers, planners, and industrial practitioners have responded to the challenge by attempting to develop more insightful models of tourism behavior, especially focused on holiday destination and travel modes. Not only do these models predict where individuals travel on holiday and what travel mode they use to get there, but they also seek to understand how and why these decisions are made. In fact, over the past 15 years, a stream of research within the tourism and transportation fields has evolved that seeks to answer just these questions. The rest of this introduction section provides a brief summary of the research within this stream, including models and methods, the role of personal preferences, and the relative scale of holiday destination studies. The section ends with a discussion of how the current study builds upon the methods and findings of earlier studies.

1.1 Previous Research Models of Holiday Destination and Travel Mode Choice

Holiday-related decision-making and behavior are prominent areas of study within the transportation and tourism fields, because this type of travel plays such a vital role in the world

economy. Two of the most notable topics studied within the tourism literature are where individuals travel on holiday and what travel mode they use to get there, with a variety of modeling methods being employed to analyze these choices (Johnson and Ashworth, 1990, Witt and Witt, 1995, Lim, 1997, Sirakaya and Woodside, 2005). Some of these modeling methods focus on holiday destination choice, others on holiday travel mode choice, and a few others on destination and mode choices as part of a more comprehensive system of the overall holiday decision process.

The literature focusing on holiday destination choice decisions typically employ the random utility-based multinomial logit model, though a handful of studies have also considered a nested logit structure (Seddighi and Theocharous, 2002). These methods are appropriate because destinations are discrete alternatives (Eymann and Ronning, 1997). Some researchers aggregate all vacation purposes together when estimating a destination choice model (Hong et al. 2006), while others develop a separate destination choice model for each leisure activity (Simma et al., 2001). Structural time series models are also occasionally used to examine trend effects related to changes in arrivals at a vacation destination over time (Greenidge, 2001), while cluster and discriminant analysis techniques have been favored by researchers examining destination loyalty effects (Castro et al., 2007).

Research on holiday travel mode choice, on the other hand, is almost exclusively undertaken using discrete choice models. Again, this is expected since the alternatives are discrete options, such as traveling by automobile, plane, or rail (Chung, 2006). Still, many researchers recognize that having an independent model for holiday travel mode choice does not recognize the package nature of the vacation travel mode and destination choice decisions. For instance, some distant vacation destinations may be feasible for most individuals only by the air mode, or families with limited consumption potential may not favorably evaluate destinations that are not well-connected by surface public transport modes. Hackney (2004) discusses in detail the need to develop joint vacation destination and mode choice decisions, and recommends that efforts be focused on understanding this joint package decision process.

Finally, a number of researchers have developed a system of models for the entire holiday decision-making process, of which destination and mode choices are a part. Regardless of the specific structures of these model systems, all these researchers acknowledge that the holiday destination and travel mode choices are closely inter-related. In fact, several of these

systems model destination and mode as a package decision (see, for example, Decrop and Snelders, 2004, Nicolau and Mas, 2005, and Bargeman and van der Poel, 2006). Eugenio-Martin's (2008) theoretical framework for the holiday decision process also recommends a joint destination and mode choice model using a multinomial logit framework. Further, even when considered individually rather than as a package choice, researchers place the travel destination and mode choice decision stages in immediate proximity of one other (Decrop and Snelders, 2005).

Clearly, the overwhelming consensus from the literature is that holiday destination and travel mode need to be studied and modeled as a package decision.

1.2 The Role of Personal Preferences

Holiday destination and travel mode studies typically focus on three main types of independent variables and their interaction effects: personal characteristics, destination characteristics, and trip characteristics. Personal characteristics include factors such as age, education, household composition, income, and place of residence (Baloglu and McCleary, 1999, Bargemen and van der Poel, 2006, Eugenio-Martin, 2008). Destination characteristics include attributes such as climate, the presence of different kinds of activities, the presence and extent of coastline, quality and range of accommodations, degree of development and destination area size, Gross National Product (GNP), costs related to food, transport, and accommodations, and exchange rates (Johnson and Ashworth, 1990 and Baloglu and McCleary, 1999). Trip characteristics include travel distances, costs, travel times, and vacation purpose (Bargemen and van der Poel, 2006 and Eugenio-Martin, 2008).

Recently, however, researchers have begun looking past these standard factors into more insightful measures of traveler preferences and motivations. This is in response to the fact that tourists are becoming increasingly demanding and selective about their holiday travel, which, in turn, is leading to an increasingly competitive tourism market (European Travel Commission, 2006). Preference data provides details beyond personal characteristics or trip purposes, such as what a traveler looks for on a trip, their motivations for taking a trip, and prior expectations and experiences. These methods attempt to capture the part of a traveler's personality that Beerli et al. (2007) describe as the "inherent desires for leisure travel that control where and how often an individual will travel".

Researchers and practitioners are incorporating such preferences into their studies on tourism demand in various ways, including by considering stated motivation factors, prior travel experiences, and ranking preference scales. Each of these types of preference indicators are discussed in turn in the next three paragraphs.

The most common method to consider traveler preferences is to incorporate stated motivation factors from surveys or interviews into models and comparative studies (Papatheodorou, 2001). These factors highlight what travelers expect to accomplish on their trip or the personal benefits they hope to gain from taking a holiday (Baloglu and McClearly, 1999). Many studies interpret these factors as a 'level of appreciation', i.e. how much a traveler appreciates such activities as nature gazing, cultural heritage awareness improvement, shopping and dining, and outdoor recreation (Lehto et al., 2004). Others describe it as a 'level of interest'. Nicolau and Mas (2005) used this latter definition in their review of interest in new places and new cultures. Motivation factors have also been used to describe how travelers perceive their destinations. Baloglu and McClearly (1999) evaluated how various destinations were perceived based on how well they would allow travelers to relax, have excitement, gain knowledge, be social, and attain prestige.

Holiday travel preferences and perceptions can also be extracted from prior travel experiences (Beerli and Martin, 2004). For instance, traveler loyalty, or the number of times an individual returns to the same destination, can reveal a considerable amount about the inherent preferences of that traveler (Castro et al., 2007). In fact, it is quite common for the more experienced travelers to become extremely loyal to certain destinations. According to recreation specialization theory, as individuals travel more, they refine their expectations and preferences until only a few destinations meet their needs (Bryan, 1977). Lehto et al. (2004) determined that prior travel experience, in the form of types of holidays, activities pursued during holidays, frequencies of holidays, lengths of holidays, and interactions across these factors, was a significant predictor of future holiday activity participation and expenditures.

Ory and Mokhtarian (2008) further concluded that "travel perceptions and desires are motivated by the number (and types) of trips made each year, rather than the (total) distance traveled." In their work, they formulated measures of perception using a Likert-based ranking scale that characterizes personality and lifestyle preferences of travelers, which is then used to

predict holiday travel patterns. Other researchers have show that ranking scales for self-image and destination-image are also useful (see, for example, Beerli et al., 2007). Finally, ranking scales can be applied to consider traveler perceptions regarding more concrete aspects of travel as well, including costs, travel packages, facilities, and advertising (Seddighi and Theocharous, 2002).

Previous research has confirmed that all the three types of traveler perception measures discussed earlier can provide useful insights, but this has only been shown for vacation travel over narrow frames of analysis, such as for travel from a single origin or travel to a single destination. Besides, most of these earlier studies have been undertaken using limited sample sizes, and cover a rather small tourism market (see next section for additional details).

1.3 Relative Scale of Holiday Destination Studies

Most existing studies of tourism patterns and behavior are in the context of vacation travel within the European Union, which commands a market of more than 450 million visitors every year (European Travel Commission, 2007). With six countries in the world's top ten holiday destinations, the EU is the world region most visited by tourists (EUROPA, 2008). Holiday travel to the EU accounts for 54.6% of all global tourism arrivals. According to the European Travel Commission (2007), tourism generates over $400 billion each year, which results in roughly 2 million active tourism-related firms, 7 to 8 million directly related jobs, and an additional 20 million indirectly related jobs (about 4-5% of all EU employment). Clearly, lessons learned from tourism trends and travel patterns within the EU can also be beneficially applied to improve tourism planning in other regions of the world after appropriate local customization.

Unfortunately, data for the entire EU is not always available or complete. As a result, the scale of earlier holiday destination studies has varied considerably. Most studies consider either a) travel from a single defined origin to a set of defined destinations or b) travel from a set of defined origins to a single defined destination. The first category of studies is most useful for identifying the interests and needs of travelers from particular countries or regions, so that the resulting insights can be translated into strategies to attract travelers from a specific country or region. Typically, these studies feature a small but extremely detailed dataset of less than a hundred households or individuals. Planners have developed a number of ways to deal with such small sample sizes by narrowing the frame of their analysis. For example, Lehto et al. (2004)

developed a model for travel strictly from one origin to one destination: the United Kingdom to the United States. A few other studies have modeled the vacation destination choice of travelers from a single origin country in terms of a simplified destination representation of whether travelers stay within the origin country or travel outside the origin country (Nicolau and Mas, 2005; Bargemen and van der Poel, 2006). Some other studies have focused on travel from a single country or region to many other countries or regions (Lise and Tol, 2002; Decrop and Snelders, 2005; Beerli et al., 2007). Researchers also rely on this scale of a single origin to multiple destinations when tourist origin information is unknown (that is, all trips are effectively assumed to originate at a single location, because origin location is entirely ignored; see Gonzalez and Moral, 1995, Hong et al., 2006, Haliciolgu, 2008, and Hamilton et al., 2008)

The second category of studies that considers travel from a set of defined origins to a single defined destination is most useful for identifying the types of people attracted to particular countries or regions and to determine how best to retain travelers from a specific country or region in a competitive tourism market. Typically, studies from this second category feature a larger dataset than those used for the first category of studies discussed above. Again, studies in this second category also have narrowed the frame of their analysis in one of several ways: from many countries to one country (Garin-Munoz and Amaral, 2000, Beerli and Martin, 2004, and Chan et al., 2005), or from many countries to one city (Greenidge, 2001 and Castro et al., 2007), or from many cities to one city within a country (Simma et al., 2001).

In contrast to the several earlier studies focusing on tourism travel from a single origin or to a single destination, there is little research that considers tourism travel between multiple origins *and* destinations. Such a multiple origin to multiple destination frame of analysis, on the other hand, provides planners with the most complete picture of traveler vacation behavior and decisions. The challenge here is collecting data at such a comprehensive scale.

1.4 Current Research and Paper Structure

The current study builds upon the previous research in the literature, and addresses some specific limitations of earlier studies in the field. In particular, the study jointly models travelers' choice of holiday destination and travel mode, while also considering an extensive array of stated motivation-based preference factors, for the large-scale tourism market characterized by multiple origins and multiple destinations within the European Union. To our knowledge, this is the first

empirical study to consider the traditional personal, destination, and trip factors, along with personal preference factors, for the joint analysis of vacation destination and travel mode choice within a large-scale tourism market of multiple origins and destinations. We use the unique *Eurobarometer* vacation travel data collected in 1997 for the empirical analysis (see the next section for more details).

The rest of this paper is structured as follows. Section 2 describes the data source and sample formation procedures. It also provides a brief descriptive analysis of the sample. Section 3 presents and discusses the empirical results. Section 4 concludes the paper by highlighting the important findings.

2. THE DATA

2.1 Data Source

The data used in this analysis is drawn from a 1997 telephone survey conducted by the European Commission, entitled *Eurobarometer 48.0: Holiday Travel, October-November 1997* (Melich, 2002). While the European Commission organizes extensive cross-national longitudinal public opinion studies every year, the *1997 Holiday Travel* survey is only the second occasion information regarding vacation travel within the European Union (EU) was collected. (The previous occasion was in 1986) The telephone survey was conducted in October and November 1997, and it includes responses from representative individuals, aged 15 and older, from the 15 member countries of the EU at that point in time: Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, and the United Kingdom.

The main reason for the selection of this data source for the current study is that it is one of the few cross-national data sources with extensive and detailed questions on stated and observed holiday travel preferences and perceptions. Specifically, respondents were first asked about general holiday plans in 1997, including whether or not they went away on holiday or planned to go on holiday in 1997, why they might not have gone away on holiday or did not plan to go away, general travel history, when and for how long they traveled in 1997, and the number of vacation trips taken in 1997. Next, respondents were asked specific questions about the three longest trips of 4 days or more they undertook in 1997, including countries visited, traveling companions, type of trip taken (*i.e.* to the sea, mountains, countryside, city, *etc*.), modes of travel

taken to the destinations and used at the destination, and the type of accommodation in which they resided when they were away. Respondents were further asked general questions about their holiday travel, such as reasons for choosing destinations, travel budgets, payment methods, typical products purchased on holiday, typical places visited on holiday (i.e. museums, parks, etc), and typical events attended on holiday. Respondents also gave information about how they plan their vacation, who arranges holidays, what types of information about destinations they look for, and what types of information media they seek out (*i.e*. brochures, books, internet, *etc*.). Finally, information regarding trip satisfaction in 1997 and holiday plans for 1998 was elicited. Demographic data was also collected on nationality, marital status, education level, gender, age, occupation, household size, household structure, and income.

2.2 Sample Formation

The purpose of this study is to analyze the influence of personal characteristics and preferences on an individual's joint choice of holiday destination and travel mode. Therefore, the original survey dataset was restructured and formatted to suit this task. First, individuals who did not take a holiday trip of 4 nights or more in 1997 were removed. Second, trips to or from EU countries or on modes with too few records to use were removed. Finally, individuals who refused to provide information on one or more demographic characteristics (such as income, age, level of education, household size, and/or number of children) were excluded from the dataset.

The final dataset consists of 2,298 individual holiday trips to the six most-visited countries in the EU: Germany, Greece, Spain, France, Italy, and United Kingdom (which includes England, Scotland, and Northern Ireland). These trips were also undertaken using one of the three most commonly used modes: personal vehicle (*i.e.* owned or rented cars/vans), air, and other surface public transport modes (train, bus, or ship). The independent variables considered in the study to explain vacation destination and mode choice included information on traveling companions, demographics, planning efforts, general criteria for choosing holiday destinations, typical products purchased on holiday, and typical places visited on holiday. The 1997 year characteristics of each destination country, such as number of hotels, number of annual tourist trips, Gross Domestic Product (GDP), and exchange rates, were compiled by the

authors using information from the European Commission's Eurostat web site[1]. The distance for inter-country travel for each pair of countries was approximated by averaging the distances between pairs of major cities in the two countries, as obtained using a Geographic Information System (GIS) shape file of Europe in ArcMap[2]. Finally, population densities, land areas, and kilometers of coastline for each of the European countries were collected from the CIA World Factbook web site[3].

2.3 Sample Description

In addition to the holiday destination and travel mode choice, the survey provides unique insight into the preferences and perceptions of holiday travelers from the European Union. Surprisingly, only slightly more than half of the survey respondents took a holiday during 1997, with these holiday trips being anywhere from a week to two weeks long. Over 64% of the individuals who took holiday trips had an income in the upper two quartiles of the survey respondents. But despite this high income skew, holiday travelers came from all over the European Union: 26.4% from Germany, 11.2% from Greece, 13.4% from Spain, 19.5% from France, 13.7% from Italy, and 15.8% from United Kingdom.

Even though travelers were well represented across the six origin countries, definite trends and preferences may be observed in destination country and travel mode choices, as shown in Table 1. The majority of holiday trips were to Spain and France, with more than a fifth of total vacation trips destined to each of these countries. In terms of travel mode, most holiday trips were undertaken using personal vehicles (64.9%) and surface public transport (19.5%), rather than by air (15.6%).

Other important preferences captured in the survey included the nature of travel companionship, the criteria for choosing a holiday destination, typical holiday activities, typical holiday purchases, and techniques for planning holiday travel. As one would expect, most holiday respondents traveled with their spouse (64.1%) and/or children (33.7%). Large numbers of travelers even shared their holiday with extended family members and friends (14.5% and 16.8%, respectively). The most important criteria for choosing a holiday destination were

[1]<http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_schema=PORTAL>

[2]The source of the GIS Shapefile is AND Data Solutions, BV, Environmental Systems Research Institute, Inc. (ESRI) Redlands, CA, USA (2000).

[3]<https://www.cia.gov/library/publications/the-world-factbook/geos/gm.html>

scenery and nature (selected by 49.7% of respondents), climate (45.9%), history and culture (31.0%), visiting friends and relatives (23.76%), and entertainment (19.5%).[4] The diversity of the criteria reported by respondents supports much of the previous literature's conclusion that not only do travelers prefer to experience warm and beautiful locales, but they also need opportunities to sightsee, be entertained, and connect with others. Interestingly, even though many respondents traveled with children, having activities specifically for children at the destinations was a low priority even for those traveling with children.

The survey also showed that holiday travelers overwhelmingly preferred cultural activities while on holiday, such as examining architecture (73.9%), exploring nature reserves (51.5%), or attending museums or exhibitions (50.6%). While on holiday, respondents stated that they tend to spend the most money on food (66.5%), local craft products (49.3%), and clothing (35.8%). This spending pattern supports the notion that holiday travelers within the European Union wish to fully explore and experience their destinations. Clearly the decision of where to go on holiday is a deliberate, carefully planned, activity. In fact, most travelers planned their trip on their own, using written and online materials.

3. EMPIRICAL ANALYSIS

This study utilizes a joint multinomial logit (MNL) model to analyze the influence of personal characteristics and preferences on an individual's joint choice of holiday destination and travel mode. Each individual in the MNL model has the option of choosing from among the 18 joint alternatives created from combining the six countries (Germany, Greece, Spain, France, Italy, and United Kingdom) and three travel modes (personal vehicle, air, and surface public transport). While more advanced models such as the mixed multinomial logit model can be used to analyze the choice among these alternatives, we decided to retain the simple MNL form because it is straightforward to estimate, interpret, and use. Besides, our focus in this study is to undertake a comprehensive analysis of the systematic component of utility; that is, on taking advantage of the richness of the *Eurobarometer Holiday Travel* data to study the impact of a whole range of potential variables impacting the choice of holiday destination and mode. Given the limited earlier exploration of the determinants of these choices, the emphasis is on shedding light on

[4] Note that the percentages do not sum to 100 across the various criteria because respondents could report multiple criteria for choosing their vacation destination.

these determining factors rather than on accommodating elaborate unobserved error term correlations

The results of the multinomial logit estimation for the final model specification are presented in Table 2. This final model specification was developed through a systematic process of eliminating statistically insignificant variables and combining statistically similar variables. This process was guided by intuitive reasoning and parsimony in the representation of variable effects. The parameter estimates reported in Table 2 indicate the effects of exogenous variables on the latent utilities of each joint choice alternative.

3.1 Mode Constants and Destination Preferences

The mode constants for each destination country and the destination preference parameters are reported first in Table 2a. The mode constant parameters represent the inherent bias for travel by personal vehicle (the base mode), as reflected in the negative coefficients on the air and surface public transport modes for all destinations except Greece and Spain. For Greece as the destination, the results indicate no significant difference across the three modes, while, for Spain, the results indicate a preference for the air mode over the other two surface transport modes. Among the various countries, trips to France and Germany are most likely to be made by a personal vehicle, followed by trips to Italy and the United Kingdom.

The destination preferences are introduced in the model in a unique way. Instead of including one constant per destination country, we introduce several constants to evaluate the general preferences for staying within one's own country and traveling to each of the other countries.[5] Specifically, for each individual, we introduced five destination constants interacted with the nationality of the individual (including a constant for the country to which the individual belongs). This is a more general specification than simply having five destination constants, which would imply no differential preference for countries based on nationality.

The results in Table 2a indicate that there is a clear national preference, with travelers preferring to vacation within their own countries.[6] This national preference trend is similar to

[5] An important note here. The survey did not expressly ask the country of residence of the respondent. The survey only elicited information on nationality in this regard. Thus, the assumption we had to make is that a person of a particular nationality was also residing in her/his home country, and originated her/his vacation travel from her/his home country.

[6] We also included a destination country distance variable in the specification, but this variable did not turn out to be statistically significant after including the own country preference dummy variables. However, as we will note later,

that found by Bargeman and van der Poel (2006) and Hamilton et al. (2008) in their smaller scale studies. Of course, there is variation in the nationality preference across different countries, with Greeks and Spaniards more likely to vacation within their countries than are citizens of other countries. Germans are most likely among all nationalities to vacation outside their home country, followed by citizens of the United Kingdom.

The remaining destination preference parameters provide information regarding the preferences of citizens of a particular country for vacationing in other countries (relative to a base country). Thus, the results show that Germans are least likely to travel to the United Kingdom, and are most likely to travel to Italy or Spain, if they leave their country (note the high negative coefficient for the United Kingdom, and the effective zero coefficients for Spain and Italy, under "Preference for Germans…"). The Greeks do not show differential destination preferences outside their home country. The French are least likely to go to Italy and the United Kingdom, but are indifferent between traveling to Germany, Greece, or Spain, if they travel outside France. Interestingly, while the Germans are not averse to traveling to Italy relative to other non-German countries, Italians appear to refrain from going to Germany and show a preference for their "sister" countries of the Mediterranean. Italians also show a very strong disinclination to travel to the United Kingdom, and the English appear to "return the favor" by being most unlikely to travel to Italy. Also, the English are not very likely to travel to Germany, which mirrors the reluctance of Germans to travel to the United Kingdom. Individuals from the United Kingdom are most likely to travel to Spain, if they leave their country. Overall, Spain is the most attractive destination for Europeans beyond their own home country, which is consistent with the descriptive statistics in Table 1.

3.2 Traveler Characteristics

The effects of traveler characteristics, which include travel companionship and demographics, are provided in Table 2b. The effects of traveler characteristics on destination choice are accommodated by interacting traveler characteristics with destination and trip characteristics.

The first set of characteristics describes how travel companionship can influence vacation destination and mode choice. The destination specific variables indicate that those traveling

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the destination country distance variable came out to be statistically significant when interacted with other traveler and travel characteristics. The important point to note here is that the national preference variables are not proxies for travel distance effects.

alone or with young children are likely to choose closer vacation destinations relative to those traveling with others. These results are intuitive, since adults traveling alone would want to get to their destinations quickly to begin their vacation pursuits, while those traveling with young children may not want to travel for extended periods because of the biological needs of young children and the inherent difficulty in keeping young children occupied when also constrained in physical movement. The mode specific variables indicate that those traveling with others (spouse, children, and other individuals) have a strong preference to travel by a personal vehicle, suggesting that the travel to the vacation destination itself is viewed as part of the overall vacation experience when traveling with others. A personal vehicle also provides the opportunity to make unplanned side-stops and enjoy the travel experience with friends/family. Overall, individuals traveling with others do not mind the time investment in traveling long distances or by the slower personal vehicle mode.

The second set of characteristics describes how holiday travel plans change depending on travelers' demographics. The first variable in this category is the age when the individual ended full-time education. We use this variable as a proxy for high education level, with the assumption that those who ended full-time education later in life studied longer to attain a higher education level (the survey did not directly query individuals regarding their education level). The results show that travelers who are highly educated are more likely (than those not very highly educated) to travel to countries with large cities, perhaps because these travelers are drawn to the rich culture and heritage associated with large (and typically older) cities. The coefficient on the "student" variable reveals the higher likelihood of students to travel by the surface public transport mode, which is intuitive since the surface transport mode is the least expensive.[7] The household size effect reflects the propensity of large-sized households to travel shorter distances, potentially to reduce overall vacation costs and/or simply because of the ease of coordinating and planning short distance vacation trips when several individuals are involved. The final two variables in the category of traveler demographics are unemployed/retired status and household annual income.[8] The unemployed/retired status variable has a destination-specific effect, while

[7] We also introduced a variable indicating whether costs of travel and living were a consideration in determining vacation choices (see next section), and there was indeed a correlation between being a student and being cost conscious.

[8] We introduce the household income variables as dummy variables representing which income quartile a household falls in, with households in the highest income quartile (income quartile 4) serving as the base category. The income

the income variable has a mode-specific effect. Specifically, unemployed/retired travelers are less likely to travel to the Mediterranean countries (France, Italy, Greece, and Spain). Also, in general, low income travelers (those in the first income quartile) prefer the surface ground transport mode, while high income travelers (those in the fourth income quartile) are more likely to use the air mode relative to their low income peers. It is indeed interesting that income does not affect the choice of holiday destination, but only affects the mode of travel. That is, travelers seem to be determined to visit their preferred destination once they decide to undertake a vacation, but are willing to save money by spending less on getting to their preferred destination should their expenditure potential be low.

3.3 Holiday Travel Preferences and Perceptions

The influence of holiday travel preferences and perceptions, which include travel planning, general criteria for choosing a holiday destination, products generally bought on vacation, and kinds of places generally visited on holiday, are presented in Table 2c. These characteristics present a comprehensive picture of what is important to travelers and how general holiday travel preferences influence holiday destination and mode choice. The effects of travel preferences and perceptions on destination choice are accommodated by interacting preferences/perceptions with destination and trip characteristics.

The first set of characteristics describes how different planning techniques, relative to the sole use of online resources, affect the choice of holiday destination and mode. Travelers who generally use a travel agent to plan a holiday trip are less likely to take a personal vehicle. It is unclear if using the travel agent provides deals that encourages travelers to flu or use surface public transport, or if travelers use a travel agent because they already want to use non-auto modes of transportation. Either way, travelers who use travel agents are likely to have more elaborate holiday travel plans, and approach travel agents to subcontract out part of the planning process. On the other hand, travelers who generally rely on written materials to plan their holiday trip tend to travel longer distances relative to those who do not use written materials. Again, it is unclear which influences the other, but it would suggest that if travelers are going far away to

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quartile information was compiled by the European Commission and is directly available in the publicly released version of the *Eurobarometer* data set.

relatively unfamiliar places, they will turn to using detailed written guides to be personally prepared.

The second set of characteristics describes how stated general criteria for choosing a holiday destination impacts choice. In the survey, travelers were able to identify any number of criteria that were important to them in choosing a destination (from scenery to climate to opportunity to meet people). Travelers especially concerned with the costs of travel and living are understandably more likely to use surface public transport, the least expensive mode, on their holiday trip. Travelers who stated that destinations should be easy to get to tend to travel shorter distances on their holiday, and are more likely to use a personal vehicle on their trip. This suggests that "easy to get to" is synonymous with short distances of travel by a personal vehicle. Many respondents stated that the quality of the environment, accommodations, food, and drink were very important in their destination choice. These travelers tend to go to 'popular' destinations, which are typically characterized by a high number of tourist overnight stays. Travelers for whom history and culture were important criteria had a preference to travel to countries with more major cities, smaller country populations, and higher population densities. This interesting mix of characteristics pertains to countries such as Italy, Spain, and Greece. Travelers who need entertainment at their destination prefer countries with larger cities, more hotels, and lower GDPs. In other words, these travelers prefer countries with large metropolitan areas and several attractions, but places that are not so commercialized as to lose uniqueness and individuality. Countries that meet this description are Greece and Spain. Those travelers whose main criterion for vacation destination choice was climate are significantly more likely to travel to a Mediterranean country. Few travelers' main concerns included having activities for children at their holiday destination. However, families who seek activities for children prefer countries with fewer large cities, where they perhaps may have more opportunities suited for children. Travelers who assign a high priority to visiting friends and/or relatives on holiday, on the other hand, tend to travel to countries with several large cities. Perhaps this is a pure size effect, since more number of large metropolitan areas present more opportunities to connect with people. Finally, the few respondents who were concerned with knowing the language of their holiday destination tend to travel relatively long distances. This is surprising since the farther one travels, the more likely one is to experience different languages. But perhaps this is a simple

manifestation of the fact that people traveling long distances are just more tuned into potential language issues.

The third set of characteristics describes how travelers' holiday product purchasing tendencies affect the type of destination they choose. Travelers who generally buy clothes on holiday are less likely to go to a country with many large cities. This would imply that clothes-shoppers are interested in specialty items that cannot be found within the mass markets of major metropolitan regions. Travelers who generally buy books and/or music on holiday are the opposite, and prefer countries with many large cities. These countries are more likely to having thriving international music or literary scenes and feature more diversity in this work. Travelers who generally buy crafts on holiday are more likely to go to countries with lower GDPs, such as Greece, Spain, and Italy. Perhaps in these countries there are more opportunities to purchase specialty and unique products. Finally, travelers who buy food products on holiday also prefer countries with larger cities. Similar to the music and literary scenes, countries with large cities are more likely to have developed culinary centers. Travelers are most likely to find the variety and quality of food products they are looking for in these cities.

The fourth set of characteristics describes what kinds of places travelers enjoy when visiting on holiday, and how these preferences affect the choice of destination. Many travelers look forward to visiting national parks and nature reserves on holiday. As a result, these travelers are significantly more likely to travel to countries that have large land areas, are densely populated, and possess long coastlines. Clearly, these travelers enjoy beautiful landscapes, but also appear to prefer destinations with wilderness and people-oriented activity centers close enough for easy access. There is an interesting mix of destination preferences for travelers who enjoy spas and health centers on holiday: shorter coastlines, fewer large cities, and dense populations.

It is also important to mention here that the cultural activities respondents indicated as important to pursue on holiday (such as examining architecture, exploring nature reserves, or visiting museums or exhibitions) were not significant predictors of holiday destination travel choices. Perhaps this is because these types of activities are present in all European Union countries.

3.4 Likelihood-Based Measure of Fit

The log-likelihood value at convergence of the final multinomial logit (MNL) specification is -3183.25. The log-likelihood value of the market share model with only the destination-mode constants is -3640.36. The likelihood ratio test value for comparing the MNL model with the market share model is 914.22, which is substantially greater than the critical chi-squared value with 90 degrees of freedom for any reasonable level of significance. Thus, the hypothesis of no observed independent variable effects is soundly rejected. That is, the specified model provides value in explaining vacation destination and travel model choices.

4. CONCLUSIONS

This paper jointly models travelers' choice of holiday destination and travel mode, while also considering an extensive array of stated motivation-based preference factors, for the large scale tourism market characterized by multiple origins and multiple destinations within the European Union (EU). The data used in this analysis is drawn from a 1997 telephone survey conducted by the European Commission, entitled *Eurobarometer 48.0: Holiday Travel, October-November 1997*. This data set is one of the few cross-national tourism-related data sources with extensive and detailed questions on stated and observed holiday travel preferences and perceptions. The empirical analysis in the paper is confined to tourism travel within and between the six most-visited countries in the EU: Germany, Greece, Spain, France, Italy, and United Kingdom. The *Eurobarometer* data is supplemented with the 1997-year characteristics of each destination country and distances for inter-country travel, obtained from other secondary sources of data.

The empirical results indicate the important effects of nationality (individuals are likely to travel within their own country even after controlling for distance effects), traveler demographics, travel companionship arrangement, traveler preferences and perceptions, and trip/destination characteristics on holiday destination and travel mode choice. These results have important policy implications not only for each country within the European Union, but also for countries and regions around the world. For instance, people are more likely to stay within their countries on vacation travel, and larger families with young children are particularly likely to travel short distances. Thus, a country's tourism industry would do well to aggressively market its tourism products to retain citizens of its own country. Targeting large families with young children for such marketing campaigns may be particularly beneficial. Tourists are more likely to

travel longer distances if they are familiar with languages and if they have consulted written materials about distant countries. Countries should therefore target other countries with similar languages, and consider investing in the production and distribution of written materials about their country.

Countries should also pay careful attention to how easy it is to navigate and travel around the country or region in a personal vehicle. Since the majority of holiday makers prefer to take a personal vehicle (the main exception to this are people who planned a trip through a travel agent), countries that are fast, easy, and convenient to get around by personal vehicle will be preferred. If a country is looking to promote alternative modes, they should continue to reach out to travel agents, but also aggressively market flights and rail as inexpensive and convenient alternatives to personal vehicles.

The study further shows that travelers' general holiday preferences are very influential in vacation destination and mode choice. Depending on the types of tourists a country is targeting, the country can adapt its marketing schemes to highlight the most relevant details about its vacation spots. For example, Mediterranean countries should emphasize climate-related benefits, countries who would like to encourage more families should downplay their large cities and instead present family friendly activities outside these areas, and countries who would like to capture the current food-related niche travel market should play up descriptions of their urban cores.

Within the next ten years, the European Travel Commission anticipates dramatic changes in tourist behavior (European Travel Commission, 2006). Due to an aging population and economic growth, the amount of leisure time individuals will have will most likely start to increase. Increasing competition for this leisure time, however, may result in more frequent shorter trips and occasional extra-long holidays. The change in demographics may also bring about a shift in holiday preferences, with travelers having perhaps higher expectations for their vacations in a competitive tourism market and a heightened interest in niche markets. Therefore, understanding tourism demand patterns will be important in the years to come. In this context, the current study contributes to the literature by examining tourist demand patterns in one of the most vibrant tourism regions in the world. Future studies should build upon the current research effort by folding in additional vacation travel decisions (such as whether to travel, when to travel, and the duration of travel) within a larger vacation travel demand system of models.

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TABLE 1 Choice Alternatives

Destination and Travel Mode	Number of Trips	Percentage of All Trips
Germany	*296*	*12.9%*
Personal Vehicle	214	9.3%
Air	8	0.4%
Surface Public Transport	74	3.2%
Greece	*322*	*14.0%*
Personal Vehicle	153	6.7%
Air	74	3.2%
Surface Public Transport	95	4.1%
Spain	*527*	*22.9%*
Personal Vehicle	260	11.3%
Air	201	8.7%
Surface Public Transport	66	2.9%
France	*500*	*21.8%*
Personal Vehicle	403	17.5%
Air	18	0.9%
Surface Public Transport	79	3.4%
Italy	*386*	*16.8%*
Personal Vehicle	268	11.7%
Air	34	1.4%
Surface Public Transport	84	3.7%
United Kingdom	*267*	*11.6%*
Personal Vehicle	194	8.4%
Air	24	1.1%
Surface Public Transport	49	2.1%
Total	2298	100%

TABLE 2a Model Specification: Mode Constants and Destination Preferences

	Destination-Specific Variables		Mode-Specific Variables (Base: Personal Vehicle)			
			Air		Surface Public Transport	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Mode Constants						
Germany			-3.097	-7.97	-1.194	-5.90
Greece			0.049	0.26	-0.158	-0.83
France			-2.333	-8.55	-1.199	-6.50
Italy			-1.529	-6.77	-0.887	-4.78
Spain			0.430	2.65	-0.966	-4.99
United Kingdom			-1.420	-5.46	-1.024	-4.64
Destination Country Preferences						
Preference of Europeans to stay within country of nationality						
Germany	1.262	5.77				
Greece	5.849	10.27				
France	3.222	14.06				
Italy	3.242	14.82				
Spain	5.069	12.57				
United Kingdom	1.607	5.72				
Preference of Germans to travel to other countries (relative to Spain)…						
Greece	-0.875	-3.66				
France	-1.266	-5.45				
Italy	0.000	-				
United Kingdom	-1.826	-5.55				
Preference of Greeks to travel to other countries (relative to Spain)…						
Germany	0.000	-				
France	0.000	-				
Italy	0.000	-				
United Kingdom	0.000	-				
Preference of French to travel to other countries (relative to Spain)…						
Germany	0.000	-				
Greece	0.000	-				
Italy	-0.774	-1.59				
United Kingdom	-0.536	-1.13				
Preference of Italians to travel to other countries (relative to Spain)…						
Germany	-0.981	-1.94				
Greece	0.000	-				
France	0.000	-				
United Kingdom	-1.517	-2.37				
Preference of Spaniards to travel to other countries (relative to Germany)…						
Greece	0.000	-				
France	0.000	-				
Italy	0.000	-				
United Kingdom	0.000	-				
Preference of Britons to travel to other countries (relative to Spain)…						
Germany	-2.223	-4.45				
Greece	-1.451	-4.00				
France	-0.869	-3.31				
Italy	-2.256	-5.01				

TABLE 2b Model Specification: Impact of Traveler Characteristics

	Destination-Specific Variables		Mode-Specific Variables (Base: Personal Vehicle)			
			Air		Surface Public Transport	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Traveling Companions for this Trip						
Alone						
**Trip Distance (100s of Km)*	-0.040	-2.14				
With Spouse			-0.701	-4.78	-0.935	-6.96
With Children Younger Than 18			-0.623	-3.60	-1.022	-5.69
**Trip Distance (100s of Km)*	-0.020	-1.55				
With Children Older Than 18			-1.072	-3.00	-0.645	-2.20
With Other People			-1.286	-5.93	-1.019	-5.50
Traveler Demographics						
Age When Ended Full-Time Education						
**Number of Large Cities*	0.001	1.64				
Currently a Student					0.648	3.49
Household Size						
**Trip Distance (100s of Km)*	-0.010	-2.41				
Unemployed / Retired			0.382	2.37	1.082	7.84
**Mediterranean country*	-0.631	-3.95				
Income Quartile 1					0.428	2.87
Income Quartile 2			-0.350	-2.10		
Income Quartile 3			-0.368	-2.30	-0.283	-1.90

TABLE 2c Model Specification: Influence of Travel Holiday Preferences and Perceptions

	Destination-Specific Variables		Mode-Specific Variables (Base: Personal Vehicle)			
			Air		Surface Public Transport	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Traveler Planning Characteristics						
Use of Travel Agent			1.704	10.78	0.822	4.87
Use of Written Materials						
**Trip Distance (100s of Km)*	0.060	4.51				
General Criteria for Choosing a Holiday Destination						
Costs of Travel and Living					0.434	3.73
Easy to Get to/ Close to Home			-0.331	-2.56	-0.331	-2.56
**Trip Distance (100s of Km)*	-0.050	-3.67				
Quality of Environment, Accommodations, Food & Drink						
**Number of Tourist Overnight Stays (100s)*	0.001	2.90				
History/Culture						
**Number of Large Cities*	0.139	3.48				
**Population Size (Millions)*	-0.071	-3.93				
**Population Density (Millions/ sq. Km)*	0.055	3.19				
Entertainment						
**Number of Large Cities*	0.162	3.10				
**Number of Hotels (100s)*	0.007	3.12				
**GDP*	-1.547	-3.28				
Climate						
**Mediterranean country*	1.219	8.62				
Activities for Children						
**Number of Large Cities*	-0.030	-2.00				
Visit Friends and/or Relatives						
**Number of Large Cities*	0.033	2.70				
Knowing Language						
**Trip Distance (100s of Km)*	0.030	1.77				
Products Generally Bought on Vacation						
Clothes						
**Number of Large Cities*	-0.019	-2.12				
Books/Music						
**Number of Large Cities*	0.023	2.05				
Crafts						
**GDP*	-0.114	-2.26				
Food Products						
**Number of Large Cities*	0.019	2.13				
Kinds of Places Generally Visited on Holiday						
National Parks/Nature Reserves						
**Total Country Land Area (sq. Km)*	0.004	3.81				
**Population Density (Millions/ sq. Km)*	0.056	3.96				
**Km of Coastline*	0.009	2.67				
Spas/Health Centers						
**Km of Coastline*	-0.010	-1.53				
**Number of Large Cities*	-0.080	-1.70				
**Population Density (Millions/ sq. Km)*	0.116	2.84				