Understanding Destination Choices of German Travelers

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ABSTRACT

Based on a literature review, this paper proposes and subsequently tests 19 hypotheses about what affects destination choices. This is followed by an analysis of a set of data about long journeys undertaken by German travelers. The hypotheses are tested using three different methods, namely simple t-tests, multiple linear regression and binomial logistic regression. Duration of stay, temperature difference, a coastline at the destination, mode of transport, travel distance, relative prices, travel party size, origin region, and number of destinations visited were the most significant determinants. Based on t-values from a series of multiple regression analyses, the three most significant characteristics are identified for each of the 25 most frequently visited destinations by German travelers.

Key words: Multiple regression, logistic regression, destination choice, probabilities of visitation, temperature differences.

INTRODUCTION

Germany is the world's fourth largest economy, following the USA, Japan, and China (IMF, 2010). In terms of travel and tourism demand (domestic and international combined), Germany is Europe's largest travel and tourism market and is number three in the world after the USA and Japan. Every year, during the period 1999-2008, Germans have undertaken more than 100 million trips (although marginally less in 2007) with at least four nights of stay, i.e., more than one long-duration trip on average, for each of 82.5 million residents in Germany (Eurostat, 2010a). With no exceptions, Germany accounted for the largest number of these trips undertaken by any European nation throughout the aforementioned period (Eurostat, 2010a). For many destinations in Europe and beyond, Germany is one of the top three travel markets, even when including the generally important domestic market. It should not be necessary to add any further arguments why – from both academic and managerial perspectives - it is important to try to understand the destination choices of German travelers.

Although there is no lack of aggregated data about the travel patterns of the Europeans, including Germans, a deep understanding of the travel choices requires access to survey data sets that are not always available, or if available not always as recent as could be desired. The survey data set used in this study is from 2002. It includes as many as 37,500 domestic and international journeys of at least 100 km in length each way, i.e., long journeys. Most but not all of these journeys (from now on interchangeably called trips) are at least four nights in duration. Most but not all are holiday trips, with the balance being business and private trips, or short holidays. It is thought that many of the inferences about the factors affecting destination choices that can be drawn from an analysis of this historical data set will remain relevant. For annual updates on the current status and recent trends in the German travel market readers are referred to annual publications from the Association of German Travel Agents, DRV, and Statistics Germany, published every year, in mid-March (DRV, 2005 to 2010; Statistisches Bundesamt, 2010).

The purpose of this paper is as follows:

1) to increase the understanding of the destination choices made by German travelers,
2) to uncover significant characteristics of main destinations from the point of view of German travelers, and
3) to consider methodological and practical implication for destination marketing and management.

The research questions are the following:

1) What factors contribute to explaining if journeys are likely to be domestic or international?
2) What factors contribute to explaining whether specific countries are likely to be chosen as destinations – by German travelers?
3) What methodological/theoretical and managerial implications can be drawn from the findings?

The main part of the paper follows, consisting of three sections: literature review, methodology, and results.

LITERATURE REVIEW

According to the classical economic theory, the three factors that determine consumer demand are income, [relative] prices, and tastes, referred to almost 60 years ago as the Holy Grail of the demand analyst (Farrell, 1953). In more recent history, the three factors have also been included in a tourism context (Downward & Lumsdon, 2000). Tastes can obviously be most anything, and may be impacted by market communication and other elements of the marketing mix. Destinations have to be in the *awareness set* to be considered at a later stage in the so-called *evoked set* (Woodside & Lysonski, 1989; Um & Crompton, 1990; Crompton, 1992; Decrop, 2010). Destination choice studies may be seen as a subset of tourism demand studies. Within the time-series tradition of (econometric) tourism demand studies, the impact of (relative) prices, income, and travel costs (related to distance) is well documented in a number of review articles (Crouch, 1992, 1995; Lim, 1997, 1999; Li, Song & Witt, 2005).

Tourism demand studies may also be of the cross-section type, generally with a focus on the individual tourist or family group of tourists. Studies within the cross-sectional category may focus on aspects of tourism demand like determinants of spending, reasons for satisfaction and repeat visitation, motives of tourists, and destination choice, among other things. Cross-sectional studies (of tourism demand) generally contain a greater number of explanatory factors than time-series studies. A number of studies – generally cross-sectional studies - have dealt specifically with the theme of destination choice (Morley, 1994; Corey, 1996; Moscardo et al. 1996; Field, 1999; Lang et al., 1997; Lawson & Thyne, 2001; Tyrrell et al., 2001; Jang & Cai, 2002; Lee, O'Leary & Hong, 2002; Lee, O'Leary, Lee & Morrison, 2002; Lehto et al., 2002; Seddighi & Theocharous, 2002; Nicolau & Mas, 2005; Bigano et al., 2006; Hong et al., 2006; Nicolau & Mas, 2006; Beerli et al., 2007; Correia et al., 2007; Lepp & Gibson, 2008; Trane, 2008; Hsu et al., 2009; Lyons et al., 2009; Eugenio-Martin & Campos-Soria, 2010; Konu, Laukkanen, & Komppula, 2010; Nicolau, 2010; Huang & Cai, 2011).

Clearly, some destinations are typical holiday destinations, themed around sun and sand (Aguilo et al., 2005), or coastlines and nature in general. Other destinations, such as capitals in major economies have a relatively high proportion of business travelers and are strong in cultural features. Finally, private visits and visits to friends and relatives may be oriented towards domestic destinations, perhaps in the provinces. Using discriminant analysis, Lang et al. (1997) found that for holiday travel, income level, education, length of trip, party size, trip expenditure, packaging,

benefits sought, and cost impact destination choice. Lawson & Thyne (2001) focused on reasons for avoiding certain destinations (the inert set) and pointed to perceived costs, danger and cultural differences. They illustrated the results using perceptual maps (the incumbent ALSCAL – Alternating Least Squares Scaling - version of multidimensional scaling, or MDS). Lyons et al. (2009) analyzed the travel choices of Irish tourists. The home country and Mediterranean destinations were the most frequently chosen destinations. Using logit regression analysis (logistic regression), Lyons et al. (2009) found that temperature (+), coastline length (+), crowding (-), poverty (-), distance (-), cultural heritage, political stability, age groups, and season impact destination choice. The majority of determinants continued to have the same effect over a number of years.

Using logistic regression (logit model), Correia et al. (2007) confirmed most of their hypotheses about the impact of a range of aspects on destination choice: budget, destination attributes, socio-demographic characteristics, information, accommodation attributes, previous visits and intentions to return, time constrains and last-minute buying, frequency of flying, and expectations. Using logistic regression with six different destinations as the dependent variables, Tyrrell et al. (2001) tested the effects of age group, number of children and traveling with children or not, marital status, education, income, gender, packaging, honeymooners or not, business element trip or not, visiting friends and relatives or not, and different travel motives. All of the destinations were different with respect to the signs and the magnitude of the regression coefficients, i.e., the degree to which each set of explanatory factors affected destination choice varied between destinations. Using logistic regression in a study of the British outbound travel market, Jang & Cai (2002) concluded that push-and-pull motivational factors varied across seven destinations and suggested that a destination can capitalize on its identified strengths in the different markets. Using a multinomial (logistic) regression procedure in a study of the determinants of students' destination choices, Trane (2008) found that general vacation motives and specific trip-related characteristics were important determinants of destination choice. The same was not found to be the case for socio-demographic characteristics (gender, age, student experience, and marital status), although the survey *was* based on actual trips taken, not just hypothetical trips.

Trane (2008), Morley (1994), and Papatheodorou (2001) credited Rugg (1973) for providing the first formal, theoretical treatment of tourists' destination choices. Rugg (1973), in turn, based his work on Lancaster's (1966) consumer theory. Bull (1991) explains the latter in a travel and tourism context. Tourists – as other consumers – are assumed to be rational, attempting to maximize utility, and subject to budget and time constraints. Using factor analysis followed by binary logistic regression (a binary logistic model), Lee et al. (2002) found that image significantly impacts the propensity that individuals (indeed German pleasure travelers) have for taking a trip to the United States. Socio-demographic factors and previous visits or previous experience were also tested, but were not found to be significant in the case studied by Lee et al. (2002). Sirakaya et al. (1996) used three criteria - attractiveness, travel and on-site costs, and available time - as the explanatory variables in a study of the value of a hypothetical destination choice. Morley (1994) compared the results of two different regression techniques (probit and logit), for three different segments (racial groups), with airfare level, hotel tariffs, exchange rates, income, age and gender as the explanatory variables. There were eight different destinations, hereunder Sydney, in an experimental or hypothetical destination choice study (Morley, 1994). Now an overview of selected studies follows.

TABLE 1 about here.

Several of the above studies have applied several different analytical techniques. However, only two of the choice studies mentioned in Table 1 have compared the results of different multivariate testing methods (Morley, 1994; Correia et al., 2007). In both cases, the compared techniques are variants of logistic regression, and they were found to give similar results. In logistic regression, the dependent variable stays within the boundaries of 0 to 1, which is the range of probabilities. In

Table 1 16 out of the 23 studies mentioned used variants of logistic regression (logit, multinomial logit, and probit). Explanations at length of binomial and multinomial logistic regression in a travel context can be found in Ben-Akiva & Lerman (1985). Recent and easy to read explanations can be found at Wikipedia.org. Two studies used discriminant analysis rather than logistic regression (Corey, 1996; Lang et al., 1997). Discriminant analysis is a linear technique, specifically for analyses where the dependent variable is dichotomous (0 or 1). All the (actual) choice studies in Table 1, with the exception of Bigano et al. (2006) have dichotomous dependent variables. Additionally, Bigano et al. (2006) is the only one of the studies that appears to be using linear Ordinary Least Squares (OLS) multiple regression analysis, albeit with logarithmic transformations on both the dependent and some of the independent variables. Interestingly, one study by Lee, O'Leary, Lee & Morrison (2002), used Ordinary Least Squares (OLS) multiple linear regression as well as multinomial logistic regression in the same study of German outbound leisure travel to three destinations. But generally, it appears that researchers have automatically shied away from attempting to use linear regression analysis in a destination choice context because of the dichotomous or categorical dependent variables. Technically, however, multiple linear regression analysis is very similar to two-group discriminant analysis (Green & Tull, 1978). The latter is obviously designed for analyses involving a binomial dependent variable, but the classifications provided by two-group discriminant analyses can also be derived from multiple regression analyses.

In the literature (see Table 1), the most frequently used method for studying actual destination choice is logistic regression, and the method is also being used for stated (intended) destination choice. The currently dominating method for studying satisfaction and intentions to return in the context of first-time and repeat tourists - Structural Equation Modeling (SEM) - is totally absent in studies of actual destination choice. Lam & Hsu (2006), for example, used Structural Equation Modeling in a study of intention for choosing a travel destination. Valle et al. (2008) use logistic regression in a study that explains the probability of Portuguese tourists returning to Brazil as a function of motivations, expectations, travel characteristics and the tourist's socio-demographic profile. Discussing intended destination choice, specifically intention to return, is beyond the scope of this paper and is dealt with elsewhere. Emphasis is here on *actual* destination choice.

Other studies have dealt with specific aspects affecting destination choice such as distance and climate (see below). Finally, some other studies of aspects of tourism demand other than destination choice (such as studies into spending and length of stay) are to some extend parallel to studies of destination choice. Transportation costs are obviously related to travel distance. The costs, in terms of time and money, obviously play a role for destination choice. The direct costs of a journey are transportation spending, accommodation spending, and other spending. Prideaux (2000) suggests the following equation: THCi = f(DSi, ACi, TACi), where THC is the total holiday expenditure, i the unique destination, DSi the discretionary spending at destination i, ACi the accommodation costs at destination i, TACi the transport access costs to destination i and f denotes some function. TACi is a function of distance. A number of publications point out and demonstrate the importance of distance for destination choice (McKercher & Lew, 2003; Bao & McKercher, 2008; McKercher et al., 2008; Nicolau, 2008). McKercher & Lew (2003) noted that the spatial distribution of tourists is influenced by factors such as distance decay, market access, time and budget availability, trip characteristics, and socio-demographic characteristics. Low airfares may impact destination choice or the regional dispersal of tourists (Koo et al., 2010). Baxter (1979) explained the concept of distance decay, and discussed the effect that distance may have on the demand for recreational trips. The distance decay function is also discussed in relation to travel and tourism in Bull (1991).

Recently, in light of the climate change issue, there has been an increased emphasis on the importance of the weather as an explanation for destination choices (Hamilton, 2003; Gomez, 2005; Bigano et al., 2006; Eugenio-Martin & Campos-Soria, 2010). Thus, obviously, holiday-

makers would like nice weather on their holiday, especially if the weather in the origin country tends to be less than ideal (Eugenio-Martin & Campos-Soria, 2010). Coghlan & Prideaux (2009) found that bad weather may indeed have a negative effect on the holiday experience. In Europe, the stream of holiday-makers tends to go from northern origins to southern destinations. The holiday destinations also tend to be cheaper than the origin countries. To what extend Germans and other Europeans go south because of the warmer weather or because of lower prices is not clear. Eugenio-Martin & Campas-Soria (2010) include weather of the origin region, whether or not there is a coastline in the *origin* region, and relative price of the origin region. Both good weather and a coastline in the origin region had a highly negative impact on probability of going abroad, whereas relative high price at the origin had a highly positive impact on probability of going abroad. However, the simple fact that most people take their main holiday during the summer season (cf. the concept of seasonality, a research topic in its own right, Baum & Lundtorp, 2001), indicates the importance of nice weather and pleasant temperatures for holidays. Furthermore, families with school age children and those working at companies that close for a fixed holiday period are forced to take holiday during a given period, typically the summer, which reinforces the mentioned overall tendency.

Many Europeans who go to southern Europe during the summer buy package tours arranged by tour operators who use charter flights. For increased distances, especially to islands, access by direct flights, be it chartered or scheduled, is generally a condition for inclusion in the *consideration sets* and *choice sets* of holiday-makers. McKercher (1998) discusses the effect of market access on destination choice, which could be interpreted as including direct flight connections. Changing flights would generally be a barrier for holiday-makers, whereas the availability of direct, competitively priced flights or packages would be a direct reason for holiday-makers to consider traveling. Timothy & Tosun (2003) found that borders present barriers. In Europe, even though it is no longer necessary to show passports when traveling by car between many countries, borders may still be perceived as barriers.

Jansen-Verbeke & Spee (1995) argued that tourism flows should be seen as occurring between regions, rather than between and within nations, to get realistic impressions of the position and potential of specific destinations in given markets. They also demonstrate the importance of distance in explaining destination choices, by showing that trips under 500 km accounted for more than half of all holiday trips for 15 out of 22 European-origin regions.

In summary, income, relative prices, tastes including climatic and coastal preferences in a few studies, distance, travel mode and other socio-demographic and trip-related characteristics are noted in literature as factors influencing destination choices. In the empirical study to follow, the effects of selected sets of variables on destination choice will be tested, specifically, the choice between domestic and international trips by German travelers. Furthermore, the same set of explanatory variables is applied to the choice or non-choice by German travelers of a long range of specific markets. It may be envisaged that the explanatory variables do not carry the same weight for all destinations.

METHODOLOGY

The data used in this study is the German portion of a large-scale, European-wide travel survey, the data collection for which ended in 2002, in a 16-nation EU project involving EU15+Switzerland ended in 2004 called DATELINE, Design and Application of a Travel Survey for Long-distance Trips Based on an International Network of Expertise. Out of a total of 176,000 journeys, 37,500 were undertaken from Germany. It is thus potentially possible to briefly contrast the determinants of the destination choices of German travelers with those of all other European travelers. This might indicate whether or not the factors that are significant for German travelers are also significant for "the potential control group", non-German Europeans. However, the focus here is strictly on German travelers. It is first tested what factors best distinguish between domestic and international journeys of German travelers. For that purpose a set of hypotheses is formulated below. The next step is then to apply the same set of explanatory variables, the same "model", to see how destinations, worldwide, to which Germans travel or do not travel, are different. It will thus, for example, be possible to say, which characteristics are the most typical for each of the top 25 – out of more than 100 - destinations for German travelers.

Hypotheses:
[H0. Destination choices are arbitrary.]

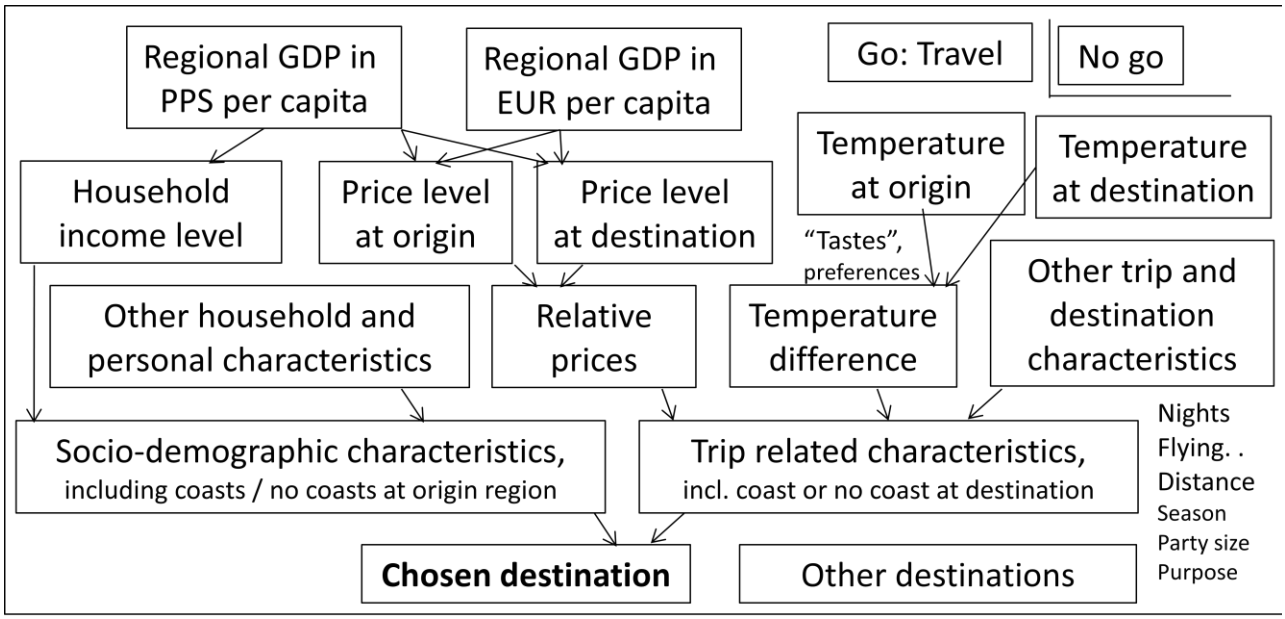
H1. **Travel duration** contributes to explaining destination choice.
H2. **Temperature differential**, i.e., the temperature at the destination [country] minus the temperature at the origin [country], contributes to explaining destination choice.
H3. The absence or presence of a **coastline in the specific destination area** affects destination choice. Also: The absence or presence of **coastal areas in the origin region** of the tourists, may affect destination choice.
H4. **Travel mode** contributes to explaining destination choice.
H5. **Distance** contributes to explaining destination choice.
H6. **Relative prices** between origin and destination contribute to explaining destination choice.
H7. **Number of persons in the travel party** contributes to explaining destination choice.
H8. The **region within an origin market**, in which the tourist resides, contributes to explaining destination choice. - Nearby destinations tend to be preferred in surface based transport.
H9. **The number of other destinations visited** - with or without extra overnight stays - contributes to explaining destination choice.
H10. **Whether or not any excursions were involved** contributes to explaining destination choice, or signifies differences between destinations.
H11. **If there are at least two bicycles in the household** – or if **cycling was even one of the modes of transport** during the holiday - this contributes to explaining destination choice.
H12. **Internet** access in the households is related to age and income. Household Internet access is related to destination choice.
H13. **Travel season** contributes to explaining destination choice.
H14. Whether there is a **privately owned car** in the household or not contributes to explaining destination choice. Or: Whether there is **a company-owned car** in the household or not contributes to explaining destination choice. Or: **The total number of cars** in the household is related to household income. Thus, the number of cars in the household contributes to explaining destination choice. Or: Whether or not there is a **motor home** (auto camper) in the household or not contributes to explaining destination choice.
H15. **Whether a person is employed or not** is related to age and income. Whether a person is employed or not contributes to explaining destination choice.
H16. **Age group** contributes to explaining destination choice.
H17. The level of **household income** for the specific tourist contributes to explaining destination choice, for example, domestic or international destinations. In the absence of information about

household income, the average GDP in Purchasing Power Standards per inhabitant by origin region (e.g., at detailed NUTS3 level, Eurostat 2010a or 2010b) may be used as a proxy.
H18. **Gender** contributes to explaining destination choice.
H19. **Purpose of travel** contributes to explaining destination choice.

Items other than the ones mentioned above may play a role: experience and prior visits, perception of personal safety and political stability (Sönmez and Graefe, 1998), language barriers, cultural distance, and physical barriers, such as seas, visa requirements, and more.
is the applied model of destination choice.

Figure 1

Applied Model of Destination Choice – Including Imputed Relative Prices, Proxy Income Level and Temperature Differences – and Other Trip Related and Socio-Demographic Characteristics



The hypotheses will be tested using binomial logistic regression. However, they will be subjected to simple t-tests as well, i.e., testing of a single variable one at a time. Also, the logistic regression results will be compared with results from multiple linear regression analysis. It will be shown to what extent the conclusions about the hypotheses are the same for the three different testing methods. The ability of three techniques (two-group discriminant analysis, multiple linear regression and binomial logistic regression), to correctly predict if respondents are tourists of given destinations or not will be compared. Most tourism managers and some researchers will be more comfortable with t-tests or linear regression than with logistic regression. Likewise, managers and some researchers will be more familiar with terms like market shares, rather than probabilities of visitation. The output of multiple linear regression in a case with a dichotomous dependent variable (i.e., in the range from zero to one) is similar to market shares. The constant is the base market share. The market share can then be smaller or larger in segments characterized by, or not characterized by, different aspects, coded as the explanatory variables. Linear regression is an additive model, logistic regression a multiplicative model. From an academic point of view, the results and conclusions that may be drawn from linear and logistic regression have rarely been compared.

TABLE 2 here

Table 2 shows that 74% of the 37579 journeys in the data set were holidays, the rest private and business trips. A car was the most common means of transport. On average, the temperatures at destinations were 3.3 degrees C warmer than in Germany in August. For a few southern hemisphere destinations, the February temperatures have been used instead of August. Temperatures were determined by using holiday-weather.com. Temperatures per country as origins and temperatures per country as destinations were merged into the data set on a per journey basis. Temperature difference was then calculated by subtracting the origin temperature from the destination temperature.

RESULTS

In Germany, only two states (NUTS1-level, the Nomenclature of Territorial Units for Statistics in the European Union), Mecklenburg-Vorpommern and Schleswig-Holstein were considered costal origin states. These states account for 8% of the German population. However, as much as 46% of journeys were to coastal destinations (NUTS3-level), in Germany or abroad. The average duration of the journeys was 9.7 nights. Twenty percent of journeys were three nights or less. The average distance was 930 km, one way, ranging from 100 to 17,300 km, with a mean of 438 km. Relative prices, i.e. price level at destination / price level at origin, were 6% below neutral. On average, journeys included 0.8 other destinations in addition to the main destination. Nine percent of journeys included extra overnight destinations. Eight percent of journeys included excursions. The average party size was 3.24. Eastern Germany is here defined as the new German states. These accounted for 30% of journeys. Northern Germany (here defined as Schleswig-Holstein, Hamburg, Bremen, and Lower Saxony) accounted for 18%, Southern Germany (here defined as Baden-Württemberg and Bavaria) 23%, and Western Germany (the remaining four of the 16 states), 30%. Income level is a proxy for household income, i.e., regional GDP per capita in PPS (NUTS2-level, Eurostat, 2010b) divided by the overall average for Germany. The households of tourists had an average of 1.5 cars. A total of 90% had a privately-owned car. Overall, 89% (10+63+16) of tourists were 15 years or older, whereas 11% were younger. There were 0.52 (0.15+0.37) children under 15 years of age per family among tourists. Forty-three percent of journeys were undertaken from June through August. Fifty percent of the households had access to the Internet at the time of the interviews. There were at least two bicycles in 77% of households, but only 1% of tourists used bicycle as a one of the modes of transport, though many probably took their bicycles with them on top of or at the rear end of their cars. Fifty-one percent of tourists were male, and a little under half were employed at least part-time.

Table 2 includes the first series of tests. The means for international and domestic journeys, and the difference in these means, are shown. T-values of +/-1.96 or more are significant, corresponding to significance levels of 0.05. If there is at least one significant t-value for the variables relating to each hypothesis, the hypothesis is accepted for that testing method. All 19 hypotheses, except H18 about gender and H15 about employment, are accepted, using t-tests, i.e., when testing each set of hypotheses one by one. The greatest t-value was found for temperature difference, followed by purpose of travel, mode of transport, coastline at the destination, duration of stay (short stays are generally domestic), travel distance and relative prices. The price level was generally 11% lower at international destinations than domestically, i.e., relative prices were 0.89.

TABLE 3 about here

When testing all hypotheses at the same time using multiple linear regression, all 19 hypotheses, except one, are accepted (see the left part of Table 3 and the conclusions drawn in Table 4 under linear regression). Purpose of travel is related with duration of stay. The latter had the highest t-value in the multiple linear regression tests. Short duration stay tends to be for business trips (and private trips). Therefore, when duration of stay with the dummy-variable 0-3 nights is taken into account, purpose of travel is not significant in the multiple linear regression test. Relative prices are strongly related to international vs. domestic trips, and temperature differences even more so. However, the strongest relation is between relative prices and temperature difference. This means that temperature differences and relative prices cannot be contained in the same linear regression or logistic regression analysis, unfortunately, since the result becomes unacceptable, with apparently a strongly positive impact of higher relative prices, which would be a meaningless result. If including either temperature difference or relative prices, the results are acceptable, but the explanatory power is higher when including temperature differences, rather than relative prices.

In the logistic regression analysis, all hypotheses, except one, are accepted (see the right part of Table 3 and the conclusions drawn in Table 4 under logistic regression). Only household Internet access at a relatively early stage or not could not contribute to distinguishing between international and domestic destinations or between those traveling internationally and those traveling domestically. Coefficients of Exp(B) of more than one result in higher probability of journeys being international, whereas the opposite is true for coefficients of Exp(B) of under 1. - The conclusions drawn about the 19 first hypotheses are listed in Table 4.

TABLE 4 about here

Overall, 14 of the 19 hypotheses are accepted in all three testing methods. Two hypotheses are rejected in the simple t-tests (employment status and gender), one is rejected in linear regression (purpose of travel because of interaction with duration of stay), and two are rejected in logistic regression (household internet access in household and age groups).

Table 5 compares the ability of discriminant analysis, multiple linear regression and logistic regression to correctly classify journeys as being international or domestic, based on the same set of explanatory variables. Table 5 indicates that discriminant analysis and linear regression are technically, largely identical.

TABLE 5 about here

When running the analyses, it is possible to save the group affiliation or the estimated Y-values. In logistic regression, estimated Y-values of 0.5 or higher would mean that the given cases would be predicted as belonging to the group of international journeys. The same rule can be applied to linear regression results. When the two groups, international and domestic, are not far from being the same size, discriminant analysis uses a cut-value very close to 0.50. All cases, except two that have Y-values of between 0.50003 and 0.50000, are classified in the same group, by both discriminant analysis and linear regression analysis. Thereby it is demonstrated that linear regression analysis is no better and no worse than discriminant analysis for working with a dichotomous dependent variable. Linear regression does not perform quite as well as logistic regression, in terms of the percentage of correct predictions. There is a gap in the percentage of correctly classified cases when comparing the results of linear regression and logistic regression. However, this gap in percentage of correctly classified cases diminishes a lot if just one independent variable, namely distance, is transformed from distance to the natural logarithm (LN) of distance. Specifically, the percentage of correctly predicted classifications increases from 80.3% to 83.6% leaving only a small gap up to 84.67%. The same logarithmic transformation can be undertaken for additional explanatory variables. However, the objective here is not merely a high

percentage of correctly predicted classifications of cases, but meaningful interpretations of the regression results, no matter if they are from linear or logistic techniques.

It is felt that the results from linear regression are more straightforward to interpret. Therefore, in the last step in this paper, the three most significant characteristics of the destinations of German travelers shall be highlighted, using the t-values from multiple linear regression. The dependent variable will no longer be international destinations in general vs. a domestic destination, but specific destinations vs. all other destinations. The top 25 destinations plus a few other selected destinations will be the dependent variable, one by one, in a series of regression analyses. Results from the regression analyses are interpreted in Table 6 based on the t-values provided in Table 7.

TABLE 6 about here

From the point of view of the destinations - 33 of them in Table 6 – it is possible to see from the t-values provided in
Table 7 how each destination is different from other destinations, in terms of the included variables. The imputed variables of relative prices, income level, a coastline at the origin or destination, and temperature difference are not included in the t-values provided in
Table 7 or in the interpretations of these in Table 6. However, subtracting one from the relative prices and multiplying by the volumes in the German travel survey at hand, gives the following top ten list of bargain destinations for German travelers, disregarding distance: Turkey, Spain, Poland, Hungary, Tunisia, Croatia, Czech Republic, Greece, Egypt and Portugal. - Scandinavia, Switzerland, Austria, France and the British Isles are not classified as cheap destinations, as far as costs at the destinations are concerned, so price should not be a first sales argument. However, the costs of getting there in terms of time and money and distress may be relatively low, from a German perspective. Certainly, these latter destinations are conveniently near to the German market and have other advantageous features, such as the mountains in Austria and Switzerland and their native German language, culture in the capitals of all of the countries, the coasts of Denmark and the fjords of Norway.

TABLE 7 about here

DISCUSSION

Multi-collinearity may be a problem both in multiple linear regression and in logistic regression. In this study, the variance inflation factor, VIF, has been kept under strict surveillance when developing the set of explanatory variables for the regression model. As a result, VIF values in Table 3 are well under three, and actually also even under 2.5, for all explanatory variables. There are no formal cut-off values for VIF, but a conservative rule of thumb would suggest that VIF values below three are certainly acceptable in multiple linear regression analysis. Higher critical values and thus less conservative critical VIF values such as five has been mentioned in literature concerning linear multiple regression and repeated in online encyclopedia. However, 2.5 has been suggested as a threshold VIF value in logistic regression, i.e., a tolerance of 0.40 (Allison, 1999, p. 50), since VIF is the reciprocal of the tolerance, i.e., VIF=1/tolerance. The low VIF values in Table 3 mean that the regression results are not distorted or inflated by multi-collinearity. Since the same set of explanatory variables are used in both variants of regression analysis, the low VIF values shown in Table 3 mean that multi-collinearity is not a problem in either of the regression analyses.

Three testing methods were applied in this study. All three methods are commonly used for

hypothesis testing, but their results have not frequently been compared and contrasted. Although logistic regression is regarded as the main testing method in this study, the other two testing methods can be regarded as second opinions, and can contribute additional facets to the data analysis. Furthermore, to the extent that the conclusions which can be drawn from the three methods are the same, each of the methods may be useful. In the final part of the analysis, where the most significant characteristics of 33 destinations were listed and compared, multiple linear regression analysis only was used, and very meaningful results could be derived using this method only. In the initial part of the analysis (Table 2), results from simple t-tests gave an indication of what results to expect in the subsequent multivariate analyses. The *other things being equal* condition can only be fulfilled using the latter, though.

Just like regression analysis is frequently referred to as linear regression, discriminant analysis is often referred to as linear discriminant analysis, LDA for short, which dates back to Fisher (1936), who explicitly uses the term linear functions. Thus, obviously both are linear methods. Green & Tull (1978) also describe the linear properties of both methods. There are computational differences between linear regression and LDA. Although Table 5 indicated largely identical results from the two methods, the differences may become greater when the cut value in LDA is not as close to 0.5 as in this study. Also there are some differences in the output. Today, logistic regression is often used instead of LDA, but obviously multiple linear regression analysis can also be an alternative to LDA. With respect to the ability of multiple linear regression analysis (LMR) to match the ability of logistic regression in the percentages of correctly predicted classifications, the performance of linear regression can be improved by making logarithmic transportations of one or more predictors. Since LMR and LDA are so similar, the same would probably hold true for LDA, i.e., it may be possible to improve the percentage of correct classifications in LDA by making one or more logarithmic transformations. Likewise, R square, the explanatory power of LMR, may be improved by making one or more such transformations, which, however, makes interpretations less straightforward. To get the highest possible R square is not the sole objective in LMR, and to achieve useful and meaningful results is another important objective in LMR.

What are some of the practical implications of this study? Results such as those summarized in Table 6 (along with accompanying numbers in Table 7) have implications for destination marketing. To know the characteristics of one's own destination should be a help for destination marketers, and in a strategic context it is important to know how one's own destination is (perceived) as being different from other (competing) destinations in general or from the point of view of a specific origin market. Such insight or knowledge is relevant in connection with positioning considerations and it may help destinations to understand their own image better, or it may help travel agencies understanding the differences between destinations, thereby making it possible for them to service their customers better. - In this paper focus has been destination, rather than markets. However, the study also has implications for segmentation. Thus, it has been shown that a large market, such of the German market, consist of different geographic regions and given destinations are likely to appeal more to some regions than to others, certainly for surface travel, and it may be desirable for destinations to secure direct scheduled or charter flights from more than one airport in major markets. Thus, geographic segmentation of large markets may be relevant. Apart from geography, a number of other segmentation criteria may be relevant from of view of destinations, including some of the other significant variables identified in this study.

CONCLUSION

The literature review showed that a great number of different trip-related and socio-demographic characteristics have been included as explanatory variables, typically in cross-sectional studies of destination choice. The most frequently used analytical tool in destination choice studies is logistic regression in different variants (binomial and multinomial regression and mixed logit and probit). A

few studies have used discriminant analysis, albeit not in recent years. Although several studies have compared different estimation techniques, it appears that nobody has compared the results of linear and logistic regression in destination choice studies. Aspects like weather, temperature and coastlines have been included in a number of studies over the last five years (Bigano et al., 2006: temperature and coasts; Nicolau & Mas, 2006: climate; Lyons et al., 2009: destination temperature and coastline; Eugenio-Martin & Campos-Soria, 2010: climate in origin region).

In general demand studies (i.e., across industries), income, relative prices and "tastes", have been the classic determinants, whereas in time-series tourism studies, income, relative prices and transportation costs - measured by distance - are the most frequently included determinants. Tastes can be defined by a broad range of items, including temperature and coastline, and dislike of distance. Although travel distance was included in the large survey at hand, temperature, presence of coastline, household income, and relative prices were not. Regional GDP in purchasing power standards (PPS) was used as a proxy of household income level by region of origin in Germany. Relative prices were estimated as the price level at the destination region divided by the price level at the origin region. In turn, the two price levels were estimated as GDP per capita in EUR per region divided by the GDP per capital in PPS per region. The relative temperature was the temperature in the destination country minus the temperature in the origin country. Coastlines at the origin regions were registered at the state level, whereas the presence of a coastline at the destination was registered at a more detailed geographic level. These additional variables (income proxy, relative prices, temperature difference and coastlines at origin as well as coastlines at the destination) were added to the original data set.

Out of 19 hypotheses, 14 were accepted in all three testing methods: simple t-tests, multiple linear regression, and logistic regression. The 14 were: duration of stay, temperature difference, coastline at the destination, mode of transport, travel distance, relative prices, travel party size, origin region broadly defined, number of additional destinations visited (with or without overnight stays), the inclusion of excursions or not, cycling as an activity, season, cars, and household income. The hypotheses about the impact of Internet access in household, employment status, age groups and children, gender, and purpose of travel were all accepted in two out of three tests. Multiple linear regression analysis was used to identify the top three most significant characteristics of the 25 most popular destinations for German travelers, at the time. – The significant characteristics of given destinations – compared to other destination – may have implications for marketing and destination managers, and the applied methods may spark ideas among analysts and researchers.

There are implications for destination marketing of the findings of this study in areas such as market segmentation, destination image, and destination positioning. Typical characteristics of destinations may be identified using the methods demonstrated in this paper. Such information may be useful for destinations when they consider how to segment origin markets, and which segment to target. Differences in destination characteristics can contribute to understand the image of a given destination in general or in the given major market, and the position of a given destination in relation to other destinations.

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Included tables and graph

Table 1

Overview of Selected Studies into the Determinants of Destination Choice.

Authors	Destinations	Determinants	Techniques
Morley (1994)	Eight (Sydney, Hong Kong, Tokyo, Seoul, Macau, Bankok, Vancouver, Taiwan.	Airfare, hotel tariff, exchange rate, income, age, gender.	Probit and logit (logistic regression)
Corey (1996)	Two: West Virginia or not (had toured, plan to tour)	Five factors based on 17 agree-disagree statements about activities, actions and thoughts about the destination	Factor analysis and discriminant analysis
Lang et al. (1997)	One (within vs. out-of-Asia)	Sociodemographics (age, income, education, marital status, gender), trip characteristics (length of trip, cost of trip, single tourists and party size, packaging), benefit factors	Discriminant analysis
Field (1999)	One (domestic vs. international)	Sociodemographics. Likelihood of travel, repeat visits, use of travel agent, mode of transport, type of accommodation, meals, activities while traveling.	Factor analysis, t-tests
Lawson & Thyne (2001)	19 (seven in New Zealand and 12 overseas)	Crowding, prices of travel & stay & shopping, personal safety, suitability for families	Factor analysis, MDS
Sirakaya et al. (2001)	One (Turkey)	Income, gender, familiarity, propensity to travel, will go sometime or next time, image	Factor analysis, t-tests, logistic regression
Tyrrell et al. (2001)	Six (Mainland US, Hawaii, Canada, Europe, Asia & Pacific I / II)	Age, marital status, number of children, education level, income, gender, packaging, honeymooners, purposes of trip, traveling with children, VFR, motives	(Binomial) logistic regression
Jang & Cai (2002)	Seven (Americas, Africa, Oceania, Asia)	Six push and five pull factors	Factor analysis, logistic regression
Lee, O'Leary & Hong (2002)	One (USA)	Destination image, socio-demographics, previous visit	Factor analysis and binary logistic regression
Lee, O'Leary, Lee & Morrison (2002)	Three (USA, Canada, Asia) – among German pleasure tourists	Push (and pull) factors/motives. Length of stay, travel budget, travel mode, and sociodemographics	Multinomial logistic regression and linear regression
Lehto et al. (2002)	Three (North America, Asia and Oceania)	Marital status, occupation, education, gender, household income, packaging, purpose, age, expenditure p.p., nights, travel philosophies, travel benefits, destination attribute preferences	Factor analyses and chi-square and discriminant analysis

Seddighi & Theocharous (2002)	One (revisit an earlier destination or not)	Age, gender, marital status, income, education, visited before?, costs at destination, price of package, facilities, cost of transportation, promotion, service, political instability	Logit (logistic regression)
Nicolau & Mas (2005)	Three: Vacation or not. Domestic or international. Single vs. multiple destinations	Income, household size, occupation, city size, opinion of holidays. – Involvement of travel agent, children on trip, education. Interest in new places, cultural interest.	Multinomial logistic regression, logit
Bigano et al. (2006)	No. of international arrivals to 45 countries (from all continents)	Temperature, distance, income per capita, coastline, area, stability, world heritage sites	Multiple regression, with logarithmic transformations.
Hong et al. (2006)	Eight (Korean national parks)	Categories of national parks, nine constraints (in two groups)	MDS, factor analysis and nested multinomial logistic regression
Nicolau & Mas (2006)	50 (Spanish provinces)	Distance, prices, climate, tranquility, cultural interest, new places, VFR	Multinomial logistic regression, logit
Beerli et al. (2007)	Three (Kenya, Paris, Dominican Rep.)	Self-concept. Destination image. Involvement. Previous visits?	Logistic regression
Correia et al. (2007)	One (Latin America)	Budget, seven destination attributes, five socio-demographics, three information aspects, two accommodation aspects, visited before?, reasons for going now, lead-time of booking, frequency of travelling, fulfillment of expectations	Standard logit and mixed logit
Lepp & Gibson (2008)	15 regions of the world	Gender, sensation seeking (12 items), , risk perception	Frequencies, t-tests, correlations, logistic regression
Trane (2008)	Two (foreign vs. domestic; both foreign and domestic)	General vacation motives. Trip-specific motives. Socio-demographic characteristics.	Multinomial regression
Hsu et al. (2009)	Eight (in Taiwan)	22 preference measures or motives. Most significant: VFR (visiting friends and relatives), personal safety.	Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)
Lyons et al. (2009)	26 (Europe, Mediterranean, USA, Canada, Australia, New Zealand)	Destination characteristics including coastline, distance from origin and temperature, and household-specific characteristics (age groups, and children or not), season, years	Logit (binomial logistic regression)
Eugenio-Martin & Campos-Soria (2010)	One (domestic vs. international)	Socio-demographics. Attributes of the place of residence: Weather, coast, population, airport, natural reserve	Bivariate probit

Table 2
Basic Properties (Averages) for Journeys undertaken by German Travelers – and Comparison of averages for domestic and International Journeys (t-tests for 38 Variables, 19 Hypotheses).

Hyp.	Variable	Overall mean	International	Domestic	Mean diff.	t	Sig.
H2	Temp_diff_C (degrees, C)	1,77	3,28	0,00	3,28	113,62	,000
H18	Holiday (purpose) - base	74%	93%	53%	39%	97,92	,000
	Private (purpose)	20%	5%	37%	-32%	-83,73	,000
	Business (purpose)	6%	2%	10%	-8%	-32,70	,000
H4	Airplane (mode of transport)	21%	38%	1%	36%	96,11	,000
	Car (mode of transport) - base	59%	42%	77%	-35%	-73,29	,000
	Train (mode of transport)	8%	4%	13%	-8%	-28,99	,000
	Bus_coach (mode of transport)	8%	11%	5%	6%	19,97	,000
H3	Coast_dest (detailed level)	46%	67%	22%	44%	95,82	,000
	Coastal_origin (state level)	8%	7%	9%	-2%	-8,68	,000
H1	J_DUR_0_3 (max. 3 nights)	20%	5%	38%	-34%	-90,42	,000
	J_DUR (duration, nights)	9,70	12,42	6,51	5,91	55,28	,000
H5	J_DIST (distance km, one way)	930	1478	286	1193	83,08	,000
H6	Rel_prices (Relative prices)	0,94	0,89	1,00	-0,11	62,33	,000
H9	No. of other destinations visited	0,80	1,15	0,39	0,75	35,12	,000
	Any extra overnight destinations	9%	13%	4%	9%	30,56	,000
H10	Were there any excursions	8%	11%	5%	6%	20,81	,000
H7	J_party_size	3,24	3,40	3,05	0,36	19,35	,000
H8	From_Germany_East	30%	26%	33%	-7%	-14,75	,000
	From_Germany_North	18%	17%	18%	-1%	-2,91	,004
	From_Germany_West - base	30%	31%	29%	2%	4,46	,000
	From_Germany_South	23%	26%	20%	6%	13,80	,000
H17	Income_1 (Income level)	1,00	1,01	0,98	0,03	11,89	,000
H14	HH_cars_0_4 (no. of cars)	1,49	1,53	1,44	0,10	11,86	,000
	HH_private_car (any?)	90%	91%	89%	2%	6,03	,000
	HH_company_car (any?)	14%	15%	14%	1%	1,65	,098
	HH_motor_home (any?)	2%	2%	2%	0%	,27	,789
H16	P_Age_15_29 (yes)	10%	11%	9%	3%	8,31	,000
	P_Age_30_64 (yes) - base	63%	62%	63%	-1%	-1,25	,213
	P_Age_65_99 (yes)	16%	15%	17%	-2%	-5,45	,000
	Persons under 5 (number)	0,15	0,13	0,16	-0,03	-6,66	,000
	Persons 5 to 14 (number)	0,37	0,37	0,37	0,00	-,09	,931
H13	J_SUMMER (June : August)	43%	45%	41%	4%	7,31	,000
H12	HH_Internet (yes in household)	50%	51%	48%	3%	5,54	,000
H11	Cycle_tourist	1%	1%	2%	0%	-4,01	,000
	Two_bicycles_min	77%	77%	77%	1%	1,20	,229
H18	P_Gender (male share)	51%	50%	51%	-1%	-1,86	,063
H15	Employment (half=0.5, full=1)	46%	46%	46%	1%	1,18	,239
	n (number of journeys)	37579	20294	17285			
	% of n	100%	54%	46%			

Table 3
Testing 19 Hypotheses – Comparing the results of Multiple Linear Regression and Logistic Regression.

Hyp	Variable	B	t	Sig.	VIF	B	Wald	Sig.	Exp(B)
	(Constant)	,187	11,45	,000		-3,924	744,16	,000	,020
H8	From_Germany_East	-,042	-6,84	,000	2,130	-,162	10,46	,001	,850
	From_Germany_North	-,028	-4,80	,000	1,396	-,379	54,90	,000	,685
--->	From_Germany_South	,041	7,42	,000	1,501	,566	149,74	,000	1,760
H1	J_DUR_0_3	-,279	-48,29	,000	1,469	-1,127	477,87	,000	,324
	J_DUR	,002	10,35	,000	1,298	,004	2,32	,128	1,004
H2	Temp_diff_C	,037	47,04	,000	1,805	,160	336,11	,000	1,173
H3	Coast_dest	,116	24,70	,000	1,521	,478	187,91	,000	1,613
H4	Airplane	,198	27,71	,000	2,341	,975	77,77	,000	2,652
--->	Bus_coach	,249	33,04	,000	1,170	1,037	302,32	,000	2,820
	Train	-,064	-8,48	,000	1,177	-,545	85,25	,000	,580
H5	J_DIST_1000	,026	15,09	,000	1,803	5,676	3044,80	,000	291,652
H7	J_party_size	,019	14,96	,000	1,364	,135	188,88	,000	1,144
H9	No. of other destinations visited	,018	15,12	,000	1,816	,037	7,98	,005	1,038
--->	Any extra overnight destinations	,101	11,59	,000	1,745	,089	1,19	,275	1,093
H10	Were there any excursions	,085	11,75	,000	1,055	,209	11,77	,001	1,232
H11	Cycle_tourist	-,128	-7,50	,000	1,116	-,113	,77	,381	,893
	Two_bicycles_min	-,007	-1,30	,192	1,220	,122	8,26	,004	1,130
H12	HH_Internet	,019	4,44	,000	1,231	,055	2,44	,118	1,056
H13	J_SUMMER	,013	3,22	,001	1,068	-,103	9,98	,002	,902
H14	HH_private_car	,035	4,42	,000	1,522	,194	8,39	,004	1,214
	HH_company_car	,016	2,54	,011	1,359	,052	,99	,319	1,054
	HH_cars_0_4	,002	,70	,482	1,843	,027	,97	,324	1,028
	HH_motor_home	-,033	-2,42	,016	1,047	-,234	4,99	,025	,791
H15	Employment	,020	4,15	,000	1,403	,130	10,74	,001	1,138
H16	P_Age_15_29	,025	3,76	,000	1,075	,031	,30	,584	1,031
	Persons under 5	-,013	-2,88	,004	1,125	-,050	2,20	,138	,951
	P_Age_65_99	-,018	-2,76	,006	1,462	-,020	,16	,690	,980
H17	Income_1 (proxy)	,045	3,66	,000	2,138	,325	9,63	,002	1,384
H18	P_Gender	,013	3,26	,001	1,075	,090	7,77	,005	1,094
H19	Business	,013	1,33	,185	1,357	-,342	14,16	,000	,710

Table 4
Summary of the Conclusions Which May Be Drawn about the 19 Hypotheses – Comparing the Results of Three Testing Methods: T-tests of Difference of Means, Multiple Linear Regression and Logistic Regression.

Hyp.	Determining aspect	t-tests - diff. means	Linear regression	Logistic regression
H1	Duration of stay	Accept	Accept	Accept
H2	Temperature difference	Accept	Accept	Accept
H3	Coast - at destination	Accept	Accept	Accept
H4	Mode of transport	Accept	Accept	Accept
H5	Travel distance	Accept	Accept	Accept
H6	Relative prices	Accept	Accept	Accept
H7	Travel party size	Accept	Accept	Accept
H8	Origin region (broad def.)	Accept	Accept	Accept
H9	No. of destinations visited	Accept	Accept	Accept
H10	Any excursions involved?	Accept	Accept	Accept
H11	Cycling - activity	Accept	Accept	Accept
H12	Internet in household	Accept	Accept	Reject
H13	Season	Accept	Accept	Accept
H14	Cars (private)	Accept	Accept	Accept
H15	Employment status	Reject	Accept	Accept
H16	Age groups, children	Accept	Accept	Reject
H17	Household income	Accept	Accept	Accept
H18	Gender	Reject	Accept	Accept
H19	Purpose of travel	Accept	Reject	Accept

Table 5
Comparing the Ability of Discriminant Analysis, Multiple Linear Regression, and Binary Logistic Regression to Correctly Predict If Respondents are Domestic or International Travelers.

Line	Label	Actual	Base est.	Discriminant	Linear MR	Logistic MR	MR LN km	500 km +
1	Cut value	n.a.	1	0,50003	0,50000	0,50000	0,50000	n.a.
2	Domestic, correct	17285	0	14945	14945	15128	15384	14913
3	Domestic, wrong	n.a.	0	5070	5068	3604	4278	5381
4	International, correct	20294	20294	15224	15226	16690	16016	15775
5	International, wrong	n.a.	17285	2340	2340	2157	1901	1510
6	Total (2+3+4+5)	37579	37579	37579	37579	37579	37579	37579
7	Total correct (2+4)	37579	20294	30169	30171	31818	31400	30688
8	Correct %	100%	54,0%	**80,28%**	**80,29%**	**84,67%**	**83,56%**	**81,66%**
9	Chi-square (df=1)	n.a.	n.a.	14173	14177	18172	17263	15905
10	International, est. (3+4)	20294	37579	20294	20294	20294	20294	21156
11	Domestic, %	46,0%	0%	46,0%	46,0%	46,0%	46,0%	43,7%
12	International, %	54,0%	100%	54,0%	54,0%	54,0%	54,0%	56,3%
	R square adjusted for two versions of multiple regression:				0,450		0,506	

Table 6 The Three Most Significant Characteristics of the Top 25 and Selected Other Destinations for German Travelers.

	Destination	Most significant feature	Second most typical	Third most typical
All	International	Going by airplane	Long stays	Going by coach
1	Germany	Short stays	Going by train or car	Small travel parties
2	Spain	Going by airplane	Long stays	Spain is not as far as other fly destinations
3	Italy	Long stays	From south Germany	Going by coach
4	Austria	Long stays	Going by car	In winter
5	France	From western Germany	Extra overnight destinations	Internet in household
6	Turkey	Going by airplane	Not as far as some other flight destinations	Large travel parties
7	Greece	Going by airplane	Not as far as some other flight destinations	Excursions
8	Switzerland	Long stays	From south Germany	In winter
9	Netherlands	From western Germany	Going by car	Long stays
10	Denmark	From northern Germany	Medium stays	Going by car
11	Hungary	Long stays	In the summer	By coach
12	Croatia	LONG stays	From south Germany	Large travel parties
13	Poland	By coach	Extra overnight destinations	From western Germany
14	USA	Very far	Renting car	Business travel
15	Portugal	By airplane	Extra overnight destinations	Families with cars
16	Czech Rep.	By coach	From eastern Germany	Medium length stays
17	UK	By airplane	Short flights	Extra destinations
18	Tunisia	By airplane	Medium length stays	Holiday
19	Norway	Extra destinations	In the summer	From north Germany
20	Sweden	Excursions	In the summer	From north Germany
21	Egypt	By airplane	Not only in summer	Long distance
22	Russia	Extra overnight destinations	By coach	Long distance
23	Belgium	Cycling tourism	Large party sizes	Also business travel
24	Ireland	Extra destinations	By airplane	Short flights
25	Finland	Extra overnight destinations	By coach	Long distance
x1	Sp. islands	By airplane	Short flights	Holiday
x2	Sp. Mainland	By airplane	Short flights	By coach
x3	Paris	By coach	Or motor home	Short distance
x4	London	By airplane	Short flights	By coach
x5	Rome	By coach	Families with cars	Not by airplane
x6	Amsterdam	Cycling tourism	By coach	Or by train
x7	Copenhagen	From north Germany	Young	With kids
x8	Bornholm	Internet in house	With kids	From eastern Germany

Note: Based on t-values in regression equations, see Table 7.

Table 7 T-values on a Destination-by-Destination basis

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	N = 37579 (from Germany)	Interna	Germar	Spain	Italy	Austria	France	Turkey	Greece	Switzer	Nether	Denma	Hungar	Croatia	Poland	USA	Portuga
Hyp.		t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t
	(Constant)	26,37	69,81	3,41	5,35	15,69	2,31	0,06	0,59	7,34	10,98	5,39	4,76	4,56	1,37	-5,68	2,20
H8	From_Germany_East	-12,30	12,30	-3,70	-0,79	-4,18	-15,17	-1,75	-2,21	-0,16	-11,96	3,08	3,22	-1,06	-0,37	-0,19	-2,76
	From_Germany_North	-5,33	5,33	1,30	-2,01	-7,25	-6,61	-1,08	-1,40	0,44	-7,53	16,24	-1,07	-2,59	-1,09	-2,02	-1,19
	From_Germany_South	10,75	-10,75	-4,84	19,85	3,32	-3,73	0,01	1,68	9,50	-10,43	-6,49	3,80	8,01	-7,02	2,27	-1,58
H1	J_DUR_0_3	-56,58	56,58	-7,48	-20,25	-22,31	-4,88	-1,85	-2,81	-11,16	-6,78	-13,13	-9,82	-6,17	-4,50	6,13	0,30
	J_DUR	16,07	-16,07	9,26	10,65	-5,72	6,33	4,55	5,68	-0,39	-3,03	-1,42	2,10	9,03	-1,02	1,47	2,09
H4	Airplane	63,87	-63,87	86,01	-9,71	-21,63	-8,41	55,03	49,15	-8,59	-8,05	-12,16	-8,81	-2,95	-4,57	-24,52	20,31
	Bus_coach	36,54	-36,54	9,35	15,68	1,16	6,49	2,67	4,68	4,20	-0,34	-6,52	5,87	-1,42	16,25	-3,73	-1,16
	Train	-8,05	8,05	2,18	-1,12	-2,00	3,08	0,81	0,22	3,79	-3,53	-8,05	-0,37	-4,68	3,73	-1,94	-2,14
H5	J_DIST_1000	19,34	-19,34	-23,70	-8,60	-3,40	-3,06	-11,21	-16,65	-4,35	-3,15	-3,06	1,69	-4,68	-0,14	90,78	-3,75
H7	J_party_size	16,31	-16,31	-0,22	0,61	7,35	5,19	9,60	-1,23	0,41	3,18	4,07	2,88	5,71	3,47	-1,59	-1,52
H9	No. of other destinations vis	13,44	-13,44	-3,93	4,86	-2,13	7,87	-0,89	-2,17	0,59	-1,48	-3,03	-5,73	2,28	1,30	-4,43	7,73
	Any extra overnight destina	11,95	-11,95	-1,11	-4,04	-4,57	11,74	4,48	-2,03	-3,43	-5,09	-2,89	3,46	4,51	11,15	-2,14	10,83
H10	Were there any excursions	12,83	-12,83	-2,37	8,67	-1,57	5,95	2,13	6,79	-0,53	-1,29	0,22	5,93	1,68	6,05	-3,55	3,29
H11	Cycle_tourist	-9,13	9,13	-0,93	1,39	-0,81	-6,82	-2,82	-0,40	-4,14	3,81	-0,87	0,43	-5,99	-1,33	2,63	-6,19
	Two_bicycles_min	-1,01	1,01	-2,91	3,60	1,51	-3,72	-2,19	2,31	-3,82	0,17	2,23	-0,48	-0,05	2,42	2,25	3,16
H12	HH_Internet	5,64	-5,64	3,86	3,93	-3,24	11,74	-4,79	-2,21	2,30	4,85	4,97	-1,62	-2,37	-4,02	6,82	-4,57
H13	J_SUMMER	4,77	-4,77	-5,40	-0,12	-8,86	6,91	-1,93	5,21	-5,67	2,74	0,06	6,12	4,47	2,06	1,49	1,27
H14	HH_private_car	4,95	-4,95	3,98	0,14	1,59	4,36	0,32	-0,61	-0,05	-2,54	1,57	-3,51	-1,50	3,26	-2,90	-7,05
	HH_company_car	2,69	-2,69	0,36	-2,61	4,44	8,28	1,16	-3,60	0,78	1,67	-2,21	-2,38	-0,32	-0,51	0,50	-3,47
	HH_cars_0_4	1,64	-1,64	1,10	6,10	-0,34	-3,52	-1,50	0,24	2,90	0,46	-5,60	2,45	-4,78	-1,81	-1,79	8,44
	HH_motor_home	-1,17	1,17	-0,75	4,64	-1,57	7,37	0,19	0,43	0,64	1,97	-3,18	0,25	0,97	-5,07	-2,07	-3,74
H15	Employment	5,20	-5,20	-0,35	1,17	2,42	2,39	0,34	2,95	-1,34	-1,48	5,41	0,13	-0,82	-1,59	-2,45	0,86
H16	P_Age_15_29	4,29	-4,29	1,05	-2,97	-4,35	3,15	1,44	-0,08	-1,80	-0,40	5,10	1,16	4,31	-2,12	-0,99	-3,03
	Persons under 5	-5,43	5,43	-1,11	-9,46	0,20	-4,61	-1,38	5,03	1,10	4,31	6,21	-2,91	-3,83	-2,23	1,48	3,61
	P_Age_65_99	-5,55	5,55	-5,57	-2,28	2,84	-2,68	-3,39	-1,50	-1,07	-1,91	-1,73	-0,30	-3,75	0,99	4,18	0,49
H18	P_Gender	3,96	-3,96	2,10	1,16	1,01	-0,01	0,26	0,55	3,14	-0,23	-1,46	-0,32	2,16	0,04	-0,62	-0,90
H19	Business	-3,77	3,77	-10,38	-0,67	-2,95	-0,80	-3,37	-3,96	3,23	0,92	0,55	3,08	1,91	2,87	3,83	-2,79
	n - at this destination	20294	17285	2943	2885	2554	1359	1242	918	814	575	554	549	512	492	400	391
	% - at this destination	54%	46%	8%	8%	7%	4%	3%	2%	2%	2%	1,5%	1,5%	1,4%	1,3%	1,1%	1,0%
	R square, adjusted	0,40	0,40	0,22	0,06	0,04	0,05	0,11	0,08	0,01	0,02	0,03	0,01	0,02	0,03	0,22	0,03

		16	17	18	19	20	21	22	23	24	25	x1	x2	x3	x4	x5	x6	x7	x8
		Czech R	UK	Tunesia	Norway	Swede	Egypt	Russia	Belgiur	Ireland	Finland	Sp. isla	Sp. mai	Paris	Londor	Rome	Amster	Copenh	Bornho
Hyp.		t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t
	(Constant)	-0,20	6,09	-2,10	-5,66	0,48	-0,15	-1,01	1,38	3,89	0,07	1,19	3,97	0,54	-0,66	-3,91	1,88	3,26	-1,49
H8	From_Germany_East	12,49	-2,08	2,27	4,91	2,90	3,16	-4,18	-7,58	1,00	-1,15	0,22	-6,42	-2,68	-2,66	2,75	-2,63	-2,23	4,54
	From_Germany_North	-0,40	4,34	1,16	7,53	5,47	-0,40	3,87	-1,63	2,69	-2,32	1,70	-0,41	1,81	1,32	2,77	-0,97	4,11	2,40
	From_Germany_South	-1,44	-4,70	0,87	-0,59	0,36	2,25	1,42	-1,14	1,61	1,62	-3,85	-2,64	-2,77	-1,68	2,74	-1,66	-3,50	-1,26
H1	J_DUR_0_3	-5,72	-3,81	-3,52	-1,06	-4,43	-2,04	-1,29	-1,46	2,02	-0,95	-5,82	-4,04	2,97	-2,98	-3,98	2,17	-2,64	-2,81
	J_DUR	-0,30	-5,59	0,41	1,54	3,81	0,16	0,55	-2,54	-1,32	-2,19	4,87	8,13	-3,41	-3,87	-0,45	-1,52	-0,97	2,63
H4	Airplane	-4,76	11,00	37,70	-0,98	-4,41	18,30	0,47	-0,96	18,56	-1,44	82,04	25,63	7,12	15,22	-3,96	1,73	-3,10	-2,16
	Bus_coach	12,55	6,59	1,61	4,87	-3,04	-0,14	9,10	-2,97	3,91	9,34	4,05	9,43	15,16	4,22	7,44	6,19	-0,78	0,34
	Train	-2,29	-3,03	1,82	-1,94	-4,09	0,40	-0,81	-5,66	-4,44	-1,47	1,98	0,76	5,38	-0,14	1,88	5,92	-3,07	-1,94
H5	J_DIST_1000	-2,84	-9,03	-17,27	-1,90	-1,64	4,20	7,47	-2,62	-15,16	4,46	-18,77	-12,25	-4,57	-10,91	2,09	-0,94	-1,28	-0,95
H7	J_party_size	4,21	-0,42	-3,26	-3,12	-1,50	-2,63	-3,18	11,30	1,32	-1,35	1,00	-1,86	-1,64	3,87	-1,13	-2,27	-1,63	2,94
H9	No. of other destinations vis	-0,23	6,88	-0,68	22,04	2,09	-2,77	-6,75	4,13	40,94	-2,76	-10,73	8,34	0,38	2,83	-0,89	-2,72	0,04	-2,06
	Any extra overnight destina	-2,56	5,21	-0,79	11,83	4,00	-1,44	13,65	4,98	-3,87	14,65	-3,17	2,56	-1,00	-2,25	2,29	0,21	-1,34	-0,68
H10	Were there any excursions	1,45	1,59	-3,55	-4,95	9,72	-4,80	6,59	-1,43	-3,21	-1,47	-6,31	4,81	-2,95	-3,63	-2,37	-1,26	-1,72	-3,02
H11	Cycle_tourist	1,96	-4,40	-0,52	-11,92	-0,49	0,45	-1,55	24,70	-2,45	-3,72	2,50	-4,91	-1,23	-1,05	-1,68	8,53	-0,02	0,20
	Two_bicycles_min	5,43	-3,89	-1,43	1,28	-3,03	1,31	0,05	-0,25	-3,56	1,11	2,98	-8,75	-0,55	-3,05	4,68	-0,84	-0,39	1,21
H12	HH_Internet	2,94	1,62	2,63	0,16	-0,12	-0,59	-2,89	-6,51	0,92	-1,13	2,97	1,97	2,80	1,95	0,88	-0,74	3,47	5,94
H13	J_SUMMER	-1,87	-0,29	-0,02	12,33	7,68	-3,56	9,59	-5,93	1,84	4,81	-3,53	-3,90	3,19	1,07	1,49	1,14	-1,15	3,77
H14	HH_private_car	1,49	-2,63	5,46	4,60	2,06	-0,29	3,11	3,29	-7,52	-1,44	1,40	4,55	2,49	2,44	3,24	-0,95	-0,21	1,76
	HH_company_car	-1,92	-2,01	2,23	3,69	0,38	0,54	-1,38	2,54	-5,12	-2,01	0,26	0,24	1,54	1,23	5,47	-1,35	0,30	-1,10
	HH_cars_0_4	-3,94	2,94	0,15	-0,35	-0,54	2,35	-1,16	-4,84	3,90	2,79	0,85	0,46	-1,23	1,75	-1,59	3,28	-0,57	-4,37
	HH_motor_home	-1,49	-0,52	-0,58	0,22	-4,07	0,40	-3,29	-3,58	1,13	-3,43	1,42	-3,16	8,44	1,99	-1,72	5,13	-1,36	-0,85
H15	Employment	0,07	-0,33	3,14	-0,97	3,14	0,77	-1,69	-2,89	-4,80	-1,58	0,29	-0,75	0,33	0,39	1,48	-0,80	1,93	-0,28
H16	P_Age_15_29	1,50	4,36	2,50	0,75	5,12	3,02	0,70	4,24	1,06	1,71	-0,90	3,14	0,43	3,86	1,92	1,04	3,32	-1,19
	Persons under 5	-4,34	0,79	-1,11	1,79	-0,25	-0,49	1,71	7,72	1,76	-1,16	-2,20	1,28	0,63	-3,50	0,09	-0,62	3,35	5,58
	P_Age_65_99	2,19	-3,15	0,80	5,04	-0,62	1,61	1,39	-0,38	2,61	-0,60	-1,79	-6,50	-2,01	-1,05	4,52	-1,16	-0,96	0,29
H18	P_Gender	1,28	0,74	0,26	0,01	-0,16	0,73	-1,89	0,73	-3,87	2,35	0,66	2,29	0,79	0,15	0,45	-0,22	0,09	-1,18
H19	Business	3,48	2,68	-5,73	-1,05	2,99	-3,15	5,99	9,19	0,72	0,74	-9,99	-3,02	-3,09	2,91	-0,14	2,62	-1,25	0,99
	n - at this destination	368	354	351	317	294	230	169	168	135	78	2069	878	188	121	76	54	52	36
	% - at this destination	1,0%	0,9%	0,9%	0,8%	0,8%	0,6%	0,4%	0,4%	0,4%	0,2%	6%	2%	0,5%	0,3%	0,2%	0,1%	0,1%	0,1%