Determinants of tourist expenditure: a review of microeconometric models

Juan Gabriel Brida and Raffaele Scuderi

Free University of Bozen-Bolzano

25. April 2012

Determinants of tourist expenditure:

a review of microeconometric models

Juan Gabriel Brida (corresponding author)

JuanGabriel.Brida@unibz.it
School of Economics and Management, Free University of Bozen-Bolzano
Universitätsplatz 1 - piazza Università, 1
39100 Bozen-Bolzano – Italy
Tel.: +39 0471 013492
Fax: +39 0471 013009

Raffaele Scuderi

Raffaele.Scuderi@unibz.it
School of Economics and Management, Free University of Bozen-Bolzano
Universitätsplatz 1 - piazza Università, 1
39100 Bozen-Bolzano – Italy

Abstract

This paper presents a comprehensive review of the econometric approaches for the analysis of tourism expenditure at individual level. The attempt to consider only regression models is novel in literature. The paper resumes 86 papers and 354 estimates of econometric models from data at individual level, ranging from 1977 to the early 2012. Discussion focuses on models used, dependent variables, explanatory variables by category and their effect on expenditure. The most frequently used explanatory variables were income, socio-demographic and trip-related, and were tested mainly through classical regression techniques (OLS, quantile, Tobit and two-step, logistic). Future research directions should concern the exploration of new evidence through novel methodological techniques, a more extensive use of psychographic variables and a stronger relation to economic theory.

Keywords

Tourist expenditure; Econometric model; Micro data; Review

1. Introduction

The impressive evolution of tourist market during last decades changed the way leisure was perceived by consumers. The increasing easiness in travelling, as well as a growingly differentiated supply, concur in satisfying even particular niches of tourism demand. The economic impact of tourist flows on economies is often notable and constitutes a relevant key for economic growth, from small communities to big countries. Improving the effects of tourism requires appropriate data and tools in order to drive both private sector's supply and policymakers' actions. In this context tracing out the determinants of spending for the tourist-consumer through powerful analytical models is crucial. Econometrics offers valuable tools for studying causal relationships between tourist expenditure and consumers' characteristics, often being the empirical counterpart of economic theory on consumer's behaviour. Finding and interpreting elements such as demand elasticity or semi elasticity, or the most likely spending amount of the average individuals with specific characteristics, provide precious information for improving the economic impact of tourism.

The increasing number of contributors analysing the characteristics and determinants of tourism demand after all reflects the attention of academic research towards tourist demand. Among the others, the review papers of Crouch (1994), Lim (1997), Li et al. (2005), Song and Li (2008) testify such growing interest of scholars, both in terms of number of studies and methodological developments. Within this broader set of studies the analysis of tourist expenditure and its determinants offer a peculiar view of the demand that allows quantifying the economic impact of tourism on economies. Surprisingly the analysis of the elements influencing tourist spending from micro data has not developed as much as tourist demand analysis from information at aggregate level. This paper aims at offering a comprehensive and critical view of econometric approaches to the analysis of expenditure for tourism at individual level. The aim is novel in literature. At the best knowledge of the authors the only attempt of reviewing micro data analyses is by Wang and Davidson (2010a), who nevertheless reviewed 27 studies that made use of a variety of techniques where econometric models were only a subset.

Finding a reliable assessment of the average consumer's characteristics is not an easy task. In order to translate theory into measures aimed at satisfying a specific scope, scholars have to properly select and combine measurement tools and models. The present paper presents a report on models, variables and empirical evidence, and provides a critical analysis of them in order to be a guide for the researcher into this literature. The paper begins with a resume of the basic economic

theory that is taken more or less explicitly as reference by empirical studies. The following discussion is based on the analysis of 86 papers, overall reporting 354 estimates of econometric models and published from 1977 to the early 2012. The work presents a critical review on the use of the models, with reference to the hypotheses they are based on and information deriving from their output. Empirical findings emerging from the papers are grouped by categories of regressors. A discussion on each group is then proposed with a twofold aim. The first is to provide an overview of the most frequent variables that are used. The second is to give, where possible and plausible, an indication about the most frequent significance and verse of each regressor's relationship with tourist expenditure. A peculiar attention will be given to the measurement aspects of each indicator, with a distinction between metric and dummy variables. The final scope is to provide a guide that might be useful for selecting and estimating models and regressors on the basis of what scholars have done so far.

The paper is organized as follows. Section 2 presents the main economic theory of reference for assessing the determinants of tourist expenditure. Section 3 resumes the methodology followed for the analysis of articles. Section 4 reviews the econometric models applied in the literature. Section 5 and 6 report a discussion respectively on response variables and regressors. Section 7 draws the conclusions.

2. Economic theory and determinants of tourism expenditure

According to Aguilo Perez and Juaneda Sampol (2000) the interest towards the determinants of tourist expenditure has to be ascribed to the evolution of tourist market after the Eighties. Before this period tourism was seen as a mass phenomenon in the light of the Fordist economic development framework when products came with rigidity and high standardization. Changes in motivations, travel patterns and technologies led to a markedly differentiated post-Fordist tourist model. Today the tourist product is a complex composition of complementary services that serve a high segmented market. The practical consequence for scholars and analysts is the need to make use of sophisticated tools in order to characterize tourist demand. Econometric models play a central role in offering techniques and analytical approaches for explaining tourist expenditure. Their strict relationship with economic theory has a great advantage in terms of interpretation of the results. Unfortunately it is not so frequent that applied contributors recall the underlying theoretical framework. The present paragraph presents some theoretical contributions about tourist's spending behaviour. In particular two frameworks are considered. The first aims at assessing the role of a set

of variables on expenditure levels, whereas the second one studies the factors affecting the decision of spending. Both make use cross section data.

2.1. Tourism product and expenditure

Tourism services are considered as normal goods and analysed under the classic utility maximizing theory. Hauser and Urban (1986) resume it as follows and offer a peculiar view of it under the 'value priority' hypothesis. Assume that the consumer faces single-period decisions for which she allocates a budget *B* into already planned and non-planned items. Planned ones are called 'durable goods' and include also vacations. If q_j is the number of items of the durable good *j* she purchases, where $j = 1,...,n$, p_j is the expected price of *j*, *y* summarizes the allocation to other goods, $U(\bullet)$ is the utility function, the problem of allocating *B* is represented by:

$$\begin{aligned} &\max U\left(q_1, q_2, ..., q_j, ..., q_n, y\right) \\ &\text{s.t. } p_1 q_1 + p_2 q_2 + ... + p_j q_j + ... + p_n q_n + y \le B \end{aligned} \tag{1}$$

Laesser and Crouch (2006) stress that due to the indivisibility and interdependency of the tourist product components, a part of it does not generate an immediate utility but rather an indirect utility. This does not imply that consumption choice is a static concept: '*rather, it is dynamic in nature because choices with regard to different product components can be made additively throughout time [...]. Especially with regard to travel, this might imply conditional relations (including potential trade-offs) among different dimensions of utilities (i.e., if a traveler spends more than usual for his or her accommodation, he or she might consider spending less on food and beverages)*.'

Finding an exact solution for the constrained maximization of Equation (1) may be difficult due to nonlinearities in the utility function. This is why Hauser and Urban (1986) develop the approach called 'value priority'. They suppose that durables are ordered in consumer's buying preferences. Items are evaluated according to their utility per dollar, that is u_j / p_j, where u_j is the marginal utility. Supposing that $g_j = 1$, Equation (1) becomes

$$\begin{aligned} &\max u_1 q_1 + u_2 q_2 + ... + u_j q_j + ... + u_n q_n + u_y\left(y\right) \\ &s.t. p_1 q_1 + p_2 q_2 + ... + p_j q_j + ... + p_n q_n + y \le B \end{aligned} \tag{2}$$

According to the value priority hypothesis, the actual purchase will happen in order to buy the item that has the highest u_j / p_j ratio. Purchase will go on until u_j / p_j is above λ that measures the value of spending an additional dollar on nondurable goods.

The value priority hypothesis is valid when the consumer decides her purchases in terms of budget allocation. A variation of the approach called 'net value priority' refers to the situation that the price is an attribute indicating the quality of products when the consumer chooses among brands, or when she wants to consume conspicuous quantities of a good. The lagrangian solution to Equation (2), that is $u_j - \lambda p_j$, represents the surplus of utility over price, and is the decision criterion that substitutes u_j / p_j in this second case.

The theoretical approach of Hauser and Urban is the basis of Crouch et al.'s (2007) choice experiment on tourism consumption as discretionary spending. In this sense the value utility constitutes a reliable theory for it allows the consumers to create an ordering of the items, which has predictive validity and is consistent with behaviours such as delaying the purchase. The view of tourism spending as discretionary is also present in Dolnicar et al.'s (2008) work. Crouch et al. (2007) stress that scholars usually neglect this feature due to difficulties in distinguishing what is discretionary and what is not. For economic theory, in fact, the most adequate representation of the two concepts would be on a continuum according to their essentiality.

Economic theory has widely debated about the alternative ways to approach the choice of consumers to buy tourism goods. The classical utility maximizing framework has been of reference for economic analysis despite the caveats arisen by some authors. According to Papatheodorou (2006) the classical 'textbook' utility maximizing model can be inadequate in explaining tourist choice due to separability and discreteness in choice structures. In Van Raaij's (1986) opinion rational consumers face a multi-level separable choice beginning with the decision of assigning a given amount to spending, and followed by allocating such amount on different travel choices. Discreteness in choices is instead a more realistic assumption that contrast with classical model assuming that the representative tourist consumes all goods under consideration simultaneously.

The 'characteristics model' framework of Lancaster (1966) and Gorman (1980) also contrasts with the classical approach inasmuch as it considers separately the vector of the total quantity of goods required for a given activity and the 'characteristics' produced by each single consumption activity. Both total quantity of goods and characteristics depend linearly on the quantity of the single goods employed for the activity. Utility is nevertheless function of the characteristics, whereas the quantity of goods is part of the constraint to consumption. The choice of buying

tourism leisure is thus taken according to the utility deriving from the characteristics rather than from quantities.

An alternative view is the one where the demand for tourism derives from a process of production. The combination of market purchased goods and time generates the so called 'household production'. Among the others Weagley and Huh (2004) present a version of the framework where the utility is function of leisure and other household produced goods.

Complexities in tourist choice and spending arise also from considering tourism goods as hedonic. In this sense Laesser and Crouch (2006) stress that tourism is a combination of tangible and intangible attributes some of which do not have a price. Its cost (i.e., expenditure) is thus function of physical and intangible/emotional dimensions that are interdependent and overall indivisible. From the demand side differences in those characteristics implicitly reflect marginal differences in the good's utility. From the supply side the equality between revenues and demand expenditure makes the former representing the limit of marginal costs. Laesser and Crouch conclude that actual datasets offer a limited possibility to draw of conclusions about the consumer's willingness to pay, due to lack of ad hoc measures.

2.2. Explaining levels of tourist expenditure

Downward and Lumsdon (2000, 2003) report a simple theoretical model for studying the determinants of the levels of tourist expenditure. As standard demand theory predicts, the individual *k*'s demanded quantity *q* of a given commodity *j* at time *t* is given by

$$q_j \mid t = q\left(p_j, B_k, T_k \mid t\right) \tag{3}$$

where p_j is its relative price, B_k is consumer *k*'s budget and T_k are her tastes. As reported above, tourism goods are considered as normal, and this implies that income has a direct relationship with expenditure (Agarwal and Yochum, 1999; Downward and Lumsdon, 2000).

Equation (3) is not suitable for driving the assessment of the demand characteristics from cross section data. The fact that it refers to a fixed time implies that it does not report the necessary information for assessing the change of relative prices. Moreover it is difficult to define a physical measure of tourism services also for its nature of hedonic good, and this is an obstacle for isolating prices from quantities. This leads to the following Engel curve representation of Equation (3) that

provides a more convenient reference for assessing the demand of all the tourist goods purchased by *k*:

$$\sum_j p_j q_j \mid t = pq\left(B_k, T_k \mid t\right), \tag{4}$$

where p_j on the right side becomes a fixed scale factor, and $\sum_j p_j q_j$ is total expenditure at *t*. The need to estimate the elements concurring in differentiating markets leads scholars to express both B_k and T_k in terms of measurable consumer's characteristics. We adopt the distinction of Wang et al. (2006) into socio-demographic (S_k), trip-related (TR_k) and psychographic (P_k) characteristics, plus the fourth category of economic constraints C_k. The latter extends the concept of income to include all economic restrictions in spending (see Alegre and Pou, 2004; Alegre et al., 2010). This distinction will be considered in the followings. Trip-related variables also include what literature calls 'time constraints', which typically concern the length of stay and of trip to the holiday place. Model (4) thus becomes

$$\sum_j p_j q_j \mid t = pq\left(C_k, S_k, TR_k, P_k \mid t\right). \tag{5}$$

2.3. Modelling the decision of spending

A second theoretical approach is reported by Alegre and Pou (2004) and is aimed at modelling the probability that a consumer purchases tourist goods. The framework of reference is McFadden's (1974) binary discrete choice random utility model. As usual the consumer is asked to choose the combination of goods and services that provide her greater utility, given her budget constraint and the prices of commodities. Binary model simplifies the purchase behaviour through assuming that the alternative is to choose between buying two commodities, say *i* and *l*, and assuming that the decision is whether to purchase a tourism service *i* or not. If U_i is the indirect utility function of *i* (since prices and income are given), the probability of choosing *i* is given by $P\left(i\right) = P\left(U_i \geq U_l\right)$ where $P\left(l\right) = 1 - P\left(i\right)$. Thus if *i* is a tourism service $P\left(i\right)$ depends on the utility of *i* compared to the utility of purchasing something else. Indirect utility function U_i is considered as random and as such can be expressed as additive function of a deterministic and random part, respectively V_i and

ε_i, which leads to $P(i) = P(V_i - V_l + \varepsilon_i - \varepsilon_l) \geq 0$. Expressing $P(i)$ as linear function of a set of variables *x* it becomes:

$$P(i) = P(\beta_i' x - \beta_l' x + \varepsilon_i - \varepsilon_l \geq 0) = P(\beta x + \varepsilon \geq 0), \tag{6}$$

that is a deterministic part βx plus a random element.

A further evolution of modelling consists in the so-called 'two-part' models, where the determinants of the two behaviours of choosing whether to spend on tourism or not, and the level of expenditure are assessed distinctly. These models are illustrated below.

3. Overview

The authors conducted the search of papers on different databases, including Google Scholar, SSCI and the main Journals of tourism, leisure and applied economics. Eighty-six papers were found, reporting at least one set of estimates of an econometric model, with an overall number of 354 estimations and more than nine hundred different regressors. The majority of them is relatively recent for about 83% was published from 2000 on.

Information about each work was resumed in Table 1. It contains a detailed report on the main characteristics of each study, the model used for each econometric estimation and the dependent and independent variables. Regressors were grouped according to their significance, and significant ones were further classified on the basis of their estimated verse. Significance level was set at a p-value less than 0.05. Due to the enormous number of different independent variables further levels of classifications were necessary. The first is the one already mentioned in section 2.2, that is economic constraints, psychographic, socio-demographic and trip-related variables, plus a fifth category that includes the insertion in regressions of interactions between independent variables. A second level concerned the first four categories whose detail is reported in Table 1 and discussed below. Furthermore a second table (Table 2) was elaborated in order to give a synthetic view of the use of each category in regressors in models, as well as of estimates and their significance and verse.

More than half of the considered set (45 papers, 52%) made use of primary data. The need to deal with representative samples is crucial for statistics and econometric analysis. Overall the peculiar attention that is required in describing the data formation process does not seem to be a relevant issue for some of the papers that employ data from own surveys. Sampling procedures are

often described in not enough detail in order to understand whether the sample was probabilistic or not. On the contrary sometimes sampling appears to be driven by, or it is explicitly said it was conducted through, a convenience criterion, with the result that any inferential procedure does not produce trustworthy results.

For what concerns the context to which surveyed data are to be inferred, there can be found three settings. The first one is the country level (40 articles, 47%), which includes those studies whose results are to be extended to a whole country, both as a destination and as a place of living of surveyed households or consumers. This category includes the use of official datasets provided by governmental institutions, surveys on panels of households or consumers, investigations at public places such as airports or welcome centres. A second category is the 'destination' of the travel, that is a geographical or administrative entity smaller than a country (i.e., city, natural park, island), for which we reported 32 papers (37%). A fewer number of papers concerns the analysis of visitors to events (14 works, 16%).

Fifty-six works (65%) consider surveys on visitors or tourists that were enrolled during or at the end of their holiday, visit or trip. The residual category is based on information on households or consumers data that were asked to recall their recent trips or declare their intentions to make a trip.

4. Econometric models

Unlike studies on aggregate demand – see for instance the recent review by Song and Li (2008) – heterogeneity in using different econometric models is not high in studies on tourist expenditure determinants. Nevertheless in recent years the use of particular non classic econometric techniques has been taking place. Models testing the relationship between tourist expenditure and a set of covariates can be classified into two main categories, according to the scale of measurement of the response variable.

4.1. Models for metric response

The first one concerns the use of metric response, and can be ascribed to the framework synthesized by Equation (5) where the level of expenditure is seen as function of a set of individual characteristics. The most common approach is the classic linear regression model through OLS estimates (55 authors - 64% - and 165 regressions - 46.6%), and in general those models where the response variable is supposed to range along the whole real axis. A part of these makes use of stepwise selection of regressors (Kastenholz, 2005; Kruger et al., 2010; Saayman and Saayman,

2009, 2012; Seiler et al., 2003; Tyrrel and Johnston, 2003). The latter choice technique presents well-known fallacies in allowing for the comparison of models. Moreover the empirical test of a theory-driven model should not make use of a statistical mechanism for selecting the variables to account for. The researcher should be in fact interested in verifying even the role of those regressors that do not allow matching the optimality criterion driving the stepwise selection.

Other approaches make use of techniques such Weighted Least Squares (Downward and Lumsdon, 2000), LISREL equations (Seiler et al., 2003), robust hierarchical regressions with outliers downweighting (Park and Chung, 2009), robust OLS (Thrane and Farstad, 2011).

Taking tourist expenditure as normally distributed along the whole real axis is unrealistic and may lead to inconsistent estimates. From a statistical point of view spending is a zero-censored variable, whose distribution often presents a positive asymmetry for its density decreases with the increase of the amount. Alternative estimation procedures accounting for this issue are basically two.

The first subset aims at obtaining consistent parameters estimate. It is based on the hypothesis that the observed expenditure values depend on a latent variable assuming positive values when greater than zero and being equal to zero elsewhere. One of the approaches used is Tobit regression (Tobin, 1958) where the latent variable is seen as linear function of regressors plus an additive error term. The model presents relevant restrictions for it requires that errors are normally distributed and homoscedastic, and in case of violation of the assumptions it presents inconsistency. Fifteen articles presented Tobit estimates (Barquet et al., 2011; Bilgic et al, 2008; Brida et al., 2012; Cai, 1998, 1999; Dardis et al, 1994; Downward et al, 2009; Ham et al, 2004; Kim et al., 2008; Kim et al., 2010; Kim et al., 2011; Lee, 2001; Leones et al., 1998; Zheng and Zang, 2011) with 56 estimated models, including Bilgic et al.'s (2008) bivariate system of Tobit regressions simultaneously assessing the determinants of fishing and hunting expenditure.

A second class of approaches is called 'Two-Part' models (or 'double-hurdle') and generalizes Tobit regression. It treats separately the two decisions of whether spend money on tourism or not, and how much to spend. Its advantages are different. The first is 'substantive' and concerns the possibility to infer the factors that influenced each of two logically-separated stages of decision. Secondly, similarly to Tobit model the approach overcomes the above reported limitations of the mere OLS estimation, and contrarily to Tobit often requires relatively strong assumptions. Thirdly, it allows to test whether the logical distinction itself between the decision of spending and the quantity to allocate on tourism is significant or not. Within this class of models two techniques were found in tourism literature. The first one is Cragg's (1971) two-part model used by Hong et al. (1999) and Weagley and Huh (2004). The approach specifies a Probit model for the decision of spending or not, and models the remainder part as a lognormal or normal truncated distribution. The

model assumes that there is no correlation between the normal error terms of the two equations. A more general approach is Heckman's (1979) and is used in Hong et al. (2005), Jang and Ham (2009), Jang et al. (2007), Nicolau and Mas (2005). It releases Cragg's assumption of joint normality of the two stages' errors by augmenting the OLS regression of a term estimating the omitted regressors and obtained from a previous Probit regression. A particular version of the two part model is the one used by Alegre et al. (2009) for count data (Mullahy, 1986) who model the number of quarters with positive tourist expenditure.

Quantile regression is the second alternative to OLS that is used in literature for metric regressors. It does not operate by solving directly the problems related to the distributional characteristics of expenditure and the related inconsistency of the mean parameter. Rather it assesses local behaviours at specific portions of the empirical distribution with reference to location measures rather than mean values. Works making use of this technique are quite recent and include Chen and Chiang (2012), Hung et al. (2011, 2012), Lew and Ng (2011), Saayman and Saayman (2012), Thrane and Farstad (2011).

A different and interesting approach, falling within the category of models for mixed metric and categorical response, is the switching regression Alegre and Cladera (2010) that aims at characterizing the different expenditure patterns of repeat and first time visitors. This approach estimates the influence of the same set of regressors on two subsets of the sample, which are identified by a qualitative characteristic – specifically, Alegre and Cladera consider the spending behaviour in first time and repeat visitors.

4.2. Categorical response

A second category of models considers categorical responses. The most used estimations refer to dichotomic responses, where an indicator variable denotes whether individual spent money for tourism services or not – see Equation (6). The most used techniques are logistic regression (Alegre and Pou, 2004; Alegre et al., 2010; Brida et al., 2012; Dolnicar et al., 2008; Hsieh et al., 1993; Kim et al., 2010; Mehmetoglu, 2007; Oh et al., 2004; Pouta et al., 2006; Saayman and Saayman, 2004; Thrane, 2002) and probit model (Saayman and Saayman, 2006).

Two papers use regressions for the analysis of multinomial responses: Crouch et al. (2007) estimate an universal logit model that tests how potential consumers how would have allocated their discretionary income on different categories of goods and services; Alegre et al. (2011) find classes of tourist expenditures and apply an ordinal logit model.

5. Dependent variables

The nature of the dependent variable drives the choice of the econometric model. This paragraph is thus strictly related to the previous one, and similarly a distinction can be made between categorical and metric responses. The former were already described in the last paragraph. For what concerns metric variables scholars usually refer to the level of expenditure on tourism, overall or on specific items such as shopping, food and beverage, transportation, entertainment, etc. The only exception is Alegre et al. (2009) who consider the number of quarters with tourist expenditure, and make use of the count data regression methodology mentioned in the last paragraph. A detailed list is reported in Table 1.

In OLS models expenditure as response is often transformed through logarithms, which provide a direct interpretation of estimated coefficients in terms of elasticity. Very few authors make use of pure or standardised values, such as the budget share on the total expenditure allocated for leisure travel (Hong et al., 2005), fishing and hunting expenditure shares (Bilgic et al., 2008), the percentage of household income spent on tourism (Hung et al., 2012), z-score transformation of tourist expenditure (Boo et al., 2007).

Expenditures levels are expressed through four categories of indicator. The first one is total expenditure for the whole trip – per party, per household, or in general 'per interviewee' where not specified in the paper. It is the most used variable among the surveyed studies, accounting for about 63.9% of the 302 regressions using metric responses. This indicator of course is influenced by the number of people the expenditure refers to, as well as to the length of stay. These two factors concur in calculating the other three standardized indicators used in literature, that is expenditure per day (3.6%), expenditure per person (13.6%) and expenditure per person per day (18.9%). Of course the choice of the response depends on the unit the researcher wants to refer to in order to assess the willingness to spend (i.e., household or group of reference versus average per person) and to the time horizon (overall trip versus daily).

6. Regressors

A generalization of the empirical findings on each independent variable is not an easy task. The ideal outcome would have been resuming the overall 'degree of significance', verse and intensity of each regressor, or typology of regressors, as emerging from all the models. Of course this is not possible for the *coeteris paribus* condition does not keep. A motivation emerges from previous paragraphs and relates to the use of different models, variables and sets of regressors. Moreover

estimations are not all provided in terms of marginal effects or more in general are not comparable each other. There can be also found a high heterogeneity among the regressors in measuring a character. For instance many scholars measure 'age' both in terms of number of years and dummy variables for age classes, the latter also differing from study to study. This implies that if it is immediate to realize the meaning of 'age positively and significantly related with expenditure' when it is a metric indicator, the interpretation of a dummy's coefficient requires the exact indication of what the indicator variable refers to. More in general the comparison of the estimations in case dummies are present is very problematic due to the differing reference category across regressions (i.e., the baseline situation where all dummies equal to zero).

In the light of these caveats more than 900 different regressors were at first classified in the four categories of economic constraints, socio-demographic, trip-related and psychographic variables, plus the case when an interaction between two different variables is tested. Due to their high heterogeneity and case-study specificity interactions were not classified further and also not included in the following discussion. Within each of the first four groups further sub-categories were introduced. As just reminded the resume that follows cannot have a normative value with respect to the effects that variables have on tourist expenditure. Rather the discussion aims at offering a descriptive overview of the most frequent evidence about the examined relationships.

In order to put into account the different role of dummy variables with respect to metric ones the latter are separately highlighted in Table 1. For some papers the distinction was not easy. Some authors in fact do not report the definition of the variables used, or the same is provided in not enough precise terms. For the most problematic cases the regressors are classified according to the indirect indications from of the paper. Moreover in a couple of papers regressors were ill-measured, as it happened when nominal or ordinal variables were expressed through one single metric regressor.

6.1. Economic constraints

This category includes those economic restrictions that are relevant in determining the choice of spending. Variables were classified into six sub-categories: assets owned, presence of financial difficulties, duty-free import limits, licenses and loyalty cards, income level and income sources. It includes also health status as element that may influence the wealth status of the respondent directly.

6.1.1. Assets

The first category of economic restrictions includes the financial and nonfinancial assets of the respondent or household, which was considered by 49 regression models (13.8%). Assets were found to be significantly related to expenditure in 76 cases, whereas the number of non significant regressors was 46.

Metric regressors using the amount of expenditures (Dardis et al, 1981; Fish and Waggle, 1996; Weagley and Huh, 2004) and total assets (Hong et al., 2005) were found to be significant and positively related to tourism expenditure. In particular Weagley and Huh (2004) used total expenditure as proxy of income. The study by Park and Chung (2009) on e-travellers made use instead of the internet connection speed that was in a non significant relation with the amount of spending. Total expenditure for food at home was used by Jang et al. (2007) in their study on food-away-from-home expenditures and found significant and positively related to spending. Other used indicators were the value of liquid and illiquid assets (Hong et al., 1999), and number of vehicles owned by the family (Fish and Waggle, 1996), the latter being positive and significantly related to expenditure.

The amount of medical and health care expenditures was used in four studies (Hong et al, 1999; Hong et al., 2005; Jang et al., 2007; Hung et al, 2012) but authors came to different conclusions for what concerns their significance and verse. If on one side the main hypothesis was that it is indicative of a difficulty in travelling (Hung et al., 2012), as Hong et al. (2005) stress it can be positive related to financial status and thus in direct relationship with tourist expenditure.

The use of dummy variables was predominant than metric ones (80 estimates versus 42). It mainly concerned the presence of expenditures on financial investments, saving capacity, past expenditures on overseas vacations, owned versus rented home, mortgage and home loan expenses, internet access, property of one or more cars. Dummies showed a significant relationship in 43 cases, 34 of which are positive, whereas non significant coefficients were found in 37 estimates.

6.1.2. Financial difficulties

Alegre et al. (2010) used a set of dummy regressors from ordinal variables expressing the limitations in spending due to financial difficulties. A first group of questions asked the number of unemployed members in the family in the last 5 years, whereas a second group concerned the difficulties in getting at the end of the month. The relationship with tourist expenditure was negative as expected and significant for those dummies that are related to higher number of family members with problems and in more difficult economic conditions. Those who do not faced particular difficulties exhibited a direct and significant relationship with expenditure.

6.1.3. Duty-free import limits, Licenses and Loyalty Cards

Some authors tested dummy regressors related to limitations in spending due to the presence of import limits, licenses and loyalty cards. Davila et al. (1999) studied the impact of lowered duty-free import limits in Mexico and as expected found a significant and direct relationship of the absence of the limit with spending. Bilgic et al. (2008) analysed fishing and hunting tourism expenditure and found a positive and significant coefficient for those who reported the possess of a license. Saayman and Saayman (2009) reported no significance in estimating the effect of owning a loyalty card.

6.1.4. Health status

Alegre et al. (2010) made use of two metric variables reporting the number of people in the household that were hampered in their daily activities by chronic physical or mental health problems. As expected both coefficients, related to severe or to-some-extent hampering, were negative and significant.

6.1.5. Income

Income is one of the variables that was used more frequently, due to its explicit relevance for economic theory in conditioning purchasing behaviour. It was considered in 208 regressions (58.8%), where in about 71% of them (148) a metric regressor was used, for a total of 163 estimates. As expected the majority of metric regressors estimations (113, almost 70%) was positive and significant, whereas in only nine cases a negative and significant relationship was found. What differs across the studies is the way income was measured, as well as the explicit reference to household, visiting party, average per family members (total or only adult), household head, or only the respondent. A group of scholars used gross income before tax (Asgary et al., 1997; Crouch et al., 2007; Davila et al., 1999; Jang and Ham, 2009; Kim et al., 2011; Leones et al., 1998). A second set of papers considered net income after tax (Alegre et al., 2009, 2010; Dardis et al., 1981; Hong et al., 1999; Hong et al., 2005; Jang et al., 2007; Zheng and Zang, 2011). This second measurement fits better with economic theory, for it directly refers to the concept of disposable income. Those who do not specified whether income was considered as gross or net form the remainder category. Among these, the following authors consider particular versions of income. Dardis et al. (1994) estimated four categories of household members income, that is salary of the head, spouse, others, and non-salary income. Cai (1998, 1999) distinguished between earned and unearned income. Wang and Lee's (2011) study on regular and conference tourism considered the amount of financial support for the trip the respondent had. Alegre et al. (2009) and Crouch et al. (2007) also estimated coefficients for both income level and squared income in order to account for decreasing marginal effects.

Hsieh et al. (1997) and Marcussen (2011a) used a questionable procedure of translating discrete income classes into a metric discrete-values variable. This case introduces the next point. It is well known in fact that the information about the amount of income is one of the information that an interviewee is most reluctant to declare. This is why income is measured through categories by some authors, for the respondent is offered to select among alternatives that in her perception can hide somehow her health status. Sixty regressions took income as categorical variable and made use of dummies. Such procedure seems to affect the results, for fifty-four estimations out of 102 were not significant. Alegre et al. (2011) and Hong et al. (2005) added also an indicator variable of missing income or response, a procedure that is used in order to limit nonresponse rate and increase sample size. There are also authors such as Alegre and Pou (2004) who considered both metric and categorical regressors, in order to put into account the level of income and whether it can be placed above or below the sample median.

6.1.6. Income sources

A limited number of authors made use of variables proxying income sources. The only metric one was the number of earners in the household of Alegre et al. (2009), which was significant and negatively related to expenditure. The remainder are dummy variables, for which 34 nonsignificant regressors were found out of 51. These variables expressed whether income was earned, or came from pension, social security or retirement, assets, transfer, welfare benefits, unemployment benefits, self-employment, two or more earners, other sources.

6.2. Socio-demographic attributes

Socio demographic attributes reported eight sub-groups of individual characteristics: age, education, gender, household numerousness, marital status and life cycle stages, nationality, place of residence and language, occupation/profession, race-ethnic group and family origins.

6.2.1. Age

Age related variables are in absolute the most used, being present in 266 regressions (75.1%). Quantitative variables usually reported the age in years of the respondent or of the head of the household/travelling party, in one case z-score transformed (Boo et al., 2007). Chhabra (2007) considered also the age of the youngest child of the respondent in order to put into account whether children of small age had an influence on tourist expenditure, though the estimation was not significant. Different authors (Alegre and Pou, 2004; Alegre et al., 2009, 2010; Crouch et al., 2007; Hong et al., 1999; Jang and Ham, 2009; Jang et al., 2007; Thrane and Farstad, 2011, 2012) added

also the estimation of the age squared in order to test the presence of a nonlinear relationship with expenditure. Two unusual regressors were the ones by Kim et al. (2010) who used a five units scale from 1 to 5 where each unit represented decades of ages from 20s to 60s, and the six units scale by Saayman and Saayman (2009): if the former can be considered as a translation of the central values of each age class, the latter can hardly be for it refers to classes with different size. Of the 87 significant metric indicators 61 were directly related whereas 26 were inversely, but the number of non significant coefficients was greater (103).

The use of dummy variables indicating the presence in a certain age class was also very frequent. Nevertheless both size and reference category vary from study to study and do not allow to generalize whether a certain age class is significantly related to tourist expenditure. In general studies report 133 significant coefficients and 126 non significant.

6.2.2. Education

Many estimations utilized education-related variables (160 regressions, 45.2%) referring to the respondent or household head. Education is a typically categorical variable that should be modelled through the use of dummies. Nevertheless there can be found papers where a metric variable was used. Alegre et al. (2010) for instance used four variables resuming the number of members of the household that were, respectively, illiterate and with primary mid-level and higher education, almost all resulting in a significant and direct relationship except for the negative sign of 'illiterate'. Bilgic et al. (2008), Chhabra et al. (2002) and Zheng and Zang (2011) used the number of years of education, but only estimations of the latter resulted significant. A questionable use of the variable is instead the one of those authors that gave a numeric code to each education category that increased with the education level.

Although there can be found international categories of education levels, even for this variable the number of dummies' reference categories was high. For what concerns the results, of 222 estimations of dummies only 97 coefficients were found to be significant.

6.2.3. Gender

Gender indicator variables were present in 130 regressions. The majority of them resulted in a non significant relationship (88).

6.2.4. Household numerousness

This category relates to the numerousness of the household the respondent belongs to and it was used by 79 regressions (22.3%). Of course it is distinct from the travel party size that was treated separately as trip-related variable. Besides the mere number of people in the household other

distinctions were made in the papers with reference to particular categories. Some scholars utilized the number of children defined as of age less than 16 or 18, or with no definition, whereas others counted the number of adults. Of 80 performed estimates 41 were found non significant, whereas the majority of the remainder (26) was negative and significantly related.

Various dummy variables were used in order to test different aspects of the household composition. They included the presence of infants or children, various categories referring to the number of children in the household, whether the household was female-headed, or whether an adult or a couple had children or not. Forty-four estimates were found and more than half (24) was significant.

6.2.5. Marital status and Life Cycle Stages

Dummies for marital status were used in a good frequency (141 regressions, 39.8%). Overall this variable reported a medium-low frequency of significant regressors (52 estimations out of 161). Besides the classical categories of single, married/living with partner and windowed, Hong et al. (2005) tested the influence of further categories regarding the life cycle stages.

6.2.6. Nationality, Place of residence and Language

Also nationality and place of residence of the interviewee were among the most frequent dummy regressors (198 regressions, 55.9%). The most used indicators referred to the Country and region of residence or nationality, or language spoken. Different studies gave further detailed estimates by also considering the residence in cities according to their size, or in specific regions, or whether the visitor was resident near the study area. Surprisingly there can be found even regressors expressed through one single metric variable where each discrete value indicated a category. The number of total estimates is high (578), of which 42.4% was significant.

6.2.7. Occupation/Profession

Socio-demographic dummies for occupation or profession of the respondent were considered by 107 regressions (30.2%). Estimated coefficients were 324 and 48.5% of them was significant.

6.2.8. Race-Ethnic group and Family Origins

A limited number of studies considered also the race of the respondent or of the household head. All papers using it concerned United Stated citizens (Agarwal and Yochum, 1999; Bilgic et al., 2008; Cai, 1998, 1999; Cannon and Ford, 2002; Chhabra, 2007; Dardis et al., 1981; Dardis et al. 1994; Hong et al., 1999; Hong et al., 2005; Jang and Ham, 2009; Jang et al, 2007; Weagley and Huh, 2004; Zheng and Zang, 2011). In their study on a Scottish festival Chhabra et al. (2002) also

tested whether the membership to a Scottish clan or having Scottish ancestors influenced expenditure, and found negative and significant relationship for the former variable. Overall of 89 estimations performed more than half (49) resulted to be in a significant relationship with tourist expenditure.

6.3. Trip-related characteristics

Characteristics strictly related to the trip included 17 categories: activities during the trip, cost-related variables, destination, travel information source, length of stay, means of transportation, travel party size and composition, time of the reservation/planning, previous travel experiences, purpose of the trip, items for which a reservation was made, intermediary of the reservation, time of the holiday, time of the interview, travel distance, typology of visitor.

6.3.1. Accommodation

Dummy variables related to accommodation were used not very frequently, for they were present in 61 regressions (17.2%). The majority of the 155 estimates (i.e. 94) resulted in a significant relationship with tourist expenditure.

6.3.2. Activities

A further category concerns the activities that were held during the trip and are considered in only 27 models. Laesser and Crouch (2006) adopted a particular classification that is different from the ones here proposed, inasmuch as they consider together the categories here named ‘activities’ and ‘trip motivation’ (see below) as being part of a single one called ‘influence factors’. The reason is related to the fact that they both have an influence on the choice to take the trip. These included the participation in sporting event, nature-based outdoor activity, experience beaches, visit rural areas or outback, visit museum or theatre, etc. The aim of the present paper was instead to highlight a separate category of psychographic variables, that is a set of factors emerging as distinct in the literature. Of course trip motivations can be meant somehow as a category that stands between trip-related and psychographic factors.

Further examples of activity-related variables are the different behaviours of boaters in transporting their boat in Lee’s (2001) study; the choice between different typologies of route in cycle tourism (Downward et al., 2004); attending different typologies of cultural events at a national arts festival (Krueger et al., 2009; Krueger el al., 2010). Jang et al. (2002) introduced two categories of regressors, that is ‘travel purpose’ and ‘type of travel’, where the former can be

classified as 'purpose' (see below), whereas the second one was considered as 'activity'. Overall seventy-two estimates were found to be significant, whereas 74 were not.

The only metric regressors were the ones of Mehmetoglu (2007) who performed a Principal Component Analysis and obtained four typologies of activities (visiting historic/cultural, relaxing nature-based, pleasure-based, challenging nature-based) that were nevertheless not significantly related to expenditure.

6.3.3. Cost-related variables

This category includes both quantitative and qualitative regressors that concerned the spending during the trip and were present in only 10 regressions. Metric variables were the amount of planned spending and expected spending change, in Tyrrel and Johnston's (2003) study of the influence of welcome center visits on expenditure; the amount lost in gambling (Chhabra et al., 2007); the percentage of travel expenditure paid with credit card (Jang et al., 2004). Dummies concerned the presence of a planned and expected change expenditure equal to zero (Tyrrel and Johnston, 2003) and a spending exceeding £.100 (Downward and Lumsdon, 2004). Of the 15 estimates only two were significant.

6.3.4. Destination

Variables related to the destination visited were used in 41 regressions (11.6%), almost exclusively in the form of dummy variables. Only Leones et al. (1998) considered a metric regressor, that is the number of sites visited during the trip, which is found significantly and positively related to expenditure.

The remainder dummy variables indicated the typology, number and size of visited places and their location, visited Country or destination, ownership of the visited area. The majority of dummy regressors were significant (48 out of 77).

6.3.5. Travel information source

Only eight regressions estimated dummies' coefficients indicating the travel information source of the respondent (i.e., email, internet, word of mouth, newspapers, travel agency, etc.). Twenty-three out of 27 estimated regressors did not exhibit a significant relationship with expenditure.

6.3.6. Length of stay

Length of stay was one of the most frequently used variables in regression models (204, 57.6%). The way it was measured is both through metric and dummy regressors. Estimations of quantitative variables are 188, of which the majority (98) were significantly positively related with expenditure,

whereas 45 are negatively. In many cases (85 out of 98) a positive and significant estimate was related to a tourist spending that was not standardised by the length of stay. Of course this was quite expected, for the total amount of tourist expenditure depends on the number of days of vacation.

The most used metric regressor was the number of days or nights of the trip. Some scholars (Aguilo Perez and Juaneda Sampol, 2000; Jang et al. 2002; Roehl and Fesenmaier,1995) estimated it jointly with its squared value in order to account for nonlinear effects. Other metric regressors were related to the peculiar case study under investigation, such as the time of the visit in hours (Brida et al., 2012; Downward and Lumsdon, 2004), the duration of internet connections and the number of pages viewed in e-travellers' study of Park and Chung (2009).

Categorical variables were instead used with a lower frequency (73 estimated regressors) and their majority resulted in a significant relationship (59).

6.3.7. Means of transportation

Twenty-eight regression models considered the mode of travel for a total of 45 estimations. The majority of them (33) was significantly related to expenditure.

6.3.8. Party size and composition

Also the variables related to party dimension and composition were among the most used independent ones (163 regressions, 46%). Metric indicators reported the number of people in the party or the respondent was paying for, and of travel companions. As for the household size some authors introduced distinct variables for the number of adults and children in the party and estimated also a quadratic term (Aguilo Perez and Juaneda Sampol, 2000; Jang et al., 2002; Thrane and Farstad, 2011) in order to account for nonlinear effects. Overall, out of 185 estimates in 63 cases the indicator was non significant, whereas the remaining 122 cases are shared almost equally between positive (59) and negative (63) coefficients. The majority of negative and significant estimates (42 out of 63) related to per person expenditure, whereas 38 out of 59 positive and significant ones occurred when expenditure was per party or per household. This may indicate a quite intuitive fact, that is total expenditure depends directly on the number of people, but when the indicator is standardised by the party size the average expenditure decreases as the number of travellers increases.

Categorical variables were used in order to indicate size classes of each group, typologies of travel companions, presence of children in the party. Overall 64 estimates were found, of which the majority (40) was significant.

6.3.9. Time of the reservation/planning

Ten regressions tested variables related to the time of trip planning or reservation. Kozak et al. (2008) and Thrane (2002) used metric variables in order to quantify the booking or planning advance time, but only the latter found a significant and positive relationship of the planning horizon with tourist expenditure. The remainder papers used categorical variables. Chhabra et al. (2002) considered whether the trip was planned 6 months in advance, which was directly and significantly related to expenditure. Aguilo Perez and Juaneda Sampol (2000) used different categories referring to different times of the booking, where the significant and inversely related to spending were the ones referring to the most recent times.

6.3.10. Previous travel experiences

This category was quite frequently used in regressions (119, 33.6%) and groups all those elements related to a past experience in travelling or visitation, in terms of repetition or frequency. Metric variables included the number of past visit, the number of quarters with tourism expenditure in the previous year, the times the visitor gambled in Chhabra's (2009) study on late life gamblers, the typical number of vacations. Of the 50 estimations the majority (30) was not significantly related to expenditure and 17 had a positive and significant estimated coefficient.

Categorical variables indicated whether the respondent attended the vacation, the event or similar events in the past years, or whether it was its first visit. A future desire of experience was also included, that is Chhabra's (2002) dummy on plans to return. Ninety-three dummies were found, and also here the majority of them (68) was not significant.

6.3.11. Purpose

Purpose of the trip deals with the need the traveller aims at satisfying when choosing to travel. Eighty-two regressions reported dummies related to it and referring to leisure, business, conference, visiting relatives or friends, accompanying someone, second home visit, nature trip, health reasons, event visiting, reasons to stop at the place under study. This category sometimes seems to overlap with the above category of 'activities', for in some cases elements considered as 'purpose' can be found in both. The distinction of course relates to the context of each paper. Often, as in Jang et al. (2002) and Laesser and Crouch (2006), a twofold level can be detected, where the 'purpose' was distinct from 'travel motives', the latter being related to activities the traveller did in the tourist place.

Of the 122 estimations more than half (63) was significantly related to expenditure. Of course the evidence was quite heterogeneous for what concerns the sign of a single purpose estimated coefficient.

6.3.12. Reservation: items paid for

Forty-four regressions (12.4%) used dummies indicating the items for which a reservation was made. Also here there can be found many different categories and the influence of each one has to be evaluated with reference to the specific study. Dummies comprise whether reservation included a package tour, only transport, independent tour, return flights and room with breakfast, half board or full board, full or partial package, all-inclusive package. Of the 124 estimations found, only the minority was non significant (43). In addition Kruger et al.'s (2010) study on an arts festival considered a metric variable, i.e. the number of tickets bought, which is found to be positively and significantly related to spending.

6.3.13. Type of reservation: intermediary

Dummy variables related to the typology of intermediary that made the reservation were used in 35 models (9.9%). Such regressor indicates whether the traveller booked through a travel agency, internet, tour operator, a club/association/enterprise, or if the trip was self-organized. Less than half of the estimates (19 out of 48) was not significant.

6.3.14. Time of the holiday

About 16% of regressions (55) considered dummies for testing the seasonal effect, or in general consider the time the holiday was held (weekend, month, quarter, season). The majority of the coefficients (63/93) was significantly related to expenditure, and in particular they seem to indicate that summer exerts a positive effect on spending. Only Henthorne (2000) made use of the year of visit entering in pooled panel estimation as metric variable.

6.3.15. Time of the interview

Weagley and Huh (2004) inserted the quarter and the month of the quarter in which the interview was held. Of 60 estimates almost all (55) resulted non significant.

6.3.16. Travel distance

Forty models assessed the effect of travel distance on tourist expenditure. The variable entered as metric regressor and the majority of estimates (25) indicated a positive and significant effect on tourist spending whether the remainder 15 are not significant. The only categorical variable is used by Marcussen (2011b) and assessed whether the trip was domestic or not, with a negative and significant relationship in two models over four and two non-significant estimates.

6.3.17. Typology of visitor

A category of dummy regressors recalling somehow the one of 'activities' related to the typology of visitor and is used in a very limited number of studies. Leones et al (1998) found a positive and significant relationship between nature tourists and spending. Fredman's (2008) study of mountain tourism analysed the differences between downhill skiers, backpackers and snowmobilers. The work of Chhabra (2009) on late life gamblers found a positive and significant relationship between 'switchers' (that is those who would have participated in another recreation activity if casinos were absent) and spending. Saayman and Saayman (2012) found various non-significant or positive and significant coefficients in considering licensed riders and runners in ultra- or half-marathon group.

6.4. Psychographic variables

The most frequently used variables relate to socio-demographic and travel related characteristics, as well as income. As Lehto et al. (2002) and Wang et al. (2006) stress, it cannot be neglected also the importance also of psychological factors in destination choice and spending decisions. Psychographic variables refer to the characteristics of consumers that may have a bearing on their responses to products, packaging and advertising, and include self-concepts, lifestyle, attitudes, interests and opinions, as well as perceptions of product attributes (Demby, 1974; Lehto et al, 2002). This section treats psychographic variables distinctly from the remainder. The most used psychographic characteristics refer to the trip experience. A further but still poorly explored category concerns general attitudes and opinions. In general the use of psychological variables in the literature is less frequent than the remainder. Also their measurement is still an open question. Direct surveys sometimes are not able to reveal complex traits of individuals' characters. As it will be shown below, some authors solved the problem through the extraction of latent variables under the hypothesis of linearity. This may appear as a rough simplification for such complex indicators. In this sense future research should begin evaluating also nonlinear relationship between expenditure and psychological variables.

6.4.1. General opinions and attitudes

Many of the variables concerning general opinions and attitudes were directly surveyed and used as dummy regressors. Asgary et al. (1997) found that the perception of cheaper prices in USA than in Mexico did not influence the shopping of Mexicans to Texas. Crouch et al.'s (2007) choice experiment analysed the alternatives of spending by comparing different options: reduce household debt, financial investment, home renovation, home entertainment, leisure activity, domestic vacation, overseas vacation. Dolnicar et al. (2008) explored the role of five general opinions about

the travel, whose results defined the attitude of different typologies of tourist towards the purpose of spending for tourism: looking for a variety of fun and entertainment (positive and significant), intense experience of the nature (not significant), everything has to be organised (positive and significant), an unspoilt nature and a natural landscape plays a major role (negative and significant), cultural offers and sights as a crucial factor (positive and significant). Fredman (2008) investigated on past mountain vacations and found that the main leisure activity undertaken at the destination influenced spending 'outside' the destination, but not 'in' the destination. Medina Munoz and Medina Munoz's (2012) study on wellness centres found a positive relationship between spending and moderate or great importance given to wellness centres. Nicolau and Mas (2005) estimated a positive and significant role of the willingness of going on holiday at lest once a year for the increase of the expenditure.

Metric regressors used by Wang et al. (2006) directly survey five aspects of the vacation through a five-point Likert scale that are tested on seven expenditure categories: stability (vs. excitement), passive (vs. active), self (vs. family), learning (vs. dropping out), traditional (vs. want new things). Thrane (2002) collapsed the information of three questionnaire items surveyed on a 5 point Likert scale on a single variable concerning the interest towards music, and found it was positively related and significant predictor to spending at a jazz festival.

6.4.2. Opinions about the trip

Also the judgment about the trip was measured through both metric and dummy regressors. Quantitative indicators typically surveyed the satisfaction on a Likert scale on general or specific aspects of the travel, such as services and facilities, hospitality, value for money, standard of nightlife and entertainment (Chhabra et al., 2008; Chen and Chiang, 2012; Kim et al., 2012; Kozak et al., 2008). Over 47 estimations 20 were significant, 18 of which were positive. A different approach was the one used by Henthorne et al. (2000) in testing the influence of local vendors' attitude towards the spending of cruise ship passengers. They extracted three principal components and found that 'friendly' vendors had a positive influence, whereas the one of 'aggressives' was negative and 'believable' ones did not have a significant role.

The use of dummies was aimed at testing the influence of particular aspects on spending, such as prices and quality of accommodation (Alegre and Cladera, 2010), opinion on prices and holiday (Aguilo Perez and Juaneda Sampol, 2000) and the importance of an event in determining the visit (Jones et al., 2009).

6.4.3. Trip motivations

Trip motivations relate to intangible elements that concur in satisfying the purpose of the trip. This category was introduced in order to separate concrete activities from 'broader' elements that can be found in more than one activity. As reported above, Laesser and Crouch (2006) included both tangible and intangible elements in defining 'influence factors' in visiting Australia, where immaterial elements are experience Aboriginal culture, experience Australian culture L&C, experience Australian food. Indeed their decision of grouping both elements can be shared, for sometimes it is not easy to find a distinction. Nevertheless this further differentiation was introduced in order to highlight two categories that are conceptually different, and that can be both used distinctly in future studies on tourism spending determinants.

Laesser and Crouch variables were the only examples of dummy regressors. The rest of independent variables were all metric and derived from multivariate analysis (principal components analysis or factor analysis). Hsieh et al.'s (1993) study on Australia extracted factors that refer to 'benefits' of the vacation: being and seeing, adventure getaway, show and tell, heritage, physical activity, social escape. Oh et al. (2004) identified seven trip typology groups: people and setting, urban entertainment, intimacy and romance, active outdoor, history and parks, social with friends, relax with families. Kastenholz (2005) study on rural tourism considered four principal components: importance of food and lodging, information, history and culture, fun. Mehmetoglu (2007) found six 'motives' for travelling: nature, physical activities, novelty/learning, mundane everyday, social contact, ego/status. Similarly Saayman and Saayman (2009) found six motivations for travellers to visit a national park: nature, activities, family, escape, attractions, photography. Krueger et al.'s (2010) study of an arts festival visitors reported two reasons for attending it: exploration and escape. Alegre et al. (2011) considered five motivational factors: sun-and-sand basics, local and cultural environment, fun and social life, tourist facilities, nature and sport. Saayman and Saayman (2012) used overall eight factors referring to three sport events: socialization, event attractiveness, event-specific attributes, escape and explore, relaxation and socialization, personal motivation, hotel, food and attractions, facilities.

7. Conclusions

This paper presented a review of 86 articles that made use of cross-section econometric models for the analysis of tourist expenditure determinants from individual data. Despite the availability of different datasets the number of papers is in a notably lower number than studies on aggregate demand. In comparison to the latter literature the heterogeneity in using different methodologies is also lower. Mainly there can be found two different approaches to modelling, depending upon

whether the scope is to investigate the determinants of the decision of spending or expenditure levels. While the former are in a lower number and based on logistic regressions, the majority of models for metric response used classic OLS estimation. The approach has the disadvantage to report inconsistent estimates due to the nature of expenditure as zero-censored variable. Indeed in most recent years authors have shown a renewed attention to the use of econometric techniques. These are addressed at modelling expenditure consistently (i.e., censored data regressions), or avoid the inconsistent estimation of a unique parameter through the reference to portions of the distribution (quantile regression). For what concerns the former, as also Cameron and Trivedi (2005, p.533) stress, many parametric models for censored data used in tourism expenditure literature, such as Tobit regression, are based on too strict assumptions. The use of semiparametric techniques in future research can help improving estimates and providing better inference. Still concerning parametric techniques, the ones using mixed categorical and metric variables, as the switching regression of Alegre and Cladera (2010), are promising approaches for the contribution they may provide in using information at different levels. Indeed the attempt to apply new econometric models is necessary for a literature that otherwise would appear in a kind of 'methodological stagnation', where papers would be perceived more as empirical exercises than instrumental tools to infer consumer's behaviour. The innovative application of econometric modelling appears to be as a challenging direction that may shed light also on economic theory on leisure and tourism choice. Beyond the scopes of academic research, works that would support theoretical assumptions can also benefit the decisions of tourist market operators for the sake of planning and policymaking.

The analysis of tourism data on expenditure is a powerful leverage for tracing out the profile of the 'average tourist'. In this sense additional information on data generation process would have added further reliability to the evidence of those authors that provide incomplete information. Furthermore, if on one side the use of convenience sampling is not so uncommon, on the other side authors making use of non-probabilistic sampling should stress in their paper that their evidence may provide untrustworthy inference.

Different indications came from the empirical evidence of the models, which are nevertheless to be considered under caveats. The reasons that concur in violating the *coeteris paribus* condition make it difficult to give the present study a normative value for what concerns the intensity, significance and verse of the estimated regression coefficients. Nevertheless a classification of the most used categories of regressors was provided, jointly with a discussion of the most frequent evidence about their relationship with spending. Different noteworthy indications emerge from it. For what concerns economic constraints evidence was mainly confirmative of theoretical literature on the direct and significant effect of income on tourist spending. Other regressors such as the

presence of certain economic assets may result in a significant relationship with spending and thus contribute in defining the constraints for leisure choice. Indicators of financial difficulties, health status and other limitations are present in a very limited number of studies, though their significance and verse appears encouraging for those scholars who are in search of proxies of economic constraints. The source of income, instead, does not appear to influence the level of spending significantly.

Surprisingly no particularly noteworthy regressor in the socio-demographic category appeared in a frequently significant relationship. This evidence was particularly strong for gender and marital status. Instead for what concerns trip-related variables different regressors resulted in a frequently significant relation with spending, such as as accommodation, travel destination, means of transportation, items reserved, typology of intermediary for reservation, travel distance, time of the holiday. A separate discussion should be made about length of stay and party size, as these metric regressors might provide redundant information when used to explain, respectively, expenditure per day and per capita. Discouraging indications came instead from the use of variables related to travel cost, information source, previous travel experiences, and time of the interview.

The most surprising fact remains the scarce use of psychographic variables, as also emerges from the review of Wang and Davidson (2010a). Official datasets rarely survey psychological characteristics of the consumer directly, and this can be one of the reasons for such limited use. Nevertheless indirect measures deriving from multivariate analysis can provide usable indicators even for these datasets. Probably their not frequent explanatory significance is another motive discouraging their use. This can be instead one of the reasons to propose novel ways to measure intangible traits of the consumer. One of the directions may take advantage of their nature of metric variables deriving from multivariate analysis. If nonlinearities in determining the tourist expenditure are usually put into account when dealing with variables such age, party size and income, nothing has been done in order to test the change in opinions to the level of spending in a nonlinear way. This and other opportune measurements might provide interesting suggestions about the variation of attitudes and opinions with the actual expenditure or willingness to pay for tourism.

Other future research directions may concern the study of new topics. Exploring different tourist niches and comparing the behaviour of consumers may be of interest for unexplored segments such as cultural tourism and religious tourism. Also typologies of visiting such as same-day remain unexplored. Comparing the economic impact of each typology of visitor may give precious indications and address policies of public and private actors in order to balance aspects such as profitability and sustainability.

References

Agarwal, V. B., & Yochum, G. R. (1999). Tourist spending and race of visitors. *Journal of Travel Research, 38*(2), 173-176.

Agarwal, V. B., & Yochum, G. R. (2000). Determinants of tourist spending. In A.G. Woodside, G.I. Crouch, J.A. Mazanec, M. Oppermann, & M.Y. Sakai (Eds.), *Consumer psychology of tourism, hospitality and leisure* (pp. 311-330). Wallingford, UK: CABI Publishing.

Aguilò Perez, E., & Juaneda Sampol, C. (2000). Tourist expenditure for mass tourism markets. *Annals of Tourism Research, 27*(3), 624-637.

Alegre, J., & Cladera, M. (2010). Tourist expenditure and quality: why repeat tourists can spend less than first-timers. *Tourism Economics, 16*(3), 517-533.

Alegre, J., Cladera, M., & Sard, M. (2011). Analysing the influence of tourist motivations on tourist expenditure at a sun-and-sand destination. *Tourism Economics, 17*(4), 813-832.

Alegre J., Mateo, S., & Pou, L. (2009). Participation in tourism consumption and the intensity of participation: an analysis of their socio-demographic and economic determinants. *Tourism Economics, 15*(3), 531-546.

Alegre J., Mateo S., & Pou L. (2010). An analysis of households' appraisal of their budget constraints for potential participation in tourism. *Tourism Management, 31*(1), 45-56.

Alegre, J., & Pou, L. (2004). Micro-economic determinants of the probability of tourism consumption. *Tourism Economics, 10*(2), 125-144.

Apostolakis A., & Jaffry S. (2009). Examining expenditure patterns of British tourists to Greece. *International Journal of Tourism Policy, 2*(3), 187-205.

Asgary, N., De Los Santos, G., Vincent, V., & Davila, V. (1997). The determinants of expenditures by Mexican visitors to the border cities of Texas. *Tourism Economics, 3*(4), 319-328.

Barquet, A., Brida, J. G., Osti, L., & Schubert, S. (2011). An analysis of tourists' expenditure on winter sports events through the Tobit censorate model. *Tourism Economics, 17*(6), 1197-1217.

Bilgic, A., Florkowski, W. J., Yoder, J., & Schreiner, D. F. (2008). Estimating fishing and hunting leisure spending shares in the United States. *Tourism Management, 29*(4), 771-782.

Boo, S., Ko, D. W., & Blazey, M. A. (2007). An exploration of the influence of prior visit experience and residence on festival expenditures. *Event Management, 10*(2), 123-132.

Brida, J. G., Bukstein, D., Garrido, N., Tealde, E. (2012). Cruise passengers' expenditure in the Caribbean port of call of Cartagena de Indias: a cross-section data analysis. *Tourism Economics, 18*(2), DOI 10.5367/te.2012.0115, forthcoming.

Cai, L. A. (1998). Analyzing Household Food Expenditure Patterns On Trips and Vacations: a Tobit Model. *Journal of Hospitality & Tourism Research, 22*(4), 338-358.

Cai L. A. (1999). Relationship of Household Characteristics and Lodging Expenditure on Leisure Trips. *Journal of Hospitality & Leisure Marketing, 6*(2), 5-18.

Cameron A. C., & Trivedi P. K. (2005). *Microeconometrics: Methods and Applications*. New York: Cambridge University Press.

Cannon, T. F., & Ford, J. (2002). Relationship of demographic and trip characteristics to visitor spending: An analysis of sports travel visitors across time. *Tourism Economics, 8*(3), 263-271.

Chen, C. M., & Chang, K. L. (2012). The influence of travel agents on travel expenditures. *Annals of Tourism Research, 39*(2), 1258-1263.

Chhabra, D. (2006). Identifying annual variations in the spending behavior and economic impacts of day trippers to Sacramento, California, USA. *Journal of Vacation Marketing, 12*(1), 93-98.

Chhabra, D. (2007). Ethnicity and marginality effects on casino gambling behavior. *Journal of Vacation Marketing, 13*(3), 221–238.

Chhabra, D. (2009). Are Late Life Gamblers a Lucrative Market in Gambling Tourism? A Case Study of Iowa, United States. *Journal of Hospitality & Tourism Research, 33*(2), 245-254.

Chhabra, D., Sills, E., & Rea, P. (2002). Tourist expenditures at heritage festivals. *Event Management, 7*(4), 221-230.

Cragg, J. G. (1971). Some Statistical Models for Limited Dependent Variables with Application to the Demand for Durable Goods. *Econometrica, 39*(5), 829–844.

Crouch, G. I. (1994). The study of international tourism demand: A survey of practice. *Journal of Travel Research, 33*(4), 41-55.

Crouch G. I., Oppewal H., Huybers T., Dolnicar S., Louviere J. J., & Devinney T. (2007). Discretionary Expenditure and Tourism Consumption: Insights from a Choice Experiment. *Journal of Travel Research, 45*(3), 247-258.

Dardis, R., Derrick, F., Lehfeld, A., & Wolfe, K. E. (1981). Cross-section studies of recreation expenditures in the United States. *Journal of Leisure Research, 13*(3), 181-194.

Dardis, R., Soberon-Ferrer, H., & Patro, D. (1994). Analysis of leisure expenditures in the United States. *Journal of Leisure Research, 26*(4), 309-321.

Dávila, V. R., Asgary, N., de los Santos, G., & Vincent, V. (1999). The effects of governmental restrictions on outbound tourists expenditures. *Journal of Travel Research, 37*(3), 285-290.

Demby, E. (1974). Psychographics and from whence it came. In W. D. Wells (Ed.), *Lifestyle and Psychographics* (pp. 11-30). Chicago, IL: American Marketing Association.

Dolnicar, S., Crouch, G. I., Devinney, T., Huybers, T., Louviere, J. J., & Oppewal, H. (2008). Tourism and discretionary income allocation. Heterogeneity among households. *Tourism Management, 29*(1), 44-52.

Downward, P., & Lumsdon, L. (2000). The demand for day-visits: An analysis of visitor spending.

Tourism Economics, 6(3), 251-261.

Downward, P., & Lumsdon, L. (2003). Beyond the demand for day-visits: An analysis of visitor spending. *Tourism Economics, 9*(1), 67-76.

Downward, P., & Lumsdon, L. (2004). Tourism transport and visitor spending: a study in the North York Moors National Park, UK. *Journal of Travel Research, 42*(4), 415-420.

Downward, P., Lumsdon, L., & Weston, R. (2009). Visitor Expenditure: The Case of Cycle Recreation and Tourism. *Journal of Sport & Tourism, 14*(1), 25-42.

Fish, M., & Waggle, D. (1996). Current income versus total expenditure measures in regression models of vacation and pleasure travel. *Journal of Travel Research, 35*(2), 70-74.

Fredman, P. (2008). Determinants of visitor expenditures in mountain tourism. *Tourism Economics, 14*(2), 297-311.

Gorman, W. M. (1980). A possible procedure for analysing quality differentials in the egg market. *Review of Economic Studies*, *47*(5), 843-856.

Ham, S., Hwang, J. H., & Kim. W. G. (2004). Household profiles affecting food-away-from-home expenditures: a comparison of Korean and US households. *International Journal of Hospitality Management, 23*(4), 363-379.

Hauser, J., & Urban G. (1986). The Value Priority Hypotheses for Consumer Budget Plans. *Journal of Consumer Research, 12*(4), 446-62.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica, 47*(1), 153-161.

Henthorne, T. L. (2000). An analysis of expenditures by cruise ship passengers in Jamaica. *Journal of Travel Research, 38*(3), 246-250.

Hong, G. S., Fan, J. X., Palmer, L., & Bhargava, V. (2005). Leisure Travel Expenditure Patterns by Family Life Cycle Stages. *Journal of Travel & Tourism Marketing, 18*(2), 15-30.

Hong, G. S., Kim, S. Y., & Lee, J. (1999). Travel Expenditure Patterns of Elderly Households in the US. *Tourism Recreation Research, 24*(1), 43-52.

Hsieh, S., Lang, C., & O'Leary, J. T. (1997). Modeling the determinants of expenditure for travelers from France, Germany, Japan and the United Kingdom to Canada. *Journal of International Hospitality, Leisure, and Tourism Management, 1*(1), 67-79.

Hsieh, S., O'Leary, J. T., & Morrison, A. M. (1993). Modelling the travel mode choice of Australian outbound travelers. *Journal of Tourism Studies, 4*(1), 51-61.

Hung, W. T., Shang, J. K., & Wang, F. C. (2011). Understanding Determinants of Domestic Travel Consumption. *International Journal of Advances in Management Sciences, 1*(2), 81145-81148

Hung, W. T., Shang, J. K., & Wang, F. C. (2012). Another look at the determinants of tourism expenditure. *Annals of Tourism Research, 39*(1), 495-498.

Jang, S. C. S., Bai, B., Hong, G. S., & O'Leary, J. T. (2004). Understanding travel expenditure

patterns: a study of Japanese pleasure travelers to the United States by income level. *Tourism Management, 25*(3), 331-341.

Jang, S. C. S., & Ham, S. (2009). A double-hurdle analysis of travel expenditure: Baby boomer seniors versus older seniors. *Tourism Management, 30*(3), 372-380.

Jang, S. C. S., Ham, S., & Hong, G. S. (2007). Food-Away-From-Home Expenditure of Senior Household in the United States: a Double-Hurdle Approach. *Journal of Hospitality & Tourism Research, 31*(2), 147-167.

Jang, S. C. S., Ismail, J. A, & Ham, S. (2002). Heavy Spenders, Medium Spenders, and Light Spenders of Japanese Outbound Pleasure Travelers. *Journal of Hospitality & Leisure Marketing, 9*(3/4), 83-106.

Jones, T., Wood, D., Catlin, J., & Norman, B. (2009). Expenditure and ecotourism: predictors of expenditure for whale shark tour participants. *Journal of Ecotourism, 8*(1), 32-50.

Kastenholz, E. (2005). Analysing determinants of visitor spending for the rural tourist market in North Portugal. *Tourism Economics, 11*(4), 555-569.

Kim, S. S., Han, H., & Chon, K. (2008). Estimation of the determinants of expenditures by festival visitors. *Tourism Analysis, 13*(4), 387-400.

Kim S. S., Prideaux B., & Chon K. (2010). A comparison of results of three statistical methods to understand the determinants of festival participants' expenditures. *International Journal of Hospitality and Management, 29*(2), 297-307.

Kim, W. G., Kim., T. T., Gazzoli, G., Park, Y., Kim, S. H., & Park, S. S. (2011). Factors affecting the travel expenditure of visitors to Macau, China. *Tourism Economics, 17*(4), 857-883.

Kozak, M. (2001). An Analysis of Tourist Spending and its Determinants. *Anatolia, 12*(2), 196-202.

Kozak, M., Gokovali, U., & Bahar, O. (2008). Estimating the determinants of tourist spending: a comparison of four models. *Tourism Analysis, 13*(2), 143-155.

Kruger, M., Saayman, M., & Saayman, A. (2009). Sociodemographic and behavioral determinants of visitor spending at the Klein Karoo National Arts Festival. *Event Management, 13*(1), 53-68.

Kruger, M., Saayman, M. & Ellis, S. M. (2010). Determinants of Visitor Expenditure at the Aardklop National Arts Festival. *Event Management, 14*(2), 137-148.

Laesser, C., & Crouch, G. I. (2006). Segmenting markets by travel expenditure patterns: The case of international visitors to Australia. *Journal of Travel Research, 44*(4), 397-406.

Lancaster, K. J. (1966). A new approach to consumer theory. *Journal of Political Economy, 74*(2), 132-157.

Lee, C. (2001). Determinants of recreational boater expenditures on trips. *Tourism Management, 22*(6), 659-667.

Legohérel, P., & Wong, K. K. F. (2006). Market Segmentation in the Tourism Industry and

Consumers' Spending. *Journal of Travel & Tourism Marketing, 20*(2), 15-30.

Lehto, X., O'Leary, J. T., & Morrison, A. M. (2002). Do psychographics influence vacation destination choices? A comparison of British travellers to North America, Asia and Oceania. *Journal of Vacation Marketing, 8*(2), 109–125.

Leones, J., Colby, B., Crandall, K. (1998). Tracking expenditures of the elusive nature tourists of Southeastern Arizona. *Journal of Travel Research, 36*(3), 56-64.

Lew. A. A., & Ng, P. T. (2011). Using Quantile Regression to Understand Visitor Spending. *Journal of Travel Research, 20*(10), 1-11.

Li, G., Song, H., & Witt, S. F. (2005). Recent developments in econometric modelling and forecasting. *Journal of Travel Research, 44*(1), 82-99.

Lim, C. (1997). Review of international tourism demand models. *Annals of Tourism Research, 24*(4), 835-849.

Mak, J., Moncur, J., & Yonamine, D. (1977). How or how not to measure visitor expenditure. *Journal of Travel Research, 16*(1), 1-4.

Marcussen, C. H. (2011a). Determinants of spending by Danish travellers. *Anatolia, 22*(1), 47-55.

Marcussen C. H. (2011b). Determinants of tourist spending in cross-sectional studies and at Danish destinations. *Tourism Economics, 17*(4), 833-855.

McFadden, D. (1974). Conditional logit analysis of qualitative choice behavior. In P. Zarembka (Ed.), *Frontiers in Econometrics* (pp. 105-142). New York: Academic Press.

Medina-Muñoz, D. R., & Medina-Muñoz, R. D. (2012). Determinants of Expenditures on Wellness Services: The Case of Gran Canaria. *Regional Studies, 46*(3), 309-319.

Mehmetoglu, M. (2007). Nature-based tourists: The relationship between their trip expenditures and activities. *Journal of Sustainable Tourism, 15*(2), 200-215.

Mullahy, J. (1986). Specification and testing of some modified count data models. *Journal of Econometrics, 33*(3), 341-365.

Nicolau, J.L., & Más, F.J. (2005). Heckit modelling of tourist expenditure: Evidence from Spain. *International Journal of Service Industry Management, 16*(3), 271-293.

Oh, J. Y. J., Cheng, C. K., Lehto, X. Y., & O'Leary, J. T. (2004). Predictors of tourists' shopping behaviour: Examination of socio-demographic characteristics and trip typologies. *Journal of Vacation Marketing, 10*(4), 308-319.

Papatheodorou, A. (2006). Microfoundations of tourist choice. In L. Dwyer, & P. Forsyth (Eds.), *International handbook on the economics of tourism* (pp. 73-88). Cheltenham: Edward Elgar Publishing, Inc.

Park, J., & Chung, H. (2009). Consumers' travel website transferring behaviour: analysis using clickstream data-time, frequency, and spending. *The Service Industries Journal, 29*(10), 1451-

1463.

Pouta, E., Neuvonen, M., & Sievänen, T. (2006). Determinants of nature trip expenditures in Southern Finland: Implications for nature tourism development. *Scandinavian Journal of Hospitality and Tourism, 6*(2), 118-135.

Roehl, W. S., & Fesenmaier, D. R. (1995). Modelling the influence of information obtained at stated welcome centers on visitor expenditures. *Journal of Travel and Tourism Marketing, 4*(3), 19-28.

Saayman, A., & Saayman, M. (2006). Sociodemographics and visiting patterns of arts festival in South Africa. *Event Management, 9*(4), 211-222.

Saayman, M., & Saayman, A. (2009). Why travel motivation and socio-demographics matter in managing a national park. *Koedoe, 51*(1), 1-9.

Saayman, M., & Saayman, A. (2012). Determinants of Spending: an Evaluation of Three Major Sporting Events. *International Journal of Tourism Research, 14*(2), 124–138.

Seiler, V.L., Hsieh, S., Seiler, M.J., & Hsieh, C. (2003). Modeling Travel Expenditures for Taiwanese Tourism. *Journal of Travel & Tourism Marketing, 13*(4), 47-60.

Song, H., & Li, G. (2008). Tourism demand modelling and forecasting - a review of recent research. *Tourism Management, 29*(2), 203-220.

Svensson, B., Moreno, P., & Martín, D. (2011). Understanding travel expenditure by means of market segmentation. *Service Industries Journal, 31*(10), 1683-1698.

Tang, Q., & Turco, D. M. (2001). Spending behaviors of event tourists. *Journal of Convention & Event Tourism, 3*(2), 33-40.

Taylor, D. T., Fletcher, R. R., & Clabaugh, T. (1993). A comparison of characteristics, regional expenditures, and economic impact of visitors to historical sites with other recreational visitors. *Journal of Travel Research, 32*(1), 30-35.

Thrane, C. (2002). Jazz festival visitors and their expenditures: linking spending patterns to musical interest. *Journal of Travel Research, 40*(3), 281-286.

Thrane, C., & Farstad, E. (2011). Domestic tourism expenditures: The non-linear effects of length of stay and travel party size. *Tourism Management, 32*(1), 46-52.

Thrane, C., & Farstad, E. (2012). Nationality as a segmentation criterion in tourism research: the case of international tourists' expenditures while on trips in Norway. *Tourism Economics, 18*(1), 203-217.

Tobin, J. (1958). Estimation of Relationships for Limited Dependent Variables. *Econometrica, 26*(1), 24-36.

Tyrrell, T. J., & Johnston, R. J. (2003). Assessing expenditure changes related to welcome center visits. *Journal of Travel Research,42*(1), 100-106.

Van Raaij, W. F. (1986). Consumer research on tourism: mental and behavioural constructs. *Annals of Tourism Research, 13*(1), 1-9.

Wang Y., & Davidson M. C. G. (2010a). A review of micro-analyses of tourist expenditure. *Current Issues in Tourism*, 13(6), 507-524.

Wang Y., & Davidson M. C. G. (2010b). Chinese Holiday Makers' Expenditure: Implications for Marketing and Management. *Journal of Hospitality Marketing & Management, 19*(4), 373-396.

Wang, S. T., & Lee, Y. S. (2011). Expenditure Differences Among Conference and Regular Tourists in Taiwan: The Role of Situational Factors. *Journal of Convention & Event Tourism, 12*(4), 290-312.

Wang, Y., Rompf, P., Severt, D., & Peerapatdit, N. (2006). Examining and identifying the determinants of travel expenditure patterns. *International Journal of Tourism Research, 8*(5), 333-346.

Weagley, R. O., & Huh, E. (2004). Leisure Expenditures of Retired and Near-Retired Households. *Journal of Leisure Research, 36*(1), 101-127.

Zhang, L., Qu, H., & Ma, J. E. (2010). Examining the Relationship of Exhibition Attendees' Satisfaction and Expenditure: The Case of Two Major Exhibitions in China. *Journal of Convention & Event Tourism, 11*(2), 100-118.

Zheng. B., & Zhang, Y. (2011). Household Expenditures for Leisure Tourism in the USA, 1996 and 2006. *International Journal of Tourism Research*, DOI 10.1002/jtr.880, forthcoming.

Table 1 – Characteristics of articles, econometric models used, dependent and independent variables.

Legenda

Ch - Main characteristics of each study

D Destination
C Country
E Event

Statistical Units

V Visitors/Tourists
H Households/Consumers

Type of data

P Primary
S Secondary

Model

1st First stage
2st Second stage
end Endogenous
ex Exogenous
fw Forward selection
HR Hierarchical Regression
LR Logistic Regression
OD Outlier Downweighting
OL Ordinal Logit
OLS Ordinary Least Squares
PR Probit Regression
QR Quantile Regression
R Robust
RE Restricted
S Switching
SE System of Equations
SR Switching Regression
SUR Seemingly Unrelated Regression model
sw Stepwise
TO Tobit
TC Cragg's Two-Part model
TH Heckman's Two-Part model
U Unrestricted
ULM Universal Logit Model
var Variable(s)
WLS Weighted Least Squares

Dependent variables

1: Categorical variable equal to 1 in that particular condition
AE Admission Price Expenditure
CAT Categorical
E Expenditure
EE Entertainment Expenditure
FE Food and Beverage Expenditure
ft First Time Visitor
GE Gambling Expenditure
H Per household
HE Expenditure for hospitality/accomodation/lodging
I per interviewee
in In the destination/event
out Outside the event/in the country of origin
P Per party/group
PD Per day
PN Per night
PP Per person
Q Quantile
rep Repeat Visitor
SE Shopping Expenditure
SIE Sightseeing Expenditure
TE Total Expenditure on leisure travel and recreation
TRE Transportation Expenditure

Independent variables (dummies if not differently specified)

Constraints - C

as Assets
df Financial difficulties
dl Duty-free import limits, Licenses and Loyalty Cards
hs Health status
in Income
is Income sources

Interactions of two variables (dummies and metric) – I

Psychographic - P

go General opinions, attitudes, behaviours
to Opinions about the trip
tm Trip motivations

Socio-demographic - S

ag Age
ed Education
gn Gender
ho Household numerousness
ms Marital status and Life Cycle Stages
nr Nationality, Place of residence and Language
oc Occupation/Profession
re Race-Ethnic group and Family Origins

Trip-related - T

ac Accommodation
at Activities
co Cost-related variables
ds Destination
it Travel information source
ls Length of stay
mt Means of transportation
pa Party size and composition
pl Time of the reservation/planning
pt Previous travel experiences
pu Purpose
ri Reservation: items paid for
rt Type of reservation: intermediary
th Time of the holiday
ti Time of the interview
tr Travel distance
ty Typology of visitor

in4 4 variables of the category "in" are considered
inM The variable 'in' is metric

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Agarwal and Yochum (1999)	D VS	OLS 1	TE P	inM			ac4 lsM paM				hoM					agM ms re2		
		OLS 2	TE P PD	inM			ac4 paM				hoM					agM ms re2		
		OLS 3	TE PP PD	inM			ac4				hoM					agM ms re2		
Agarwal and Yochum (2000)	D VS	OLS 1	TE P	inM			ac3 lsM paM2 th2					th				agM gn	rt	
		OLS 2	TE P	inM			ac3 lsM paM									agM		
		OLS 3	TE P PD	inM			ac3 paM th3					paM				agM gn	rt	
		OLS 4	TE P PD	inM			ac3 paM									agM		
		OLS 5	TE PP PD	inM			ac2 th					paM rt				agM gn	ac th2	
		OLS 6	TE PP PD				ac2							inM		agM	ac	
Aguilo Perez and Juaneda Sampol (2000)	D VP	OLS 1	TE PP PD out		to	oc2	lsM paM ri			to2	ag nr3	ac lsM paM pl3 pt ri2 rt2			to2	ag2 nr3 oc2	ac pl2 rt	
		OLS 2	TE PP PD in		to	nr3 oc	lsM paM ri2 rt			to2	ag nr3 oc	ac lsM paM pl pt ri			to2	ag2 oc2	ac pl4 rt2	
Alegre and Cladera (2010)	D VS	SR end S (PR)	TE PP PD (rep-ft S)		to	ag3 nr					nr							
		SR, ex S, U 1	TE PP PD rep (rep-ft S)			ag2 nr2 oc	ac ri rt			to		ac lsM paM ri			to	ag	ac ri3	
		SR, ex S, U 2	TE PP PD ft (rep-ft S)		to	ag3 nr2 oc	ac rt			to		ac lsM paM ri					ac ri4	
		SR, ex S, U 3	TE PP PD in rep (rep-ft S)			ag2 nr2 oc	ri3			to		lsM paM ri			to	ag	ac3 ri rt	
		SR, ex S, U 4	TE PP PD in ft (rep-ft S)			ag2 nr2 oc	ri3			to		lsM paM ri			to	ag	ac3 ri rt	
		SR, ex S, U 5	TE PP PD out rep (rep-ft S)			ag2 oc	ac ri rt			to		ac lsM paM ri3			to	ag nr2	ac ri	
		SR, ex S, U 6	TE PP PD out ft (rep-ft S)		to	ag3 nr oc	ac ri rt			to		ac lsM paM ri3				nr	ac ri	
		SR, ex S, RE 1	TE PP PD rep (rep-ft S)			ag2 nr2 oc	ac rt			to		ac lsM paM ri			to	ag	ac ri4	
		SR, ex S, RE 2	TE PP PD ft (rep-ft S)			ag2 nr2 oc	ac rt			to		ac lsM paM ri			to	ag	ac ri4	
		SR, ex S, RE 3	TE PP PD in rep (rep-ft S)			ag2 nr2 oc	ac ri3			to		lsM paM ri			to	ag	ac2 ri rt	
		SR, ex S, RE 4	TE PP PD in ft (rep-ft S)			ag2 nr2 oc	ac ri3			to		lsM paM ri			to	ag	ac2 ri rt	
		SR, ex S, RE 5	TE PP PD out rep (rep-ft S)			ag3 nr oc	ac rt			to		ac lsM paM ri4			to	nr	ac ri	
		SR, ex S, RE 6	TE PP PD out ft (rep-ft S)		to	ag3 nr oc	ac rt			to		ac lsM paM ri4				nr	ac ri	
Alegre and Pou (2004)	C HS	LR	1: TE>0	as in inM		agM ag ed3 nr oc			as		agM ho3 oc					ag10		
Alegre et al. (2009)	C HS	TH 1st	1: travelled	as inM		agM ed3 nr	ptM		as isM		agM ho3					oc		
		TH 2st	number of quarters with TE H	inM		agM	ptM		isM							ho3		
Alegre et al. (2010)	C HS	LR	1: H can afford a holiday	as df2 inM is2		edM3			as df6 hsM2		agM edM ho3			df is3		agM		
Alegre et al. (2011)	D VP	OL 1	TE(CAT from Q) PP PD	in		oc	ac2 ri		in3	tmM	ho nr oc	ac lsM paM			tmM4	oc4	ri4	
		OL 2	TE(CAT from Q) PP PD out			oc	ac2		in4	tmM	ho nr oc	ac lsM paM ri4			tmM4	oc4	ri	
		OL 3	TE(CAT from Q) PP PD in		tmM3	oc	ac ri4		in3		ho nr oc	lsM paM		in	tmM2	oc4	ac2 ri	
Apostolakis and Jaffry (2009)	C VS	OLS 1	TE I PD			ag4	pu2					ls3 mt pu th				ag gn	mt ri th2	
		OLS 2	TE I PD			ag5	pu2 ri	I				ls3 mt pu th	I2			gn	mt th2	I5
Asgary et al. (1997)	D VP	OLS 1	TE I	inM											go			
		OLS 2	TE I	inM		ed ms nr									go			
Barquet et al. (2011)	E VP	TO 1	HE PP PD				pa					pa		in2		ho nr	pt2	
		TO 2	FE PP PD out	in		ho	pa pt				nr	pa		in			pt	
		TO 3	FE PP PD in	in			pa					pa		in		ho nr	pt2	
		TO 4	TE PP PD	in			pa					pa		in		ho nr	pt2	

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Bilgic et al. (2008)	CHS	TO SE 1	Fishing E I share	dl		gn nr3 oc	pt					pt		inM		agM edM ms nr2 oc re2		
		TO SE 2	Hunting E I share	dl		gn nr	pt				nr re	pt		inM		agM edM ms nr3 oc2 re		
Boo et al. (2007)	EVP	OLS 1	TE I, z-scored			agM												
		OLS 2	TE I, z-scored			agM	lsM											
Brida et al. (2012)	DVS	LR 1	1: SIE>0			gn								in		ag nr	lsM ptM	
		TO 1	SIE PP											in		ag gn nr	lsM ptM	
		LR 2	1: FE>0				lsM ptM		in		ag gn							
		TO 2	FE PP				lsM ptM				ag gn			in				
		LR 3	1: (Souvenirs E)>0				lsM							in		ag gn	ptM	
		TO 3	(Souvenirs E) PP				lsM				ag			in		gn	ptM	
		LR 4	1: (Jewellery E)>0									ptM		in		ag gn	pa	
		TO 4	(Jewellery E) PP	in							gn	ptM				ag	pa	
Cai (1998)	CHS	TO	FE H	as inM2 is		ag3 edM ms oc3 re2					hoM oc5	th3				ag2 hoM ho2 nr4 oc		
Cai (1999)	CHS	TO	HE H	as inM2		edM ms oc3 re					hoM	th3		is		ag5 hoM ho2 nr4 oc6 re		
Cannon and Ford (2002)	EVP	OLS 1	TE PP PD 1995			nr			in2			lsM pa				ed2 ms re3	paM	
		OLS 2	TE PP PD 1999			nr			in		ed	lsM pa		in		ed ms re3	paM	
Chen and Chiang (2012)	DVS	OLS	TE I			nr								inM	toM	agM ed gn nr8 oc	lsM pt rt	
		QR 1	TE I, Q=0.10	inM		ed					nr	rt			toM	agM gn nr8 oc	lsM pt	
		QR 2	TE I, Q=0.25	inM		agM	lsM				nr	rt			toM	ed gn nr8 oc	pt	
		QR 3	TE I, Q=0.50	inM	toM	agM nr	lsM				nr2	rt				ed gn nr6 oc	pt	
		QR 4	TE I, Q=0.75		toM	agM	lsM pt				oc	rt		inM		ed gn nr9		
		QR 5	TE I, Q=0.90	inM		agM ed	lsM				oc				toM	gn nr9	pt rt	
Chhabra (2006)	DVP	OLS 1	TE day trippers I, 2001	inM							agM gn	paM					rt	
		OLS 2	TE day trippers I, 2002	inM			paM				agM gn						rt	
Chhabra (2007)	CHP	OLS 1	TE I			agM	coM							in		agM gn hoM ms re	trM	
		OLS 2	Gambling E I	in		re										agM2 gn hoM ms	coM trM	
Chhabra (2009)	CHP	OLS 1	Gambling E I, late life gamblers				ptM ty							inM		ed gn hoM ms	trM	
		OLS 2	Gambling E I, non-late life gamblers				ptM					ty		inM		ed2 gn hoM ms	trM	
Chhabra et al. (2002)	EVP	OLS 1	TE I			ag												
		OLS 2	TE I	inM														
		OLS 3	TE I								ag2					ag2		
		OLS 4	TE I						in					lnc2				
		OLS 5	TE I	inM			pl trM				oc re					agM edM re	pt	
		OLS 6	TE I	inM	toM		pl trM				oc re					agM edM re	pt pt	
Crouch et al. (2007)	CHP	ULM	1: spend discretionary income on leisure activity		go	agM				go				inM2	go5	agM		
		ULM	1: spend discretionary income on domestic vacation	inM2	go	agM2									go6			
		ULM	1: spend discretionary income on overseas vacation	inM2	go	agM2				go					go5			
Dardis et al. (1981)	CHS	OLS 1	TE H, 1972	asM		ag4 ed4 ms nr2 oc5 re										ag2 nr2 oc6		
		OLS 2	TE H, 1973	asM		ag4 ed3 nr4 oc4 re										ag2 ed ms oc7		
		OLS 3	TE H, 1972	inM		ag5 ed4 ms nr4 oc5 re										ag oc6		
		OLS 4	TE H, 1973	inM		ag5 ed4 ms nr4 oc5 re										ag oc6		

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Dardis et al. (1994)	C HS	TO 1	TE Active Leisure H	inM3		gn hoM					ag2 ed re			inM		ag3 ed hoM ms nr4 re		
		TO 2	TE Passive leisure H	inM2		hoM					ag ed hoM nr2 re			inM2		ag4 ed gn ms nr2 re		
		TO 3	TE Social Entertainment H	inM2		ed gn hoM					ag2 ed re			inM2		ag3 hoM ms nr4 re		
Davila et al. (1999)	D VS	OLS	TE I	dl inM								mt					paM pt	
Dolnicar et al. (2008)	C HP	LR	1: inclined to spend additional discretionary income on a vacation		go3	hoM ho			as	go	hoM ho	it		as	go	ho2	it3 ptM	
Downward and Lumsdon (2000)	D VP	OLS 1	TE P	inM			lsM paM											
		OLS 2	TE P				lsM paM											
		WLS	TE P				lsM paM											
Downward and Lumsdon (2003)	D VP	OLS	TE P	inM			lsM paM											
Downward and Lumsdon (2004)	D VP	OLS	TE P				co lsM mt										paM	
Downward et al. (2009)	D VP	OLS	TE P	inM			paM										at6	
		TO	TE P	inM			paM										at6	
Fish and Waggle (1996)	C HS	OLS 1	TE H	asM2							hoM							
		OLS 2	TE PP	asM2		hoM					hoM							
Fredman (2008)	D VP	OLS 1	TE I in	inM			lsM ty				oc	ac rt ty			go	gn oc	ty	
		OLS 2	TE I out	inM	go	gn nr	mt2				oc	rt ty				oc	ty2	
Ham et al. (2004)	C HS	OLS 1	FE H, USA	inM is							ed2 gn ho					ed2		
		TO 1	FE H, USA	inM							ed3 gn ho			is		ed		
		OLS 2	FE H average monthly, Korea	inM is		ed hoM ms					ho	paM		as		ed3 gn		
		TO 2	FE H average monthly, Korea	inM is		gn hoM ms			as		ho	paM				ed4		
Henthorne (2000)	D VP	OLS	TE I		toM	agM	ls			toM		ls thM			toM			
Hong et al. (1999)	C HS	TC 1st	1: travelled	as asM inM		ed ms re					ed			asM2		agM2 hoM ms nr4		
		TC 2nd	TE H	asM inM		agM					agM			as as2M		ed2 hoM ms2 nr4 re		
Hong et al. (2005)	C HS	TH 1st	1: travelled	as asM2 inM		ed ms nr oc3			in		ed ms2 nr re3					hoM ms4 nr4 oc2		
		TH 2st 1 + SUR	TE H	as asM2 inM		ed hoM ms3 oc5					ed ms nr4 re3			in		ms3 nr2		
		TH 2st 2	Budget share on TE H	as asM inM		ed ms2 oc2					ed ms nr2 re3			asM in		hoM ms4 nr4 oc3		
Hsieh e al. (1997)	C VS	OLS 1	TE I UK	inM		ms										agM gn		
		OLS 2	TE I UK				paM										lsM paM ri	
		OLS 3	TE I UK	inM			lsM paM									agM gn ms	paM ri	
		OLS 4	TE I France	inM												agM gn ms		
		OLS 5	TE I France				paM2										lsM ri	
		OLS 6	TE I France			agM	paM							inM		gn ms	lsM paM ri	
		OLS 7	TE I Germany			ms								inM		agM gn		
		OLS 8	TE I Germany				lsM paM ri					paM						
		OLS 9	TE I Germany				lsM paM ri					paM		inM		agM gn ms		
		OLS 10	TE I Japan											inM		agM gn ms		
		OLS 11	TE I Japan				paM										lsM paM ri	
		OLS 12	TE I Japan											inM		agM gn ms	lsM paM2 ri	
Hsieh et al. (1993)	C HS	LR	1: choice of package tours		tmM	agM	paM							inM	tmM5		ds lsM pa paM pu	
Hung et al. (2011)	D HS	QR 1	TE H domestic travel, Q=0.10	as2 inM		agM edM								as				
		QR 2	TE H domestic travel, Q=0.25	as2 inM		agM edM			as									
		QR 3	TE H domestic travel, Q=0.50	as2 inM		agM edM								as				
		QR 4	TE H domestic travel, Q=0.75	as2 inM		agM edM								as				
		QR 5	TE H domestic travel, Q=0.90	as inM		ed								as2		agM		

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Hung et al. (2012)	DHS	OLS	% of income spent on tourism	as		agM edM			asM inM					as2				
		QR 1	% of income spent on tourism, Q=0.10	as2		agM edM			as asM inM									
		QR 2	% of income spent on tourism, Q=0.25	as2		agM edM			as asM inM									
		QR 3	% of income spent on tourism, Q=0.5	as2		agM edM			asM					as inM				
		QR 4	% of income spent on tourism, Q=0.75	inM		agM edM			asM					as3				
		QR 5	% of income spent on tourism, Q=0.90			agM edM			as asM					as2 inM				
Jang and Ham (2009)	CHS	TH 1st 1	1: travelled (Baby Boomers)	inM		agM ed2 ms					agM hoM re			as		ed nr4 re		
		TH 1st 2	1: travelled (Older Seniors)	inM		agM ed2 ms nr					agM nr			as		ed hoM nr2 re2		
		TH 2st 1	TE (Baby Boomers) H	as		nr					re			inM		agM2 ed3 hoM ms nr3 re		
		TH 2st 2	TE (Older Seniors) H			ms					re			as inM		agM2 ed3 hoM nr4 re		
Jang et al. (2002)	CHS	OLS 1	TE I			agM	at3 ds5 lsM pa2 paM pu th					lsM paM thM					at10 ds5 pa4 pu2 th2	
		OLS 2	TE I			agM	at ds4 lsM pa2 paM pu2 th					ds thM					at12 ds5 pa4 pu th2	
Jang et al. (2004)	CVS	OLS 1	TE (high income, >= USD 100,000) I			agM oc	lsM pa									gn oc3	coM paM2 pt	
		OLS 2	TE (non-high income, < USD 100,000) I			agM	lsM pa pt									gn oc4	coM paM2	
		OLS 3	TE I	in		agM oc	lsM pa pt									gn oc3	coM paM2	
Jang et al. (2007)	CHS	TH 1	1: FE senior H away from home	as asM inM		hoM ms re					ed nr					agM2 ed2 nr3 oc		
		TH 2	FE senior H away from home	as asM		nr								asM inM		agM2 ed3 hoM ms nr3 oc re		
Jones et al. (2009)	DVP	OLS 1	TE I			agM	lsM					paM						
		OLS 2	TE I	in4		agM	lsM					paM		in3				
		OLS 3	TE I			agM	ac lsM					paM					ac3	
		OLS 4	TE I			nr					nr					agM nr3	lsM paM	
		OLS 5	TE I		to	agM	lsM					paM			to			
		OLS 6	TE I			agM gn	lsM					paM						
Kastenholz (2005)	DVP	OLS sw 1	TE PP PD		tmM3	agM nr				tmM		lsM th						
		OLS sw 2	TE PP		tmM3	agM nr				tmM		lsM						
Kim et al. (2008)	EVP	TO 1	HE I			ag	ls							in		ed ms nr oc	mt pa ptM pu	
		TO 2	FE I				ls mt pa ptM				ed			in		ag ms nr oc	pu	
		TO 3	SE I			ms	ls mt pu							in		ag ed nr oc	pa ptM	
		TO 4	AE I				ls				oc			in		ag ed ms nr	mt pa ptM pu	
		TO 5	TRE I			nr	ls		in							ag ed ms oc	mt pa ptM pu	
		TO 6	EE I				ls pa				ed			in		ag ms nr oc	mt ptM pu	
Kim et al. (2010)	EVP	LR 1	1: HE>0				ls pu							in	toM	agM ed ms nr	pt th	
		OLS 1	HE I			agM	ls pt pu							in	toM	ed ms nr	th	
		TO 1	HE I		toM		ls							in		agM ed ms nr	pt pu th	
		LR 2	1: FE>0			ed ms	ls pt					th		in	toM	agM nr	pu	
		OLS 2	FE I				ls							in	toM	agM ed ms nr	pt pu th	
		TO 2	FE I		toM		ls							in		agM ed ms nr	pt pu th	
		LR 3	1: SE>0			ms	th				nr	pu		in	toM	agM ed	ls pt	
		OLS 3	SE I	in		ed									toM	agM ms nr	ls pt pu th	
		TO 3	SE I	in		ed	th								toM	agM ms nr	ls pt pu	
		LR 4	1: AE>0				ls			toM		th		in		agM ed ms nr	pt pu	
		OLS 4	AE I		toM		ls th							in		agM ed ms nr	pt pu	

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Kim et al. (2010) *continued*	E VP	TO 4	AE I		toM		ls th							in		agM ed ms nr	pt pu	
		LR 5	1: TRE>0			nr					ms			in	toM	agM ed	ls pt pu th	
		OLS 5	TRE I			ms	ls							in	toM	agM ed nr	pt pu th	
		TO 5	TRE I			ms								in	toM	agM ed nr	ls pt pu th	
		LR 6	1: EE>0				ls							in	toM	agM ed ms nr	pt pu th	
		OLS 6	EE I		toM		ls							in		agM ed ms nr	pt pu th	
		TO 6	EE I				ls							in	toM	agM ed ms nr	pt pu th	
		OLS 7	TE I		toM		ls th							in		agM ed ms nr	pt pu	
		TO 7	TE I		toM		ls th							in		agM ed ms nr	pt pu	
Kim et al. (2011)	D VP	TO 1	TE PP PD	inM		ed ms	lsM pa paM									ag gn nr oc	ac pu	
		TO 2	FE PP PD	inM		ag ed	lsM pa paM					pu				gn ms nr oc	ac	
		TO 3	HE PP PD	inM		ed	ac lsM pa paM				nr					ag gn ms oc	pu	
		TO 4	EE PP PD			ed ms nr	pa paM				ag	pu		inM		gn oc	ac lsM	
		TO 5	SE PP PD			ag ed gn	paM				nr	pu		inM		ms oc	ac lsM pa	
		TO 6	GE PP PD			ms nr	ac pu pa				gn oc	paM		inM		ag ed	lsM	
		TO 7	TRE PP PD	inM		ed oc	pa paM				ms	pu				ag gn nr	ac lsM	
		TO 8	SIE PP PD			ed oc	pa paM					pu		inM		ag gn ms nr	ac lsM	
Kozak (2001)	D VP	OLS	TE I	in			ls					pa2 ri						
Kozak et al. (2008)	C VP	OLS 1	TE I	inM	toM	nr	lsM paM ri				oc2	ri			toM3	ag5 edM ms nr2	ac3 it3 plM pt2 ptM ri3 trM	
		OLS 2	TE I PD	inM	toM2	nr	lsM paM ptM ri3				oc2	ri			toM2	ag5 edM ms nr2	ac3 it3 plM pt2 ri trM	
		OLS 3	TE PP PD	inM	toM2	nr	lsM ri3				oc2	paM ri			toM2	ag5 edM ms nr2	ac3 it3 plM pt2 ptM ri trM	
		OLS 4	TE PP	inM	toM2	nr	lsM ri3				oc2	paM ri			toM2	ag5 edM ms nr2	ac3 it3 plM pt2 ptM ri trM	
Kruger et al. (2009)	E VP	OLS 1	(TE - TRE) PP 2005			agM	at lsM pt									gn nr2 oc	ac paM pu	
		OLS 2	(TE - TRE) PP 2006			nr oc	at3 lsM pu					paM				agM gn nr	ac pt	
		OLS 3	(TE - TRE) PP 2007			nr oc	at lsM pu					paM				agM gn nr	ac at2 pt	
		OLS 4	(TE - TRE) PP 2008				at3 lsM pt pu				gn	paM				agM nr2 oc	ac	
Kruger et al. (2010)	E VP	OLS sw fw	TE PP			agM oc	at paM pt riM					pt			tmM2	nr2	at2 it4 lsM pt2	
Laesser and Crouch (2006)	C HS	OLS	TE I			nr5	ac3 at3 lsM paM pu3 tm				nr8	ac3 at3 pa pu2 tm				nr6	ac8 at7 pu6 tm	
Lee (2001)	C VP	TO 1	TE PP PD				ds paM trM					at3		inM		agM nr2	at pa	
		TO 2	Restaurant E PP PD	inM			ds trM					at3				agM nr2	at pa paM	
		TO 3	Grocieries E PP PD				ds paM trM				agM nr	at		inM		nr	at3 pa	
		TO 4	Boat Fuel E PP PD				ds paM				nr	at3		inM		agM nr	at pa trM	
		TO 5	Auto Gas E PP PD	inM			ds trM				agM	at2				nr2	at2 pa paM	
		TO 6	(SE+EE) PP PD				ds trM					at		inM		agM nr2	at3 pa paM	
Legohérel and Wong (2006)	D VP	OLS 1	TE I	inM		edM	lsM pt									agM gn nrM	ds lsM mt paM pu	
		OLS 2	TE I PD								nrM	ds		inM		agM edM gn	lsM2 mt paM pu pt	
		OLS 3	TE I	inM			lsM pt									agM gn nrM	lsM paM pu	
		OLS 4	TE I PD									lsM		inM		nrM	lsM pu pt	
Leones et al. (1998)	D VP	TO	TE PP PD				dsM ty				nr	lsM		inM		agM		
Lew and Ng (2011)	D VS	OLS 1	SE I			ag oc										ag ed2 gn ms oc3	lsM ptM	
		QR 1	SE I, Q=0,1				lsM				ed oc					ag2 ed gn ms oc3	ptM	
		QR 2	SE I, Q=0,2			ag										ag ed2 gn ms oc4	lsM ptM	
		QR 3	SE I, Q=0,3			ag oc	lsM ptM				ed					ag ed gn ms oc3		
		QR 4	SE I, Q=0,4			ag	ptM				gn oc					ag ed2 ms oc3	lsM	
		QR 5	SE I, Q=0,5			ag2	ptM									ed2 gn ms oc4	lsM	

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Lew and Ng (2011) *continued*	D VS	QR 6	SE I, Q=0,6			ag oc2	ptM				ed					ag ed gn ms oc2	lsM	
		QR 7	SE I, Q=0,7			ag oc3	ptM									ag ed2 gn ms oc	lsM	
		QR 8	SE I, Q=0,8			ag oc3										ag ed2 gn ms oc	lsM ptM	
		QR 9	SE I, Q=0,9			ag oc2										ag ed2 gn ms oc2	lsM ptM	
		OLS 2	TE I			ag oc	ptM											
		QR 10	TE I, Q=0,1				lsM											
		QR 11	TE I, Q=0,2			ag2 oc	lsM											
		QR 12	TE I, Q=0,3			ag	ptM				ed oc2							
		QR 13	TE I, Q=0,4			ag2 oc					ed							
		QR 14	TE I, Q=0,5			ag oc2					ed							
		QR 15	TE I, Q=0,6			oc2												
		QR 16	TE I, Q=0,7			ag oc3	lsM											
		QR 17	TE I, Q=0,8			ag oc2	lsM											
		QR 18	TE I, Q=0,9			oc2												
Mak et al. (1977)	C VS	OLS 1	TE PP PD			nr5	ac				agM	pa pu				nr3	ds paM ptM	
		OLS 2	TE PP PD			nr5	ac ds pa ptM					paM pu				agM nr3		
Marcussen (2011a)	C VS	OLS 1	TRE PP PN			gn	ac at4 ds ls3 mt pu pt ri rt trM		inM		ag	lsM paM th				nr2	ac at3 pa rt	
		OLS 2	HE PP PN	inM			ac2 at ds ls3 mt pa pu ri rt				ag	at2 lsM paM				gn nr2	at4 pt rt th trM	
		OLS 3	Other E PP PN	inM		nr2	ac2 at3 ds ls pa rt trM					at2 paM pu ri				ag gn	at2 lsM ls2 mt pt rt th	
		OLS 4	TE PP PN	inM		gn nr2	ac2 at4 ds ls3 mt pa pu pt ri rt2 trM				ag	at3 lsM paM th						
		OLS 5	TE PN P	inM		gn nr2	ac2 at3 ds ls3 mt paM pu pt ri rt2 trM				ag	at3 pa					at lsM th	
		OLS 6	TE PP	inM		nr	ac2 at2 ds lsM mt pa pt ri rt trM					at ls3 paM				ag gn nr	at4 pu rt th	
		OLS 7	TE P	inM		nr	ac2 at5 ds lsM paM pu pt ri th trM					ls3				ag gn nr	at2 mt pa rt2	
Marcussen (2011b)	C VS	OLS 1	TE PP PN				ac ls2 mt pa pu th trM				ag	lsM paM tr				ag	ri	
		OLS 2	TE P PN				ac ls2 mt pa paM pu ri th trM				ag2	lsM tr						
		OLS 3	TE PP				ac lsM pa pu ri trM				ag2	ls2 paM					mt th tr	
		OLS 4	TE P				ac lsM mt pa paM pu ri th trM				ag2	ls2					tr	
Medina Munoz and Medina Munoz (2012)	D VP	OLS	Wellness services E I PD		go	agM ho nr	pt pu					lsM				ed gn ms nr oc		
Mehmetoglu (2007)	D VP	LR	1: (TE PP PD)>63€ (Heavy Spenders)	in						tmM6						ag	at4 ls pu	
Nicolau and Mas (2005)	C HS	TH 1st 1	1: travelled	in4	go	ed2 nr2					hoM					nr		
		TH 2st 1	TE I	in		hoM ms	lsM trM							in3		ed2	paM	
		TH 1st 2	1: travelled	in4	go	ed2 nr2					hoM					nr		
		TH 2st 2	TE I	in		hoM ms	ac3 trM							in3		ed2	ac paM	
		TH 1st 3	1: travelled		go	ed2 nr2										ag3 nr		
		TH 2st 3	TE I			ag2	lsM trM									ag ed2	paM	
		TH 1st 4	1: travelled		go	ed2 nr2										ag3 nr		
		TH 2st 4	TE I			ag2	ac3 trM									ag ed2	ac paM	
Oh et al. (2004)	C HS	LR 1	1: (E in books and music stores)>0		tmM5	ag gn									tmM2	ag3		
		LR 2	1: (spent in antiques)>0		tmM4	ag4 gn									tmM3			
		LR 3	1: (spent in gourmet foods)>0		tmM5	ag4 gn									tmM2			
		LR 4	1: (spent in arts and crafts)>0		tmM4	ag4 gn									tmM3			
		LR 5	1: (spent in clothes, shoes and jewellery)>0		tmM5	ag gn									tmM2	ag3		

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Park and Chung, 2009	C HS	R HR OD	TE I											asM inM				
		R HR OD	TE I				lsM							asM inM			ls lsM	
		R HR OD	TE I				ls					lsM2	I	asM inM				I
Pouta et al. (2006)	C HS	LR	1: High Expenditure Trip				at lsM pt trM										at2 ds2	
Roehl and Fesenmaier (1995)	C VP	OLS 1	TE P				lsM					lsM						
		OLS 2	TE P	in			lsM					lsM		in2		ag6 hoM ms		
		OLS 3	TE P				lsM	I4				lsM						I5
		OLS 4	TE P				lsM th					lsM	I				th2	
		OLS 5	TE P				lsM	I				lsM	I				th	
		OLS 6	TE P				lsM	I4				lsM	I	in				I
		OLS 7	TE P				lsM	I4				lsM	I					
Saayman and Saayman (2006)	E VP	LR 1	1: high spender (> average spending)	inM		agM						paM pu				edM gn nrM2	lsM pt ptM	
		PR 1	1: high spender (> average spending)	inM		agM						paM pu				edM gn nrM2	lsM pt ptM	
		LR 2	1: high spender (> average spending)	inM							edM	lsM paM pu				agM gn nrM2	pt ptM	
		PR 2	1: high spender (> average spending)	inM							edM	lsM paM pu				agM gn nrM2	pt ptM	
		LR 3	1: high spender (> average spending)								nrM	lsM		inM		agM ed gn nrM	pt ptM paM pu	
		PR 3	1: high spender (> average spending)								nrM	lsM		inM		agM ed gn nrM	pt ptM paM pu	
Saayman and Saayman (2009)	D VP	OLS sw 1	TE PP in 2002 excluding TRE		tmM	edM					ms	paM			tmM3	agM nr		
		OLS sw 2	TE PP in 2003 excluding TRE		tmM goM	nr	ptM					paM			tmM2	agM	lsM	
		OLS sw 3	TE PP in 2004 excluding TRE							tmM						edM nr	ptM	
		OLS sw 4	TE PP in 2005 excluding TRE												tmM4	edM nr2		
		OLS sw 5	TE PP in 2006 excluding TRE									lsM			tmM3	edM nr		
		OLS sw 6	TE PP in 2007 excluding TRE		goM	nr	lsM							dl	tmM2	edM nr		
Saayman and Saayman (2012)	E VP	OLS sw 1	(TE-TRE) PP (Event 1)			agM nr	lsM								tmM	ed gn ms nr	paM	
		QR 1	(TE-TRE) PP, Q=0.25 (Event 1)												tmM	agM ed gn ms nr2	lsM paM	
		QR 2	(TE-TRE) PP, Q=0.5 (Event 1)			nr									tmM	agM ed gn ms nr	lsM paM	
		QR 3	(TE-TRE) PP, Q=0.75 (Event 1)			gn nr2	lsM								tmM	agM ed ms	paM	
		QR 4	(TE-TRE) PP, Q=0.95 (Event 1)		tmM	gn	lsM									agM ed ms nr2	paM	
		OLS sw 2	(TE-TRE) PP (Event 2)		tmM	ag2 ed	lsM					paM			tmM2	ed gn ms nr	ds ty	
		QR 5	(TE-TRE) PP, Q=0.25 (Event 2)												tmM3	ag2 ed2 gn ms nr	ds lsM paM ty	
		QR 6	(TE-TRE) PP, Q=0.5 (Event 2)			nr	lsM					paM			tmM3	ag2 ed2 gn ms	ds ty	
		QR 7	(TE-TRE) PP, Q=0.75 (Event 2)		tmM	ag2 nr	ds lsM					paM			tmM2	ed2 gn ms	ty	
		QR 8	(TE-TRE) PP, Q=0.95 (Event 2)			ag						paM			tmM3	ag ed2 gn ms nr	ds lsM ty	
		OLS sw 3	(TE-TRE) PP (Event 3)		tmM	nr	ds lsM ty			tmM	gn nr				tmM2	agM ms	paM ptM ty	
		QR 9	(TE-TRE) PP, Q=0.25 (Event 3)												tmM4	agM gn ms nr2	ds lsM paM ptM ty2	
		QR 10	(TE-TRE) PP, Q=0.5 (Event 3)				lsM ty				gn nr				tmM4	agM ms nr	ds paM ptM ty	
		QR 11	(TE-TRE) PP, Q=0.75 (Event 3)		tmM		ty			tmM	nr	ptM			tmM2	agM gn ms nr	ds lsM paM ty	
		QR 12	(TE-TRE) PP, Q=0.95 (Event 3)		tmM		ty2				agM gn				tmM3	ms nr2	ds lsM paM ptM	
Seiler et al. (2003)	C VS	OLS sw	TE I	inM			lsM paM					pu						
		LISREL VII (ex on end)	TE I	inM			pu					paM						
		LISREL VII (end on ex)	TE I				lsM											

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Svensson et al. (2011)	D VS	OLS	TE PP PD			gn oc3	at3 ds2 it3 mt rt				ag nr oc	ac4 at2 it2 lsM mt paM pu rt2				ag2 nr3	ac at5 coM it mt pu3 pt th2	
Tang and Turco (2001	E VP	OLS	TE I				lsM paM										pt trM	
Taylor et al. (1993)	E VP	OLS	TE PP PD	in			it at paM					at					lsM	
Thrane (2002)	E VP	OLS 1	TE I				go											
		OLS 2	TE I	inM		nr2	go lsM				hoM							
		OLS 3	TE I	inM		gn nr2 oc	go lsM plM				agM hoM						pt th	
		LR	1: Big Spender	inM		gn nr2 oc	go lsM plM th				hoM					agM	pt	
Thrane and Farstad (2011)	C HP	OLS 1	TE I	inM		agM	lsM mt4 pu3				agM	ds4 mt					paM	
		OLS 2	TE I	inM		agM	lsM mt4 pu3				agM	ds4 mt paM						
		OLS 3	TE I	inM		agM	lsM mt4 paM pu3				agM	ds4 mt paM						
		R OLS	TE I				lsM paM					paM						
		QR	TE I, Q=0.5				lsM paM					paM						
Thrane and Farstad (2012)	C VS	OLS 1	Private TRE P 2007			nr4					nr3					nr		
		OLS 2	Private TRE PP 2007			nr3					nr3					nr		
		OLS 3	Private TRE P 2007			agM nr2	ds3 lsM paM pu				agM nr3					nr3	pu	
		OLS 4	Private TRE PP 2007			agM nr2	ds3 lsM paM pu				agM nr3					nr3	pu	
		OLS 5	Public TRE P 2007			nr3					nr2					nr3		
		OLS 6	Public TRE PP 2007			nr3					nr2					nr3		
		OLS 7	Public TRE P 2007			agM nr2	ds lsM paM pu2				agM nr2					nr4	ds2	
		OLS 8	Public TRE PP 2007			agM nr2	lsM pu2				agM nr2					nr4	ds3 paM	
		OLS 9	Private TRE P 2009			nr2					nr2							
		OLS 10	Private TRE PP 2009			nr2					nr					nr		
		OLS 11	Private TRE P 2009			nr					nr					nr2		
		OLS 12	Private TRE PP 2009			nr					nr					nr2		
Tyrrel and Johnston (2003)	D VP	OLS	Actual minus Planned TE P											in		gn	co2 coM2 paM2 pu7	l5
		OLS	Actual minus Planned TE P						in								co coM2 paM pu4	l2
		OLS sw	Actual minus Planned TE P														coM paM pu	l
Wang and Davidson (2010b)	C VP	OLS	TE I			ag			in2			paM			toM	ag nr4	ds ls2	
Wang and Lee (2011)	D VP	OLS 1	TE I conference tourists	inM							ed3 nr			inM		agM gn ms nr2 oc6		
		OLS 2	TE I regular tourists											inM		agM ed3 gn ms nr3 oc6		
Wang et al. (2006)	D VP	OLS 1	TE PP PD	inM	go		lsM paM trM				agM				go4	gn hoM ms	paM2 pt	
		OLS 2	HE PP PD	inM			lsM paM			go					go4	agM gn hoM ms	paM2 pt trM	
		OLS 3	FE PP PD	inM			lsM paM				agM	paM			go5	gn hoM ms	paM pt trM	
		OLS 4	Attraction and Festival E PP PD				lsM							inM	go5	agM gn hoM ms	paM3 pt trM	
		OLS 5	EE PP PD		go						gn			inM	go4	agM hoM ms	lsM paM3 pt trM	
		OLS 6	SE PP PD	inM			lsM paM trM								go5	agM gn hoM ms	paM2 pt	
		OLS 7	TRE PP PD				lsM paM trM					paM		inM	go5	agM gn hoM ms	paM pt	
Weagley and Huh (2004)	C HS	TP 1st 1	1: H consumed active leisure goods, total sample	as2 asM		ms					ed2 nr oc re	ti				ed ho nr3	ti4	
		TP 2st 1	TE active leisure H, total sample	asM		oc					ed			as2		ed2 ho ms nr4 re	ti5	
		TP 1st 2	1: H consumed passive leisure goods, total sample	as asM		ed ho ms nr2 oc								as		ed2 nr2 re	ti5	
		TP 2st 2	TE passive leisure H, total sample	asM		nr					ed3	ti		as2		ho ms nr3 oc re	ti4	
		TP 1st 3	1: H consumed active leisure goods, retired households	as2 asM					is2		agM ed3 nr re			is3		ho ms nr3	ti5	

Author(s)	Ch	Model	Dependent var.	Independent variables, significant (p<0.05)										Independent variables, non significant				
				Positively related					Negatively related									
				C	P	S	T	I	C	P	S	T	I	C	P	S	T	I
Weagley and Huh (2004) *continued*	C HS	TP 2st 3	TE active leisure H, retired households	asM					is2		ed			as2 is3		agM ed2 ho ms nr4 re	ti5	
		TP 1st 4	1: H consumed passive leisure goods, retired households	asM		ho nr			is					as2 is4		agM ed3 ms nr3 re	ti5	
		TP 2st 4	TE passive leisure H, retired households	asM is2		nr					agM ed ho ms			as2 is3		ed2 nr3 re	ti5	
		TP 1st 5	1: H consumed active leisure goods,non-retired households	as asM		ho ms			is2		agM ed2 nr re			as is3		ed nr3	ti5	
		TP 2st 5	TE active leisure H, non-retired households	asM		re								as2 is5		agM ed3 ho ms nr4	ti5	
		TP 1st 6	1: H consumed passive leisure goods, non-retired households	asM		nr	ti2		is2		ed			as2 is3		agM ed2 ho ms nr3 re	ti3	
		TP 2st 6	TE passive leisure H, non-retired households	asM							ed3	ti		as2 is5		agM ho ms nr4 re	ti4	
Zhang et al. (2010)	E VP	OLS	TE I		tmM2													
Zheng and Zang (2011)	C HS	TO 1	TE H 1996	inM		edM gn hoM ms oc4 re	th3				hoM nr re					agM hoM nr3 oc3		
		TO 2	FE H 1996	inM		edM gn ms oc3 re	th3				hoM nr2 re					agM hoM2 nr2 oc4		
		TO 3	HE H 1996	inM		agM edM gn ms oc3 re	th3				hoM re					hoM2 nr4 oc4		
		TO 4	TRE H 1996	inM		edM gn ms oc3	th3				hoM nr re					agM hoM2 nr3 oc4 re		
		TO 5	SIE+EE H 1996	inM		edM gn ho ms nr2 oc2 re	th3				agM hoM re					hoM nr2 oc5		
		TO 6	TE H 2006	inM		agM edM ms nr oc3 re	th3				hoM2 nr3 re					gn hoM oc4		
		TO 7	FE H 2006	inM		edM gn ms oc3 re	th3				hoM nr3 re					agM hoM2 nr oc4		
		TO 8	HE H 2006	inM		agM edM ms oc2 re	th3				hoM nr2					gn hoM2 nr2 oc5 re		
		TO 9	TRE H 2006	inM		edM ms nr oc3	th3				hoM nr3 re					agM gn hoM2 oc4 re		
		TO 10	(SIE+EE) H 2006	inM		edM ms nr oc4 re	th3				hoM nr re					agM gn hoM2 nr2 oc3		

Table 2 – Categories of regressors: presence in models and significance of estimations.

Category	Presence in models		Estimations																
			Metric variables						Dummy variables				Total						
			Positive, sign.		Negative, sign.		Non sign.		Positive, sign.		Negative, sign.		Non sign.		Sign.		Non sign.		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
as	49	13.8	27	22.1	6	4.9	9	7.4	34	27.9	9	7.4	37	30.3	76	62.3	46	37.7	122
df	1	0.3	0	0.0	0	0.0	0	0.0	2	22.2	6	66.7	1	11.1	8	88.9	1	11.1	9
dl	4	1.1	0	0.0	0	0.0	0	0.0	3	75.0	0	0.0	1	25.0	3	75.0	1	25.0	4
hs	1	0.3	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	2
in	208	58.8	113	42.6	4	1.5	46	17.4	28	10.6	20	7.5	54	20.4	165	62.3	100	37.7	265
is	17	4.8	0	0.0	2	3.8	0	0.0	8	15.1	9	17.0	34	64.2	19	35.8	34	64.2	53
l	6	1.7	0	0.0	0	0.0	0	0.0	14	34.1	7	17.1	20	48.8	21	51.2	20	48.8	41
go	26	7.3	8	18.2	1	2.3	0	0.0	12	27.3	3	6.8	20	45.5	24	54.5	20	45.5	44
to	49	13.8	18	21.4	2	2.4	27	32.1	7	8.3	16	19.0	14	16.7	43	51.2	41	48.8	84
tm	79	22.3	43	32.1	7	5.2	81	60.4	1	0.7	1	0.7	1	0.7	52	38.8	82	61.2	134
ag	266	75.1	61	13.6	26	5.8	103	22.9	108	24.1	25	5.6	126	28.1	220	49.0	229	51.0	449
ed	160	45.2	27	10.2	3	1.1	13	4.9	55	20.8	42	15.8	125	47.2	127	47.9	138	52.1	265
gn	130	36.7	0	0.0	0	0.0	0	0.0	28	21.5	14	10.8	88	67.7	42	32.3	88	67.7	130
ho	79	22.3	13	10.5	26	21.0	41	33.1	6	4.8	18	14.5	20	16.1	63	50.8	61	49.2	124
ms	141	39.8	0	0.0	0	0.0	0	0.0	44	27.3	8	5.0	109	67.7	52	32.3	109	67.7	161
nr	198	55.9	0	0.0	3	0.5	13	2.2	151	26.1	91	15.7	320	55.4	245	42.4	333	57.6	578
oc	107	30.2	0	0.0	0	0.0	0	0.0	125	38.6	32	9.9	167	51.5	157	48.5	167	51.5	324
re	53	15.0	0	0.0	0	0.0	0	0.0	19	21.3	30	33.7	40	44.9	49	55.1	40	44.9	89
ac	61	17.2	0	0.0	0	0.0	0	0.0	74	47.7	20	12.9	61	39.4	94	60.6	61	39.4	155
at	27	7.6	0	0.0	0	0.0	4	2.7	42	28.0	30	20.0	74	49.3	72	48.0	78	52.0	150
co	10	2.8	1	6.7	0	0.0	10	66.7	1	6.7	0	0.0	3	20.0	2	13.3	13	86.7	15
ds	41	11.6	1	1.3	0	0.0	0	0.0	34	43.6	14	17.9	29	37.2	49	62.8	29	37.2	78
it	8	2.3	0	0.0	0	0.0	0	0.0	4	14.8	3	11.1	20	74.1	7	25.9	20	74.1	27
ls	204	57.6	98	37.5	45	17.2	45	17.2	42	16.1	17	6.5	14	5.4	202	77.4	59	22.6	261
mt	28	7.9	0	0.0	0	0.0	0	0.0	26	57.8	7	15.6	12	26.7	33	73.3	12	26.7	45
pa	163	46.0	59	23.7	63	25.3	63	25.3	29	11.6	11	4.4	24	9.6	162	65.1	87	34.9	249
pl	10	2.8	2	11.1	0	0.0	4	22.2	2	11.1	4	22.2	6	33.3	8	44.4	10	55.6	18
pt	119	33.6	17	11.9	3	2.1	30	21.0	20	14.0	5	3.5	68	47.6	45	31.5	98	68.5	143
pu	82	23.2	0	0.0	0	0.0	0	0.0	44	36.1	19	15.6	59	48.4	63	51.6	59	48.4	122
ri	44	12.4	1	0.8	0	0.0	0	0.0	45	36.3	35	28.2	43	34.7	81	65.3	43	34.7	124
rt	35	9.9	0	0.0	0	0.0	0	0.0	18	37.5	11	22.9	19	39.6	29	60.4	19	39.6	48
th	57	16.1	0	0.0	3	3.1	0	0.0	49	51.0	14	14.6	30	31.3	66	68.8	30	31.3	96
ti	12	3.4	0	0.0	0	0.0	0	0.0	2	3.3	3	5.0	55	91.7	5	8.3	55	91.7	60
tr	40	11.3	25	56.8	0	0.0	15	34.1	0	0.0	2	4.5	2	4.5	27	61.4	17	38.6	44
ty	15	4.2	0	0.0	0	0.0	0	0.0	9	37.5	2	8.3	13	54.2	11	45.8	13	54.2	24