Identifying Structural Asymmetries by Jointly Estimating Tourism Expenditure Intensity and Extensity

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Abstract

This article proposes a structural framework for the joint estimation of tourists' daily personal expenditures (intensity) and length of stay (extensity). We reconceptualize commonly accepted exogeneous determinants of both outcomes into a set of exogenous antecedents pre-existing the travel decision and a set of endogenous mediators that capture the role of market exchange after the travel decision and corresponding choices are made. Findings reveal that the effects of some exogenous factors, such as gender, income and motives on total spending are fully mediated within the intensity and extensity components, absent of any direct impacts. Other factors, such as nationality, appear not to influence spending due to offsetting mediated effects. As these forces are difficult to discern via reduced-form modeling, the proposed structural framework provides tourism managers with deeper insight into the footprints of established expenditure determinants, potentially improving upon the efficacy of marketing strategies.

Keywords: Tourism expenditure; Length of stay; Structural equations; Modeling.

JEL Classification: C51; D11; D12; Z33.

1. Introduction

Inbound tourism expenditure at a destination is considered among the most important aggregates to tourism policy makers and marketers. Therefore, the determination of the expenditure decision has been widely investigated over the past four decades, where literature acknowledges tourists' socioeconomic characteristics, trip-specific choices and psychological attributes as viable proxies for their willingness and ability to pay (Mortazavi and Lundberg, 2020), and therefore, as relevant predictors that exogenously determine subsequent tourism expenditure levels, see Marcussen (2011), Brida and Scuderi (2013) and Mehran and Olya (2019). Length of stay, among the most scrutinized trip-specific determinants of expenditure, is frequently found to be endogenously determined by the same family of antecedents that determine spending (Alegre et al., 2011; Gómez-Déniz and Pérez-Rodríguez, 2019; Vieira et al., 2021; and Jackman and Naitram, 2023), leading to concerns over the consistency and unbiasedness of coefficients estimated without regard to the potential endogeneity of this important decision. Accordingly, literature has taken potential endogeneity of length of stay into consideration via IV regression as in Thrane (2015) or by means of structural equation modeling as in the case of Seiler et al. (2003), Vetitnev (2015) and Štefko et al. (2022). Further, in a rather insightful exposition, Aguiló et al. (2017) propose a framework for jointly estimating tourists' daily expenditure (intensity) and their length of stay (extensity) via reduced-form models. A fundamental outcome of this process is the ability to disentangle the contributions of any exogenous determinant to tourists' daily spending and stay duration.

This paper contributes to the understanding of tourism expenditure in two main ways. First, we suggest a theoretical framework that reconceptualizes commonly accepted exogenous expenditure antecedents (i.e., socioeconomic, trip-specific and psychological) into an exogeneous set of variables that pre-exist the travel decision and a set of endogenous variables that are essential travel-related choices which would not exist if the travel decision and experience did not occur. The premise is that an exogenous aspect like income, a widely reported proxy for tourists' ability to pay, may not exert any direct impact on spending, rather a mediated

impact via some conceptually endogenous travel-related choice, such as booking an accommodation. Theoretically, this reconceptualization is justified because willingness and ability to pay can only result in de facto monetary outlays via market exchange. With the exception of some studies, such as those accounting for the endogeneity of length of stay, most literature models all determinants exogenously, where a host of proxies for tourists' willingness and ability to pay directly determine expenditure in reduced-form regressions, see Marcussen (2011), Brida and Scuderi (2013) and Mehran and Olya (2019).

Second, we extend Aguiló et al. (2017)'s joint estimation of expenditure intensity and extensity into a structural process, using our framework that captures the aforementioned reconceptualization. Whilst maintaining their articulation that total tourism expenditure is the product of daily spending and length of stay, our framework identifies structural paths in the determination of the corresponding intensity and extensity components. For example, in Aguiló et al. (2017), the impact of, say tourists' nationalities, on total expenditure can be decomposed into direct effects on their daily spending and length of stay. Our proposed framework, on the other hand, shows how the impact of such a variable is more likely to be mediated by a number of endogenous travel-related choices. This, in turn, provides tourism marketers with additional information on the footprints of expenditure determinants that could underlie the design of more targeted and better-informed tourism products and packages.

As exogenous variables, we include a well-established group of observed socioeconomic characteristics of tourists', namely age, gender, nationality, income and marital status, and a number of latent psychological travel motives extracted via principal component analysis, namely self-deployment and relationship, escape and relaxation, novelty and isolation and security, following Pearce and Lee (2005). Furthermore, we include the Legatum Prosperity Index^{TM} for tourists' countries of residence as an additional proxy for their unobserved targeted utilities. The rationale is that a higher level of prosperity at the country of residence is associated positively with the level of utility targeted by an individual tourist, which is a latent variable. Higher targeted utility entails higher expenditures, ceteris paribus. Therefore, prosperity at the country of

residence can be considered an exogenous observed proxy for latent consumer preferences, which could be mediated via market exchange into tourism expenditure. For more details, please see Olya and Mehran (2017) and Alfarhan et al. (2022c).

As for our endogenous travel-related choices and behaviors, we include the tourism planning horizon, purchase of a tourism package, transportation and accommodation choices and the number of sites visited. Results show notable asymmetries in the determination of tourists' expenditure intensity and extensity decisions, ones that could not be revealed by reduced-form models. For instance, reduced form least squares regression would conclude that our nationality variable affects total expenditures exclusively via its direct positive impact on the extensity component. Our structural framework, on the other hand, reveals fully mediated effects on expenditure intensity via tourists' transportation and accommodation choices, in addition to a partially mediated effect on expenditure extensity via the number of sites visited. Therefore, the results from this structural framework provide tourism marketers with deeper insights into the choices and behaviors of their tourist population, which are likely to increase the efficacy of subsequent marketing strategies in terms of revenue generation.

In what follows, we review the literature and present our theoretical framework. We then provide a description of the employed data set and explain the implemented empirical method. Thereafter we discuss our results and conclude with a discussion of this article's implications and limitations, as well as some direction for future research.

2. Literature

Despite the relevance of tourism expenditure to industry development and growth from a macroeconomic perspective (Fleischer and Rivlin, 2009; Benkraiem et al., 2021), tourism consumption decisions, such as daily spending and length of stay originate at the microeconomic level. Therefore, reviews of the literature over the past four decades have concluded that most studies on the tourism expenditure decision and behavior are applied microeconomic analyses, fundamentally modeling expenditure determination (Wang and Davidson, 2010; Sainaghi, 2012;

Brida and Scuderi, 2013, Mudarra-Fernández et al., 2019; Štefko et al., 2020). For instance, in a seminal article, Marcussen (2011) examines 55 cross sectional studies published during the period of 1995 – 2009. The author highlights that tourism expenditure is defined into four combinations according to the level of aggregation (per person or per travel party) and time span (per night or per stay). These combinations are found to be confined to four expenditure types, namely transportation, accommodation, other local expenditures and total spending. As for the determination of spending, the author concludes 18 exogeneous socioeconomic and trip-specific determinants.

Additionally, Brida and Scuderi (2013) review 86 publications during the period of 1977 – 2012, confirming that tourism expenditure has mostly been modeled using tourists' socioeconomic and trip-specific characteristics as exogenous determinants and highlighting the scarcity of studies incorporating psychological attributes. Consequently, relevant aspects such as satisfaction, travel motives and personality traits have more frequently been incorporated in recent contributions, (Lam-González et al., 2021; Perles-Ribes et al., 2021; Alfarhan et al., 2022a; Bernini and Galli 2022; Štefko et al., 2022). Their review also recognizes innovation in modeling as a challenging future direction, along with further attempts to support the theoretical assumptions underlying modeling exercises.

Mehran and Olya (2019) introduce a shift in the paradigm of outbound tourism expenditure from an advocacy to a sustainability platform. In their narrative/systemic review of 52 articles during the period 2007 – 2017, they define the complexity of tourism expenditure in terms of determination, theoretical underpinnings, methods of analysis and context. Accordingly, they stress that the determination of expenditure is not limited to traditional socioeconomic, trip-specific and psychological factors, but extends to other pressing elements such as security, politics, prosperity and climate change. They highlight the significance of non-economic theories, such as social theories (Wong et al., 2016) and complexity theory that accounts for asymmetric relationships (Olya and Mehran, 2017) as valid frameworks. Despite their recognition of recent methodological innovation (Mehran and Olya, 2019), the authors seem to confirm that the

corpus of studies remains reliant on destination-specific, individual-level, cross-sectional, symmetric approaches such as linear and logistic regression analysis. According to Rosselló-Nadal (2022), however, it should be noted that due to prevalent differences in the measurement of tourism demand (e.g., expenditures, receipts and numbers of tourists), elasticity values from different models cannot be compared.

Middle Eastern destinations, such as Oman and other states of the Gulf Cooperation Council, attract little attention from scholars, see Mehran and Olya (2019). This is particularly true for microeconomic analyses, perhaps explained by the difficulty in obtaining disaggregated secondary data on the region. Saleh et al. (2020), who review 23 articles published during 2002 – 2019 confirm that observation by concluding that articles on this region are mostly investigations of macroeconomic themes, where tourism planning and development is dominant. Tourism in Oman, despite the fastest growing sector in the GCC in terms of international arrivals during 1995 – 2019, has attracted the lowest share of attention. Only one article addresses this destination exclusively, by discussing the country's sea turtle tourism (Busaidi et al., 2019). Hence, this article further contributes to the discussion on tourism development in Oman with a microeconomic perspective.

When it comes to empirical literature on modeling the tourism expenditure decision, reduced-form, linear regression is a common approach, likely due to its practicality and ease of interpretation. Such studies, nonetheless, vary in terms of how expenditure is defined. A significant number of authors prefer modeling total personal expenditure during the entire trip duration as outcome variable, see (Kozak, 2001; Downward and Lumsdon, 2003; Laesser and Crouch, 2006; Santos and Vieira, 2012, Thrane and Farstad, 2012; Thrane, 2016; Massidda et al., 2022). Such studies handle expenditure intensity and extensity as one aggregated quantity. Others, such as Perez and Sampol (2000), Wang et al. (2006), Apostolakis and Jaffry (2009), Marrocu et al. (2015), Serra et al. (2015) use daily personal expenditure, thereby acknowledging that daily spending and length of stay are two different decisions, albeit interrelated. This, in turn, gives rise to the analysis of length of stay independently, such as the works of De Menezes et al.

(2008), Barros and Machado (2010), Thrane and Farstad (2012), Montaño et al. (2019), Vieira et al. (2021) and Atsız et al. (2022). Whether modeling daily spending or length of stay, literature repeatedly reports measures of tourists' socioeconomic characteristics, trip-specific choices and psychological attributes as valid exogenous determinants of both decisions, thereby lending collective support to reduced-form modeling of both decisions as one construct in the form of total expenditure, without disentangling potential asymmetries in the two processes. Therefore, this paper attempts to highlight such asymmetries in pursuit of a more detailed understanding of both decisions and, consequently, better-informed marketing strategies.

From an empirical perspective, Thrane (2014) demonstrates via data drawn from Norwegian domestic tourists that best-practice econometrics implies expressing total expenditure in logarithmic form, thereby mitigating heteroscedasticity and reducing the effect of outliers. Moreover, it is a matter of good modeling to pay sufficient attention to potential nonlinearities and the endogeneity of, for example, length of stay (Thrane and Farstad, 2011; Thrane, 2015). Recently, studies increasingly revert to methods other than traditional ordinary least squares estimation, accounting for considerations including endogeneity, heterogeneity, mediation and the types of outcome variables' distributions. For example, Nicolau and Mas (2005), Engström and Kipperberg (2015), Aguiló et al. (2017) and Gómez-Déniz et al. (2020) employ two-stage least squares, weighted least squares, robust least squares and maximum likelihood models in the estimation of total personal expenditure data. Also, Pouta et al. (2006), Alegre et al. (2011), Wu et al. (2013) and Baño Tovar (2021) use logistic regression, skewed logistic and multivariate tobit modeling to account for the non-normality in the distribution of expenditures. In that realm, Gómez–Déniz et al. (2021) address the non-normality concern by proposing a reparameterization of the three-parameter log-skew normal distribution for modeling tourists' expenditure at the country of origin, destination, and total expenditure in a tourism setting. They find the proposed model well suited to capture possible skewness and kurtosis, as well as the likely long tail to the right in expenditure distributions. Furthermore, Baños-Pino et al. (2022) employ a tobit model with an inverse hyperbolic sine transformation of the dependent variable, also to address concerns about the normality and extreme values of the expenditure distribution. They find that

atmospheric conditions, measured by the Tourism Climate Index and the Psychologically Equivalent Temperature, influence onshore expenditures of cruise ship passengers positively.

Additionally, Santos and Vieira (2012), Almeida and Garrod (2017), Sharma et al. (2020), Park (2020) and Pérez-Rodríguez and Ladesma-Rodríguez (2021) use conditional and unconditional quantile regression analysis to handle heteroscedasticity and non-normally distributed outcome variables. To control for heteroscedasticity in the presence of endogeneity, Bernini and Galli (2022) implement IV quantile regression to estimate the effect of satisfaction on the expenditures of Italian tourists traveling abroad. They find evidence on satisfaction having a nonlinear impact on expenditures, with relevant differences across different recession periods. Alfarhan et al. (2022b) and Alfarhan and Nusair (2022), on the other hand, introduce conditional counterfactual quantile decomposition analysis to the tourism literature, for the purpose of identifying the effects of noncompetitive market structures and information asymmetry on expenditure patterns and differentials.

With respect to literature considering personal daily spending, Marrocu (2015) employs conditional quantile regression on data from Italy, Eugenio-Martin and Inchausti-Sintes (2016) and Correia et al. (2018) implement 3SLS, GMM and binary logistic models with Spanish and Portuguese data, and Mortazavi and Lundberg (2020) employ finite fixed mixtures modeling to analyze expenditure data from the Italian tourism industry. It is fair to say that regardless of the modeling strategy and tourism market, a tourist's nationality, income, travel experience, party size, accommodation and transportation choice, length of stay, types of activities and psychological antecedents such as satisfaction and motivation are established exogeneous determinants of tourism spending.

Other exploratory methods for analyzing tourism expenditure data are imbedded in machine learning. For example, Díaz-Pérez et al. (2005) and Svensson et al. (2011) use decision trees in exploring expenditure patterns at mature tourism destinations in Spain, to identify the antecedents and niches associated with higher levels of spending. Alternatively, Abbruzzo et al.

(2014) introduce decomposable graphical log-linear models that synthesize and visualize the relationships between tourism expenditure and its potential antecedents within large data sets using information on international tourists to Uruguay. Furthermore, Brida et al. (2018) employ parametric techniques with Lasso penalty and nonparametric techniques such as Random Forest, indicating that the latter is most robust in terms of predicting total tourism expenditures. Lasso regression is also employed by Almeida and Garrod (2022) to determine which expenditure determinants mostly overlap over five tourism events in Madeira. They argue that Lasso is appropriate for handling high-dimensional models with censored data, as expenditures at a destination are necessarily non-zero. They find that income, length of stay and party size are significant determinants across all events. More recently, Rubina Nava et al. (2023) implement a two-step process using macro-level data to identify the highest-spending European leisure and business travelers over time. In the first step, the Country Product Dummy is used to analyze leisure and business travel expenditures, aggregated by tourists' countries of origin. In the second step, and based on the Ward's method and the Country Product Dummies estimated before, a hierarchical cluster analysis is performed, due to the reduced number of observations and the authors' interest in studying the agglomeration process. Their results reveal travelers from Austria, Belgium, Denmark, Finland, Germany, Ireland, Luxemburg and Switzerland as top leisure travel spenders. For business travel, the Netherlands joins the aforementioned group of countries.

Given the complexity of the relationships between tourism expenditure and its determinants, Brida et al. (2022) employ compositional data analysis and Dirichlet regression to account for the interactions between covariates in the context of modeling tourism expenditure allocation in Uruguay. Their results show that the pattern of tourism expenditures on major categories, such as food and accommodation, depends on destination-specific attributes, such as season, accommodation type, tourists' typologies and nationalities. Furthermore, by means of hierarchical spatial modeling, Artal-Tur et al. (2022) highlight that destination-specific contextual and local neighborhood effects account for about one-half of the variance in tourists' expenditures at developed Spanish destinations.

Literature that investigates the potential direct and indirect impacts is also found to employ structural equation modeling and path analysis. In that realm, using data from the Taiwanese market, Seiler et al. (2003) find that length of stay mediates the effects of household income, travel party size and travel purpose on total tourism expenditure, while directly causing expenditures to increase. Vetitnev (2015) also finds that length of stay mediates the effects of source of payment, satisfaction, income, accommodation and resort type on total personal tourism expenditure, whereas travel distance, party size and holiday organization mode only exert direct effects on spending in the Russian resort industry. Also, Štefko et al. (2022) investigate the impact of psychological characteristics on expenditure levels using data on outbound Slovak tourists. The authors find that attributes such as spending propensity, tightwad and thrift do not influence expenditure levels directly, and that length of stay mediates the effect of tightwad, at best, weakly.

This article falls within the category of papers that employ structural equation modeling. But instead of considering length of stay as an endogenous mediator within the determination of total expenditures, we join Aguiló et al. (2017) by thinking of both daily spending and length of stay as endogenous outcome variables. Yet, we propose that the determination of daily spending and length of stay is contingent on the direct and mediated effects of antecedents that pre-exist the travel experience, thereby exclusively defined as exogenous. The proposed modeling process reveals structural asymmetries in the determination of expenditure intensity and extensity that cannot be assessed via reduced-form estimation.

3. Theoretical framework

In contrast with the theoretical foundations to the empirical estimation of tourism expenditures in most literature, where tourists' socioeconomic characteristics, trip-specific choices and psychological attributes are used as exogenous proxies for their latent preferences (Marcussen, 2011; Brida and Scuderi, 2013; Mehran and Olya; 2019, Štefko et al., 2020), we distinguish between variables such as a tourist's age, gender, income, nationality, motivations and

297 prosperity, which pre-exist the travel decision and actual travel engagement, and variables that
298 only exist because a decision to travel has been made and pursued, such as purchase of a tourism
299 package, the choice of transportation mode, accommodation and the number of sites visited at
300 the destination. Accordingly, we confine the approximation of tourists' latent exogenous
301 preferences to the former set of variables and consider the latter a set of mediating behavioral
302 and market-related choices that transform the effect of their willingness and ability to pay into
303 de facto daily monetary outlays and days spent at the destination.
304
305 As shown in Figure 1, our theoretical framework provides the flexibility of uncovering potential
306 asymmetries in the structural processes of determining expenditure intensity (upper left-hand
307 circle) and expenditure extensity (upper right-hand circle), whilst allowing for the verification of
308 the internal consistency of these two processes by estimating the aggregate exogenous and
309 mediated effects on total personal expenditure (lower circle). For example, the sum of the direct
310 effects of income on daily expenditure and length of stay must equal the direct effect of income
311 on total expenditure. Likewise, the sum of the indirect effects of income on daily expenditure
312 and length of stay as mediated by, say accommodation choice, must equal the indirect effect of
313 income on total expenditure as mediated by accommodation choice.
314
315 **INSERT FIGURE 1 ABOUT HERE**
316
317 **4. Data**
318 This article combines primary survey data collected from 1174 international tourists to Oman
319 during January to March of 2019, with the Legatum Prosperity Index™[1]. We do so by merging
320 the Legatum Prosperity Index™ of 2019 with our data set via the tourist's self-reported country
321 of residence. This enables us to account for the complex aspect of tourists' prosperity levels as a
322 proxy for their preferences, instead of relying exclusively on self-reported socioeconomic
323 characteristics. That is because prosperity at the country of residence is more likely to form an

[1] Visit https://www.prosperity.com/about/resources for the **2021 Full Data Set – Legatum Prosperity Index**. Last accessed on May 22nd, 2023.

individual's consumption environment and choices, hence expectations and behavior, than a simple construct such as nationality. Our nationality variable is an identifier of a tourist being of European origin, given that most tourists to Oman are either Britons, French or Germans who belong to the highest internationally in terms of outbound expenditure, see Alfarhan et al. (2022b). It is also intended to capture effects that prosperity at the country of residence would not be able to, such as the historical ties with the UK, or the large tourism flows between Oman and Germany.

International inbound tourists were surveyed at the exit gates of Oman's main airport, Muscat International Airport (MCT), before departure. As mentioned by Aguiló et al. (2017), airport surveys in this type of research are suitable as tourists may still have a good recall of their tourism experience and expenditures and are more likely to have the time to thoroughly respond to survey questions while waiting for departure. In the context of tourism in Oman, MCT is the country's main entry and exit point for international travelers, which contributes to the representativeness of our collected data. For a more detailed discussion of this aspect, see Alfarhan et al. (2022a).

4.1. Tourists' pre-travel motives

As a first step, we follow Pearce and Lee (2005) to construct measurements for tourists' latent travel motives by applying a principal component analysis of their responses to the question: "In considering your current trip to Oman, how important was it to you that you [item]" for each of the 15 items shown in Table 1 on a five-points Likert scale. Items 1 – 3 loaded on escape and relaxation with an interim Cronbach's alpha of 0.83 and an eigenvalue of 5.03. Items 4 – 8 loaded on self-deployment and relationship with an interim Cronbach's alpha of 0.85 and an eigenvalue of 2.12. Items 9 – 12 loaded on novelty and isolation with an interim Cronbach's alpha of 0.72 and an eigenvalue of 1.54 and items 13 – 15 loaded on security with an interim Cronbach's alpha of 0.68 and an eigenvalue of 1.08. The analysis rendered a fraction of explained variance of 65.2%, a Kaiser-Meyer-Olkin statistic for sampling adequacy of 0.84 and an overall scale reliability coefficient of 0.85, all within statistically acceptable ranges. Although Pearce and Lee (2005) only

retain factor loadings that are equal to, or higher than 0.40, we decided to keep the two items of "visiting historical sites" and "experience solitude and privacy" with loadings of 0.351 and 0.353 for two main reasons. First, these loadings remain above the threshold of 0.30 as defined by Hair et al. (2009) for larger sample sizes. Second, perhaps more importantly, the two items loaded consistently with Pearce and Lee's (2005) components of self-deployment (host-site involvement) and isolation, respectively, from a qualitative perspective.

INSERT TABLE 1 ABOUT HERE

We next restrict our sample to individuals who reported leisure tourism as their travel purpose, stayed for a period between three to fourteen days to exclude unreasonably lengthy stays within a traditional tourism context, and stated spending within budget a priority to account for tourists' mental budgeting and expenditure minimization behaviors. Consequently, 888 observations are retained.

4.2. Descriptive statistics

Expenditure intensity is defined by a tourist's daily expenditure including airfare in US$ (Y_i^I) and extensity by length of stay in days (Y_i^E). In addition, we consider total personal trip expenditures in US$ (Y_i^T) as an outcome variable that combines the intensity and extensity aspects. As shown in Table 2, tourists spend on average $338.6 per day and stay for an average of 7 days. Our exogenous variables (X_{ki}) can be grouped into five typical socioeconomic variables, four travel motives and prosperity at the tourist's country of origin. The average respondent is 45 years old, about 49% are males and 79% are European nationals. Further, about 76% of tourists are married individuals and 26% earn an annual income higher than the U.S. median household income of $68.7 thousand in 2019, (Semega, 2020).

Considering tourists' travel motives, the average scale measures for security and for self-deployment and relationship are 4.24 and 4.22 out of five, respectively. Considering Oman an emerging tourist destination in the Middle East, tourists appear reasonably motivated by physical

and financial security considerations and by the acquisition and sharing of new experiences with family and friends. Additionally, given that the sample is restricted to leisure tourists, the scale measures for escape and relaxation, 4.01, and for novelty and isolation, 3.63, are relatively high as well. Moreover, within this sample, the average Legatum Prosperity Index for tourists' countries of residence is 75.85. For context, international Legatum Prosperity Indices in 2019 ranged from 11.3 (Eritrea) to 97.1 (Denmark) with a standard deviation of 17.4 points. Hence, leisure tourists to Oman reside in relatively highly prosperous countries.

INSERT TABLE 2 ABOUT HERE

For our endogenous, behavioral and market-related mediators (M_{li}), we employ five common trip-specific characteristics, namely the tourists' planning horizon, purchase of a tourism package, travel mode, accommodation choice and the number of sites visited at the destination. As a behavioral aspect, we distinguish between tourists who plan for a relatively longer time horizon and those who do not, using a two-months period as threshold, see Zalatan (1996) and Kozak (2001). About 47% of tourists planned two months or longer for their trip and 22% purchased an all-inclusive tourism package. Over 90% of them used economy-class, chartered flights and about 74% booked either four- or five-star hotels. Finally, tourists in this sample visited on average five sites.

In contrast with the majority of the literature on tourism expenditures, where socioeconomic, trip-specific and psychological variables are modeled as exogenous, we stipulate that trip-specific characteristics mediate the effects of tourists' exogenous socioeconomic and psychological attributes on expenditure intensity and extensity, albeit asymmetrically.

5. Method

We extend the decomposition structure proposed by Aguiló et al. (2017) to be estimated via maximum-likelihood, structural equation modeling. As highlighted by Loehlin and Beaujean (2017), structural equation analysis comes in forms when all variables are observed and also

when some are not. In our case, travel motives are latent constructs, principally linear composites of observed survey items, which underlie and explain the observed correlations. The advantages of this methodological exercise are two-fold. First, it provides more insight into the footprints of estimated effects, and second, it better accommodates the nature and roles of different expenditure determinants as exogenous or endogenous mediators, conceptually and empirically. Thereby, this approach may provide further intuition into subsequent policy making.

Aguiló et al. (2017) propose the reduced-form decomposition of total tourism expenditure into the following intensity and extensity components:

$$lnY_i^T = lnY_i^I + lnY_i^E \quad \forall\, i \in N \tag{1},$$

where:

$$lnY_i^I = \gamma_0^I + \sum_{k=1}^{K} \alpha_k^I X_{ki} + z_i \quad \forall\, i \in N \tag{2},$$

$$lnY_i^E = \gamma_0^E + \sum_{k=1}^{K} \alpha_k^E X_{ki} + v_i \quad \forall\, i \in N \tag{3},$$

$$lnY_i^T = \gamma_0^T + \sum_{k=1}^{K} \alpha_k^T X_{ki} + u_i \quad \forall\, i \in N \tag{4}.$$

In Eq. (2) and Eq. (3) above, Y_i^I measures personal daily tourism expenditure and Y_i^E measures length of stay. The vector of all-exogenous antecedents X_{ki} includes tourists' incomes as a measurement of their ability to spend, along with a group of socioeconomic characteristics approximating tastes, hence their willingness to spend. The parameters γ_0^I and γ_0^E are the regressions' constants and α_k^I and α_k^E are the expenditure intensity and extensity propensities, respectively. Finally, z_i and v_i denote the robust least squares error terms with zero means and constant variances. Aguiló et al. (2017) demonstrate that $\gamma_0^I + \gamma_0^E = \gamma_0^T$ and $\alpha_k^I + \alpha_k^E = \alpha_k^T \; \forall\, k \in K$. These equalities imply that for any given exogenous expenditure determinant k, such as income, the total effect can be decomposed into an exclusively direct effect on the average tourist's daily expenditure and length of stay as two independent tourism-related decisions.

Intuitively, a tourist's ability and willingness to spend can only materialize into de facto monetary outlays and days spent at a given destination after they decide to travel and act upon this decision via engagement in various markets for tourism products. Estimating this structural process in

reduced form collapses it into a single set of direct effects, which is perhaps an oversimplification. Instead, we propose structural equation modeling as a simple alternative, where the ability and willingness to spend are approximated by tourists' exogenous socioeconomic characteristics, travel motives and prosperity (X_{ki}) and where the trip-specific, market-related choices (M_{li}) endogenously mediate the effects of ability and willingness onto expenditure intensity (lnY_i^I) and extensity (lnY_i^E).

Accordingly, Eq. (2), Eq. (3) and Eq. (4) may be rewritten as:

$$M_{li} = \gamma_{0l} + \sum_{k=1}^{K} \alpha_{kl} X_{ki} + e_i \quad \forall\, i \in N \; and \; l \in L \tag{5}$$

$$lnY_i^I = \gamma_0^I + \sum_{k=1}^{K} \alpha_k^I X_{ki} + \sum_{l=1}^{L} \beta_l^I M_{li} + z_i \quad \forall\, i \in N \tag{6}$$

$$lnY_i^E = \gamma_0^E + \sum_{k=1}^{K} \alpha_k^E X_{ki} + \sum_{l=1}^{L} \beta_l^E M_{li} + v_i \quad \forall\, i \in N \tag{7}$$

$$lnY_i^T = \gamma_0^T + \sum_{k=1}^{K} \alpha_k^T X_{ki} + \sum_{l=1}^{L} \beta_l^T M_{li} + u_i \quad \forall\, i \in N \tag{8}$$

where:

$$\gamma_0^T = \gamma_0^I + \gamma_0^E \tag{9}$$

$$\alpha_k^T = \alpha_k^I + \alpha_k^E \quad \forall\, k \in K \tag{10}$$

$$\beta_l^T = \beta_l^I + \beta_l^E \quad \forall\, l \in L \tag{11}$$

and

$$\sum_{l=1}^{L} \gamma_{0l} \beta_l^T = \sum_{l=1}^{L} \gamma_{0l} \beta_l^I + \sum_{l=1}^{L} \gamma_{0l} \beta_l^E \tag{12}$$

$$\sum_{l=1}^{L} \alpha_{kl} \beta_l^T = \sum_{l=1}^{L} \alpha_{kl} \beta_l^I + \sum_{l=1}^{L} \alpha_{kl} \beta_l^E \quad \forall\, k \in K \tag{13}$$

Eq. (5) estimates the direct effects of the exogenous variables on each of the endogenous mediators and Eq. (6), Eq. (7) and Eq. (8) are the structural equivalents to Eq. (2), Eq. (3) and Eq. (4), respectively. Analogously to Aguiló et al. (2017), Eq. (9) to Eq. (11) express the decomposition of the direct effects, whereas Eq. (12) and Eq (13) represent the decomposition of the mediated effects that the previous authors do not account for. Hence, we extend their framework such that for any given exogenous determinant k, e.g., income, the total effect can be decomposed into a direct and an indirect effect on the average tourist's daily expenditure and length of stay as two independent tourism-related decisions.

6. Empirical results

The following discussion is based on the structural estimation results reported in Table 3. Unshaded cells report the matrix of parameter estimates (α_{kl}) for all $k \in K$ and $l \in L$, along with their corresponding observed information matrix (OIM) standard errors -*in parentheses*- of Eq. (5). Shaded cells on right-hand-side of the table report the parameter estimates (α_k^g) and (β_l^g) where $(g = I, E, T)$ and their corresponding standard errors of Eq. (6), Eq. (7) and Eq. (8), respectively.

Whereas the additive properties described by Eq. (9) to Eq. (12) hold in aggregate, the subsequent discussion is based exclusively on the bolded statistically significant parameters. With this in mind, the percentage contribution of the mediated-to-total effect of any given exogenous variable k is calculated as $\left[\left(\frac{\sum_{l=1}^{L}\alpha_{kl}\beta_l^g}{\sum_{l=1}^{L}\alpha_{kl}\beta_l^g+\alpha_k^g}\right)\cdot 100\%\right]$ where $(g = I, E, T)$, whereas the percentage contribution of the direct-to-total effect is calculated as $\left[\left(\frac{\alpha_k^g}{\sum_{l=1}^{L}\alpha_{kl}\beta_l^g+\alpha_k^g}\right)\cdot 100\%\right]$. Further, the interpretation of the coefficients of dummy variables follows Halvorsen and Palmquist (1980), where the effect equals $\left[\left(e^{coefficient}-1\right)\cdot 100\%\right]$.

6.1. Structural estimation of expenditure intensity

Transportation and accommodation constitute valid mediators for expenditure intensity. As reported in the bottom right corner of Table 3 under Eq. (6), results indicate that flying economy aboard chartered carriers reduces daily personal expenditures by 25.2%, $[(e^{-0.29}-1)\cdot 100\%]$ and staying at a four- or five-star hotel increases daily expenditures by 35.9%, $[(e^{0.307}-1)\cdot 100\%]$. Given that older tourists are less likely to fly economy and more likely to stay at higher-starred accommodations, the statistically significant mediated effect of age accounts for 23.5% of the total effect and the direct effect accounts for 76.5%. Age has, nonetheless a negligible total impact of 1% on daily expenditures. Europeans are more likely to fly economy and stay at higher-starred hotels, leading the two mediating effects to offset each other. In the absence of any direct effect, belonging to the group of European tourists reduces daily expenditures by 1.2%, fully mediated via transportation and accommodation. Marital status is only mediated via

accommodation with a positive contribution of 17.4% that is offset by an overwhelming direct effect. Being married reduces daily personal expenditures by 17.4%. Higher income, on the other hand, decreases the probability of flying economy and increases the probability of staying at a higher-starred hotel with no direct influence on daily expenditures. Consequently, the effect of earning higher than the median U.S. annual income is fully mediated, causing daily expenditures to increase by 5.5%.

With respect to tourists' motivations, self-deployment exerts only a direct effect, causing daily personal tourism expenditures to increase by 7.2%. The effect of escape and relaxation, on the other hand, is fully mediated via accommodation choice, leading to an increase in daily personal expenditure by a negligible 1.1%. Further, security decreases the likelihood of staying in a higher-starred hotel with no direct effect on expenditure intensity. Whereas this may sound counterintuitive at first, this motivational attribute includes the aspect of financial security and staying within budget. Given that four- and five-star hotels are the more expensive accommodation choice, this negative association is justified. Therefore, the fully mediated effect of security causes daily expenditures to fall by 1.6%. Finally, higher levels of overall prosperity at the country of residence decrease the likelihood of flying economy and increase the likelihood of staying in higher-starred hotels, whilst also exerting a positive direct impact on expenditure intensity. The contribution of the mediated effect of prosperity is 17.4% and the contribution of the direct effect is 82.6%, both causing daily expenditures to increase by 2.1%.

6.2. Structural estimation of expenditure extensity

Tourists' planning behavior and number of sites visited at the destination constitute valid mediators for expenditure extensity. As reported in the bottom right corner of Table 3 under Eq. (7), results indicate that planning the trip for a period longer than two months increases the length of stay by 8.7% and each additional site visited increases the length of stay by 5.8%. Older tourists are more likely to exhibit a longer planning horizon, which leads to a mediated effect of age with a contribution of 12.7%. However, age directly and indirectly increases expenditure extensity by a negligible 0.5%. Men seem to be visiting more sites with no direct effect. Therefore,

526 the fully mediated effect of gender increases expenditure extensity by 1.5%. Further, European
527 tourist appear to be visiting more sites and, ceteris paribus, stay longer at the destination. The
528 mediated contribution of being European is 14.9% and the direct contribution is 85.1%, both
529 leading expenditure extensity to increase by 40.8%. Married tourists plan longer for the trip but
530 visit fewer sites, ceteris paribus, with no direct effect of marital status. Hence, the impact of
531 marital status is fully mediated causing tourism extensity to decline by a negligible 0.4%. Unlike
532 its impact on expenditure intensity, annual income has no effect on expenditure extensity in this
533 case. This result indicates that tourists' higher/lower incomes lead to corresponding higher/lower
534 daily spending without affecting the average decision on how long to stay at the destination.
535
536 Moving to tourists' motivations, self-deployment and relationship is fully mediated via sites
537 visited, causing length of stay to increase by 3.9%. Escape and relaxation is negatively mediated
538 via sites visited with a contribution of 58.9%. This is, nonetheless, offset by an overwhelming
539 direct positive contribution such that escape of relaxation causes expenditure extensity to
540 increase by 1.8%. Novelty and isolation is fully mediated via planning horizon causing length of
541 stay to decrease by 0.3%, and security is positively mediated via both planning horizon and sites
542 visited, leading length of stay to increase by 1.8% with no direct impact. Finally, tourists residing
543 in countries with higher prosperity levels appear to plan longer for the trip, leading to a fully
544 mediated effect that increases length of stay by a negligible 0.1%.
545
546 **INSERT TABLE 3 ABOUT HERE**
547
548 Consistent with Aguiló et al. (2017), the sum of the parameter estimates reported under Eq. (6)
549 and Eq. (7) in Table 3 are equal to the independently estimated propensities of Eq. (8). This, in
550 turn, confirms that the total impact of any given exogenous determinant may be decomposed
551 into an independent effect on each of expenditure intensity and extensity, leading to a better-
552 informed tourism management process. We add to this effort by showing that the effects of a
553 chosen set of exogenous determinants are asymmetrically mediated by another set of
554 endogenous variables, typically considered as exogenous in their own merit. For instance,

according to Aguiló (2017), German tourists to the Balearic Islands incur 21% less out-of-accommodation expenditures daily but stay 6% longer at the destination, which explain the composition of a negative effect of 15% of being German compared the reference group. What this result does not explain, however, is the footprints leading to such effects on expenditure extensity and intensity, respectively. In contrast, we demonstrate that flying via chartered economy class to Oman reduces daily personal expenditures of European tourists at the destination by 3.7%, $\left[\left(e^{\alpha_{33}\beta_3^I}-1\right)\cdot 100\%\right]$, and staying at a four- or five-star hotel increases daily spending by 2.5%, $\left[\left(e^{\alpha_{34}\beta_4^I}-1\right)\cdot 100\%\right]$, leading to a fully mediated net negative impact of 1.2% on expenditure intensity. Additionally, the number of sites visited at the destination increases length of stay by 5.4%, $\left[\left(e^{\alpha_{35}\beta_5^E}-1\right)\cdot 100\%\right]$, with a direct effect of 35.4%, $\left[\left(e^{\alpha_3^E}-1\right)\cdot 100\%\right]$. This, in turn, adds up to a partially mediated positive effect of 40.8% on expenditure extensity, as reported earlier.

For additional comparison between our structural approach and an all-exogenous estimation output comparable to Aguiló et al. (2017), Eq. (6), Eq. (7) and Eq. (8) in Table 3 show that income would be concluded to have no effect on either outcome variable. The same holds for gender, novelty and isolation and security. Our structural process, on the other hand, reveals that the effect of gender is fully mediated by the number of sites visited, income is fully mediated by transportation and accommodation choices, novelty and isolation is fully mediated by tourists' planning behavior and security is fully mediated by planning, accommodation and sites visited.

Also see Figure 2 for a more consolidated presentation of all statistically significant paths, where tourists' transportation and accommodation choices mediate exogenous effects on daily expenditures and where planning behavior and number of sites visited are shown to mediate various exogenous effects on length of stay, hence on total spending. The paths in this figure retain the color codes established by Figure 1. Namely, the grey arrows are the estimated effects of exogeneous variables on mediators, the black arrows are the estimated effects of mediators

on outcome variables and the green arrows are the direct effects of exogeneous variables on outcome variables.

INSERT FIGURE 2 ABOUT HERE

7. Concluding remarks

7.1. Discussion

Over the last four decades, a considerable amount of literature has analyzed either tourism expenditure or length of stay as two distinct individual-level consumption decisions whose understanding is crucial to tourism managers and marketers in pursuit of higher sectoral revenues and overall economic growth. A contribution by Aguiló et al. (2017), however, suggests that analyzing these two decisions jointly provides deeper insight into the tourism consumption behavior, given the potential (dis)similarities in the determination of each. By means of reduced-form modeling, they demonstrate the possibility of tracing the causes of higher total expenditures, whether due to higher levels of daily spending or longer durations of stay, referring each to an identical set of all-exogenous socioeconomic, trip-specific and psychological antecedents.

In this article, we extend this work by reconceptualizing such antecedents into a group that approximates tourists' latent preferences and ability to pay and, importantly, pre-exists the travel decision. Thereby being conceptually exogenous to the expenditure determination. That in addition to another group that only exists as a consequence of the travel decision, hence conceptually endogenous variables that function as mediators in our proposed framework. These mediators constitute the paths through which latent preferences are transformed into de facto monetary outlays.

Table 4 summarizes the asymmetries within mediation paths. For expenditure intensity, transportation mediates the effects of age, income and prosperity at the country of residence with a positive impact, whereas that of nationality with a negative impact. Furthermore,

accommodation mediates the effects of age, nationality, marital status, income, escape and relaxation and prosperity with a positive impact, whereas that of security with a negative impact. For expenditure extensity, planning horizon mediates the effects of age, marital status and security with a positive impact, whereas that of novelty and isolation with a negative impact. Additionally, the number of sites visited at the destination mediates the effects of gender, nationality, self-deployment and relation and security with a positive impact, whereas those of marital status and escape and relaxation with a negative impact.

INSERT TABLE 4 ABOUT HERE

7.2. Theoretical implications

In contrast with the majority of previous literature that considers a host of individual characteristics and trip or destination-specific choices as direct arguments in tourists' expenditure functions, approximating their tastes, see Marcussen (2011) and Mortazavi and Lundberg (2020), our theoretical framework restricts preference-related proxies to factors that are conceptually exogeneous to the determination of expenditure and pre-exist the travel decision. Such factors include age, gender, motivations, prosperity in the country of residence and income that shape tourists' preferences and ability to pay but might not directly lead to de facto monetary outlays unless a decision to travel is made, followed by market exchange. Subsequently, our framework considers factors like tourists' transportation and accommodation choices, activities and sites visited at a destination or purchase of tourism packages conceptually endogenous antecedents that mediate the paths between latent preferences and ability to pay and tourism outcomes such as expenditure and stay durations.

Our proposed theoretical framework is sufficiently flexible to accommodate circumstantial changes in tourism dynamics or various tourism contexts, as long as the stipulated conceptualizations of exogeneity and endogeneity are preserved.

7.3. Practical implications

Our results carry important implications regarding the inconclusiveness found in the literature on the effects that several exogenous variables may have on tourism expenditure. For instance, Thrane (2002, 2015), given contextual differences between the two papers, report conflicting impacts of age while estimating the determination of tourism spending in Norway via reduced-form models. Estimating expenditure via structural modeling uncovers how effects are mediated and therefore mitigates potential confusions across contexts. In the current case, older tourists are less likely to fly economy class, and flying economy as opposed to business class decreases total spending inclusive airfare. They are also more likely to book five- or four-star accommodations that increase expenditures at the destination. Both paths explain how age affects tourism expenditure positively. Another example is the effect of gender. As reported by Brida and Scuderi (2013), 21.5% of the papers reviewed find that men incur higher expenditures, 10.8% report the opposite and the rest find no relationship. Had we estimated the relationships in this paper in reduced form, we would conclude no effect of gender as per Eq. (6), Eq. (7) or Eq. (8). This would nonetheless be misleading, as our structural results imply that men visit more sites at the destination, which increases their length of stay, hence expenditures.

Other practical implications pertain to our findings on the influences of income, motives and prosperity. Income does not have a direct impact on spending. Given the consensus in the literature on the importance of income as an exogenous expenditure determinant, we find this result rather interesting. For, ability to pay is one aspect and actual payment is another. Our results imply that a tourists' ability to pay can only result in de facto monetary outlays if successfully mediated via market transactions. In our case, higher monthly earnings decrease the likelihood of flying economy, while higher earners are also more likely to book more expensive accommodations. Both fully mediated effects suggest a positive effect of income on expenditures.

Motives measure tourists' willingness to pay. Again, it is sensible that willingness to pay can only transmute into expenditure via market transactions and choices. In that regard, self-deployment

669 and relationship has a positive impact on expenditure through the extensity component that is
670 fully mediated via the number of sites visited. Escape and relaxation exerts a positive impact on
671 expenditure intensity, fully mediated via accommodation choices. Security considerations, on the
672 other hand, lead to longer planning and more sites visited, which mediate a positive impact on
673 expenditures via the extensity component. Given the evidence suggested by this structural
674 framework on how the impacts of tourists' willingness and abilities to pay are mediated into
675 expenditure intensity and extensity decisions, practitioners at the discussed destination, Oman,
676 are encouraged to focus on tourism experiences that involve European visitors' choices regarding
677 transportation, accommodation and number of sites to visit, as well as access to information that
678 facilitate efficient planning.
679
680 ***7.4. Limitations and future research***
681 Whereas the theoretical framework proposed in this article conceptualizes exogeneities and
682 endogenous mediation paths, results may not be completely immune to other potential sources
683 of endogeneity from a purely empirical standpoint. Testing structural models for potential
684 endogeneities can, however, become challenging in terms of identifying appropriate instruments
685 for different arguments. Additionally, the cross-sectional data set employed in this empirical
686 exercise observes international inbound tourists at an emerging destination before the onset of
687 the COVID-19 pandemic. Thereby, it does not allow controlling for the travel decision taken at
688 the country of origin and produces results that may not be generalizable to a tourism context at
689 a more mature destination in a post-pandemic world. Future research is encouraged to consider
690 using household income and expenditure panel data on outbound tourists where the travel
691 decision may be observed and where COVID-induced changes in the tourism consumption
692 behavior can be addressed. Moreover, we suggest future contributions to explore the effects of
693 other exogenous variables, such as travel experience, other channels of mediation, such as social
694 media engagement, more disaggregated expenditure measures, or travel contexts other than
695 leisure.
696
697

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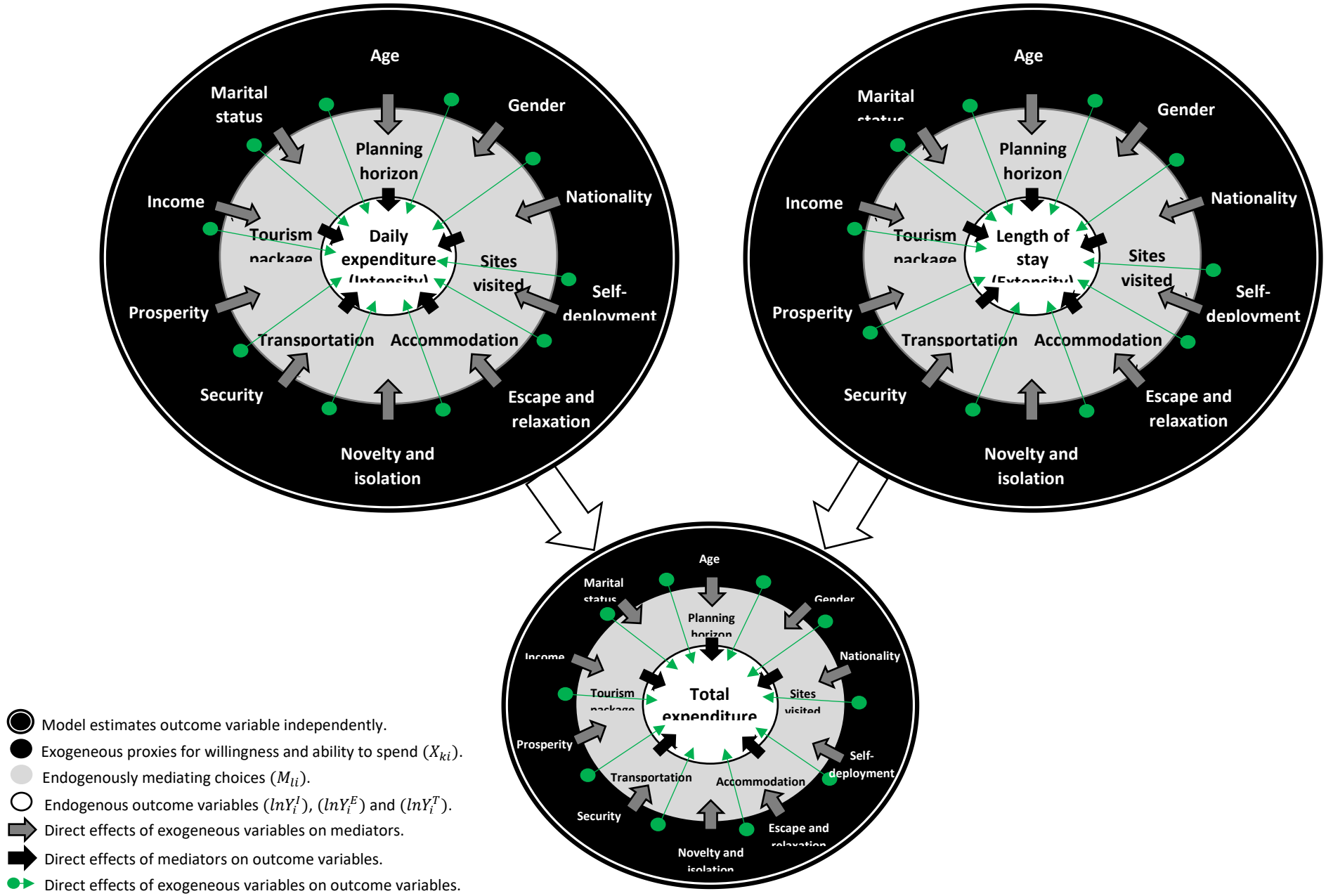

Figure 1. The joint mediation of expenditure intensity (lnY_i^I), extensity (lnY_i^E) and total expenditure (lnY_i^T).

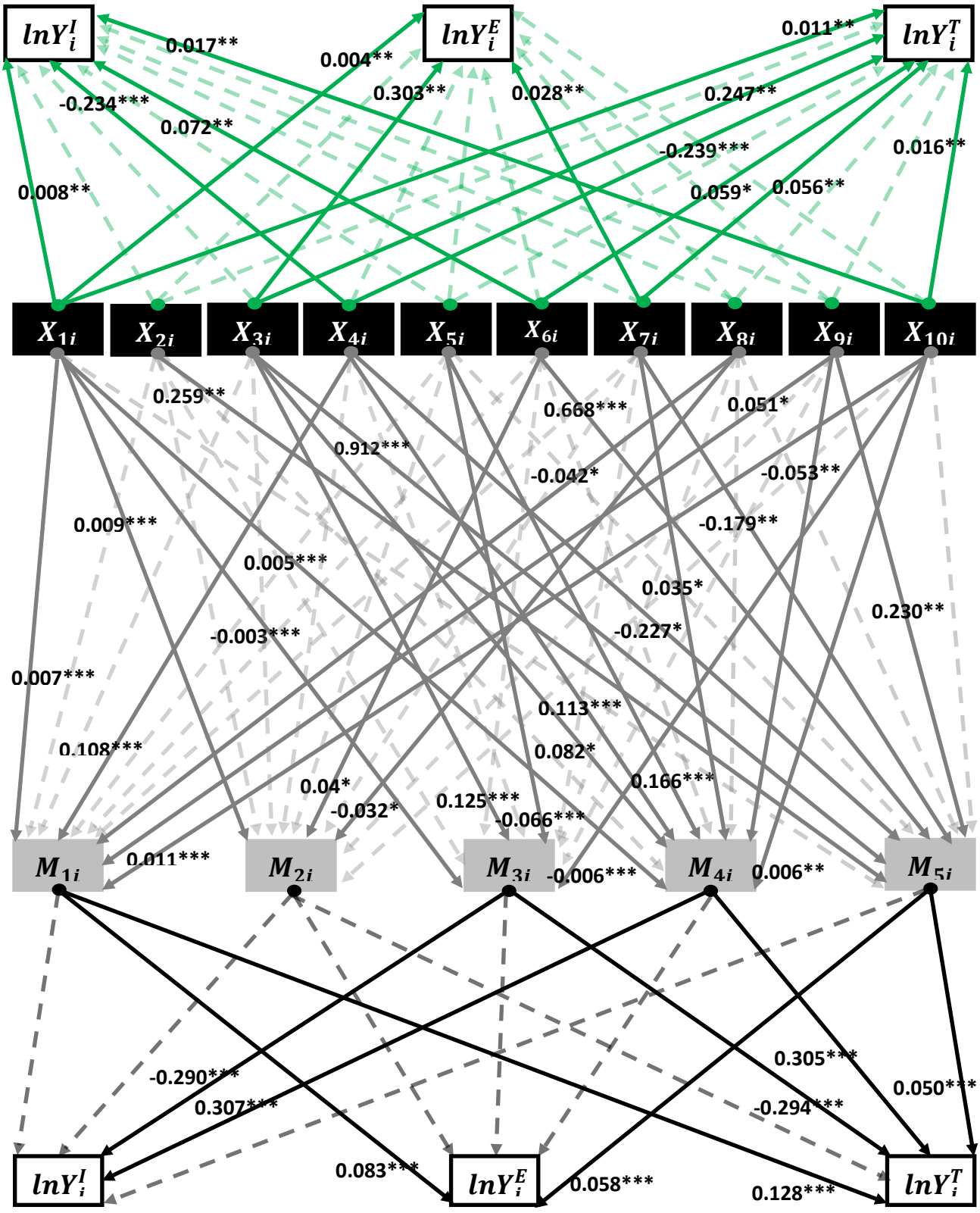

Figure 2. Structural path diagram of expenditure intensity (lnY_i^I), extensity (lnY_i^E) and total expenditure (lnY_i^T).

Table 1. Principal component analysis of travel motives.

Item	Component	Mean *(S.D.)*	Loading	KMO	α	Eigen-value	Unexplained variation
1. Get refreshed	**Escape and relaxation**	3.905 *(1.112)*	0.537	0.852			0.301
2. Relax away from the ordinary		4.082 *(1.029)*	0.566	0.81	0.83	5.028	0.22
3. Get rid of stress		3.868 *(1.117)*	0.531	0.862			0.283
4. Share new places with family and friends	**Self-deployment and relationship**	4.099 *(1.081)*	0.400	0.824			0.348
5. Visit new destinations with family and friends		4.229 *(1.047)*	0.465	0.811			0.278
6. Gain knowledge of something new		4.246 *(0.93)*	0.471	0.85	0.85	2.12	0.299
7. Experience new and different lifestyles		4.21 *(0.947)*	0.454	0.853			0.329
8. Visit historical sites		3.961 *(1.061)*	0.351	0.914			0.494
9. Experience solitude and privacy	**Novelty and isolation**	3.339 *(1.313)*	0.353	0.826			0.489
10. Indulge in luxury		3.254 *(1.32)*	0.494	0.82			0.412
11. Do exciting things		3.846 *(1.056)*	0.544	0.837	0.72	1.539	0.325
12. Have fun and be entertained		3.738 *(1.109)*	0.534	0.819			0.372
13. Find adequate services	**Security**	3.974 *(1.025)*	0.553	0.837			0.352
14. Feel safe		4.496 *(0.741)*	0.578	0.838	0.68	1.079	0.347
15. Stay within budget		3.906 *(1.008)*	0.546	0.838			0.386
ρ				0.652			
Overall KMO				0.838			
Overall α				0.853			
Number of observations				1174			

Component loadings are estimated via the varimax rotation method.

Table 2. Descriptive statistics.

Outcome variables $(\boldsymbol{Y_i})$**:**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Y_i^I: Daily expenditures per person (US$)	338.6	254.756	20.8	1833.3
Y_i^E: Length of stay (Days)	6.9	2.413	3	14
Y_i^T: Total expenditures per person (US$)	2163.4	1402.252	166.7	5500
Socioeconomic characteristics $(\boldsymbol{X_{ki}})$:				
X_{1i}: Age	45.3	9.79	25	56
X_{2i}: Gender (Male = 1)	0.492	0.5	0	1
X_{3i}: Nationality (European = 1)	0.789	0.408	0	1
X_{4i}: Married (Yes = 1)	0.761	0.427	0	1
X_{5i}: Annual income higher than US median (Yes = 1)	0.258	0.438	0	1
Travel motives and prosperity				
X_{6i}: Self-deployment and relationship	4.224	0.691	1	5
X_{7i}: Escape and relaxation	4.007	0.888	1	5
X_{8i}: Novelty and isolation	3.63	0.831	1	5
X_{9i}: Security	4.24	0.613	1	5
X_{10i}: Prosperity of country of residence	75.851	6.697	42.6	83.4
Trip-specific attributes $(\boldsymbol{M_{li}})$				
M_{1i}: Planned for longer than two months (Yes = 1)	0.469	0.499	0	1
M_{2i}: Purchased an all-inclusive tourism package (Yes = 1)	0.221	0.415	0	1
M_{3i}: Booked an economy flight (Yes = 1)	0.909	0.287	0	1
M_{4i}: Booked a five- or four-star hotel (Yes = 1)	0.737	0.441	0	1
M_{5i}: Number of sites visited	4.956	1.74	2	11
Number of observations $(\boldsymbol{i})$	888			

Table 3. Structural estimations of expenditure intensity (lnY_i^I), extensity (lnY_i^E) and total (lnY_i^T).

Equation	**Eq. (5)**					**Eq. (6)**	**Eq. (7)**	**Eq. (8)**
Endogenous	M_{1i}	M_{2i}	M_{3i}	M_{4i}	M_{5i}	lnY_i^I	lnY_i^E	lnY_i^T
	γ_{01}	γ_{02}	γ_{03}	γ_{04}	γ_{05}	γ_0^I	γ_0^E	γ_0^T
Constant	**-0.812*** **	-0.278	**1.545*** **	0.055	**1.792** **	***4.010*** **	***1.221*** **	***5.231*** **
	(0.258)	*(0.214)*	***(0.150)***	*(0.226)*	***(0.870)***	***(0.366)***	***(0.183)***	***(0.338)***
X_{ki}	α_{k1}	α_{k2}	α_{k3}	α_{k4}	α_{k5}	α_k^I	α_k^E	α_k^T
Age $(k=1)$	**0.007*** **	**0.009*** **	**-0.003*** **	**0.005*** **	0.009	**0.008*** **	**0.004*** **	**0.011*** **
	(0.002)	***(0.001)***	***(0.001)***	***(0.002)***	*(0.006)*	***(0.002)***	***(0.001)***	***(0.002)***
Gender $(k=2)$	-0.008	-0.03	0.018	-0.039	**0.259** **	-0.01	-0.036	-0.046
	(0.033)	*(0.028)*	*(0.019)*	*(0.029)*	***(0.113)***	*(0.044)*	*(0.022)*	*(0.041)*
Nationality $(k=3)$	-0.073	0.02	**0.125*** **	**0.082***	**0.912*** **	-0.057	**0.303*** **	**0.247*** **
	(0.05)	*(0.041)*	***(0.029)***	***(0.043)***	***(0.167)***	*(0.068)*	***(0.034)***	***(0.063)***
Married $(k=4)$	**0.108*** **	-0.024	-0.023	**0.113*** **	**-0.227***	**-0.234*** **	-0.005	**-0.239*** **
	(0.04)	*(0.033)*	*(0.023)*	***(0.035)***	***(0.135)***	***(0.054)***	*(0.027)*	***(0.05)***
Income $(k=5)$	0.009	-0.04	**-0.066*** **	**0.116*** **	0.022	0.018	0.031	0.049
	(0.038)	*(0.031)*	***(0.022)***	***(0.033)***	*(0.128)*	*(0.051)*	*(0.025)*	*(0.047)*
Self-depl. & relationship $(k=6)$	0.038	**0.04***	-0.01	-0.036	**0.668*** **	**0.072** **	-0.013	**0.059***
	(0.026)	***(0.021)***	*(0.015)*	*(0.022)*	***(0.086)***	***(0.035)***	*(0.018)*	***(0.033)***
Escape & relaxation $(k=7)$	-0.032	-0.025	-0.005	**0.035***	**-0.179** **	0.027	**0.028** **	**0.056** **
	(0.021)	*(0.017)*	*(0.012)*	***(0.018)***	***(0.07)***	*(0.028)*	***(0.014)***	***(0.026)***
Novelty & isolation $(k=8)$	**-0.042***	**-0.032***	-0.021	0.029	-0.105	-0.007	-0.01	-0.016
	(0.023)	***(0.019)***	*(0.013)*	*(0.02)*	*(0.077)*	*(0.031)*	*(0.015)*	*(0.028)*
Security $(k=9)$	**0.051***	0.013	0.004	**-0.053** **	**0.23** **	-0.034	-0.007	-0.041
	(0.031)	*(0.026)*	*(0.018)*	***(0.027)***	***(0.104)***	*(0.041)*	*(0.021)*	*(0.038)*
Prosperity $(k=10)$	**0.011*** **	0.001	**-0.006*** **	**0.006** **	-0.008	**0.017*** **	-0.001	**0.016*** **
	(0.003)	*(0.002)*	***(0.002)***	***(0.003)***	*(0.01)*	***(0.004)***	*(0.002)*	***(0.004)***

Post-estimation tests for expenditure intensity (lnY_i^I)	
$\chi^2(9) = 11.63, Prob > \chi^2 = 0.235$	$R^2 = 0.380$
$CFI = 0.994$	$TLI = 0.952$
$RMSEA = 0.018$	$SRMR = 0.009$
Post-estimation tests for expenditure extensity (lnY_i^E)	
$\chi^2(9) = 11.63, Prob > \chi^2 = 0.235$	$R^2 = 0.431$
$CFI = 0.996$	$TLI = 0.963$
$RMSEA = 0.018$	$SRMR = 0.009$
Post-estimation tests for total expenditure (lnY_i^T)	
$\chi^2(9) = 11.63, Prob > \chi^2 = 0.235$	$R^2 = 0.434$
$CFI = 0.996$	$TLI = 0.964$
$RMSEA = 0.018$	$SRMR = 0.009$

M_{li}	β_l^I	β_l^E	β_l^T
Planning $(l=1)$	0.045	**0.083*** **	**0.128*** **
	(0.045)	***(0.022)***	***(0.041)***
Package $(l=2)$	0.018	-0.019	-0.001
	(0.054)	*(0.027)*	*(0.05)*
Transp. $(l=3)$	**-0.29*** **	-0.004	**-0.294*** **
	(0.077)	*(0.038)*	***(0.071)***
Accom. $(l=4)$	**0.307*** **	-0.002	**0.305*** **
	(0.051)	*(0.025)*	***(0.047)***
Sites visited $(l=5)$	-0.008	**0.058*** **	**0.05*** **
	(0.013)	***(0.007)***	***(0.012)***
R^2	*0.133*	*0.263*	*0.272*

Values in parathesis are the OIM standard errors.

*, **, *** parameter is significant at 10%, 5% and 1% probability.

For example, in the case of age $(k=1)$: $(\alpha_1^I + \sum_{l=1}^5 \alpha_{1l}\beta_l^I) + (\alpha_1^E + \sum_{l=1}^5 \alpha_{1l}\beta_l^E) = (\alpha_1^E + \sum_{l=1}^5 \alpha_{1l}\beta_l^E) = 0.01 + 0.005 = 0.015$.

Table 4. Statistically significant mediation paths within expenditure intensity, extensity and total.

Exogenous variable	Mediation within expenditure intensity	Mediation within expenditure extensity	Mediation within total personal expenditure
Age	Partially via transportation (+) & accommodation (+)	Partially via planning (+)	Partially via planning (+), transportation (+) & accommodation (+)
Gender	None	Fully via sites visited (+)	Fully via sites visited (+)
Nationality	Fully via transportation (-) & accommodation (+)	Partial via sites visited (+)	Partially via transportation (-), accommodation (+) & sites visited (+)
Married	Partially via accommodation (+)	Fully via planning (+) & sites visited (-)	Partially via planning (+), accommodation (+) & sites visited (-)
Income	Fully via transportation (+) & accommodation (+)	None	Fully via transportation (+) & accommodation (+)
Self-depl. & relation.	None	Fully via sites visited (+)	Partially via sites visited (+)
Escape & relaxation	Fully via accommodation (+)	Partially via sites visited (-)	Partially via accommodation (+) & sites visited (-)
Novelty & isolation	None	Fully via planning (-)	Fully via planning (-)
Security	Fully via accommodation (-)	Fully via planning (+) & sites visited (+)	Fully via planning (+), accommodation (-) & sites visited (+)
Prosperity	Partially via transportation (+) & accommodation (+)	Fully via planning (+)	Partially via planning (+), transportation (+) & accommodation (+)