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Intra-household bargaining for a joint vacation

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ABSTRACT

Taking a holiday trip is a common couple-based leisure activity in which both partners tend to be actively involved. This paper studies the intra-household bargaining for the choice of a vacation destination within couples. We conduct a discrete choice experiment in which we elicit both individual and couple preferences for different hypothetical travel portfolios in a two-stage experimental design. The couple choices are modelled as a function of males' and females' individual preferences, allowing for different bargaining weights for each characteristic of the holiday trip. Therefore, we assess partners' bargaining power (influence) in the couple choices conditional on individual preferences. We find that although males have a more influential role overall, there seems to be a gender specialization in that females decide on the type of accommodation and males focus on the trip cost.

1. Introduction

Contrary to the traditional unitary model that viewed the household as a single unit (Becker, 1991), it is nowadays widely recognized that households are composed of different members with different preferences and influence. In this regard, empirical evidence shows that the conventional practice of selecting one member of the household as representative of the tastes of the family when conducting surveys may be inappropriate because households' decisions are the result of a bargaining process among their members (e.g. Bateman and Munro, 2009). Given the important economic implications of the balance of power between spouses (e.g. Lundberg et al., 1997; Stevenson and Wolfers, 2006), increasing attention has been paid to the intra-household allocation of resources and spouses' bargaining power.

There is a large body of literature that examines intra-household decision-making for discrete mutually exclusive outcomes. This has been done using both revealed preferences (e.g. Bloemen, 2019) and experimental methods (e.g. Carlsson et al., 2013). Although the transportation (e.g. Zhang et al., 2009) and marketing (e.g. Arora and Allenby, 1999) literatures have made the greatest progress on this, the interest in the allocation of power within the household has expanded to other contexts such as automobile purchase (e.g. Hensher et al., 2017), school choice (e.g. Mariel et al., 2018), joint retirement (e.g. Michaud et al., 2020) or time use (Lai et al. 2019), among others. However, little is known yet about the intra-household bargaining for spousal joint leisure activities. This is a relevant type of public good (Chiappori, 1988) in which the two spouses are supposed to be involved and that typically represents a non-negligible share of the household budget.

This paper studies partners' relative influence in the choice of a summer vacation trip using a discrete choice experiment.[1] In

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[1] Throughout the paper we use the terms 'spouses', 'household members' and 'partners' interchangeably.

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particular, we focus on the case of two partners' selection of a travel portfolio of vacation attributes. This choice scenario is relevant because the spouse is the most common travel companion for leisure trips and couple vacations have been shown to contribute to couples' functioning and well-being (e.g. Shahvali et al., 2021).[2] Apart from understanding partners' individual preferences over different trip characteristics in a demand for characteristics framework (Lancaster, 1966), our goal is to uncover the relative influence of each partner's preferences over the couple choice. Since partners might have different preferences, they are expected to bargain over the different travel attributes.

To accomplish our study purpose, we conduct a discrete choice experiment (DCE) on a sample of 131 real-life couples, both married and unmarried, from four northern cities in Spain. Individuals are presented with several travel portfolios (tourism packages) characterized by a set of exogenously defined attributes and levels. Consistent with related studies of intra-household decision-making (Bateman and Munro, 2005; Carlsson et al., 2013, de Palma et al., 2011), we study male, female and couple preferences under a two-stage experimental procedure. Respondents first choose their preferred option individually and separately. This is repeated in six choice scenarios. Subsequently, spouses are reunited and asked to make their choices from the same portfolios jointly.

Based on random utility maximization (McFadden, 1974), we develop a model in which individual preferences for the choice attributes enter the household utility function, and individuals' and couples' preferences are jointly estimated. The parameter estimates from a model that considers a common bargaining weight indicate that couples' choices mainly reflect males' preferences. However, when we allow for different bargaining weights for each vacation attribute, as recommended by O'Neill and Hess (2014), we find that females decide on the type of accommodation and males focus on the trip cost. This finding is consistent with the 'separate spheres' interpretation of intra-household decisions (Lundberg and Pollak, 1993). Interestingly, males have a larger say in the length of the stay, while the mode of transport and travel time seem to be consensual.

The paper contributes to the literature on intra-household bargaining in several ways. First, it adds to scarce research on couples' influence in vacation choices, which have been to some extent neglected despite their economic relevance. In this regard, the understanding of intra-household decision-making is an unresolved issue in tourism research (Cohen et al., 2014). Second, existing studies on this topic from marketing (Dellaert et al., 1998; Rojas-de-Gracia and Alarcón-Urbistondo, 2018, 2019) and economics (Dosman and Adamowicz, 2006; Menon et al., 2014) typically analyse partners' influence on joint decisions using revealed preferences. In this sense, the closest work to ours is that of Dosman and Adamowicz (2006). These authors combine spouses' stated individual preferences from a DCE with revealed data from past year vacation choices. We, instead, use a fully experimental approach that allows us to control for the environment, the framing and the context in which decisions are made. Our paper has thus the advantage that both individual and couple preferences are elicited for the same exogenously defined travel portfolios at the same period. Unlike Dosman and Adamowicz (2006) that implement a two-stage estimation procedure, we estimate individual and couples' preferences jointly by maximum likelihood, which provide more efficient estimates. Third, we allow for different partners' influence depending on the vacation attribute considered, as done by Arora and Allenby (1999), Beharry-Borg et al. (2009) and O'Neill and Hess (2014) in other contexts. From this viewpoint, our empirical results illustrate how important nuances of households' choice decisions can be missed if an overall bargaining weight is considered. This could lead to an underestimation of partners' influence on household choices, especially when there is some sort of task specialization.

The remainder of the paper is structured as follows. Section 2 reviews the related literature. Section 3 describes the experimental setting and the data. Section 4 outlines our framework for modelling individual and couple preferences. Section 5 reports and discusses the estimation results. Finally, Section 6 summarizes the findings and concludes.

2. Literature review

2.1. Intra-household bargaining for discrete choices

The study of group binary choices has a long tradition in marketing research. The seminal works by Krishnamurthi (1988), Menasco and Curry (1989) and Curry et al. (1991) opened a new line of research concerned about explaining how individual preferences combine when dyads are faced with binary choices over a menu of options. Arora and Allenby (1999) provide individual and attribute-specific estimates of husbands' and wives' influence in the couple choice of two types of household appliances, showing that wives exert more influence on self-cleaning features while males are dominant in choosing lawnmower attributes. Aribarg et al. (2002) pay attention to spouses' preference concession and revision in the choice of two product categories (a high-priced PC and a low-priced sweet snack). These authors find that partners' decision-making process when making joint decision varies per product type: they update their preferences (revision) over attributes after interaction over highly priced goods in which they tend to be very involved. For low-priced products, they are more likely to sacrifice their preferences (concession) to reach a consensus because they attach less importance to the final choice. As a result, the relevance of understanding intra-household bargaining increases with product importance.

In the last decade, the analysis of intra-household discrete choices has expanded to many different domains. Some examples include choice of commuting mode (Picard et al., 2018), households' trade-off between commuting time and salary (O'Neill and Hess, 2014), residential location choice (Janke, 2021; Marcucci et al., 2011), automobile purchase choice (Beck and Rose, 2019; Hensher et al., 2017; Zhang et al., 2009), task allocation and time use (Kato and Matsumoto, 2009; Lai et al., 2019), preferences for tap water (Rungie

[2] Empirical evidence shows that couples obtain more utility from joint leisure activities compared to *solo* participation (Lai et al., 2019).

et al., 2014), television viewing (Yang et al., 2010), non-market valuation of water quality for beach recreation (Beharry-Borg et al., 2009), intertemporal preferences (Gnagey et al., 2020; Rong et al., 2018), parent–teen dyad mobile phone purchase (Aribarg et al., 2010), risk preferences (de Palma et al., 2011) and retirement investment choices (Boldt and Arora, 2017; Michaud et al., 2020). Detailed reviews of the literature on intra-household interactions and group decision-making can be found in Bhat and Pendyala (2005), Timmermans and Zhang (2009), de Palma et al. (2014) and Ho and Mulley (2015a). Most of these studies employ two-stage experimental designs in which individual preferences are first elicited, and then household choices for the same portfolio are collected (Ashraf, 2009; Beharry-Borg et al., 2009; Carlsson et al., 2013; Dosman and Adamowicz, 2006; Gnagey et al., 2020; Marcucci et al., 2011). An implicit assumption is that both spouses are actively involved in the choice decision and have some say in the outcome. Although three-member households' choices have been the object of interest (Marcucci et al., 2011; Yang et al., 2010), most of this literature focuses on dyads (spouses/sentimental partners).

Several works find that spouses compromise so that the joint choice lies somewhere between partners' individual preferences (Gnagey et al., 2020; Hensher et al., 2017; Mariel et al., 2018; Menasco and Curry, 1989). However, other studies show that males have a greater influence in joint choices (Beharry-Borg et al., 2009; Yang and Carlsson, 2016). Depending on their expertise and knowledge about the specific choice task, this could be compatible with some sort of specialization wherein one spouse is given full power to decide (Kirchler, 1993). This strongly relates to time availability, since usually the partner with more free time (lower opportunity costs) is delegated some household decisions. In other cases, the greater bargaining power of a spouse (generally males) arises due to their greater control over household resources, as earlier shown by Chiappori et al. (2002) and later documented in other empirical studies, such as Carlsson et al. (2013), Gnagey et al. (2020) or Michaud et al. (2020). Beyond time and income aspects, spouses' bargaining power might be influenced by social and marital roles (Ashraf, 2009) and intra-couple norms (Cochard et al., 2016). Furthermore, females are more likely to avoid competitive interactions (Croson and Gneezy, 2009) and tend to ask for less when bargaining (Hernández-Arenaz and Iriberri, 2018).

Plausibly, the transport economics literature is the most prolific area in the study of intra-household interactions for discrete choices. Some of the most relevant theoretical and empirical contributions to our understanding of household discrete decisions are found in this body of research. Typically, these studies use revealed preferences data about family travel patterns (Ho and Mulley, 2015b; Kim and Parent, 2016; Lai et al., 2019; Zhang et al., 2009) and consider not only the bargaining between spouses but also the role played by children (Ermagun and Levinson, 2016; Weiss and Habib, 2018). Others employ discrete choice experiments in which individual and joint choices from hypothetical travel portfolios are collected (Beck and Rose, 2019; Hensher et al., 2017; O'Neill and Hess, 2014). Household utility is generally constructed under a linear additive aggregation rule (Dosman and Adamowicz, 2006; Kato and Matsumoto, 2009), although other more flexible functional forms like Cobb–Douglas, multilinear and maximum- and minimum-type have been proposed (Aribarg et al., 2010; Zhang et al., 2009). Nonetheless, as recognized by some researchers (e.g. Weiss and Habib, 2018), the estimation of multilinear group utility functions present important econometric shortcomings and are inappropriate in the context of random utility maximization. That is why the simple linear household utility function is usually preferred.

Research on intra-household interactions for travel-related choices has mainly concentrated on mode choice (Ho and Mulley, 2015b; Picard et al., 2018; Weiss and Habib, 2018), generally in the context of daily commuting. In this regard, the intra-household bargaining for other facets of leisure trips, such as type of destination, length of stay or the type of accommodation, have been less studied to date. In the following subsection, we review the scarce literature on spouses' vacation choices.

2.2. Spouses' joint vacation choices

In the context of tourism and recreation, scholars have studied the role of each family member in tourism-related decisions. Early studies on this agree that the husband is the main decision-maker. However, women have gained more influence over the last 20 years, resulting in the vacation decision being nowadays more democratic (Bronner and de Hoog, 2008). A detailed review of the gender roles in family vacation decision-making by Rojas-de-Gracia and Alarcón-Urbistondo (2016) concludes that vacation decisions are generally taken jointly. It seems that couples cooperate to avoid angry moods or frustration from their partner (Decrop, 2005). When they disagree, they tend to engage in a give-and-take strategy until they reach a consensus. One might sacrifice their own benefit to make the spouse happier (Lai et al., 2019). A stylized fact is that joint decision-making is positively associated with trip satisfaction (e.g. Rojas-de-Gracia and Alarcón-Urbistondo, 2019), so the fear of disagreement pushes spouses towards reaching a mutually satisfying decision.

However, since the choice of vacation destination involves several steps, there is a kind of task specialization. Time constraints, lack of knowledge or low trip involvement are some reasons why one member sometimes prefers to sacrifice their own desires to let the other organize the trip (Decrop, 2005). Jenkins (1978) indicates that husbands dominate decisions regarding expenditure, the length of the trip and the vacation's timing. In contrast, wives are more involved in information searches (Barlés-Arizón et al., 2013) or the choice of accommodation and restaurants (Zalatan, 1998). Regarding the role of children, the evidence is mixed. Some scholars argue that spouses place great importance on children's satisfaction (Rojas-de-Gracia and Alarcón-Urbistondo, 2020), while others conclude that children barely affect households' decisions (Decrop and Snelders, 2005).

To the best of our knowledge, there are only four empirical studies that have modelled household decisions for vacation choices. The first is that by Dellaert et al. (1998), who explore misperceptions of the other member's preference in a joint family decision on holiday destination using a two-stage experimental approach. Firstly, they analyse how well individual members predict each other's preferences; secondly, they study family members' projections about each other's influence in joint decisions given the other member's self-reported preferences. Their results indicate that mothers have the most accurate perceptions of others' preferences, whereas children are the ones who most influence joint family holiday decisions.

The second study is that of Dosman and Adamowicz (2006). They combine revealed and stated preference data to assess households' choice of a camping trip under a bargaining framework. Based on the collective model introduced by Chiappori (1988, 1992), they implement a two-stage estimation procedure: they first estimate each spouse's weight parameter and then regress it on household characteristics. They find that females with a lower share of income have higher influence in vacation decisions. The authors argue that this pattern can be due to differences in the value of time. Overall, they show that a couple's decision on where to go on holidays is dominated by females, especially in more traditional households.

Menon et al. (2014) develop a collective travel-cost model for recreational demand using revealed preference data. They find that wages and the presence of children in the household positively affect control over household resources for recreation. Their evidence points to spouses exhibiting different willingness to pay to access recreational sites. The study provides evidence on how welfare measures could be biased if the intra-household allocation of resources is ignored.

The fourth study comprises a series of related papers that make use of the same data set (Rojas-de-Gracia and Alarcón-Urbistondo, 2018, 2019; Rojas-de-Gracia et al., 2018, 2019). The authors examine who is the main decision-maker using a sample of heterosexual couples who went on a holiday trip. Both spouses are required to answer questions separately about the perceived influence exerted by each partner in the planning process. Their results suggest that the start of the process and final decisions are made jointly, whereas the information search is conducted by one partner, with no clear gender specialization. They also find that if the woman participates in the labour market, there is a higher probability of the initial stages of the vacation planning being done by her. Interestingly, females' say is greater when they are better educated.

3. Experimental setting

3.1. Experimental design

The choice experiment was conducted in paper and pencil format in four Northern Spanish cities (Oviedo, Avilés, Gijón and Bilbao) between June and November 2019. In total, we conducted ten lab sessions with approximately 13 couples per session. We used large rooms in which participants were seated in their own place. The experiment was conducted together with a classical public goods game, not to be analysed in this work. The order of the two experiments was randomized in each session.

A fairly representative sample of established couples (married and unmarried) over 18 was recruited through flyers, brochures and social networks, as also done by Munro and Popov (2013), Abdellaoui et al. (2013) and Cochard et al. (2016). Participation was voluntary but incentivized. In the announcements, we stated that we were looking for stable couples to participate in a research study for a better understanding of preferences. We also indicated that each participant would receive a fixed amount of money for participation (€10) plus a variable sum of money (depending on the allocations made in the public goods game).

Upon arrival at the lab, each couple was assigned an identification code. Each spouse was also assigned the letter A or B (at random) for identification. Next, the participants were given general instructions about the organization of the study and the payment scheme.[3] We conducted a brief introductory talk in which they were told that the results would be used only for research purposes. The respondents were not informed about the content of the tasks until each one was completed. In addition, we assured them that all their answers would remain unknown to their partner.

The experiment proceeded in two stages. Firstly, the couples were separated and asked to report their individual preferences independently of their partner, assuming they were the main decision-maker. The spouses were separated in this step into two different rooms based on their role as A or B. Therefore, during the individual choices task spouses could not communicate nor know what the other was choosing, as done in Ashraf (2009), de Palma et al. (2011) and Gnagey et al. (2020). Secondly, spouses were reunited and asked to indicate their preferred negotiated option as a couple for each travel portfolio. The reverse order was not considered. As Carlsson et al. (2013) argue, since we are interested in modelling bargaining between couples in the joint decision, a natural starting point is first to elicit respondents' individual preferences to later use them as an input to the joint task. Moreover, Yang and Carlsson (2016) find no order effects in the context of a risky choice task. This two-stage experimental procedure mimics the one used earlier by Bateman and Munro (2005) and de Palma et al. (2011) and later implemented by Rong et al. (2018), Abbink et al. (2020) and Gnagey et al. (2020).

Participants were required to imagine they would have (at least) 15 days of holiday during the summer season (June–September) and they plan to go on holiday with their partner. Since the literature points to a non-negligible role of children in households' decisions (e.g. Dauphin et al., 2011), especially in the particular case of family holidays (e.g. Wang et al., 2004), we highlighted in the task description that children, friends and relatives were not allowed to participate in the trip (i.e. we considered only trips for couples).

Participants were presented with a choice card with three alternatives (portfolios) plus a 'none of them' option, the latter giving respondents the option to default if the attributes of the alternatives were not sufficiently desirable. Rather than using specific brand-named destinations, the three hypothetical alternatives were labelled as 'coastal', 'urban' and 'nature-based'.

Each alternative was characterized by a set of attributes with different levels. Following common practice, the choice of attributes and their levels were derived from focus groups and previous studies. Specifically, we considered the following: (i) the time required to

[3] All the instructions were read aloud and handed in paper form to respondents.

reach the destination (travel time); (ii) the mode of transport; (iii) the length of stay; (iv) the type of accommodation; and (v) the total cost (including both transport and lodging costs). Specific monetary values for costs were derived from existing market prices at the time of the experimental design. These choice attributes and their respective levels are displayed in Table 1. More details on the organization of the focus groups and definition of the attributes can be found in Boto-García et al. (2022), which contains a basic analysis of the individual responses without considering the composition of couples.

As stated above, in the first stage, each individual was required to select their preferred option for the holiday destination for the couple assuming they had full power to decide.[4] This was repeated in six choice scenarios, each characterized by different attribute levels. A D-efficient DCE design was generated in NGENE software (ChoiceMetrics, 2012), using *priors* from a pilot study conducted in February 2019 on 17 couples. We generated 18 choice tasks, put into three blocks and assigned to individuals randomly. Each block was used to define the series of six choice cards presented to each respondent on a one-page document in the so-called transposed form. An example of a choice card can be seen in Fig. 1.[5] To eliminate potential ordering effects, the choice card order was randomized within each block, following common practice (e.g. Oehlmann et al., 2017).[6] Importantly, both members were assigned to the same block and were presented with the cards in the same order, as done by Beharry-Borg et al. (2009) and Rungie et al. (2014). The choice cards included two reminders: one for the household budget constraint (Logar and Brouwer, 2018), the other a standard opt-out reminder (Alemu and Olsen, 2018).[7]

After the individual choice task, respondents had to separately answer an individual questionnaire collecting information about their sociodemographic characteristics and travelling habits. Couples were then reunited and required to choose from among the same travel portfolios in the same order in which they had previously responded individually. In this case, they had to reach an agreement and select a single option for the couple.[8] They were given enough time to freely discuss which one to select.

3.2. Data

A total of 131 couples participated in the experiment. Three of them were same-sex couples. Since we are interested in gender differences in decision power, these three couples were excluded so that our sample involved heterosexual couples only. An additional couple was excluded because of incomplete responses in the couple preferences task. Therefore, our final data set contains the joint choice travel portfolio of 127 couples. This figure is in line with the sample sizes used in related experiments presented in Arora and Allenby (1999), based on 69 couples; Dosman and Adamowicz (2006), based on 255 couples; Bateman and Munro (2009), based on 142 couples; Beharry-Borg et al. (2009), based on 45 couples; Rungie et al. (2014), based on 80 couples; and Gnagey et al. (2020), based on 94 couples.

Table 2 presents descriptive statistics of the sample, separately for males and females. The average age is 33 years for males and 31 for females. Concerning educational level, 44% of males and 78% of females have university education. Educated respondents seem to be overrepresented in the sample. This is a common issue in experimental studies with voluntary participation (Levitt and List, 2007).[9] About 59% of males and 51% of females are employed at the time of the experiment, with males earning more income (on average).[10] Most participants have Spanish nationality and like going on holidays. Around 86% declare to have travelled for leisure purposes last year. Respondents in the sample mostly travel almost twice a year for leisure purposes and the partner is the preferred companion, especially for males (58%). Both males and females declare having a greater preference for coastal destinations (about 33%), followed by urban ones (30% for females, 26% for males). Nature-based destinations are the preferred alternative for only 10% of the sample.

[4] We provided participants with an example to see how they should record their answer.

[5] Some constraints were imposed on the attribute level combinations during the experimental design to avoid dominant alternatives (i.e. cases in which one option is clearly superior to the rest) or implausible combinations. Specifically, we assign the highest (lowest) cost value to combinations including both 4-star hotel accommodation and 10-day stay (apartment and 3-day stay). Nonetheless, contingency tables for attribute level combinations (Tables S1–S3 in Supplementary Material) suggest that there is enough variability among levels to rule out concerns about collinearity problems.

[6] Tables S4–S6 in Supplementary Material presents the number of males, females and couples in each block and how many respondents were allocated to each of the five orders. Table S7 offers some descriptive statistics about the percentage of times an alternative is chosen, based on whether each attribute level is present or not.

[7] The specific wording was: i) *Bear in mind that money expended on the trip will reduce the budget available for other purposes*; and ii) *If you do not like any of the alternatives, remember you have the option to select 'NONE OF THEM'*.

[8] Based on an experiment on risky choices, De Palma et al. (2011) discuss that females gained power in influencing couple choices over time. They argue that this could relate to the fact that females physically entered the couple responses into the computer. In our case, the choice cards were handed out in paper form and each spouse kept the pen given to fill their answers during the individual task. Accordingly, both were equally likely to mark down the couple responses.

[9] The relatively greater proportion of educated females compared to males is consistent with official data. According to the Spanish Ministry of Education based on data from the Labour Force Survey, the areas under study (namely, Asturias and the Basque Country) are among the regions with the greatest share of adult people (25–64 years old) that have completed secondary education in 2018. The share of females that completed secondary studies is 63% (57.2% in the case of males). In the 25–34 age range, this difference is even larger (73.3% versus 61.1% in the favour of males). More importantly, the percentage of females with university studies is 11.7 points higher than that of males. This college gender gap in the favour of females is consistent with Goldin et al. (2006).

[10] In the post-experimental survey, we recorded net individual monthly income in five intervals because in the pilot study we documented a strong reluctancy from participants to report their actual income.

Table 1
Attributes and levels.

Attribute	Levels
Travel time	Less than 2 h
	Between 2 and 5 h
	More than 5 h
Mode of transport	Car
	Bus or train
	Plane
Length of the stay	3 days
	7 days
	10 days
Accommodation site	Full private apartment
	2-star hotel
	4-star hotel
Total cost (per couple)	€200
	€600
	€1,000
	€1,400

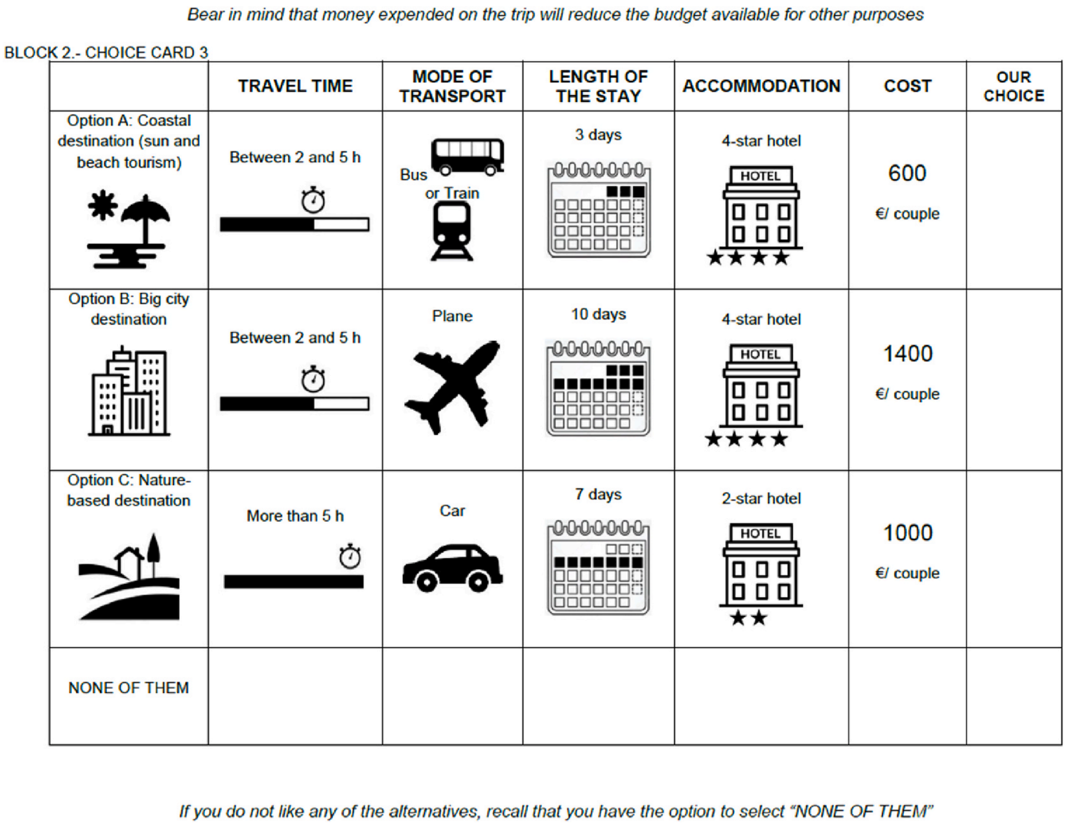

Fig. 1. Example of choice card for joint decision.

Worthy of note, only 7% of males and 12% of females declare that they have participated in a similar study before. This implies that our sample is free from 'professional' respondents. Further descriptive statistics of the data set can be found in Boto-García et al. (2022).[11]

In Table 3, we outline some other summary statistics at the couple level. About 28% are married and 25% have children. The

[11] Although our sample is not perfectly representative of the population in the four cities considered, their characteristics are reasonably well aligned with the subpopulation of interest in our study case: those who participate in tourism activities. To examine this, we obtained microdata from the Domestic Travel Survey (Spanish National Statistics Institute). We compared our data with descriptive statistics for those living in Asturias who travel during the period June–September 2019 (1,025 respondents). Educated and young people are slightly overrepresented and married people underrepresented in our sample.

Table 2
Descriptive statistics by gender.

Variable	Males (N = 127)		Females (N = 127)	
	Mean	SD	Mean	SD
Age	33.10	14.43	31.75	13.22
	%	n	%	n
Primary Education	13.38	17	1.57	2
Secondary Education	42.52	54	19.68	25
University Education	44.10	56	78.74	100
Income: NMII = 0	23.62	30	31.49	40
Income: 0<NMII≤€500	10.24	13	16.53	21
Income: €500<NMII≤€1,500	36.22	46	25.98	33
Income: €1,500<NMII≤€2,500	23.62	30	21.25	27
Income: NMII>€2,500	6.30	8	4.72	6
Labour status: Working	59.84	76	51.18	65
Labour status: Unemployed	5.51	7	6.30	8
Labour status: Inactive	8.67	11	6.30	8
Labour status: Student	25.98	33	36.22	46
Spanish nationality	96.85	123	98.42	125
Likes travelling	94.48	120	98.42	125
Travelled last year	87.40	111	85.82	109
Travel frequency: never or hardly ever	8.66	11	7.09	9
Travel frequency: once every two years	4.72	6	3.15	4
Travel frequency: once a year	27.55	35	30.71	39
Travel frequency: twice a year	32.28	41	40.16	51
Travel frequency: three times a year or more	26.76	34	18.90	24
Partner preferred companion	58.26	74	48.03	61
Prefers coastal destinations	33.07	42	33.86	43
Prefers urban destinations	25.98	33	29.92	38
Prefers nature-based destinations	11.02	14	10.24	13
No clear preference	29.92	38	25.98	33
Participated before in exp. study	7.87	10	12.60	16

Note: NMII = net monthly individual income.

majority have been in a relationship for less than five years (54%), with a non-negligible 15% that have been together for more than 25 years. Males are, on average, 1.36 years older than females and have higher income; however, females are better educated. Nevertheless, individuals seem to match with partners with similar characteristics since 64, 30 and 56 couples have the same educational level, age and income interval, respectively.

Table 4 reports (i) the percentage times each alternative is chosen in the individual and joint tasks (out of 127 × 6 = 762 observations each); and (ii) the degree of similarity between males' and females' choices, and couples' and male/female's individual choices expressed over total alternative's choices.[12] Further descriptive statistics are presented in Supplementary Material, Tables S8 and S9. We see that males and females have similar individual preferences for the type of vacation destination. The coastal destination is the preferred option for both genders, followed by the urban one. However, the share of females that choose the 'none' option is slightly higher. Partners individually choose the same options in 51% of the total choice situations. Moving to the joint choices, urban destinations are preferred over coastal ones and the share of 'none' is more in line with that of males (i.e. females that do not like any option in the individual task are more likely to agree to pick an option in the joint decision). Interestingly, couples' choices appear to reflect males' preferences to a greater extent than females', except for the coastal alternative. We also document there is a large proportion of choice situations in which the two partners' individually and jointly choose the coastal option.

4. Model

Traditionally, the household was assumed to behave as a single unit. Becker's theory of marriage (Becker, 1974) and his *Treatise on the Family* (Becker, 1991) assumed that each household has a head (benevolent dictator) that decides on behalf of the rest, maximizing a well-behaved household utility function. However, each agent has distinct preferences, which likely enter the household utility with

[12] These percentages are computed over each alternative's total choices. For instance, males (females) choose the coastal option in 35% (36.2%) of choice situations (267/762 and 276/762, respectively). However, both partners separately choose the coastal option 332 times out of the 543 (267 + 276) times one of the two selects that option (61.1%).

Table 3
Descriptive statistics at the couple level.

Variables	Mean	SD	Min	Max
Difference in age	1.36	3.15	−8	14
Number of children	0.44	0.79	0	3
	%	**n**		
The couple has same income level	44.09	56		
One level difference in the income level	28.35	36		
Two level difference in the income level	22.83	29		
Three level difference in the income level	2.94	5		
Four level difference in the income level	0.79	1		
The couple has same education level	50.39	64		
One level difference in the education level	40.16	51		
Two level difference in the education level	9.45	12		
Married	28.34	36		
The couple has children	25.19	32		
In a relationship for less than 5 years	54.33	69		
In a relationship between 5 and 15 years	24.41	31		
In a relationship between 15 and 25 years	5.51	7		
In a relationship for more than 25 years	15.75	20		

Table 4
Distribution of individual and joint choices and similarity between them.

	Individual choices		Joint choices	Similarity in choices			
	Males	Females	Couples	Male = Female	Couple = Male	Couple = Female	Couple = Male = Female
Alternative 1: coastal (%)	35.0	36.2	34.1	61.1	71.7	72.0	57.0
Alternative 2: urban (%)	33.2	32.1	36.8	57.4	69.2	68.8	2.3
Alternative 3: nature-based (%)	23.1	18.9	19.4	40.6	61.7	56.1	0.8
Alternative 4: none (%)	8.6	12.7	9.6	25.7	46.0	42.3	0.0
Total (%)	100	100	100	51.8	66.4	64.5	20.9

different weights.

In this section, we present the theoretical model used to characterize couples' joint choices. As a first step, we model individual preferences for discrete outcomes under a random utility maximization framework (McFadden, 1974). Subsequently, we describe how individual preferences enter the household utility function that rationalizes couples' choices.

4.1. Individual preferences

Throughout, we consider a two-member household consisting of a male and a female. In the context of the choice of a vacation destination and in line with Lancaster's theory of value (Lancaster, 1966), the utility for each partner is given by the characteristics of the different travel portfolios. Confronted with a series of mutually exclusive goods with different characteristics, individuals choose the one that maximizes utility. In our case study, individuals ($i = 1,\dots,N$) are faced with J travel portfolios ($j = 1,\dots,J$) in a series of T choice situations ($t = 1,\dots,T$), each one characterized by K attributes ($k = 1,\dots,K$). We set the quantities to the unity so that individuals only choose one unit of the good at a time. One of the alternatives is the corner solution of non-travelling. The indirect utility function for each travel portfolio in each choice situation (V_{ijt}) can be generically expressed as:

$$V_{ijt} = \sum_{k=1}^{K} \beta_k X_{ikjt} + \beta_{cost} Cost_{ijt} \tag{1}$$

where X_{ikjt} is the kth attribute of the jth alternative for each choice situation t for individual i; β_k is the corresponding marginal utility of attribute k; $Cost_{ijt}$ denotes the cost (price) of each travel portfolio; and β_{cost} is the marginal disutility of cost. The non-travelling option sets $V_{ijt} = 0$.

We assume preferences are egoistic so that β_k are self-regarding marginal utilities for the attributes in the sense of Dosman and Adamowicz (2006).[13] We allow for males and females having different preferences for the attributes that characterize the alternatives. Accordingly, the indirect utility for females is:

$$V^f_{ijt} = \sum_{k=1}^{K} \beta^f_k X_{ikjt} + \beta^f_{cost} Cost_{ijt} \tag{2}$$

and the corresponding one for males is expressed as:

$$V^m_{ijt} = \sum_{k=1}^{K} \beta^m_k X_{ikjt} + \beta^m_{cost} Cost_{ijt} \tag{3}$$

Several remarks are in order. Firstly, we assume that individuals derive utility from a Hicksian composite good (q) and for leisure travelling. Preferences over the two goods are weakly separable so that the choice of travel portfolio can be modelled independently of non-trip prices. Consequently, modelling of the choice of travel portfolio is a second stage of the consumer's utility maximization, after income and time have been assigned to other goods and activities.[14] This follows the lines of the well-known 'sharing rule' in the collective model literature (Browning and Chiappori, 1998; Chiappori, 1988, 1992). Secondly, the indirect utility function in (1) does not explicitly depend on income. This is because, as shown by McFadden (1974, 1981), income does not vary across goods. For modelling discrete choices, what only matters are differences in utilities across alternatives. As such, available income for the trip vanishes. Finally, utility is assumed to be linear-in-parameters. A direct consequence of this is that characteristics are perfect substitutes.

4.2. Couple preferences

When partners are asked to make a joint decision, each one brings to the table different preferences. Nonetheless, since spouses are players of repeated games with symmetric information, it is plausible to assume a priori a cooperative household decision-making process. This is the case of several studies concerned with households' discrete choices in different settings (Aribarg et al., 2010; Bloemen, 2019; Michaud et al., 2020; Picard et al., 2018). As a result, the couple is expected to choose the alternative that leads to the highest level of utility.

Household decision-making process is generally rationalized by the maximization of a household social welfare function that considers each member's preferences with distinct weights. A generalized indirect utility function for household h can be written as a convex combination of the individual utilities of females and males as follows:

$$W^h_{ijt} = \delta_f \, V^f_{ijt} + \delta_m \, V^m_{ijt} \tag{4}$$

where W^h_{ijt} is a social welfare function (meta-utility) for household i for each alternative j at choice situation t; δ_f and δ_m are weight coefficients that measure each member's bargaining power; and V^f_{ijt} and V^m_{ijt} are the individual utilities for females and males introduced before.

The expression in (4) assumes that individual utilities enter additively as inputs into the couple's utility function and can be understood as a *fixed welfare function* in the sense of Chiappori (1988).[15] The linear is the most used specification in the literature (Aribarg

[13] Nonetheless, it is possible that individuals exhibit caring-type preferences in the Beckerian sense so that marginal utilities include the expectation about partners' preferences for the attributes. However, the separate identification of the self-regarding from the altruistic component cannot be performed without auxiliary instruments or experimental tasks that would make the experiment too long. In any case, β_k captures the compounded individual marginal utility for attribute level k.

[14] Since the consumption of private goods (q) is a frequent decision whereas going on holidays is more infrequent, it is feasible to assume that individuals first allocate their available income (y_i) to expenditure on private goods (setting its price to one since all face the same market prices) and save a certain amount for vacation ($y^*_i = y_i$-q_i). Available income for travelling is subject to potential transfers of income between spouses, who pool resources and then divide them based on household micro-norms that are not directly observed (Chiappori et al., 2002). That is, there is a two-stage allocation of resources and time. Nonetheless, the sharing rule process is beyond the scope of this paper, and we take individual y^*_i (and available time for recreation) as given.

[15] The collective framework developed by Chiappori (1988, 1992) implies that the weights of each spouse's preferences vary with couple characteristics. Some works have modelled them as random parameters to be estimated Beharry-Borg et al. (2009), but the estimates are rather noisy, and in some cases the recovered values lie outside the unit interval and are even negative (O'Neill and Hess, 2014). We instead consider common weights, as done by and Mariel et al. (2018). As a result, the model in (4) corresponds to the unitary model.

et al., 2010; Arora and Allenby, 1999; Hensher et al., 2017; Krishnamurthi, 1988; Picard et al., 2018; Rungie et al., 2014; Yang and Carlsson, 2016; Zhang et al., 2009); it emerges as a particular case of a constant elasticity of substitution utility function if the spouses' utilities are perfect substitutes (i.e. elasticity of substitution between the male and the female utility equals infinity).[16]

The weights are normally assumed to lie between zero and one and restricted to a total of one to ensure model identification (Dosman and Adamowicz, 2006; Mariel et al., 2018). This is because a greater influence of the female must come at the cost of a lower influence of the male (Arora and Allenby, 1999). In case $\delta_f = \delta_m$, the household utility is a compromise type (Krishnamurthi, 1988). However, this restriction is not always imposed, and some works allow them to be free parameters to be estimated (Aribarg et al., 2002; Arora and Allenby, 1999; Rao and Steckel, 1991; Rungie et al., 2014). When any of the weights is greater than 1, scholars interpret it as evidence of a 'group polarization phenomenon' by which group responses are more extreme than individual responses (Myers and Lamm, 1976; Rao and Steckel, 1991). On the contrary, when the weights are estimated to be below zero, they are understood as a systematic denial of the preferences of a given individual in the joint choice (Dellaert et al., 1998). However, getting estimates of the weights that lie outside the unit interval is problematic in this context as it could result in the marginal rates of substitution (willingness-to-pay estimates) to be undefined (Daly et al., 2012; O'Neill and Hess, 2014) and that is why we impose the restriction that $\delta_m = 1 - \delta_f$.

The household utility function in (4) assumes that bargaining takes place at the level of the alternative so that the overall utility is a linear combination of the individual utilities (Dosman and Adamowicz, 2006; Picard et al., 2018). That is, the weight assigned to each partner is constant across alternatives. However, O'Neill and Hess (2014) argue that partners might exert different influence depending on the attribute. This is also acknowledged in Beharry-Borg et al. (2009) and Arora and Allenby (1999). Since we are modelling demand for characteristics, it makes sense that the influence of partners' individual utilities on the household utility could differ by attribute. From a theoretical viewpoint, this could reflect partners behaving in 'separate spheres' à la Lundberg and Pollak (1993), by which in the case of no agreement in preferences each partner specializes into deciding on specific tasks. Therefore, to allow for heterogeneity in the bargaining weight by attribute, the household indirect utility becomes:

$$W_{ijt}^{h} = \sum_{k=1}^{K} \delta_{fk} \left(\sum_{k=1}^{K} \beta_k^f X_{ikjt} + \beta_{cost}^f Cost_{ijt} \right) + \sum_{k=1}^{K} \left(1 - \delta_{fk}\right) \left(\sum_{k=1}^{K} \beta_k^m X_{ikjt} + \beta_{cost}^m Cost_{ijt} \right) \tag{5}$$

This flexibility of allowing for different influence (weight) in each attribute has also been considered by other scholars (Aribarg et al., 2002; Arora and Allenby, 1999; Rungie et al., 2014). However, some limitations of this model must be acknowledged from the outset. First, the consideration of different weights per attribute might be incompatible with Pareto efficiency (at least, it is not theoretically sustained). Second, equation (5) is not a convex combination of individual preferences under the distinct weights formulation, and does not correspond to a proper utility function. Finally, this type of model cannot extend to caring preferences (Chiappori, 1992).[17]

4.3. Econometric modelling

By combining spouses' individual utilities as given by equations (2) and (3) on one hand, and equation (5) on the other, the full model to be estimated is given by:

$$\begin{aligned}
U_{ijt}^{f\,*} &= \sigma^f \left[ASC_j^f + \beta_1^f\, medTT_{ijt} + \beta_2^f\, longTT_{ijt} + \beta_3^f\, bustrain_{ijt} + \beta_4^f\, plane_{ijt} + \beta_5^f\, 7days_{ijt} + \beta_6^f\, 10days_{ijt} + \beta_7^f\, 2starhotel_{ijt} + \beta_8^f\, 4starhotel_{ijt} \right.\\
&\quad \left. + \beta_9^f\, Cost_{ijt}\right] + \varepsilon_{ijt}^f \\
U_{ijt}^{m\,*} &= \sigma^m \left[ASC_j^m + \beta_1^m\, medTT_{ijt} + \beta_2^m\, longTT_{ijt} + \beta_3^m\, bustrain_{ijt} + \beta_4^m\, plane_{ijt} + \beta_5^m\, 7days_{ijt} + \beta_6^m\, 10days_{ijt} + \beta_7^m\, 2starhotel_{ijt} \right.\\
&\quad \left. + \beta_8^m\, 4starhotel_{ijt} + \beta_9^m\, Cost_{ijt}\right] + \varepsilon_{ijt}^m \\
U_{ijt}^{h\,*} &= \sigma^h \left[ASC_j^h + \left(\delta_1\beta_1^f + (1-\delta_1)\beta_1^m\right) medTT_{ijt} + \left(\delta_1\beta_2^f + (1-\delta_1)\beta_2^m\right) longTT_{ijt} + \left(\delta_2\beta_3^f + (1-\delta_2)\beta_3^m\right) bustrain_{ijt} \right.\\
&\quad + \left(\delta_2\beta_4^f + (1-\delta_2)\beta_4^m\right) plane_{ijt} + \left(\delta_3\beta_5^f + (1-\delta_3)\beta_5^m\right) 7days_{ijt} + \left(\delta_3\beta_6^f + (1-\delta_3)\beta_6^m\right) 10days_{ijt} + \left(\delta_4\beta_7^f + (1-\delta_4)\beta_7^m\right) 2starhotel_{ijt} \\
&\quad \left. + \left(\delta_4\beta_8^f + (1-\delta_4)\beta_8^m\right) 4starhotel_{ijt} + \left(\delta_5\beta_9^f + (1-\delta_5)\beta_9^m\right) Cost_{ijt}\right] + \varepsilon_{ijt}^h
\end{aligned} \tag{6}$$

where σ^f and σ^f are scale factors for females and males. For the sake of parameter identification, σ^h is set to one. ASC_j^f, ASC_j^m and ASC_j^h

[16] As discussed by Curry et al. (1991) and Zhang et al. (2009), there is no clear a priori criterion on the appropriate functional form for the household utility function. In preliminary checks, we consider the following alternative specifications: 1) a Cobb–Douglas (Nash-type) utility function; 2) a Maximum-type utility function; and 3) a Minimum-type utility function (see Zhang et al., 2009 for further details). The goodness of fit of the different functional forms is similar, with the Cobb–Douglas specification showing a slightly worse model fit. According to BIC and CAIC, the linear utility seems to be the preferred option (available upon request), and that is why we use it in our analysis. This is consistent with Aribarg et al. (2010) and Yang et al. (2010), who also find that the linear household utility outperforms Cobb–Douglas or Leontief functional forms.

[17] We gratefully acknowledge an anonymous referee for spotting this.

are a set of alternative-specific constants capturing residual preference for the labels, and $medTT_{ijt}$,$longTT_{ijt}$, $bustrain_{ijt}$, $plane_{ijt}$, $7days_{ijt}$, $10days_{ijt}$, $2starhotel_{ijt}$ and $4starhotel_{ijt}$ are dummy-coded attributes that vary across individuals, alternatives and choice situations. $Cost_{ijt}$ is the cost of each portfolio choice and δ_1, δ_2, δ_3, δ_4 and δ_5 are the female's weight on the household utility for travel time, mode of transport, length of stay, accommodation type and cost, respectively. Finally, $\{\varepsilon^f_{ijt}, \varepsilon^m_{ijt}, \varepsilon^h_{ijt}\}$ is a set of error terms capturing unobserved factors affecting the utility. These error terms are assumed to be independently and identically distributed according to the Extreme Value Type-I (Gumbel) distribution (McFadden, 1974, 1981).[18]

To ensure that the attribute weights (δ_k) in the household utility lie on the unit interval, we apply a logistic transformation as done by Hensher et al. (2017), Mariel et al. (2018) and Picard et al. (2018):

$$\delta_k = \frac{\exp(\theta_k)}{1+\exp(\theta_k)}, k = 1, 2, \ldots, 5,$$

where θ_k are parameters to be estimated.

The model in (6) is a three-equation multinomial logit model (MNL) that is jointly estimated in one step by full information maximum likelihood (FIML), as done by Beharry-Borg et al. (2009), O'Neill and Hess (2014) and Mariel et al. (2018). Individual preferences for females (β^f_k) and males (β^m_k), identified by their individual choices, enter the household utility function weighted by the relative bargaining power of each partner for each attribute. Therefore, we use three blocks of choices (males', females' and couples') to simultaneously estimate spouses' marginal utilities for the attribute levels (β^f_k and β^m_k) together with the weight of their utilities on the couples' latent utilities (δ_k). Under the assumption that the error terms are uncorrelated, the log-likelihood of the full model can be written as:

$$Ln\ L_{jt} = \sum_{i=1}^{N_f} ln\left(p^f_{it}\right) + \sum_{i=1}^{N_m} ln\left(p^m_{it}\right) + \sum_{i=1}^{N_h} ln\left(p^h_{it}\right) \tag{7}$$

where $\{p^f_{it}, p^m_{it}, p^h_{it}\}$ are the typical logit probabilities of the chosen alternatives i, and N_h is the number of households in the sample. For instance, in the case of females:

$$p^f_{it} = \frac{\exp\left(\sum_{k=1}^{K} \beta^f_k X_{kit} + \beta^f_{cost} Cost_{it}\right)}{\sum_{j=1}^{j} \exp\left(\sum_{k=1}^{K} \beta^f_k X_{kjt} + \beta^f_{cost} Cost_{jt}\right)}. \tag{8}$$

5. Results

Table 5 presents the coefficient estimates for the model defined in equation (6) together with robust standard errors.[19] The estimation has been performed in *R* software using own-written code (available upon request). We first estimated the utilities for females, males and the household separately using MNL (see Appendix), and then used the parameter estimates as starting values in the joint model estimation. Model 1 in Table 5 presents the estimates of a model in which the weight coefficients of the attributes are restricted to be the same (i.e. $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta$), as in equation (4). In Model 2, these weights are free parameters, as expressed in equation (5). Finally, Model 3 adds some flexibility by introducing interaction terms between the alternative specific constants (ASCs) and respondents' age, and between cost attribute and income.[20] This flexibility is added because preliminary analyses indicated relevant preference heterogeneity for the labels by age. The interaction between cost attribute and income is intended to capture the potential non-constant marginal utility of income, by which the (dis)utility of cost is expected to decrease as income rises. According to information criteria statistics and McFadden's pseudo-R^2 measure, the extended specification in Model 3 with the interaction terms presents the best fit. Therefore, the discussion that follows is based on the results from this model formulation.

Starting with females' individual preferences, we find that the coastal alternative is the preferred one, followed by urban and then nature-based destinations, *ceteris paribus*. Interestingly, the preference for the destination labels decreases with age, with elderly females being more likely to opt for the 'none of them' option. This could be due to a lower interest in travelling or facing greater barriers. Travel time is not significant to explain females' choices, while they attach positive utility to travelling by plane (as opposed to by car). Females prefer to stay for longer and to lodge at 4-star hotels rather than in an apartment, although an apartment is preferred over a 2-star hotel. In line with economic theory, their utility decreases with cost. Interestingly, this disutility is independent from their individual income.

[18] The assumption of *iid* error terms across spouses is a common assumption in empirical studies about intra-household decisions (e.g. Beharry-Borg et al., 2009; Bloemen, 2019; Mariel et al., 2018; Picard et al., 2018), mainly due to identification problems and econometric tractability. This implies that spouses' random components of individual utilities are assumed to be independent of each other given the attributes. Since they choose individually and separately from their partner, confounding effects are minimized.

[19] To recognize the panel structure of the data, the standard errors in all models are computed using the panel specification of the sandwich matrix.

[20] For computational reasons, in all the models the Cost attribute is rescaled by 1/100 (hundreds of euros).

Table 5
Estimates of the joint model.

	MODEL 1				MODEL 2				MODEL 3			
	Coeff.	Robust SE	Robust t		Coeff.	Robust SE	Robust t		Coeff.	Robust SE	Robust t	
Females: ASC1	3.373	0.302	11.176	***	3.595	1.251	2.875	***	9.916	1.655	5.992	***
Females: ASC2	2.732	0.342	7.992	***	2.913	1.246	2.338	**	8.192	1.427	5.741	***
Females: ASC3	1.223	0.384	3.185	***	1.340	0.644	2.082	**	6.658	1.228	5.423	***
Females: ASC1 x age									−0.173	0.034	−5.117	***
Females: ASC2 x age									−0.141	0.029	−4.780	***
Females: ASC3 x age									−0.147	0.032	−4.557	***
Females: mediumTT	0.346	0.358	0.967		0.383	0.355	1.082		0.424	0.345	1.226	
Females: longTT	−0.236	0.307	−0.770		−0.254	0.282	−0.903		−0.283	0.357	−0.795	
Females: bustrain	0.263	0.221	1.187		0.267	0.413	0.649		0.223	0.372	0.600	
Females: plane	1.039	0.193	5.376	***	1.086	0.511	2.124	**	1.159	0.371	3.124	***
Females: 7days	3.751	0.621	6.043	***	3.955	1.263	3.131	***	4.327	0.805	5.373	***
Females: 10days	3.866	0.614	6.296	***	4.135	1.341	3.084	***	4.595	0.846	5.429	***
Females: 2starhotel	−0.338	0.299	−1.130		−0.482	0.150	−3.213	***	−0.482	0.137	−3.529	***
Females: 4starhotel	0.425	0.305	1.394		0.263	0.130	2.022	**	0.268	0.127	2.110	**
Females: Cost	−0.500	0.053	−9.470	***	−0.522	0.167	−3.124	***	−0.589	0.107	−5.518	***
Females: Cost x income									0.008	0.027	0.289	
Males: ASC1	2.227	0.248	8.989	***	2.107	0.329	6.408	***	3.700	0.546	6.781	***
Males: ASC2	2.055	0.252	8.146	***	1.967	0.338	5.817	***	3.516	0.515	6.831	***
Males: ASC3	1.448	0.238	6.072	***	1.398	0.276	5.064	***	2.336	0.450	5.187	***
Males: ASC1 x age									−0.058	0.011	−5.397	***
Males: ASC2 x age									−0.055	0.010	−5.578	***
Males: ASC3 x age									−0.033	0.009	−3.697	***
Males: mediumTT	4.0e-04	0.124	0.003		−0.075	0.174	−0.434		−0.052	0.118	−0.439	
Males: longTT	0.005	0.110	0.047		0.057	0.173	0.336		0.058	0.100	0.579	
Males: bustrain	−0.069	0.110	−0.631		−0.089	0.117	−0.761		−0.091	0.098	−0.926	
Males: plane	0.317	0.098	3.221	***	0.235	0.106	2.215	**	0.168	0.109	1.536	
Males: 7days	1.637	0.150	10.889	***	1.359	0.175	7.753	***	1.041	0.165	6.322	***
Males: 10days	1.904	0.148	10.865	***	1.617	0.181	8.917	***	1.254	0.175	7.165	***
Males: 2starhotel	−0.410	0.118	−3.481	***	−0.228	0.146	−1.561		−0.164	0.116	−1.412	
Males: 4starhotel	0.309	0.114	2.717	***	0.377	0.157	2.400	**	0.299	0.120	2.492	**
Males: Cost	−0.214	0.018	−11.619	***	−0.205	0.023	−8.977	***	−0.206	0.021	−9.994	***
Males: Cost x income									0.026	0.008	3.190	***
Household: ASC1	1.605	0.200	8.023	***	1.507	0.205	7.349	***	1.496	0.206	7.239	***
Household: ASC2	1.637	0.201	8.130	***	1.532	0.209	7.345	***	1.518	0.209	7.243	***
Household: ASC3	0.853	0.212	4.019	***	0.768	0.216	3.561	***	0.758	0.218	3.472	***
σ^f	0.391	0.047	8.347	***	0.371	0.126	2.959	***	0.339	0.059	5.790	***
σ^m	0.719	0.058	12.306	***	0.816	0.106	7.678	***	1.059	0.125	8.464	***
θ	−7.854	3.472	−2.262	**								
δ	<0.001											
θ_1*: Travel time*					−0.986	2.952	−0.334		−1.228	1.363	−0.901	
δ_1*: Travel time*					0.271				0.226			
θ_2*: Mode of transport*					−1.900	0.526	−3.611	***	−1.473	1.005	−1.465	
δ_2*: Mode of transport*					0.130				0.186			
θ_3*: Length of stay*					−1.888	0.503	−3.756	***	−1.348	0.357	−3.772	***
δ_3*: Length of stay*					0.131				0.206			
θ_4*: Accommodation*					11.564	5.405	2.140	**	13.498	3.694	3.654	***
δ_4*: Accommodation*					0.999				0.999			
θ_5*: Cost*					−7.468	2.137	−3.495	***	−11.346	1.873	−6.057	***
δ_5*: Cost*					<0.001				<0.001			
Log likelihood	−2,535.11				−2,532.91				−2,479.67			
McFadden's pseudo-R^2	0.143				0.144				0.162			
AIC	5,130.23				5,133.83				5,043.34			
AIC3	5,160.23				5,167.83				5,085.34			
CAIC	5,299.31				5,325.45				5,280.05			
BIC	5,269.31				5,291.45				5,238.05			
Individuals	254				254				254			
Couples	127				127				127			
Observations	2,286				2,286				2,286			

***, ** and * denote significance at 1%, 5% and 10% level.
Note: $\delta_1, \delta_2, \delta_3, \delta_4$ and δ_5 are the estimated weights of the female for travel time, mode of transport, length of stay, accommodation type and cost, respectively, and are calculated using $\delta_k = \frac{\exp(\theta_k)}{1+\exp(\theta_k)}, k = 1, 2, \ldots, 5$

Similarly, males prefer the coastal option in the first place, everything else being equal. The urban destination ranks in second position, followed by the nature-based one. As it happens with females, the corner solution of non-travelling becomes more likely as age increases. Males do not give value to travel time but prefer to travel by plane. They also get positive utility from longer stays and 4-star hotel lodging. Their utility is negatively affected by cost; however, in this case the disutility is significantly moderated by income. Therefore, males are less deterred by high cost as their individual income (ordered indicator for income interval) increases.

Before discussing the estimates for the couple preferences, it is important to highlight that the differences in the magnitudes of the coefficient estimates across the three model specifications stem from scale differences in the latent utilities. In this regard, our results show that males are more deterministic in their choices than females because the estimated values of σ^m are always notably higher. Put another way, the weight of unobserved factors in explaining choices is larger among females.

The assumption that all weight parameters are equal in Model 1 (i.e. the bargaining takes place at the alternative level) leads to the conclusion that males have the full power to decide. That is, since $\widehat{\theta} = -7.854 \Longrightarrow \widehat{\delta} \cong 0,$ males appear to prevail in the bargaining over travel portfolios, with a systematic denial of females' preferences in the couple's choices.

In contrast, when different gender bargaining weights are allowed for each attribute, a different picture emerges. Focusing on our preferred and most flexible specification (Model 3, Table 5), there seems to be a gender specialization. The results indicate that females exert almost full influence in the choice of accommodation ($\delta_4 = 0.99$) while males on the cost ($\delta_5 \cong 0$). This finding is similar to Beharry-Borg et al. (2009) and Rungie et al. (2014), who also show that spouses exert different bargaining power depending on the attribute, and in some cases fully concede. Since females exhibit more heterogeneous preferences over the accommodation attribute than males, it seems the couple selects the alternative with the preferred accommodation option for the female at the lowest cost. Accordingly, the couple's joint choice reflects a preference for the accommodation (cost) that mostly reflects the preferences of the female (the male).

Females' full influence in the accommodation attribute is consistent with studies in tourism showing greater female involvement in vacation subdecisions that involve information searches like the lodging or what to visit (Wang et al., 2004; Zalatan, 1998). The greater say of males concerning the cost is in line with the results of Arora and Allenby (1999) in the case of household appliance purchases. Moreover, the tourism literature has generally found that males hold greater power over the financial aspects of the vacation (Rojas-de-Gracia and Alarcón-Urbistondo, 2016). These results might be compatible with a 'separate spheres' interpretation of intra-household bargaining in the vacation domain. Under disagreement or just because of intra-couple specialization norms, spouses appear to exert their influence in the travel facet that falls within their individual domain.

Notwithstanding this, we cannot rule out the possibility that the estimates reflect some preference revision mechanism in the spirit of Aribarg et al. (2002). That is, since male and female preferences elicited in the individual task could capture some degree of caring about the other, individual preferences might be revised during the discussion that precedes the joint task. In this case, the full influence of females (males) over the accommodation (cost) could reflect their better ex ante assessment of the couple's marginal utility for that attribute.

Moving to the length of stay attribute, males have greater bargaining power, but females retain here some say ($\delta_3 = 0.13$). This is consistent with Jenkins (1978), who found that the duration of the trip usually falls within the husband's domain. Finally, the choice of the mode of transport and the travel time seems to be consensual: the estimates of parameters θ_1 and θ_2 are not statistically significant (i.e., $\widehat{\delta}_1 = \widehat{\delta}_2 = 0.5$). Because both males and females do not individually attach value to travel time and prefer plane travelling over the car, couples might not have to bargain over these two attributes and therefore exert the same influence.

Before ending, we want to acknowledge that, the extreme estimates for the accommodation and cost attributes could be affected by space dimension problems in the maximization of the log-likelihood and the results must be treated with caution. Nevertheless, a less computationally demanding intermediate model that allows for distinct weights for these two attributes but a common weight for travel time, mode of transport and length of stay still points to couple's marginal utility for accommodation (cost) mainly reflecting females' (males) preferences (available upon request).

6. Discussion and conclusions

This paper examines a topic that has been understudied in the economic literature: the intra-household bargaining for the choice of a vacation trip. Our main goal was to estimate the influence of males and females in the couple choice using a DCE that tries to mimic a real-life scenario. To this end, we recruited a sample of 131 married and unmarried couples from the general population of four cities in the north of Spain, their participation being monetarily incentivized. The DCE was framed in the context of a joint trip with the partner in the summer and proceeded in two stages. First, we elicited individual preferences for the exogenously defined travel portfolios based on their choices in six different choice scenarios. At this stage, participants were physically separated from their partners and asked to choose assuming they had the full power to decide. Next, spouses were reunited and asked to choose from the same six choice cards together, allowing them to freely discuss and resolve their disagreements. Importantly, both spouses hold individual pens during the joint task so that the experimental design did not influence who should record the couple choices.

We have first characterized individual preferences for travel portfolios under a demand for characteristics framework. Following the lines of the household economics, transportation and marketing literatures, we have subsequently developed a model for couple choices by which the household utility function is a linear combination of the spouses' individual utilities. Next, individual and couples' preferences have been jointly estimated using a recursive model by maximum likelihood, allowing for different influence weights depending on the attribute.

We have found that both males and females individually attach low importance to travel time but prioritize plane travel over other transportation options. Partners prefer longer stays, *ceteris paribus*, although the effect is non-linear: the marginal utilities for a seven-day and a ten-day trip over a three-day trip are similar. Males and females prefer 4-star hotels as the accommodation; however, whereas for males there are no significant utility differences between an apartment or a 2-star hotel, females seem to prefer to lodge at apartments. Consistent with economic theory, males and females get disutility from travel cost. Most importantly, the disutility of cost decreases with income in the case of males but is not sensitive to it in the case of females. Furthermore, males are more deterministic in their choices; for females, the random component of utility weighs more.

Overall, our estimates show that couples' vacation choices are more aligned with males' preferences. Males appear to decide on the trip cost and to have a larger say in choosing the length of the stay. This could reflect either (i) some sort of specialization or delegation by which females give their partners the power to make the final choice because of their having better knowledge, in line with evidence presented in Abbink et al. (2020); or (ii) males' greater persuasion capacity when bargaining. In this respect, females have been shown to be less willing to engage in competitive interactions (Croson and Gneezy, 2009) and to ask for less when bargaining (Hernández-Arenaz and Iriberri, 2018), while males appear to bargain for longer and get larger shares of the pie (Kirchler, 1993). Females hold almost full power to decide the type of accommodation, which is in line with previous evidence in the tourism literature. Most importantly, our results suggest that there is some heterogeneity in partners' influence over the couple choice, depending on the attribute.

The paper contributes to the literature on intra-household decision-making in different ways. First, we analyse the bargaining power of each spouse in the case of a relevant spousal leisure activity: going on holiday together. The intra-household bargaining process for the choice of a vacation trip is still not properly understood. The study expands the analysis by Dosman and Adamowicz (2006) in that individual and couple preferences are identified from the same travel portfolios, at the same time, and for the same contextualization. Moreover, the travel portfolios are not restricted to campsites but consider the choice among different types of destination. Second, our work adds to a growing body of literature on the economic modelling of household discrete outcomes. We propose a structural model by which household choices are rationalized as a weighted linear combination of individual preferences, which are jointly estimated by maximum likelihood. We provide further evidence on the different influences exerted by spouses depending on the attribute, showing that although joint trip decisions have become more democratic over time, males in our sample still sustain an overall greater say.

Our study possesses some limitations that must be acknowledged. Firstly, since participation in the experiment is voluntary, it might be that participating couples are self-selected and therefore our sample is not fully representative. Secondly, because of the relatively small sample size, we have used a unitary model that does not allow the weights to vary across spouses. Therefore, the estimates might neglect some form of unobserved heterogeneity in bargaining weights. Future work should expand our analysis along the lines of the collective model to explore the sources of heterogeneity in bargaining power for joint recreation. Finally, in real-life situations, couples have more opportunities than in our experiment to find a mutually satisfying choice. More experimental studies on the intra-household choices for tourism activities are required to examine whether our findings hold under different travel portfolios and contexts. An interesting avenue for future research is to explore the role of children and recent past joint experiences in couples' choices.

CRediT authorship contribution statement

David Boto-García: Conceptualization, Software, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Petr Mariel:** Software, Supervision, Data curation, Formal analysis, Methodology, Writing – review & editing. **José Francisco Baños-Pino:** Conceptualization, Supervision, Formal analysis, Writing – review & editing.

Declaration of competing interest

The author(s) have no potential conflict of interests to declare:

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jocm.2023.100408.

Appendix

Table A1
Parameter estimates for separate MNL models for males, females and households

	Females				Males				Household			
	Coeff.	Robust SE	Robust t		Coeff.	Robust SE	Robust t		Coeff.	Robust SE	Robust t	
ASC1	1.365	0.201	6.792	***	1.838	0.209	8.790	***	1.521	0.215	7.056	***
ASC2	1.107	0.202	5.486	***	1.733	0.210	8.257	***	1.545	0.214	7.202	***
ASC3	0.543	0.211	2.570	**	1.278	0.213	5.986	***	0.786	0.226	3.470	***
mediumTT	0.137	0.129	1.065		−0.061	0.125	−0.493		0.047	0.138	0.346	
longTT	−0.094	0.116	−0.810		0.041	0.110	0.382		−0.030	0.120	−0.253	
bustrain	0.077	0.122	0.636		−0.046	0.112	0.415		−0.073	0.127	−0.580	
plane	0.394	0.112	3.514	***	0.195	0.106	1.841	*	0.339	0.114	2.967	***
7days	1.475	0.150	9.855	***	1.130	0.142	7.976	***	1.688	0.169	9.960	***
10days	1.516	0.147	10.320	***	1.313	0.136	9.609	***	1.958	0.164	11.910	***
2starhotel	−0.169	0.122	−1.388		−0.207	0.119	−1.742	*	−0.503	0.131	−3.827	***
4starhotel	0.136	0.127	1.066		0.298	0.120	2.489	**	−0.235	0.129	1.826	*
cost	−0.198	0.020	−9.848	***	−0.171	0.019	−9.061	***	−0.204	0.021	−9.485	***
Log likelihood	−871.86				−863.73				−789.66			
McFadden's pseudo R^2	0.130				0.117				0.189			
AIC	1,767.72				1,751.46				1,603.32			
AIC3	1,779.72				1,763.46				1,615.32			
CAIC	1,835.35				1,819.09				1,670.95			
BIC	1,823.35				1,807.09				1,658.95			
Individuals	127				127				127			
Observations	762				762				762			

***, ** and * denote significance at 1%, 5% and 10% level.

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