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**ECONOMIC ASSESSMENT OF AIRLIFT SUPPORT POLICIES
DELIVERABLE D5**

Willingness to pay estimates of tourism products in Barbados

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EXECUTIVE SUMMARY

This report studies the willingness to pay (WTP) for four new or improved tourist products in Barbados. In order to estimate it, an experimental choice design is applied so that WTP can be revealed unconsciously from the tourists when they are facing hypothetical but realistic choices and trade-offs.

The design requires creating product cards that describe the products in a quick and effective manner. Product icons are also required so that product cards can be easily reminded by icons within the questionnaire. The design benefited from a pilot study which helped mainly with two issues: price ranges for the products and current key relevant products. After the pre-test, prices were adjusted and two new products were added to the experimental design for realism.

The tourist need to choose his or her favorite package. Each package may comprise one or two products and it has got a price. There are six possible products which tourists can choose from. Thus, the experimental design has seven attributes. Price attribute has got four levels and the rest of attributes are binary attributes. All possible combinations of these attributes (full factorial design) assume 256 combinations. However, a fractional factorial design is suggested, so that the final number of combinations required is 42. Each tourist cover 6 possible choices. Thus it is required 7 tourists to cover the 42 combinations. Hence, 7 different choice sets are designed and administered to the tourists stratified by transportation mode.

Conditional logit models are employed to estimate the WTP. They prove to be significant in most cases and they provide meaningful values. WTP for stay-over tourists are higher than those of cruise tourists. For stay-over tourists, WTP for Catamaran is 78.73, for Beach tour is 72.91, for Oistins is 53.41, for Garrison is 6.34, for Sugar and rum is 60.03 and for Bridgetown is 9.69. For cruise tourists, WTP for Catamaran is 44.48, for Beach tour is 49.79, for Oistins is 32.61, for Garrison is 16.22, for Sugar and rum is 45.47 and for Bridgetown is 22.73. WTP are also calculated by country of origin. The results show that the highest WTP belongs to Canadian tourists, followed by Caribbean, British and American tourists. Yearly revenue estimates are also provided for each product.

Current market analysis is also performed. It shows that stay-over tourists have got higher income than cruise tourists and that they are spending more money, on average, on each destination and during the whole stay, as expected. Moreover, it is shown that cheaper airfares is the main determinant for repeating visit in the future in Barbados. Finally, enjoying beaches is the main expectations before disembarking in Barbados and it is the kind of activity more popular for stay-over tourists. However, for cruise tourists, enjoying the beach is not so clearly preferred and alternative kinds of activities such as maritime activities, Bridgetown activities or inland activities are also popular.

Finally, each product has been identified with a tourist profile. Three key variables have been used for that purpose: interest, willingness to extend their stay and willingness to recommend it to friends or relatives. Bridgetown is more likely to be associated with women and older tourists. However, high income tourists do not show interest, neither Canadians nor Caribbean tourists. Garrison is likely to be associated with older tourists and not with high income tourists. Oistins is more likely to be associated with younger tourists. It is perceived positively for most tourists, who are willing to recommend it. Sugar and rum is a universal product. It is not associated with any specific tourist profile.

1. Introduction

This study pursues the understanding of the preferences of current tourists on new or improved tourist products. Moreover, it estimates how much tourists are willing to pay for them. The products to be assessed are the following ones:

- a) Bridgetown, an example of early Caribbean maritime engineering
- b) The military world at the Garrison
- c) Bajan soul at Oistins
- d) The history of sugar and rum

Willingness to pay (WTP) can be asked directly to the tourists. However, it is likely that their responses be imprecise. Alternatively, instead of asking for stated WTP, it is possible to obtain them with an experimental choice design, so that tourists reveal unconsciously their WTP. For that purpose, they need to choose among alternative and realistic choices, facing relevant trade-offs. The success of this methodology relies much on the quality of the survey design and administration. Sections 2 and 3 deal with survey design details. The results are obtained applying conditional logit model. The methodology is explained in section 4, where results are also shown. A description of the current market is provided in section 5. Finally, section 6 shows an ordered choice model that identifies each product with socioeconomic characteristics of the tourists.

2. Survey design

2.1 Design

The survey questionnaire was designed¹ for two main purposes:

- a) Estimate the preferences and WTP for new/improved tourist products in Barbados.
- b) Identify tourist products with tourist profiles.

For this purpose, an experimental choice exercise was applied. In order to describe the products, product cards were designed. Each card needs to describe the product in a quick and effective manner. At the same time, they need to associate each product with an icon to be used in the questionnaire. Such icons need to be simple and easy to remember. The product cards are shown in Annex II. They are characterized by:

¹ It was designed by the author together with Adela Moreda and Sergio Ardila from IDB and ICN-Artea. It was conducted by May Hinds Consulting.

- Short title up in the middle of the card.
- A large icon that allows for associating each product in the questionnaire.
- A few sentences describing the product.
- Some photographs illustrating the product.

The target population comprises tourists who travelled either by plane or by cruise. Such distinction represents the main stratification strategy for sampling. Within each stratum, random sampling was applied. It should be noted that these answers are subjected to *on-site sample bias*. It happens because current tourists may be more condescending or less demanding than potential tourists who did not travel to Barbados. On-site sample bias may be avoided administering the questionnaires at origin. However, it may be even a worse solution because at origin many people may not travel at all, or they may travel domestically only or if they travel abroad, the number of possible destinations is so wide that improvements or new products in Barbados are hardly appreciated by potential tourists. Taking all these issues into account, it was preferable to administer the questionnaire to current tourists and understand their preferences and willingness to pay for new products.

The questionnaire was administered face-to-face, so that the experimental choice exercise could be understood properly. Only one adult per household was allowed to answer. The design was benefited from a *pre-test questionnaire*.

2.2 Pre-test

Pre-test was administered between 13th June and 17th July 2015. It was answered by 63 tourists at the Grantley Adams airport and by 60 tourists at the cruise terminal. It was useful for:

- a) Identifying misunderstanding questions or missing answers, which helped for rewriting some questions and adding new possible answers.
- b) Timing the length of the questionnaire. It had got 24 questions, which were identified as excessive, especially by cruisers who were more time conscious.
- c) Identifying price ranges for the products. It helped with letting us know tourists' expenditures on current products and how much they may be willing to pay for new or improved ones. It was used for defining final prices in the experimental design.
- d) Identifying and quantifying the current most demanded products. Catamaran trips and beach tours were highly demanded products. They were added as alternative products

in the experimental design in order to increase realism and to face relevant choices for tourists.

2.3 Final questionnaire administration

The final questionnaire is shown in Annex I. The number of questions was reduced to 21. It was administered to 400 tourists at the airport and 300 tourists at the cruise terminal. The survey was administered during the period 28th July and 26th August 2015. The dataset was revised and validated with Stata. Some issues with data entry were found and revised. The final revised dataset was submitted on 17th September in Excel format. The dataset has been managed in Stata. For transparency purposes, the code with all the management procedures performed are available in Annex IV.

The final questionnaire included the experimental design. Pre-test was useful to identify price ranges and the current most demanded tourist products. Keeping such information in mind, the experimental design was performed. Details are explained in the next section.

3. Experimental design

Experimental design is a broad topic employed by very different scientific disciplines such as biology, medicine, sociology or marketing. It has been developed simultaneously, so that the names given to certain procedures are not homogeneous and confusion is likely to happen if terms and methods are interchanged among disciplines. For that reason, it is necessary to state that the methodology source employed in this study belongs to the economics branch of experimental design, more precisely, it belongs to the Australian school. Thus, the experimental design has been built according to seminal books such as Louviere, Hensher and Swait (2000) and Hensher, Rose and Greene (2005). For illustrative purposes, according to Hensher, Rose and Greene (2005), the methodology is explained in several stages:

1. Problem refinement
2. Stimuli refinement
3. Experimental design consideration
4. Generate experimental design
5. Allocate attributes to design columns
6. Generate choice sets

Each stage is explained below.

3.1 Stage 1: Problem refinement

The objective of the first stage is to identify the purpose of the study. In this case, the purpose is to estimate the willingness to pay for new products: Bajan soul experience at Oistins, Garrison experience, Bridgetown and Sugar and rum plantation. As compared to stated willingness to pay for products, the experimental designs allows for capturing the same information in an indirect way. Usually people overestimate their willingness to pay if they are asked in an isolated manner. However, we do face choices during holidays. We need to decide what to do every day and if it is worth spending time and money on alternative activities. That is the purpose of the experimental design. Thus, tourists are confronted with couple of choices so that they need to reveal trade-off patterns of the decision making process.

3.2 Stage 2: Stimuli refinement

In this stage it is necessary to identify the universal but finite list of alternatives available to tourists in Barbados. However, the researcher faces a trade-off between a large number of alternatives which provides reliability and a smaller number of alternatives that are required for the feasibility of the analysis. Hence, culling of alternatives from the list is required. Such complexity depends on the number of attributes and the number of levels within each attribute. The list of alternatives chosen is a compromise between the objective of the study and current tourists' choices. Such alternatives enter the choice models as bundle goods or services with a certain price attached to them. Thus, the alternatives are associated with attributes in the design as present/absent binary attributes. Price requires further *part-worth utility*, so that four attribute levels are considered for such attribute. More price levels improves the utility relationships but it increases the design size enormously. The pre-test identified two relevant products for current tourists: i) Going to beaches and ii) Going on a catamaran trip to see turtles and/or enjoy snorkelling. They must be added as day trip alternatives for tourists in Barbados, so that the choice set is sufficiently comprehensive and reliable. They are summarized in Table 1.

Table 1. Attributes and attribute levels

Attribute	Attribute levels
Price	P ₁ , P ₂ , P ₃ , P ₄
Alternative 1: Catamaran trip	Absent / Present
Alternative 2: Beach tour	Absent / Present
Alternative 3: Oistins (Bajan soul)	Absent / Present
Alternative 4: Garrison	Absent / Present
Alternative 5: Sugar and rum	Absent / Present
Alternative 6: Bridgetown	Absent / Present

3.3 Stage 3: Experimental design consideration

Since the alternative labels are meaningful (e.g. Beach tour), they convey information to the tourists. This kind of designs are known as *labelled designs*. It matters because tourists may use such labels as additional information for their choices.

Once the number of attributes and the number of attribute levels is set up, the design needs to be defined. *Full factorial design* consists of all possible combinations of attribute levels, i.e.:

$$4 \times 2 \times 2 \times 2 \times 2 \times 2 = 4 \times 2^6 = 256$$

Full factorial designs guarantee that all attribute effects are independent. However, many of these combinations does not make sense either due to domination or because they are not realistic. Thus, such combinations are not required and it is preferable to get rid of them because it shortens the length of the questionnaire and it keeps interviewee's attention with sensible choices. Smaller designs, such as *fractional factorial design* can also achieve it. They comprise a subset of the full factorial design. There are several ways to reduce the size. One way may be randomly but it is likely to be sub-optimal. Alternatively, it may be designed in a clever (scientific / optimal) way.

A first key issue is *orthogonality*, which represents attributes independence (zero correlations). It must be fulfilled by the design because otherwise the parameters estimated are likely to be biased. A second issue to take into account are *main and interaction effects*. The main effects are related with attribute direct effects, whereas interaction effects are related with combinations of attributes in the same choice profile. The latter makes sense if some alternatives are complementary or substitutes from the tourists' profile point of view. In other words, some combinations of alternatives may be preferable than others, in that case, it should be taken into account for accuracy of the study. Finally, it is also required to consider the

degrees of freedom, which are the number of observations in the sample minus the number of independent constraints (beta parameters to be estimated)².

3.4 Stage 4: Generate experimental design

In order to achieve orthogonality all main effects and some treatment combinations are required. However, as suggested earlier, not all the treatment combinations are sensible. For *market realism*, a time constraint is assumed to hold. Such constraints are limiting the number of alternatives that a tourist can enjoy during a day trip, either as a cruise excursionist or as a stay-over tourist. Indeed, the assumption states that only one or two products can be enjoyed during a day trip. This assumption rules out combinations that are not sensible such as going on a beach tour, a catamaran trip, a Bridgetown visit and a Garrison experience within the same day trip. Instead, it decreases the number of sensible combinations, which is also convenient for the design size. This way allows keeping all *two-way interactions* in the design, assuring orthogonality and taking into account all the main and sensible interaction effects with enough degrees of freedom.

The experimental design is generated with *AlgDesign* module in *R* software. The module is used to obtain an orthogonally coded full factorial design. It produces a matrix of 256 rows and 7 columns for each attribute. The resulting matrix is exported into Stata, where the time constraint is imposed. It leaves the matrix with 84 rows.

3.5 Stage 5: Allocate attributes to design columns

The problem of removing rows is that orthogonality does not hold anymore. However, the resulting correlation matrix shows a low correlation coefficient of 0.16 for all cases which is close enough to zero to accept the compromise of design size reduction. The standard orthogonal coding is renamed for estimation purposes. Recoding has proceeded so that orthogonal coding remains in place and its desirable properties are intact. Price is set up according to pre-test results. It is advised to cover most of the distribution. Kernel density distributions are produced for this purpose. For instance, for the stay-over subsample, WTP average is 34.4\$ (0-250\$ range) for Bridgetown; it is 27.5\$ (0-125\$ range) for Garrison; it is 36.7\$ (0-150\$ range) for Oistins; and it is 5\$ (0-50\$ range) for the visitor centre. During pre-test and final questionnaire, the enquiry for visitor centre was replaced with the Sugar and rum

² In this case, the minimum degrees of freedom for a linear model are $19 = MA+1$. (see Table 5.10 in Hensher, Rose and Greene, 2005)

experience. Since the alternatives can consider single products or a bundle of products, the alternative price suggested for the final questionnaire are: \$40, \$60, \$80 and \$100. Dominance criterion is checked up in the final stage to assure they make sense.

3.6 Stage 6: Choice sets generation

In this case, *cognitive complexity* of the choice process suggests showing two alternative products at the same time. Thus, 84 profiles can be split up into 42 choice sets. Obviously, tourists are not willing to face 42 choice sets in a questionnaire, but 6 choice sets seem to be reasonable. One way out for this issue is to consider 7 ($42/6=7$) blocks of questions answered by different tourists so that together all the answers are equivalent to having answered all 42 choices. In other words, 7 tourists are equivalent to 1 tourist, so that 7 versions of the choice sets are required and administered. They are called Choice set 1 up to Choice set 7. They are shown in Annex III. In order to achieve it, proper *randomization* is required. Randomization method employed is the one suggested by Lock Morgan (2011) and Lock Morgan and Rubin (2012). In our case, two variables that are key for a balanced randomization are price and the number of products enjoyed in a day trip, i.e. either one product or two products. Balanced randomization allows for a sensible distribution of choices among blocks. Indeed, final check of such balance as well as dominance criteria proved to be successful, so that the final design is meaningful. Such final design is shown in Table 2 below.

Table 2. Final experimental design

Price	A 1	A 2	A 3	A 4	A 5	A 6	Products	Tourist	
								Block	Choice
40	0	0	0	1	0	0	1	1	1
80	0	0	0	0	0	1	1	1	1
60	0	0	1	0	1	0	2	1	2
40	0	0	1	0	0	1	2	1	2
100	0	0	0	1	0	1	2	1	3
40	0	0	0	1	0	1	2	1	3
80	1	0	0	0	0	1	2	1	4
40	0	0	1	1	0	0	2	1	4
80	0	0	1	0	0	1	2	1	5
80	0	1	0	0	1	0	2	1	5
40	1	0	0	0	0	1	2	1	6
40	0	1	0	0	0	1	2	1	6
40	0	0	0	0	1	0	1	2	7
100	0	0	0	1	0	0	1	2	7
60	0	0	1	0	0	1	2	2	8
40	1	0	1	0	0	0	2	2	8
80	0	0	0	1	0	1	2	2	9
40	1	0	0	0	1	0	2	2	9
100	0	0	1	0	1	0	2	2	10
80	0	0	1	0	1	0	2	2	10
60	0	0	0	1	1	0	2	2	11
100	0	1	1	0	0	0	2	2	11
60	0	0	1	1	0	0	2	2	12
80	0	0	1	1	0	0	2	2	12
100	1	0	0	0	0	0	1	3	13
60	0	0	0	0	1	0	1	3	13
100	0	0	1	0	0	0	1	3	14
60	0	1	0	0	0	0	1	3	14
80	0	1	0	0	0	0	1	3	15
80	0	0	0	0	1	0	1	3	15
100	0	1	0	0	1	0	2	3	16
40	0	0	1	0	1	0	2	3	16
80	1	0	0	0	1	0	2	3	17
60	1	0	1	0	0	0	2	3	17
60	0	1	1	0	0	0	2	3	18
40	0	1	0	1	0	0	2	3	18
80	0	0	1	0	0	0	1	4	19
100	0	0	0	0	0	1	1	4	19
100	0	1	0	0	0	0	1	4	20
60	0	0	0	1	0	0	1	4	20
60	0	1	0	1	0	0	2	4	21
100	0	0	0	1	1	0	2	4	21
40	1	0	0	1	0	0	2	4	22

40	0	1	0	0	1	0	2	4	22
60	1	1	0	0	0	0	2	4	23
100	0	0	1	0	0	1	2	4	23
60	0	0	0	0	1	1	2	4	24
40	1	1	0	0	0	0	2	4	24
60	0	0	1	0	0	0	1	5	25
60	1	0	0	0	0	0	1	5	25
60	0	0	0	0	0	1	1	5	26
80	1	0	0	0	0	0	1	5	26
40	0	0	0	1	1	0	2	5	27
40	0	0	0	0	1	1	2	5	27
100	0	1	0	1	0	0	2	5	28
80	1	0	1	0	0	0	2	5	28
80	0	1	1	0	0	0	2	5	29
80	1	0	0	1	0	0	2	5	29
100	0	0	1	1	0	0	2	5	30
60	1	0	0	0	1	0	2	5	30
40	0	0	1	0	0	0	1	6	31
40	1	0	0	0	0	0	1	6	31
40	0	1	0	0	0	0	1	6	32
80	1	1	0	0	0	0	2	6	32
60	1	0	0	1	0	0	2	6	33
80	0	1	0	1	0	0	2	6	33
100	1	1	0	0	0	0	2	6	34
100	1	0	0	0	1	0	2	6	34
40	0	1	1	0	0	0	2	6	35
80	0	1	0	0	0	1	2	6	35
80	0	0	0	1	1	0	2	6	36
60	1	0	0	0	0	1	2	6	36
100	0	0	0	0	1	0	1	7	37
80	0	0	0	1	0	0	1	7	37
40	0	0	0	0	0	1	1	7	38
100	1	0	1	0	0	0	2	7	38
60	0	1	0	0	0	1	2	7	39
60	0	0	0	1	0	1	2	7	39
100	1	0	0	1	0	0	2	7	40
80	0	0	0	0	1	1	2	7	40
60	0	1	0	0	1	0	2	7	41
100	0	1	0	0	0	1	2	7	41
100	0	0	0	0	1	1	2	7	42
100	1	0	0	0	0	1	2	7	42

4. Choice modelling and WTP estimation

4.1 Conditional Logit Model

In order to model package choice, we follow a behavioural model where individual chooses the package that provides the highest level of utility, denoted U . Each tourist faces three alternatives to choose from: Package a; package b; or none of them (See Annex III). In this sense, individual i would choose package s if and only if: $U_{is} > U_{it} \forall t \neq s$. Nevertheless, these utility levels are unobservable. The only aspects known are which products are comprised in each package and the price of each package. We denote such products by A_a , $\forall a$. From the information available, we can construct a function $V_{is}(\text{Price}, A_1, A_2, A_3, A_4, A_5, A_6)$, which represents the utility that package s provides to individual i . Thus, the utility of each package depends on which products A_a comprise the package and which price is required to pay. Moreover, utility can be decomposed such that: $U_{is} = V_{is} + \varepsilon_{is}$, where ε_{is} denotes the unobserved part of utility for individual i when he or she chooses package s . Such unobserved utility represents tourists' preferences. Thus, the probability that an individual i chooses package s is:

$$P_{is} = \Pr(U_{is} > U_{it} \forall t \neq s) = \Pr(V_{is} + \varepsilon_{is} > V_{it} + \varepsilon_{it} \forall t \neq s) = \Pr(\varepsilon_{it} - \varepsilon_{is} < V_{is} - V_{it} \forall t \neq s)$$

In Logit models the whole error or part of it, is assumed to be independently and identically distributed extreme value (Train, 2009). That is the approach taken in this study. It belongs to the family of Conditional Logit models (McFadden, 1974). More precisely, since each tourist is choosing among a changing choice set during the experiment, it is necessary to track such varying choice sets. The only way to apply that is using panel data. Each panel is a combination of each individual and choice set (which varies up to six times). Thus, the final model to be applied is a Logit panel data (fixed effects) model or *Conditional Logit* model (with groups)³.

Hence, the model estimates the probability of choosing each package depending on package price and which products compose the package:

³ It should be noted that the probabilities used are conditional probabilities, so that inconsistent estimates of constants and betas is avoided. Indeed, group constants are not estimated at all. See Hamerle and Ronning (1995) or Greene (2008: 796-808) for details.

$$P_{is} = V_{is}(\text{Price}, A_1, A_2, A_3, A_4, A_5, A_6)$$

It can be argued that such model may also be represented by socioeconomic characteristics of the tourist. However, such information is fixed and it does not vary among each choice set. Within a panel data framework it is problematic because constant variables or intercepts cause two problems. On the one hand, it requires a large battery of parameters to be estimated and on the other hand, it causes the estimates to be inconsistent (See Greene, 2008: 769-808 for details). A solution to circumvent such *incidental parameters problem* is to use conditional probabilities, so that the estimation of constants is avoided.

Choice sets have been built so that prices may take four values: \$40, \$60, \$80 or \$100 for packages that are comprised by one or two products. Tourists' choices depend on such prices so that we can understand price sensitivity. It is estimated in the model by a parameter associated with price. Let us denote it by β_y . Such estimate indicates how much utility varies when price varies. If price decreases, the probability of choosing that package increases. Thus, we can link utility with price changes. In other words, such parameter can be understood as the utility of income (savings). However its value is not universal, but it depends on the scale of the utility model. At the same time, the probability of choosing a package depends on the products that compose the package. The econometric model disentangles the presence of a product in the package and it assigns a parameter associated to utility generation. Let us denote each parameter by β_a , $\forall a \in [1,6]$, where a denotes each product a . Thus, the utility function can be expressed as:

$$V_{is} = \beta_y \text{Price}_{is} + \beta_1 A_1 + \beta_2 A_2 + \beta_3 A_3 + \beta_4 A_4 + \beta_5 A_5 + \beta_6 A_6 \quad (\text{Equation 1})$$

Three sets of models have been considered: a) A model for the whole sample; b) Models by transportation mode; c) Models by country of origin. Table 3 shows the parameter estimates obtained by the Conditional Logit model for the whole sample and by transportation mode. It shows that all the variables are highly significant and the number of observations are large enough to perform the model. As expected, price enters the utility function as a negative variable, whereas all the products provide positive utility. The price parameter will be used to estimate the WTP. Higher parameters mean higher utility provided. It already shows that

products A1 or A2 provide the highest utility followed by A5 and A3, whereas products A4 and A6 provide the lowest utility.

Table 3. Conditional Logit modelling for the whole sample and by transportation mode

	Whole sample	Stay-over tourists	Cruise tourists
Price (β_y)	-0.0044*** (0.0010)	-0.0037*** (0.0013)	-0.0055*** (0.0015)
A1: Catamaran	1.185*** (0.060)	1.217*** (0.800)	1.160*** (0.092)
A2: Beach tour	1.190*** (0.066)	1.160*** (0.876)	1.243*** (0.102)
A3: Oistins	0.942*** (0.066)	0.948*** (0.087)	0.949*** (0.101)
A4: Garrison	0.359*** (0.068)	0.177** (0.090)	0.600*** (0.105)
A5: Sugar and Rum	1.084*** (0.062)	1.025*** (0.082)	1.176*** (0.096)
A6: Bridgetown	0.446*** (0.069)	0.238*** (0.091)	0.719*** (0.106)
No. of observations	12,591	7,173	5,418
Log likelihood	-3,947.23	-2,227.00	-1,706.27

* p<0.10, ** p<0.05, *** p<0.01

4.2 Willingness to pay estimation method

We can use the link between the utility of income and the utility of each product to estimate the *willingness to pay* (WTP) for each product. For that purpose, the methodology described by Haab and McConnell (2002: 222-226) is employed. It allows for estimations concerning simultaneous changes of absent/present products. The objective is to measure how much the utility varies with the presence or not of such products within each bundle, as shown in Equation 2.

$$WTP = \beta_y^{-1} \left[\ln \left(\sum_{is} \exp \left(\beta_y Price_{is} + \sum_{a=1}^6 \beta_a A_{isa} \right) \right) - \ln \left(\sum_{is} \exp \left(\beta_y Price_{is} + \sum_{a=1}^6 \beta_a A_{isa}^* \right) \right) \right] \quad (Eq.2)$$

Equation 2 estimates the *revealed* WTP making use of the difference between the utility before any quality change/s and the utility after the quality change/s. The utility changes are scaled up to monetary values through the income parameter. The quality changes consist on getting rid of each product at a time and reassessing the utility function after that. Equation 2 denotes the changes with A^* , which represents a utility function with one less product than before.

4.3 Revealed WTP estimates

WTP estimates are obtained applying Equation 2 to the whole sample. Table 4 shows marked preferences among the products. Current products, i.e. Catamaran and the beach tour are the most valued products followed by Oistins and Sugar and Rum. Garrison and Bridgetown are the least valued products. Amongst the new products, such differences remain for both revealed and stated WTP.

More precisely, Table 4 shows that tourists are willing to pay, on average, about \$61.3 for the Beach tour and \$60.9 for the Catamaran. Sugar & Rum and Oistins products are placed behind them with WTP figures of \$52.9 and \$42.7, respectively. Finally, WTP for Bridgetown tour is \$16.2, whereas for Garrison is \$11.3. Hence, ex-ante, we can expect that none of the potential new products, as currently designed, will manage to be valued over the current tourist products. Nevertheless, it does not mean that they cannot be successful, because it also depends on the fixed and variable costs of the products. Obviously, the difference between revenue and costs must be positive for a private firm, but it is not necessary for a public firm as long as the product or attraction proves to be a pull factor of the destination. In that case, it is necessary to add up some social benefits that are generated due to the existence of such attraction. It should be related with its capacity to increase the added value (GDP) and/or the employment at the destination.

WTP estimates may vary with tourist profiles. It is important to distinguish profiles by transportation mode because tourist patterns are very different. On average, stay-over tourists have got longer stays with higher tourism expenditure. Hence, the sample is split up, so that two models are estimated for each type of transportation mode. Table 3 shows that the

estimated parameters for both subsamples are significant, thus applying Equation 2 we can obtain estimates for each segment. The results (see Table 4) show that cruise tourists are willing to pay far less money for the four top products and more money for the bottom two products. Overall, stay-over tourists are willing to spend more money on the products. If we sum up all the WTPs, we obtain that stay-over tourists can spend \$280.9 in all the products, whereas cruise tourists can spend \$211. Such difference is consistent with per day expenditure observed in a previous expenditure survey.

Table 4. Revealed willingness to pay for the whole sample and by transportation mode

Product	Whole sample	Stay-over tourists	Cruise Tourists
Catamaran	60.9	78.7	44.4
Beach tour	61.3	72.9	49.7
Oistins	42.7	53.4	32.6
Garrison	11.3	6.3	16.2
Sugar & Rum	52.9	60.0	45.4
Bridgetown	16.2	9.6	22.7
Aggregate	245.3	280.9	211.0

4.4 Revealed willingness to pay estimates by origin market

In order to understand origin market preferences, it is interesting to repeat the exercise but distinguishing the country of origin. The methodology applied is the same as above, but subsamples are considered for the main origin countries: USA, UK, Canada and Caribbean countries. The conditional model results are shown in Table 5, whereas the WTP results are shown in Table 6. Subsampling and modelling will be successful if the sample size is sufficiently large. Indeed, models for Germany and Brazil were discarded due to small sample sizes and not significant results. Fortunately, overall, for USA, UK, Canada and Caribbean countries the results are pretty good and stable. USA and UK have got all the variables significant, whereas Canada and Caribbean countries faces significance problems with price and Garrison. Nevertheless, price estimate for the latter countries shows a reasonable figure and it does not seem to be a problem.

Table 5. Conditional logit modelling for different origin countries

	USA	UK	Canada	Caribbean countries
Price (β_y)	-0.0046*** (0.0014)	-0.0042* (0.0024)	-0.0035 (0.0044)	-0.0035 (0.0025)
A1: Catamaran	1.164*** (0.085)	1.329*** (0.153)	2.009*** (0.278)	0.874*** (0.135)
A2: Beach tour	1.170*** (0.094)	1.231*** (0.165)	1.825*** (0.308)	0.984*** (0.153)
A3: Oistins	0.925*** (0.094)	0.795*** (0.159)	1.537*** (0.291)	0.997*** (0.149)
A4: Garrison	0.480*** (0.097)	0.143** (0.165)	0.430 (0.304)	0.218 (0.162)
A5: Sugar and Rum	1.097*** (0.088)	1.116*** (0.148)	1.455*** (0.281)	0.975*** (0.151)
A6: Bridgetown	0.482*** (0.099)	0.063*** (0.170)	0.808*** (0.299)	0.406*** (0.161)
No. of observations	6,156	2,124	882	2,295
Log likelihood	-1,942.56	-648.35	-228.84	-745.45

* p<0.10, ** p<0.05, *** p<0.01

Table 6. Revealed willingness to pay by origin country

Product	USA	UK	Canada	Caribbean countries
Catamaran	55.47	75.62	141.08	55.43
Beach tour	56.27	63.49	110.21	67.43
Oistins	39.51	39.53	86.14	57.65
Garrison	15.23	4.30	12.54	8.68
Sugar & Rum	50.92	64.72	76.95	53.62
Bridgetown	16.45	1.95	37.22	19.30
Sample share	48.85%	16.85%	7.00%	18.28%

Table 6 shows that American tourists are willing to pay less money than British or Canadian or Caribbean tourists. Canadian tourists are those who are willing to pay the highest value for the products, overall. American tourists are willing to pay more for Catamaran, beach tour and

sugar & rum experience than the other products. Such information is relevant because they represent 48.85% of the sample size. A similar pattern of preferences is shown by British tourists. However Canadian tourists have got their preferences more marked. They do prefer Catamaran on top of beach tour and sugar & rum experience. Oistins, however, is pretty close to sugar & rum WTP figure. Finally, Caribbean countries preferences are in favour of Sugar & rum and Oistins, but very close to Catamaran and beach tour WTP figures. Garrison and Bridgetown products are systematically at the bottom of the WTP figures for all the origin countries.

4.5 Stated willingness to pay

In the questionnaire, tourists are also asked for their WTP for the products in an open way (see question 13, in Annex I). Such kind of answer is known as *stated WTP*. Average stated WTP and its median are reported in Table 7. If we compare the results between revealed and stated WTP, we can see that, overall, tourists overestimate their WTP when they are asked in an isolated manner (stated), as compared when they face hypothetical choices or trade-offs (revealed).

Table 7. Stated willingness to pay

Product	Mean	Median
Oistins	42.25	40
Garrison	32.86	30
Sugar & Rum	41.05	40
Bridgetown	35.17	30

Table 7 has shown mean and median figures, but the stated WTP distribution is useful for understanding WTP dispersion and prediction exercises. For that purpose, Kernel density functions are shown in Figure 1, which are depicted using a bandwidth of 10 units and Epanechnikov method. They show that WTP distributions do not look like a normal distribution but they are not too far from it. In those cases, median values are lower than the mean values. It is useful for revenue estimates, as it will be shown in the next section.

Figure 1. Stated WTP distributions by products

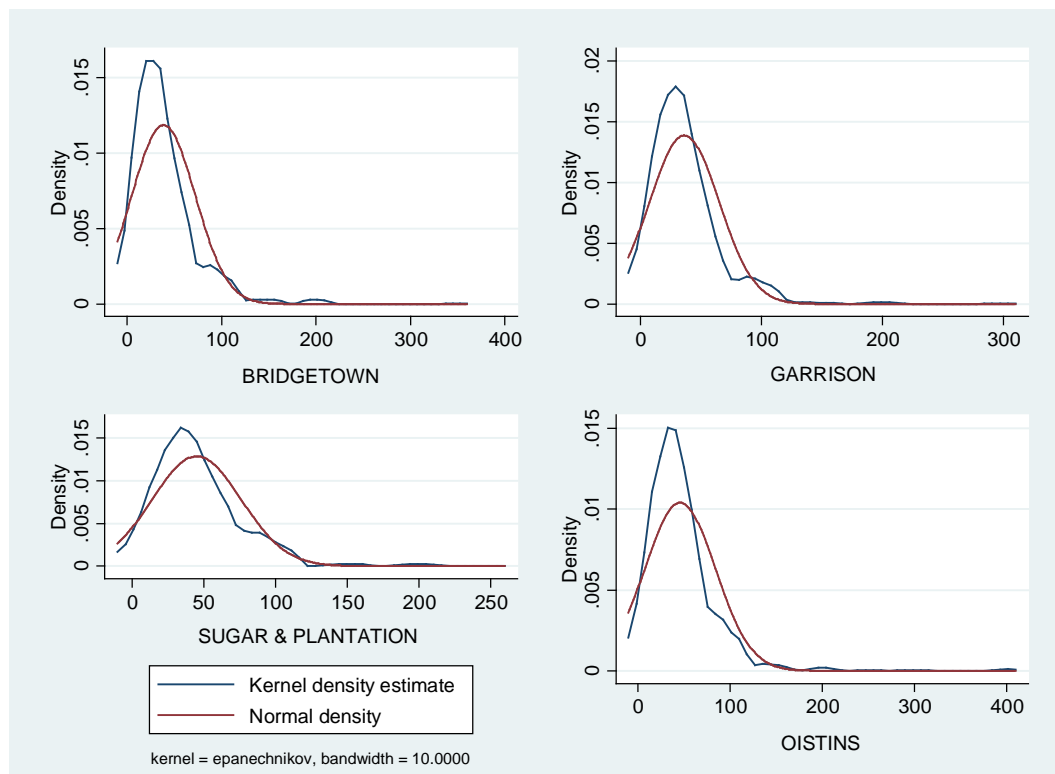


Table 8. Stated WTP and the participation aggregated probability by products

Bridgetown		Garrison		Sugar and Rum		Oistins	
WTP	Aggr. Prob.	WTP	Aggr. Prob.	WTP	Aggr. Prob.	WTP	Aggr. Prob.
5.10	86.80	3.06	90.07	1.02	95.23	7.14	88.37
12.65	76.06	9.59	82.06	6.53	91.73	15.71	78.86
20.20	63.75	16.12	71.83	12.04	86.61	24.29	67.48
27.76	51.44	22.65	60.53	17.55	80.34	32.86	54.55
35.31	39.53	29.18	48.76	23.06	72.81	41.43	41.78
42.86	30.14	35.71	37.47	28.57	64.48	50.00	30.98
50.41	22.77	42.24	28.28	34.08	55.48	58.57	22.42
57.96	17.12	48.78	21.04	39.59	46.73	67.14	16.48
65.51	13.12	55.31	15.70	45.10	38.66	75.71	13.08
73.06	11.05	61.84	12.04	50.61	31.81	84.29	10.06
80.61	9.19	68.37	9.69	56.12	25.96	92.86	7.34
88.16	7.21	74.90	8.34	61.63	21.21	101.43	5.30
95.71	5.48	81.43	7.02	67.14	17.34	110.00	3.59
103.27	4.05	87.96	5.54	72.65	14.68	118.57	2.71
110.82	2.86	94.49	4.15	78.16	12.39	127.14	2.40

Additionally, Table 8 shows, for instance, that 86.8% of tourists are willing to buy the Bridgetown product whether the price is lower than \$5.10. If the price increases up to \$12.65, the percentage of tourists willing to buy the product decreases to 76.06% and so on. 50% percentile of the distribution is reached for Bridgetown when WTP equals \$26.10, which is far from its average value which is \$38.6.

4.6 Yearly revenue estimates by product

A set of ad-hoc steps have been followed for estimating the yearly revenue:

Step 1: Tourists participation and expenditure in attractions or guided tours

Amongst all the alternatives for tourism expenditure at destinations, spending money on attractions or guided tours represent 5% of total expenditure of stay-over tourists. More precisely, 3% is spent on Barbados, whereas 2% is spent in advance in origin countries. Given that total expenditure per person is \$3,071⁴, then average expenditure in attractions or guided tours reaches \$153.55.

Step 2: Ratio of expenditure between stay-over tourists and cruise tourists

Cruise tourists spend one day in Barbados, whereas stay-over tourists usually stay around 7 days. The latter tourists have got more opportunities to visit more attractions than the former tourists. However, it does not mean that stay-over tourists will spend all their days visiting attractions. A ratio of expenditure between both kinds of tourists is useful for aggregation purposes. In the expenditure surveys, tourists are asked for their expenditure in Garrison, Bridgetown or Oistins during their stay in Barbados. Details are shown in section 5, but the final figures reveal that stay-over tourists spend 3.44 (317.2/92.13) more money on attractions or guided tours than cruise tourists. Hence, according to such factor, average expenditure by cruise tourists is \$44.59 on attractions or guided tours.

Step 3: Distribution of tourists amongst attractions

If the product prices is zero, tourists have got clear preferences for Catamaran or beach tours. However, WTP estimates are based on an equilibrium principle, i.e. to find the set of prices such that, on average, tourists are indifferent to choose among the products if prices equal the

⁴ These figures are obtained from the stay-over survey. It is shown in Table 4.16 (p.139) and in Figure 4.10 (p.141) of the previous report by Betancor *et al* (2015).

revealed WTP. In other words, if prices are not zero, but equal to the revealed WTP, then tourists are indifferent and it is unclear which ones to choose because the utility provided by each one is exactly the same because the price paid plays a negative role in utility. Those products that do not provide much utility are cheaper, but also those products that provide higher utility are more expensive. Thus, if revealed WTP are the set up prices then it implies the existence of a theoretical equilibria where market shares are equal amongst products. However, as long as prices differ from such revealed WTP the market shares will vary. It makes sense to depart from such prices when the size of the attractions or marginal costs (economies of scale) differ. Without such information on size constraints or cost structure, we need to assume it is the same for all products.

Step 4: Tourism expenditure distribution

Average WTP means that some tourists will be willing to pay that price, whereas some tourists will not. It is shown in Table 8. However, on average, tourists end up spending some money anyways. In a per person basis, it can be calculated, so that for stay-over tourists \$153.55 tourism expenditure is distributed amongst all the products. In practice, it does not make sense that the tourist will visit all the attractions with only \$153.55, because at revealed WTP prices it is necessary \$280.90 (see Table 4 above). It means that the tourist will need to choose amongst them and it will be done according to the heterogeneity in preferences as captured in Table 8. However, for the aggregate figures it does not matter and we can assume that the stay-over tourist is consuming a percentage 62.59% ($= 153.55/245.3$) and the cruise tourist is consuming 18.17% ($= 44.59/245.3$) of all the products.

Step 5: Final aggregation

Finally, we need to elevate the figures to the yearly basis. Thus, given that the stay-over tourists market comprises 519,601 people who visit 62.59% of the attractions at revealed WTP prices, we can obtain the revenue distribution per product. They are aggregated with the cruise tourists, who are about 471,461 people who visit 18.17% of the attractions. These figures provide the potential market size, which is used for the final estimates and aggregation. The results are shown in Table 9 below.

Table 9. Yearly revenue estimates

Air travellers (519,601 per year / 10 nights)

Product	Revealed WTP	Market size (62.59%)	Yearly revenue
Catamaran	78.7	325,218	25,594,657
Beach tour	72.9	325,218	23,708,392
Oistins	53.4	325,218	17,366,641
Garrison	6.3	325,218	2,048,873
Sugar & Rum	60.0	325,218	19,513,080
Bridgetown	9.6	325,218	3,122,093

Cruisers (471,461 per year / 1 day)

Product	Revealed WTP	Market size (18.17%)	Yearly revenue
Catamaran	44.4	85,664	3,803,482
Beach tour	49.7	85,664	4,257,501
Oistins	32.6	85,664	2,792,646
Garrison	16.2	85,664	1,387,757
Sugar & Rum	45.4	85,664	3,889,146
Bridgetown	22.7	85,664	1,944,573

Total

Product	Yearly expenditure
Catamaran	29,398,138
Beach tour	27,965,893
Oistins	20,159,288
Garrison	3,436,630
Sugar & Rum	23,402,226
Bridgetown	5,066,666

5. Current market analysis

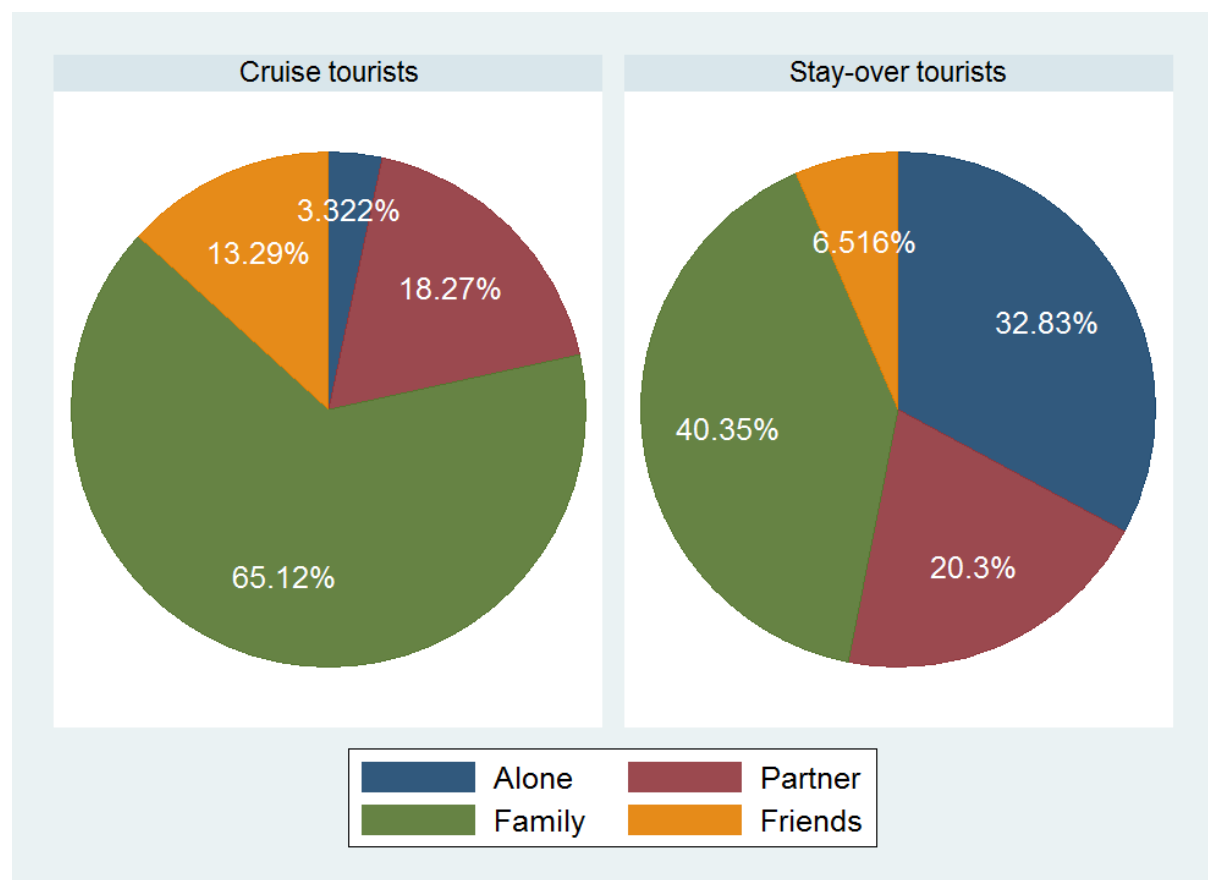
5,1 Socioeconomic profile of current tourists

This section describes the socioeconomic profile of current tourists, Figures are telling the story with some comments reinforcing the key findings,

a) Party size

Party size composition varies depending on the transportation mode, Cruise tourists are mostly families (65,12%), whereas alone travellers are a few (3,32%), Prices on cruise increases dramatically for alone travellers who are not sharing their accommodation, It is not so marked in hotels, where alone travellers have got a relevant share (32,83%), In relative terms, travelling with friends is more popular for cruise tourists than for stay-over tourists,

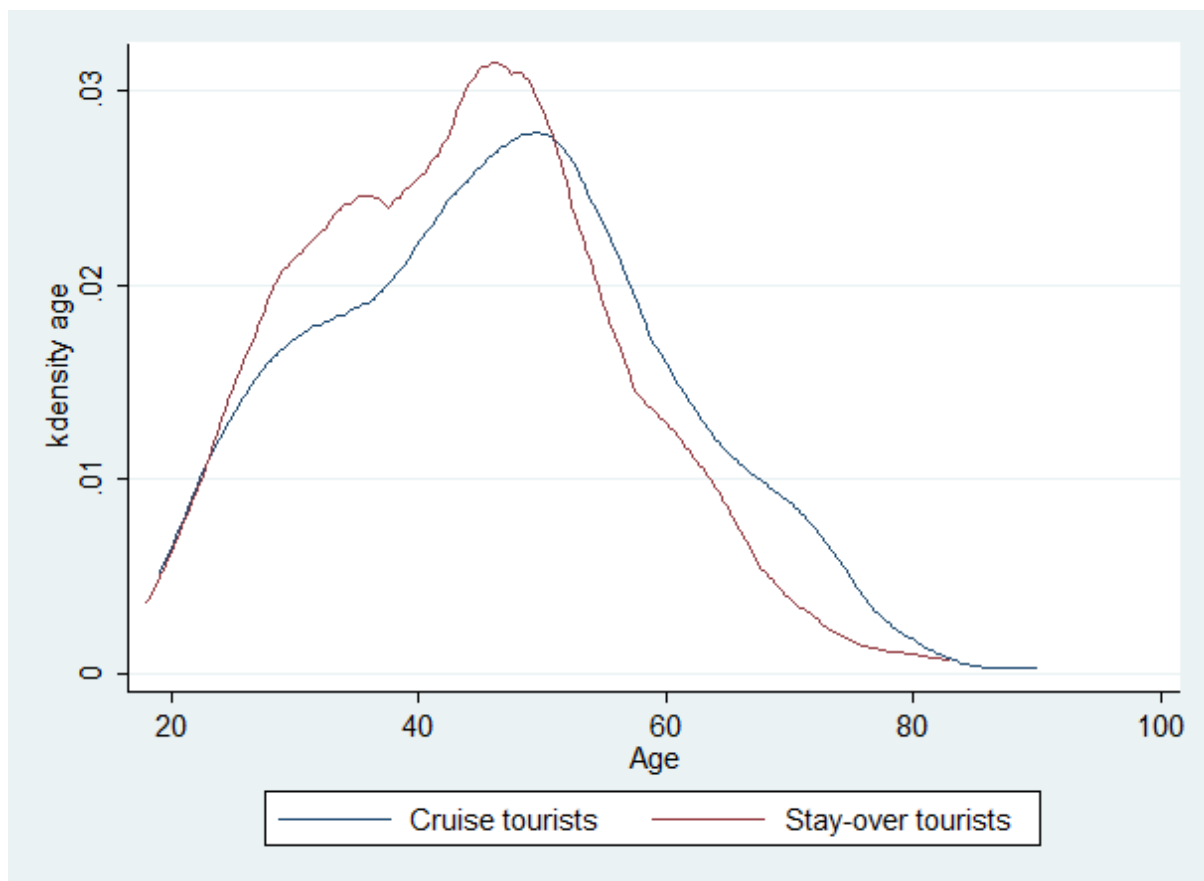
Figure 2, Party size composition by transportation mode



b) Age

It should be noted that this analysis comprises the age of the respondents only, so that the age of the rest of the family members is ignored in this analysis, Respondents must be over 18 years old and only one member of the family could answer the questionnaire, Having said that, average age of respondent tourists in Barbados is 44,7 years old, There is a tiny difference between cruise and stay-over tourists, Older tourists are more likely to use cruises, Indeed, average age of cruise tourists is 46,3, whereas average age of stay-over tourists is 43,5 years old, It should be noted that this is the average of the respondents, so that the age of the rest of the family members is ignored in this analysis,

Figure 3, Age distribution by transportation mode



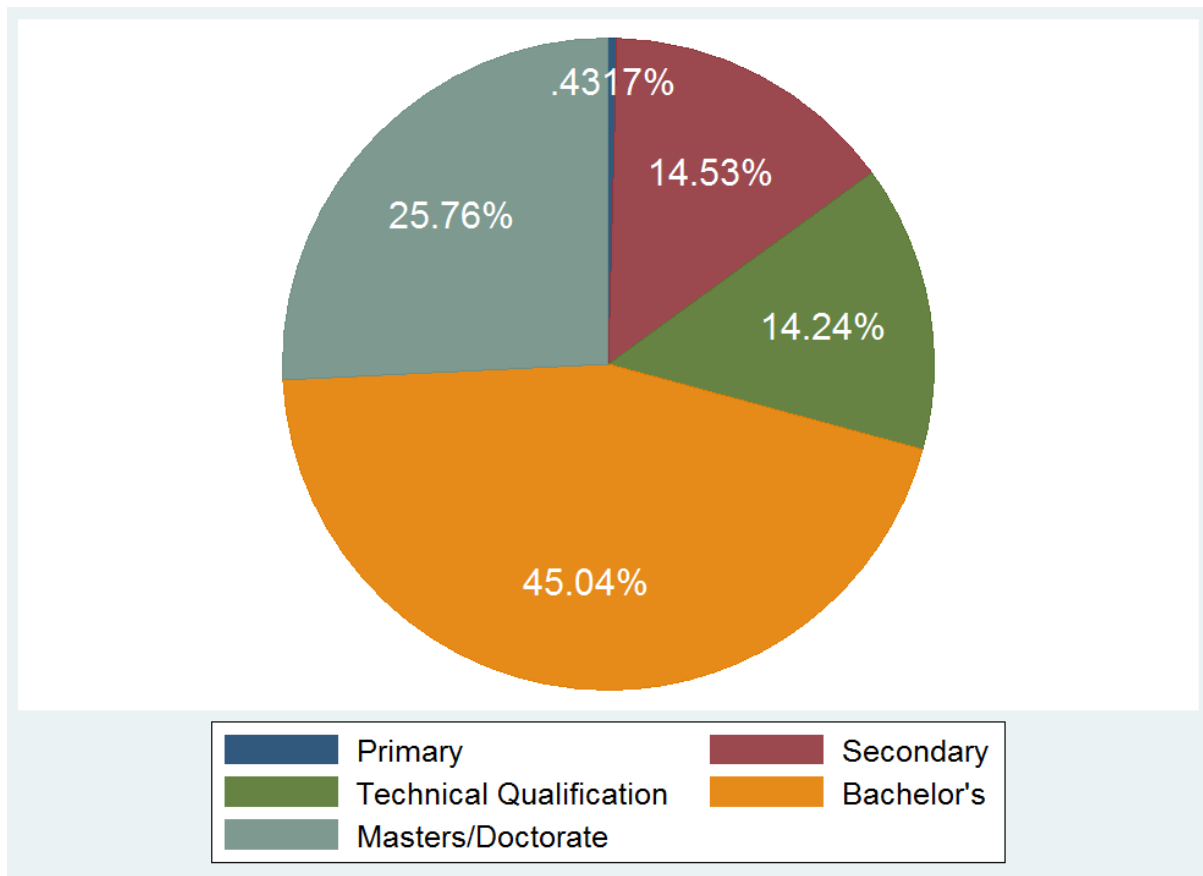
c) Gender

Gender of respondents is distributed pretty homogenously, with 54% males and 46% females,

d) Education

Most of the respondent tourists have got a Bachelor's degree (45,04%), followed by those who have got Masters and/or Doctorate (25,76%), It shows a highly educated profile of tourists, It represents a marked shift upwards with respect to origin populations,

Figure 4, Education attainment by respondent tourists



e) Income

Average household income is 115,725 US dollars, There are some differences among countries of origin, Figure 5 shows the distribution of income of most relevant countries, It shows that tourists travelling from USA, UK and Canada have got a pretty similar income distribution, Most of their families have got income around 100,000 US dollars, However, there are many households with higher income than that which pushes up the average, Caribbean tourists have got much smaller income tough, The majority of them have got income levels around 45,000 US dollars, Figure 6 shows Box-plot distribution of income by countries of origin as well, It shows Canadian have got smaller right-hand distribution tail than British or American tourists, It shows Brazilian income average as the highest income of all countries but with a short right-hand distribution tail, Figure 7 shows that, on average, stay-over tourists have got higher income than cruise tourists and they have a longer right-hand distribution tail,

Figure 5, Kernel density of income distribution by country of origin

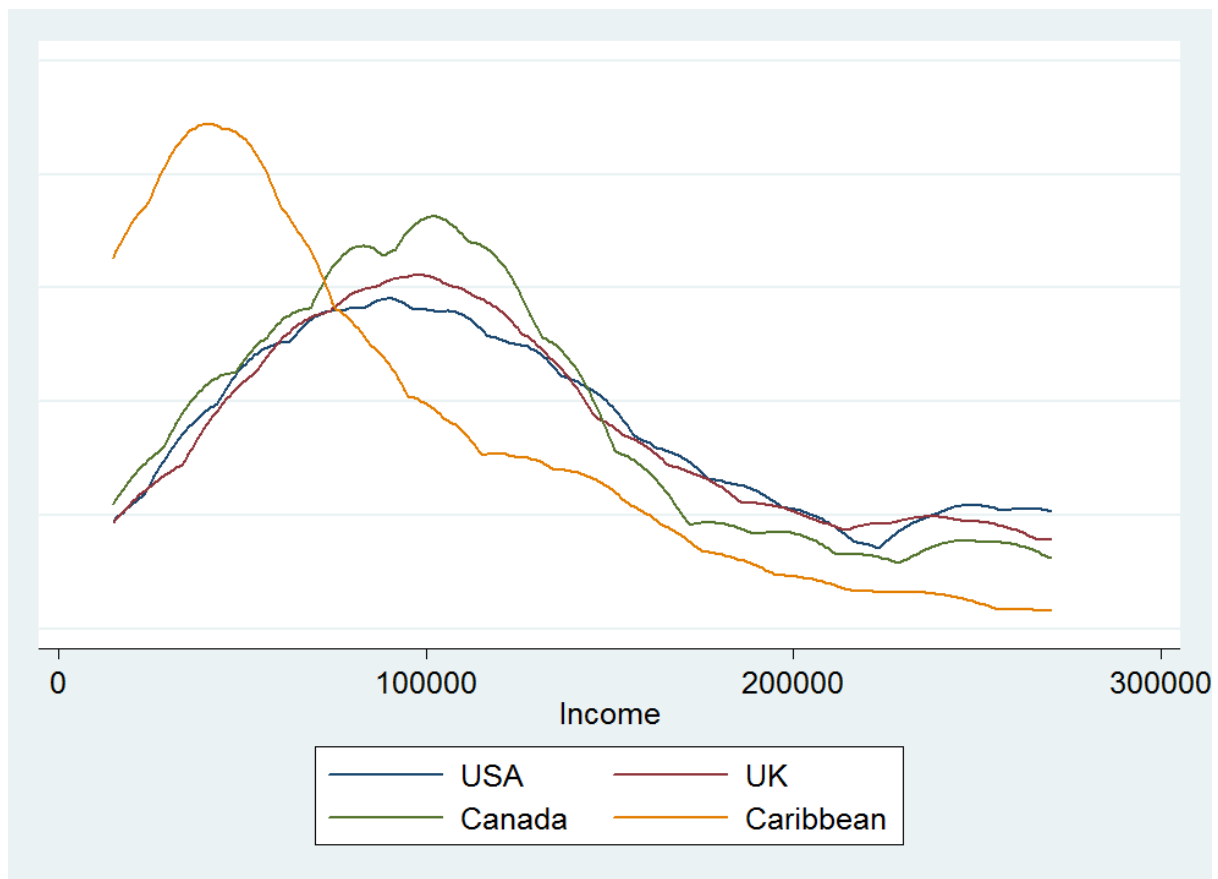


Figure 6, Box-plot of income distribution by country of origin

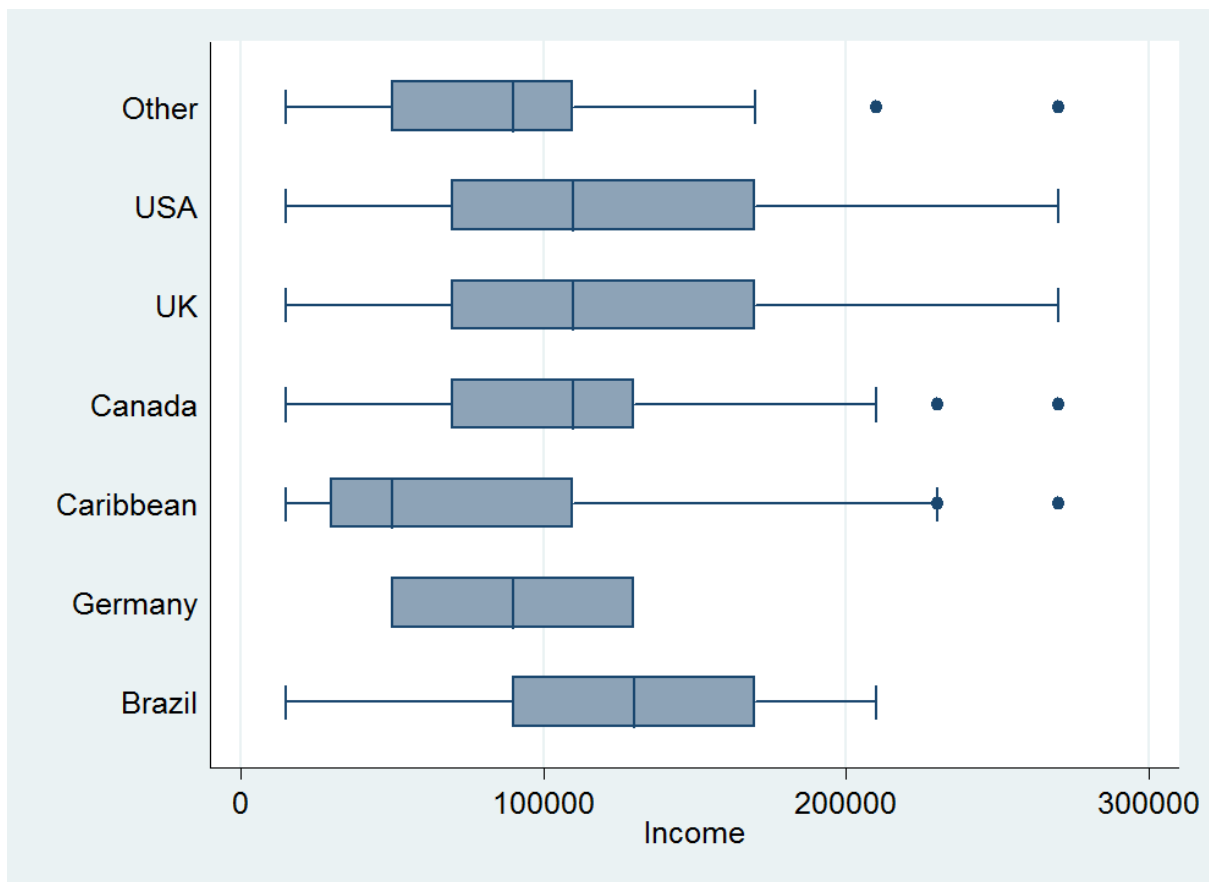
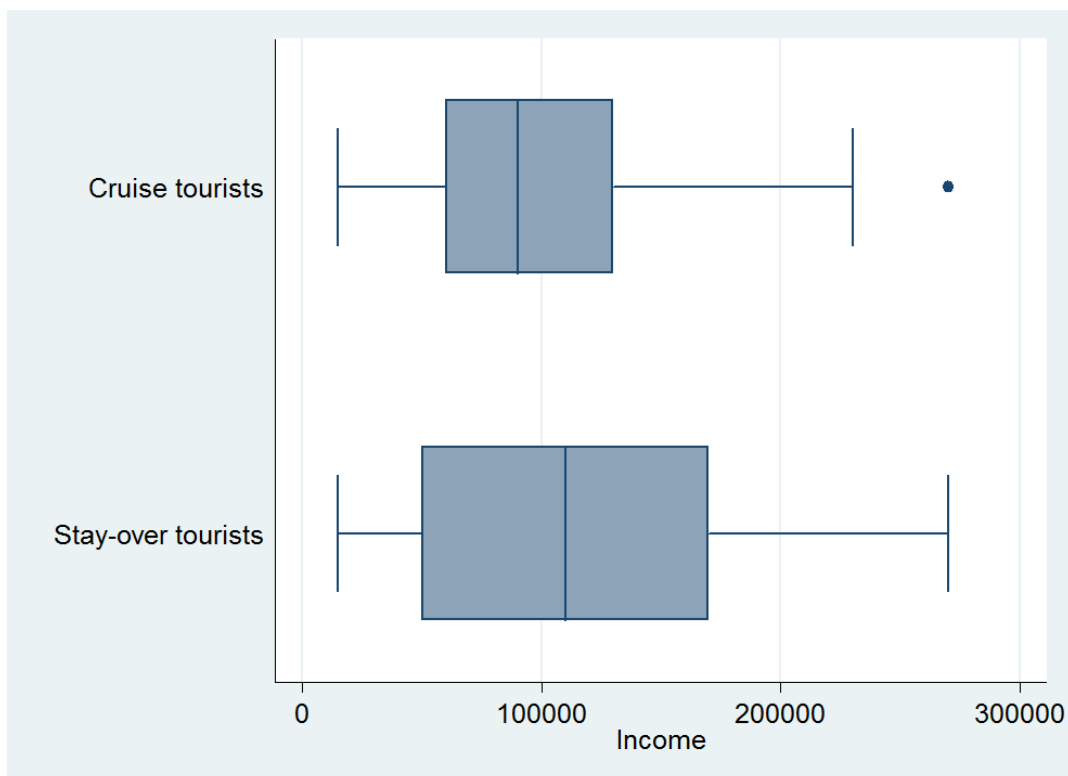


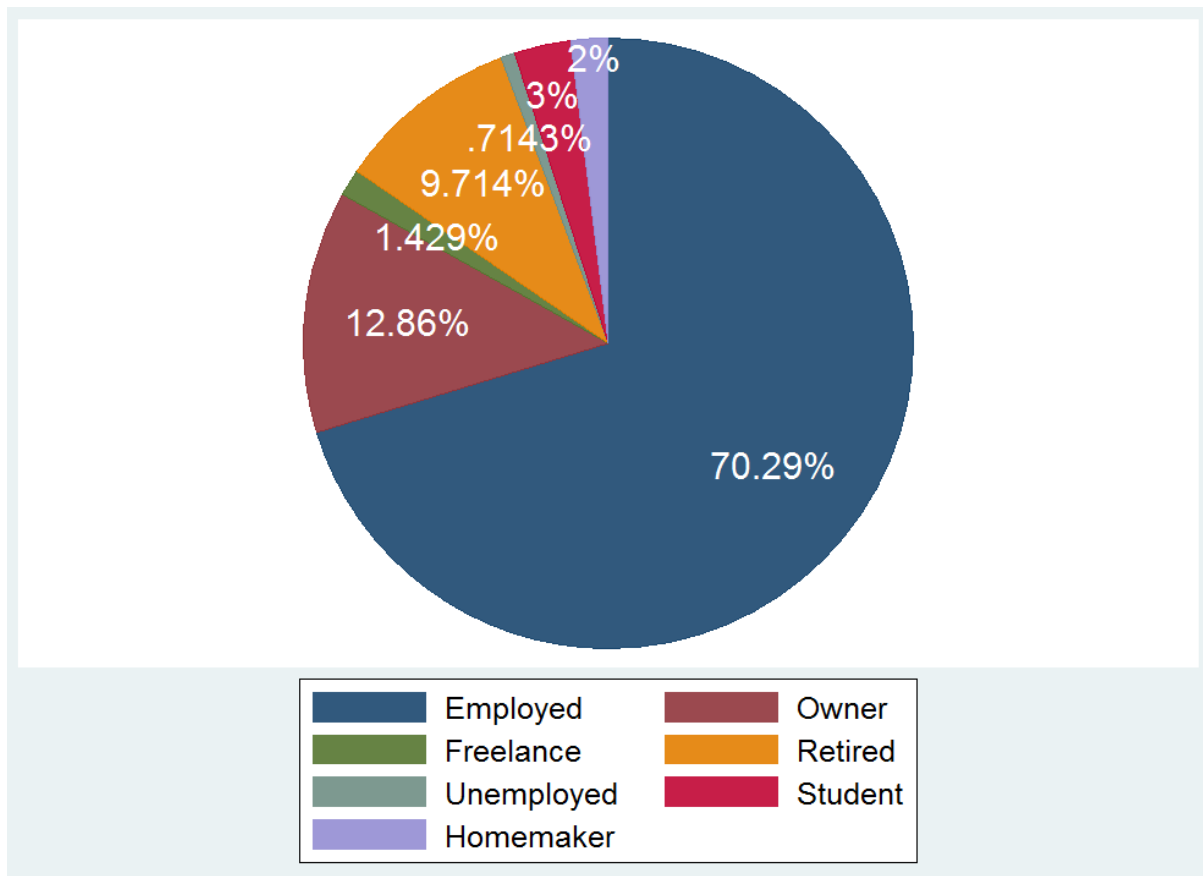
Figure 7, Box-plot of income distribution by transportation mode



f) Employment

Figure 8 shows that most of the respondent tourists are employed (70,29%), Owners of their companies (12,86%) and retired people (9,71%) are also relevant, However, students, unemployed, homemakers or freelance have got an insignificant representation,

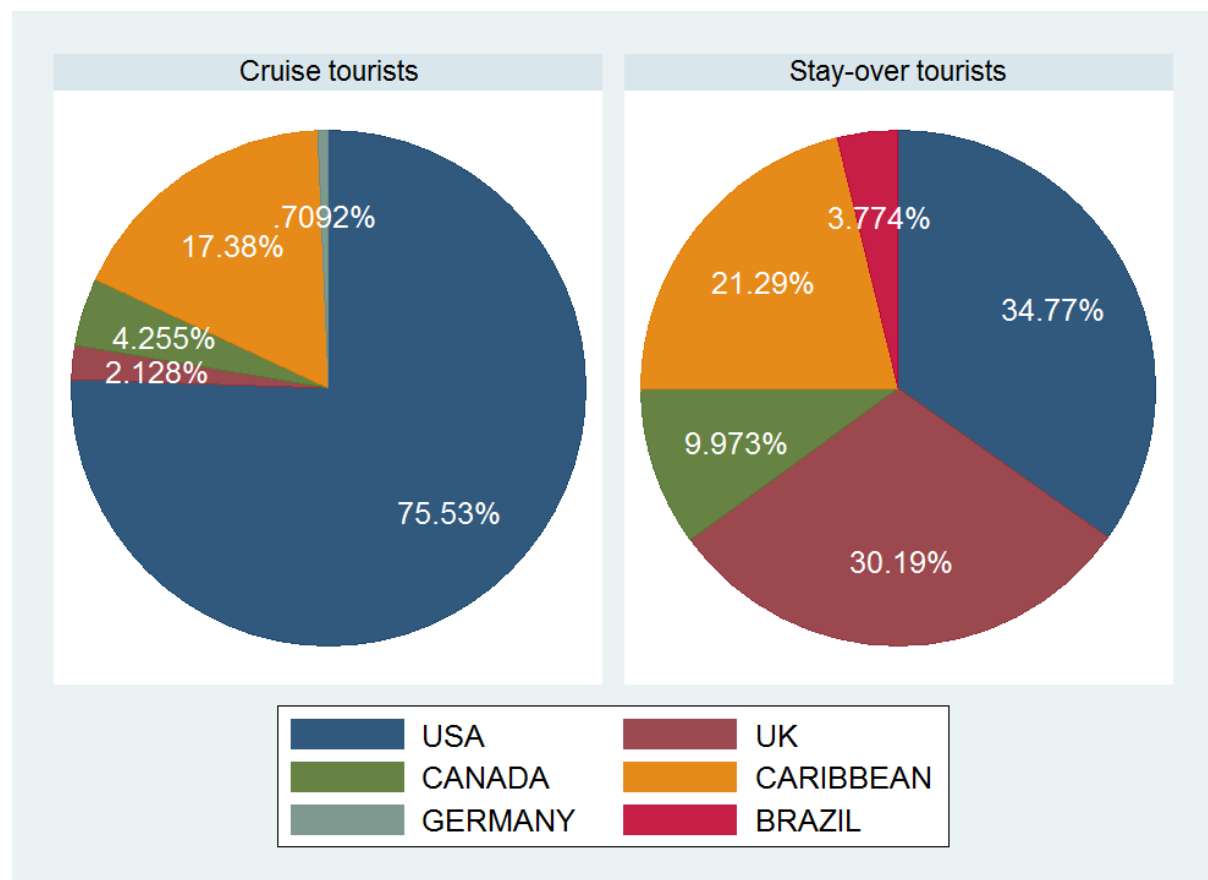
Figure 8, Employment distribution among respondent tourists



g) Origin country

Origin country distribution varies significantly by transportation mode, Cruise tourists are mostly used by American tourists (75,53%), followed by Caribbean tourists (17,38%), British tourists hardly use cruises, but they use flights, They represent 30,19% of stay-over tourists, However, American tourists are again the majority of stay-over tourists with a share of 34,77%, Caribbean tourists use flights even more than cruises in relative terms, The same case happens with Canadian tourists,

Figure 9, Origin country distribution by transportation mode

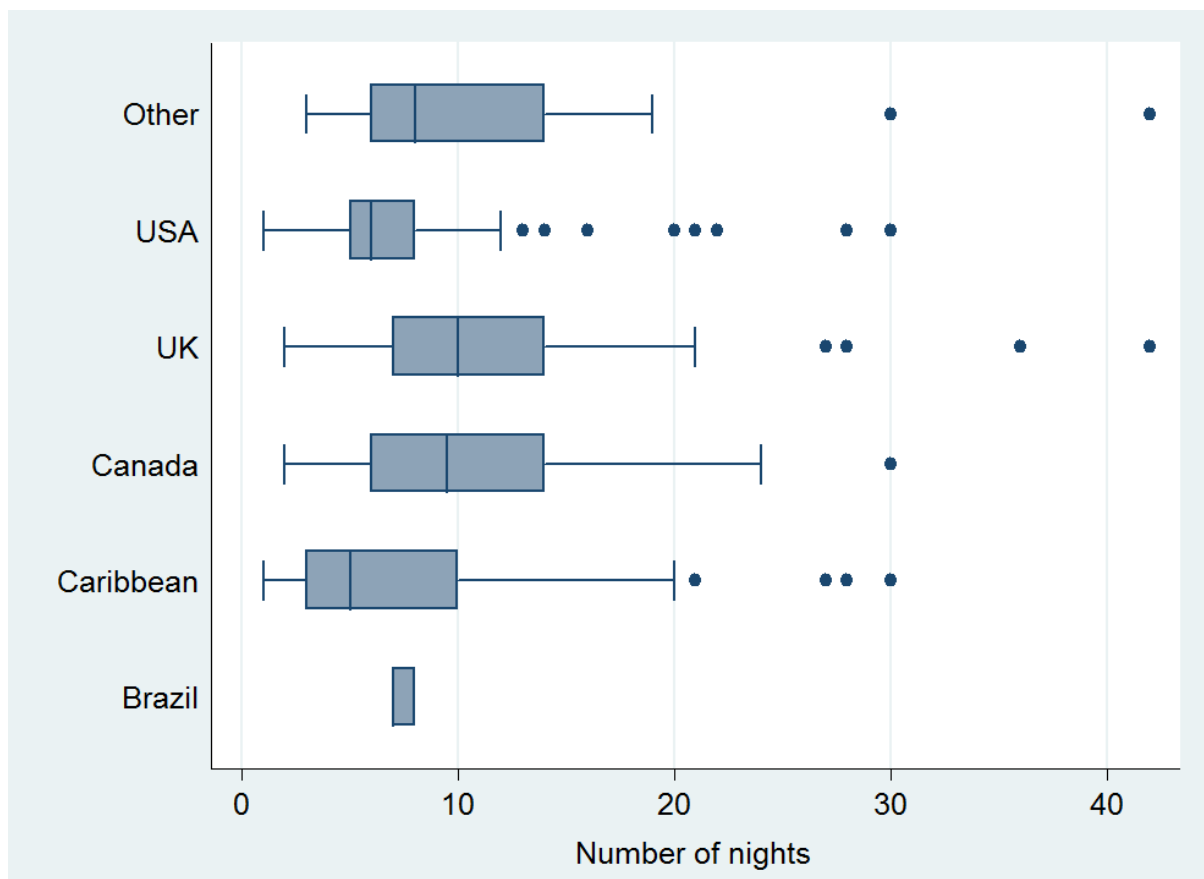


5,2 Current market analysis

a) Length of stay

For the analysis of the length of stay, it was necessary to truncate the sample in 50 nights to distinguish tourists from residents, Cruise tourists spend one day and they leave, as expected, Thus, the length of stay analysis focuses on stay-over tourists, Among them, British (11,49) and Canadian (11,66) tourists have got longest stays, on average, American tourists have got marked shorter stays (7,88), whereas Caribbean tourists have got even shorter stays (7,44), Brazilian tourists have not much choices for flights and they must return within 7 days, which happened with all the sample observations,

Figure 10, Length of stay of stay-over tourists by country of origin



b) Multidestination

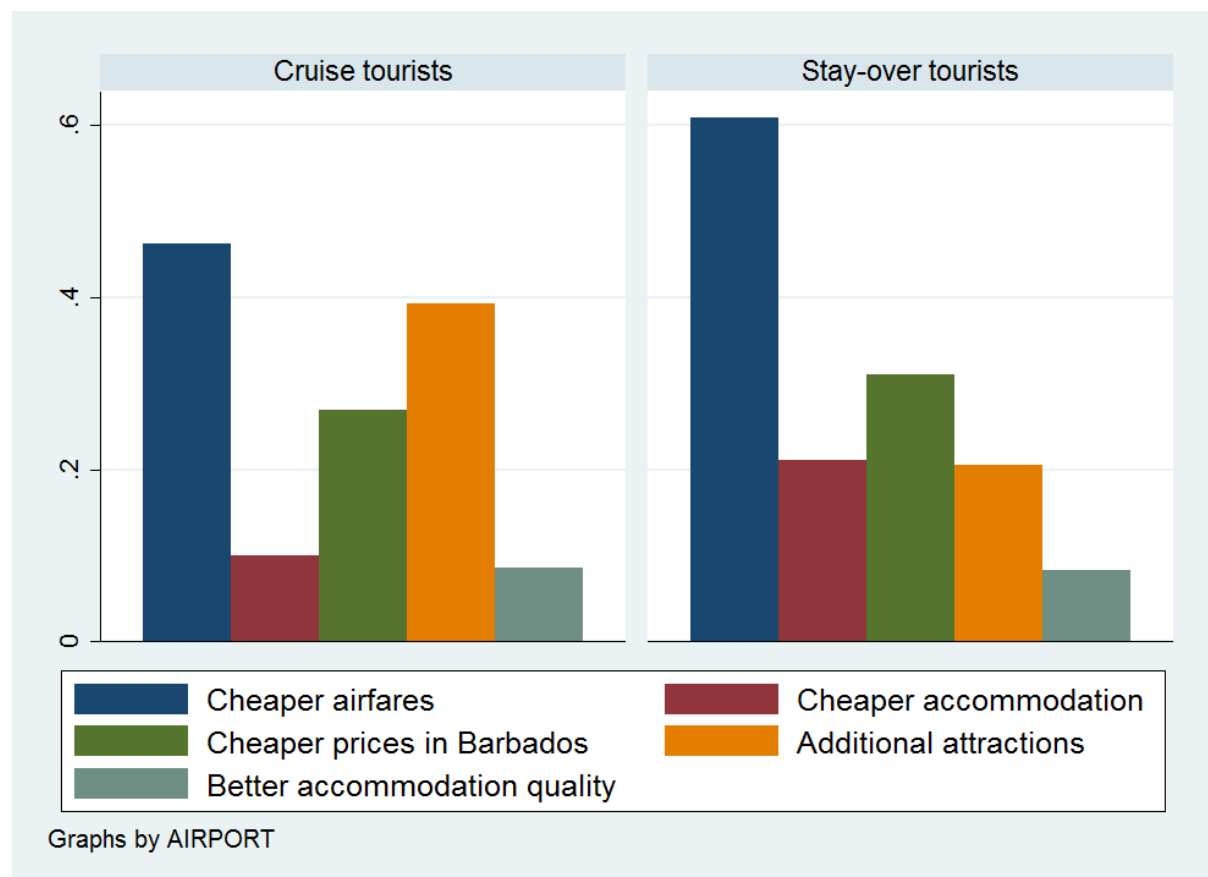
Multidestination is imperative for cruise tourists, but it is interesting to know which percentage of tourists who are visiting the airport are also travelling to another country, It is important to estimate possible leakages for spending nights in Barbados with respect to arrivals figures,

8,5% of stay-over tourists state they have travelled to another country, When they travel to another country they spend 11,19 nights on average on that country, Despite they travel to another country, they still spend 6,9 nights in Barbados, on average, It is a pretty close figure to the one of stay-over tourists who stay only in Barbados (10,69)⁵,

c) Encouragement to repeat visit

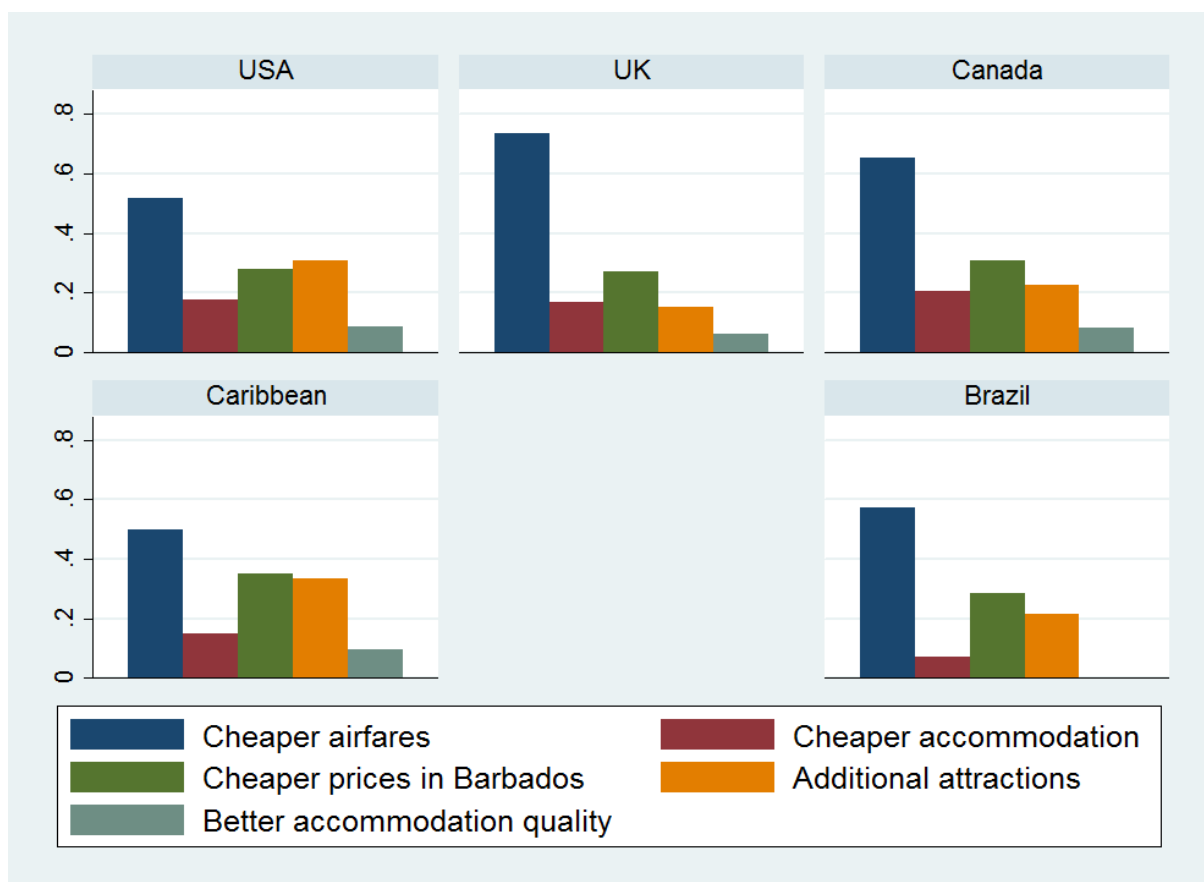
Interviewees responded which aspects may encourage them to repeat visit to Barbados (see Figure 11), On the one hand, cruise tourists are concerned by cheaper airfares (46,17%) and especially by additional attractions (39,2%), They are also concerned by cheaper prices in Barbados (26,91%), It is interesting that they are not concerned by accommodation issues, On the other hand, stay-over tourists are very concerned by airfares (60,9%), It is followed by far by cheaper prices in Barbados (31,07%), cheaper accommodation (21,05%), additional attractions (20,55%) and at the bottom, by better accommodation quality (8,27%),

Figure 11, Encouragement to repeat visit by transportation mode



⁵ This figure excludes multideestination tourists.

Figure 12, Encouragement to repeat visit by country of origin



Given the relevance of cheaper airfares as a key for encouraging tourists to repeat visit, it is necessary to distinguish it by country of origin, Figure 12 shows that the most affected countries by expensive airfares are UK, followed by Canada and Brazil, American and Caribbean tourists are less concerned in relative terms,

d) Expenditure

Three destinations were surveyed in the questionnaire: Bridgetown, Garrison and Oistins, It should be noted that if expenditure was disbursed for such destinations in a bundled way, then the expenditure was collected in Bridgetown, The expenditure figures includes the cost of tours, taxis and money spent in restaurants apart from the usual expenses at destinations, Figure 13 shows the results distinguishing between cruise tourists and stay-over tourists, Cruise tourists spend much less on the selected destinations than stay-over tourists, It makes sense as long as stay-over tourists repeat visits to those destinations during their stay, Alternatively, cruise tourists may be moving around with pre-paid packages, On top of that, they may be spending less on meals or drinks in Barbados if they have got them pre-paid on board,

Figure 13, Average expenditure in selected destinations in Barbados by transportation mode

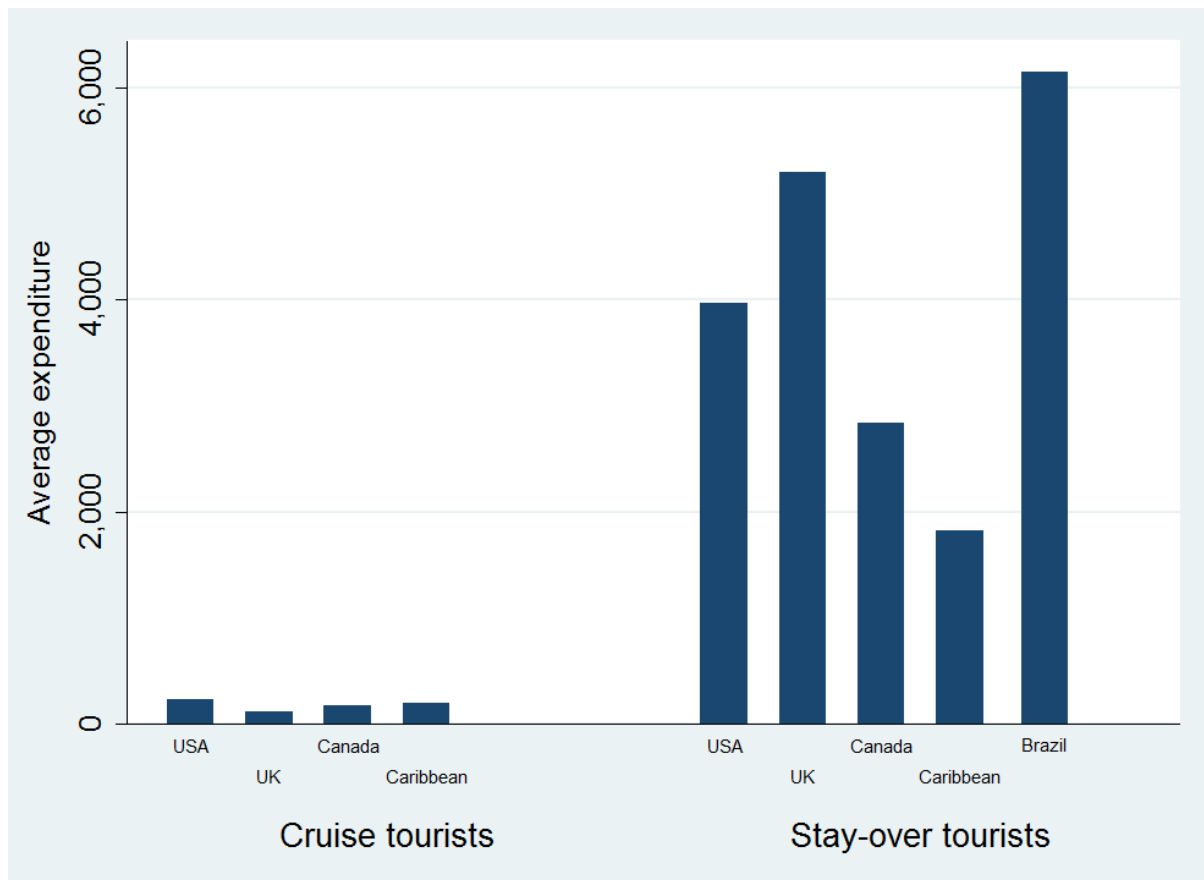


Cruise tourists spend, on average, 32,9 US dollars in Bridgetown, 0,13 US dollars⁶ in Garrison, none in Oistins and 59,1 US dollars in other destinations in Barbados (92,13 US dollars in total), Stay-over tourists spend more in all destinations, They spend 104 US dollars in Bridgetown, 1,68 US dollars in Garrison, 36,4 US dollars in Oistins and 175,12 US dollars in other destinations in Barbados (317,2 US dollars in total),

⁶ Please, keep in mind the way Garrison expenditure was collected (as explained above).

Total expenditure in Barbados is also a key figure to look at, Figure 14 shows marked differences among countries of origin, Brazilians are the tourists who spend more money (6,157 US dollars), on average, followed by the British tourists (5,197 US dollars), American tourists (3,963 US dollars), Canadian tourists (2,838 US dollars) and Caribbean tourists (1,826 US dollars),

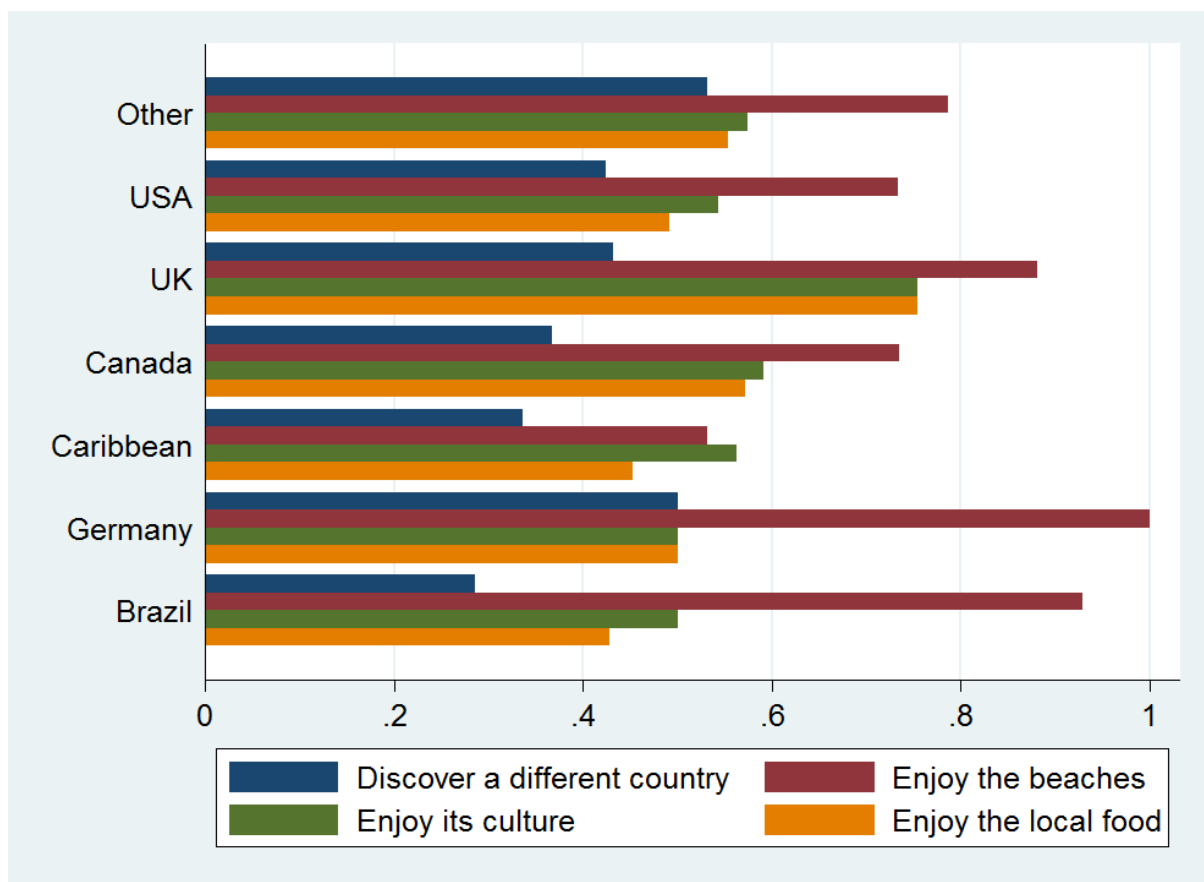
Figure 14, Total expenditure in Barbados by transportation mode and country of origin



e) Expectations

Figure 15 shows that the most expected aspect to be enjoyed in Barbados by all the origin countries are its beaches, The only exemption are Caribbean countries who prefer enjoying its culture, That is the second most expected aspect of Barbados, followed closely by enjoying the local food, The least expected aspect was to discover a different country of the Caribbean, By countries, it should be noted that Brazilian tourists are very keen on enjoying the beaches and not so much on enjoying food or culture, British tourists, however, are very keen on enjoying both the food and Barbadian culture,

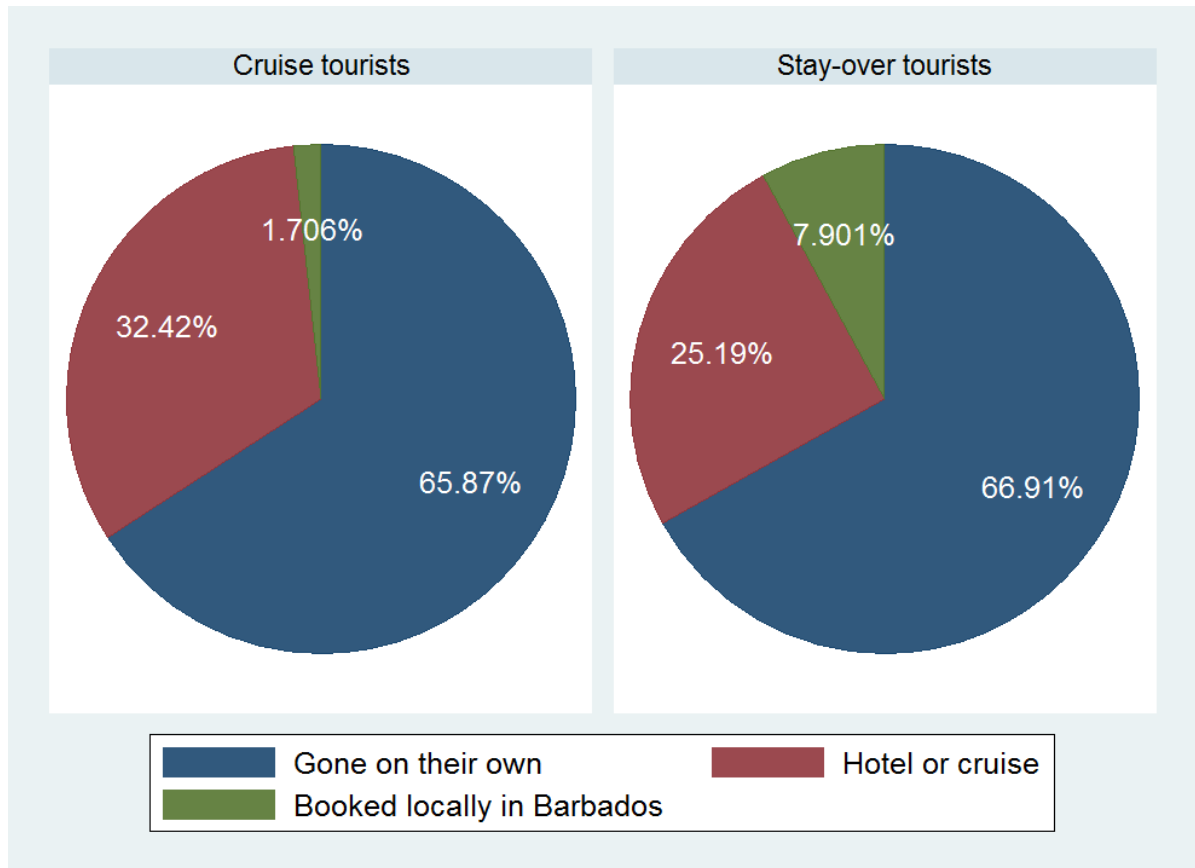
Figure 15, Expectations before disembarking in Barbados



f) Booking

Most of the tourists usually go on their own in Barbados (66%), However, cruise tourists are more likely to book their tours or activities on board (32,4%) than stay-over tourists (25,19%),

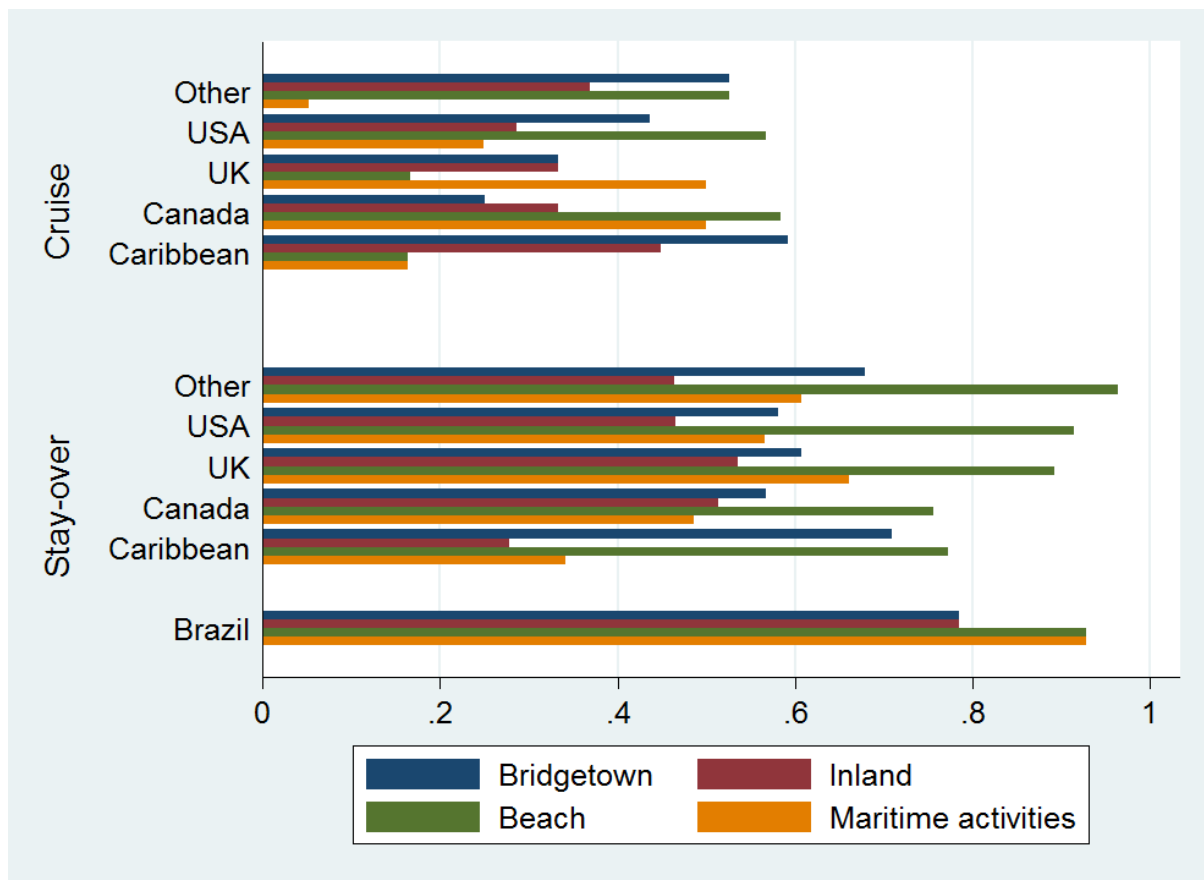
Figure 16, Expectations before disembarking in Barbados



g) Kind of visit

Figure 17 shows that preferences varies between cruise tourists and stay-over tourists, Such differences are marked and due to length of stay differences between both of them, Stay-over tourists are spending their time on the beach very likely (86,9%), whereas for cruisers it is less likely (49,5%), Such difference may also respond to the whole journey taken by cruisers with more beach options in other islands, Amongst the cruise tourists, British and Canadians are keen on maritime activities, whereas Americans prefer Bridgetown, Overall, amongst the stay-over tourists, apart from the beach, the rest of visits seem to be similarly successful, Nevertheless, inland visits are at the bottom, but not far from the others,

Figure 17, Kind of visit undertaken by country of origin and transportation mode



h) Interests in themes

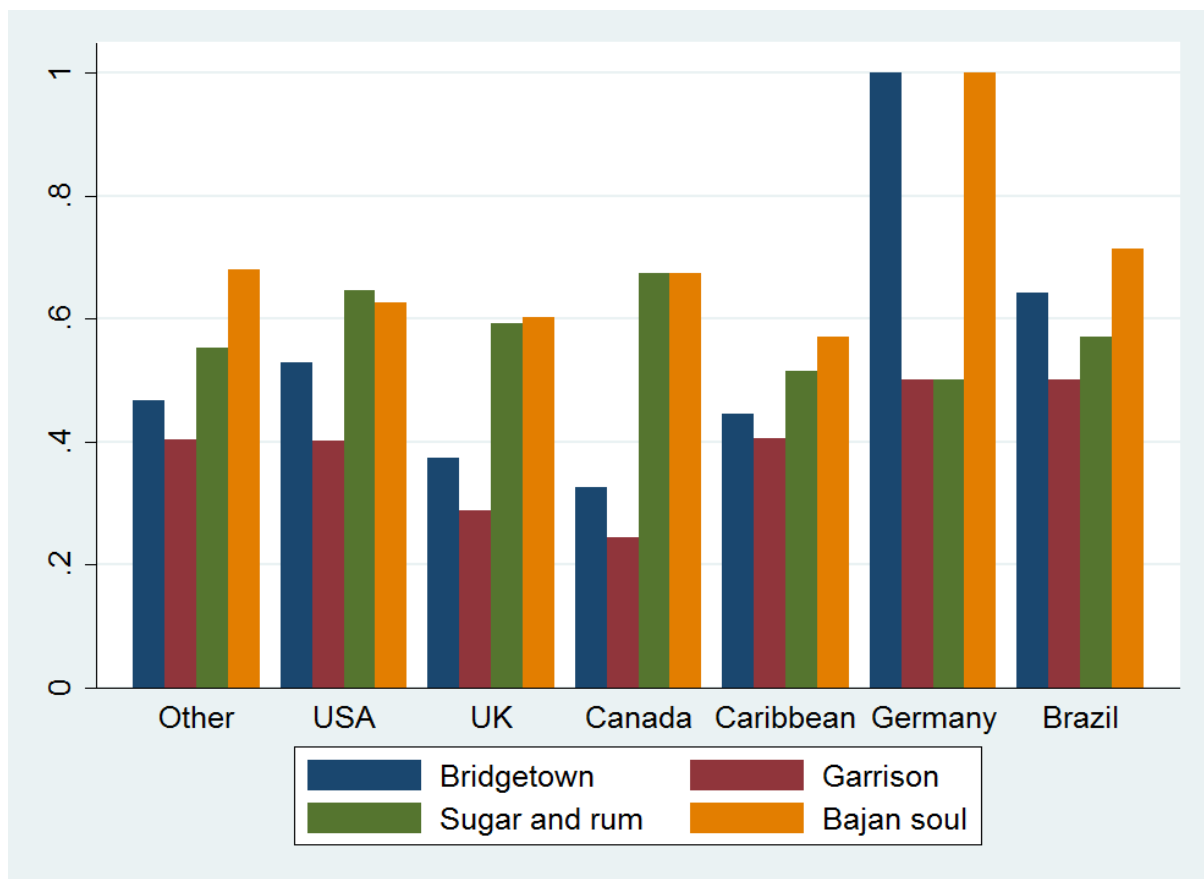
This study is pretty focused on understanding the potential success of certain themes and products, This section shows the preferences of current tourists in relation with certain themes, In the next section, such preferences will be analysed further, The themes were presented to the tourists in the following way:

- i) Bridgetown, an example of early Caribbean maritime engineering: one of the earliest port towns established in the Atlantic colonial trading system, with a particular tropical architecture and seascape,
- ii) The military world at the Garrison: a fortification that once was the center of the British colonial defense network in the Eastern Caribbean,
- iii) The history of sugar and rum: including slavery, plantation life, migration, relationships with the British Metropolis and assertion of local identity,

iv) Bajan Soul: Bajan living styles and, in particular, the sea microcosm and its relation to local spirituality, cuisine, music and dance,

In order to assess the preferences for the themes, a descriptive analysis of their means can be carried out, On average, the favourite theme is Bajan Soul (62,1%), followed by Sugar and rum (60,7%), Bridgetown (47,2%) and Garrison (37,4%), Tourists respond their preferences taking into account just the text shown above, In the next section, respondents will get richer information with product cards and the analysis will be more complex, The results distinguishing the origin country are shown in Figure 18,

Figure 18, Theme preferences by country of origin



6. Tourist profile identification by products

6.1 Ordered Choice Model

Every tourist can see a set of product cards describing 6 products (as shown in Annex II), Once they take consciousness of the products, they are asked about their preferences in three different ways:

- a) Rating their interest (Q8, see Annex I);
- b) Rating how likely they may extend their stay due to the presence of the new products (Q13, see Annex I);
- c) Rating how likely they may recommend Barbados due to the existence of the new products (Q14, see Annex I),

Hence, each individual i faces an ordered choice in relation to their preferences about the tourist products, Such decisions are denoted by y and they can take values between 1 and 7, The purpose of the model is to understand the behavioural process that leads to each preference on the products (j categories), This decision depends on observed factors x_i and unobserved factors ε_i , such that the underlying latent utility can be expressed as: $y_i^* = \beta'x_i + \varepsilon_i$, $i = 1, \dots, n$, However, y_i^* is not directly observed as a continuous variable, but as an ordered discrete variable, such as:

$$y_i = \begin{cases} 1 & \text{if } \mu_0 < y_i^* < \mu_1 \\ 2 & \text{if } \mu_1 < y_i^* < \mu_2 \\ 3 & \text{if } \mu_2 < y_i^* < \mu_3 \\ 4 & \text{if } \mu_3 < y_i^* < \mu_4 \\ 5 & \text{if } \mu_4 < y_i^* < \mu_5 \\ 6 & \text{if } \mu_5 < y_i^* < \mu_6 \\ 7 & \text{if } \mu_6 < y_i^* < \mu_7 \end{cases}$$

In this model it is assumed that neither coefficients nor thresholds μ_j differ across individuals, Moreover, the set of exogenous variables within vector x_i are assumed to be strictly independent of the error term ε_i , This error term is usually either distributed as a standard normal (with mean zero and variance 1) or a standard logistic (with mean zero and variance $\pi^2 / 3$), The first case is known as *ordered probit model*, and despite it has not a closed form, it can be estimated with simulation (Train, 2009), The latter case is the *ordered logit model*,

which presents a closed form and its estimation is more straightforward, In our case, we model the ordered choice with an ordered probit model, but both ways proved to be pretty similar,

In order to estimate the model, it is required to apply certain normalizations so that the model can be identified:

- a) In order to preserve the positive signs of all of the probabilities: $\mu_j > \mu_{j-1}$,
- b) In order to support the entire real line: $\mu_0 = -\infty$, $\mu_3 = +\infty$,
- c) The variance needs to be a predefined constant, as stated above,
- d) The parameterization of the model may differ, Greene and Hensher (2010) assume that the vector of covariates x_i contains a constant term, which requires that $\mu_0 = 0$, at the same time, the endogenous variable starts with 0, rather than with 1 as stated above, Such parameterization is supported by NLOGIT software, Alternatively, Stata or SAS do not require a constant term and the endogenous variable can take the values expressed earlier, Such differences do not affect the estimates of the slopes, but does affect the estimates of the constant and the thresholds (Long, 1997),

It should be noted that this kind of models are interpreted in relation to estimated probabilities, so that any marginal effect is also measured in terms of probability variations, Further details can be seen in Greene and Hensher (2010),

For a better understanding of the results, the technical details of the models have been omitted, so that a table summarizing the results are shown below, The criterion followed to set up these tables are significant variables with a positive or negative impact on the endogenous variable, The significance level threshold is set up in 0,10,

6,2, Tourist profile for Bridgetown

Table 10 and Table 11 summarizes the main findings from ordered choice model (ordered probit model) and binary choice model (probit model), In a similar fashion they are applied to the rest of the products and themes,

Table 10, Summary of probit model results for Bridgetown theme interest

<i>Who's got interest?</i>	
Positive	Negative
Older With partner With family	High income

Table 11, Summary of ordered choice model results for Bridgetown

<i>How much interest?</i>		<i>Who wants to extend the stay?</i>		<i>Who is recommending?</i>	
Positive	Negative	Positive	Negative	Positive	Negative
Women	Caribbean Canadians	Older Americans Germans	With friends High income	Women Older With friends Americans	

It should be reminded that tourists are shown a description of the theme first, Bridgetown text is the following one:

Bridgetown, an example of early Caribbean maritime engineering: one of the earliest port towns established in the Atlantic colonial trading system, with a particular tropical architecture and seascape,

A probit model is applied to identify which socioeconomic variables are related with interest in this theme, The results are shown in Table 10, They show that older tourists, tourists with partner and tourists with family are interested in this theme, However, tourists with high income are not interested,

Later on, tourists are shown the product cards (see Annex II), According to those cards they are asked for their preferences on them, Now, they can see the product and they can change their mind on the preferences,

Table 11 summarizes the results, Women are interested in the product and they are recommending it to friends or relatives, Older tourists are keen on staying one more night to enjoy Bridgetown, They are also happy to recommend it to friends and relatives, Neither Caribbean nor Canadian tourists have shown interest in the product, However, Americans or Germans are keen on staying longer in Barbados to enjoy it, Tourists who went with friends do

not want to stay longer to enjoy Bridgetown but they are happy to recommend it to other friends or relatives, Finally, high income tourists are not interested in extending their stay to enjoy Bridgetown,

6,3, Tourist profile for Garrison

Garrison theme was described in the following way:

The military world at the Garrison: a fortification that once was the center of the British colonial defense network in the Eastern Caribbean,

Table 12 summarizes the profile of those tourists who paid more interest to this theme, They are older tourists with partner,

Table 12, Summary of probit model results for Garrison theme interest

<i>Who's got interest?</i>	
Positive	Negative
Older With partner	

Once the product is shown with the card, the preferences in older tourists remain strong, They are interested, willing to extend their stay and to recommend it to friends and relatives, They seem to be very happy to enjoy this product, However, tourists with friends or family are not interested in visiting, despite those who travel with friends are happy to recommend it to other friends or relatives, High income tourists are not willing to extend their stay and they are not recommending the product, On average, British, Caribbean and Canadian tourists are not interested in this product,

Table 13, Summary of ordered choice model results for Garrison

<i>How much interest?</i>		<i>Who wants to extend the stay?</i>		<i>Who is recommending?</i>	
Positive	Negative	Positive	Negative	Positive	Negative
Older	With family With friends British Caribbean Canadians	Older Germans	High income	Older Alone With friends	High income

6,4, Tourist profile for Oistins

Early them description, such as:

Bajan Soul: Bajan living styles and, in particular, the sea microcosm and its relation to local spirituality, cuisine, music and dance,

As shown in Table 14, it paid the interest of tourists travelling with their partner or with the family, Moreover, tourists seeking experience food were also interested in this theme,

Table 14, Summary of probit model results for Bajan soul theme interest

<i>Who's got interest?</i>	
Positive	Negative
With partner With family Experience food	

Once the product was shown to the tourists, they changed their expectations, Younger tourists were more interested in the product, They were also keen on extending their stay to enjoy one more day the product, On the contrary, tourists travelling with friends were not that keen on extending their stay for this product, On average, tourists from all the nationalities were happy to recommend it to friends or relatives, It shows the acceptability and popularity of this product,

Table 15, Summary of ordered choice model results for Oistins

<i>How much interest?</i>		<i>Who wants to extend the stay?</i>		<i>Who is recommending?</i>	
Positive	Negative	Positive	Negative	Positive	Negative
Younger		Younger	With friends	Americans British Caribbean Canadians Brazilians	

6,5, Tourist profile for Sugar and rum

Sugar and rum theme was shown initially to the tourists such that:

The history of sugar and rum: including slavery, plantation life, migration, relationships with the British Metropolis and assertion of local identity,

This theme was a universally accepted one, Socioeconomic variables were not significant in this case, It means there are neither a positive nor negative linkages between the determinants and the preferences,

Table 16, Summary of probit model results for Sugar and rum theme interest

<i>Who's got interest?</i>	
Positive	Negative
Experience the country	

Table 17, Summary of ordered choice model results for Sugar and rum

<i>How much interest?</i>		<i>Who wants to extend the stay?</i>		<i>Who is recommending?</i>	
Positive	Negative	Positive	Negative	Positive	Negative
			With friends	Alone	

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