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Nature-Based Tourists in the Gironde Estuary: Examining and Identifying the Relationship between their Expenditure and the Motivations for their Visit

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This paper is a first attempt to investigate the effect of motivations, trip characteristics and the socio-demographic characteristics of tourists on their daily expenditure in the Gironde estuary. The paper examines the effect of these factors by adopting a quintiles regression and an OLS regression. Mainly the quintile regression allowed us to establish a segmentation approach into light, medium and heavy spenders. The empirical results indicate a significant relationship between the importance attached to perform a seaside tourism experience by tourists and their daily expenditure on a current trip. Surprisingly, these results contrast with the fact that the variable reflecting whether or not tourists have already visited a natural amenity appears to have no influence on the level of daily expenditure by tourists. The investigation additionally finds that travel motives, though to a lesser degree, when taken in tandem with variable such as household income, mean of accommodation chosen by tourists influence tourists' daily expenditure.

Keywords: *Gironde estuary tourists, daily tourist expenditure, nature-based tourism, quantile regression.*

JEL classification: *R11, R20*

1 Introduction

As indicated by its name, nature-based tourism is intimately linked to tourists' experiences in natural environments and their practice of outdoor activities. In France, it is estimated that more than five million people are interested in nature-based-tourism. Many factors have contributed to this trend. People are taking more and shorter trips, travelling more by car, combining business trips with holidays, looking for new experiences, adding diversity to their experiences, travelling as a family, and looking to "get back to their roots".

One of many other rich and preserved natural sites in France, the Gironde estuary is currently the best preserved of all the major European estuaries. It also presents some specific natural landscapes and biodiversity. Despite the fact that several segments related to nature-based-tourism already exist in this area (natural parks and wildlife, bird-watching tourism,

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special biodiversity, outdoor activities, specific landscapes ...etc.); the Gironde estuary has not yet been identified as a nature-based-tourism destination.

With a view to creating a new tourist trend based on nature discovery, it is necessary to identify the current positioning of this type of tourism in the Gironde estuary region and to examine its ability to attract nature-based-tourists.

A detailed investigation focusing on the determinants of tourists spending behaviour is presented in the economic literature as a means of understanding how leisure is perceived by tourists in a particular nature-based-tourism destination. Thus, understanding the spending behaviour of the Gironde estuary tourists requires appropriate data and tools in order to drive both private sector supply and policy makers' actions, in the sense of updating or further promoting this area as an affirmed nature-based destination at the regional, national and international levels.

Econometrics provides valuable tools for studying causal relationships between tourist characteristics, trip characteristics, motivation for the visit and consumer expenditure. Indeed this point is presented as an issue of growing interest by numerous scholars (Crouch, 1994; Lim, 1997; Li et al.; 2005, Song and Li, 2008).

In this paper we attempt to find a reliable assessment of tourist characteristics, trip-related characteristics, and tourist motivations for nature-based tourism in order to highlight the specific determinants of the spending behaviour of tourists and, in particular, of those motivated by nature-based-tourism in the Gironde estuary region. Specifically, this procedure will help to better identify the role of amenities as a tourist attraction in the Gironde estuary.

This paper is organised as follows: first, we will present the main theoretical background representing the basis of the definition of our empirical approach. This section will involve a literature review of the use of socio-economic, trip-related, psychographic and motivational characteristics as a determinant of tourist spending behaviour. We will then present and describe the data used in this study. Next, we will perform a dual approach analysis. Indeed, while ordinary least square (OLS) estimation provides the mean marginal effects of motivations expressed by tourists for visiting natural sites and discovering biodiversity, this paper contributes to the literature by adding quantile regression analysis to highlight the heterogeneity of the effects of tourist motivations on daily expenditure across tourists with different levels of total daily expenditure: heavy versus light spenders.

2 Theoretical Background

Tourism is a social, cultural and economic phenomenon that involves people travelling to countries or places outside their usual environment for personal or professional reasons. In terms of economic research, most of the existing studies have focused on assessing the impact of tourist spending on local economies to quantify the economic benefits, namely the net increase in resident wealth resulting from the development of tourist activities evaluated in

monetary terms (Archer, 1973 and 1977; Sinclair and Sutcliffe, 1988; Fletcher and Archer, 1991; Adam and Paramenter, 1991, 1994, 1995; Blake, 2000). Very little attention was paid to the identification of tourist spending determinants at their tourist destination before the 1980s. Since then, according to Aguilo Perez and Juaneda Sampol (2000), the interest in the determinants of tourist expenditure must be ascribed to the evolution of the tourist market. In this context, numerous theoretical and empirical studies have highlighted the influential role of socio-economic characteristics, trip-related characteristics and psychographic variables on spending behaviour. Particularly, in the specific case of nature-based tourism, the motivations for visits appear to be a pertinent and useful variable that completes the list of characteristics and variables impacting the prediction process for tourist spending behaviour during trips (Dardis *et al.*, 1994; Cali *et al.*, 1998; Fish and Waggle, 1996; Agarwal and Yochum, 1999; Jang *et al.* 2004) and consequently the economic demand for a specific tourist destination.

From an economic point of view, consumer behaviour theory assumes that the demand for goods and services by consumers can be expressed in terms of their tastes, preferences and income, and market prices (Dardis *et al.*, 1981). Applied to the tourism sector, consumer theory suggests that tourism demand is closely linked to income, prices, consumer tastes, and other political, geographical, social and cultural characteristics.

In what follows, we will present a brief literature review regarding the use of these different characteristics.

2.1 Socio-demographic and Economic Characteristics of Tourists

Numerous authors have focused on the study of household income as being positively related to tourist product costs (Thompson and Tinsley, 1979; Dardis *et al.*, 1981, 1994) including food and catering, the type of accommodation chosen and the nature of the trip (Davies and Mangan, 1992). Indeed, income was identified as the most critical variable defining tourist demand (Crouch, 1994).

From a microeconomic point of view, based on the results of their research on the assessment of daily tourist expenditure trends depending on household size, Agarwal and Yochum (1999) find that an increase of about 10% in household income would result in an increase of about 0.95% in expenditure by tourists during their trip. Thus, despite the fact that the increase in terms of the expenditure level does not appear to be significant, Agarwal and Yochum (1999) also affirm that income is the most significant determinant of tourist spending behaviour.

Household composition was also included as a characteristic in the definition of tourist spending behaviour by Jacobs and Shipp (1990). In addition, as argued by Searle *et al.* (1993), all of the determinants of the decision-making process in terms of tourist destination choices and spending behaviour appear to be linked to family life cycles, and more especially to the age of the head of household (Lawson, 1994). Following this same line of thought, Rapoport

and Rapoport (1975) argue that age is the major determinant of spending behaviour. This assertion was supported in particular by the work of Lehto et al (2002), showing that age and family life cycles have a significant influence on the spending behaviour of tourists in a specific tourist destination.

It should be emphasised that the spending behaviour of men differs from that of women in several ways. A good deal of research supports the finding that contrary to popular belief, proof already exists concerning the importance of the role of gender in directing tourist spending behaviour. Indeed, when holidays are taken as a family, the behaviour adopted during the trip is considered to be group behaviour rather than individual behaviour (Lawson, 1994).

The educational level of the head of household plays a major role in guiding both the choice of the tourist destination and the spending behaviour adopted by the household as a whole. Cai et al. (1995) identified a positive relationship linking the educational level of the head of household and the accommodation type chosen, and consequently the level of spending during the stay. Similarly, Dardis et al. (1981) and Cai et al. (1995) suggest that the marital status of tourists also has an impact on tourist spending behaviour.

2.2 Trip-related Characteristics

The integration of the concept of trip-related characteristics plays a key role in the explaining process for tourist spending behaviour (Jang et al., 2004). More especially, in the particular case of the international tourism market, along with socio-economic variables, trip-related characteristics help to better explain the spending behaviour of international tourists (Hsieh et al., 1997).

It should be emphasised that socio-economic and trip-related characteristics remain jointly referenced and discussed in the economic literature on tourism. Among others, Perez and Sampol (2000) studied tourist consumption and spending behaviour related to the seaside tourism context. Their work highlighted a significant relationship between the socio-economic profile of tourists (mainly their age, income and profession) and the characteristics of their trips (mainly the type of accommodation they choose and whether or not they have already visited the destination in the past).

The expenditure level may vary depending on whether tourists are renewing their visit to the destination or are visiting it for the first time. A comparison made by Oppermann (1996) between the levels of two groups of tourists, those renewing their visit to the site of Rotorua in New Zealand versus first-time visitors, showed that each group of visitors tends to focus on a particular type of visit to cultural sites and to be engaged in specific activities. In addition, tourists repeating their visit have a daily spending level below that of tourists visiting the destination for the first time.

Lee (2001), based on his investigation of tourist spending behaviour in the context of river tourism, argues that the tourist group size is considered as one of the key factors conditioning the spending behaviour of tourists during their stay. In fact, the number of adults in the group has a positive impact on the level of expenditure by tourists (Dardis and al., 1994). In addition, it appears that the tourist group size considered jointly with the duration of stay has a considerable positive influence on the spending behaviour of tourists. According to Smallwood (1981), the presence of children in the tourist group has a negative impact on the level of spending on catering by tourists. Indeed, the duration of stay is a central factor impacting the definition of tourist spending behaviour (Agarwal and Yochum, 1999). Logically, the longer the stay is, the higher is the level of spending by the tourist (Jang et al., 2003).

2.3 Motivations for Visits and Psychographic Variables

Socio-economic and trip-related characteristics are not sufficient to explain tourist spending behaviour. In fact, individuals belonging to the same demographic and socio-economic category may adopt different decision making processes in terms of the choice of tourist destination, as well as various expenses. Consequently, understanding the psychological factors and motivations guiding consumer behaviour and attitudes appears to be an interesting complementary approach.

Particularly, the main aim of the study of psychographic variables is to facilitate a more holistic description and understanding of the human characteristics conditioning consumer reactions and responses to products supplied by the market (Witt and Wright, 1992). These variables are presented in the literature as tools with high predictive potential, hence they could be effectively rallied to highlight trends and to plan for the management of the nature-based tourism market (Espinoza, 2002).

Human actions are not only motivated by material goals. Ideally, these goals are a matter of either intrinsic or extrinsic motivations (Mannell and Iso-Ahola 1987). This latter assumption implies that when an activity is undertaken in order to meet a specific extrinsic purpose of that activity, it is considered as an extrinsically motivated activity. Alternatively, when no extrinsic purpose appears to be justifying or supporting the consumer's behaviour (the activity undertaken does not involve any physical counterpart), we say that this activity is intrinsically motivated. Nevertheless, exceptions exist. Indeed, the fact that people take action where the primary motivation is extrinsic (making money, for example) appears to be the dominant rule; leisure activities are primarily motivated by intrinsic factors (such as relaxation, fulfilment or personal satisfaction). Here it is important to note that expectations in terms of intrinsic and extrinsic motivations are subjectively defined, which means that considering the way people perceive leisure motivations presents itself as a valuable approach.

Applied to tourism, the concept of psychographic variables has gained popularity since 1970. Woodside and Pitts (1976) suggested that such variables appear to be much more interesting and useful than socio-economic variables. Iso-Ahola (1982) proposed that motivations and psychographic factors could be adopted as major and central determinants of the analysis process for tourist behaviour in natural environments, rather than other factors related to socio-economic and trip-related attributes. In fact, tourism is a social and psychological experience that has its origins in the individual's consciousness.

First attempts at including motivations for the trip as an explaining variable of consumer choice processes were made by Maslow (1943). Later, Crompton (1979) developed a conceptual framework enabling the identification of two categories of motivations influencing the decisions made by consumers in terms of the choice of tourist destination. These are socio-psychological motivations (such as the need to escape in a natural environment, personal assessment, relaxation, prestige, enhancing relationships and social interaction) and cultural motivations (such as an introduction to nature, pedagogical and educational discovery).

Dealing with the special case of consumer spending behaviour in a nature-based tourism destination, Leones *et al* (1998) have shown that tourists who are motivated by the discovery of nature have a higher level of expenditure than other tourists visiting the same area. Furthermore, decision making in terms of the choice of destination is not spontaneous; tourists usually work out a budget to cover their expenses. Typically, this budget is the result of several months or even, in some cases, a year of saving. Consequently, the limited experience of some tourists in terms of nature-based tourism creates a psychological challenge for individuals, inciting them to make the right decisions and to succeed in their choice of destination (Yuan and McDonald, 1990).

Furthermore, the concept of psychographic variables was used empirically by Plog (2002), who closely examined the extent and the predictive power of psychographic variables in contrast with the income variable in the particular context of adventure tourism. The result of his research showed that, on the one hand, adventure tourists tend to have a burning desire to travel and to explore the world around them, and on the other hand, it is accepted that high-income tourists have greater potential for spending than low-income tourists. In this context, it is logical to maintain income as a variable explaining and predicting spending behaviour. Psychological variables are considered to be the most reliable indicators of trip frequency in addition to the type of activities undertaken by tourists during their stay. Thus, combining psychographic and socio-economic variables enhances the predictive power of spending behaviour in a context of leisure tourism.

3 Methodology

3.1 Data Description

The data necessary for this study were gathered by means of a face-to-face questionnaire aimed at extra-regional and international tourists visiting the Gironde estuary area in July and August 2010. A total of 407 interviews were conducted. As noted by Weaver (2002), many works dealing with nature tourists appear to be based on a general sample of tourists rather than on those who can be identified as nature-based tourists. In order to avoid this pitfall, it was decided that the data used in this research would be collected in the Gironde estuary area through a questionnaire that had been specifically developed for nature-based tourists. Here, nature tourists are defined as people who visit a particular nature-based attraction (Lang and O'Leary, 1997), which implies that tourists perceive the Gironde estuary as a tourist destination providing a range of experiences that primarily depend on nature (Holden and Sparrowhawk, 2002). Hence, tourists were mainly interviewed in coastal areas representing the favourite background for nature-based attractions and outdoor activities in the Gironde estuary. The questionnaires included items about the respondent's socio-economic profile (age, income, household size) trip-related characteristics (duration of stay, type of accommodation, activities undertaken), as well as their motivations for the trip.

Dependent variable: Daily expenditure in the current study was measured by asking respondents to estimate how much they had spent the day before the questionnaire. We estimated total expenditure for the tourism experience by considering the whole experience in the Gironde estuary area to represent a composite (heterogeneous) commodity. Total daily expenditure is then considered as the sum of expenditures incurred by the tourist in terms of commodities, catering, leisure and the purchase of durable goods and souvenirs.

Independent variable: Boo's approach (1992) was used to operationalise specialist and generalist tourist concepts in the current study. Boo categorised nature-based tourists in terms of the importance they placed on nature when choosing a specific destination (i.e. of primary importance, somewhat important or not important at all). In reference to this work, in our research, respondents were asked to precisely indicate the degree of importance they attached to the existence of natural areas and amenities in the Gironde estuary region. They were asked to report their main motivations for the visit and classified as motivated by nature-based tourism in the case they mentioned: natural site and amenities visits, outdoors activities performance, and seaside tourism performance as motivations for their visit. Otherwise they were classified as mass tourists. Data with respect to, age and household income were also collected in a metric form. Respondents were also asked about the duration of their stay, whether or not if they had chosen an all-in package stay formula. In addition, tourists were

asked whether or not they had already undertaken an activity related to natural site visits, the outdoors or seaside tourism. The definition and descriptive statistics of all variables used in our analysis are presented in Table 1.

Table 1 - Definition and Descriptive Statistics of Variables

Variable name	Variable definition	Mean	Std. Dev.	Sample size
Dependent variable				
DepJour	Daily expenditure for hotel, food, recreation and souvenirs purchased per consumption unit in euros	3,167	0,906	407
LnDepJour	Natural logarithm of daily expenditure per consumption unit in euros	33,701	27,386	407
Independent variable				
Motivation				
statut	Tourist status: dummy variable taking the value 1 if the respondent is motivated by nature-based tourism	0,554	0,49	407
Trip characteristics				
SejC	Short stay: dummy variable taking the value 1 if the respondent is spending less than 3 nights at the site	0,168	0,374	407
SejL	Long stay: dummy variable taking the value 1 if the respondent is spending more than 5 nights at the site	0,497	0,501	407
fprest	All-in stay package: dummy variable taking the value 1 if the respondent chooses this type of stay	0,151	0,359	407
Hotel	Hotel: dummy variable taking the value 1 if the respondent chooses a hotel as the means of accommodation	0,066	0,249	407
camping	Camping: dummy variable taking the value 1 if the respondent chooses camping as the means of accommodation	0,233	0,424	407
estuprem	Return visit: dummy variable taking the value 1 if the respondent is renewing the visit to the site	0,4	0,491	407
tourfluv	Seaside tourism: dummy variable taking the value 1 if the respondent has already undertaken a seaside tourism activity since arriving at the site	0,197	0,398	407
sitenat	Natural park or amenity visit: dummy variable taking the value 1 if the respondent has already visited a natural site or an amenity	0,273	0,446	407
Socio demographic characteristics				
LnAge	Natural logarithm of the age of the head of household.	3,847	0,3	407
LnRev	Natural logarithm of family income measured per consumption unit in euros	6,463	0,609	407

3.2 Estimation Procedure

We adopt a two-step estimation process. In the first step, we choose a model adopted for metric responses, namely the OLS regression, presented as the most classic linear regression model. Indeed, expenditure is seen as a set of individual characteristics, and we will therefore use this most common approach. To do so we will transform expenditure through logarithm, which provides a direct interpretation of estimated coefficients in terms of elasticity.

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

4 Results

Column 1 in Table 2 reports the OLS estimation results. The coefficient of the variable camping (i.e. -0,17) implies that, on average, choosing camping as a means of accommodation during the trip reduces daily tourist expenditure. The coefficients of the variable indicating tourist motivations to visit natural areas in the Gironde estuary *statut*, the choice of a hotel as a means of accommodation *Hotel*, undertaking activities related to seaside tourism *tourfluv*, and the household income *LnRev.*, indicate a positive relationship between the daily expenditure of tourists and these characteristics. Surprisingly, it turns out that the variable reflecting whether or not tourists have already visited natural sites, *sitnat*, has no significant influence on the level of their daily spending behaviour. Other explanatory variables in Table 2 are statistically insignificant at all levels.

Columns 2–6 in Table 2 report the quantile estimation results. The dependent variable is categorised from lowest to highest quantiles of daily expenditures. Different from the mean marginal effects estimated by the OLS, the quantile estimation indicates that the contribution of tourist motivations to higher expenditure varies according to the income and tourist-related expenditure.

The coefficients on tourist motivation are positive and significant for all quantiles, but to a lesser extent for the 90th quantile, which suggests that tourists do not appear to be significantly motivated by nature and biodiversity discovery; they are nevertheless characterised by high budgets.

The coefficient of the variable income *LnRev* is significant for all quantiles, which indicates consistency between household income and daily expenditure, as suggested by

Crouch (1994). This coefficient on income is more important for light and medium spenders (25th and 50th quantiles) than for heavy spenders (75th and 90th quantiles). Hence, tourism in the Gironde estuary may be qualified as a normal good. These results are in line with Sinclair and Stabler (1997), who suggested that tourism can be either a normal good or an inferior good. The results are also consistent with Koenker and Hallock (2001), who demonstrated that different Engel curves for heavy spenders reflect different income elasticities for consumers.

The coefficient on *Hotel* as the principle means of accommodation chosen by tourists is significant across almost all expenditure levels and is consistent with Perez and Sampol (2000); this coefficient is nevertheless significant, but to a lesser extent for the 90th quantile. The results also indicate that tourists with small budgets (25th percentile) choose an all-in package stay in order to reduce their total trip expenditure.

The positive correlation between the undertaking of seaside activities by tourists and their daily expenditure leads us to think that this fact justifies the higher level of spending for these tourists.

Also, as Table 1 shows, only 40% of the observations concern first time visitors, and we believe that these visitors may have accurate expectations regarding their expenditure and their visits.

Figure 1 provides a visual demonstration of the relationship between the motivations for nature-based tourism expressed by respondents and daily expenditures. The solid line in the middle of the shaded area traces the coefficient estimates of tourist motivations on the 0.05–0.95 quantile regression models. The shaded area is the 95% confidence region of the coefficient estimates. The 0.00 horizontal line is the benchmark to show how motivation to visit natural sites and discover biodiversity in the Gironde estuary region affects the change of daily expenditures at any given quantile. The OLS estimates are shown by the three horizontal dashed lines. For quantile regressions at 0.05–0.85, the confidence region is above the zero horizontal line, indicating that the motivation to visit natural sites in the region expressed by tourists increases daily expenditures. However, motivations are not associated with increasing expenditures at the 50th, 75th and 90th percentiles of daily expenditures.

We may think that the tourists of the 90th percentile with high budgets and for whom the variable reflecting the choice of a hotel as the means of accommodation is less significant than for other light and medium spenders. Heavy spenders may be motivated by owning a second home or visiting friends and family, and the major part of their spending could involve the purchase of durable goods.

This paper is a first attempt to investigate the effect of motivations, trip characteristics and the socio-demographic characteristics of tourists on their daily expenditure in the Gironde estuary. The OLS regression method suggests that the motivation to visit natural areas and amenities expressed by tourists contributes to higher daily expenditure for all tourists, while

quantile regression suggests that tourists who are not really motivated by a nature-based tourism experience increase their daily expenditure. This means that light and medium spenders appear to be the most motivated to visit natural sites and amenities in the Gironde estuary. We would like to think that quantile regression is gradually developing into a comprehensive strategy for completing the regression picture

Table 2: The OLS and Quantile Estimates of Daily Tourist Expenditure¹.

	OLS		Quantile regression ²							
			Q 0.25		Q0.50		Q 0.75		Q0.90	
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
statut	0,40***	4,69	0,69***	4,42	0,40***	3,22	0,31**	2,82	0,24*	1,74
SejC	-0,31**	-2,06	-0,34	-2,01	-0,18	-1,15	-0,19	-1,38	-0,24*	-1,48
SejL	-0,06	-0,72	-0,18	-1,25	-0,03	-0,22	-0,09	-0,92	0,01	0,08
fprest	0,23**	2,5	0,21*	1,62	0,13	1,12	0,16	1,44	0,04	0,31
Hotel	0,62***	3,77	0,54*	2,1	0,65***	3,96	0,45***	3,19	0,39*	2,09
camping	-0,17	-1,83	-0,1	-0,71	-0,26**	-2,16	-0,179*	-1,89	-0,17	-1,22
estuprem	0,04	0,41	-0,04	-0,33	0,11	0,89	-0,01	-0,07	0,04	0,39
tourfluv	0,33***	3,59	0,31*	1,62	0,23*	1,57	0,33*	2,61	0,26*	2,1
sitenat	0,1	1,05	0,05	0,39	-0,1	-0,76	0,08	0,64	0,04	0,23
LnAge	-0,07	-0,48	-0,03	-0,11	0,1	0,55	0,09	0,53	0,17	1,01
LnRev	0,50***	6,55	0,53***	4,27	0,50***	4,49	0,49***	7,83	0,43*	6,36
_cons	-0,01	-0,01	-0,91	-1,09	-0,58	-0,65	0,07	0,12	0,41	0,58
R-squared or pseudo R-squared	0.30		0,2		0,19		0,18		0,13	

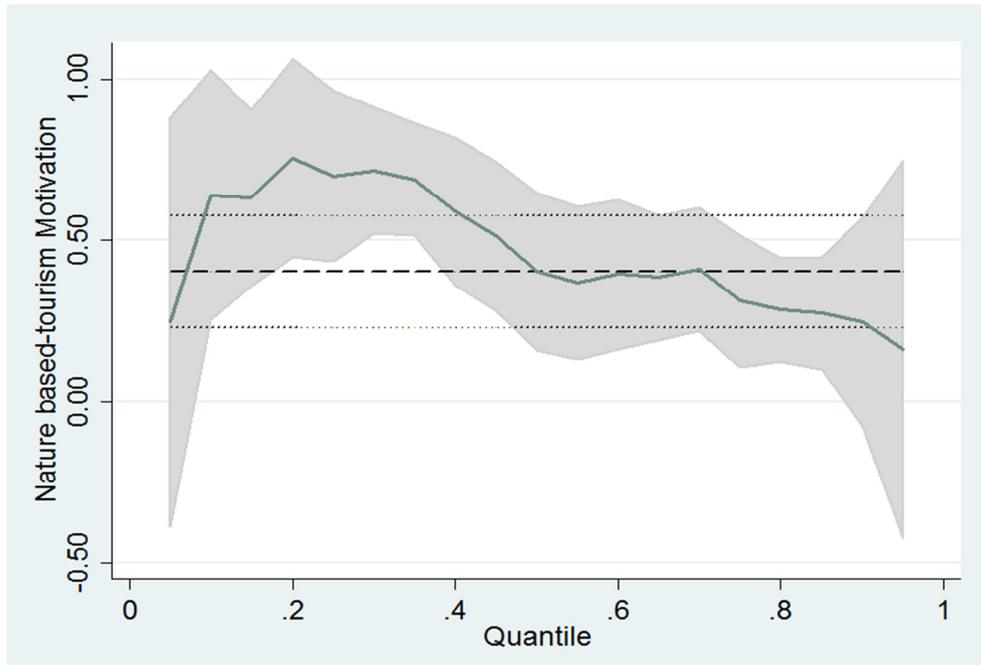
For tourists in the top percentile expenditure levels, the motivation for nature-based tourism experiences is most often expressed in terms of gaining access to wider seaside tourism experiences. Surprisingly, this result contrasts with the fact that the variable reflecting whether or not tourists have already visited a natural amenity appears to have no influence on

1 Significant at 1% confidence level; **significant at 5 % confidence level; *significant at 10% confidence level.

2 The lowest to highest expenditure is categorised by the following order of quantiles: 25th percentile (3 116, 364€), 50th percentile (6 232, 728€), 75th percentile (9 349, 092€) and 90th percentile (11 218 910 €).

the level of daily expenditure by tourists. This can be attributed to the fact that most of these sites are free access, or that their existence is unknown to the public.

Figure 1. The Influence of Nature-Based Tourism Motivations on Daily Tourist Expenditure



5 Conclusion and Implications

This paper is a first attempt to investigate the effect of motivations, trip characteristics and the socio-demographic characteristics of tourists on their daily expenditure in the Gironde estuary. The OLS regression method suggests that the motivation to visit natural areas and amenities expressed by tourists contributes to higher daily expenditure for all tourists, while quantile regression suggests that tourists who are not really motivated by a nature-based tourism experience increase their daily expenditure. This means that light and medium spenders appear to be the most motivated to visit natural sites and amenities in the Gironde estuary. We would like to think that quantile regression is gradually developing into a comprehensive strategy for completing the regression picture

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the level of daily expenditure by tourists. This can be attributed to the fact that most of these sites are free access, or that their existence is unknown to the public.

Some implications emerge from these findings for those interested in developing attractions in the Gironde estuary region. Since the group motivated by nature-based tourism tends to spend more money than the generalist or mass tourism group of tourists, it is important to develop more relevant products and tour packages in accordance with the preferences and the inner needs of this specialist group.

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