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# Rural Development and Rural Tourism: The Impact of Infrastructure Investments

*António Almeida and Luiz Pinto Machado*

## Abstract

Rural and peripheral development is still a matter of concern in several western countries. Depopulation, low density of business activities, younger people emigration and better-qualified individuals feeling that such regions have been abandoned by the government, and incapable of moving on, are among the key indicators to “understand” rural and peripheral areas. Rural tourism has long been understood as an effective catalyst of change in depressed and deprived (of entrepreneurial capacity) areas and to explore a unique set of amenities. Because of funds directed to help private investment projects in rural tourism facilities, most peripheral areas are now relatively well endowed with key infrastructures. Nevertheless, the tourism lead approach produced mixed results due to low levels of demand in some areas and lack of a cooperative behavior among providers to maximize the opportunities offered by the wide range of attractions. In this paper, we investigate to what extent investments in infrastructure helped the rural tourism sector to attract more visitors in Madeira. Based on the panel-data approach, this paper provides insights to analyze the development path of rural tourism in Madeira and to explore how local policy makers may be the “missing link” needed to improve the sector prospects based on tangible and intangible amenities.

**Keywords:** rural tourism, panel-data, investment in infrastructure, nature based tourism, regional development

## 1. Introduction

The economic development of rural areas is still a pressing issue in most western countries, especially in peripheral areas coping with high levels of unemployment, declining farm income, depopulation and emigration of the younger and better-qualified individuals [1, 2]. In general, such regions suffer from limited options with regards to economic development outside agriculture [3–6], which led policy makers to re-think strategically the social and economic fabric of rural areas [7]. Policy measures aiming at diversifying rural economies through the development of new sectors/products [2, 8] have also been conceptualized by regional governments on islands, in an attempt to reverse the trend of decline in terms of quality of life that has been felt across rural areas. Such approach is strongly encouraged by the European Union, to “fill the gap” between the over-developed coastal areas and the rural hinterland [9].

To improve the competitiveness of the primary sector and protecting the environment and countryside, several measures were introduced as the third axis of the EU rural development program that aimed to enhance the quality of life in rural areas and to encourage the diversification of economic activity [10], in order to improve the rural area's capacity to provide goods and services demanded by the wider society, and to invest in the livelihoods of those residents in rural areas. According to the European Evaluation Network for Rural Development (ENRD), axis 3 consists of three modules aimed at (i) sustainable economic development, which includes the diversification of farm holdings and rural tourism promotion; (ii) life quality and viability of the rural community; and (iii) the acquisition of specific skills [11–13].

Past research suggests that agro-tourism and rural tourism RT have played an important role in the development and revitalization of the economic base of deprived and marginal areas partially based on “positive linkages” between agriculture and tourism [10, 14–16].

RT enables a complete tourism experience with representation of accommodation and attractions. On the other hand, creates spatial attachment on visitors and encourages them to some loyalty. RT helps to product enlargement and innovation and can draw in new capital form for a region and countries [17].

Today, RT is supported in all EU countries due to its socio-cultural, economic, spatial and environmental functions and positive effect on developing vernacular building sector in rural area [18].

There is also evidence to suggest socio-cultural gains in terms of villagers “adding value to families’ capabilities and skills, enriching their lives in non-pecuniary ways” [1, 10, 19–21], but most studies tend to be the result of analyses applied to the context of mainland areas in Western Europe. Zasada and Piorr [10] analyzed the German Brandenburg area and concluded that generally, diversification into non-farming activities represents, to some extent, a rarity in the rural periphery of Brandenburg, where large agri-businesses and co-operatives prevail, and where the demand for rural goods and services is limited. They concluded, in contrast, that measures where public authorities play a more important role, such as in tourism development and village renewal, show a stronger responsiveness to framework conditions, especially to the rural community characteristics. This indicates the effect of substantial political targeting. As the village renewal measure is absent in urban and economically advantageous communities, it truly represents a rural domain for addressing disparities among regions with structural weaknesses and are prone to demographic change.

In a Different vision Lekakis and Dragouni [22] explore the texture and values of rural heritage, by drawing on empirical evidence from Naxos island in Greece and critically examines the character and significance of this composite past that is made up from an assemblage of tangible and intangible elements interwoven with the island's agricultural life as recently as the mid-20th century, the man-made and natural components of the islands' rural landscape form together a heritage ‘in the making’, a process of bottom-up heritage designation by the surrounding communities, an act of ‘mnemeiosis’ outside the official narrative and cultural management practice. As Madeira Island offers an interesting and unique Natural heritage (part is UNESCO heritage), reinforced by the original rural landscape characterized by small plots of cultivated land, well demarcated and arranged in terraces that unfold to sea level, can add some value to the countryside attractiveness.

López-i-Gelats et al. [23] assets that farm diversification have become prevalent throughout the European countryside”, and Fleischer and Pizam [21] considers RT as “the dominant factor in the rural economy of [some areas in] Western Countries”. According to Briednham and Wichens [24] “RT is increasingly viewed as a panacea,

increasing the economic viability of marginalized areas, stimulating social regeneration and improving the living conditions of rural communities” [24]. However, with few exceptions, there has been very little research about tourism development in the rural hinterland on islands.

There is an obvious bias in writing on RT towards the Western European, which can be easily explained by the long established tradition of farm tourism in the United Kingdom, Germany, France and Austria [23]. Consequently, the possibility of transferring the theoretical models of RT development is problematic, “at least not without substantial modifications”. In fact, there are only a few empirical studies testing the tourism led growth hypothesis for rural areas on islands. Nonetheless, the normative discourse concerning rural areas on islands is impregnated.

Further research is also needed to analyze the impact of the absence of a central government policy on direct funding of RT facilities. By definition, RT is “specialist and small scale” [14] but also over-dependent on government subsidies. However, in times of declining public budgets, issues of financial sustainability are of the utmost importance and further investments must be linked to profitability ratios and personal savings.

The main contributions of this paper, first is to analyze how the visitors’ attitudes towards farming is of the utmost importance to understand the alleged “shared destiny” of farming and RT in rural areas. Secondly, this paper elicits consumers’ preferences towards key attributes of the RT product based on a choice experiment, which has rarely been done before. We are especially interested in providing a measure of visitors’ preferences for farming activities, in order to provide useful insights to help to define priorities in terms of investment. Most papers assume a close linkage between agricultural activities and RT and explore the causal relationship running from farming activities to tourism development. In this paper, we explore RT development from an alternative point of view, as we investigate if rural tourism development can be accelerated by investments in farming facilities, or other types of infrastructure and complementary activities.

Both negative perceptions about the current economic status, due to Covid19, and positive expectations for the near future of rural areas in the service economy, knowing that tourists will look for more quiet, less frequented locations, preferably for non-shared use lead to an over-optimism about the impact of RT, with over-optimistic assumptions about the alleged potential of tourism to foster economic development.

This study offers an opportunity to document and understand the dynamics of RT development in the European periphery, a poorly studied geographical setting. Though some studies highlight the growing importance of RT on islands, the specificities of RT development on non-tourism spaces have not yet been rigorously examined in the literature.

## **2. Tourism, agriculture, and the regeneration of rural areas**

It is now well documented that farming is not a key component of the RT experience, which means that the provision of a farming facilities may not be a necessary condition to offer a high-quality tourism experience. However, the sector needs to further meet visitors’ expectations and tackle the low occupancy rate problem. While it is doubtful that a “single silver bullet” (RT development) may spur economic dynamism in rural areas, small islands’ development options are limited, and clearly dependent upon agriculture and tourism. Consequently, there is an urgent need for experimentation in terms of local development approaches, business concepts and “alternative” attraction factors, that may or may not include offerings in terms farming facilities.



With regards to Madeira Island, RT emerged only in the 90s, with positive links between farming and RT yet to be developed. Tourism sector in Madeira reveals other interesting characteristics. Being one of the oldest tourist destinations in Europe, with about 30,000 Hotel beds distributed mainly on the south coast of the Island, it has surrendered to the dominance of the major tour operators, concentrating its tourist activity in its capital Funchal, and peripheral cities, forgetting for many years the countryside and the interior of the island.

In contrast to the mass tourism that seeks the great centralities, RT attracts minorities, especially individual tourists or small groups that seek tranquility and natural environment, staying in small hotel units or private houses (local accommodation, Airbnb etc..) and therefore a business uninteresting for large traditional tour operators.

Traditional RT, according to the terminology of Pina and Delfa [7] and Molera and Albaladejo [20], linked to homecoming connotations and city dwellers looking for short breaks [25], was never a key motivation attracting tourists to the region. Furthermore, rural tourism is not linked to farm tourism, as elsewhere in Europe [4, 26]. In most cases in Europe a rural house facility is whether a symbol of prestige and a subsidy-backed strategy to re-build the family heritage and property or just a normal business venture. Rural houses Owners cannot be considered as the “guardians of the countryside” [4], and while farmers in North-Europe may resist to the diversification due to an “anticipated loss of identity or social/cultural rewards” [4, 24], problems of “identity” on islands may arise because generally, managers have no experience in new information technologies and business models blending agriculture values with tourism services.

Regarding technology, in rural areas with limited infrastructure and technical knowledge, how could technology be made people more friendly to propagate its use needs to be discussed in depth [27], for example, how to have direct and easy connections with the new tourism distribution channels and allowing guests to book directly from their mobile apps to the owners, based upon accommodation offer, or through the new *apps* launched by strong web sites like Airbnb, VRBO, booking etc...,

As most islands economies only highlights in the tourism industry, attempts to diversify from the 3-S product are rather common nowadays [28–31]. However, an increase in the numbers of visitors and the development of new market niches does not depend only on bold and generic statements about innovative policies but above all on the effective enhancement of concrete policy measures. Quite often the “the lack of political mechanism to translate policy into practice” [2], and the “unusual context of small islands politics [32] along with the optimist and voluntaristic discourse about the alleged benefits of tourism are leading islands in the opposite direction, i.e., a “fatalistic path” in terms of over construction of infrastructures in coastal areas and overconsumption of scarce natural resources in rural areas compounded by returns below expectations in the new brand market niches [29].

In fact, several constraints have been identified in the literature. The first one regards the widespread adoption of a one size fits all approach, based on the Western European experience. RT in the United Kingdom, France, Germany and Austria evolved in association with farming-tourism based on the coexistence of farming activities and accommodation facilities. With regards to non-Western European geographical settings, recent studies provide mixed evidence regarding the level of symbiosis between tourism and agriculture and the extent to which RT may promote economic progress in depressed peripheral areas is still the subject of controversy [8]. Nonetheless, high levels of public funds have been poured in rural areas to support “the redevelopment of redundant farms buildings into

accommodation facilities” [4] and to help to convert old family houses into accommodation facilities.

One of the important things to receive a vibrant and sustainable tourism in rural area is the conservation of rural cultural landscape and vernacular architecture to protect the natural and cultural values [33]. Consideration to the development as an issue on the agenda only could be expanded by the sustainability in natural and cultural benefits for their local communities. Developing this special tourism would be performed by responding to new markets, new lifestyles, and new product development opportunities [17].

Vernacular architectural structures in terms of contribution to the RT have been reviewed by [18], were this element seem to be capable to making an important contribution to RT, something that can be followed by the Madeira Island Authorities, as the typical architecture in Madeira is based in nice basalt stone houses with little touches of good taste in the doors and windows, with very comfortable interiors, some with nice fire places and terraces.

The voluntaristic approach adopted by most governments may not be completely illogical. Even if the tourism literature “is replete with seemingly contradictory observations” [34], tourism is an anchor for the islands’ economy and, from a theoretical point of view, the development of a close relationship between agriculture and tourism seems rational, due to the size of the two sectors.

Since the adhesion of Portugal (and Madeira Island) to the EU in 1986, agriculture began to lose its importance as a source of employment and added value in the local economy. Agriculture today represents less than 2% of regional value added, but still about 10% of employment. The rural restructuring process has continued since then, and the Madeiran agriculture presents clear problems of competitiveness, linked the predominance of small-scale units and the difficult orography, being high protected from outside market forces and subsidized via EU programs.

Similarly, as Rodríguez and Pose [35] noted in Galicia, Madeiran agriculture is dominated by ‘mini farm’ model, that is, small patches of land divided from generation to generation. The most significant agriculture contribution undoubtedly concerns the ecological and social balance of the region. The extremely fragile nature of the ecosystem, along with an increased risk of the occurrence of natural disasters justifies the protection of agricultural areas.

In fact, the economic importance of agriculture lies within its subsistence value, crucial especially in times of Covid 19 crisis but also in the generation of aesthetical pleasant landscapes.

Another constraint faced by policy makers and entrepreneurs regards the specificity and originality of sector. Problems of lack of professionalism and skills gaps in critical areas of competence were also reported by Sharpley [14]. Farm diversification demands “new skills and competencies” and therefore a new “mentality and identity” Brandth and Haugen [24]. Another matter of concern regards the incompatibility of agricultural values with the provision of accommodation services. Most farmers exhibit difficulties in combining agricultural practices with guest-oriented values, which leads to the unwillingness or inability to apply a tourism led agenda. Burton also reports “loss of identity” associated with non-agriculture activities, and Sharpley [14], based on the analysis of RT development in Cyprus, highlights the difficulties to “combine the commodification of agricultural traditions through tourism with the industry of tourism”, where there is no established tradition.

In general, the research available demonstrates that RT is a risky business [36], prone to “relatively poor financial success” [21] which is well exemplified by the over-reliance over financial assistance and subsidies [14, 25, 26, 37].

In Cyprus, Spain and Israel, financial assistance to help owners to restore and convert family houses and “unutilized farm buildings” into RT facilities was critical to ‘persuade’ managers to ‘invest’ in RT [14, 21, 38] found that “the financial returns in RT investments most often do not measure up to either the expectations of the politicians or that of farmers”, and Barke [25] reports a high rate of failure at the early phases of the development of RT in Spain.

As “public assistance” is increasingly problematic, rural houses owners are required to finance further investments based on their own resources. Under such circumstances, decisions on investments tend to be based solely on expected returns and under-sized firms with limited financial capacity may feel constrained in making risky investments. In the opposite side, Zasada and Piorr [10] analyzed the German Brandenburg area and concluded that measures where public authorities play a more important role, such as in tourism development and village renewal, show a stronger responsiveness to framework conditions, especially to the rural community characteristics.

In the Small Economy - SME context, financial constraints favor investments with an immediate/visible financial return, and not distant from their “established technological” base. In fact, most firms operating in this sector, are “generally small, independent and family-run establishments”, traditionally operated and “lacking the resources to promote themselves adequately and they have difficulties in adapting to current market mechanisms, which are becoming extremely competitive” [21, 39].

With regards to farming, most papers stress the increasing difficulties to apply a RT agenda informed by agricultural values. Some recent academic research suggests an ever-decreasing importance of agriculture to RT and other studies just see farming activity as a decorative and supporting role.

However, this does not mean the complete absence of a wide range of indirect links between agriculture and the quality of the tourism experience. Walford [40] suggests that agriculture indirectly relates to tourism via their contribution to esthetically attractive surroundings, and to the built-up of a relaxing atmosphere in the countryside and Frochot [41] asserts that “if farm and rural life are not consumed directly by all visitors, it probably remains a central component to the visual and social images of the countryside, particularly for urban dwellers”. Farming produces valuable externalities of the “neighborhood effect”, which amounts to an indirect effect of farming upon tourism. According to Fleisher and Tchetchik [42], artificial attractions and other firms operating in complementary sectors in rural areas “might be part of the experience and thus can benefit the entrepreneur”.

On the contrary, visitors eager to learn and experience rural lifestyles would enjoy the liveliness of a typical village farm.

Osti and Cicero [43] revealed that tourists particularly enjoy the presence of a landscape comprising orchards, flowery/grassy meadows and vineyards.

Undoubtedly, RT can help make low-intensity agriculture more sustainable, while it can serve to attract new investors from the city or even foreigners interested in living in a calmer, more natural and safer environment. The question is to know, in addition to the rural landscape, the natural heritage and the typical local architecture (which must be protected with support that allows it to be enhanced), that other investments must be made in addition to farming. Improving the “levadas” system (channel irrigation network around the island with more than 2500 km) and mountain trails, making them safer and more accessible, can attract more tourists who love tracking’s and mountain biking, in addition to bird watching, study of endemic flowers and plants among, in addition to the creation of viewpoints, sports and cultural spaces and support for the trade of typical food and drinks. Further research is also required to determine the ideal number of facilities that are required



to guarantee a high quality experience. The industry' actors would also be appreciative of further guidance on identify priority areas for investment.

### 3. Recent evolution of the rural tourism sector

The evolution of the number of establishments was multiplied by 15 between 1995 and 2019, which points to an annual growth rate of 12%. Based on the official statistics recorded since 1995, the RT sector has experienced considerable growth over the last 24 years, and the share of this market niche in the total number of visitors grown from 0,1% to 2,8%.

The traditional market for the region has been Western Europe, and in particularly, Portugal (mainland), Germany, United Kingdom and France and Scandinavia.

In the RT context, it's not only the number of visitors that matters, but also how these visitors are distributed over the year (**Table 1**). The period comprising June to September account for 39,1% of the total number of tourists concerning the RT sector and the same period corresponds to 42,7% of the total number of guests.

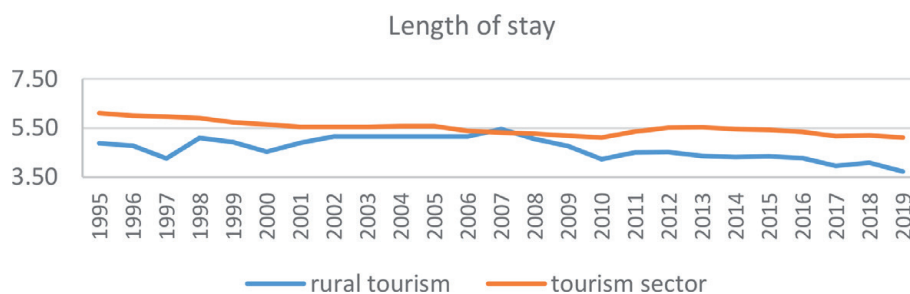
While the sector has succeeded in recording an impressive growth rate, occupancy levels are still quite low.

According to 2019 data, the RT sector had an occupancy rate of 39,8% compared to 58,0% for the sector a whole, which correspond to 68,56% of the former. The highest occupancy rate is achieved in August when half of the rooms were occupied. The average occupancy levels recorded in this market niche lead to a number of concerns notably in terms of the financial viability of the sector. While in several cases the sector can charge a higher price, data available suggests that the ADR (Average Daily Rate) for this market niches is 69,28€ compared with an average of 68,38€ for the tourism sector. Therefore, the prices charged by the sector are slightly below average, which appears in contradiction with the fact that the sector is aimed at the middle/high income market segment. While one may suggest that higher prices would lead to below average occupancy rate, this is not the case in Madeira.

	Total	Germany	France	Portugal
Jan	4,2%	4,5%	3,1%	4,4%
Feb	5,7%	6,8%	4,5%	6,0%
Mar	8,0%	10,3%	6,1%	5,9%
Apr	11,4%	11,6%	13,8%	8,7%
Mai	10,3%	9,8%	15,9%	6,0%
Jun	10,0%	10,1%	10,5%	10,5%
Jun	10,6%	8,7%	11,1%	11,8%
Aug	12,8%	9,1%	16,9%	15,5%
Sep	9,3%	9,4%	7,6%	9,7%
Oct	8,7%	10,9%	6,1%	9,2%
Nov	5,2%	5,5%	2,3%	7,0%
Dec	3,8%	3,3%	1,9%	5,4%
Jun to Sep	42,7%	37,3%	46,2%	47,6%

Source: Authors.

**Table 1.**  
 Four main markets in rural and seasonality tourism Madeira (2019).



**Figure 1.** Length of stay in tourism and rural tourism in Madeira Island. Source: Authors.

The data available indicates that the RT sector has been able to create job opportunities in the rural hinterland. However, while the number of guests was multiplied by 67,5 between 1995 and 2019, the same figure for the number of jobs directly employed by the sector was multiplied only by a factor of 51,97. The data suggests that it takes an extra 1000 guests to get 5,3 extra jobs. Nevertheless, the same figure for the industry as a whole is 2,5, which suggests that the sector is more labour-intensive.

Data on length of stay indicates that on average each visitor stays for 3,72 nights (**Figure 1**). Visitors from abroad are highly likely to stay for a weeklong period, unlike Portuguese national that can stay for a couple days. Nevertheless, it is still difficult to explain such a low figure, unless we consider the visitors stays just for short period before moving out to another establishment elsewhere on the island.

Data on daily expenditure for the tourism sector suggests that visitors spend marginally on items such as cultural, sportive and entertainment relative activities. As the RT sector is intrinsically linked to a wide range of cultural, learning and outdoor it matters to check if rural visitors are more inclined to participate in such activities. Owners and operators may not know how to accurately evaluate benefits and costs of initiatives and measures aimed at increasing the overall quality of the product. In all evidence, they cannot charge higher prices to compensate for higher operational costs. The sector is under increasing pressure from the local lodgement sector. Data referring to 2019 shows that traditional hotel establishments (including hotels, apart-hotels, self-catering apartments, holiday villages and inns and Quintas da Madeira) account for 83,62%, the RT sector 3,31% and the local lodgement sector for 13,07% of the total number of beds.

#### 4. Methodology

The data used in this study was obtained through a self-administered questionnaire survey carried out from August to November of 2018 in Madeira Island. To contact a large number of respondents, questionnaires were left with rural houses owners affiliated to the Madeira Rural Association (MRA).

More than 800 questionnaires were distributed across all the MRA members in the island and were collected and validated 360 questionnaires which constitutes an overall response rate of 45%.

Stata software and Discrete choice experiment model (DCE) was used to analyze the data, as this model is a technique for eliciting consumers' preferences, provide valuable insights about the way individuals value the tourism product and the different attributes, that have been extensively applied to model and predict consumers' behavior in different economic fields such as transport, economics, marketing, environmental and health economics. Louviere et al. [44] and Hensher et al. [45] provide a detailed analysis of the discrete choice methodology, which is based on the random utility theory and on the Lancaster's economic theory of value [44, 46].

Lindberg et al., [47] employed a choice experiments to assess residents' attitudes towards the costs and benefits of increased tourism on a Danish community. Hearne and Santos [48] assessed tourists' preferences towards measures designed to manage in a sustainable manner a protected area in Guatemala.

The DCE approach is based on a choice-based questionnaire that presents a number of choice sets comprising two or more alternative packages asking respondents to make trade-offs between newly developed attributes/levels and their respective acquisition cost. According to McLeod et al. [49] the key assumption informing the DC approach is "that the value of an option depends on the value of its attributes". The major limitation of the DCE approach lies in the necessity of restrict the number of attributes selected for analysis, which implies previous knowledge/identification of the most important attributes. The literature suggests the number of attributes analyzed in a DCE ranges from 2 to >10, "with a mean of 5" [49]. In terms of sample size, Orme [50] recommended sample sizes with a minimum of 200 respondents- Marshall et al. [51] reported an average of 259 in health care studies with 40% of the sample sizes in the range of 100 to 300 respondents [52, 53]. This case study focuses on a small number of key attributes and levels identified in the literature as it was deemed inappropriate to ask respondents to analyze a several attributes in each choice profile. Quite often "researchers must rely on a limited array of profiles in the final DCE" [54]. For example, with 5 attributes, 4 of them with 2 levels and a fifth one with 3 levels, if all possible combinations of attributes and levels were to be compared in a two-alternative design, then there would be 48 ( $2^4 \times 3$ ) different profiles and 1128 different combinations of two-alternative choice questions [54]. In this study we used a design with 8 choice sets with 2 choices profiles per set [55, 56].

The survey instrument in this study was designed to help respondents to answer the questions promptly and correctly, "in order to minimize the time spent by a respondent to complete it". As each choice comprises an alternative characterized by changes in one or more attributes and the status quo "current situation", with all attributes defined by its basic levels, the model is binary [47].

Usually, respondents are also invited to answer several questions about their socio-demographic background and to express their opinions. The questionnaire includes a few lines of text with information regarding the experiment and the different attributes and levels considered to better illustrate the process. A choice experiment is prone to be regarded as too complex and a very attention demanding task, which may be the case with respondents with low level of basic skills in terms of academic qualifications. "Choice models have a reputation for being difficult to interpret." [57]. However data available on the sociodemographic profile of visitors traveling to Madeira suggests that in light of the fact that we included only 5 attributes to be compared, we could be confident about respondents' ability to effectively appraise the alternative packages under analysis (**Table 2**).

The identification of possible market development demands, in an initial phase, a thoroughly analysis of local concerns and needs, to identify attributes for analysis in a second stage, based on the choice experiment. Local operators voiced their concerns over increased competition from the local lodgment sector. These operators suggested several improvements such as extra number of amenities to diversify the current offer with extended holidays in view. A certain number of ideas and worries were identified such as the high tax burden and competition from other sectors. Some operators stressed the need for "family activities" being available to the sector as a whole. Based on the opinions voiced by operators, a preliminary draft of survey instrument was developed based on the attributes deemed more import and levels chosen for empirical analysis and pretested among tourists. The full factorial experimental design included in total 24X3 combinations. The full factorial design

Total	Daily aver pp	Total pp	Perc.
Package	117,21€	980,85€	
Accommodation	43,57€	390,80€	35,27%
Air transport	33,11€	388,81€	26,80%
Restaurants, bars, coffee shop and discotheques	19,13€	185,60€	
Local/regional transport	6,18€	58,13€	5,00%
Supermarket and grocery	5,20€	52,65€	4,21%
Cultural, sportive and entertainment related activities	2,56€	23,80€	2,07%
Shoes, clothes and accessories	5,41€	56,95€	4,38%
Crockery, décor and embroidery	4,25€	40,43€	3,44%
Health care	1,58€	21,01€	1,28%
Other expenditures	2,56€	24,40€	2,07%

Source: Authors.

**Table 2.**  
Detailed package Share of different types of expenditure per stay.

was reduced based on fractional experiment design computed via SPSS. In the end, eight different alternatives were compared with the current situation. As usual in the literature, the combination of attributes in each scenario, and the combination of “choice” scenarios forming each choice sets followed a number of criteria such as orthogonality and “level balance between attributes”.

Choice experiments as a stated preference technique are employed to examine visitors’ preferences *vis a vis* with several hypothetical market developments based either on the introduction of a range of new attributes or on upgrades of the current offer. Choice experiments also allows the estimation of visitor’s willingness to pay for such developments. As mentioned above, the concept of choice experiment is based upon two key theoretical foundations, the Lancasterian consumer theory and random utility theory. Lancasterian theory postulates that utility derives from the attributes embedded in a particular product or service. Random utility theory theorizes that individual utility ( $U$ ) comprises two components: a systematic or deterministic component ( $V$ ) that can be measured and an unobserved or stochastic component ( $\epsilon$ ). The level of utility enjoyed by an individual in scenario A can then be expressed as follows:

$$U_{iA} = V_{iA} + \epsilon_{iA}. \quad (1)$$

Moreover, the systematic component can be expressed as a linear function of explanatory variables. Therefore, the deterministic component can be defined as follows:

$$V_{iA} = \beta' x_{iA}. \quad (2)$$

The econometric analysis of the deterministic component is based on maximum likelihood estimation methods and on the assumption of independently and identically distributed (i.i.d.) Type 1 extreme value error terms, with a scale factor  $\mu$  and a variance  $\sigma^2$ , where  $\mu > 0$  and  $\sigma^2 = \pi^2/6 \mu^2$ . Based on the i.i.d. type I hypothesis it is possible to use the multinomial logit model.



## 5. Results

The outline of a DCE design requires attention to the identification of the most important attributes and the assessment of the possible levels. An experimental design was constructed by using the orthogonal option available in SPSS. We considered only 5 attributes to avoid the risk of over complexity and to ensure adequate “levels of length, layout, specific wording and comprehensibility” [49, 58].

The questionnaire included questions about respondents’ socio-demographic background in terms of age, gender, income, professional background and marital status in order to test the influence of individual heterogeneity on stated preferences. They were asked to rate their degree of interest in extra services such as a meal service and to rate their impressions about the sector range of tourism facilities and experiences. Similarly, respondents were invited to rate, on a 1–5 Likert scale, the extent to which they think the sector offered price advantages. We defined the following attributes: farming and related activities; outdoor activities; cultural and learning activities; loyalty program. In relation to each of the eight different choices presented in the survey, respondents were invited to choose between two alternatives, one being the package of with upgrades in one or several attributes, but at a higher daily price, and the other being the current situation, in terms of the facilities provided at the current daily prices. As visitors preferences are expected to vary between individuals, owing to their own preferences and inclinations, as well as in different levels of income and age, we also tested the impact of a number of interactions between the main attributes and certain segments.

The questionnaire provided a certain amount of background information to illustrate the nature of the experiment. The econometric analysis was performed on STATA version 16. We first conducted the analysis based on the traditional McFadden’s choice model, multinomial logit model, in order to determine the signal and magnitude of the coefficients  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$  and  $\beta_5$  in order to determine the relative importance of each of the attributes, based on the following equation:

$$V = \beta_0 + \beta_1 * \text{Farming} + \beta_2 * \text{Price} + \beta_3 * \text{Outdoor} + \beta_4 * \text{Promotion} + \beta_5 * \text{Information} \quad (3)$$

However, to account for the presence of heterogeneity across respondents we also estimated a mixed-logit model that included random effects as well as fixed effects “because the random effects can often account for potential variation in relative preferences across participants [59]”.

Regarding demographic characteristics of the respondents, approximately 51% of the respondents were male, Portuguese nationals (6%), German nationals and had at undergraduate level of education (91.4%). Approximately 46% of the sample is retired. Data concerning respondent’s activities carried out while on the region suggest that less than 50% undertakes recreation activities such trekking/walking along the levadas (43%), visits to museums (28,4%), go to the beach (17,2%), visits to monuments (29,6%) and tours around the island (28,44%) and visits to touristic routes (31,3%) and boat trips (2.3%). Only tasting sessions organized around the local gastronomic attract a high number of visitors (64,%).

Only 300 completed questionnaires were eligible for the econometric analysis. The sample cannot be considered as representative of entire the RT segment as we included only rural establishments willing to participate in this research. Therefore, the results must be interpreted as merely indicative but deemed helpful to support operators access to accurate “data” on visitors’ preferences.

In line with Louviere *et al.* [44], Hearne and Salinas [58] we estimated the McFadden's choice model, which is a specific case of the more general conditional logistic regression model. In this study, we focus our analysis of the relationship between the choice of an upgrade version of the current product booked by visitors and respondents' preferences in a number of key attributes as well as a number of respondents socio-demographics characteristics.

Farming, outdoor, are defined as discrete changes in the level of the attribute, meaning that the coefficients can be interpreted as reflecting the impact of discrete changes from one level to the next, as with dummy variables [58]. The significance and sign of the coefficients reported in **Table 3**, as well as the related results in **Table 4**, follow expectations. Each of the attribute coefficients has the expected sign and is highly significant. The coefficient of price is negative, which indicates that the probability of choosing the alternative scenario decreases as the prices increases. The negative coefficient of the variable "price" also reflects visitors' preferences for lower daily rates, which confirmed the fears expressed by a number of operators. The coefficients of the variables "farming", "outdoor", "promotions" and "information" are positive, indicating that respondents' probability of choosing the alternative scenario increases with increased levels of attribute supply.

The results indicate that the sign for age and income is negative mean that both older and well-off visitors were less likely to be interested in alternative scenarios offering access to extra experiences as a result of "less need for experiences" or simply "resistance to change generally". Moreover, the higher the level of interest in "rest and relax", the higher the probability of supporting the status quo.

Moreover, the results imply that respondents had a significant preference for greater access to information, outdoor and farming and rural activities. As the base alternative refers to the business as usual scenario, the positive coefficient associated with the variable "family" indicates that if a respondent travels in family, such visitor is more likely to choose the alternative over the business as

Variable	Homogenous Specification		Interaction terms Specification	
	Coef. (St. Error)	Sig	Coef. (St. Error)	Sig.
Farming	0,518	0,001	1,004	0,027
Price	-0,147	0,000	-0,277	0,040
Outdoor	0,631	0,006	0,894	0,069
Information	0,663	0,001	1,048	0,021
Promotions	0,337	0,031	1,401	0,003
Price*Age	...	...	0,027	0,019
Farming*Age	...	...	-0,100	0,259
Outdoor*Age	...	...	-0,053	0,588
Informations*Age	...	...	-0,078	0,380
Promotion*Age	...	...	-0,220	0,019
Constant	-1,37946	0,000	-1,414	0,000
Wald chi2	117,65		129,47	
Prob	0,000		0,000	
Log	-586,46		578,501	

Source: Authors.

**Table 3.**  
Results of the conditional logit (McFadden's) choice model.

	WTP	WTP	WTP/Av. Rate	
Farming	3,512	3,618	5,16%	5,32%
Outdoor	4,281	3,223	6,29%	4,74%
Information	4,496	3,777	6,61%	5,55%
Promotions	2,287	5,050	3,36%	7,42%
Price*Age	...	0,097	...	0,14%
Farming*Age	...	-0,639	...	-0,94%
Outdoor*Age	...	-0,191	...	-0,28%
Informations*Age	...	-0,282	...	-0,41%
Promotion*Age	...	-0,792	...	-1,16%

Source: Authors.

**Table 4.**  
 Willingness to pay measures (euros).

usual scenario. The impact of age is negative; therefore, younger people are more likely to support the alternative compared to older people, probably as a result of a more pro-activity stance. The relationship between income and probability of choosing the alternative scenario is not consistent, though respondents with the highest level of income are most likely to opt for the alternative scenario, which does not apply to the remaining levels of income. In fact, the relationship between income and the alternative is negative for levels 5 and 6 and not significant for the remaining levels. The expected probability of a respondent reporting the level 7 of income (the highest) is 0,365. The is, we expected 36,5% of the individuals with a level of income of 5000€ or more to choose the alternative. As income increases from 1 to 6, respondents are less likely to choose the alternative. The degree of interest in alternative scenarios decreases as the level of income goes up. It is worth to mention that increases in income from level 1 to 2, and so on, do not lead to significant different probabilities of choosing the alternative scenario. Therefore, increases in income from each level to, the immediately following one do not lead to significantly different probabilities of choosing the alternative scenario.

Only highly well-paid individuals are ready to consider upgrades of the current version of the product being supplied by the sector. The results also indicate that males are less likely to pick the alternative scenario than females (relative-risk ratio 0,769). Older visitors are the least interested in choosing an alternative scenario based on upgrades.

**Table 4** indicates that the effect of reporting a age level of 2 instead of 1 is 0,02 decrease in the expected probability of choosing the alternative scenario. In a similar vein, reporting an age level of 7 instead of 6 leads to a decrease in the expected probability of 0,0176. Both effects are significant at 1% level of significance.

Model 2 estimates the impact of interactions among the attribute variables and other variables. The interaction price\*age was significant, which suggests that the negative impact of price is partially offset by age. On the opposite direction, the interest on promotions decreases with age.

The values of the Willingness to Pay (WTP) suggests the visitors display a relatively high WTP for “information” and “promotions”. The results displayed in **Table 4** indicate that visitors are ready to pay an extra of 4,496€ for information, which corresponds to 6,61% of the average daily rate. Another interesting observation corresponds to the significance that respondents ascribe to access

to outdoor activities in the vicinity of the establishment. This is translated into a willingness to pay 4,28€. The access to higher levels of outdoor activities would increase respondents' level of utility by 4,28€. Regarding the provision of rural activities, visitors would be willing to pay 3,5€ per day for the introduction of such activities.

The results provided so far indicate that respondents value to a certain extent hypothetical development in the product being offered. Nevertheless, in this assessment, account must be taken, that from the point of view expressed by respondents, a large majority just prefer the status quo. In fact, the results indicate that 22,9% of the respondents will choose the alternative scenario, while 70,1% will choose the business as usual scenario.

The evidence from this study suggests that visitors prefer the status quo (in 70% of the cases), which suggests the operators must develop the sector in a way that does not compromise the integrity of the experience sought by respondents. In general, visitors understand the RT experience as an opportunity to relax and gaze. This is in contrast to how the sector and the literature are inclined to interpret visitors' needs. Operators should direct their attention to developing a product based on increased information because visitors are prepared to pay to find out more about the region's offer and to allow greater choice. Developments in this regard must take into account that any changes must place the visitor's needs as the focal point of product development. For the time being visitors prefer the status quo even if they are ready to pay a slight increase in the daily rates to have access to textured layers of information. The discussion provided so far indicates that a consumer-oriented approach is paramount in this study as far development is concerned. Given the low WTP computed, the increased focus on upgrades should not be pursued at the expense of financial viability and comfort issues.

Tourists explicitly stated they prefer the status quo because increased levels of price would contribute to lower levels of utility and to decreased probability of choosing the alternative scenario. As German and French nationals, represent almost 50% of the sample, their preferences must be examined in detail, and changes planned accordingly.

The results provided so far could assist us in putting forward a few suggestions. Operators should be encouraged to develop cooperative strategies in order to promote the sector and to share resources and fixed costs by negotiating with other (tourism agencies, operators). Past studies highlight aspects such as lack of attractiveness [14]; in such circumstances, "simply providing accommodation facilities does not guarantee demand" [14], and thus operators are required to develop a "package must be sufficient to attract and keep tourists, offering suitable opportunities for spending [51]. Another key issue to bear in mind related the fact that the development of new services "may require a significant investment either beyond the means of the business owner or greater than justified by potential returns" [14, 26]. Issues of lack of capacity to meet obligations in terms of high standards in "guest-service values" and quality of products and services matching tourists' demands and expectations have been also reported in the literature [21]. In several cases, the owner does not master certain key skills in terms of marketing, innovation and design of product. More importantly, the process of renovating or converting old properties or developing from scratch new amenities/services may involve prohibitive costs. In addition, most businesses report revenues below average and low occupancy levels. The figures for 2019, occupancy vary between 25,1 per cent in January and 55,5 per cent in August.

In the relation to the daily prices rates, and for those tourists making a reservation at an establishment outside the capital city, we must add the cost of hiring a car, which imposes an increase of \*% in relation to average daily rate. In a number



of cases, rural establishments lack a sufficient number of facilities and amenities in their villages and surrounding areas, which forces visitors to rely on a rent a car to travel around, otherwise they had little choice but to carry out a very limited number of in-situ activities. Visitors interested in experiencing several activities such as are forced to travel to a number of specific locations.

As regard the price, account should be taken that around one third of the total cost's correspondent to price of air tickets. As a result of the high prices of the air tickets most respondents are facing budgetary constraints. Data available on the sector (as of 2016) shows that visitors spend on average 2,07% on cultural, sportive and entertainment related activities. Accommodation, transport and restaurants account for 77,55%. Data referring to the year 2015 and to tourism satellite account at regional level points into same direction. The share of the item "cultural, recreational, entertainment and other services" stands at 2,2% of the total amount of visitors' level expenditure.

## 6. Conclusions

RT is expected to act as a key agent of local development in rural areas, in line with the regional development research. Contrary to the experience elsewhere, with the beginnings of RT taking place decades ago in close link with farm-tourism and homecoming visits, RT in Madeira is exclusively focused in offering accommodation since its inception and exhibits signs of decline after ten years in the market.

Based on the results of the choice experiment, it is shown that most visitors are interested in farming activities but over-value "price cuts" and price discounts (loyalty reward programs). Furthermore it is also shown that visitors would appreciate further improvements in terms of outdoor activities and information available. However, visitors are willing to pay, on average, very small amounts for further improvements. Consequently, investments in farming facilities are likely to be too costly, and a likely threat to the economic viability of the sector. In line with the evidence provided based on other geographical setting, the recovery of the initial investment highly unlikely. Therefore, further developments at the micro level should be preceded by sound economic analysis (in terms of cost-benefit) and realistic assessment of the sector' potential to attract a high number of visitors and their and willingness to pay for improvements. However, even if we accept that firm are exposed to significant business risk (further investments involves a high risk of business failure), the evidence of slowing or stagnant growth suggests that further action is needed to reduce the over-dependence upon basic pricing strategies leading to exaggerated price cuts. Managers cannot expect to charge higher prices, in an attempt to recover its investment, but they may succeed in adding new features (based on outdoor activities and cultural events) to the standard product. The preference for extra information, which includes tips about indoors and outdoors activities, cultural events, gastronomy and facts about rural lifestyles suggests that visitors value "diversity" in terms of rural activities and are anxious to know better all the options available. In that sense, a high density of natural and attractions in rural areas, may offer an opportunity to increase the quality of the tourism experience and to minimize the current focus on price cuts.

The traditional financing mechanism based either in retained profits to invest or public funding are unlikely to generate sufficient resources leading to an appropriate level of investment in infrastructure, facilities and e-business models. "Funds" are only a small part of the problem. Policy makers, industry actors, need to understand the big picture. Agriculture is an issue of common interest to the public and private sector, with long term impacts on rural areas.

The analysis of RT as a catalyst for growth cannot be detached from discussion of the 'new' regional policy philosophy, which emphasizes endogenous development, the intensification of the economic-social modernization processes taking place in the global arena and the affirmation of the neo-liberal paradigm. Due to the growing resistance to further financial transfers (From the European Union), it may eventually be impossible to justify further public investment. However, some peripheral regions may not ever reach minimum levels of economic and social viability, and any progress in terms of minimization of market inefficiencies, (a key argument of the neo-liberal orthodoxy against the current state of affairs on islands), optimal policy formulation and efficient application of all funds available will demand further "public investment". A sudden reduction in the amount of financial transfers in the middle of an on-going process of modernisation may stop the momentum in terms of economic and institutional modernisation. Further research is needed to understand tourism development in line with the new development paradigm faced by islands and further research is needed to estimate how much people are willing to pay for maintaining aesthetical pleasant landscapes.

In conclusion, RT is not performing the expected "developmental/regenerative" role [14], neither is a "counterpoint to mass, package-type tourism". The evidence provided so far, rejects the over-optimistic approach regarding RT [25] as the sector impacts only marginally upon the economic prosperity of rural areas. If successful, the RT sector may offer a rescue to the overall tourism industry in Madeira facing increasing pressure from cheaper and more dynamic destinations.

Operators should be encouraged to develop cooperative strategies in order to promote the sector and to share resources and fixed costs by negotiating with other (tourism agencies, operators).

Tourism development offers the opportunity to test new business models. This study offers an excellent opportunity to examine the current efforts to develop alternative market segments in a mature and consolidated destination. And this study also pledges for an integrated approach to understand RT development.

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