




Article

# Sustainable Development of Coastal Food Services

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Received: 21 June 2019; Accepted: 3 July 2019; Published: 8 July 2019



**Abstract:** Coastal food services are an important segment within ‘sea and sun’ tourism. They have a direct impact on the environment from liquid and solid waste generation, air contamination, and excessive energy and water consumption. Mass tourism and the contemporary threat of climate change enhance the anthropogenic intrusion, especially in vulnerable coastal zones. To prevent overexploitation of the coastal zones, the adaptation of the sustainable principles by coastal stakeholders is an urgent matter. Thus, this study aims to design a model of sustainable development for restaurants and to examine the level of its adoption by seaside restaurant owners in two touristic beach areas of Cadiz province, Spain. A questionnaire was performed during the high summer season in 2018. The obtained data was analysed by IBM SPSS software. The survey results showed that the model of sustainable development has been poorly adopted by restaurant managers. Foreign managers of international restaurants are less involved in the adoption of the sustainable model in comparison to Spanish restaurant owners. Moreover, restaurants that have been opened more than 10–20 years provide a more sustainable way of business operation in comparison with newly established food service organizations.

**Keywords:** model of sustainable development; green practices; coastal restaurants

## 1. Introduction

The restaurant sector plays an essential economic role in the tourism industry of Spain [1]. The food service sectors contribution to the GDP (Gross Domestic Product) reached 93.000 million euros in 2016. This figure represents 5% of GDP and more than 1.2 million employees [2]. Besides the aforementioned advantages, the restaurant sector generates a direct adverse impact on local ecosystems, soil, water, and atmosphere via producing gas emissions, solid, and liquid waste, as well as intensive consumption of energy and water resources [3,4]. Wang et al. [5] stated that the restaurant industry is perceived as one of the least environmentally friendly economic sectors in comparison to its economic benefits and contribution to greenhouse emissions. Moreover, restaurants are considered one of the biggest generators of daily rubbish worldwide [6].

The environmental impact of food services, especially critical in the fragile coastal zones of Spain due to territory overloading, the seasonal effect of the ‘sun and sea’ tourism, and absence of a uniform environmentally friendly model of development. The coastal food services operate in the areas overloaded by population and various business activities [7]. Moreover, during the high summer seasons (from June till September), the anthropogenic pressure is intensified significantly by tourist congestion, local people, and increased workload of coastal service organizations [8]. More importantly, coastal food services are represented by numerous small-sized enterprises, which operate without a

sustainable model of development. The listed circumstances are the reasons for various environmental, economic and social issues.

The aforementioned adverse influence on the Spanish coast is aggravated by the severe threat of climate change impact and erosion [9,10]. The hazardous consequences of climate change effects include destruction of seaside infrastructure, sea level rise, inundation of low-lying zones or areas under erosion processes and relevant after effects [9,10].

Due to increasing environmental concerns, the world scientific community stated that adaptation of green practices by the coastal stakeholders and propagation of sustainable tourism development will prevent future risks of high economic, infrastructural, social and environmental losses [11,12]. Sustainable coastal tourism development requires a joint effort by key coastal stakeholders such as tourism enterprises, local communities, governmental institutions and tourists to adopt sustainable practices and to reach sustainability [13]. Whereas, governance plays a key role in providing efficient mechanism and responsiveness to ensure sustainability of business operations through proper facilitations and regulations [13]. Spanish governmental institutions worked out environmental policies, strategies, and plans for substantial changes to the national, regional and local levels to reach sustainable tourism development and to adopt mitigation actions to climate change impacts [14,15]. However, while the governing guidelines provide the base and rules of establishing a sustainable coastal tourism development, the progress of green practice adoption is restricted by insufficient implementation [16].

As one of the main coastal stakeholders, the restaurant industry requires a sustainable model and green practices to provide environmental protection and to meet social needs in the future [5]. Consequently, many recent studies are devoted to the analysis of green practice adoption in the restaurant sector [5,17–20]. Chou et al. [18] highlighted that setting up a restaurant strategy including the sustainable development model will allow sustainability. Thus, the goals of the study are (1) to propose the restaurant model of sustainable development; (2) to analyse the level of its adoption by restaurant owners around two mature touristic beaches of the Cadiz province; (3) to study factors which determine the level of the sustainable model adoption.

To achieve the study goals, we are considering the impact of the restaurant owners nationality and how long the restaurants have been opened on the success of the adoption of the sustainable development model. The literature review did not show us analogous investigations. Consequently, the present study examines unstudied factors influencing sustainable development of food services.

As a rule, the restaurants are small-sized businesses with simple structure and their operation strategy depends exclusively on one or two persons [21–23]. These factors are supposed to simplify the transition to go green. However, Oxborrow and Brindley [24] discussed that restaurant directors are deficit of environmental knowledge and lack financial sources. These circumstances do not allow them to adopt a sustainable model of development and the green practices sufficiently to reach sustainability [22]. Wu et al. [25] investigated that the restaurant directors' attitude plays a crucial role in the progress of sustainable development. In addition, Choi and Parsa [26], Jacobs and Klosse [23] stated that the most significant psychological factor of restaurant directors to implement green practices is preferences and willingness to be involved in this process. However, the period of the samples collection allowed us to notice that the foreign owners of restaurants from China, Italy, and Argentina refused to participate in the survey more frequently, than local ones. Thus, the first article hypothesis was formed as:

**Hypothesis 1 (H1).** *The local restaurant holders have more concerns about environmental issues and adopt the sustainable management model of development more successfully in comparison to the foreign ones.*

The second article hypothesis was formed as:

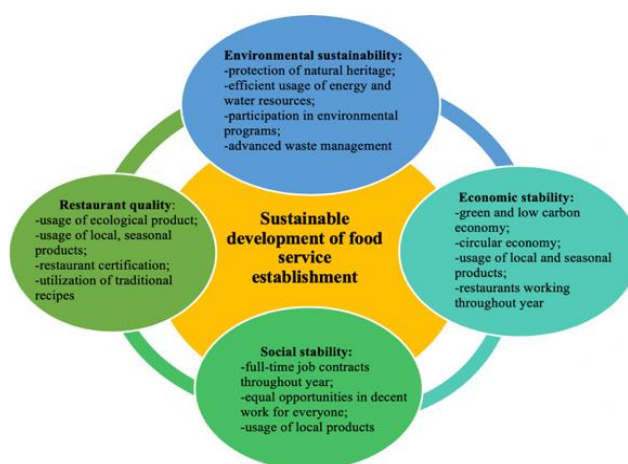
**Hypothesis 2 (H2).** *The restaurants with smaller periods of work are less oriented to adopt the sustainable model of development.*

### Restaurant Model of Sustainable Development

Sustainable tourism development is a phenomenon required in every field for the sustainability of human existence in harmony with social-cultural and natural environment. UNWTO developed a statement on sustainable tourism development, which is “Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential processes, biological diversity, and life support system” [27] (p. 30).

Sustainable tourism has various interpretations and is based on three main pillars: economic, social, and environmental sustainability [28] (p. 20). Generally, definitions of sustainable tourism development touch the main topics of natural heritage conservation, efficient usage of environmental resources (especially non-renewable), social prosperity, and stable economic growth [12].

Meanwhile, sustainable restaurant development encompasses the following green practices: efficient energy and water usage, recycling, utilization of local, ecological, and seasonal products, fair and stable labour relations, and participation in the environmental programs (Figure 1) [5,20,29]. Gilg et al. [30] defined an ecological or green restaurant as operating in an environmentally friendly manner with three Rs (reduce, reuse, and recycle) and two Es (energy and efficiency).



**Figure 1.** The restaurant model of sustainable development on the local level (authors’ elaboration).

Figure 1 illustrates the designed restaurant model of sustainable development based on the European Union (EU) and Spanish environmental strategies, plans, and frameworks, where the principles of sustainable development and the adaptation policy to climate change are interpreted [10,12,14,15]. The model includes economic and social stability, restaurant quality and environmental sustainability.

*Economic stability* of the sustainable food institutions implies the adaptation of green, low carbon, circular economies and the capacity to maintain long term business activity [12,13,20,28,31]. The green and low carbon economies propagate environmental conservation with low ecological impact simultaneously with sustainable economic growth by strengthening eco-innovations for efficient usage of water and energy resources. The low circular economy highlights the need for the residual waste to move forward that is close to zero by investing in modern technologies [31].

Another important aspect of the food services economic stability is the usage of local products. The methodology of ‘0 kilometres’ ascertains consumption of local production by small and medium-sized enterprises (SMEs) [32]. It supports procurement of local businesses (farming and fishing) and reduces greenhouse gas emissions by smaller distances of food transportation [17,33].

*Social stability* is concluded in provision of decent employment without gender, race discriminations and green job establishment in green entrepreneurship [12,13,31]. The green job establishment implies equal opportunities of full time and permanent work [34].

*Environmental sustainability* is to value and treat the coastal zones as a natural heritage via efficient usage of resources, environmental protection, improved environmental management, reduction of ecological impact, and waste elimination [12,13,28,31]. Elaboration of the own environmental programs, participation in the ecological programs, adaptation of recommendations to mitigate the climate change impact will allow restaurant managers to conserve nature and to run environmentally friendly businesses.

*Restaurant quality* is evaluated by certification (ISO, Ecovidrion, etc.) [35] and number of forks: from 1 to 5 depending on the services merits, gastronomic offers, the form of payment and relevant indicators [36]. Restaurants with five forks are considered as luxury establishments, whereas one fork characterizes the lowest category [37].

The usage of ecological and local products is a fundamental aspect of restaurant quality [23,38]. Organic or ecological goods guarantee high-quality products grown without pesticides, antibiotics, synthetic materials and other harmful components [12]. Moreover, usage of local seasonal products, preparation of national traditional recipes will allow restaurant managers to support local traditions, cultural authenticity and the economy with a lower ecological footprint [38].

The referred four fields of the model are strongly interconnected with each other. They have to be engaged in the integrated work process to achieve the sustainable development of coastal restaurants [39].

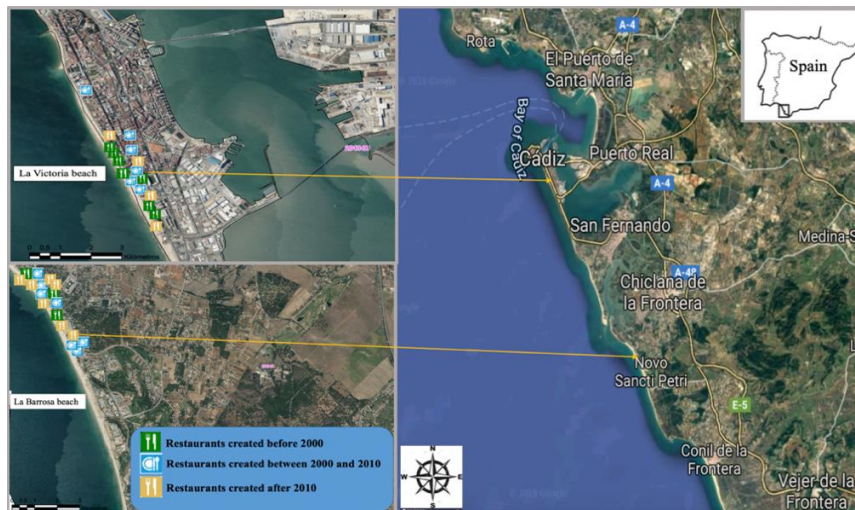
Thus, by bringing a designed restaurant model of sustainable development based on the European Union (EU) and Spanish environmental strategies, plans, and frameworks, the present research provides a sound methodological framework for the issues to be investigated in the coastal restaurants on the study.

## 2. Materials and Methods

### 2.1. Case Study

Cadiz province was chosen as the study area due to its coastal erosion problems; low lying areas, which are the most vulnerable to climate change impacts [40]. From one side, the coastal line of Cadiz province is highly exposed to the flooding and erosion due to climate change and strong anthropogenic intrusion. From the other side, this province is the second most visited beach destination in the Andalusia region [41]. Tourist inflow to Cadiz province since 1966 has increased by 5 times and reached 2.5 million visitors in 2017 [42].

The chosen study zones are La Victoria and La Barrosa beaches. These are two urban beaches, which are located in highly populated areas and are under threat of coastal erosion. These characteristics correspond to the coastal areas with high priority to adopt the sustainable model of restaurants development to prevent future risk of socio-economic and environmental loss due to climate change and anthropogenic impacts. The survey in the food service establishments of these beaches took place during the high summer season (June–September) 2018 (Figure 2).



**Figure 2.** The map of La Victoria and La Barrosa beaches (authors' elaboration).

Figure 2 shows the location of those restaurants around the beaches La Victoria (Cadiz municipality) and La Barrosa (Chiclana de la Frontera municipality), which participated in the survey. The total number of completed questionnaires was 34, 17 in La Victoria and 17 in La Barrosa.

## 2.2. Questionnaire Design

The questionnaire approach was used to obtain the required data. It was designed based on the above-described concept of sustainable development of food service establishment [43].

The questionnaire was divided into four subsections: 'restaurant profile', 'stability of personnel employment', 'questions of sustainability', and 'questions of climate change impact'. The first section 'restaurant profile' contains general questions characterizing restaurants' capacity, category, and period of work. The second section 'stability of personnel employment' is devoted to describing the origin of restaurant workers, type of employment contracts and permanent restaurant work during the year. The third section 'questions of sustainability' includes questions about familiarity with the concept of sustainable development, use of local and ecological products and the presence of restaurant certification. The fourth section 'questions of climate change impact' characterises acquaintance with climate change impacts and measures to mitigate it.

The whole questionnaire contains 18 questions. The structure, quality, and clearness of the questionnaire was tested in one restaurant of Aveiro municipality (Portugal) in May 2018.

## 2.3. Data Collection

The stratified random sampling was applied to complete the survey [44]. The target population was coastal restaurants around the study areas. Only restaurants were chosen as the target population due to the limited implementation of sustainable practices in other food service establishments like cafes and taverns [45]. The poll was carried out in two phases:

1. First, the target population was stratified geographically in two groups. The first stratum was the area around the beach La Victoria and the second one is territory around La Barrosa beach. The target restaurants were within a 10 min walking distance from any point of the corresponding beaches.
2. Second, the questionnaires were taken to each restaurant by an investigator. Initially, an owner/manager of the restaurant was asked to complete the questionnaire. In case the director was absent, the questionnaire was handed out to the manager who was entitled to complete it.

#### 2.4. Samples and Margin of Errors

The total number of restaurants in the study areas is 66 ( $N = 66$ ), whereas 7 restaurants stayed out of the survey as they were likely closed. Thus, 59 restaurant managers were invited to participate in the survey, and 34 ( $n = 34$ ) of them explicitly accepted it.

The samples error has been calculated using the formula provided by Montesinos López et al. [46]. Such formula is engaged to identify the precision ( $d$ ) of the sample size ( $n$ ), where the population is definite or relatively small:

$$n = \frac{N \times z_{\alpha}^2 \times p \times q}{d^2 \times (N - 1) + z_{\alpha}^2 \times p \times q} \quad (1)$$

where:

- $n$  is sample size (34)
- $N$  is target population size (66)
- $p$  is expected proportion of population in a categorical scale (if there is no such information, 50% = 0.5 is used to maximize the sample size in a conservative case)
- $q = 1 - p$
- $z_{\alpha}^2 = 1.65$  is statistical constant associated with the confidence interval of 90%

Based on the above-described values the precision of 10% ( $d = 0.1$ ) was obtained for the sample set.

#### 2.5. Statistic Methodologies of Data Analysis

The obtained data were coded and analysed using the Statistical Package for Social Sciences (IBM SPSS® software, version 23). Analysis was performed according to the four subdivisions of the sustainable development model: 'restaurant profile', 'economic stability', 'social stability', 'restaurant quality' and 'environmental sustainability'. The statistical methods of Contrast of hypotheses and Multivariate analysis were applied to run the analysis.

##### 2.5.1. Contrast of Hypotheses

The Chi-square test examines dependence or independence of variables by two-hypotheses: a 'null hypothesis' ( $H_0$ ) and an 'alternative hypothesis' ( $H_1$ ) testing [47]. The null hypothesis is usually set up to be discredited and demonstrates independence among two considered categorical variables. The alternative hypothesis confirms the dependence of the studied variables. The chi-square test statistic is a measure of error, which is calculated as the difference of frequencies between the obtained sample value and the theoretical value. Thus, the chi-square test statistic is calculated by the following formula:

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i} \quad (2)$$

where  $n$  is the number of cells in the table,  $O_i$  and  $E_i$  are the observed and expected frequencies respectively.

Statistical significance of variables in the study is calculated by the contrasts of hypotheses. The calculations were verified by  $p$ -value, power, and contingency coefficient. The contingency coefficient is the indicator which quantifies the level of dependency between the two variables in the range from 0 to 1, whereas the greater dependence is closer to 1 [47].

##### 2.5.2. Multivariate Analysis

Correspondence Analysis (CA) was applied to identify the relationship of dependence between the levels of two categorical variables [48]. CA condenses the total information depicted in the table of contingency in a set of points, which are representing rows and columns of the table. Generally, the referred information is represented in a subspace of reduced dimension called the

factorial plane of correspondence analysis (usually the 2D diagram is derived). The proximity between the projected categories of both variables is a very intuitive way to reflect their dependencies between levels.

### 3. Results

#### 3.1. Restaurant Profile

The restaurant's general description, where the survey was carried out is located in Table 1. Table 1 shows that 61.8% of the studied restaurants operated for more than 10 years. The most frequent characteristics are the restaurants without a category followed by restaurants with 2 and 3 forks, with 50–100 places capacity and with less than a 10 person staff.

**Table 1.** General description of the restaurants participated in the survey ( $n = 34$ ).

Variables		Frequency	Percentage (%)
Years of restaurant work	Less than 1 year	4	11.8
	1–5	4	11.8
	6–9	5	14.7
	10–20	11	32.4
	More than 20 years	10	29.4
Restaurant category	Other: no category	14	41.2
	1 Fork	2	5.9
	2 Forks	9	26.5
	3 Forks	7	20.6
	4 Forks	2	5.9
Restaurant capacity	Less than 50 places	7	20.6
	50–100	19	55.9
	101–150	3	8.8
	151–200	1	2.9
	More than 250	4	11.8
Employees number	Less than 10 persons	23	67.6
	10–50	11	32.4

#### 3.2. Economic Stability

##### Chi-Square Test

As null hypothesis for the chi-square test, we assume that the variable 'local or foreign owner of restaurant' does not have dependence on the variables 'measures to save energy', 'measures to save water', and 'if restaurant is closed'. The alternative hypothesis is the existence of dependence among the aforementioned variables (Table 2). The  $H_0$  and  $H_1$  hypotheses were constructed by the same analogy in the sections of 'social stability', 'environmental sustainability', and 'restaurant quality'.

**Table 2.** The chi-square test of the variable 'local or foreign owner of restaurant' versus the group of the variables of economic stability.

Name of Variables	Chi-Square Value ( $\chi^2$ )	df	$p$ -Value	Power	Contingency Coefficient
If restaurant is closed	1.383	1	0.240		
Measures to save energy	0.288	2	0.866		
Measures to save water	1.252	2	0.535		

Table 2 demonstrates that three variables do not have statistical dependence and were analysed by the crosstab calculations. The crosstab of the variable 'if restaurant is closed' displays that 19 restaurants

out of 34 (which is 55.8%) are closed during the low tourist seasons. Whereas, 80% of foreign and 51.7% of local restaurants do not work during the winter period.

Light-emitting diode bulbs (LED) are used by 80% of foreign restaurant managers (FRMs) and 82.8% of local restaurant managers (LRMs). The LED bulbs and solar energy are applied by only 20% of FRMs and 13.8% of LRMs. Measures to save water resources are utilised by 40% of FRMs and 62.1% of LRMs.

### 3.3. Social Stability

#### 3.3.1. Chi-Square Test

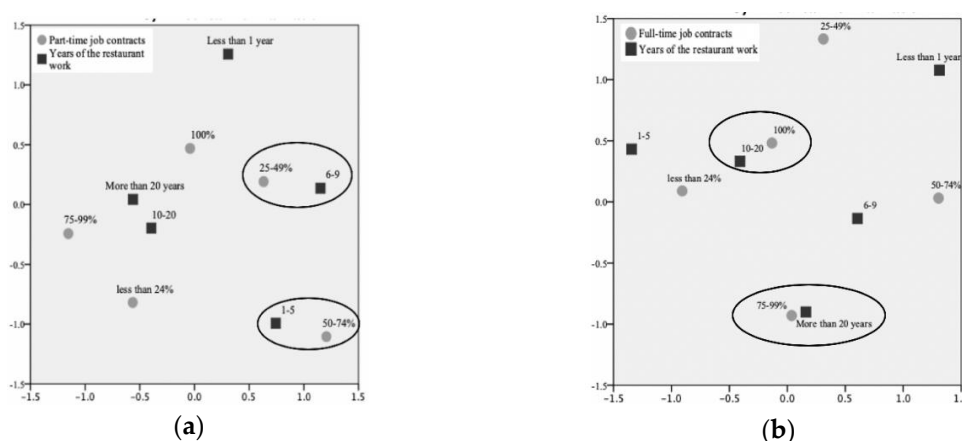
Table 3 contains the column with *power* values, where the variables equal to 0.99. This means that the variables were calculated precisely with a low probability of error. The *p-value* of the three variables demonstrates statistical significance denying the  $H_0$ . Consequently, the origin of personnel and the type of job contract depends on the nationality of the restaurant owner. According to the crosstab, the FRMs confirmed that 60% of their staff are international people and the LRMs answered that 79.3% of their personnel are from the municipality. Part-time job contracts throughout the year have 40% of staff in the international restaurants and 69% in the local ones. The full-time job contracts have 20% of personnel in the foreign restaurants and 72.4% in the local food organizations.

**Table 3.** The chi-square test of the variable ‘local or foreign owner of restaurant’ versus the group of the variables of social stability.

Name of Variables	Chi-Square Value ( $\chi^2$ )	df	<i>p</i> -Value	Power	Contingency Coefficient
Origin of personnel	19.331	3	0.000	0.99	0.602
Part-time job contract	10.159	3	0.017	0.99	0.480
Full-time job contract	8.843	3	0.031	0.99	0.454

#### 3.3.2. Correspondence Analysis

Correspondence analysis (CA) was applied to consider the correlation between the variable ‘years of the restaurant work’ with the variables ‘part-time job contract’, ‘full-time job contract’ and to visualize their factorial plane of the correspondence (Figure 3).



**Figure 3.** CA of the variable ‘years of the restaurant work’ with the variables ‘part-time job contract’ (a) and ‘full-time job contract’ (b) from left to the right respectively.

Figure 3 demonstrates the maps of relationships between the studied variables. Variables that are most closely located to each other show their correlation and they are encircled. The left diagram reflects that the restaurants working between 1–5 and 6–9 years supply 25–74% of their staff with



part-time job contracts. The interesting fact about the diagram is that the restaurants working more than 5 years reduced the amount of their personnel with part-time jobs to 25–49%. The right diagram shows that the restaurants working from 10–20 or more than 20 years provide 75–100% of their employees with full-time job contracts. Here, we can conclude that the restaurants with more work experience provide their staff with more stable full-time employment in comparison to the newly established.

### 3.4. Environmental Sustainability

#### Chi-Square Test

Table 4 shows that the variables ‘familiarity with sustainable development (SD) concept’, ‘participation in environmental programs (EP)’, ‘creation own EP’ do not have statistical significance and confirm  $H_0$ . Thus, these variables were examined by the crosstab calculations. The variable ‘familiarity with SD concept’ shows that 60% of FRMs and 82.8% of LRMs are familiar with the SD concept. The variable of participation in the EP demonstrates that 20% of FRMs and 44.8% of LRMs recycle solid rubbish. The own EP created 20% of FRMs and 6.9% of LRMs.

The *p-value* of the variable ‘familiarity with climate change impact (CCI)’ equals to 0.014 and confirmed  $H_1$ , where 20% of FRMs and 75.9% of LRMs proved their familiarity with climate change and measures to mitigate it. In addition, the *power* value of ‘familiarity with CCI’ amounts to 0.86. This means that the probability of containing an error is 14%.

**Table 4.** The chi-square test of the variable ‘local or foreign owner of restaurant’ versus the group of the variables of environmental sustainability.

Variables Name	Chi-Square Value ( $\chi^2$ )	df	<i>p</i> Value	Power	Contingency Coefficient
Familiarity with SD concept	1.351	1	0.245		
Familiarity with CCI	6.081	1	0.014	0.86	0.390
Participation in EP	1.085	1	0.298		
Creation own EP	1.194	2	0.550		

### 3.5. Restaurant Quality

#### 3.5.1. Chi-Square Test

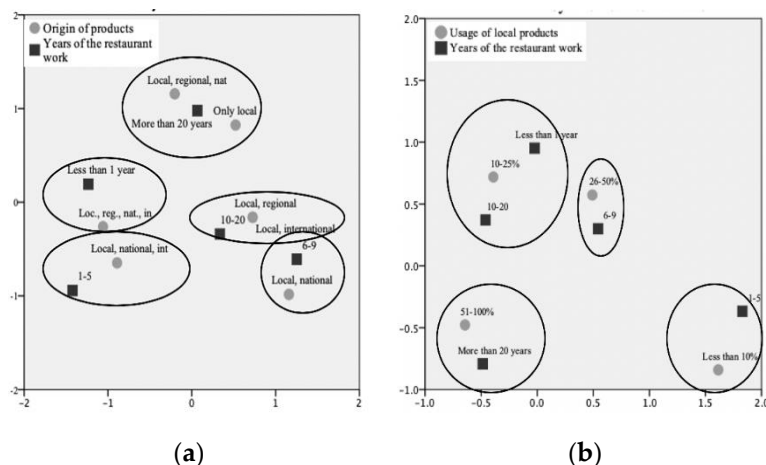
Table 5 shows that the variables ‘restaurant certification’, ‘ecological products’, ‘usage of local products’ do not have statistical significance and were explored by the crosstabs. The variable ‘restaurant certification’ demonstrates that 20% of foreign restaurants and 44.8% of Spanish ones have certifications such as ISO, Ecovidrio, and Q quality. Usage of ecological products confirmed 80% of FRMs and 69% of LRMs. The variable ‘usage of local products’ displays that 50–100% of locally produced goods are utilized by only 1 foreign and 13 Spanish restaurants. The variable ‘origin of products’ has statistical significance and equals 0.037, where 14.7% of LRMs confirmed the usage of only local products, and 100% of FRMs said that they use local, regional, national but predominantly international products.

**Table 5.** The chi-square test of the variable ‘local or foreign owner of restaurant’ versus the group of variables of restaurant quality.

Variables Name	Chi-Square Value ( $\chi^2$ )	df	<i>p</i> -Value	Power	Contingency Coefficient
Restaurant certification	1.085	1	0.298		
Ecological products	0.250	1	0.617		
Origin of products	6.595	2	0.037	0.99	0.403
Usage of local products	4.806	3	0.187		

### 3.5.2. Correspondence Analysis

The CA was applied to examine the relationships among the variable ‘years of the restaurant work’ with the variables ‘origin of products’ and ‘usage of local products’ (Figure 4).



**Figure 4.** CA of the variable ‘years of the restaurant work’ with the variables ‘origin of products’ (a) and ‘usage of local products’ (b) from the left to the right respectively.

The left diagram of the figure shows that the restaurants working between 6–20 or more than 20 years have the tendency to use local, regional and national products. The important fact is that one part of the restaurants with work experience of more than 20 years uses only local products. Another part of such restaurants utilizes local, regional and national goods. The restaurants operating between 1–5 years use mixed products like local, regional, national and international. The right diagram illustrates that the restaurants working for more than 20 years utilize 51–100% of local products. The remaining restaurants functioning less than 20 years utilize significantly less locally produced goods.

## 4. Discussion

Touristic sectors of food services play an important social and economic role in Cadiz province. The total number of the population employed in touristic services equals 321,000, which is 25.9% of the total population of Cadiz province [41]. According to the annual tourism report balance of the Andalusia region, among the niches of touristic services the leading position occupies the restaurant sector, which equals 55.4%, followed by 18.2% of the accommodation sector, 17.3% of other touristic activities and 9.1% of the transportation sector [42].

Thus, based on the above described environmental concerns and the socio-economic importance, adoption of the sustainable restaurant model is a significant and urgent matter. However, the statistical analysis of the obtained data has shown that the sustainable model and green practices have been poorly adopted by the studied restaurants. Successful examples of sustainable practices adoption discussed by international scholars in the restaurant and hospitality sectors are considered further taking into account the obtained issues of the studied restaurants. Analysis was performed according to the four fields of the designed model of sustainable development.

### 4.1. Management Tools

An important determinant for sustainable model adoption is the organisation of green restaurant development by improved environmental management [49,50]. The key factors to stimulate implementation of green practices and adoption of the sustainable model are adequate resources, encouragement, and pressure from governmental institutions [49,51]:

- The resources include attraction of investments to install innovative techniques, increasing personnel and customers' environmental awareness and knowledge [49].
- The organizational encouragement of restaurant staff and increment of management commitment to be creative, environmentally responsible and to use innovative techniques for efficient resource usage [49].
- External and internal pressures provide effective management tools to adopt the sustainable model and green practices [32,49–52]. The external pressure of governmental mandatory regulations to accomplish innovative initiatives is recognized as one of the most effective tools, especially for smaller-sized restaurants [53]. Internal management influence on employees with a proper amount of pressure stimulates them to work more successfully [49,54].

#### 4.2. Issues of Economic Stability

The outcomes demonstrated that 55% of the studied restaurants are closed during the low tourist season. The seasonal impact undermines the stable work of the restaurants and their chains of food supply throughout the year. Creation of culinary festivals and decreasing the prices for touristic services during the low season have proved its effectiveness [55].

Measures to save water and energy resources have been scarcely adopted. The majority of the respondents in written or oral form declared drawbacks of knowledge or finances to install innovative techniques to use resources rationally. Thus, local policymakers can promote establishment of sustainable businesses run via increasing of environmental education of restaurant managers, provision of financial support and creation obligatory regulation to accomplish sustainable practices [49]. Wang et al. [5] stated, that reducing water and energy consumption can be achieved by the betterment of environmental management, restaurant design and increasing awareness amongst diners and employees about environmentally responsible behaviour. Meanwhile, Chou et al. [18,49] discussed that the introduction of obligatory regulation to install innovative techniques serves as an effective instrument to adopt these green practices. Ríos Fernández and Roqueñí [56] worked out the list of recommendations for conservation of energy resources by installation innovative techniques of lighting, cooling systems, air conditioning, bakery ovens and using renewable energy sources.

Waste recycling is partially completed in the studied restaurants. Meanwhile, recycling is considered as one of the most effective approaches to recover resources by collecting and reusing waste [57]. Management tools like minimization of waste generation, rubbish composition and provision of continued audits have to be applied by restaurant directors to reach zero waste. Additionally, informative encouragement to recycle of personnel, local citizens and clients will support to create an environmentally responsible society. The imperial research of hotels with recycling installations received financial benefits, environmental protection, and recognition among green consumers [57].

#### 4.3. Issues of Social Stability

The study's outcome showed that 55.9% of restaurant employees are provided with part-time job contracts and 44.1% with full-time job contracts. Consequently, the major part of restaurant staff has partial employment throughout the year. Work with seasonal issues of coastal tourism described above will contribute to more stable employment in coastal food services. In addition, reorientation of food service organizations to use local seasonal products will supply stable employment for local farms and domestic manufacturers [34]. Installation of innovative techniques by coastal food services will contribute to new job openings in the field of renewable energy, recycling discards, and relevant areas.

#### 4.4. Issues of Environmental Sustainability

Elaboration of environmental programs was confirmed by 8.8% of the respondents. The environmental programs like plastic free, replacement newspapers by informative electronic

stands will allow a reduction in solid waste [57]. Such programs are essential in protecting coastal zones because wind blows beach litter to the sea [58].

41.2% of the studied restaurants participated in environmental programs such as waste recycling. The majority of the examined restaurants do not recycle. Singh et al. [57] stated that the introduction of obligatory governmental regulation will allow restaurants to reach 100% recycling.

#### 4.5. Issues of Restaurant Quality

The majority of respondents confirmed a lack of local, seasonal and ecological products usage. Meanwhile, Lang and Lemmerer [59] highlighted that utilization of the local ecological products by food services will decrease the carbon footprint, stimulate local ecological farms, and meet the needs of green customers [59]. At the present time, clients are becoming aware of the harmful impact of industrialized food and prefer to eat ecological, local, sustainable food [60].

The process of the sustainable model and green practices adoption will stimulate cultural perceptions of workers and customers towards greater environmental consciousness. The results of the survey showed that restaurant personnel provided with regular environmental training have adapted to sustainable practices more successfully [5]. The referred fact was confirmed by Horng et al. [61]. In addition, Horng et al. [61] proved an increase in economic benefits of such restaurants. Consequently, improved environmental management, increasing of employees' environmental education, involvement of local communities and tourists into the process of sustainable development will allow them to form "sustainable community-based tourism", reach sustainability, grow economic benefits, and conserve natural sites [5,13].

In addition, several examples of outstanding Spanish chiefs who have adapted fully sustainable practices and sustainable model of development in their restaurants are considered. Angel Leon is well known as "Chief of the Sea" in Cadiz province and the protagonist of sea conservation. He has completed investigations with the Cadiz University about marine species like plankton and algae. Currently, he is using them as ingredients in his restaurants [62]. El Cellar de Can Roca is one of the most famous restaurants in Spain. This is a restaurant of traditional Catalan cuisine, which is located on the Costa Brava coast in the Pirineu region. This is a family restaurant, which has been developing for the last 30 years. This family created a chain of restaurants with the brand 'Roca Group'. Moreover, they teach students to cook, have ecological farms, own recycling programs and other activities related to sustainability [63]. This type of restaurant can serve as a very valuable example to the whole country on how to run a successful and ecological restaurant.

## 5. Conclusions

The calculations of the chi-square test have proved that the first article hypothesis is truthful because the foreign restaurant owners adopt the sustainable model and green practices significantly less in comparison to the local owners. The period of the samples collection allowed us to notice that the foreign owners of restaurants refused to participate in the survey more frequently, than local ones. The total participation rate of the international holders of restaurants equals 25%, and by the locals amounts to 58.6%. The attitude of the foreign restaurant owners gave us an idea that they are less concerned about environmental problems. Whereas, the attitude of a restaurant holder determines his/her intention to transit to sustainable development [25].

One suggestion regarding such differences is that the local entrepreneurs consider the coastal zones as natural heritage and have more willingness to preserve it for future generations. Meanwhile, foreigners perceive the seaside areas to be a source of economic benefits and a temporary place of living. Consequently, they have fewer concerns about environmental issues and natural protection. Due to the absence of reliable statistical data and analogous investigations, the actual reason cannot be proved. However, newspapers like El Pais, El Mundo stated that the number of food service organizations from different countries like Italy, China, Argentina, and India has significantly increased in the last 30 years. In times of globalization, it is important to run a separate deep investigation and

find out the actual reasons for less participation of the international restaurant holders in the transition to sustainable development.

The application of the correspondence analysis confirmed the correctness of the second hypothesis of the article. The restaurants working for 10–20 years predominantly provide full-time job contracts for their employees in comparison with newly established ones. In addition, the restaurants with longer periods of work like 10 or 20 years mainly utilize local or regional products. Thus, restaurants with multiannual experience provide more environmentally friendly methods of business operation and support local producers with a smaller ecological footprint.

Main inputs to the field of the present study are statistical affirmation of the correlation between levels of sustainable model adoption with the nationality of restaurant owners and periods of restaurant work. These dependencies have never been investigated previously. However, due to high rates of rejection in participation in the survey and restricted time of the field works, the obtained sample set is limited. It does not allow us to make conclusions about the entire situation of the restaurant sector in coastal areas of the Cadiz province. Therefore, it is appropriate to complete similar investigations on a larger scale like province, region or country. Such surveys will provide more comprehensive details about obstacles for restaurant managers towards establishing a green restaurant sector. Moreover, each part of the designed model of sustainable restaurant establishment deserves precise attention and can be analysed by the chain of separate deep investigations like establishment of ecological local farming, supply chain, among others. The referred research can be conducted by the qualitative or quantitative interviews with the representors of policymakers, restaurants managers, food suppliers, and innovative and technical services. A detailed examination of the restaurant sector will reveal important details and difficulties of the green restaurant establishment in the country.

The obtained outcomes can serve as a practical instrument for local policy-makers to create governmental guidelines for the green restaurant establishment specifically for this coastal destination. Moreover, the discussion part contains detailed analysis of the current issues in the restaurant sector and advantageous tools to adopt green practices and the model of sustainable development. Thus, to move sustainability forward, recommendations and efficient practices have to be applied by restaurant managers and policymakers, which are described in the discussion part. Additionally, the designed management model of sustainable development can be applied by researchers in other zones of investigation.

Thus, this investigation provides a clear message that the sustainable model and green practices have been poorly adopted by the restaurant directors. However, practical application of the following governance regulations: (1) mandatory adoption of the sustainable development model and green practices [32,49–52]; (2) obligatory programs to increase restaurant directors and personnel's environmental knowledge [5,32]; (3) provision of financial support to install innovative techniques [49]; and (4) encouragement of creating their own environmental programs to significantly improve the current situation and establish green restaurant sector [32,49–52].

**Author Contributions:** The present study was designed and conducted collectively by the authors. Conceptualization, M.I., M.A., F.C.M., A.I.; methodology, M.I., M.A., A.I.; software, M.I., F.C.M.; validation, M.A., A.I.; investigation, M.I.; resources, M.I.; data curation, M.I., M.A., A.I.; writing—original draft, M.I., M.A.; writing—review and editing, M.I., M.A., A.I.; supervision, M.A., A.I.

**Funding:** This research was funded by Erasmus Mundus Joint Doctorate in Marine and Coastal Management (MACOMA) program (SGA ERASMUS MUNDUS 2015-1626/001-001-EMJD) and “Coastal vulnerability in the context of climate change: response and adaptation measures” (ADACOSTA) project.

**Acknowledgments:** Special gratitude is to Andrés Jiménez for support in statistical analysis.

**Conflicts of Interest:** The authors confirm the absence of the conflict of interests related to the manuscript and no need for financial conflict disclosure.

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