

Food Waste and Rural Tourism – a Romanian Perspective

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Abstract

The present paper shades light into two very hot topics: food waste and rural tourism. In this very fast-paced and consumerist society the issue of food waste becomes of crucial importance in the context of a sustainable bioeconomy conducted under the context of rural tourism. Therefore, the hereby research. The current paper addresses the problem of food waste in rural touristic accommodation from the perspective of the behavior of the guests towards food consumed while traveling/vacationing. through a comprehensive review of the studies currently available, it is established that there are indications that individuals change their food habits while traveling and that these changes can have a negative impact on the amount of food wasted (i.e., by increasing the amount of food that goes unconsumed). The paper concludes with a discussion of the findings and a series of recommendations both for policy makers and for the managers of rural touristic accommodations.

Key words: food waste, rural tourism, sustainable economy, natural resources, accommodation

J.E.L. classification: L66, L83, O18

1. Introduction

Food waste has a tremendously negative impact on the environment simply because the natural resources necessary to produce, store, transport, and cook the food that is not consumed is wasted and because the unconsumed food ends up in landfills where it contributes to the greenhouse effect. In spite of the fact that food waste is one of the major contributors to the waste generated by the tourism industry, food waste has not been prominent on the agenda of researchers or practitioners from the tourism industry. As a result, there are only a handful of studies which have mainly established the strategies for waste management applied in the case of certain hotels and there are not very many insights into the ways in which tourists change their culinary habits and the impact that this change might have on the amount of food wasted in touristic accommodations. In particular, most studies have focused on the attempts made by public authorities and managers from the hospitality industry in order to curtail food waste, but this leaves a gap in our understanding on the guests' psychology when it comes to food consumption and food waste while traveling. In contrast, there is a wealth of studies concerning the psychological aspects of food consumption and wastage in the household (Abdelradi, 2018; Schanes, Doberning&Gozet, 2018; Diaz-Ruiz, Costa-Font & Gil, 2017), but, although these studies are useful in underpinning the main factors that affect food waste at the level of the individual or the household, they do not offer insights into the changes of the food habits and attitudes as a result of traveling.

According to the Food and Agriculture Organization of the UN, food waste can be categorized into three main types: avoidable, potentially avoidable and unavoidable. A large portion of the food wasted throughout the entire food chain is generated at the consumption end, both in the household

and in restaurants or other types of food servicing businesses (Okumus, Koseoglu & Ma, 2018). The hospitality industry is a major contributor to the amount of food consumed on a global level, and, as it would be expected, also a major contributor to the amount of food that is wasted. A recent study made on the tourism industry from the UK revealed that restaurants produce more than 199,100 tons of food waste each year which represents 22% of the total food waste generated by the hospitality sector and that pubs follow closely with around 19% of the total food waste ("The Hospitality Industry' Relation to Food Waste", 2018). In contrast, it seems that hotels contribute less to the total food waste of the sector (only 9%), probably because guest only take breakfast at the hotels and the rest of the meals in pubs or restaurants. The food waste generated by the hotels is spread throughout the entire food chain starting from acquisition, storage, selection, preparation, serving and consumption, but, in general, it is agreed that food waste should be understood as the food that the guests leave on their plates (Pirani & Arafat, 2014), and that the rest of the food that does not end up consumed should be considered part of food losses resulting from poor management of resources (Gustavsson et al., 2011).

Food service is an extremely important part of the hospitality industry because it provides the necessary background to the entire touristic experience. Local foods can be used both to attract tourists and to create a distinctive image of a certain touristic destination, a point that is particularly important in the case of rural tourism which usually involves the service of locally produced food (e.g., the famous Plescoi sausages from Buzau county in Romania or the wide variety of local foods offered by bed and breakfasts from Maramures county). In fact, food provides an opportunity for the touristic activities to contribute to the sustainable development of certain regions, to help maintain the vibrancy of local cultures in spite of globalization and to support the activity of local farmers (Sims, 2009; Hall & Sharples, 2008). This is the reason why most authors agree that food or gastronomic tourism can be a driver of sustainable development for underdeveloped areas (Gossling et al., 2011) such as most rural areas in Romania. However, the same authors notice that there is a dearth of studies on the impact that food consumption has on the sustainability of the regions where rural tourism is practiced and, more to the point of the current paper, on the amount of food waste that is generated through rural tourism and its impact on the local communities and the environment (Okumus et al., 2018).

The current paper addresses the problem of food waste in rural touristic accommodation from the perspective of the behavior of the guests towards food consumed while traveling/vacationing. The paper is split into four main sections each detailing an important aspect of the research. First, through a comprehensive review of the studies currently available, it is established that there are indications that individuals change their food habits while traveling and that these changes can have a negative impact on the amount of food wasted (i.e., by increasing the amount of food that goes unconsumed). Second, a presentation of the research methodology used in order to gather empirical data on the changes in the individual's behavior regarding food is provided. Third, the paper presents an analysis of the main findings, focusing on the impact that the length of stay and type of rural touristic accommodation have on the amount of food wasted by guests. Finally, the paper concludes with a discussion of the findings and a series of recommendations both for policy makers and for the managers of rural touristic accommodations.

2. Literature review

Food in the hospitality industry has been conceptualized in many different ways including as: a) a material component of the local culture that the tourists eat for sustenance and pleasure; b) a component used in promoting certain touristic destinations; c) an outcome of the activities of local farmers and a factor that contributes to economic development; and d) a regional factor that is heavily influenced by the behaviors and preferences of the tourists (Tikannen, 2007). Food waste in the tourism industry is inevitable simply because of the cultural differences between the local food culture and the food habits of the guests that come from different parts of the world where there might be different lifestyles and very different eating habits (Omidiani & Hezaveh, 2016). Incongruences between the home culture and the destination culture can result in food being wasted as a result of the fact that the guest will not be able to consume the food offered due to religious, cultural or taste issues (e.g., Muslim guests that cannot eat food that is not halal). This usually

results in potentially avoidable food waste (i.e., the food wasted as a result of the individual's preferences not as a result of the fact that it is inedible) (Silvennoinen et al., 2015).

Moreover, the way in which touristic accommodations present the food has been signaled as a factor that affects the amount of food wasted by the guests. Hotels usually use an open buffet for breakfast and other meals in order to be able to cater to the preferences of a wide variety of guests, but studies have shown that when guests are offered a wide variety of food items, they tend to eat and drink more than usual and also tend to leave more food untouched on their plates (Tekin&Ilyasov, 2017). In comparison, an a la carte service results in less food waste simply because clients are reluctant to order more food if they are unsure whether they will be able to consume it or not (Pirani & Arafat, 2014). However, when individuals have access to an open buffet, this reluctance is no longer visible, and, knowing that they have already paid a fixed price for the food, they tend to refill their plates multiple times and not to worry about the fact that they cannot consume all the food (Tekin&Ilyasov, 2017). This type of behavior can be linked to the idea that food is not only seen as a means of sustenance (i.e., the source for the necessary nutrients to maintain the functions of the body), but also as a symbol of social status, of plenitude, in which case an abundance of food over the necessary quantities for sustenance is seen as a sign of wealth and success and creates a feeling of psychological comfort (Murphy et al., 2017).

Studies have also shown that when individuals eat outside their home and pay for what they eat, they tend to be more insensitive about the food that is not consumed and take less responsibility over the waste that they produce in comparison to the situation when they eat at home the food that they have cooked (Beardsworth&Keil, 2011). For example, De Luca et al. (2017) found that tourists were more likely to be concerned about the minimization of food waste when they were eating at home (39%) in comparison to when they were eating while traveling (27%). In addition, other studies have found that environmental conscientiousness seems to be less important when making decisions about food item while traveling, because tourists tend to consume food that is highly damaging to the environment that they would probably not consume at home (Gossling et al., 2011; Juvan&Dolnicar, 2017). In fact, Juvan et al. (2016) found that tourists can be split into three categories based on their justifications for the negative impact of their behaviors on the environment and two of the categories (government blames and struggling seekers) included tourists that negated any control over the negative environmental behaviors of their actions and one category (impact neglectors) even refused to acknowledge the negative environmental impact of their behavior as a whole. As a result, it can be assumed that simply being in a location different from home changes the psychological frame which influences the behavior of the individuals, which, in turn, can lead to higher amounts of food waste.

In addition, it can also be argued that the facilities offered by the different touristic accommodations have an impact on the amount of food wasted. For example, the tourists that use camping areas rarely have access to refrigerators which means that the food brought by the tourists cannot be stored properly and, if they have not planned for this, it will result in food waste (Murphy et al., 2017). In contrast, tourists that choose rural touristic accommodations with refrigerators and cooking machines are more likely to adopt similar behaviors to the ones displayed in their homes, which it can be assumed to lead to less food waste in comparison to the situation when tourists choose to stay at hotels or bed and breakfasts where meals are cooked for them. In addition, when the tourists are aware of the fact that food is provided to them from local sustainable sources, they might be inclined to consume more (Font & McCabe, 2017), even though this also results in food waste simply because they are eating more than it is necessary for their bodies to function.

Finally, it is also important to discuss the influence of the number of people traveling together on food waste. Previous studies have signaled that households where there are children tend to waste more food than single-person households (Abdelradi, 2018; Schanes, Doberning&Gozet, 2018), but there are no studies on the impact of the composition of the group of tourists on the amount of food wasted. However, it can be assumed that the same patterns remain valid, and that families traveling with their children will waste more food than individual travelers, irrespective of the type of touristic accommodation chosen.

3. Research methodology

The main objective of this paper is to determine the food waste behaviors of Romanian guests who have stayed at rural touristic accommodations. As such, we employed a quantitative methodology by resorting to the survey as a main data collection tool. The data sources were primary (the ones derived from the survey), as well as secondary data extracted by means of the literature review (qualitative type of research). After conducting the literature review we decided to test for the four main hypotheses:

H1: *There is no significant impact of socio-demographic factors on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.*

H2: *There is no significant impact of the length of stay on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.*

H3: *There is no significant impact of the type of rural touristic accommodation on the food waste behaviors of the Romanian guests.*

H4: *There is no significant impact of the characteristics of the food offered on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.*

The characteristics of the sample are presented in Table 1. In total there were 96 respondents with ages comprised between the interval 20 and 76 and an average age of 34 years. The sample was approximately gender equal with 54 males and 42 females. On average, the respondents stayed at the rural touristic accommodations for approximately 4.3 days, the longest stay being of 12 days and the shortest stay of a single day.

Table no. 1. Description of the sample

Type of lodging	Frequency		
Hotel	31		
Guesthouse	21		
Camping	22		
Bed & Breakfast	22		
Gender	Frequency		
Male	54		
Female	42		
Age	Mean	Min	Max
	34.177	20	76
Length of stay	Mean	Min	Max
	4.354	1	12

Source: Authors' own research results.

4. Research results

To test the first hypothesis, we performed two chi-tests to test the impact of gender on the amount of food consumed and wasted and a series of independent t-tests to test the impact of age on the amount of food consumed and wasted. The results of the cross-tabulation between gender and food wasted and food consumed are shown in Table 2. The Phi value for the relation between gender and food waste was 0.228 (sig. = 0.083), while the Phi value for the relation between gender and food consumed was 0.178 (sig.= 0.219) which means that gender has no influence on the amount of food consumed or wasted.

Table no. 2. The impact of gender on food consumed and food wasted.

Food behaviors		Gender		Total
		Male	Female	
Food wasted	Less	16	20	36
	Similar	3	0	3
	More	35	22	57
Food consumed	Less	25	26	51
	Similar	11	4	15
	More	18	12	30

Source: Authors' own research results.

The ANOVA test for the impact of age on food waste revealed that the difference between groups was not statistically significant (sig. = 0.831). Similar results were obtained in the case of food consumption (sig. = 0.536). The mean ages of the respondents based on the amount of food waste and food consumption are displayed in Table 3.

Table no. 3. The impact of age on food consumed and food wasted

Food wasted	N	Mean age	Std. Deviation	Std. Error
Less	36	33.389	6.1796	1.0299
Similar	3	33.667	11.0604	6.3857
More	57	34.702	12.0608	1.5975
Food consumed	N	Mean age	Std. Deviation	Std. Error
Less	51	33.157	9.0474	1.2669
Similar	15	34.467	12.1941	3.1458
More	30	35.767	10.9251	1.9946

Source: Authors' own research results.

As a result, we can conclude that the first hypothesis was supported and that there is no significant impact of socio-demographic factors on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.

In order to test the second hypothesis, we performed a one-way ANOVA between the length of stay, on the one hand, and the level of overconsumption and the amount of food waste, on the other hand. The results are displayed in Table 4.

Table no. 4. The impact of length of stay on food consumed and food wasted

Food consumed	N	Mean days	Std. Deviation	Std. Error
Less	51	4.804	2.0102	0.2815
Similar	15	3.733	1.9074	0.4925
More	30	3.900	2.3245	0.4244
Food wasted	N	Mean days	Std. Deviation	Std. Error
Less	36	4.889	1.6695	0.2783
Similar	3	3.333	1.1547	0.6667
More	57	4.070	2.3669	0.3135

Source: Authors' own research results.

The difference between groups proved to be statistically insignificant in both cases with a sig. of 0.085 for the case of food consumption and a sig. of 0.138 for the case of food waste. As a result, it can be concluded that hypothesis two was supported and that the length of stay does not have an impact on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.

In order to test the impact of the characteristics of the food offered on the food waste behaviors of the Romanian guests housed by rural touristic accommodations we performed a series of t-tests comparing two groups: the guests who said they wasted more food and the guest who said they

wasted less food in comparison to the amount of food wasted at home. The results of the t-tests are shown in Table 5.

Table 5. The impact of food characteristics on the amount of food waste

Food characteristic	Food Waste	N	Mean	Std. Deviation	Std. Error Mean	T-test (sig. 2-tailed)
Quantity	Less	36	3.944	1.2637	.2106	0.951
	More	57	3.930	.9975	.1321	
Local specificity	Less	36	1.444	1.8585	.3097	0.000
	More	57	3.491	1.2119	.1605	
Freshness	Less	36	4.333	1.0690	.1782	0.107
	More	57	3.912	1.4178	.1878	
Made in-house	Less	36	1.361	1.8846	.3141	0.000
	More	57	3.632	1.3314	.1763	
Bio	Less	36	3.833	1.5946	.2658	0.827
	More	57	3.772	1.1022	.1460	
Variety	Less	36	3.222	1.4165	.2361	0.454
	More	57	3.439	1.2395	.1642	
Nutritional content	Less	36	3.250	1.0790	.1798	0.034
	More	57	3.754	1.1225	.1487	

Source: Authors' own research results.

As it can be seen in Table 5, there are several characteristics of the food offered by rural touristic accommodations which have a significant impact on the amount of food wasted: food with local specificity, food that is made in-house (not bought prepackaged), and food with a high nutritional content. Those guests who rated the food offered by their touristic accommodation high on these characteristics also reported higher levels of food waste. In contrast, the quantity, freshness, variety and quality of the food (bio) had no impact on the amount of food wasted.

Similar results we obtained when we examined the impact of the characteristics of the food on the amount of overconsumption. The results of the t-tests performed are shown in Table 6. The following food characteristics have a positive impact on the level of food consumed: local specificity, made in-house and bio. The guests who rated the food offered by their touristic accommodation high on these three characteristics also reported higher levels of food consumption in comparison to the amount of food normally consumed at home.

Table 6. The impact of food characteristics on the amount of food consumed

Food characteristic	Food Consumption	N	Mean	Std. Deviation	Std. Error Mean	T-test (sig. 2-tailed)
Quantity	Less	51	3.863	1.1835	.1657	0.583
	More	30	4.000	1.0171	.1857	
Local specificity	Less	51	2.020	1.9848	.2779	0.000
	More	30	3.833	.5307	.0969	
Freshness	Less	51	4.059	1.3916	.1949	0.782
	More	30	4.133	1.0080	.1840	
Made in-house	Less	51	1.961	2.0294	.2842	0.000
	More	30	3.833	1.1769	.2149	
Bio	Less	51	3.647	1.5076	.2111	0.043
	More	30	4.267	.8683	.1585	
Variety	Less	51	3.118	1.3513	.1892	0.117
	More	30	3.600	1.2758	.2329	
Nutritional content	Less	51	3.451	1.1716	.1641	0.407
	More	30	3.667	1.0933	.1996	

Source: Authors' own research results.

Finally, in what regards the impact of the type of rural touristic accommodation on the amount of food consumed and wasted, the results in Table 7 show that the highest amount of food consumed was registered in the case of bed & breakfast accommodations (mean = 2.364) and the

lowest in the case of camping areas (mean = 1.00). The same results hold for the amounts of food wasted: the lowest amounts were registered in the case of camping (mean = 1.00) and the highest amounts of food wasted were registered in the case of bed & breakfast accommodations (mean = 2.636).

Table 7. Differences in food consumption and waste across rural touristic accommodations

Type of rural touristic accommodation		N	Mean	Std. Deviation	Std. Error
Food consumption	Hotel	31	1.806	.7492	.1346
	Guesthouse	21	1.952	.9735	.2124
	Camping	22	1.000	.0000	.0000
	Bed & breakfast	22	2.364	.9535	.2033
	Total	96	1.781	.8968	.0915
Food Waste	Hotel	31	2.581	.7648	.1374
	Guesthouse	21	2.524	.8729	.1905
	Camping	22	1.000	.0000	.0000
	Bed & breakfast	22	2.636	.7895	.1683
	Total	96	2.219	.9647	.0985

Source: Authors' own research results.

The results of the post-hoc tests performed after an ANOVA analysis of the differences between the means of the four types of rural touristic accommodations for food consumption and waste, revealed that the difference between the behavior of the tourists who choose camping areas and the rest of the tourists are statistically significant, but that the rest of the differences are not.

5. Conclusions

The present paper fill a gap in the specialized literature with respect to studies conducted on food waste in correlation with rural tourism in the context of a sustainable bioeconomy. It aimed at testing the hypotheses according to which there is no significant impact of the socio-demographic factors on the food waste behaviors of the Romanian guests housed by rural touristic accommodations; length of stay on the food waste behaviors of the Romanian guests housed by rural touristic accommodations; the type of rural touristic accommodation on the food waste behaviors of the Romanian guests, and the characteristics of the food offered on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.

The first hypothesis was supported and that there is no significant impact of socio-demographic factors on the food waste behaviors of the Romanian guests housed by rural touristic accommodations.

However, specific food characteristics have a positive impact on the level of food consumed. Therefore food waste and consumption are positively correlated with the satisfaction felt by the consumer with respect to the following characteristics: local specificity, made in-house and bio – the higher the satisfaction the higher both the consumption and waste.

As Romanians are exceptionally well known for the very large portions they provide to their visitors and customers, these portions should be reduced according to the necessary daily intake of a person in correlation with his/her weight and height and different medical conditions. As with respect to the created waste, it can be very easily used to produce biomass as to enable the production of green energy which can assist the accommodation facilities.

Finally, in what regards the impact of the type of rural touristic accommodation on the amount of food consumed and wasted, the results in Table 7 show that the highest amount of food consumed was registered in the case of bed & breakfast accommodations (mean = 2.364) and the lowest in the case of camping areas (mean = 1.00). The same results hold for the amounts of food wasted: the lowest amounts were registered in the case of camping (mean = 1.00) and the highest amounts of food wasted were registered in the case of bed & breakfast accommodations (mean = 2.636).

As a concluding remark, what can be done in the sense of food waste reduction in rural accommodation is inform the tourists on the sustainability of the bioeconomy which can be supported by each and every one, and by conducting educational campaigns in this respect. Additionally, rural facilities that waste food can be fined by the state as to encourage a more responsible attitude towards consumption and towards informing the tourist with respect to the potential negative repercussions food waste has over their ability of conducting their activities.

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