# STATISTICAL ANALYSIS OF HOSPITALITY SERVICES IN ROMANIA USING THE RANK-ORDERING METHOD. CASE STUDY – "CASA ECOLOGICA" GUESTHOUSE

**RAMONA-VIOLETA VASILESCU, OLIVIA ANNE-MARIE VALE (SAIERLI)**
TIBISCUS UNIVERSITY IN TIMISOARA, STR. DALIEI 1/A, TIMISOARA, ROMANIA
ramonavasilescu@yahoo.com, olyx8@yahoo.fr

*Abstract:*
*This paper is based on research performed in 2010 at the guesthouse "Casa Ecologica" for hospitality services. The paper wants to verify the results previously obtained using other statistical methods. Also, we want to verify the feedback concerning the improvement of the hospitality services, as we have recommended. We have used the Laplace function (the z test) to compare the average grades of the two samples (the first sample represents the respondents of the first period and the second consisting of respondents of the second period, for the same questionnaire) for each service of hospitality separately, and their confidence intervals. Also, we used the rank-ordering method for research the customer preferences regarding to the hospitality services. The results for the guesthouse "Casa Ecologica" will be compared with those previously obtained at national level.*

*Key words: hospitality services, the rank-ordering method, confidence interval, the Laplace function (the z test)*

*JEL classification: C10 C12 M31*

## 1. Introduction

All cultures have rules on sheltering guests and ensure the safety of peoples and their properties. The emergence of commercial hospitality has meant transformation of some houses, from residential houses into houses where they have received guests, at some cost. Certain researchers believe that this practice has a long history in many countries.

Tourism expansion has led to the construction of accommodation for the growing size and standardization of services. Even if the big hotels provide security, a guesthouse can become closer to the heart of the tourist, because it offers something intangible, but may be associated with memories of his grandparents' home, privacy of the own home or friendly atmosphere. The guesthouse setup requires lower costs and efforts than building a hotel, sometimes a house can become a guesthouse, so it's no wonder that the number of the guesthouses is significant worldwide.

In Romania the popularity of guesthouses is still high. After flourishing in the years of 1995-2000 and a second one after the 2005, now they experience stagnation due to the global financial crisis and the inefficient management of the European funds. Maybe this stagnation is not just a bad thing, considering that in some places, in the country, the location of guesthouses was chaotic, sometimes they are too crowded, sometimes they are carelessly or tourist senseless.

The guesthouses are built almost anywhere, from the roadside, near the saw mills, near the stables, in doubtful hygienic places, sometimes without parking spaces, bringing sometimes the discomfort of tourists (rooms without adequate furniture, low quality sanitation, rooms with only window to the hallway, practically no ventilation). One of the oddities encountered was the use of glass bricks to build a wall between the bathroom and the hallway to the rooms - probably the solution was chosen for energy

savings, the lightings of the bathroom van be used by the tourists passing to and from their rooms. In this circumstance the discomfort is a direct attack on the hosts privacy - a bathroom must give us confidentiality.

## 2. Methods and materials

40 people answered to the questionnaire (have not been considered the persons in transit through), 10 men and 30 women, between 15 and 48 years old, from four counties of Romania. The processing results of this questionnaire were compared with the results obtained previously. The sample has been computed by using the Decision Analyst STATSTM 2.0 software for a desired confidence level of 95%. Following this computation we have obtained a sample volume of 73 respondents.

For the data obtained, we used:
- – **Rank ordering method** to determine the preference for certain stimulus (in our case, the hospitality services for the guesthouse "Casa Ecologică"), respondents had to give grades from 1 to 5 for each service, 5 being is the highest grade;
- – **Laplace function** ( $z$ ) the Laplace function to compare the average grade granted by the guesthouse "Casa Ecologică" tourists for each hospitality service in the first half of the 2010, with the average grade granted to the same service, but in the second half of the same year.

## 3. Results and discussion

The tourists from the guesthouse "Casa Ecologică" have responded to a questionnaire. The first sample is represented by the questionnaire respondents, in the first half of the 2010 and the second sample is represented by the questionnaire respondents in the second half of the 2010. To estimate the changes between the average grade of the hospitality services for the guesthouse "Casa Ecologică" in the first half of the 2010 and the average grade of these services after taking into account of the results from the first study (Saierli, Vasilescu, 2010), we applied a test to compare the averages of the two populations. Because the population variances $\sigma_{i1}^2$, $\sigma_{i2}^2$, $i = \overline{1,5}$ are unknown and the two sample size are higher than 30, we applied the Laplace function (z) (Saierli, Pater, 2009, Chilărescu & all, 2002) with a confidence level test of $\alpha = 0.05$. Also, in order to apply this test we needed to compute the average, the standard deviation and the sample size for each service of hospitality in part. The processed values, associated to the questionnaire for the guesthouse "Casa Ecologică" in the first half of 2010, are taken from the paper Saierli, Vasilescu, 2010, and they are found with the results found by the processing of the responses during the second period in table 3.1.

**Table 3.1.**
**The mean and the standard deviation for each hospitality service in part, for the two samples applied to the Guesthouse "Casa Ecologică"**

| Mean and standard deviation/ hospitality service | First half of 2010 | Second half of 2010 |
|---|---|---|
| 1 | 2 | 3 |
| **The room** | | |
| *Mean* | $\bar{x}_{11} = 9.86$ | $\bar{x}_{12} = 9.74$ |

| Standard deviation | $s_{11}=0.492$ | $s_{12}=0.45$ |
|---|---|---|
| **1** | **2** | **3** |
| Sample size | $n_{11}=32$ | $n_{12}=38$ |
| **The restaurant** | | |
| Mean | $\overline{x}_{21}=9.5$ | $\overline{x}_{22}=9.39$ |
| Standard deviation | $s_{21}=0.718$ | $s_{22}=0.55$ |
| Sample size | $n_{21}=32$ | $n_{22}=38$ |
| **The bar** | | |
| Mean | $\overline{x}_{31}=9.27$ | $\overline{x}_{32}=9.32$ |
| Standard deviation | $s_{31}=0.868$ | $s_{32}=0.68$ |
| Sample size | $n_{31}=30$ | $n_{32}=34$ |
| **The recreation** | | |
| Mean | $\overline{x}_{41}=9.67$ | $\overline{x}_{42}=9.58$ |
| Standard deviation | $s_{41}=0.479$ | $s_{42}=0.55$ |
| Sample size | $n_{41}=30$ | $n_{42}=36$ |
| **The SPA Centre** | | |
| Mean | $\overline{x}_{51}=9.73$ | $\overline{x}_{52}=9.71$ |
| Standard deviation | $s_{51}=0.450$ | $s_{52}=0.46$ |
| Sample size | $n_{51}=30$ | $n_{52}=34$ |

The two population variances are unknown, but it can be calculated using the formulas $\sigma_{i1}^2 = \dfrac{n_{i1}}{n_{i1}-1} \cdot s_{i1}^2$ and $\sigma_{i2}^2 = \dfrac{n_{i2}}{n_{i2}-1} \cdot s_{i2}^2$ , $i=\overline{1,5}$ (table 3.2).

**Table 3.2.**

**The calculation of the variances for the two populations, concerning the guesthouse "Casa Ecologică"**

| The hospitality service | In the first half of 2010 $\sigma_{i1}^2 = \dfrac{n_{i1}}{n_{i1}-1} \cdot s_{i1}^2$ | In the second half of 2010 $\sigma_{i2}^2 = \dfrac{n_{i2}}{n_{i2}-1} \cdot s_{i2}^2$ |
|---|---|---|
| **The room** | $\sigma_{11}^2 = 0.24974$ | $\sigma_{12}^2 = 0.20453$ |
| **The restaurant** | $\sigma_{21}^2 = 0.53278$ | $\sigma_{22}^2 = 0.30752$ |
| **The bar** | $\sigma_{31}^2 = 0.78002$ | $\sigma_{32}^2 = 0.48209$ |
| **The recreation** | $\sigma_{41}^2 = 0.23781$ | $\sigma_{42}^2 = 0.31592$ |
| **The SPA Center** | $\sigma_{51}^2 = 0.20927$ | $\sigma_{52}^2 = 0.22039$ |

Next, we want to verify whether the average grade given to hospitality services for the guesthouse "Casa Ecologică" was changed from one period to another. To achieve this, we formulate the null hypothesis according to which the two average are equal ( $H_0 : m_{i1} = m_{i2}$ , $i=\overline{1,5}$ ), and the alternative hypothesis is ( $H_{11} : m_{i1} < m_{i2}$ , $i=\overline{1,5}$ ).

**Table 3.3.**

**The determination of the critical and computed values for the
Laplace function using a confidence level test of $\alpha = 0,05$**

| The hospitality service | The computed value of the Laplace function $z_{ic} = \dfrac{\left| \bar{x}_{i1} - \bar{x}_{i2} \right|}{\sqrt{\dfrac{\sigma_{i1}^2}{n_{i1}} + \dfrac{\sigma_{i2}^2}{n_{i2}}}}$ | The critical value of the Laplace function $\alpha = 1 - 2\phi(z) \Rightarrow$ $\phi(z) = \dfrac{1-\alpha}{2} \Rightarrow z_{i\alpha}$ |
|---|---|---|
| The room | $z_{1c} = 1.04$ | |
| The restaurant | $z_{2c} = 0.70$ | |
| The bar | $z_{3c} = 0.25$ | $z_{i\alpha} = 1.96,$ $i = \overline{1,5}$ |
| The recreation | $z_{4c} = 0.70$ | |
| The SPA Center | $z_{5c} = 0.17$ | |

From the table 3.3 we note that the computed value of the test is lower than the critical value, for each hospitality service in part, and with a 95% of probability we can assume that the hospitality services for the guesthouse "Casa Ecologică" have been improved during the last period.

**Table 3.4**

**The importance given to the hospitality services
for the guesthouse „Casa Ecologică"**

| The hospitality service | First half of 2010 | Second half of 2010 |
|---|---|---|
| The room | I | I |
| The restaurant | IV | II |
| The bar | V | V |
| The recreation | III | IV |
| SPA Center | II | III |

Next, we used the rank-ordering method to establish the importance given to the hospitality services by the guesthouse „Casa Ecologică" tourists. The results are given in table 3.4.

### 4. Conclusions

Since the battle for attracting tourists is done on all fronts, the marketing research becomes a tool which should be used more and clever than before. The tourists must be understood and the offer should be adapted to their requirements. The tourists have clear preferences that make them choose one of the offers on the market. Neither the owners of guesthouses, nor the authorities, should not forget that any imbalance in some point of the world can be reflected by variance of the number of the tourists. By example, in the last year (2010), the number of the overnights decreased by 8.7%

related to the 2009. At the same time, the number of the days of the accommodation for the foreign tourists in Romania increased by 3.2%.

In the 2010, when the global financial crisis felt strongly across the country, the "Casa Ecologică" experienced a successful year. The requests from the groups of tourists were scheduled up to two months before the day of accommodation. In some periods, such a successful result failed into a decreased vigilance and complacency of the personnel. The next concern can be the negligence in the relationships with the customers. The guesthouse "Casa Ecologică" is the place where the customer satisfaction is monitored, the aim is to respond as best to the tourist demands. The responses collected were used to make decisions that should lead to improved customer relationships and increase their satisfaction.

The responders had to rank the hospitality services, according to their importance (1 being first place, and five is the last place). Following to the respondents age, we see that the < 20 years old segment represents the 63% of the respondents and the non-answers to the SPA center is coming from them too. This means we need to find a way to attract them to use this service. The carefully monitoring of the tourists led to the preservation of the quality of the services expected from the guesthouse "Casa Ecologică".

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