Statistical Analyses of Impressions Related to the Customer's Experience while Attending Restaurants Located in Vlore, Albania

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ABSTRACT

Studies on customer's experience are important to better understand what is offered and to define what should be improved. The purpose of this study is to measure and observe customer's satisfaction from the quality of services received from restaurants located in Vlore, Albania. Data is gathered through an online survey which was filled 700 times. Descriptive analysis, Cronbach's alpha, chi-square test, Cramer's measure of association, Spearman's rho correlation coefficient, and generalized linear model are used throughout the analysis. Findings showed that the overall level of customer's satisfaction was neutral with $37.6 \pm 5\%$ followed by satisfied ones with $27.9 \pm 5\%$. There was statistical evidence of a frail relationship at the 1% level of significance between the overall level of satisfaction and gender, employment, monthly income, bill accuracy, fairness of the prices, speed in service, the patience to bring the bill, clear communication, and politeness of the host staff. Further, there was evidence of a negative relationship at the 5% level between the overall level of satisfaction and employment, monthly income and fairness of the price. 66.18% of the variation of the overall level of satisfaction was explained by age, gender, employment, monthly income, patience to bring the bill, bill accuracy, and variety in menu, warm and fresh served foods. The best model predicts 62.25% of the overall satisfaction. These results help restaurant businesses, and whoever wants to invest in this sector, to better understand customer's satisfaction about service quality and to pinpoint aspects that can be improved.

Keywords: Customer satisfaction; Generalized linear models; Restaurant; Service quality

1. Introduction

Satisfaction is a feeling perceived by the customer, achieved by comparing perceived performance with customer expectations with respect to a particular product or service. The satisfaction of the service has been judged by the quality of service provided [1]. The purpose of this study is to measure and observe customer satisfaction from the quality of services received from restaurants located in Vlore, Albania. In particular, we aim to answer the following research questions: What is the overall satisfaction level? Is this estimation affected by individual customer's characteristics such as age, gender, employment, and monthly income level? Is there any relationship between overall satisfaction and other aspects of this service? What are the variables that can explain better the variation of the overall satisfaction? To our knowledge, this is the first study of this kind made in Albania.

In restaurants, setting customer's perceptions concerning foods and environment including physical and social are key components in determining the service quality [2, 3]. Recent studies emphasize the importance of service quality, perceived value and behavioral intentions in the restaurant industry [4–7]. This sector is not only interested in attracting new customers, but also keeping existing ones connected, taking into account that 80% of the revenue is likely to come from 20% of customers, based on the Pareto principle [8].

Local units with even moderately high levels of both worker and customer engagement are on average, more effective financially (3.4 times more effective than the baseline) than units with very high levels of only one form of engagement (1.7 times more effective than the baseline) [9]. In this way, conducting a customer's satisfac-

tion survey is a good way to start measuring where this service stands in terms of customer loyalty. In general, the longer a customer stays in a long-term relationship, the more profitable the relationship becomes [10].

High quality service and enhancing customer satisfaction are widely recognized as important factors leading to the success of tourism industries. It is believed that customers who are satisfied are more likely to establish loyalty, and favorable word-of-mouth (wom). Food quality and service quality have a great impact on creation of wom, in contrast to price and atmosphere [11]. Customer satisfaction has a positive and significant effect on the desire to repurchase, but not significantly on the desire to provide recommendations as a representation of customer loyalty [12].

The purpose of the survey research was to reach certain statistical conclusions about the views and behaviours of customers who have frequented Vlore's restaurants. Collected data has been processed and analysed, using different statistical methods starting from descriptive analysis, non-parametric statistics and generalized linear models. This study is limited only to conclusions about Albanian customers, conditioned by who completed the survey. The study's results are beneficial for restaurant managers to better understand service expectations and perceptions of customers and, as a result, improving their services.

The companies' decision, to always carry out systematic service improvement actions, is a decisive umbrella in following up customers' complaints from a failure so as to ultimately be able to bind loyalty [13]. Attention to service quality can make an organization different from others and gain a lasting competitive advantage [14].

The rest of the paper is organized as follows: in Section 2 we provide some other methods and techniques that are used to measure service quality; Section 3 describes procedures and techniques used to select, process, and analyze information applied to understanding the problem. Findings are then presented and discussed in correspondence with each of the research questions in Section 4. Finally, in Section 5 we provide the conclusions of this research.

2. Literature Review

Service quality is one of the most important issues in restaurant management. Investigation of the effect of perceived service quality on post-consumption behaviors such as customer satisfaction, customer complaints and customer loyalty, plays an essential role in marketing planning [15].

In different time periods, several methods and techniques have been proposed and used by many researchers to measure service quality. The first model (SERVQUAL) was developed by Parasuraman et al. [16]. SERVQUAL's five dimensions were tangibles (physical facilities, equipment, and appearance of personnel), reliability (ability to perform the promised service dependably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence), and empathy (caring, individualized attention that the firm provides to its customers). Other models which have been used by researchers to measure service quality are DINESERV [17], TANGSERV [18], DINESCAPE [19], DinEX [20].

Inkumsah [21] measured customer satisfaction, in local Ghanaian restaurants, with the focus on ascertaining the critical determinants that influence it. This research showed that, out of five variables, only food quality, service quality and price had significant influence in determining customer satisfaction. Service quality variables (which included attentive staff, efficient staff, staff's knowledge about food, staff greeting customers, etc.) had the most critical impact.

Malik et al. [22] analyzed descriptively different quality attributes and ranking of services in renowned and successful restaurants in Pakistan. They measured five service quality attributes: restaurant staff, tips, tangibles, convenience, and food quality; and the relationship of them with overall satisfaction. Three of them (restaurant staff, tangibles and food quality) were found significant to the overall satisfaction.

Service quality and food quality have had a positive influence on customer satisfaction and retention also in [23]. In [24], it was found that customer satisfaction was influenced mostly by responsiveness of the frontline employees, followed by price and food quality.

3. Materials and Methods
3.1 Data and reliability

Data is gathered by using an online survey research, which is spread mainly through Facebook and Gmail. Data collection is computer-assisted and self-enumeration is used as a method of data collection. The survey was completed without the assistance of an interviewer, and was filled 700 times from 21/02/2019 12:08:01 to 13/03/2019 18:20:21. In this paper, eighteen close ended questions are analyzed (see Appendix); thirteen of them are measured using a 5-point Likert scale from "very dissatisfied" to "very satisfied".

Since the responses of the customers in the survey are restricted to one value from a fixed set, this means that they are

polytomous (or dichotomous). The multi-nomial distribution, which comes from an exponential family, is in many ways the most natural distribution to consider in the context of a polytomous response variable [25]. Micceri (1989) examined data regarding satisfaction, and found that the data were not normally distributed but the distributions were multinomial, skewed and heavy tailed. Micceri's study indicated that real data are more likely to resemble an exponential curve than a normal distribution [26].

A general satisfaction question is used as an overall measure of how well restaurants, located in Vlore, are satisfying customers across all aspects of the service they offer. Besides the overall satisfaction, we wish to measure specific aspects of service satisfaction in order to obtain more actionable data. For this reason, the survey included some attribute questions which are useful to pinpoint specific areas of service satisfaction and dissatisfaction. The information gleaned from these questions allow implementation of improvements to be addressed. Some demographic questions, related to age, gender, employment, monthly income level; are used to segment satisfaction scores and see if there are any notable differences between the data.

In order to draw inferences about a population from a sample, with good precision, it is necessary to have an adequate sample size. Sample size criteria consists of the level of precision, the level of confidence and the degree of variability in the attributes being measured [27]. Chochran (1977) developed a formula to calculate a representative sample for proportions [28]. In an unknown population, to have a 5% margin of error, and a 99% confidence level, it is necessary to have a sample size equal to 666. In our study, we have used a

sample of 700 filled surveys.

Cronbach's alpha [29, 30], which ranges in value from 0 to 1, is applied to assess the reliability and internal consistency of the part of questionnaire used. The standardized Cronbach's alpha is computed as

$$\alpha_{s\text{stand}} = \frac{K\bar{r}}{(1 + (K-1)\bar{r})},$$

where K is the number of items, $\bar{r}$ is the average inter-item correlation, i.e., the mean of $K(K-1)/2$ coefficients in the upper (lower) triangular correlation matrix. Nunnally [31] has indicated 0.7 as an acceptable reliability coefficient but sometimes lower thresholds are used in the literature, such as 0.60 [29].

3.2 Statistical Analysis
3.2.1 Descriptive analysis

The first research question was studied through descriptive statistics based on measures of frequency (frequency, percent), measures of location (mean, median, mode), measures of variability (standard error of the mean, standard deviation, coefficient of variation), and measures of distribution shape (skewness, kurtosis).

To review how different category values were distributed in the sample, we used a frequency table, which shows the frequency and the percentages of the respondents. For each variable, the measurement scales, their categories, codification, type of variable, frequency and percentage are given. There are different methods to test normality of data, including numerical and visual methods. Each method has its own advantages and disadvantages. In our analysis, normality of data, which is an underlying assumption in parametric testing, is assessed through the Anderson-Darling (AD) test [32] with a significance level of 1%. The AD test is evaluated as an excellent one

[33] to control if data has a normal distribution (null hypothesis) or not (alternative hypothesis). It has been shown that all the tests based on all statistical packages, consistently tend to produce very low p-value for large samples[34] . It is obvious that all variables with large sample size are not exactly normally distributed.

3.2.2 Nonparametric statistics

Relationships mentioned in the second research question were studied through the chi-square test (also called the chi-square test of independence), as a nonparametric test that is commonly used to determine if there is an association between two categorical variables in large samples. The chi-square test of association is the most common omnibus method for determining whether overall association exists between two categorical variables. The null hypothesis H_0 : There is no association (or that the variables are independent), is controlled versus the alternative H_a: There is some association between the two variables. The assumptions of the chi-square test are that categories of each variable represent mutually exclusive categories, no cell in the contingency table, which is formed by cross classifying the categories of each variable, has frequency less than 1, and no more than 20% of the cells have an expected frequency of less than 5 [35–37].

The formula of the test statistic is:

$$X^2 = \sum_{i,j} \frac{(n_{ij} - e_{ij})^2}{e_{ij}},$$

where n_{ij} stands for observed frequency, and e_{ij} for expected frequency. In case that H_0 is true, the chi-square statistic X^2 has approximately a chi-square (χ^2) distribution with $(n_r - 1)(n_c - 1)$ degree of freedom (df), where n_r stands for number of rows

and n_c stands for number of columns. If the p-value, $p = P(\chi^2 > X^2)$ is sufficiently smaller than the significance level (1%), the null hypothesis of no association is rejected [38]. In this case, it is said that data provide evidence to conclude that there is an association.

Since the chi-square is a significance statistic, Cramer's V [39] is used as the most common strength test to test the data when a significant chi-square result has been obtained. Cramer's V formula is as follows:

$$\phi_C = \sqrt{\frac{X^2}{n(t-1)}},$$

where X^2 is the chi-square statistic value, n is the sample size in the test, and $t = \min(n_r, n_c)$. Cramer's V measures association between two variables, and it ranges from 0 to 1. Larger values indicate a stronger relationship between the variables, and smaller values indicate a weaker one. A value of 0 indicates that there is no association between the variables, while a value of 1 indicates that there is a very strong one.

Nonparametric correlation, Spearman's rank correlation rho, ρ_S along with its significance test, was used to measure the nature and strength of relation between independent variables and the dependent variable. ρ_S, can be thought of as the regular Pearson product-moment correlation coefficient, computed for ranks. Spearman's rank correlation assumes that the variables under consideration were measured on at least an ordinal (rank order) scale [36].

3.2.3 Generalized linear models

The relationship between the overall satisfaction and other aspects of the service, mentioned in the third research question, was studied through Generalized Linear Models (GLMs). GLMs were developed in 1972 by Nedler and Wedderburn

[40], and were presented as a text a decade later by McCullagh and Nelder in 1983 [25]. GLMs are an extension of classical linear models (General Linear Model, GLM).

The equation of the GLMs, for the simplest case [41] has the general form

$$g(E(Y_i)) = x_i^T \beta$$

for $i = 1, 2, \ldots, p$, where $x_i^T = [x_{i1}, ..., x_{ip}]$ is a vector of explanatory variables, and $\beta = \begin{bmatrix} \beta_1 \\ \vdots \\ \beta_p \end{bmatrix}$ is a vector of parameters. The linear component $x_i^T \beta$ can also include interaction between explanatory variables. The monotone and differentiable function g is the link function. The Box-Cox transformation, searches in Minitab for an optimal lambda value between -2 and 2 in a way that the residual sum of squares is minimized. The resulting link function is Y_i^λ, for $\lambda \neq 0$. Analysis of variance is used to find out how the average value of the dependent variable depends on other independent variables.

The distribution of all the observations (Y_i) for the dependent variable are assumed to be of the same form from the exponential family, and also independent (or at least uncorrelated). In GLMs, Y_i can be categorical rather than continuous as it should be in GLM, and can have distributions other than the normal. There is a single error term in the model. Normality and homogeneity of variance are no longer required, although the way in which the variance depends on the mean must be known. Additivity of effects is still an important component of the GLMs [25].

Initially, it was started with the null model, which included all the independent variables, and was continued with model reduction with focus on simplification and on increasing precision of the prediction. Statistical significance was used as a criterion for model reduction and was applied manually. F-statistic test was used to determine whether the term was associated with the dependent variable. The *p*-value measures the evidence against the null hypothesis H_0: There is no association between the term, and the dependent variable. Low probabilities provide stronger evidence against H_0. The included terms in the model were considered statistically significant, after comparing their *p*-value to the significance level (1%, which indicates a 1% risk of concluding that an association exists when there is no actual association).

Besides the statistical significance criterion, the adjusted R^2 and predicted R^2 criteria also were used to compare models between them. The adjusted R^2 is used to compare models with different number of terms, while determines how well the model predicts the dependent variable for new observations. The coefficient of determination R^2 determines the percentage of variation in the dependent variable that is explained by the model.

After making sure that all the included independent variables in the model were statistically significant, the interaction between them was considered. The procedure mentioned above was repeated until only significant statistical terms remained in the model. The final reduced model, with all the statistically significant terms, was considered as the best one and moreover gave answer to the fourth research question.

4. Results and Discussion

Data on demographic questions were provided by variables X_i, $i = \overline{1,4}$ while data on specific aspects of service satisfaction were given by X_i, $i = \overline{5,17}$. The overall

satisfaction data was given by Y. The obtained standardized Cronbach's alpha value was 0.8168, indicating a high level of internal consistency and reliability between the 18 questions described in the Appendix.

As it can be seen from these data, the majority ($81.1 \pm 5\%$) of customers were between $20 - 40$ years old. $55.9 \pm 5\%$ of the subjects were male and $44.1 \pm 5\%$ were female. Employed customers constitute the main group, taking up $83.1 \pm 5\%$. Most of them ($59.1 \pm 5\%$) earned between $242-1045€$ a month, and $24.9 \pm 5\%$ earned between $0 - 241€$. The findings showed that the overall level of customer satisfaction was neutral with $37.6 \pm 5\%$, followed by satisfied with $27.9 \pm 5\%$. However, in the attribute questions, in all cases except X_{16} variable– "The price was correct", the highest percentage encountered was for the "satisfied" category.

Table 1 gives a descriptive summary report, in ascending order by mean scores of variables related to satisfaction. The degree of uncertainty for the population mean is assessed through confidence intervals. There is a 99% confidence that the true population mean of the overall satisfaction lies within $(3.1792; 3.3808)$.

As can be seen from Table 2, there was a statistical evidence of a relationship at the 1% level of significance between, Y and variables X_2, X_3, X_4, X_9, X_{10}, X_{11}, X_{14}, X_{15}, X_{16}.

However, based on Cramer's measure of association, these relationships were frail. There was little if any association between Y and variables X_{14}, X_{15}, X_{16} and only a low association between Y and X_2, X_3, X_4, X_9, X_{10}, X_{11}. In all the other relations, the chi-square test results were invalid because more than 20% of the cells of the cross-tabulation had expected counts less than 5. This means that one of the as-

sumptions of the chi-square test was not accomplished. Based on the Spearman's rho value, there was a statistical evidence of a negative relationship at the 5% level between Y and X_3, X_4, X_{16}.

Initially it was started with a null model (Model 1) that included all variables, Y and X_i for $i = 1, \ldots, 17$. Variables that were not statistically significant ($p \geq 0.01$) were excluded and in the reduced model (Model 2) treated henceforward, all the included variables were statistically significant. In the following model (Model 3), was considered the interaction between these variables, but only two of them were evaluated by Minitab $X_2 \cdot X_9$ and $X_3 \cdot X_9$. One of the interactions was found not significant, and in the following model (Model 4) it was excluded. Table 3 gives more details.

In Models 2 and 4 all the included terms were statistically significant, but R^2 adjusted of Model 4 was greater compared to Model 2. The same was true for the coefficient of determination R^2 and the R^2 predicted. Thus, from Model 4, chosen as the best one by the continuous improvements, 66.18% of the variation was explained by X_1, X_2, X_3, X_4, X_5, X_6, X_9, X_{10}. and the interaction between X_2 and X_9. This model predicted 62.25% of the overall satisfaction. The changes in independent variables were associated with the changes in the dependent variable. Since all these qualitative independent variables were fixed, we concluded that not all the level means were equal. For each of the independent variables in the model, its level was associated with different overall satisfaction levels. The statistically significant interaction term showed that the relationship between Y and X_2 depended upon the values of X_9.

The resulting Model 4 was given by Eq. (4.1):

Table 1. Descriptive summary report using mean scores of variables related on satisfaction

Variable	Mean	99% CI for Mean	SE Mean	StDev	Coef Var	Median	Mode	Skewness	Kurtosis
Y	3.28	(3.1792; 3.3808)	0.039	1.0325	31.48	3	3	−0.1	−0.49
X_{16}	3.3343	(3.2251; 3.4434)	0.0423	1.1181	33.53	3	3	−0.35	−0.4
X_{11}	3.4329	(3.3304; 3.5353)	0.0397	1.0495	30.57	3	3	−0.38	−0.28
X_{15}	3.5657	(3.4557; 3.6757)	0.0426	1.1271	31.61	4	4	−0.63	−0.22
X_{12}	3.59	(3.4900; 3.6900)	0.0387	1.0243	28.53	4	4	−0.49	−0.29
X_7	3.6014	(3.5074; 3.6954)	0.0364	0.9627	26.73	4	4	−0.51	0.07
X_{14}	3.6143	(3.5056; 3.7229)	0.0421	1.113	30.79	4	4	−0.68	−0.11
X_9	3.6257	(3.5154; 3.7360)	0.0427	1.1296	31.16	4	4	−0.56	−0.38
X_6	3.65	(3.5559; 3.7441)	0.0364	0.9638	26.4	4	4	−0.58	0.13
X_{10}	3.6814	(3.5688; 3.7940)	0.0436	1.1534	31.33	4	4	−0.73	−0.14
X_5	3.8	(3.7103; 3.8897)	0.0347	0.9187	24.18	4	4	−0.67	0.5
X_8	3.8186	(3.7306; 3.9066)	0.0341	0.9014	23.61	4	4	−0.69	0.51
X_{17}	3.84	(3.7467; 3.9333)	0.0361	0.9554	24.88	4	4	−0.78	0.5
X_{13}	3.9614	(3.8776; 4.0453)	0.0325	0.8591	21.69	4	4	−0.92	1.32

Table 2. Independence test results and strength of relationships between dependent variable (DV) and independent variables (IV)

DV	IV	Chi-square test p-value	Decision on H_0	Cramer's measure of association	ρ_S	ρ_S p-value
Y	X_1	invalid	-	-	0.094	0.013
Y	X_2	0.000	Rejected	0.210918	0.309	0.000
Y	X_3	0.000	Rejected	0.124364	−0.132	0.000
Y	X_4	0.000	Rejected	0.15017	−0.261	0.000
Y	X_5	invalid	-	-	0.423	0.000
Y	X_6	invalid	-	-	0.523	0.000
Y	X_7	invalid	-	-	0.342	0.000
Y	X_8	invalid	-	-	0.298	0.000
Y	X_9	0.000	Rejected	0.160034	0.21	0.000
Y	X_{10}	0.000	Rejected	0.157553	0.144	0.000
Y	X_{11}	0.000	Rejected	0.0688201	0.176	0.000
Y	X_{12}	invalid	-	-	0.16	0.000
Y	X_{13}	invalid	-	-	0.037	0.325
Y	X_{14}	0.000	Rejected	0.0716103	−0.026	0.492
Y	X_{15}	0.000	Rejected	0.0769865	−0.068	0.073
Y	X_{16}	0.000	Rejected	0.0881814	−0.088	0.019
Y	X_{17}	invalid	-	-	0.094	0.013

Table 3. Generalized linear models. Analysis of variance. In all the models was applied optimal Box-Cox transformation with rounded and estimated λ

Model	Source in the Model	Optimal λ Rounded & Estimated	99% CI for λ	S	R^2	R^2 adj	R^2 pred	Source with $p \geq 0.01$
1	X_i; $i \in \{1, 2, ..., 17\}$	1.33588	(1.03338; 1.64438)	1.197	68.09	65.14	-	X_i; $i \in \{7, 8, 11, 12, ..., 17\}$
2	X_i; $i \in \{1, 2, 3, 4, 5, 6, 9, 10\}$	1.34687	(1.05137; 1.64837)	1.253	64.59	63.39	61.43	-
3	X_i; $i \in \{1, 2, 3, 4, 5, 6, 9, 10\}$ $X_2 \cdot X_9; X_3 \cdot X_9$	1.42178	(1.12128, 1.72928)	1.414	66.48	64.93	-	$X_3 \cdot X_9$;
4	X_i; $i \in \{1, 2, 3, 4, 5, 6, 9, 10\}$ $X_2 \cdot X_9$	1.42699	(1.12549; 1.73449)	1.430	66.18	64.83	62.25	-

$$Y^{1.42699} = 5.335 + 1.869X_1^1 - 0.122X_1^2 - 0.312X_1^3$$
$$- 1.435X_1^4 - 1.458X_2^0 + 1.458X_2^1 + 0.355X_3^0$$
$$- 0.355X_3^1 + 1.278X_4^1 - 0.781X_4^2 - 0.497X_4^3$$
$$+ 1.582X_5^1 - 0.891X_5^2 - 0.308X_5^3 - 2.156X_5^4$$
$$+ 1.773X_5^5 - 3.512X_6^1 - 0.427X_6^2 - 0.198X_6^3$$
$$+ 3.068X_6^4 + 1.069X_6^5 - 1.393X_9^1 + 0.219X_9^2$$
$$+ 0.442X_9^3 - 0.413X_9^4 + 1.145X_9^5 + 0.063X_{10}^1$$
$$- 0.472X_{10}^2 - 0.275X_{10}^3 + 1.170X_{10}^4 - 0.487X_{10}^5$$
$$+ 0.204X_2^0 \cdot X_9^1 - 0.034X_2^0 \cdot X_9^2 + 0.073X_2^0 \cdot X_9^3$$
$$+ 0.303X_2^0 \cdot X_9^4 - 0.546X_2^0 \cdot X_9^5 - 0.204X_2^1 \cdot X_9^1$$
$$+ 0.034X_2^1 \cdot X_9^2 - 0.073X_2^1 \cdot X_9^3$$
$$- 0.303X_2^1 \cdot X_9^4 + 0.546X_2^1 \cdot X_9^5, \qquad (4.1)$$

where X_i^j is $X_i = j$, and $X_i^k \cdot X_j^l = (X_i = k) \cdot (X_j = l)$.

Fig. 1 includes the histogram and normal probability plot of standardized residuals with the computed AD test result, standardized residuals versus fits, and standardized residuals versus order. the normal probability plot shows deviations from the straight line, and from the AD test p-value (less than 1%) together with the histogram, we concluded that the standardized residuals don't come from a normal distribution. As the Versus Fits plot in Fig. 1 is scanned from left to the right, the points appear to fall randomly on both sides. This means that they are randomly distributed, but it

doesn't appear that they fall into a horizontal band of points. The (vertical) spread of the residuals doesn't remain approximately constant. This is an indicator of heterogeneity of variance. Based on the residuals Versus Order plot in Fig. 1, standardized residuals appear to fall randomly around the center line, so there is no pattern or trend evident. We cannot say that the residuals are not independent from one another.

Our results are consistent with those found in [21–24]. Ryu and Han have shown that quality of food, service, and physical environment were all significant determinants of customer's satisfaction. In addition, perceived price acted as a moderator in the satisfaction formation process [3].

One limitation of these statistical conclusions about the views of customers who have frequented Vlore's restaurants, is that the data comes only from Albanian customers. Since Vlore is a highly frequented tourist coastal town, it is important to consider the opinion of non-Albanian customers as well. Another limitation is that it is not specified by the customers in the survey as to what type of restaurant the impressions are related to.
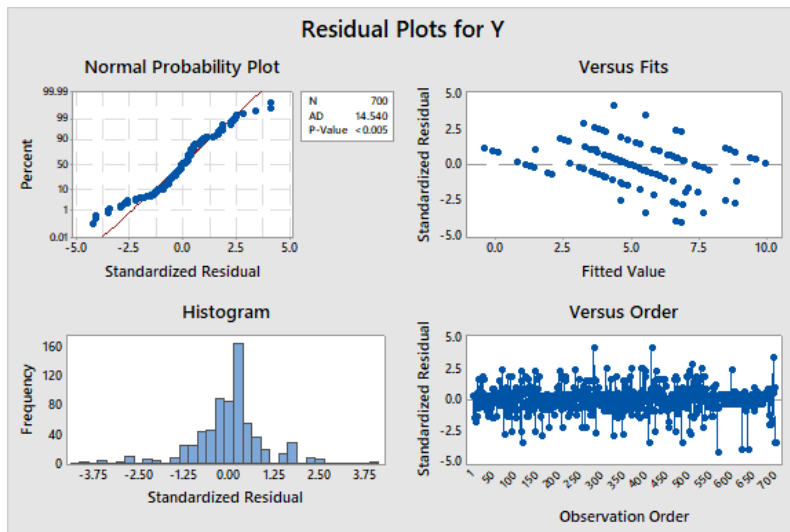
Fig. 1. Residual plots for Y-Model 4. For the standardized residuals, skewness $= -0.36939$, and kurtosis $= 3.08448$

5. Conclusion

Based on the research questions raised in this article, the findings showed that the overall level of satisfaction of the customers was neutral with $37.6 \pm 5\%$ followed by satisfied with $27.9 \pm 5\%$. Statistical evidence of a frail relationship was found at the 1% level of significance between the overall level of satisfaction and gender, employment, monthly income, bill accuracy, fairness of the prices, speed in service, the patience to bring the bill, clear communication, and politeness of the host staff.

Furthermore, there was statistical evidence of a negative relationship at the 5% level between the overall level of satisfaction and employment, monthly income and fairness of the price. 66.18% of the variation of the overall level of satisfaction was explained by age, gender, employment, monthly income, patience to bring the bill, bill accuracy, and variety in menu, warm and fresh served cooked foods.

Changes in age, gender, employ-ment, monthly income, patience to bring the bill, bill accuracy, and variety in menu, warm and fresh served cooked foods; were associated with the changes in the overall satisfaction. Moreover, these variables explained better the overall satisfaction with a model prediction of 62.25%. It was found that the relationship between overall satisfaction level and gender depended upon bill accuracy.

These results help restaurant businesses and whoever wants to invest in this sector to better understand customer satisfaction about service quality and to pinpoint aspects that can be improved so that the overall satisfaction can be even higher than neutral. In the future, we recommend that similar studies in Vlore, Albania (and not only), take into account the inclusion of non-Albanian (non-regional) customers' impressions, especially in touristic cities. It is important also to separate restaurants by different categories that actually exist, in order to provide concise guidance for each of them.

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Appendix

Table 4 gives eighteen close ended questions from the survey used, where thirteen of them are measured using a 5-point Likert scale from "very dissatisfied" to "very satisfied".

Table 4. Descriptive results on demographic and attribute questions values

Questions	Variable	Measurement Scales	Categories	Code	Type of Variable	Frequency	%
How old are you?	X_1	Interval	< 20	1	Ordered polytomous	12	1.7
			20 − 40	2		568	81.1
			41 − 60	3		112	16
			> 60	4		8	1.1
What is your gender?	X_2	Nominal	Male	1	binary	309	44.1
			Female	0		391	55.9
Are you employed?	X_3	Nominal	Yes	1	binary	582	83.1
			No	0		118	16.9
What is your monthly income level?	X_4	Interval	0 − 241 €	1	Ordered polytomous	174	24.9
			242 − 1045 €	2		414	59.1
			> 1045 €	3		112	16
What is your level of satisfaction with the service at the restaurants in Vlora?	Y	Ordinal	Very dissatisfied	1	Sequential polytomous	30	4.3
			Dissatisfied	2		121	17.3
			Neutral	3		263	37.6
			Satisfied	4		195	27.9
			Very satisfied	5		91	13
Cooked foods are served warm and fresh?	X_5	Ordinal	Very dissatisfied	1	Sequential polytomous	16	2.3
			Dissatisfied	2		33	4.7
			Neutral	3		184	26.3
			Satisfied	4		309	44.1
			Very satisfied	5		158	22.6
The menu is varied?	X_6	Ordinal	Very dissatisfied	1	Sequential polytomous	20	2.9
			Dissatisfied	2		58	8.3
			Neutral	3		196	28
			Satisfied	4		299	42.7
			Very satisfied	5		127	18.1

Questions	Variable	Measurement Scales	Categories	Code	Type of Variable	Frequency	%
The quality of the food is excellent?	X_7	Ordinal	Very dissatisfied	1	Sequential polytomous	21	3
			Dissatisfied	2		59	8.4
			Neutral	3		216	30.9
			Satisfied	4		286	40.9
			Very satisfied	5		118	16.9
Cookies are delicious?	X_8	Ordinal	Very dissatisfied	1	Sequential polytomous	13	1.9
			Dissatisfied	2		38	5.4
			Neutral	3		167	23.9
			Satisfied	4		327	46.7
			Very satisfied	5		155	22.1
They brought the bill without any mistakes?	X_9	Ordinal	Very dissatisfied	1	Sequential polytomous	38	5.4
			Dissatisfied	2		71	10.1
			Neutral	3		185	26.4
			Satisfied	4		227	32.4
			Very satisfied	5		179	25.6
The host staff (Waitress, Manager) was patient to bring the bill?	X_{10}	Ordinal	Very dissatisfied	1	Sequential polytomous	48	6.9
			Dissatisfied	2		53	7.6
			Neutral	3		165	23.6
			Satisfied	4		242	34.6
			Very satisfied	5		192	27.4
The order is served quickly?	X_{11}	Ordinal	Very dissatisfied	1	Sequential polytomous	36	5.1
			Dissatisfied	2		81	11.6
			Neutral	3		237	33.9
			Satisfied	4		236	33.7
			Very satisfied	5		110	15.7
Sauces and dining sets were available?	X_{12}	Ordinal	Very dissatisfied	1	Sequential polytomous	22	3.1
			Dissatisfied	2		84	12
			Neutral	3		185	26.4
			Satisfied	4		277	39.6
			Very satisfied	5		132	18.9

Questions	Variable	Measurement Scales	Categories	Code	Type of Variable	Frequency	%
The menu was simple to understand?	X_{13}	Ordinal	Very dissatisfied	1	Sequential polytomous	13	1.9
			Dissatisfied	2		21	3
			Neutral	3		131	18.7
			Satisfied	4		350	50
			Very satisfied	5		185	26.4
The host staff (Waitress, Manager) communicated clearly?	X_{14}	Ordinal	Very dissatisfied	1	Sequential polytomous	44	6.3
			Dissatisfied	2		62	8.9
			Neutral	3		170	24.3
			Satisfied	4		268	38.3
			Very satisfied	5		156	22.3
The host staff (Waitress, Manager) was polite?	X_{15}	Ordinal	Very dissatisfied	1	Sequential polytomous	48	6.9
			Dissatisfied	2		65	9.3
			Neutral	3		179	25.6
			Satisfied	4		259	37
			Very satisfied	5		149	21.3
The price was correct?	X_{16}	Ordinal	Very dissatisfied	1	Sequential polytomous	57	8.1
			Dissatisfied	2		77	11
			Neutral	3		252	36
			Satisfied	4		203	29
			Very satisfied	5		111	15.9
The interior of the restaurant was clean?	X_{17}	Ordinal	Very dissatisfied	1	Sequential polytomous	18	2.6
			Dissatisfied	2		40	5.7
			Neutral	3		156	22.3
			Satisfied	4		308	44
			Very satisfied	5		178	25.4