Consumer Profile and Tipping Habits. A Romanian Framework Using Fuzzy Method

Ada Mirela Tomescu, Olimpia I.Ban

Abstract— Tipping is an interesting consumer behavior, because the tips are voluntary payments given after services are completed. Our paper tries to establish the Romanian sample profile and their perception regarding tipping phenomena. The Romanian consumer is difficult to investigate because of resistance to being fully honest in this problem. Thus the present study aim is to identify whether there are differences between respondents` attitude toward idea of tipping in various units, and whether these attitudes are influenced by respondent incomes, this last objective it was accomplished using Fuzzy method. A thesis could be: a higher income leads to a more positive attitude towards the idea of giving tips; another is to record the profile and the attitude to this issue of a certain sample of Romanian consumers.

I. I   II. NTRODUCTION

Tipping is an extremely complex phenomenon, with conspicuous implications on psychological, behavioral, social, and not least economical aspect of our day to day lives.

According to the Encyclopedic Dictionary of Romanian language, the word "tip" of Turkish origin 'bahşiş'-is "the amount of money given to someone, over the payment due for service to earn good will and protect someone". It is clear that this definition cannot capture all the subtleties of the situation in which a person decides to tip, so it requires a careful analysis, addressing issues such as whether tipping is a practice limited to just gaining goodwill or protecting someone? This is obviously not the case. In the hospitality industry and beyond, the tip the tourist offers can be underlined by many more reasons than those contained in the above definition, having both economic implications and connotations, as well as social and psychological ones, making an exhaustive analysis difficult.

The difficulty which lies in the analysis of this phenomenon is that when conducting research on actions with a purpose and motivation deeply rooted in human personality, behavioral and psychological traits. The consumer is difficult to investigate because of resistance to being fully honest and also to understanding what causes the blur around one's acts and opinions. Obviously, here we are dealing with implications and connotations that include economic factors especially psychological and social.

In strictly economic perspective in the hospitality and travel services, the tips represents the sums of money given by the consumers above and beyond the contracted prices of those services provided by the workers who have served them. (Cassey, 2001). [2]

Tipping is an interesting consumer behavior, because the tips are voluntary payments given after services are completed. Under this economic theory consumers rarely aspire to pay more than necessary for goods and services. In order to get the most from their limited resources, consumers usually try to obtain things for the lowest available price.

When customers were asked why they leave a tip, they most often respond that it is to reward the worker for their services. This response comes in line with what economists generally believe that is the service charge. Nevertheless, even given this, we find it hard to accept that there is only a one-dimensional causality for tipping. In support of this thesis, we can turn to some dynamic motivational theories such as J.S. Adams's Equity Theory or the Expectancy Theory of Victor Vroom.

Explaining the existence of the service charge from only an economic point of view is flawed, on one hand, by studies showing that consumers are unable to assess the true value of service provided and applies the theory of Leonard Green namely the effect of magnitude, on the other. This theory suggests that there is an inverse relation between the size of the amount at which the service is priced and the amount of the tip, meaning that the higher the cost of the service, the lower the service charge deducted.

It is clear that consumers tip the waiter for psychological and social reasons rather than strictly economic-rational ones. The desire to astound, to stand out, to save the waiter, bartender or waiter in a difficult

situation, the need to guarantee the quality of future services, reporting on their social status, self-esteem, fear of retaliation from the waiter, personality and temperament of their own economic situation, group of friends, the need to provide a happy, family or entourage, environment or psychological state of the moment, to name but a few, may be as many reasons and influencing factors of the service charge.

How the tip not the same everywhere, because it is said: "many huts, many habits...".For example, in China it is illegal to give a tip. In Japan, Austria and Britain tipping is standard and is on the bill received from the restaurant. In Australia or the Czech Republic, the tip represents the small change that the bill is rounded up to dollars, respectively euro and that is considered sufficiently. U.S.A rate tips level, and it is strictly limited, depending on the type of service provided, thus that there is a grid of tips, that it is known and accepted by both sides of the transaction.

In Europe, the margin is 10% and it can reach 20%, depending on the quality of services, because it is stated that gratitude is a direct link between service quality and the amount of the tip. [1]

In other countries of the European Union, tipping is legalized and is possibly contributing substantial sums to the state budget On the other hand, is extremely difficult to set up and to enforce a taxation system to rule all these amounts, considered until now without doubts, a wheel of activities in "the engine" of the services. [1]

1.1 Tips in the World

Although worldwide there is the practice of providing tips (with some exceptions) as a percentage somewhere between 10 and 20% of the service received, or fixed amount, significant differences from country to country and even within them and take both a certain mentality in terms of habit, personal psychological factors specified above and the current civil practice regulated by law. The percentage is even greater as extra services have been noticed here and there to validate a true increase in service charge. There are countries where the service charge is not practiced, just as there are countries where the tip offered is a fixed amount. In the integrated invoice is still here and to be accused of theft if you leave no tip is a moral distance which should not be exploited. A U.S. couple was arrested for refusing to leave the mandatory service charge on a restaurant bill. Bill included a tip of $ 16, or 18% of its value, but the two refused to pay, explaining they had to wait for their food for more than one hour, and then when it arrived, they had to take their own napkins and cutlery. Those in their group of friends say that they were still waiting for their drinks, while the waiters stood outside and

smoked. Finally, they received a bill for 73.87 dollars. They pay board, but refused to leave something extra; the waiter even told the manager that. Restaurant owner admitted that the group of people received food very difficult, but explained that it was a very busy evening. He said that gave them a discount, but they declined. Those in the restaurant called police, and the couple was arrested for theft.[11] What can we say? In fact, a mandatory tip is not really a tip at all. It is not the reward for quality of services as we expect, but an additional charge on the bill!

The present paper does not aim to analyze significant differences existing in the world in terms of consumer motivations regarding tips in restoration services, more than this may be the subject of future studies and research.

1.2.Tips in Romania

When reviewing foreign literature, we noticed that there are extensive studies concerned with tipping/gratitude phenomena. Searching for Romanian studies on this subject, we only found articles in newspapers aimed at the general public, and with a very limited use to a more specialized audience who would be looking for a scientific approach. Since we couldn't find economical, sociological, financial, or otherwise any kind of scientific study published in Romanian academic journals concerning tipping and gratitude, we conclude that this area of research, consumers' behavior is more or less ignored by Romanian researchers.

In this context, we highlight the difference between the "tip" (a voluntary payment, whose value is entirely up to the customer's decision) and "bribes" (a forced payment by constraint).

In Romania we notice, also, a mostly negative perception of the phenomena, it is considered unfair, as a bribe, but almost everybody practices it! In fact tips should not be bribes.

We, Romanians, are very familiar with the idea of bribes. People give various amounts of money to receive a public free service or an already paid for service. It is a practice often humiliating for the being offered, as he can feel put on a position of inferiority.

The good news is that yet many young people do not give bribes anymore. That and they have a better awareness of themselves, of their value, their rights and not try to keep surviving with all costs and bribe-habits practiced.

Why do people leave tips in Romania? It is a recurring question that has not as yet found an explanation and the present study attempted to more enlighten those black spots. A possible explanation rooted in the collective mind, it could be that left by a certain Balkan tradition that any service provided by a person or public or private employee, is charged.

Nothing comes for free - all paid. The distance here between tips and bribes can be dangerous.

The service charge is often seen in Romania as a form of bribery bribes to employee for consumer safety to be served properly and to minimize the risks of an unsatisfactory meal.

In Romania, the amount charge is not necessarily determined after an arithmetic calculation, and if this happens, however, shows that women are more likely to take it as a percentage of the cost paid, women also being usually more demanding in terms of serving. Even so, not all women express their discontent regarding poor service when they receive it. While carrying our research, we came across an extreme case in which a customer, having had soup poured all over her clothes, did not leave a tip, but found it hard to resist the temptation of leaving one. Most times, however, both men and women set the service charge for reasons psychological, emotional or social nature still more subjective than objective - rational.

Romanians are quite accustomed to the idea of tips. People give money to shop even after paying for the purchased goods, or not taking the change resulting from paying, whether it is a small amount for personal reasons related more often to pride - whether it's too far and then not to humiliate you lie after "small change", or simply find it beneath one's dignity to take that money. In this connection some network retail or wholesale stores and even fast-food have noticed this and have tried to capitalize off with a social connotation that is placing donation boxes near the cash registers.

Consumers have all sorts of reasons when you leave tips - we rely on here about a certain hierarchical structure belonging to A. Maslow needs - from basic needs to complex social or need to be kept in mind when they return there. However few studies conducted in Romania reveal that there is a low degree of fidelity in terms of attendance at restaurants, Romanians always preferred to eat elsewhere. The explanation may be to the low frequency of going out to eat on the one hand and the large number of restaurants, on the other.

Romania is a country that has a long tradition of tipping, tipping (for which the word in Romanian is: "bacşiş", as we already indicated before) being a Balkan tradition. Surprising or not, we did not find many studies on particular topic regarding tipping in Romanian services, especially in restaurants.

What characterizes the Romanian consumer, who leaves a tip for a service?

We intend to identify some of the characteristic points on such complex subject.

We propose a quantitative study of attitudes of Romanian consumers towards tipping in Romanian services and the links that are done with some characteristic variables regarding consumers that are giving the tip.

We intend to determine and emphasize some important elements of this phenomenon within a Romanian framework.

This study is a part of a larger one when we compare the data first in national context, and then international, afterward to deepen and refine the topic which we consider particularly interesting and useful from psychological, behavioral, sociological and most of all economical point of view. Thus the present study aim is to identify whether there are differences between respondents` attitude toward idea of tipping in various units, and whether these attitudes are influenced by respondents` incomes. A thesis could be: a higher income leads to a more positive attitude towards the idea of giving tips. Another is to record the profile and the attitude to this issue of a certain sample of Romanian consumers.

III. METHOD, DATA COLLECTION AND DATA PRESENTATION

Our study was carried out in the form of a survey. A set of 14 questions has been prepared in a questionnaire in order to collect information from Romanian consumers. The questionnaire items give the possibility to choose the answers among indicated items. For this preliminary study, we considered only a part of the questionnaire items. The questions were applied among random citizens living in Oradea (a city located in Western part of Romania, has 204,477 inhabitants, as of the 2009 census).Our sample was 140 people. Gathering of data were done in March-April 2008.

We examined responses to our research questionnaire and we prepared the following figures presenting obtained information.
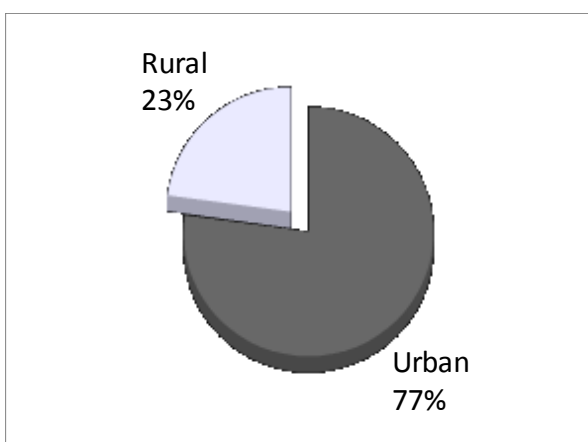
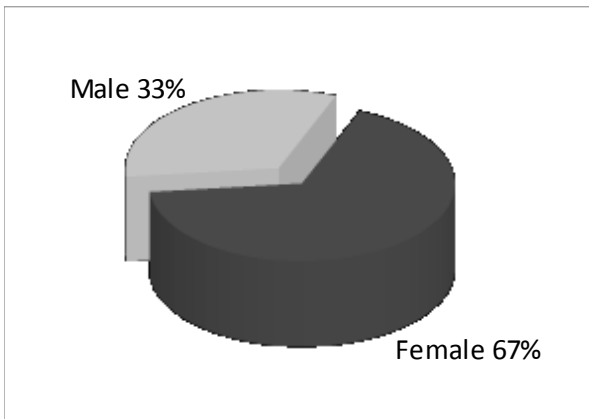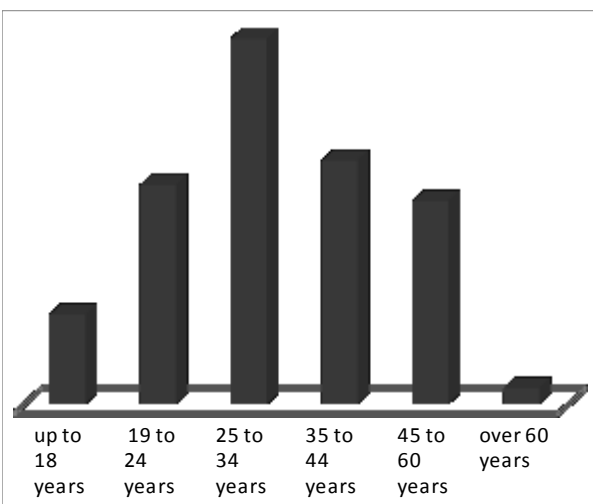Fig. 1 Residence of respondents

Fig. 2 Gender of respondents

Other items were upon:

Fig. 5 Amount of the tip

Fig. 3 Ages of respondents

Fig. 6 Frecvency of tipping

Fig. 4 Respondents` level of education
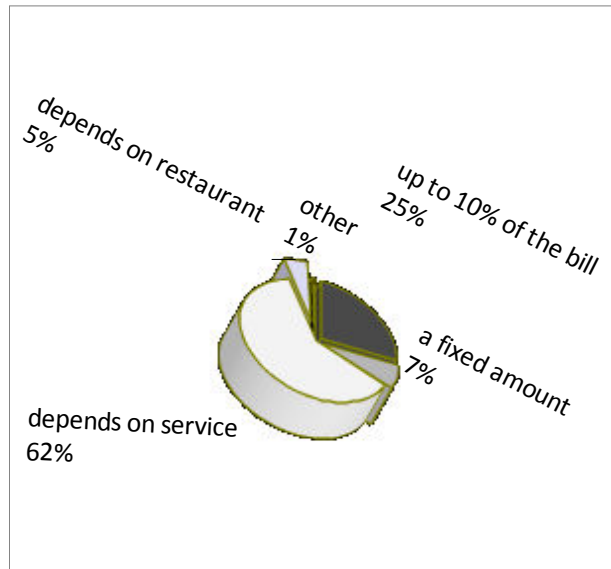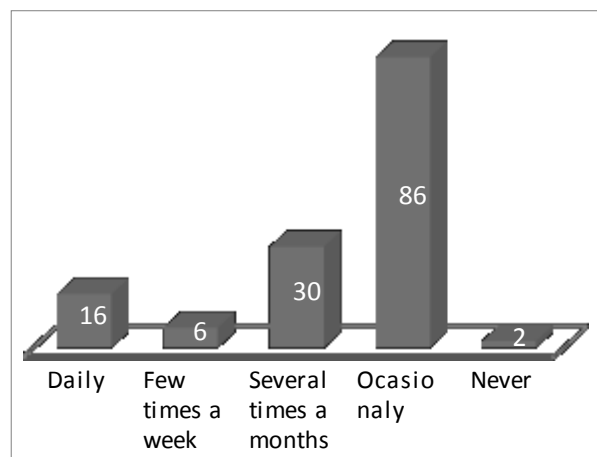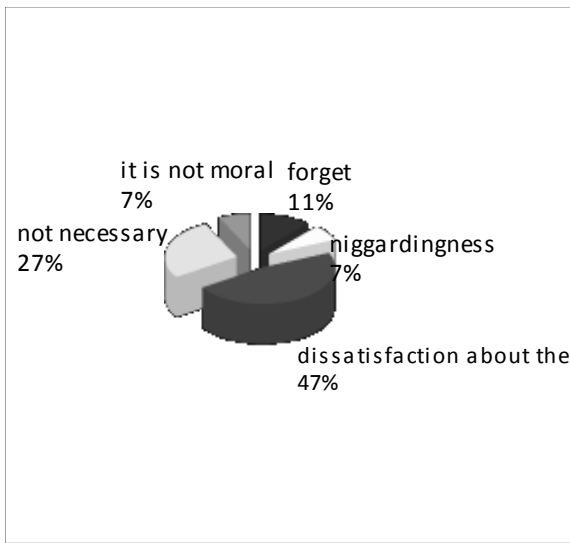
Fig. 7 Reasons for not tipping
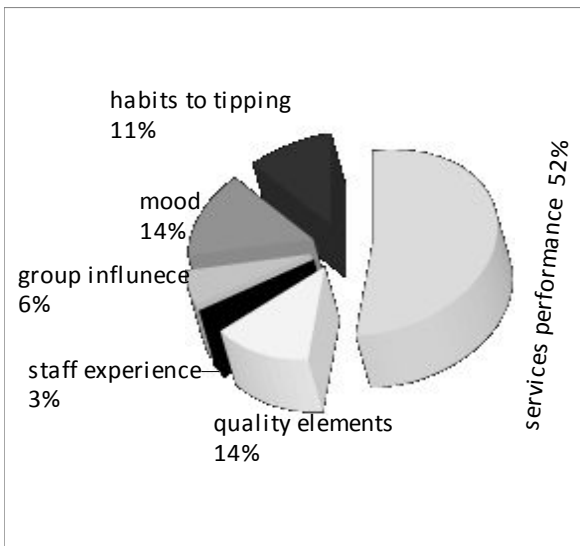

Fig. 8 Reasons for tipping

Fig. 9 Income of respondents

To evaluate the answers we used a 5-grade scale, from "total agreement to total disagreement", and the answers are classified according to the self-declared income level of the respondents.
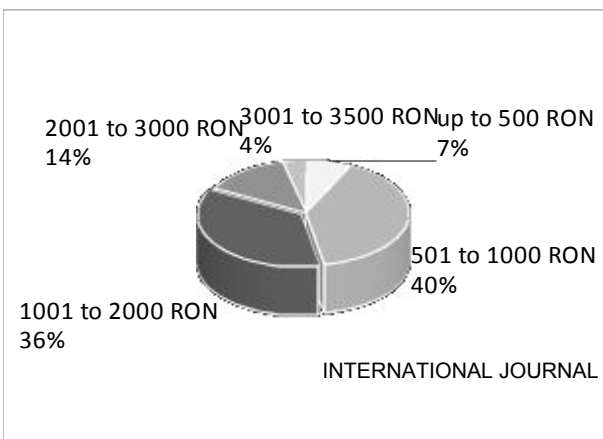

Table 1 Answers to question "It is normal to give a tip in a commercial unit (food stores, non-? etc.)? "

Scale Income (RON)*	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
Up to 500 **	-	-	3	5	2
600-1000	-	3	14	17	22
1000-2000	-	2	14	16	18
2000-3000	-	-	3	8	8
3000-3500	-	-	1	4	-
Over 3500	-	-	-	-	-

Table 1 Shows the distribution on answers to the following question : "1. It is normal to give a tip in a commercial unit (food stores, non-? etc.)? "
* RON = Romanian monetary unit (Exchange rate at 25 of June 2010 4.23 RON = 1 EURO)
** the minimum wage in Romania is 600 RON (gross) per month for a full-time schedule of 170 hours per month /source: H.G. 1051/2008 .

Table 2 Answers to question " It *is normal to give tip in a car wash service?"*

Scale Income (RON)*	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
Up to 500 **	-	-	6	2	2
600-1000	-	6	16	15	19
1000-2000	-	10	13	12	15
2000-3000	-	4	6	4	-
3000-3500	-	-	-	4	1
Over 3500	-	-	-	-	-

Table 3 Answers to question "It is normal to tip your hairdresser or someone else working in a beauty salon?"

Scale Income (RON)*	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
Up to 500**	-	10	-	-	-
600-1000	-	16	22	8	10
1000-2000	11	18	13	5	3
2000-3000	-	9	7	3	-
3000-3500	-	-	-	1	4
Over 3500	-	-	-	-	-

Table 4 Answers to question "It is normal to give a tip in a food market?"

Scale Income (RON)*	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
Up to 500**	-	-	-	-	10
600-1000	-	4	10	16	26
1000-2000	-	9	12	15	14
2000-3000	-	1	3	3	4
3000-3500	-	2	1	1	1
Over 3500	-	-	-	-	-

Table 5 Answers to question "It is normal to tip a taxi driver?"

Sub-questions	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
9.1	-	5	35	50	50
9.2	3	34	35	42	26
9.3	11	53	42	17	17
9.4	-	16	26	35	55
9.5	-	20	41	37	37

Table 6 Scalar distiribution of the answers to

section 9 of the questionnaire

Scale Income (RON)*	Total Agreement	Agreement	Indifferent	Disagreement	Total Disagreement
Up to 500**	-	-	3	3	4
600-1000	-	13	13	15	15
1000-2000	3	16	15	12	4
2000-3000	-	5	3	10	1
3000-3500	-	-	1	2	2
Over 3500	-	-	-	-	-

We did examined if there is a link between the answers subset of the previous section and the following question of our survey questionnaire: " In which group fits your current income?" Data were collected through application the above described questionnaire. The venues for the interviews varied, some occurring in the homes of the respondents, others occurring at the restaurant, various shops, in to the food marketplace, hairdresser shops and cosmetics salons.

IV. MATHEMATICAL METHOD AND ANALYSE

Let X be a universal set of discourse. A fuzzy set A in X is defined by a membership function which maps each element $x \in X$ to a real number in the interval 0,1, that is $A: X \to 0,1$. The value Ax represents the grade of membership of x in A means a large value of Ax.

A trapezoidal fuzzy number is a fuzzy set A in R with the membership function A: $R \to 0,1$ characterized by $Ax = x-ab-a$, if $a \le x \le b1$, if $b \le x \le cx-dc-d$, if $b \le x \le d0$, otherwise, where $a,b,c,d \in R, -\infty < a \le b \le c \le d < \infty$.

We denote a,b,c,d a trapezoidal fuzzy number as above.

The addition $\oplus$ and the scalar multiplication "·" of trapezoidal fuzzy numbers are based on the extension principle in Fuzzy Set Theory and they are defined by (see e. g. [5]):

$$a1,b1,c1,d1 \oplus a2,b2,c2,d2 = a1+a2,b1+b2,c1+c2,d1+d2, \qquad (1)$$

$$k \cdot a,b,c,d = ka,kb,kc,kd, \text{if } k \ge 0 kd,kc,kb,ka, \text{if } k<0.$$

We use the arithmetic mean as a simple method to aggregate fuzzy numbers. The arithmetic mean $MA1,...,An$ of trapezoidal fuzzy numbers $A1,...,An$ is equal to:

$$MA1,...,An = 1n \cdot A1 \oplus ... \oplus An \qquad (2)$$

The expected interval of a fuzzy number A, denoted by

$$EIA=EI*A,EI*A \qquad (3)$$

and the expected value of a fuzzy number A, denoted by EVA, were introduced in the paper [2a] to evaluate a fuzzy number by a real interval or a real number. In the particular case of the trapezoidal fuzzy number a,b,c,d we have:

$$EIa,b,c,d=a+b2,c+d2 \qquad (4)$$

and

$$EVa,b,c,d=a+b+c+d4. \qquad (5)$$

If A=a,b,c,d and B=a1,b1,c1,d1 are trapezoidal fuzzy numbers then the correlation coefficient between two fuzzy numbers defined in the paper [3] becomes

$$\rho A,B=a+ba1+b1+c+dc1+d1a+b2+c+d2a1+b12+c1+d12 \qquad (6)$$

and the correlation coefficient in the paper [Yu] becomes

$$CA,B=1w-vvw(AxBx+1-Ax1-Bx)dx \qquad (7)$$

where v,w is a closed interval such that a,d⊆v,w and a1,d1⊆v,w.

3.1 Where is normal to tip?

The concept of linguistic values [7] is in a strong connection with the fuzzy set theory [8] and it is very useful in handling situations that are too complex or ill-defined to be reasonably described by quantitative expressions. As example, we use the following scale [9] to convert the linguistic terms (possible answers to questions 1)-5)) to trapezoidal fuzzy numbers:

Strongly agree: A=0.8,0.9,1,1;

Agree: B=0.6,0.75,0.75,0.9;

Less Agree: C=0.3,0.5,0.5,0.7;

Disagree: D=0.1,0.25,0.25,0.4;

Strongly disagree: E=0,0,0.1,0.2.

According to (1) and (2), and the answers of respondents, the arithmetic mean M1 of the opinions with respect to question 1) is:

$$M1=1140\cdot0\cdot A5\cdot B\oplus35\cdot C50\cdot D\oplus50\cdot E=0.10,0.24,0.28,0.42 \qquad (8)$$

In a similar way we calculate M2-M5 to aggregate the opinions with respect to questions 2)-5). We obtain:

$$M2=1140\cdot3\cdot A\oplus34\cdot B\oplus35\cdot C\oplus42\cdot D\oplus26\cdot E=0.2,0.40,0.42,0.57 \qquad (9)$$

$$M3=1140\cdot11\cdot A\oplus53\cdot B\oplus42\cdot C\oplus17\cdot D\oplus17\cdot E=0.45,0.59,0.62,0.75 \qquad (10)$$

$$M4=1132\cdot0\cdot A\oplus16\cdot B\oplus26\cdot C\oplus35\cdot D\oplus55\cdot E=0.1,0.26,0.30,0.44 \qquad (11)$$

and
$$M5=1135\cdot0\cdot A\oplus20\cdot B\oplus41\cdot C\oplus37\cdot D\oplus37\cdot E=0.2,0.33,0.36,0.51 \qquad (12)$$

To ranking the opinions with respect to questions 1)-5) we calculate the expected values of the fuzzy numbers Mi,i∈1,2,3,4,5.
We get: EVM1=0.26, EVM2=0.415, EVM3=0.6025, EVM4=0.2 and EVM5=0.3525, therefore we can conclude   that M3>M2>M5>M4>M.

Here it is assert that most normal tip is to be given to a hairdresser/ beauty parlor/ and at least in a retail unit or into a taxi.

3.2 Correlation between income and giving tips
We test whether belonging to a particular income group directly influence consumers attitude toward tipping.
We can convert the answers given to question 14) as in Figure 9 "Income of respondents". We obtain five real intervals. It is obvious that any real interval y,z can be considered as a trapezoidal fuzzy number y,y,z,z, that is its membership function is equal to 1, for every x∈y,z and equal to , otherwise. In this way we can use formula (5) to calculate the correlation between the five possible answers to question (14) and the possible answers to questions (1)-(5). We obtain the results in Fig. 9.

We calculate the correlation (denoted C1) between incomes (question 14)) and the opinions with respect to question 1) (see Fig. 4) as the arithmetic mean of the individual answers:

$$C1=0.718$$

The correlations between incomes (question 14)) and the opinions with respect to questions 2), 3), 4), 5) (see Fig. 5-8) denoted by Ci,i∈2,3,4,5 are given below:
C2=0.719
C3=0.699
C4=0.743
C5=0.719
These results shown that belonging to a certain income group does not determine a different attitude to tipping. The presumption that a greater income grows the availability to tipping dose not validate.

V. Conclusion

The sample studied by us shows a consumer profile mostly as an urban, female, belonging to age interval 24-34 years old, in the group of income 500-1000 RON.

It is assert that most normal tip is to be given to a hairdresser/ beauty parlor/ and at least in a retail unit or into a taxi. Most likely the tip that is associated with expression of gratitude for a qualitative service, A longer interaction with the provider, a personalized interaction or physical contact/face-to-face with the provider means a lot. For example, interposing and handling a device is a way to depersonalize the relationship. Certain categories of services require more a direct and also a personalized interaction, for instance: medical services, educational services, cosmetic services, hairdressing, massage services, etc. (long-term services. In above mentioned services, it seems for our sample of consumers is natural to offer a tip. In fact we identified that it is intended to express their satisfaction and the desire to strengthening the future relationship. In the case of short-term service without perspectives such as transportation by taxi or commercial services are not a question of long-term relationship and the actual provider's contribution is considered less important.

Belonging to a certain income group does not determine a different attitude to tipping.

In other words, the incomes do not determine the consumers to be more or less openhanded.

It is not verify the assumption that a lower income would make the consumer more inclined to tipping.

In the next future we will deepen this topic towards consumers Romanian characteristic habits, considering this one as a start point.

References

[1]Azar, H. O. , Incentives and Service Quality in the Restaurant Industry: The Tipping – Service Puzzle, *Applied Economics, Taylor and Francis Journals*, vol. 41(15), pp. 1917-1927
http://ideas.repec.org/p/pra/mprapa/4457.html
[2] Casey, B. (2001) Tipping in New Zealand's restaurants. *Cornell Hotel and Restaurant Administration Quarterly* **42**:1 , pp. 21-25.
[2a] Heilpern; S. Heilpern, The expected value of a fuzzy number, *Fuzzy Sets and Systems*, Vol. 47, 1992, pp. 81-86.
[3] Hung-Wu; W. Hung, J. Wu, A note on the correlation of fuzzy numbers by expected interval, *Internat. J. Uncertainty Fuzziness and Knowledge-Based Systems,* Vol. 9, 2001, pp. 517-523.
[4]Savkovic-Stevanovic, B., "Fuzzy logic control system modelling" *International Journal of Mathematical Models and Methods in Applied Sciences*, vol. 3, no. 4, 2009, pp. 327–334.
[5] Tsaur-Tzeng-Wang; S.-H. Tsaur, G.-H. Tzeng; K.C. Wang, Evaluating tourist risks from fuzzy perspectives, *Annals of Tourism Research*, Vol. 24, 1997, pp.796-812.
[6] Yu C. Yu, Correlation of fuzzy numbers, *Fuzzy Sets and Systems*, Vol. 55,1993, 303-307.
[7] Zadeh 1; L. A. Zadeh, The concept of a linguistic variable and its application to approximate reasoning, *Information Sciences,* Vol.
[8], 1975, pp. 199-249, pp. 301-357; Vol.9, 1976, pp. 43-80.
[9] Zadeh 2, L. A. Zadeh, *Fuzzy sets*, Information and Contro, Vol. 3, 1965, pp. 338-353.
[10] Zhang W. Zhang, *Hanover decision using fuzzy MADM in heterogeneous networks*, IEEE Wireless Communications and Networking Conference, 2004, vol. 2, pp. 653-658.
[11] ***(Daily Telegraph November 24, 2009. http://www.telegraph.co.uk/news/worldnews/northamerica/usa/6637437/Couple-arrested-over-theft-for-refusing-to-tip-in-restaurant.html)
[12]M.S. Islam, N. Amin, M. Zaman and M.S. Bhuyan, "Fuzzy based PID controller using VHDL for transportation application" *International Journal of Mathematical Models and Methods inApplied Sciences*, vol. 2, no. 2, pp. 143–147, 2008.
[13]J.J. Saade and A.H. Ramadan, "Control of thermal-visual comfort and air quality in indoor environments through a fuzzy inference-based approach" *International Journal of Mathematical Models and Methods inApplied Sciences*, vol. 2, no. 2, pp. 213–221, 2008.
[14] M.S. Islam, N. Amin, M. Zaman and M.S. Bhuyan, "Fuzzy based PID controller using VHDL for transportation application" *International Journal of Mathematical Models and Methods inApplied Sciences*, vol. 2, no. 2, pp. 143–147, 2008.
[15]O. Hachour, "The proposed fuzzy logic navigation approach of autonomous mobile robots in unknown environments" *International Journal of Mathematical Models and Methods inApplied Sciences*, vol. 3, no. 3, pp. 204–218, 2009.