CUSTOMERS' PREFERENCES ON WHITE CHEESE ATTRIBUTES IN KOSOVO WITH A FOCUS ON FOOD SAFETY ATTRIBUTES AND WILLINGNESS TO PAY FOR THEM

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Abstract

Due to increased interest of consumers in food safety, the attributes of the products related to food safety are taking greater credence in the interest of customers, and consequently on the prices of these products. The aim of this paper is to estimate the impact of specific attributes related to food safety on the price of white cheese types in Kosovo and the corresponding willingness of consumers to pay for the food safety attributes. For this purpose, we used the hedonic price method, as one of the Revealed Preference group's methods. Data was obtained by cheese sales in 2012 through Viva Fresh Store supermarkets chain. Results showed that

attributes such as safety and quality standards certification, origin of the product and information on the products' labels promoting food safety, have no statistically significant impact on cheese price. Attributes having a statistically significant impact on the price are packaging weight, packaging type and the type of fat used. Descriptive statistics show that a small number of products are certified with safety standards. The results may have managerial and policy implications in terms of raising consumer awareness about food safety and the attributes related to them. Food processers may use study results to apply HACCP principles or be certified with ISO 22000 safety standard as a precondition to meet legal standards for food safety.

Key words: Food safety, willingness to pay, hedonic price, safety attributes, white cheese

INTRODUCTION

Risks on food safety referring to cases of the avian influenza or bird flu, crazy cow flu, and melamine dispositions on baby milk in China have increased consumers' concern about food safety and their demand for safer food products. Consequently, researchers have focused the issue of food safety on its various dimensions. They've paid a special attention to the willingness to pay (WTP) premium price for attributes of food safety (Grunert, 2005; Fox, Shogren, Hayes, & Kliebenstein, 1995; Loureiro & Umberger, 2003; Verbeke, 2001; Piggott & Marsh, 2004; Baker & Crosbie, 1993; Xu & Wu, 2010; Lončarić, Gurdon, Zmaić, & Sudarić, 2011; Li & Hooker, 2009). It's generally concluded that there is a growing concern among consumer about food safety.

On one hand, studies of this kind in Kosovo are scarce, yet there is a considerable degree of concern in terms of food safety. Canavari, Imami, Gjonbalaj, & Alishani (2014) found that two third of consumers interviewed claim to be very concerned regarding food safety in Kosovo. However, there are no studies available dealing with the responsiveness of customers, depending on the product attributes that relate to food safety. On the other hand, it seems that food safety did not receive its importance in practice regarding to the treatment by institutions and producers, which means that the legislation basis exists but it doesn't have broad application in practice. There are a small number of milk processors that are applying HACCP principles, are certified with ISO 22000 safety standard, or ISO 9001 quality standard.

Based on this, it can be concluded that food safety represents an important factor for the market in Kosovo and that it should be studied in all of its particular dimensions. The focus of this research will be to assess the impact of food safety attributes, on the price of white cheese products. So the purpose of this paper is to assess whether these attributes have an impact on the price of the cheese and if there is willingness of customers to pay for them.

The results will also important for political decision-makers for guiding the policies towards the agro-food sector development in Kosovo, namely dairy industry but also the entire value chain. Moreover, as there is an ongoing discussion among political and business circles in Kosovo, about the need to reduce the enormous trade deficit and imbalance. In the context of the overall structure of imports, food products are a central part accounting for over 24.2% (ASK, June 2015). According to the Kosovo Agency of Statistics, the deficit in 2014 was over €2.21 billion with a 12.8% degree of coverage and the same trend is continuing this year (2015). Meanwhile, the dairy industry is regarded as the sector that recorded the fastest growth (Haas, Canavari, Imami, Gjonbalaj, & Gjokaj, 2015).

The paper is structured in such a way that on the next paragraph the objective and the hypothesis of the research will be presented, coming up as a result of literature review. Followed by the research methodology, analysis and results, and conclusions.

Objectives and Hypotheses

As mentioned above, there is a need to know the consumers WTP, focusing on white cheese, as a reflection to food safety increase, since this dimension of the Kosovo market so far has been little studied. Many papers (Verbeke, 2005; Shi & Price, 1998; Baker G.A., 1999; Boccaletti & Nardella, 2000; Li, 2009; Loureiro & Hine, 2002; Huang, Kan, & Fu, 2000) concluded that consumers express WTP when it comes at improving the attributes related to food safety. Therefore, the overall objective of this research is to measure the impact of food safety attributes on the cheese price or the willingness of consumers to pay more for cheese products if the food safety attributes are improved. Based on this objective and on the reviewed literature, we developed four hypotheses with the respective reasoning as follows:

1. *Consumers willingness to pay an additional price premium increases as products are certified with food safety standards.* Certification with food safety standards, such as ISO 2200 or the certification applied through HACCP food safety system, illustrates in technological dimensions the product has fulfilled the criteria that ensure its safe for the consumers' health. Companies choose to apply systems like HACCP or ISO to minimize consumers' concerns. So, when a company applies HACCP system, they reduce the risk which derives from consumption (Karipidis, Tsakiridou, Tabakis, & Mattas, 2005). Normally, certification via these standards and their application is followed with additional costs for producers. Therefore, the higher cost for the producer to provide attributes increases the balance price level and the shade price (Karipidis, Tsakiridou, Tabakis, & Mattas, 2005).

2. *Consumers willingness to pay an additional price premium increases as information on foods safety is easily accessible, on product label, by them*. This hypothesis pretends to testify the impact of different messages that Kosovo cheese producers pass to customers by placing them on the label, such as "100% natural", "healthy product" etc. These messages are evident on some local cheeses thus this hypothesis indirectly tests customers' trust of producers. Even though the impact of the label information is considered to be significantly important, however, there is much debate on this matter, as to how, at what level, and what type of information on the label, could impact the trust and buying styles (Wansink, Sonka, & Hasler, 2004). In various researches, the messages about health have also produced various results in regard to the manner, place and space of their placement on the label (for more see (Drichoutis, Lazaridis, & Nayga, 2006)).

3. *Consumer are willing to pay more for the cheese of domestic (Kosova) origin compared to imported cheese.* Knowing the origin of the product and the the perception of the consumer on the origin of the product is expected to have a positive impact or a fair relation with WTP, respectively, with the value given to the product. The importance of country of origin is proven in many researches, and for various types of food product services. i.e. Hass et al.(2015) showed strong consumer patriotism by believing that domestic (Kosova) milk and cheese is safer and is of higher quality than imported milk and cheese. Loureiro & Umberger (2003) emphasizes that food security crises have raised the interest of Americans to the country origin of products. In other studies also found that a product's origin be highly appreciated (Santos & Ribeiro, 2005; Loureiro & Hine, 2002; Chryssochoidis, Krystallis, & Perreas, 2007; Stefani, Romano, & Cavicchi, 2006; Lefèvre, 2014). While not ignoring the importance of country origin, at the time of globalization, according to Pharr (2005) the influence of this information to consumers will be a more complex issue. Perhaps evolution of the country of origin will be included or neutralized by its brand identity (Pharr, 2005).

4. *Consumers' willingness to pay depends on the type of cheese, type of milk, type of fat, and fat content*. Testing this hypothesis shows also the difference in terms of importance that consumers give to the attributes of the food safety and quality. In fact there is a doubt that in developing countries, or the likes of Kosovo, consumers are less exposed to information and therefore less aware of hazards and risk in their food choices (Zhllima, Imami, & Canavari, 2015). This leads to consumers giving high importance to safety, although they use the same attributes in defining food quality and safety (Kealesitse & Kabama, 2012).

RESEARCH METHOD

Based on the existing research and theories in this area, to select the most appropriate method for conducting this work, we'll take into consideration the fact that food safety is nonmarket goods. On the other hand, Lancaster (1966) says that the products do not provide directly the benefit to the consumer, but the benefit is assessed through the attributes a product possesses. Many researchers have investigated the behaviour of consumers towards food products where the effects of products' specific attributes are measured in consumer decision making (Combris, Lecocq, & Visser, 1997; Fox, Shogren, Hayes, & Kliebenstein, 1995; Kennedy, Worosz, Todd, & Lapinski, 2008; Arnade, Gopinath, & Pick, 2008; Santos & Ribeiro, 2005; Sanchez, 2008; Allen & Goddard, 2012; Smed & Hansen, 2010; Xiao, 2012; Skreli & Imami, 2012; Ward, Lusk, & Dutton, 2008; Harris, 1997; Jordan, Shewfelt, Prussia, & Hurst, 1985; Bytyqi, et al., 2008).

In order to study-assess the behaviour of consumers, or their willingness to pay - WTP, there are in general two methodology approaches, such as *Revealed Preference* and *Stated Preference.* The first approach focuses on observing the behaviour of the consumer in the market to measure its *ex-post* WTP, while the second approach is based on hypothetical data to measure *ex-ante* WTP for the attributes that are still not present in the market (Berges & Casellas, 2009).

From these two basic methods stem other subdivisions depending on the source of the data and the way of data collection. Subdivisions are schematically presented in Figure 1.

Figure 1. The framework of classification methods for measuring GPP
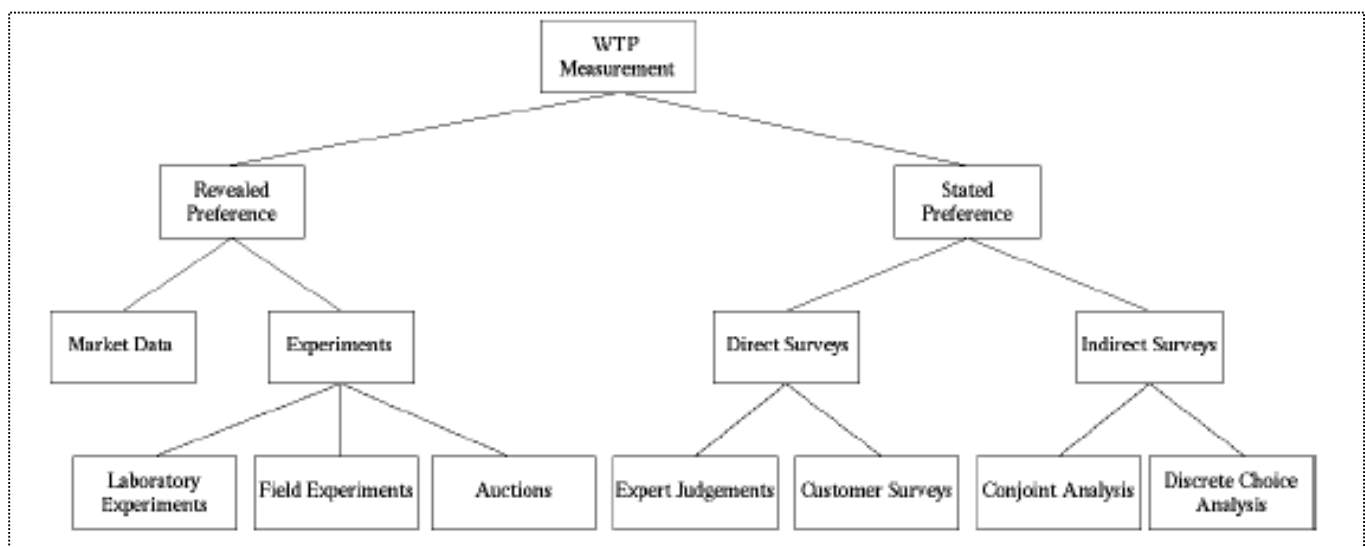
Source: From "A Review of Methods for Measuring Willingness-To-Pay", by Ch. Breidert, M. Hahsler, Th. Reutterer, 2006, Innovative Marketing, 2(4), 8-32.

Main methods of the two above mentioned approaches are hedonic price analysis and Contingent Valuation Method (Satimanon & Weatherspoonb, 2010). The first one belongs to the group of Revealed Preferences. which number of researchers applied it as a method by using various data sources mainly coming from markets (market data), but also including experiments (Smed & Hansen, 2010). Consequently, the hedonic price function is implemented with data from both group divisions shown through the categorization in Figure 1. The second method belongs to the Expressed Preferences group methods, which also has a number of them (Figure 1) depending on the type and the method of data collection.

Both approaches have their advantages and disadvantages. While Satimanon & Weatherspoonb (2010) prefer the hedonic price method, because the weakness of Contingent Valuation Method "is that it reflects only the ambitions of the consumers but not their current actions in terms of purchasing behaviour," Breidert, Hahsler, & Reutterer (2006), assess that the methods which used market data (which historically have been used in the analysis of hedonic price (Satimanon & Weatherspoonb, 2010)) have limitations because the price variations in these data are usually very limited and it is not possible to assess the WTP for completely new products. Kjær also presented a summary of the advantages and disadvantages of both methods (2005, p.12).

Hedonic Price Model

Based on the new theory of consumers, according to Lancaster-it, Rosen (1974) developed the type of Hedonic Price Model in perfect competition, based on which, hedonic price - is defined as an implicit price for the attributes that a product has. In this context, economic agents can determine hedonic prices of the attributes by observing prices of differentiated products and specific amounts of attributes associated to them (Rosen, 1974).

In his seminal paper, Rosen considers that, econometrically, implicit prices are assessed by the First-step of the regression analysis (product price regressed by characteristics) in the construction of hedonic price indexes. While he considers the market as a group of goods (products) composed of *n* attributes: $z = z_1, z_2, \ldots, z_n$, each product has a market price related to the characteristics he details: $p(z) = p(z_1, z_2, \ldots, z_n)$. This function is the buyer's (and seller's) equivalent of a hedonic price regression, obtained from shopping around and comparing prices of brands with different characteristics (Rosen, 1974). This model is widely used in researches on consumers' behaviour or in their reactions towards differentiation of products through attributes. Essentially the variables that influence consumers' benefit are candidates for being included in the hedonic price function (Oczkowski, 1994).

In our case, to have a clearer basis for explaining the impact of cheese attributes in the price, or the assessment that the customer does to these attributes, the study approach is based on inclusion of objective and subjective characteristics, a division by Combris (1997), in which the objective characteristics are included the attributes visible on label and packaging, while in subjective characteristics are included features such as: taste, smell, structure, etc.

Hedonic price method, allows us to analyse and test only the objective attributes or characteristics. Hence, in order to test the hypotheses, the first step was recording different and diverse attributes that certain cheese brands have and which are visible through Viva Fresh Store supermarkets chain. The second step was the selection of attributes due to be used as independent variables in hedonic price function, has been conducted. The selection of food safety attributes is taken into consideration and the quality ones by Caswell (1998) as well as other studies that measured the impact of attributes of food products in consumer behaviour (Brunsø, Fjord, & Grunert, 2002; Grunert, 2005; Santos & Ribeiro, 2005)

Functional form of the model

To test the hedonic price model there are six functional forms used (Kuminoff, Parmeter, & Pope, 2010): *linear, semi-log, double-log, quadratic, linear Box-Cox, dhe Box-Cox quadratic.* Given that among the independent variables, a significant number of them belongs to type *dammy* the selection of the functional form remains limited (Oczkowski, 1994) in linear and log-lin which means semi-log (Steiner, 2004). Like many other researchers (Combris, Lecocq, & Visser, 1997; Schamel & Anderson, 2003; Santos & Ribeiro, 2005; Weemaes & Riethmuller, 2001), and sanctioned by a limited selections, we will be applying hedonic model by testing the linear and semi-log (log-lin) forms.

To choose then between hedonic linear and half logarithmic models, both models will be tested. Based on the selection between the two models (lin-lin and log-lin) as did Oczkowski (1994), followed by Schamel & Anderson (2003) will do the test by using tests over the term of error such as White heteroskedasticity test, Normality Test. The use of EViews software program enables the application of these tests (Johnson, 2000).

Likewise, the selection of the model will be done through appropriate testing for the presence of multicollinearity. In both cases the assessment will be done by the use of Ordinary Least Squares Method. From the above, the general form of the hedonic price function will be as:

$$Çmimi\ i\ djathit\ (P) = f(Origj; LlojQum, Tip, LlojPak, Pesha, CertStand,\ RespektHACCP,$$
$$MesazhCilesi,\ VlerUshqyes,\ \%Ynd,\ LlojYnd) \qquad (1)$$

The equations accordingly:

-   In the linear form - $Y = a_0 + \sum_{i=1}^{n} a_i X_i + \sum_{j=1}^{n} b_j D_j + \varepsilon_n;$ **(2)**

-   Half logarithmic - $logY = a_0 + \sum_{i=1}^{n} a_i X_i + \sum_{j=1}^{n} b_j D_j + \varepsilon_n;$ **(3)**

In which:

$Y = depending\ variable\ (Price\ of\ chese)$

$a_0 = intercept$

$a_i = coeficient\ for\ ongoing\ variables\ X$

$X_i = cheese\ atributtes\ expressed\ by\ ongoing\ variables$

$b_j = coeficients\ for\ dammy\ D\ variables$

$D_i = cheese\ atributtes\ expressed\ by\ dammy\ variables$

$\varepsilon_n = case\ error$

In order to avoid, as much as possible, the possibility of facing multicollinearity problems, the initial testing of existence or nonexistence of the correlation between dependant and independent variables will take place, i.e. the correlation matrix. Based on its results, in the initial test pattern will only enter variables that show correlation with the dependent variable (Oczkowski, 1994).

The Data

The data for this model were provided by the sale records of cheese through the chain of markets "VIVA Fresh Store" from 10 markets through different Kosovo regions. The evidence includes the sales in the period 01.01.2012 – 31.12.2012. The "recording" of attributes for each brand of cheese and type of packaging is done afterwards. 89 types of cheese are included in observation. Dependent variable - the price, represents the annual average price per piece. Average prices for 89 observations were calculated from a total of 154,185 sold pieces. The reason for using these data is more practical because this company (there are two such companies in Kosovo that have the chain of markets across the country) has allowed us to use the data for this study.

Analysis and Results

Descriptive results

To get a clearer picture about the data used for hedonic price model, the descriptive statistics for the level of particular attributes presence on the observed cheeses is presented in Table 1. Features of interest in this case are the attributes related to food safety. Generally there is a

small percentage of the products that make any of these attributes. In terms of origin, 56.2% were foreign cheeses and 43.8% domestic; 11.2% are certified by one of ISO 9001 or HACCP standards; 25.8% have the license seal of the Food and Veterinary Institute (the seal can by exposed by local products only); 10.1% hold the seal that the quality is controlled by National Public Health Institute, while 20.2% contain messages like "quality product", "quality controlled throughout the process", "100% natural" or have the seal "Hallall".

Table 1. Descriptive statistics for cheeses' attributes

Symbol	Operationalization	Mini	Max	Mean	Std. Dev
Dependent variable					
Y	Annual average price (€ per piece)	0,57	17,15	5,329	3,486
Indepedent variabiles – continuous					
X1	Packaging weight – continuous variable (kg)	0,20	4,00	1,398	1,072
X2	% of the fat – continuous variable	19,00	65,90	43,257	8,866
Indepedent variabiles – dammy					
Symbol	**Operationalization**	**% for 1**		**% for 0**	
D1	Origin: 1 - country; 0- foreign	43.8		56.2	
D2	Milk type: 1 cow; 0 other	89.9		10.1	
D3	Cheese type: 1 – soft fresh-feta; 0 – other	64.0		36.0	
D4	Packing: 1 – cans; 0 – other	6.7		93.3	
D5	Packing: 1 – tetrapak; 0 – other	6.7		93.3	
D6	Certified by HACCP or ISO 9001: 1-Has a seal; 0-No	11.2		88.8	
D7	The seal that is licensed by the Food and Veterinary Agency: 1-Has a seal; 0-No	25.8		74.2	
D8	The seal that the quality is controlled by the National Institute of Public Health: 1-Yes; 0-No	10.1		89.9	
D9	Written messages that the product is qualitative or healthy. Of 100% natural, or Hallall seal: 1-Yes; 0-No	20.2		79.8	
D10	Table of nutritional values: 1-exists; 0-no	64.0		36.0	
D11	Type of fat: 1-milk fat ; 0-other	67.4		32.6	

Model selection

During the econometric processing of the results for the first hedonic price model, initially correlation analysis was done between the depending variable that is annual average price of the cheese per piece, and explanatory variables that are attributes of cheeses.

Based on correlation analysis, it appears that variables that measure food safety attributes, namely (standard certification, licensing seals for inspection controls from institutions, and health massages) do not have an impact on WTP an additional price.

In addition, the explanatory variables that correlate with the variable price, are: X_1(packing weight), D_1(origin), D_3(Cheese type), D_4 dhe D_5(packing type) dhe D_{11}(fat type).

In the next step, we included variables that showed association with depending variable and after testing both functional forms, linear and semilog (log-lin), by using Ordinary Least Squares Method, we come to the most appropriate model for this function which is the semi logarithmic (log-lin) one according to the significant results presented in Table 2.

Table 2. Results of hedonic semi-logarithmic price function (EView output)

Dependent Variable: LOG(Y)
Method: Least Squares
Date: 08/13/15   Time: 03:00
Sample: 1 89
Included observations: 89

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.013792	0.076679	65.38678	0.0000
X1	0.005237	0.000266	19.66969	0.0000
D3	0.002752	0.000645	4.270528	0.0001
D4	0.007554	0.001070	7.056482	0.0000
D5	-0.005383	0.001233	-4.364344	0.0000
D11	0.001805	0.000648	2.784275	0.0066
R-squared	0.880593	Mean dependent var		6.058403
Adjusted R-squared	0.873400	S.D. dependent var		0.697612
S.E. of regression	0.248216	Akaike info criterion		0.116005
Sum squared resid	5.113748	Schwarz criterion		0.283778
Log likelihood	0.837794	F-statistic		122.4209
Durbin-Watson stat	1.782870	Prob(F-statistic)		0.000000

Referring to Gujarati (2004), Stundemund (2011) and Osmani (2010), through SPSS software program (Field, 2009, p. 228), some of the test to discover multicollinearity are applied, such as Condition Indexes (CI), Variance Inflation Factor (VIF) and Tolerance. Results of tests show that multicollinearity does not represent a serious problem. Apart of this, choosing between two functional forms, normality and heteroscedasticity tests for residues are also applied. Both tests support that log-lin model is superior compared to lin-lin model. The results of log-lin tests proved that the distribution of residues is normal (Jarque Bera =2.56 , prob=0.2779>0.05) and there is no heteroscedasticity (F statistic=1.58 prob=0.109>0.05). In the linear form heteroskedasticity is present (F statistic=2.07 prob=0.03<0.05) as well as residues have not normal distribution(Jarque Bera =93.98, prob=0.000 < 0.05).

Consequently, the estimated equation for this model is:

$$LogY = 5.0138 + 0.0052X_1 + 0.0028D_3 + 0.0076D_4 - 0.0054D_5 + 0.0018D_{11} \qquad (4)$$

With the determination coefficient: $R^2 = 0.88$ respectively $R^2 adjusted = 0.87$

Testing hypotheses about the relationship food security – willingness to pay

Four the research hypotheses have been tested through the method of hedonic price (refer to chapter Methods and Procedures). By observing the results of estimated model of the hedonic price we see that the impact of food safety attributes on product prices, of which we raised the hypothesis, do not result statistically significant. The impact of origin on the price has proved statistically insignificant.

The hypotheses regarding cheese quality attributes are tested as well. The results of the model show that attributes such as the type of fat, type of cheese and packaging have a statistical significant impact to the cheese' price, and consequently WTP for them. These variables belong to type, which indicate the presence or not of the particular attribute.

Without getting deeper in the interpretation of results, as the dependent variable is the average annual price, the basic interpretation of the Dammy variable coefficients will be:

➢ The coefficient before variable D_3 shows that switching from soft fresh cheese to other types of cheese, or known and packed as feta, then the value of logY will increase for 0.0028, ceteris paribus – consumers are ready to pay more for soft fresh cheese to other types of cheese.

➢ The coefficient before variable D_4 shows that for a switching from plastic packing to cans packing, the value of logY will increase for 0.0076, ceteris paribus - consumers are ready to pay more for cans compared to plastic packing.

➢ The coefficient before variable D_5 shows that switching from plastic packing to tetrapak packing, the value logY will decrease for 0.0054, ceteris paribus - consumers are ready to pay more for tetrapack compared to plastic packing.

➢ The coefficient before variable D_{11} shows that switching from surrogate cheese with vegetable fat to cheese with milk fat, the value of logY will increase for 0.0018, *ceteris paribus* - consumers are ready to pay more for cheese with milk fat compared to cheese with vegetable fat.

From the results of hedonic price model we see that packaging weight (X_1) has a positive impact on the cheese price i.e. that by increasing packaging, the log of annual average cheese price rises for 0.0052, *ceteris paribus*.

CONCLUSIONS

The purpose of this paper was to study the impact of food safety attributes on the price of white cheese in one of the two largest supermarkets networks in Kosovo, namely Viva Fresh Store. From the results of the estimated hedonic price value model we found that the value or the price

of attributes related to food safety, to which we set hypothesis, does not result statistically significant. Besides that safety certification standard doesn't resulted to have a significant impact on the product's price and hence the lack of WTP's, other attributes that can also be linked indirectly with these hypothesis, and associated in food safety, such as the seal of license by the Food and Veterinary Agency or the seal that proves the quality is controlled by the National Institute of Public Health, showed no correlation with the price at all.

Information collected during survey, respectively while confirming the presence of specific attributes to different types of cheese, shows that even in the few cases of products certified with HACCP and ISO 9001, the seals are not the focus of the labels and there is no additional clarification on what they represent. Meanwhile referring to Xiao (2012) because of the redundant information on the label consumers can discriminate most important information. This is in line with the rejection of the second hypothesis which was expected to shows that consumers are willing to pay more for those products, based on the info on food safety provided by the label, since on a significant part of the products, there are promotional messages present, like: "qualitative product", "quality controlled throughout entire process", "100% natural", "healthy product " with the seal "Hallall". In fact, the expectations in this hypothesis were not high, as based on the reviewed literature we found that the results regarding this hypothesis are mixed (Drichoutis, Lazaridis, & Nayga, 2006). This is also for the fact that according to Wansink, Sonka, & Hasler (2004), on the effects of information on the labels, however, there is much debate about how the quantity and type of information on the product's label may influence the sale faith and models. Despite expectations that the impact of the country origin will have a significant impact on the price, the model showed that this hypothesis cannot be accepted as such. This result might perhaps be related to Pharr's (2005) conclusion that in this time of globalization, the influence of this information to consumers will be a more complex issue that could be neutralized by the brand's identity product.

Meanwhile, attributes that resulted in an impact to the price of cheese, or WTP for them, resulted to be the ones dealing with the quality, which support findings by Zhllima, Imami & Canavari (2015) who claim that consumers have lack of information about the risk of hazards on food, namely lack of information about food safety attributes.

The results may have managerial implications, especially in terms of disseminating information on food safety when the products are certified for food safety. There is a need also for a coordination and cooperation with the institutions in terms of consumers' education and a broad information campaign with special focus on food safety, as is the certification for applying HACCP principles or standards of food safety ISO 22 000. Here, we take into account Canavari

Imami, Gjonbalaj & Alishani (2014) findings that two third of consumers interviewed claim to be very concerned regarding food safety in Kosovo.

As stated above, it should be noted that the paper has its own limitations, especially in terms of lack of further data regarding the sales for a longer period of time, and complementing hedonic price method, with mentioned preferences stated above. Therefore, there is a need for further similar researches if possible, in order to have at the disposal more detailed data as well as data for a longer period of time, let say time series. It's also important to have surveys conducted with costumers and focus groups also from the value chain. In such studies, by applying the stated preference methods, there would be studied the knowledge and the assessment of the costumers on the attributes of food safety. In this way it would be measured their willingness to pay for these kinds of attributes and could be assessed the impact of socio-economic and demographic factors in the WTP.

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