



## Evaluating consumer behavior for consumption of milk and cheese in Gjilan Region, Kosovo

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### ABSTRACT

The main objective of this paper was to evaluate consumers' consumption patterns of milk and cheese consumption in Gjilan Region of Kosovo by analyzing factors that influence purchasing decision for milk and cheese products.

In the model of the multiple linear function quantity of milk and cheese purchased by a household within a month is a function of family size (FS), a number of children aged 14 and younger (Ch), as well as the number of employed family members (EFM). The same model was used for the total expenditure for cheese. The results of the study revealed that family size; the number of employed people and the number of children in the household had a significant impact in determining the quantity of milk and cheese consumption. The results of the research are showing that as the size of a family and number of employed family member increase by one unit, in Gjilan Region, the quantity of milk consumed goes up by 10.622 liters/month. If others variables are held constant, the quantity of milk consumed is 7.74 liters/month. The results of research are showing that exists a positive relationship between the quantity of cheese consumed and other three variables (family size, number of children and number of employed family members).

**Keywords:** Consumption patterns, Milk, Cheese, linear model, Kosovo, Agricultural sector.

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### Introduction

With all the efforts to improve the economic situation of the country, Kosovo still remains in the lower economic situation compared to other European countries [1]. Agriculture plays a significant role in the country's economy. The agricultural sector is accounted for 12.0% of GDP and is estimated to employ around 4.6% of total employees.

The food processing sector in Kosovo used to operate in traditional ways and managed by social enterprises, where nowadays they are no longer active. Consequently, modern private companies are emerging to operate in this dimension. Despite these efforts, large proportions of the companies are small and not in a position to meet the market demand which is much higher. It is understandable that there exists an important gap in the field. Investment in these companies and provision of innovative management techniques would help with

the revitalization of the agro-processing industry in Kosovo. With several market interventions, Kosovo can easily access the international markets [2].

As in the study of Heiny et al. [3] who emphasize that with regard to livestock, cows, poultry and sheep have proven to be of greatest importance for the research region, the similar situation we can find in Kosovo's dairy sector which is relatively in a good development stage and one of the most promising sub-sectors with high potential for development of agricultural sector. Dairy cows occupy the biggest share regarding different categories within the structure of cattle, with 53% and are the major source of milk in Kosovo [4]. It has been noted that dairy farms contribute about €132 million to GDP, half the total value of the total agricultural production [5].

It should be emphasized that the economic changes occurring in the country significantly are expected to have an impact on the consumers'

buying behavior, attitudes, needs, and demand for milk and cheese in particular and dairy products in general. In addition to this, it is observed that an increasing number of foreign competitors coming into the scene of the country's market. These competitors are entering the domestic market with a variety of dairy commodities, market segmentation, and improved qualities. In Kosovo of the total supply, 80.9% was domestic production, and the rest is covered by imports [4]. Milk yields per cow are low compared to other European countries. In 2014, the estimated average milk yield per cow in Kosovo was 2,075 liters per year [6] while this average in EU-28 was 6,727 liters [7] situation stays better if we compare with findings of Heiny et al. [3] with 644L per year and from UNDP report 2011 for the Borjomi municipality 1500 L/year [8]

As Kapsdorferová and Nagyová (2005) [9] state that customers are the main drivers of profits and lever to increase business profitability. They significantly represent the ultimate component that deems due emphasis in the food chain.

This situation brings local dairy processors in disfavored position to become competitive in local and regional markets. On the other hand, Kosovo's market of the dairy industry is focusing on producing dairy commodities with lower costs and sufficient for domestic demand. Therefore, addressing this issue, studying the consumers' buying behavior, their preferences, attitudes, needs, and demand for dairy products is an important and critical point in improving the competitiveness and efficiency of the dairy in the country.

Nevertheless, there is limited information on consumers' buying behavior and demand for dairy products level in the dairy industry of Kosovo. Therefore, studies that focus on dairy consumption pattern are scanty [10]. In fact, the absence of information is an important problem in addition to other difficulties that are encountered by dairy sector in the country. There is no empirical study that shows the relationship between the buying behavior of consumers and demographic and socio-economic factors. Sridhar [11] stated that demographics have considerable influence on the consumer for every product. The goal of the demographic analysis is often to identify the demographic makeup of target market and find more market geographies with similar demographic characteristics. The changes in food consumption can be observed in the case of those products where the extent of price fluctuation was above the average Vasa [12]. The study by

Marshall and Anderson [13] indicates that there is a trend of men going to shop, either as individuals or as members of a family or household unit. According to their study, this trend seems to go upward in the future. Hawkins et al., [14] stated that motivation is a perception representing an invisible inner force that triggers and compels a behavioral response and gives specific direction to that response. It is also stated by Solomon [15] that motivation is processes that lead people to behave as they do.

## Objectives and methods

### The study area

Kosovo is divided into seven regions and 37 municipalities with 1,467 settlements [16]. Among the seven regions, this study is conducted in the Gjilan region. This region comprises eight municipalities namely: Shterpce, Novoberd, Gjilan, Kamenic, Viti, Ranillug, Partesh, Klllokot. The given region hosts 182,991 inhabitants [16].

### Method description

In order to find out about the consumers' behavior, their attitudes, preferences, and demand for milk and cheese, a structured questionnaire with open-ended and close-ended questions was developed.

### Data collection and processing

The data used in this study were obtained through an online survey with Kosovo's consumers aged 18 years and older. In total 108 respondents participated in this survey. In order to avoid overestimation of the market demand for milk and cheese, even those households who happen to have their own cows were included in the data collection process. The survey was conducted during the period of February-March in 2014.

### Data analysis

A multiple linear model was performed to find out the determinants of consumers' buying behavior, preferences, their attitudes toward the attributes of the quantity consumed and expenditures for milk and cheese products. Descriptive statistics were calculated for variables describing household characteristics and consumers' buying behavior.

## Descriptive statistics of the household characteristics

The table below presents a summarized statistic of the household characteristics according to demographic and socioeconomic indicators. The average sample scores were summarized for the Gjilan Region. As shown below (Table 1), urban-rural typology is used to group respondents of the region the places of the respondents. It is indicated that higher proportion of the participants are from the rural area. Regarding gender issue, the proportion of male is nearly as triple as that of the female. This variation may be attributed to the fact that women are occupied with other works which hinder them from using the internet. The distribution of respondents across the age group of all five categories is not proportional.

The first two age groups take higher proportion in combination, while the other age groups are contributing with less proportion. In case of the educational level, the majority of the participants completed university level, while nearly quarter of the respondents completed high school. The proportion of respondents regarding employment seems to show less variation as it is shown in the other characteristics.

## Descriptive statistics on consumers' buying behavior

Respondents were asked if they or their family members buy cheese and milk. The vast majority claimed that they or their family do buy the products while only fewer proportion responded otherwise. Among the two products, the percentage of respondents' interest towards cheese is higher than that of milk. Correspondingly, the percentage of people who responded "No" is higher for milk (Fig. 1).

It can be noted, therefore, that milk and cheese are consumed by the vast majority in the area. The difference in proportion between milk and cheese implies that there is a slight inclination of preference towards cheese than milk. According to Shavgulidze et al. [17] Cheese represents the main marketable commodity due to relative storability and high price; cheese is the most valuable item for an exchange.

With regard to the question of who makes a decision and buys the products among the family members, higher proportion claimed that both activities, buying and decision making, involve both husbands and wives. It is, as well, that children take part in decision making and buying by few proportion of respondents. Study results have shown that men

**Table 1.** *Characteristics of respondents*

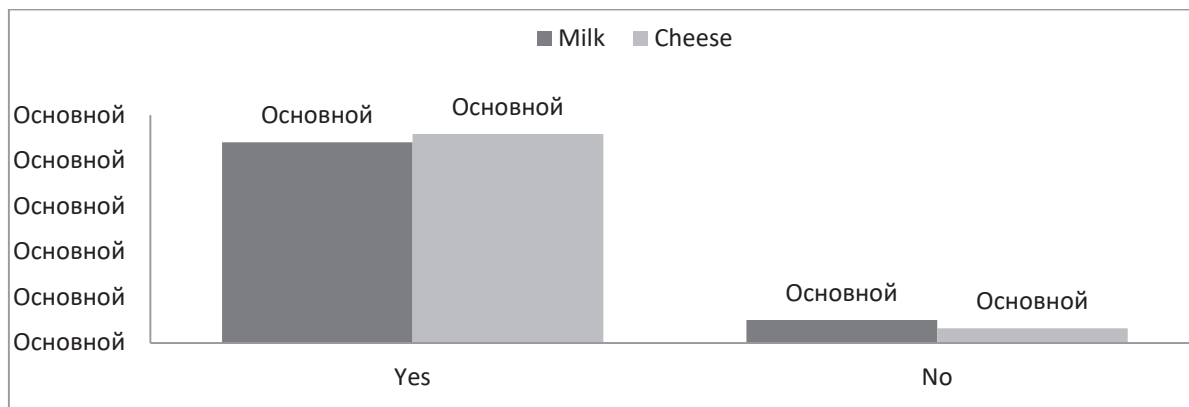
Characteristics	Attribute	Percentage
Place	Rural	56.9
	Urban	43.1
Gender	Male	73.4
	Female	26.6
Age group	18-24	36.11
	25-34	37.04
	35-44	6.48
	45-54	12.96
	55+	7.41
Education level	Primary School	4.6
	High School	24.8
	University	70.6
Employment	Employed	43.1
	Unemployed	56.9

*Source: Authors' calculation based on primary data, 2014*

(husbands) alone barely participate in the decision making while it is indicated that they take part in buying activity (Fig. 2).

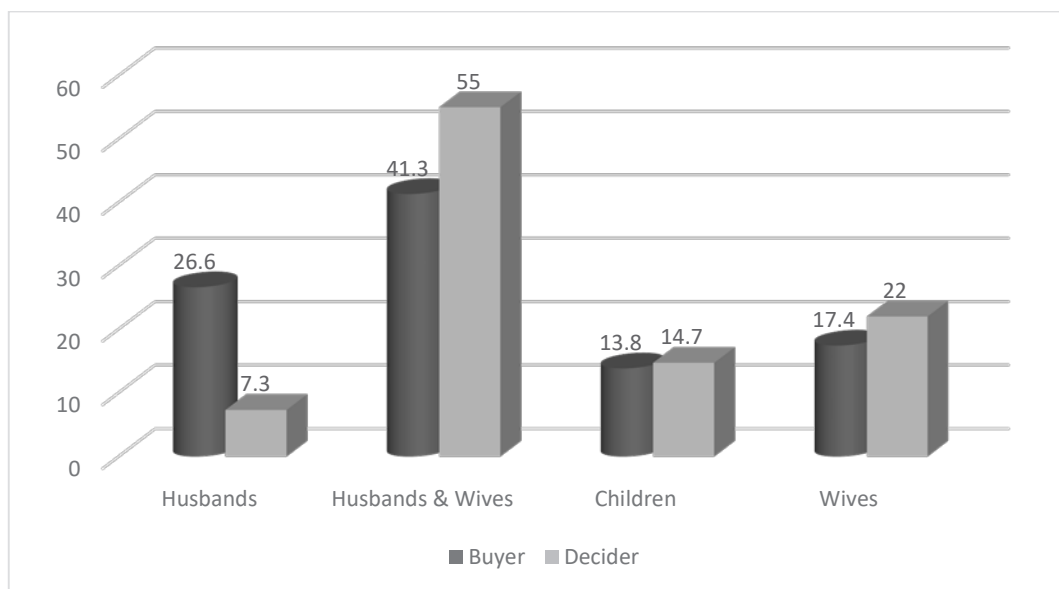
Therefore, there is the distinctive responsibility of buying and decision making within the family

followed by expected variation among the families. However, buying and decision making among families is mainly done by the husbands and wives in general.



Source: Authors' calculation based on primary data, 2014

**Fig. 1.** Respondents' response to buying cheese and milk



Source: Authors' calculation based on primary data, 2014

**Fig. 2.** Buying and decision making

Source: Authors' calculation based on primary data, 2014

**Fig. 2.** Buying and decision making

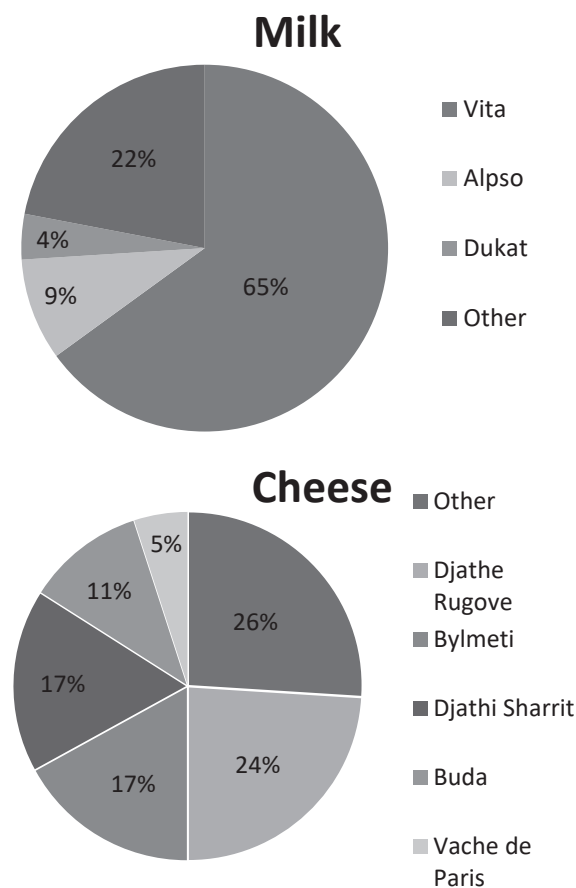
## Consumers' preferences

Participants of the survey were asked about the most preferred milk and cheese brand that they buy. The proportion of preference for both products is quite varying. In the case of milk three brands and “other” was provided for respondents to select from. The higher percentage of respondents preferred ‘Vita’ which is domestic product while 22% selected “other” option. Only less proportion of respondents preferred other brands mentioned by name. These products are in fact not produced domestically. In regard to the preference for cheese, five brands and “other” option were given to respondents to choose from. The preference of respondents seems to be distributed across these brands. No preference with significantly higher proportion is indicated. However, higher percentage compared to other responses went to “other” option. It is important to note that very small proportion of respondents chose Vache de Paris which is basically an imported cheese product. The three domestic products namely: Djathe Rugove, Djathi Sharrit, and Bylmeti, are domestic products chosen by a higher proportion of respondents all combined (Fig. 3).

It is possible to note that domestic milk product is of higher preference implying that there is a possibility of the product to remain more competent and hold significant market share. In the case of cheese, the domestic products seem to have their own share which is higher than other when combined. It is noted from the respondents' choice of “others” that there are other brands that are preferred to the ones listed in the survey. These products might include those obtained directly from the farmers.

Regarding the preference related to the percentage of fat content in milk product (Fig. 4), a higher proportion of participants preferred a milk product with a fat content of 3.2%. An equal proportion of the respondents preferred a milk product with 1.6% and 3.5% fat content, while very small proportion chose 0.5%. The preference in view of fat content appears to indicate that moderately higher fat content is a higher choice than milk products with lower fat content.

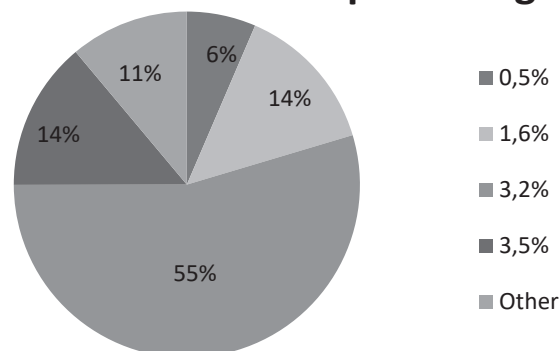
A Higher proportion (Fig. 5) of the participants showed a preference for the type of cheese described as “white strong” followed by “white soft”. Only small proportion of respondents is interested in Edam cheese. It is important to note that nearly 1/5 of the respondents showed preference of light cheese with less fat.



Source: Authors' calculation based on primary data, 2014

**Fig. 3.** Brand Preference of milk and cheese

## Milk fat content in percentages

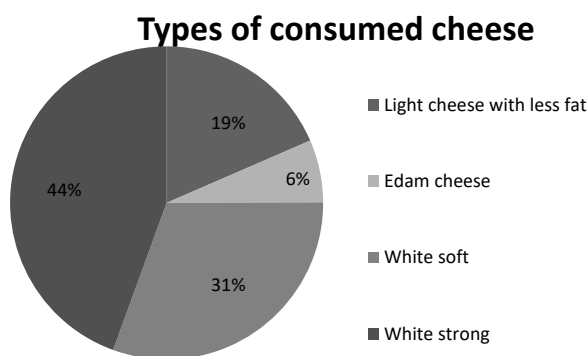


Source: Authors' calculation based on primary data, 2014

**Fig. 4.** Preference related to percentage of fat content in milk

A Higher proportion (Fig. 5) of the participants showed a preference for the type of cheese described as “white strong” followed by “white soft”. Only small proportion of respondents is interested in Edam cheese. It is important to note that nearly 1/5 of the respondents showed preference of light cheese with less fat.



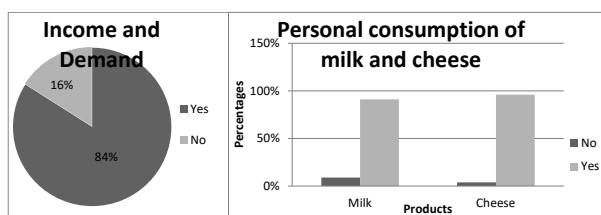


Source: Authors' calculation based on primary data, 2014

**Fig. 5.** Type of cheese preferred by respondents

### Demand, income, and personal consumption

For an inquiry provided to respondents whether they fulfill the demand for milk and cheese with monthly income available, the higher majority claimed that they do. Only less than quarter proportion are in a position not to fulfill their demand with their earnings (Fig. 6, left).



Source: Authors' calculation based on primary data, 2014

**Fig. 6.** Income and demand for milk

This implies that majority of the people in the study region can afford the prices of the products. On the other hand, respondents were asked if they personally consume milk and cheese. Vast majority replied that they personally consume both products with slightly higher percentage of cheese (Figure 6, right). This finding coincides with the demand and monthly income balance indicated with the pie chart on the left. Very small proportion of respondents does not consume both products.

### Multiple Regressions linear

The estimated average quantity of milk consumed in liters/month in the FSi was:

$$Q: \text{Milk (l/month)} = 7.74 + (0.912 \text{ FS}) - (0.09 \text{ Ch}) + (2.06 \text{ EFM}) \quad [R^2=0.393] \quad (1)$$

The regression result shows that the values of t-statistics are 2.38, 1.38, -0.087 and 1.889 for the constant, family size ( $p=0.037$ ), number of children ( $p=0.04$ ) and number of employed family member

( $p=0.02$ ) respectively. The estimated coefficients in the equation (1) indicated that there was a positive relationship between the quantity of milk consumed in the FSi and number of employed family member and the family size, whereas there is a negative relationship with a number of children. The estimates show that these variables determine and significantly explains the variation of the milk consumption at the household level. As the size of a family and number of employed family member increase by one unit, quantity consumed goes up by 10.622 liters/month. If others variables are held constant, the quantity consumed is 7.74 liters/month.

The estimated average quantity of cheese consumed in kilograms/month in the FSi was:

$$Q: \text{Cheese (kg/month)} = 5.37 + (0.163 \text{ FS}) + (0.033 \text{ Ch}) + (0.313 \text{ EFM}) \quad [R^2=0.19] \quad (2)$$

The regression result shows that the values of t-statistics are 2.891, 0.431, 0.055 and 0.503 for the constant, family size ( $p=0.03$ ), number of children ( $p=0.043$ ) and number of employed family member ( $p=0.026$ ) respectively. From the coefficients of the equation (2), it is possible to note that there exists a positive relationship between the quantity of cheese consumed and the other three variables (family size, number of children and number of the employed family member). One unit increase of these variables would yield 5.879 kilograms/month.

The estimated average expenditure of milk consumed in liters/month in the FSi was:

$$E: \text{Milk (l/month)} = 8.57 + (0.331 \text{ FS}) + (1.38 \text{ Ch}) + (2.36 \text{ EFM}) \quad [R^2=0.499] \quad (3)$$

From equation (3), it can be seen that the values of t-statistics are 2.516, 0.478, 1.246 and 2.069 for the constant, family size ( $p=0.46$ ), number of children ( $p=0.04$ ) and number of employed family member ( $p=0.031$ ) respectively. The fact that the coefficients of family size, number of children and number of the employed family member are all positive indicates that there is a positive relationship between the average expenditure of milk consumed and the variables. The model further depicts that 12.64 liters/month is consumed as a result of one unit of increase of the three variables.

The estimated average expenditure of cheese consumed in kilograms/month in the FSi was:

$$E: \text{Cheese (kg/month)} = 13.0 + (0.321 \text{ FS}) + (0.89 \text{ Ch}) + (0.26 \text{ EFM}) \quad [R^2=0.25] \quad (4)$$

The regression result shows that the values of t-statistics are 4.155, 0.503, 0.925 and 0.230 for the constant, family size ( $p=0.04$ ), number of children ( $p=0.03$ ) and number of employed family mem-

ber ( $p=0.049$ ) respectively. From the coefficients of equation (4), it is noted that there exists a positive relationship between the average expenditure of cheese consumed and the family size, number of children and number of employed family member. Consequently, an amount of 14.46 kilograms/month is consumed as a result of a one-unit increase in other variables.

## Conclusion

From the two dairy products analyzed, cheese is preferred by a wider spectrum of people than milk. Since the decision making and buying are done by both the wife and husband, it can be concluded that there is no gender issue problem regarding the examined topic in the area. From the result, it is also possible to conclude that, from different brands of milk; 'Vita' is the most preferred brand by the consumers. In addition, since Vita is a domestic product, it can be concluded that the consumers are proud of using the domestic product. Regarding the brands of cheese, though the preference looks the same for most of the brands, it can be concluded that 'Vache de Paris' is the least preferred product. Since the most preferred milk is the domestic one and the least preferred cheese is the imported one, it can be concluded that domestic products are more preferred than imported ones. On the other side, it shows that the domestic products are competent enough with the imported ones. Regarding fat content, it can be concluded that the milk that contains the lowest fat is the less preferred one. As far as the type of cheese is concerned, it can be concluded that the 'white strong' is the most preferred cheese type from the rest of the cheeses.

Since there is a positive relationship between the quantity of milk consumed in the family size and number of employed family member, it can conclude that when the employed member of the family increases, the amount of milk consumed would also increase. This also shows that people have a high demand for food consumption; means the income elasticity for milk is high. In the case cheese, there exists a positive relationship between the quantity of cheese consumed and the other three variables. It is also found out that the relationship between expenditure and other variables in both milk and cheese is positive.

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