DEVELOPMENT OF MARKETING MARGINS OF DAIRY INDUSTRY IN SLOVAKIA

Lucia Vargová¹, Miroslava Rajčániová²
Slovak University of Agriculture in Nitra¹,²
Department of Economic Policy
Faculty of Economics and Management
Tr. A. Hlinku 2, 949 76
Nitra, Slovakia
e-mail¹,²: xvargoval@uniag.sk, miroslava.rajcaniova@uniag.sk

Abstract

The objective of this paper is to provide the basic estimation of the development of marketing margins of milk and trade margins of dairy products such as Edam cheese, butter and soft curd in Slovakia. Monthly price data for the years 2001 and 2017 are used to estimate the marketing margins in the food supply chain. The data show an increase in the marketing margins during the last years.

Keywords: marketing margins, price formation, retail and producer prices, dairy market

JEL classification: E30, O13,Q10, Q11,

1 Introduction

A number of studies about food prices in commodity markets show the price volatility during the last decades (OECD, 2012) when a significant decrease led to considerable issues, especially at the producer level. The aim of these studies was to understand the linkage between producer and retail prices and same as the change of marketing margins over the time period. The natural assumption was that the price changes at the retail level depended on the price change at the producer level. However, amount of results confirmed the asymmetric price transmission between various levels of the food supply chain (Aguiar & Santana, 2002; Serra & Goodwin, 2003; Bakucs & Ferto, 2008; Simioni et al., 2013; Zeng & Gould, 2016; Jeder et al., 2017). It raised other concerns regarding well-functioning of food
supply chain and obviously increasing gap between producer prices and prices paid by the consumers, thus the distribution of marketing margins in the chain.

The topic of margins is an important issue which is closely connected to the income of producers with the consideration especially small farmers and producers. As Wohlgenant (2001) states, the marketing margin is an equilibrium entity that is a function of the difference between equilibrium retail and farm prices in the given product. The retail price should include the farm price plus wholesale and retail costs, plus any margins earned at each level (London Economics, 2003).

Marketing margins indicate the performance, market structure or efficiency of the specific sector (Carambas, 2005; Abassian et al., 2010). They may also reflect the costs and profits of intermediaries, as well as to signify the incentives or disincentives factors in the business (Achike and Anzaku, 2010).

The aim of the producers, wholesalers or retailers is to gain the maximum profit from sales of their agricultural production which is reflected in the marketing margins. They show the value-added, the price of all utility adding actions at each stage along the market chain (Bonabana-Wabbi, 2013) and also reflect services like the assembling costs, processing, transporting, marketing (Elitzak 1997) or labelling, information about products retailing added to the farm products etc. Thus, margins represent the aggregate processing and retailing firm behaviour which influences the level, variability and transmission of farm prices (Abassian et al., 2010).

It follows that the price transmission is closely related to marketing margins, which confirms a number of studies examined this topic in many contexts (Reed, 2002; Peterson, 2004; Bakucs & Fertő, 2006; Dawe & Maltsoglou, 2009; Kızılaslan & Elmali, 2012), often also as a reaction to the sharp volatility of producer or retail prices (London Economics, 2003; Niemi et al., 2011).

In considering the marketing margins should be taken of composition the whole structure of food supply chain because margins are different for different levels. To make a complete analysis is needed to analyse the total flow of products what Carambas (2005) achieved through the use of market-behaviour equations.

As Bonabana-Wabbi (2013) states, too high marketing margins exist either because of monopolistic elements in the marketing chain or because the real costs of marketing are high. In increasing the retail margins are often reflected declining farm shares, though, over the time (Reed et al., 2002).

The study developed by Gardner (1975) give a basic frame for analysing the marketing margins. He defines the main sources of variation in the farm-retail price spread, depends on shifts in retail-level demand and shifts in farm-level supply. He also assumes a stronger impact of retail-level demand shifts than of farm-level supply shifts (Meyer & Cramon-Taubadel, 2004). Similarly, Wohlgenant
(2001) provided a review of the development of empirical models. As a part of the analysis was the definition of variables which influence the marketing margins of the retail price. The demand shifters like population, income or the marketing input costs stated as the main factors and followed by other variables like market power (Holloway & Hertel 1996) price risk, product quality, store-brand share (Ailawadi & Harlam, 2004) and others.

The paper provides the estimation of the development of marketing margins selected food commodities in over the period of 2000 to 2017. Specifically, the aim is indicating the distribution of retail prices of the milk and dairy products such as Edam cheese, butter and soft curd into the shares of producer prices, processing, marketing (trade) margins and taxes in Slovakia.

2 Data and Methods

Monthly price data, in the period of time from January 2001 to October 2017, are used to estimate the marketing margins in the food supply chain for milk and the other commodities such as Edam cheese, soft curd and fresh butter. The producer and wholesale prices are obtained from National Agricultural and Food Centre and consumer/retail prices come from Statistical Office of the Slovak Republic. The prices before the 1st January 2009 are converted to Euro currency by official conversion rate (30,1260 Skk/€).

Different methods are developed to measure marketing margins. Except for several approaches of various authors mentioned above, generally, three methods have been adopted to determine marketing margins (Agra, C. E. A. S., 2007; Niemi et al., 2011):

- National accounting records have been employed to estimate, by deduction, the proportion of consumers’ expenditure, which is used in the processing, and distribution of food.
- The uses of comparative pricing have been widely adopted in a number of examinations of prices and margins in the food sector has also employed the technique for many years in the calculation of price margins for a variety of agricultural products.
- The uses of individual accounting records. This method would bring the more detailed analyses but the limitations come from the reluctance of companies to provide such sensitive information.
Basic framework of marketing margins computing

Apart from observing the price developments between agricultural commodities and products, it is also interesting to track the development of the share of marketing margins.

The total value of marketing margin was dependent on processors margins and trade margins. The analysis of marketing margin, which is mathematically stated below, is employed to estimate the marketing margins of wholesalers and retailers.

Trade margins ($M_t$) are calculated as the difference between the actual or retail price on milk purchased by consumers and the distributor or wholesale prices. This is expressed as percentage of the retail price as:

$$M_t = \frac{M_t}{P_r} \times 100 \ (1)$$

where the $M_t$ (%) is the percentage share of trade margins on the retail price. $M_t$ characterizes the value of trade margins and $P_r$ expresses the retail price. Similarly, processors margins consist of the difference between processor margin and price paid to producers by processing plants.

$$M_w = \frac{M_w}{P_r} \times 100 \ (2)$$

where the $M_w$ (%) is the percentage share of processor or wholesaler’s margins on the whole retail price. The farmer margins calculation is realized as the percentage share of the primary producer price ($P_p$) on the consumer price.

$$P_p = \frac{P_p}{P_r} \times 100 \ (3)$$

$$P_r = P_p + M_t + M_w + VAT \ (4)$$

The total retail price consists of the farmer margins, trade and processor margins and value-added tax (VAT). Concerning VAT in the observed time period, from 2001 until December 2002 the VAT for milk was 10% at a reduced rate. From 2003 increased to 14%. Later, from the year 2004 until 2010 increased to 19% and from 2011 rose up to 20%. Lately from 2016 was accepted the reduced rate of the tax for basic foodstuff including milk.
3 Results and Discussion

Figure 1 Development of price series of cow’ milk (Eur/kg)

Source: National Agricultural and Food Centre, Statistical Office SR.

The calculations of marketing margins are based on the price development on the dairy market from 2001 to 2017 and Figure 1 illustrates the individual price series at the time. To examine the marketing margins more thoroughly is better to divide it into two smaller levels of the retailer margin and wholesaler margin. For a comprehensive analysis of the margins relations food supply chain is useful to closely quantify the profits at the individual stages i.e. at farm, processor or retail level. The calculations concerning the structure of consumer prices of milk, Edam cheese, soft curd and fresh butter are informative because, at the present, there is no such detailed database of statistical data for this type of analysis. For this reason, the marketing margins are calculated covering the price range between the purchase and consumer prices for the milk and wholesale and consumer prices for dairy products. Margins reflect the particular part of the consumer price that covers the costs and profits of the processing industry and trade.
The development of marketing margins of milk is illustrated in Figure 2. Over the observed period, the development of producer, wholesaler and consumer prices were relatively volatile. At the beginning of the year 2001, the trade margins reached to negative values but from the long-run perspective, trade margins have had a growing trend over the period from 2002 to 2017. Contrariwise the processors’ margin showed the decreasing trends. The percentage share of total marketing margin from consumer price for milk, for example, has grown from about 37% in 2003 to about 55% in 2017.

Producers have been receiving a lower proportion of the retail price of liquid cow’s milk. The producer’s share in the price of milk, for example, has diminished from about 52% in the year 2000 to just over 35% in 2017.

The development of price spreads of Edam cheese, soft curd and fresh butter are illustrated in Figure 3, 4, and 5. The trade margins are calculated all these dairy products. The retail and processor prices of Edam cheese exhibit considerably higher variability than at butter and soft curd what is reflected in the development of trade margins. Lately, we have recorded only a small share of trade margin for Edam cheese just about 5% in the year 2017. From the structure of the consumer price of soft curd follows that the share of processors on consumer price had relatively balanced trend last decade.

The share of trade margin shows the largest differences in the fresh butter when, for example, it has grown from the almost 5% of share at the beginning of the year 2002 to 33% in 2015.

Source: Data: Agricultural and Food Centre, Statistical Office SR, own calculations.
Figure 3 **Development of structure of retail price for Edam cheese (in %)**

**Source:** Data: Agricultural and Food Centre, Statistical Office SR, own calculations.

Figure 4 **Development of structure of retail price for Soft curd (in %)**

**Source:** Data: Agricultural and Food Centre, Statistical Office SR, own calculations.

Figure 5 **Development of structure of retail price for Fresh butter (in %)**

**Source:** Data: Agricultural and Food Centre, Statistical Office SR, own calculations.
4 Conclusion

The goal of this paper has been estimation the structure of retail price within marketing margins.

Margins reflect the particular part of the consumer price that covers the costs and profits of the processing industry and trade. The broad objective is to indicate the distribution of retail price in the dairy sector into shares of producer prices, processing and marketing margins, and taxes. Similarly, the trade margins are computed for dairy products.

The broad objective is to indicate the distribution of retail price into shares of producer prices, processing and marketing (trade) margins, and taxes for cow’s raw milk. Similarly, the trade margins are computed for dairy products such as Edam cheese, fresh butter and soft curd.

The calculations concerning the structure of consumer prices of selected product are informative and the marketing margins are calculated covering the price range between the purchase and consumer prices for the milk and wholesale and consumer prices for other dairy products. Our analysis of marketing margins in Slovakia covers the period of time from 2001 till 2017. As a result, there is an increase in the marketing margins during the last years and the producers have been receiving a decreasing share of the total revenue obtained from the milk market.

As some reasons for spreading differences between the prices on the producer and retail stage and also as an explanation of increasing trends in processors and trade margins and for declining producer margins authors often mentioned the competition issues in the sector with which is connected the abuse of a dominant position in the market, then asymmetries in the price transmission, processing changes in the sector or changes in agricultural policy (Bakucs and Ferto, 2006; Niemi, 2006,). For better understanding the price formation and for a comprehensive analysis of margin relations would be useful provide a careful analysis of the available empirical evidence and closely quantify the profit at the individual stages at farm, processor or retail level.

Acknowledgements

We gratefully acknowledge financial support received from the Slovak Research and Development Agency under the contract No. APVV-15-0552 and VEGA 1/0797/16.
References