

## Price Margins in the Finnish Food Chain

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### ABSTRACT

There is a growing interest – among consumers, the media, political decision-makers and the food system at large – in more detailed information on the formation of consumer prices for foodstuffs. This paper, based on Finnish case evidence, is an opportunity to increase the transparency of the food chain as well as consumers' knowledge of its functioning. The aim of this study is to present an analysis of the price margin data for selected food products falling into three sectors: meat products, dairy products and cereal products. More specifically, the objective is to determine the share of consumer food prices taken by each actor along the food supply chain: primary production, processing, and retailing, as well as government taxes.

**Keywords:** Food; price margin; primary production; processing; retailing

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### Introduction

The last decade has witnessed considerable change in grocery markets across most developed countries. The food processing industry, as well as the retail sector in particular, have consolidated through mergers and acquisitions as well as strategic alliances. In Finland, the increased concentration of the retail sector, with fewer outlets and the growth of the large supermarket chains, has been very rapid in recent years. In 2014 the market share of the two leading Finnish retail grocery chains was approximately 80 per cent, an increase of 10 per cent from 2004. This cannot be seen as desirable from the point of view of competition.

Furthermore, rising consumer food prices have generated concerns among policy-makers about the functioning of the food supply chain. In the Communication "A better functioning food supply chain in Europe" (European Commission 2009), the Commission announced several policy initiatives in this field, and committed itself to maintaining a constructive dialogue with all stakeholders in the food supply chain. According to the Communication, markets along the chain suffer from a lack of price transparency and predictability.

Not only Finland, but the world over has seen a growing interest – among consumers, the media, political decision-makers and the food system at large – in more detailed information on the formation of consumer prices for foodstuffs. Due to rapid developments in information technologies such as smart mobile devices and social networks, the entire world is today much more transparent than only a few years ago. However, the food system has not been able to actually improve its transparency, at least as regards the price formation of foodstuffs.

In Finland, researchers have been unable to calculate the exact margins for each and every actor in the food chain. This is because the price data available from both food processors and food retailers have been insufficient. Thus the present study is a unique opportunity to increase the transparency of the food chain as well as consumers' knowledge of its functioning. The Consumer Society Research Centre was entitled legally (effective until 2014) to collect for research purposes price data from various food supply chain actors. The Centre had been doing so earlier, usually

consumer price data, but only now has the data been gathered extensively from all relevant public and non-public sources of the food supply chain.

The aim of our paper is to present an analysis of the price margin data for selected food products in Finland for the period 2008-2012. More specifically, the objective is to determine the share of consumer food prices taken by each actor along the food supply chain: primary production, processing, and retailing, as well as government taxes. The analyses are executed at different aggregate levels (product, product group, category and sector) according to the possibilities provided by the data from food processors and retailers (Peltoniemi et al. 2014a, 2014b, 2015).

## **Data and research methods**

Various approaches to the measurement of price margins have been adopted in the past (O'Connell and Connolly, 1975; Digby, 1989; Wohlgemant, 2001; Reed et al., 2002). In this study, a comparative price technique is used to examine the development of the price margins of selected food products in Finland. The margins refer to the share of the consumer price that remains to cover the costs of the food processing industry as well as retail sector. The price of the raw material is a measure of the payments that primary producers have received for the raw commodity used to produce the final product.

One of the most challenging aspects of the study was to obtain the price data of the transactions between the food processing industry and retail sector. Because no public data were available, the data had to be requested directly from the retail chains and the companies operating in the food production sector. Before emailing our request for the data, several conversations by phone and face to face were held with representatives of the private sector, branch associations and governmental organizations. This was done to eliminate the possibility of misunderstandings and doubts. Further, to avoid any possible harm in relation to competitiveness issues, the most recent price data were not enquired about, only the data from 2008 and 2012.

Individual data requests were sent by email to 21 food production companies (in the meat, dairy and milling/bakery industries), and four retail grocery chains. In the request, the food production representatives were asked to report the selling prices (tax exclusive) and selling amounts of selected products. Correspondingly, the representatives of the retail chains were asked to report the purchase prices (tax exclusive), the purchase amounts as well as the consumer prices of the selected products. Altogether 16 food production companies and three retail chains provided the requested data. Changes or lack of data in the relevant information systems were the most common reasons for undelivered data.

The data received from the food processors and retailers enabled calculating the average selling prices and average purchase prices of each food product. For calculations of the average consumer prices, the data were collected from the following sources: the grocery trade, Consumer Society Research Centre's price monitoring surveys and Statistics Finland.

The analysed products fall into three sectors: meat products, dairy products and cereal products (milling and bakery). From these sectors the price data were provided for 107 products. The data consist mostly of manufacturers' brands, but also include some retailers' private labels (19 products). In addition, and beyond the scope of the analysis, price data for certain vegetables were received from two industry federations. Thus altogether, the price data for 115 food products from 2008 and 2012 were collected. Actors in the Finnish food chain provided very sensitive price data which were treated as confidential. Therefore the identities of the food processors and retail chains are not published in the research results.

Products in the three sectors have been combined into product groups and categories (commodity bundles) according to the commodities classification used in the consumer price index of Statistics Finland. For example, the meat sector consists of four categories: beef, pork, poultry and processed meat. Each category usually contains at least two product groups. The category of processed meat includes such product groups as ready-made meatballs, barbecue sausages, frankfurters, poultry cold cuts, and pork cold cuts. Further, pork cold cuts, for instance, include such products as smoked ham, cooked ham and ham sausage.

The calculation method of the primary producer's price margin varies depending on the sector (meat, dairy or cereal). The content and special features of the each product are taken into account. For instance, in the case of the dairy products, the fat content and protein content are the key factors determining the price margin of the primary

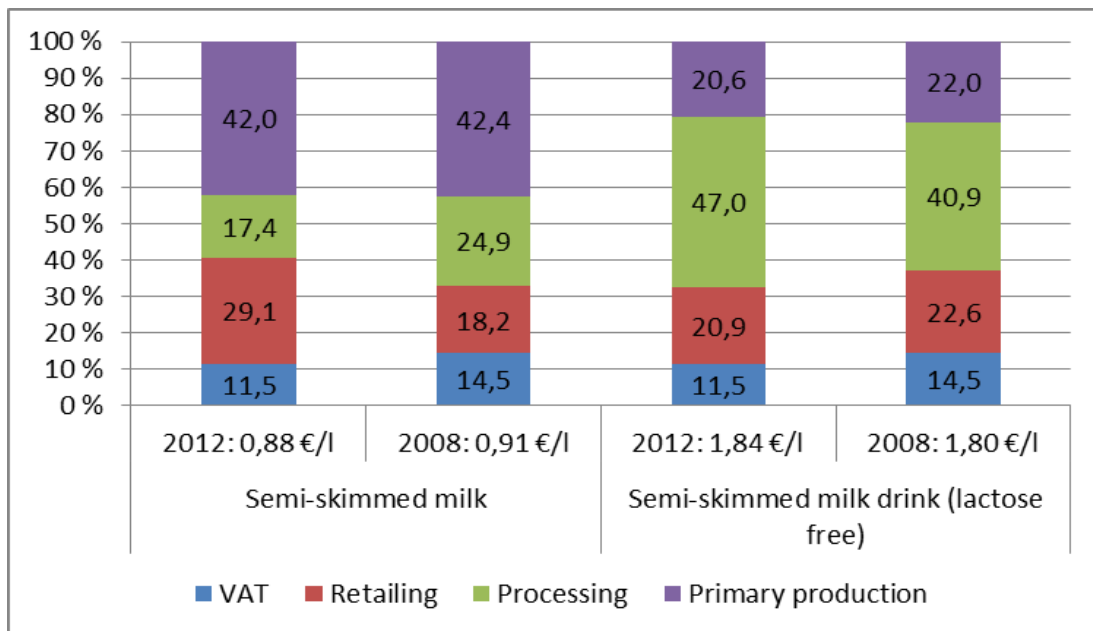
producer.

The average price margins of the product groups were weighted by the consumption proportions taken from the consumer price index of Statistics Finland. These weighted average price margins were finally combined to determine the sectoral (meat, dairy and cereal products) average price margins for government tax, primary production, processing and retailing (including wholesale).

## Findings

When examining the price formation in the dairy sector, the results show that between 2008 and 2012 the share of retailing increased by 4 percentage points to 25.4 per cent. The share of processing remained almost the same (33 per cent), but primary production's share (raw material) decreased by almost 1 percentage point to 30.2 per cent. The share of government tax also decreased.

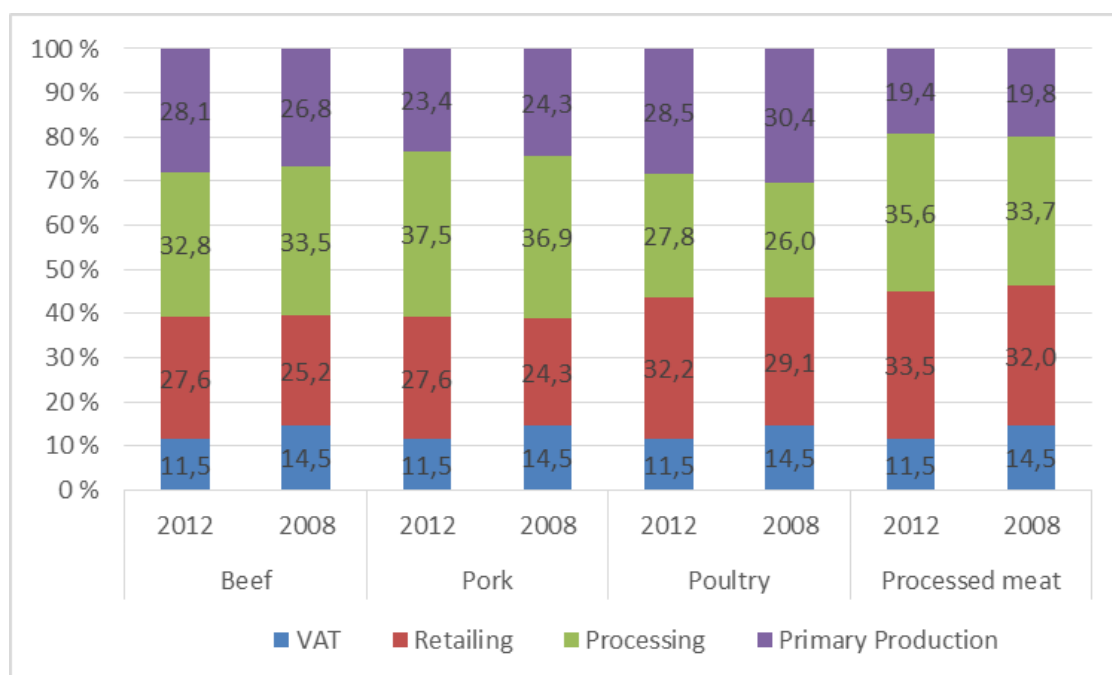
In the product-specific analysis it was interesting to compare the price margins of semi-skimmed milk (regular milk) and lactose-free semi-skimmed milk drink. As Figure 1 shows, the price margins of primary production, the processing industry and the retail trade are quite different between these two dairy products. The share of raw material in lactose-free milk drink is about half of its share in regular milk. Accordingly, the processing industry's share in milk drink is clearly greater than in regular milk. This is because milk drink has high value added, and the consumer price is about twice the consumer price of regular milk.



**Figure 1.** The average price margin percentages of semi-skimmed milk and lactose-free semi-skimmed milk drink (share of the tax-included consumer price) divided between VAT, retailing, processing and primary production in 2008 and 2012.

In the case of meat, the results show that the retail trade's share of the consumer price of meat increased. In 2008, the average price margin percentage of retailing was 28.7, and four years later in 2012, 31.3. As well, the meat processing industry increased its share somewhat (by 0.7 percentage point) to 34.3 per cent, but the share of primary production (22.9 per cent) decreased marginally (by 0.3 percentage point).

Depending on the commodity bundle, differences were noted in how the price margins were distributed in the meat sector. The primary producer received a smaller share of the processed meat products such as cold cuts and sausages, and correspondingly, a larger share of the unprocessed raw meat. In 2012, the average price margin percentage was approximately 20 per cent in processed meat and 28 per cent in beef and poultry. The price margin percentages of primary production decreased in all meat categories except beef (Figure 2).



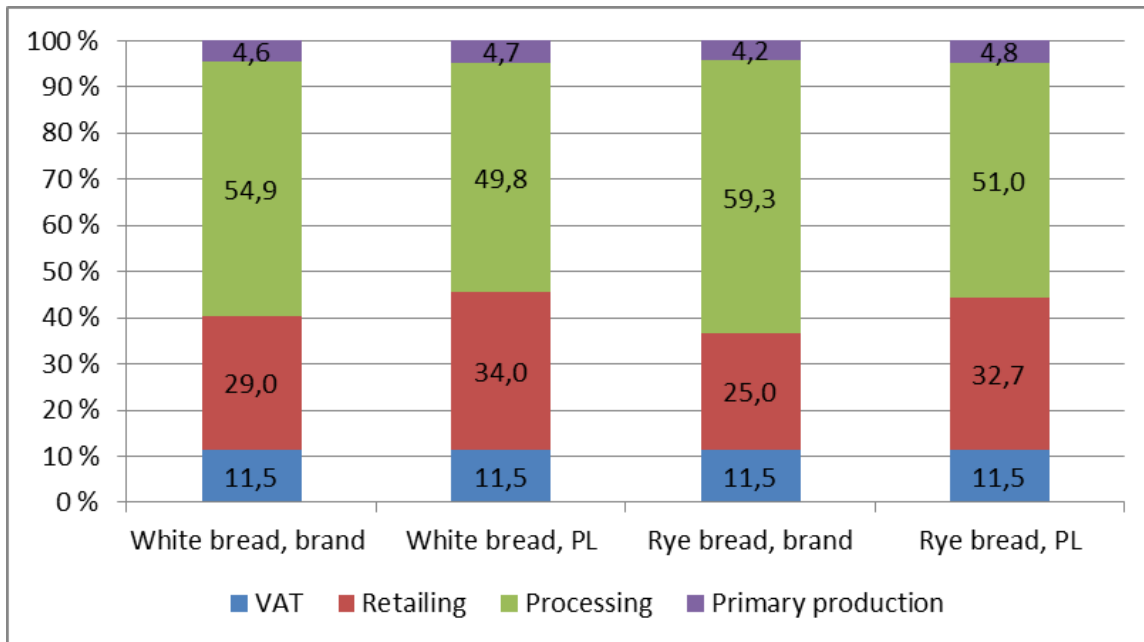
**Figure 2.** The average price margin percentages of beef, pork, poultry and processed meat (share of the tax-included consumer price) divided between VAT, retailing, processing and primary production in 2008 and 2012.

There are six minced meat (including beef and pork) products in the data from 2012: three brand (manufacturer brand) products and three private label products. The results indicate that the retail trade received higher price margins in private label products than in similar manufacturer brands. In private labels the share of retailing varied from 31 to 39 per cent. In manufacturer brands the retailer's share was at most 28 per cent. On the other hand, the results indicate that the meat industry received higher price margins from its manufacturer brands.

The results for the cereal sector show that the retail trade's share of the consumer price of milling and bakery products increased. The industry's share of the consumer price of bakery products also increased, but decreased in the case of milling products. Primary production's share increased for milling products, and also marginally for bakery products. The government taxes' share of consumer prices declined due to changes in VAT.

In 2008, the retail trade's share of cereal products' consumer price was on average 27.8 per cent. Accordingly, the share of the processing industry was 52.2 per cent and primary production 5.5 per cent. Four years later, in 2012, the retail trade had increased its share by 1.5 per cent. The share of primary production also increased (by 1.4 percentage points), but the share of the processing industry remained unchanged.

In both white and rye bread, the consumer prices of the private labels were slightly lower than in the corresponding manufactured brands. Private labels were clearly profitable for the retail trade, for it tended to gain better margins from them. On the other hand, regardless of the label, the share of primary production remained at approximately 4-5 per cent. The margin of the processors (bakeries) varied between 50 and 59 per cent, and the figure was naturally higher in industry brands than in private labels (Figure 3).



**Figure 3.** White bread (brand and private label) and rye bread (brand and private label): a comparison of average price margin percentages (share of the tax-included consumer price) divided between VAT, retailing, processing and primary production in 2012.

However, one must bear in mind that price margins are not the same thing as profits. Determining the profits would require detailed information about the cost structures of the foodstuffs. One retail chain was able to provide computational information on the cost items related to minced meat and semi-skimmed milk. Additionally, one bakery provided information on the cost items related to rye bread. With this information, we were able to perform a direct cost analysis of these three food products.

The retailing results show that the costs related to salaries and real estate (rent, etc.) are the most significant cost items for both minced meat and semi-skimmed milk. Over half (60 per cent in minced meat and 55 per cent in milk) of the retail trade's price margin is directed to these two cost items. Accordingly, the costs related to raw material and salaries are the most significant cost items for bakery. Close to 50 per cent of the bakeries' price margin goes to them. The operating profit ratio of retail chains is about 2 per cent for milk and 4 per cent for minced meat. The bakeries' operating profit ratio is 5 per cent for rye bread.

## Conclusions

In conclusion, the examination reveals that the price margins of the various actors varied over time and by product group. However, it seems that the retail sector was more efficient than the other actors in the food chain in adjusting to changes in the market situation and market structures, and thus was able to increase its relative power in price negotiations with the processing industry. The retailers were also able to benefit the most from the VAT reduction which took effect in October 2009.

Furthermore, the retail chains in Finland have in recent years introduced numerous new food products under the shield of private labels. Our results indicate that private labels are more profitable to retailers through higher price margins than similar manufacturers' brands. This stronger position has made it possible to transfer increasing costs to consumers as well as to increase retailers' price margins. The retail trade increased its share of the consumer prices of foodstuffs in all three sectors between 2008 and 2012.

While the short-term behavior is well explained, further research is required if we are to fully understand the factors influencing the longer term development of margins in the food chain.

Furthermore, a possible objective of future research would be to investigate more thoroughly the cost structures in the chain. It would be interesting to examine the profits once the costs (salaries, rents etc.) are subtracted from the margins. We were able to carry out preliminary cost analyses for some specific food products, but a deeper analysis is still needed to determine the sectoral profits in the Finnish food chain.

## References

- Digby, M. (1989). Marketing Margins in the Meat Sector, England and Wales 1978-198. *Journal of Agricultural Economics* 40:129-142.
- European Commission. (2009). A Better Functioning Food Supply Chain in Europe. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels 28.10.2009, COM (2009) 591. Final version.
- O'Connell, J. and Connolly, W. (1975). Measurement and Analysis of Aggregate Marketing Margins, *Journal of Agricultural Economics* 26: 219-226.
- Peltoniemi, A., Arovuori, K., Niemi, J & Pyykkönen, P. (2014a). Lihasektorin hintarakenteet [Abstract: Price structures in the Finnish meat sector]. University of Helsinki: Consumer Society Research Centre, 2014. 59 p. Available at [https://helda.helsinki.fi/bitstream/handle/10138/152363/Lihasektorin\\_hintarakenteet.pdf?sequence=1](https://helda.helsinki.fi/bitstream/handle/10138/152363/Lihasektorin_hintarakenteet.pdf?sequence=1)
- Peltoniemi, A., Arovuori, K., Karikallio, H., Niemi, J., & Pyykkönen, P. (2014b). Viljasektorin hintarakenteet [Abstract: Price structures in the Finnish cereal sector]. PTT Economic Research, Working Papers 166. 58 p. Available at <http://ptt.fi/wp-content/uploads/2014/12/Tp166.pdf>
- Peltoniemi, A & Arovuori, K & Niemi, J & Pyykkönen, P. (2015). Maitosektorin hintarakenteet [Abstract: Price structures in the Finnish dairy sector] . University of Helsinki: Consumer Society Research Centre, 2015. 52 p. Available at <https://helda.helsinki.fi/handle/10138/155095>
- Reed, A., Elitzak, H. and Wohlgenant, M. (2002). *Retail-Farm Price Margins and Consumer Product Diversity*. U.S. Department of Agriculture, Economic Research Service, Technical Bulletin No. 1899. 29 p.
- Wohlgenant, M. (2001). Marketing margins: Empirical analysis. In: Gardner, B. and Raussler, G. (eds.). *Handbook of Agricultural Economics*, Volume 1 B, Amsterdam: North Holland, pp. 933-970.
- Statistics sources:
- The Natural Resources Institute Finland, Luke. Statistics service.
- Statistics Finland, database: Consumer Price Index <http://www.stat.fi/til/khi/index.html>