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The European Food Prices Monitoring Tool as a Prerequisite for more Price Transparency in the Food Chain

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Abstract

During the last decades, the variable agricultural commodity prices and the increasing producer and consumer prices illustrated the need for more transparency about the pricing of food products in the European food system. Therefore, the European Commission launched in 2009 a public tool, the European Food Prices Monitoring Tool (EFPMT), to compare prices to increase transparency for price transmission in the food chain and to facilitate comparisons across the European member states. The main purpose of this paper is to examine how the EFPMT can contribute to a fair competition and increase the price transparency and competitiveness in the European food system.

Keywords: *European Food Price Monitoring tool (EFPMT), food chain, price transparency*

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1 Introduction

Because the European food system is active on both domestic and international markets, innovation in food markets is a necessary precursor to competiveness, growth, welfare and well-being. A well-functioning European food supply chain requires both adequate and fair competition. Price transparency is a prerequisite for these. Therefore, in this chapter we examine the European Food Prices Monitoring Tool as a case study to improve price transparency and, ideally, competitiveness in the European food system.

The European Food Prices Monitoring Tool (EFPMT), available to the public, brings together European data on price developments at different levels of selected food supply chains (e.g., farmer, food processer and retailer). This tool was introduced by the European Commission as a result of variable agricultural commodity prices and steadily increasing producer and consumer prices during the previous two decades. Its intent is to increase transparency for price transmission in the food supply chain and to facilitate comparisons across the European Member States (EC-Eurostat 2009).

First, we analyze the relation between price transparency and fair competition from a theoretical point of view. Second, we investigate agricultural and food prices evolution in the EU over the last decade, with a specific focus on the price transmission along the food supply chain. Third, we assess the rationale for the EFPMT and analyze its functioning as a case study. In addition, the awareness and beliefs of scientists, company representatives, food cluster coordinators and ministry representatives (n=68) from 6 European countries were examined with regard to the EFPMT with the help of a structured questionnaire.

2 Link between price transparency and fair competition

Competition between firms

Competition is the process through which entities, such as people, organizations or nations, try to acquire or employ resources that are desired by them, but that are not freely or adequately available to meet their demand. Resources are defined as anything that the entities can use to achieve their objectives (Sanchez and Heene 2004). Because resources are scarce, firms' efforts to access and control resources contribute to the competitive capacity of firms. In other words, competition exists when the acquisition or access of resources by one firm prevents other firms from acquiring or accessing these resources due to the scarceness of the resources.

Economic theory considers competition as a major and necessary driver of economic improvement, growth and social welfare. Economies are said to improve when they generate and offer more products and services that more effectively satisfy client's needs and preferences while at the same time consuming a decreasing quantity of resources. The intensity of competition has implications for the profits that companies can earn. Competition drives down prices, margins, and reduces opportunities for gaining financial profit. "Perfect competition" results in zero margins and thus zero profits for all competitors.

Fair competition

Economists and regulators (such as governmental authorities) consider competition to be "fair" when firms "compete on the merits," meaning that firms can engage in conduct that results in rivals being forced to exit or discouraged from entering the market, as long as such behavior does not violate specific standards or "tests," such as the profit sacrifice test or the equally efficient firm test (OECD 2006).[1] Unfair competition prevents competitors from taking similar or compensating actions. According to EU competition law, unfair competition exists under many forms including: abuse of a dominant position, state aid that gives competitors an advantage that cannot be gained by others, collusive behavior (EU 2008, Title VII, chapter 1), infringement of intellectual property rights (EPC 2004), misleading communication and advertising (EPC 1997; EPC 2005).

Price transparency and fair competition

According to microeconomic theory, perfect information on price and quality of products and services is one of the fundamental conditions required for a "perfectly competitive" market. Perfect information on prices minimizes search costs, such as the time and money spent to discover best prices, and contributes to perfect competition. According to Sanchez and Heene (2004, p.14): "Having full information about prices of goods, buyers will only buy at the lowest price available in the market, and only when the utility they will derive from use of a good exceeds the market price of the good. Sellers, in turn, will allocate their available resources to producing goods that would bring them the greatest surplus of price over costs available in the market." Hence, price transparency contributes to the availability, completeness, and perfectness of information and resources available to buyers and sellers and in this sense contributes to competition.

Price transparency means that sellers and buyers are able to obtain valid and reliable information on prices in a fast, cheap, and simple way. It is generally accepted that price transparency can signal the existence of unfair or inadequate competition. This is illustrated by the statement of European Commission Vice-President Antonio Tajani, on the occasion of the EU enforcement of price transparency in the European airline industry: "Fair competition is the key to success: with price transparency, passengers will know in advance how much they are

[1] The profit sacrifice test, also known as the no economic sense test, states that firms should not engage in activities that irrationally results in a loss of profits or that make no economic sense, except for a tendency to eliminate or lessen competition. The equally efficient firm test states that firms should not engage in activities that exclude rivals who are as efficient as the firm in question.

going to pay and will be able to make informed choices" (New Europe 2008). When prices are transparent, buyers and sellers are in a position to make the best and most informed consumption and production decisions.
However, the effect of price transparency on competition varies according to the structure of the market in which price transparency is enhanced because price transparency is a "two-edged sword" (OECD 2001); it can both impede as well as promote competition. On the one hand, price transparency contributes to an economically sound allocation of resources, thus promoting competition. On the other hand, in concentrated markets supplying homogeneous products, an increase in price transparency might harm fair competition. In this kind of market, a high level of price transparency can increase the risk of tacit collusion among producers or the stability of a "classic" cartel: if a firm deviates from the agreed pricing behavior the other cartel participants could easily spot this behavior and "punish" the firm. If one assumes firms to be forward looking, cartel participants should have a lower incentive to "cheat" on the other participants. In addition, Mollgaard and Overgaard (2001) suggest another (indirect) effect: if a firm "cheats" on the other cartel participants their punishment would be – *ceteris paribus* – "more severe since consumers become more sensitive to perceived differences in the mix of price and characteristics across products."[2] In any case, these drawbacks of higher price transparency are valid for markets which are already at risk of collusion, and it is highly unlikely that an increase in price transparency would *per se* hamper fair competition in markets where the risk of collusive behavior is low.[3] Thus, an increase in price transparency is generally beneficial for competition unless it takes place in markets at risk of collusion. In the latter case, the potential downsides can be reduced by disclosing sufficiently aggregated and historical data, as commonly agreed under EU competition law (EU 2011, para. 89-90).

3 Transmission and developments of agricultural and food prices in Europe

The food supply chain can be divided in three main sectors or levels: agricultural production, food processing, and distribution. Therefore, price developments along the food supply chain can be analyzed by looking at the evolution of (1) agricultural commodity prices at the agricultural production level, (2) food producer prices at the food processing level, and (3) consumer prices at the distribution and retail level.
The most relevant issue when analyzing price developments along a food supply chain is the price transmission – or pass-through – of a price change among the different levels of the food supply chain (e.g., from agricultural commodities to food processing, and from food processing to consumers). Taking inspiration from Bukeviciute et al. (2009a), at least three different aspects of price transmission should be considered: the *magnitude*, the *speed* and the *symmetry* of price transmissions.
The *magnitude* shows how much of the price change at one step of a supply chain is transmitted downward to the next step. It ranges between 0 percent, when an increase (decrease) in the upstream output price has no impact on the downstream output price, and 100 percent, when a given percentage increase or decrease in the upstream output price entails the same percentage change in the downstream output price. The *speed of the pass-through* refers to the time lag required for the price transmission to happen (the time between the variation in the upstream output price and the related change in the downstream output price). The *symmetry of the price transmission* concerns the differences in pass-through – both in terms of magnitude and speed – depending on whether the upstream output price variation is positive or negative. The more the speed and the magnitude of the pass-through differ depending on the sign of the initial price variation, the less the price transmission is symmetric.
As shown in Figure 1, a first look at the European food supply chain in the last decade shows a variable evolution of the agricultural commodity prices while food producer and consumer prices increase "slowly and surely" over time.

[2] However, a high price transparency would also increase the "one-time" benefit of deviating from the agreed cartel price; the net effect would depend on the specific characteristics of the market and the cartel.
[3] Notably those are characterized by: "low levels of concentration; large number of sellers; low barriers to entry; low transparency as to prices, quantities transacted and marketing strategies; asymmetries among sellers and product offerings; rapidly changing demand and cost conditions; lumpy purchasing patterns; and the presence of one or more maverick competitors" (OECD 2001).

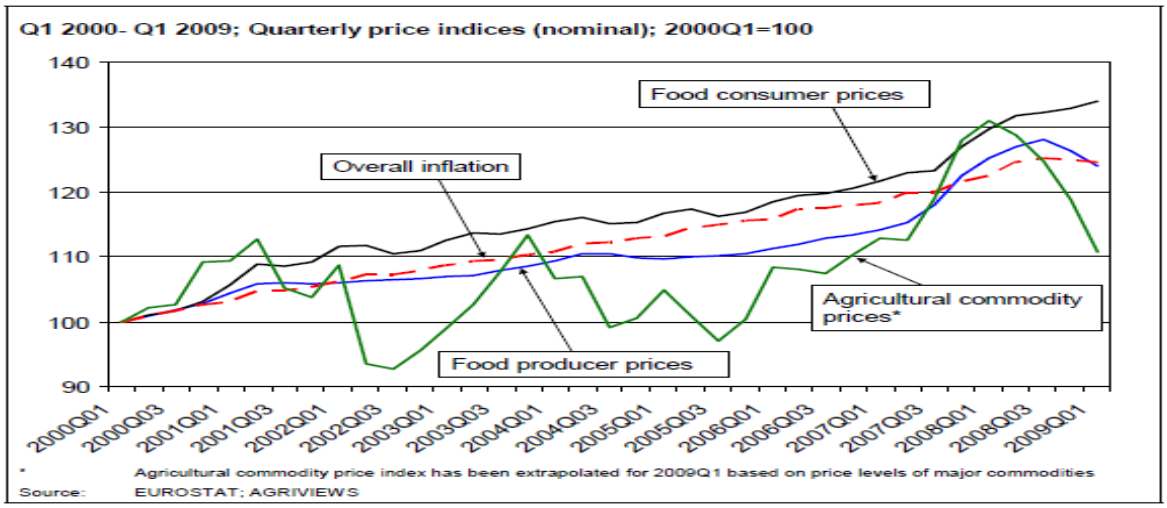

Figure 1. Long term prices evolution within the EU food supply chain
Source: EC (2009a)

The high volatility of agricultural commodity prices is generally absorbed in the downstream sectors. This is mainly due to the low (and decreasing) value share of the agricultural commodities (farm value), and the high (and increasing) value share of transforming raw food into consumer goods (marketing bill), in the value of the food products at retail level (food expenditures). The "ever-increasing margin between agricultural market price for bread making wheat (0.13 EUR/kg in April 2009) from retail consumer prices for baguette (3.35 EUR/kg in April 2009) in France" well-illustrates this development (EC 2009a, p.16).

However, despite the smoothing role played by the downstream levels on agricultural commodity price fluctuations over the medium run, in the long run the price difference between agricultural commodities and food products has been widening. This trend is reinforcing the striking gap between the value of agricultural commodities and the value of the food products at retail level.

The period 2007-2009 has been characterized by an exceptional variation in agricultural commodity prices: raw food prices increased dramatically from May 2007 to February 2008 before returning to the initial price level in March 2009 (see Figure 2).[4] During this period, the pass-through along the food supply chain has been interesting. The main insight is the asymmetric nature of the price transmission: while the surge in agricultural commodity prices (16 percent increase between May 2007 and February 2008) entailed a fast and important pass-through to the producers and consumer prices (respectively nine percent and five percent over the same period), the decrease in agricultural commodity prices led only to small producer and consumer prices reductions. Moreover, these reductions took place with significant time lags (EC 2009a).

[4] Between the end of 2010 and the beginning of 2011, the last available data at the time the authors are writing, agricultural price levels are increasing at the peak reached during the 2007-2008 crisis.

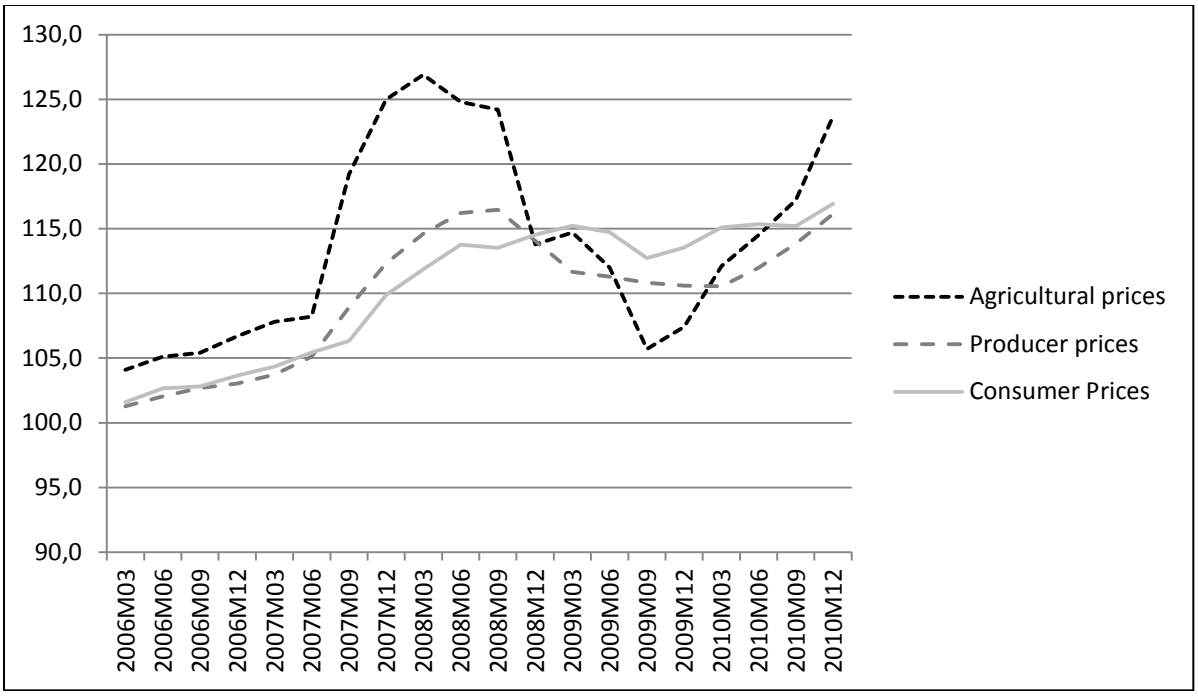

Figure 2. Recent prices evolution within the EU food supply chain (2005 Q1 = 100)
Source: Own work, based on Eurostat (2011)

Price transmission from the agricultural sector to the food processing sector

Over the previous decade, the link between price fluctuations in agricultural commodity prices and food producer prices seems (at best) very weak. According to European Commission calculations, the pass-through from the agricultural sector to the food processing industry has a magnitude of four percent. With regard to the speed, the price transmission reaches its full magnitude within a three-month lag. If one takes into account only the period 2007-2009, the magnitude is much higher while the speed is lower: an increase in raw food prices has been passed-through by one third within six months (EC 2009a).

Price transmission from the food processing sector to the retail sector

The pass-through from food processor to the distribution industry has considerably higher magnitude and speed values compared to the previously discussed pass-through. Over the period 2000-2009, an increase in the price of processed food products is transmitted to the consumer by 51 percent (31 percent immediately and 20 percent after one month) (EC 2009a). As in the previous case, the data for the window 2007-2009 shows a price transmission characterized by a higher magnitude (70 percent) and a lower speed (six months).

Price transmission differences across EU Member States

The above-mentioned price transmission figures refer to the whole EU. By analyzing price evolutions along different Member States, one major *cleavage* appears: new Member States are characterized by a pass-through with higher magnitude (for both raw food price increases and decreases) and faster speed (Bukeviciute et al. 2009a). This may be due to the greater share of raw food in the value of consumer food products for Member States characterised by low price levels. The other reasons, such as VAT and energy price increases, arbitrage within the EU, and new Member States' catching-up (see Bukeviciute, Dierx and Ilzkovitz, 2009b), do not adequately explain the stronger and faster pass-through due to agricultural commodity price reductions.

Bottom line

Although the analysis of the European-wide food price developments over the long run does not raise specific issues, the asymmetric nature of price transmission within the food supply chain, especially since 2007, can be seen as a cause of concern. Coupled with the large and increasing spread between agricultural commodity prices

and retail food prices and continuing agricultural commodity price increases, this suggests that retail food prices will remain high or even increase in the future.[5]

This trend implies a need for greater attention in ensuring an adequate level of fair competition within the European food supply chain in order to avoid inefficiencies. Higher prices for food would be harmful to European consumers and will undermine the competitiveness of the European food industry. Monitoring food price evolutions will not only increase price transparency, but also shed light on the level of integration of the European market for food. Significant differences in food product prices among Member States could signal an incomplete Internal Market for food,[6] because in a single market, significant price differences should be reduced over time by arbitrage activity. If not, then the persistence of significant price differences could imply the presence of obstacles and practices that fragment the European Internal Market and reduce the competition in it (EC 2008).

4 The European Food Prices Monitoring Tool

In order to investigate price transparency as a prerequisite for fair competition, we analyze the functioning of the European Food Prices Monitoring Tool (EFPMT) as a case study. Case studies allow researchers to explore and understand complex issues within a specific context. In a case study, a few subjects are investigated in-depth through detailed contextual analysis (Zainal 2007). In the case of the EFPMT, one interview was conducted with one national expert and two representatives of Unit G-6 Price Statistics (Purchasing Power Parities) of Eurostat in January, 2011, in Luxembourg. Since the existence of clearly defined goals for transparency practices (i.e., clear statements of what the installed transparency system intends to achieve) is regarded as the first and most important step in evaluating transparency performance (Kaplan 1983), the first part of the interview focused on the identification of the transparency goal. In the second part of the interview, the respondents were asked to prepare a general flow diagram of the food supply chains with the indication of the different stakeholders. The third part targeted the analysis of the information flow between the stakeholders: the transparency needs and preferences, the current status of transparency and the information quality. In the last part, the transparency performance was evaluated based on a set of direct and indirect performance indicators, which required the measurement of the goal achievement (Kaplan 1983). Additional insights were gained from publications of the European Commission (Eurostat) and feedback of local policy makers.[7] Moreover, opinions and recommendations of European Food Associations and Federations, which are (were) published on the internet, were considered (CIAA 2009, EDA 2010, EUCOLAIT 2010).

Background

In the second half of 2007, there was a sudden and significant increase in agricultural commodity prices, reversing a 30-years-long trend of declining agricultural commodity prices in real terms. Although unexpected, it is important to note that agricultural commodity prices are expected to eventually increase in the long run because of increasing global demand (due, among other things, to the emergence of alternative market outlets as the biofuels market), rising energy prices, changing world demographic patterns, declining food crop productivity growth, and changing climate conditions (Abbott 2009).

Concerns within the EU were growing regarding the striking difference between agricultural price levels and food price levels in the retail sector. These concerns were sharpened by the fact that the decrease in commodity prices following the price spike in 2007 did not result in a rapid or significant reduction in food prices at the retail level. Moreover, persistent differences in food product prices among Member States were believed to signal the presence of barriers to cross-border flows of goods and services, indicating an incomplete Internal Market for food, as argued above.

In order to address the problem in the upstream market, the European Commission intends to improve “the oversight and overall transparency of agricultural commodity derivatives markets” EC (2009b, p. 9) in order to

[5] This evolution finds additional grounding at the time this chapter has been finalized: a recent article on the *Financial Times* illustrates the outcome of a global survey conducted by Grant Thornton on 11000 food producers across 39 countries, showing that 41 percent of the respondents will increase their prices in the following twelve months (Lucas 2011).

[6] The “incompleteness” of the internal market refers to the degree of barriers to the free cross-border flow of goods, services, capital, and people (Ilzkovitz et al. 2007).

[7] See Eurostat homepage online at http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/.

increase confidence for commercial actors while reducing the risk of speculative bubbles. With regard to food retail price transparency and comparability, the Commission suggests the development of price comparison tools (i.e., websites) at the national level. In addition, a comprehensive initiative covering the whole food supply chain has been developed as the EFPMT. According to the European Commission, the purpose of this tool is to contribute in ensuring competition in the food sector through two channels. First, by tracking consumer price levels of comparable food products across Member States, it allows European regulators to assess the level of integration of the internal market for retail food as it is believed that price differences between Member States for comparable food products signal the level of fragmentation within the Internal Market. Second, by tracking (selected) food price developments at each level of the food supply chain for each Member State, it improves transparency of food prices (EC 2009b).

Description

The EFPMT intends to increase price transparency by facilitating comparisons of price developments at the agricultural commodity, food processing and retail levels of the food supply chain across the European Member States. Since it is impossible to give a full description of all food supply chains in Europe and to show the complete price transmission process, only some parts of selected food supply chains are included in the EFPMT. The 17 selected food supply chains, together with their involved stakeholders and their activities, are shown in Figure 3.

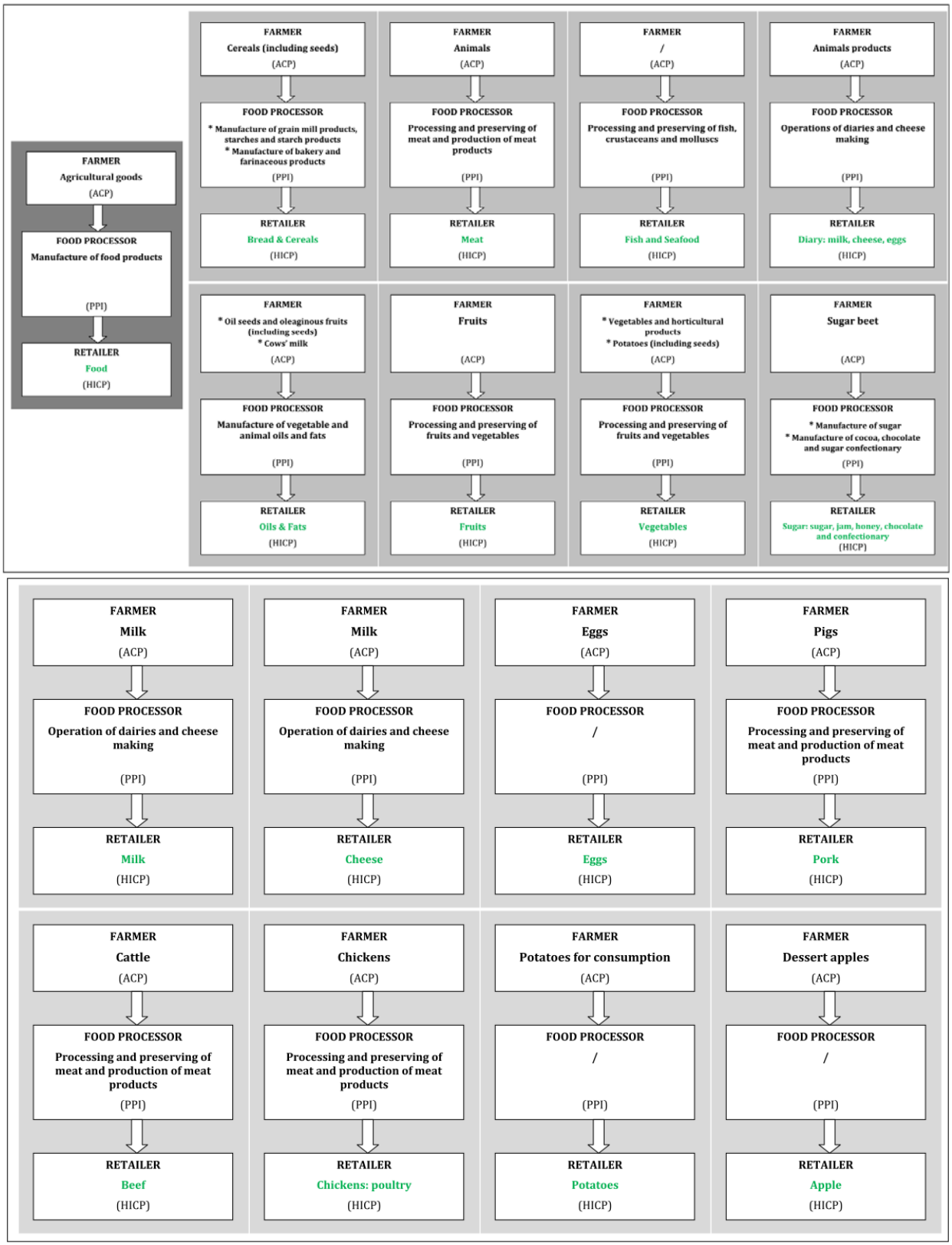

Figure 3. Flow diagram of the 17 food supply chains in the European Food Prices Monitoring Tool
Note: ACP=Agricultural Commodity Price Index; PPI=Producer Price Index; HICP=Harmonized Index of Consumer Prices

For each of these food supply chains, the agricultural commodity price index (ACP), the producer price index (PPI) and the harmonized index of consumer prices (HICP) (i.e., the retail price charged to consumers) are presented. As a result, each of the described food supply chains consists of farmers, food processors and retailers. The level of the food processor may cover, depending on the food supply chain, several stages of the chain. For example, in the food supply chain of "bread & cereals," the level of food processor includes (1) manufacture of grain mill products, starches and starch products and (2) manufacture of bakery and farinaceous products. Thus, the producer price indices are aggregated. In the food supply chain of dairy products for example, the producer price indices include the price development in different kinds of products which relate to these dairy products (e.g., cheese and milk). In contrast, for specific food supply chains, producer price indices are not available and consequently cannot be displayed (e.g., eggs).

The EFPMT exclusively includes index numbers; the statistics have no dimension (e.g., euro per kilogram). Price indices give valuable and useful information on price developments over time (e.g., in the beef chain, all prices are expresses in comparison to the year 2005 which is set at 100). This avoids problems with incomparability. However, Eurostat is often requested to expand the tool to include dimensions of prices (representing the actual price, e.g., euro per kilogram). Until recently, Eurostat considered this to be too difficult because food products change during processing: the products that farmers make are not directly comparable to products in the retail sector. Presenting the price level of these two different products would lead to misinterpretation.

Since there is no regulation or rule which imposes the collection and comparison of data at the chain level, the EFPMT goes beyond the legal minimum requirements. Eurostat tries to make a more comprehensive use of statistical data that are available. For the stakeholders, however, there is a legal requirement to provide statistical data. For example, the HICP is produced based on a 1995 regulation (Council regulation 2494/95 of EC), which states that the European Commission will produce HICPs and that the Member States must provide data on prices to Eurostat for preparing the HICPs following all rules that are established by the Member States, by Eurostat and by the National Statistical Institutes. Furthermore, the regulation states that enterprises selling consumer products are obligated to communicate to the National Statistical Institutes all information they request. Similar regulations exist for PPIs and ACPs. Although required to provide data, the enterprises are willing to report the necessary information because the National Statistical Institutes guarantee the secrecy of the individual data of the individual enterprises. Moreover, the enterprises understand the necessity of having the statistics, but they do not want to lose time and money on calculating these statistics themselves if their competitors would not participate in the surveys.

For consumer prices there is a regulation on time coverage for data measurement, which is particularly important for vegetables and fruits, and other products that have volatile prices. Here, prices must be collected in the country during at least three weeks of the month. Member States report the collected consumer prices monthly to Eurostat and the results are published within two weeks after the reporting month. This means that consumer prices are available monthly. Producer prices are collected and reported monthly, and published around one month later. Agricultural commodity prices are collected and reported quarterly (budget constraints). Eurostat has so far solved this problem in the tables by attributing the quarterly data to each month of the quarter.

The retailers and food processors report respectively the consumer price indices and the producer price indices to the National Statistical Institutes. For the ACPs, farmers report directly to National Statistical Institutes or to cooperatives that represent farmers and then the cooperatives report to the National Statistical Institutes. This means that there is no price information flow in the food supply chains between the different stakeholders; there is a third party (Eurostat) that aggregates the data (Figure 4).

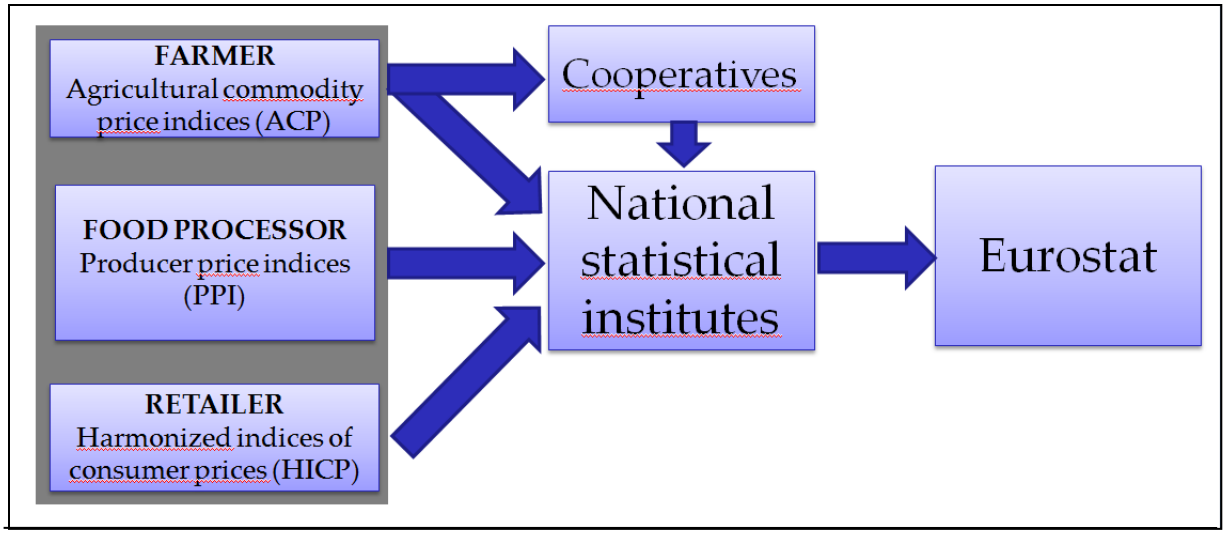

Figure 4. Information flow in the food supply chains of the European Food Prices Monitoring Tool.

Before 1996, all countries had their own consumer price index and used their own methods for data collection. When Eurostat started to collect European prices, they harmonized an important part of the process, focused on collecting price indices of comparable products, and agreed on certain aspects of the methods used. However, the primary focus lies in harmonizing the output of the statistics to make the output comparable and it is the task of the National Statistical Institutes to define the process and collect the data. Here it should be mentioned that there can be a difference in the process for different statistics (e.g., there is a different approach for collecting consumer prices, regional prices, producer prices, commodity prices). Currently, the emphasis is shifting towards harmonizing the process because it is believed that it would be more advisable to have one system that is applied to all countries.

Eurostat performs regularly monitoring visits to the European Member States, where they discuss the methodology behind the process of price collection and price processing. In this way, Eurostat ensures that all Member States follow the regulations and interpret the regulations consistently so that Eurostat is able to report comparable statistics. It may happen that, during such visits, Eurostat encounters interesting methodology problems (e.g., how to classify new consumer products in the COICOP, or Classification of Individual Consumption According to Purpose). In these cases, Eurostat works out a solution for these problems based on agreements with all Member States.

Strengths and weaknesses

During our conversations with the national expert and two representatives of Unit G-6 Price Statistics (Purchasing Power Parities) of Eurostat, the respondents expressed their belief that transparency created by the EFPMT is important (1) to achieve better price comparability, (2) to understand price transmission and price developments in the food supply chain, and as a result (3) to identify unfair competition, and (4) to inform policy making. The Confederation of the Food and Drink Industries of the EU (CIAA) supports the EFPMT that aims to report price developments and differences between Member States and sub-sectors in order to increase price transparency throughout the food supply chain. They acknowledge the importance of (1) improving the competitiveness along the food supply chain and (2) ensuring fair and market-based prices by providing better information to consumers, public authorities and market operators (CIAA 2009). Furthermore, the European Parliament is pleased with the tool in the context of rising food prices (Lyon and Reimers 2011). The European Dairy Association (EDA) believes that the EFPMT will improve information on the production of milk and milk products, which could help better adjust supply to demand (and consequently contribute to perfect competition) (EDA 2010).

In the EFPMT, price indices of agricultural products are compared along the food supply chain to evaluate price transmission. Agricultural products are only one of the inputs in the production process, however. Inputs such as labor, energy and transport – which significantly contribute to the added value of the final product – are not considered in the tool. Furthermore, not only can different sets of inputs be used to produce specific final

products, but also one specific input (agricultural commodity) can result in different kinds of final products, thus weakening price comparisons. For example, beef from cattle can end up in steak and in minced meat, each with different prices.

In addition, there can be differences between the production processes and products covered across Member States. Because of a high level of aggregation, the data of the tool represents broad categories of selected food products (e.g., bread and cereals) and not all production processes and products per Member State. For example, the retail price index for bread and cereals will include different products in Bulgaria as compared to Finland or Spain. As a result, the National Statistical Institutes attempt to identify representative samples of retail products within a certain core group to reflect specific national circumstances. The selection of sampled products may depend on consumption patterns within the country, and the selected products can differ between two shops depending on the assortment of produces within the shops. The retail prices are translated into price indices before they are aggregated and sent to Eurostat. As these are all products within the same core group and as the prices are expressed as indices, the retail prices become comparable. Moreover, the three main statistics (agricultural commodity price indices, producer price indices, harmonized indices of consumer prices) are not always available for all food products of all Member States, because in some countries particular food products are not produced and consequently data cannot be provided.

International trade is not reported because it is difficult to select the relevant trade flows and to have comparable data on price developments for trade of food products (EC 2009b). Eurostat acknowledges the importance of these international trade data. Therefore, Eurostat is currently investigating which international trade figures they can include (by using import price indices or by using Unit Value Indices based on detailed international trade data) and in which food supply chains, because all food supply chains are different and each situation may be different between countries.

Besides the EFPMT, other price monitoring initiatives exist, such as the Price Monitoring Tool of the Food and Agricultural Organization (FAO), and the Quarterly Food Price Monitor of the National Agricultural Marketing Council of South Africa (NAMC). FAO published the Price Monitoring Tool, which can be used to monitor developments in market prices by including monthly data for at least seven years on nominal market prices and consumer price indices. This tool is applicable for every type of food commodity and stage in the food supply chain (e.g., farmer, wholesaler, retailer). The output is a graph that indicates past trends in prices and future benchmark price developments (Dawe and Doroudian 2011). NAMC aims "to provide service of excellence to the Minister, Department of Agriculture and Directly Affected Group's (DAGs) on the strategic positioning of South African Agriculture in dynamic global markets." The Quarterly Food Price Monitoring Report is one of the publications of NAMC, which describes overall inflation and food inflation rates for South Africa and other selected countries, urban and rural food price trends, international food/commodity prices and trends. The reported data are obtained from Statistics South Africa (urban food prices and consumer price indices), AC Nielsen (urban food prices), Adcheck (retail prices) and FAO (food price indices on a monthly basis) (NAMC 2011). These initiatives indicate that there is a large interest in price developments. However, the EFPMT goes even further by aiming to display price transmissions.

5 Contribution to fair competition

In principle, price transparency should contribute to fair competition. By increasing the visibility of food price developments and price transmission, customers (food processors, retailers and consumers) become more price sensitive (demand elasticity should increase), which in turn should enhance competition among food processors and retailers.[8] This is particularly true when customers can compare price developments of substitute goods, since price transparency improvements would cover in detail a wider part of the relevant market, if not the whole relevant market. In this respect, the tool can be more effective in product areas where there is a clear distinction among product types (e.g., beef/pork/poultry meat, in contrast to oils and fats which are considered together). However, this effect depends largely on the visibility the tool will get. Since food processors and retailers will likely spend more time and money in monitoring input prices than consumers, it seems reasonable that food processors

[8] For example, in the case of water demand, Gaudin (2006) shows that when consumers are given information about the price of water on their water bills, their price elasticity for water increases by 30 percent.

and retailers will use it more than consumers will. In this regard, the possibility of processors and retailers comparing price variations among Member States can serve the purpose of the tool: if price differences among EU countries are high enough to offset transportation costs (and if one assumes national and foreign products to be homogeneous), producers might decide to switch suppliers from one country to another, thus enhancing the internal market for food products and the merits-based competition in it.

Nevertheless, the link between price transmission and fair competition need not be direct or automatic. On the one hand, imperfect price transmission can be compatible with fair competition, if, for instance, the imperfection is due to menu or reputational costs (EC 2009a) or the perishable nature of some food products (Ward 1982). On the other hand, a sound pass-through of prices does not guarantee a perfect functioning of the food supply chain because it does not preclude the possibility of rent extraction in case of monopsony power.

However, one could question whether the EFPMT is an effective way of creating transparency and thus fair competition. First, there is no transfer of actual price information between the different levels of the food supply chain. Rather, a third party (Eurostat) aggregates the data and makes them transparent. But aggregation at a national level and among specific products (cheese, milk, oils and fats etc.) might attenuate the ability of price signals to foster competition among specific products, especially if consumers are not interested in monitoring the tool on a regular basis. It is possible that other initiatives could better target these buyers, given the lack of comparability among retailers (EC 2009e), which is why the EC suggests internet tools at national levels to compare prices among retailers (EC 2009b).

Second, an improvement in price transparency could increase the risk of collusion among suppliers. The tool could harm fair competition if any of the product groups is characterized by a very “tight and stable oligopoly” (EU 2011, para. 89) in one of the three main levels of the food supply chain, especially in the last two levels (food processors and retailers), because of the more frequent data release. For this reason, the tool does not contain current price information (it is usually 45 days to six months), thus lowering the risk of collusive practices among food processors but also weakening its relevance (because prices information is not current).

Third, the tool displays a very simplified image of the reality, where price transmission is studied by comparing agricultural commodity, producer and consumer price indices, even though the correlations among these indices are not well understood. As stated above, the correlation between agricultural commodity and food producer prices is weaker than the correlation between food producer and retail prices. This might suggest that the agricultural sector is the weaker link in the food supply chain. However, since more value is created throughout the food supply chain by transformation activities, such as the processing of agricultural commodities into food products, rather than through transportation from processor to retailer, it is reasonable to expect that the three price indices do not present similar pictures.

In spite of these drawbacks, the EFPMT creates experience in price transparency and thus can contribute to debates regarding fair competition. Therefore, it will be important, but also difficult, to find the right balance between details (complexity) and understandability (transparency), as well as between potential positive and negative effects. Hence, there is a case for different levels of disclosure according to different market structures to maximize the positive effect of price transparency on fair competition.

6 Questionnaire

A structured questionnaire was constructed to assess the awareness and beliefs of scientists, company representatives, food cluster coordinators and ministry representatives (n=68) from 6 European countries were examined with regard to the EFPMT. The questionnaires were filled in by participants of Food Chain Management workshops organised in the scope of the project CAPINFOOD.

This questionnaire was constructed based upon the interview with national expert and two representatives of 396 Unit G-6 Price Statistics (EUROSTAT). It comprised two parts: the first part asked details about the participant and the second part was about the EFPMT. Between the two parts, the participants received oral and visual information about the tool and its possibilities.

In total, 68 participants completed the questionnaire of which 9 in Slovenia, 11 in Bulgaria, 17 in Romania, 9 in Montenegro, 10 in Greece and 12 in Serbia. Almost 35% of the participants worked in the academic world (e.g. professor), around 25% in public research organisations and laboratories, 20% in food organisations and business centres, almost 10% in food companies and 10% at a ministry of Agriculture.

Although the sample was rather diverse, no one of the respondents could give the correct name of the tool. Next, a question examined which were the most interesting properties of the tool by listing some properties (based upon the interview) and asking if they found them interesting. The index view and the fact that data for each point is available where definitely the most important aspects of the EFPMT according to the respondents. Most respondents also find the fact that there are different food categories available an interesting feature of the tool. Although respondents had the possibility to add additional interesting features, none of them did.

Table 1.
Most interesting properties of EFPMT according to % of respondents

Index view	86.8
Year-over-year view	32.4
Comparison among different countries	16.2
Different food categories available	57.4
Data about different types of price (agricultural, producer, consumer)	39.7
Data for each point available	86.8

The respondents were asked if they thought that EFPMT should be improved. Five respondents commented that they didn't know because they have a rather limited experience with the tool. Ten respondents stated that they wouldn't change anything of the EFPMT while the majority of the respondents would like to see one or more adaptations to the tool. These respondents could choose possible improvements from a list (based upon the interview with the national expert and two representatives of EUROSTAT) and even add additional improvements (Table 2). The respondents that selected 'other' mentioned that the tool should also include consumer buying power and that the user-friendliness of the EFPMT should be improved.

Table 2.
Possible improvements to the EFPMT in % respondents (n=53)

More specific information about food products as now only information on broad categories is available	34.0
Include international trade	24.5
More information on the real price as now only index and year-over-year information available	49.1
Take other factors like labor, energy and transport into account	35.8
Use more current price information (current delay of 45 days to 6 months)	17.0
Take the different kinds of final products into account. (For instance: beef from cattle can end up in steak and in minced meat, each with different prices)	43.4
Other (please specify)	3.8

The respondents 'opinion regarding the importance of the tool for establishing price transparency was assessed by asking to evaluate five statements on a 7-point Likert scale. We asked to which extent they (dis)agree with the following statements: This tool is important to:
…...achieve better price comparability
…understand price transmission and developments in the food supply chain
…ensure fair and market-based prices
…improve the competitiveness along the food supply chain
…switch suppliers from one country to another if price differences in the other country offset transport costs
Results (Figure 5) show that most of the respondents have positive beliefs about the contribution of the tool to price transparency in the European food chain.

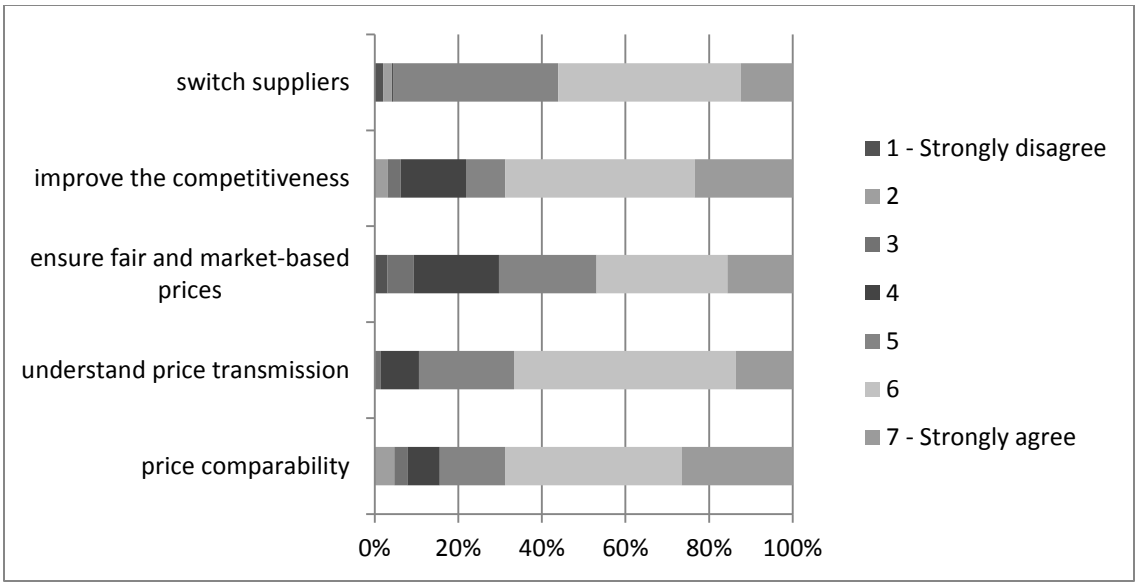

Figure 5. Agreement on statements about importance tool on a 7-point Likert scale with 1= strongly disagree and 7 = strongly agree (n=65)

Almost 88% of the respondents indicated in the last question that they would use the tool for their profession. Most respondents who were not interested in using the tool commented that their profession did not require any information about food prices.

7 Conclusion

Price transparency should contribute to fair competition by increasing the visibility of food price developments and price transmission. Although the EFPMT is a first step to enhance the price transparency in the European food chain, some improvements needs to be made according to scientists, company and ministry representatives.

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