



# **Distribution of the added value of the organic food chain**

Executive summary

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## Executive summary

### Background and objectives of the study

Organic farming has been identified as a key element in sustainable management of Europe's natural land-based resources. For this reason, the overall objective of the current EU political and legislative framework is to ensure sustainable growth in European organic production. This requires that organic farming develops in line with the organic market in the EU. Data on the development of organic land use and the market for organic food in the EU suggests that this is not the case. In the last ten years the EU organic market has grown twice as much as the EU organic land area. Consequently, the question arises, whether farmers are able to exploit the full potential of the EU organic market and how much of the added value created in the organic food sector is captured by farmers.

Against this background, this study investigates the distribution of added value along a number of organic food supply chains and focuses on whether organic supply chains function effectively and efficiently. More specifically, the following three issues are addressed:

- **Theme 1:** How much added value is generated by the organic food supply chain? How much is it in nominal and relative terms compared to the conventional sector, and who are the market players benefiting from it?
- **Theme 2:** How is the added value distributed among market players in the supply chain and how much of it returns to agricultural producers in particular?
- **Theme 3:** What factors influence the formation and distribution of added value for each relevant actor in the supply chain, including agricultural producers? How can added value be increased for the key market players?

By answering these questions, the study aims to contribute to a better understanding of the dynamics of the organic market and whether there is sufficient added value for European agricultural producers<sup>1</sup> to motivate them to take up organic farming.

### Scope and approach

The **scope** of the analysis is the downstream stage of the food sector, with the production of agricultural raw commodities as a starting point. The term **added value** as used in this study is defined as product-related outputs valued at basic prices less product-related intermediate consumption valued at purchasers' prices. Hence, the analysis of added value does not include the entire economic activities of an actor or an industry but only those that are related to the production, processing and distribution of a particular product. To calculate the product-specific added value for each actor of the supply chain, it is necessary to specify the revenues and costs

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<sup>1</sup> For reason of simplification, we call agricultural producers in this report either “producer” or “farmer”, while processors are called either “processors” or “miller”, “pasta-maker” and “dairy”, respectively, but not “producer”.

related to the production, processing and/or distribution of the product at each supply chain stage. The total of the individual values added at each stage along the supply chain gives the total added value of the chain.

The in-depth analysis of the distribution of the added value was done in 18 case study supply chains in nine countries (Czech Republic, Germany, Denmark, Estonia, Spain, France, Hungary, Italy and the United Kingdom) and for three products (drinking milk, apples and durum wheat/pasta). The countries studied, represent three organisational structures of the EU organic market: (a) markets predominantly based on imports from third countries; (b) markets predominantly based on the internal production; and (c) markets that are currently emerging within the EU and still developing structurally. The products cover the following types of market dynamics: (a) high production volumes within the EU with stagnant or positive growth rates; (b) low production volumes within the EU but with strongly positive growth rates; and (c) low production volumes within the EU with low or no growth rates.

### **Creation of added value in organic food chains (Theme 1)**

Theme 1 explores how value is added, which actors along the supply chain are benefiting from the added value and what is the value created in the supply chains of the three selected products in nominal and relative terms, as compared to the non-organic sector. The analysis is based on organic market statistics, relevant scientific literature, and quantitative and qualitative data derived from interviews with experts of the chosen product supply chains in nine case study countries.

The results indicate that organic supply chains do not differ substantially in **structure** from conventional supply chains in many countries. In contrast to literature that represents organic supply chains as an alternative to the mainstream food system, market data shows that in many European countries between 40 % and 90 % of organic food is sold in general retail. It is therefore not a surprise that the typical supply chains analysed in the framework of this study are mostly integrated into the mainstream food system, except for organic apple supply chains in Estonia and France, and organic pasta in Spain and Italy. According to the interviewed experts, the added value created in the organic sector reflects the specific quality of the organic products and the increasing consumer demand for organic food, which represent the main strengths of the sector.

Opportunities to create added value in the organic supply chains to the benefit of farmers, arise from co-operation among organic producers resulting in increased bargaining power and the creation of supplier or regional organic brands, special agreements between upstream actors and retailers for high quality products, investments in processing, direct marketing, and from product innovation and differentiation. The small scale of production and a limited number of actors was identified as a major weakness of the organic supply chains in the literature and by the experts. This results in fragmented chains and high transport costs, which may encourage producers to sell to larger and more powerful market actors, as illustrated by the processing stage of milk in the Czech Republic and Spain, and durum wheat in the Czech Republic, Hungary and Spain. Larger scale production allows producers to reduce costs, but product differentiation through innovation, supply chain integration, cooperation and bargaining power remains critical to obtain sufficient output prices. Collaboration



between upstream actors and retailers (either specialised or general) resulting in specific agreements can result in high quality (niche) products, which achieve a relatively high price (e.g. pasta in Italy).

To analyse **how much value is created** in organic compared to conventional supply chains, average organic and conventional farm-gate and retail prices were compared for the three products. The difference between the two prices can be understood as the value that is created in the supply chain or added to the agricultural raw commodity along the supply chain.

In the supply chain case studies, farm-gate and retail prices are premium prices for organic production and are thus higher for the organic supply chains compared to the relative conventional chains. In most cases, the difference between retail and farm-gate price is higher for the organic supply chains. The organic farm-gate prices represent a proportion of between 9 % and 62 % of the retail prices, while the proportion is between 6 % and 40 % in the conventional supply chains selected for the analysis. We also observed an asymmetrical price transmission from producers to consumers, especially for products like organic pasta, which involves more stages of processing operations (milling and pasta making). Organic farm-gate prices appear to be linked to the farm-gate price for conventional products. In countries with low farm-gate prices for the conventional product, the organic price premium is also lower than in countries with high farm-gate prices for the conventional product and vice versa. The type of market (emerging, internal, import reliant) is not a major factor influencing the opportunities for value adding in the organic supply chains.

### **Distribution of added value in organic food chains (Theme 2)**

The distribution of added value is analysed across different actors of the supply chain (e.g. producers, wholesalers, processors, retailers) and how much of it returns to agricultural producers. For each organic supply chain and supply chain actor (a) the price and unitary<sup>2</sup> gross value added formation as well as (b) the distribution of the gross value added were calculated. However, it was only possible to calculate the total unitary gross value added for those organic supply chains for which a complete data set from all involved supply chain actors were available.

Seven specific **drinking milk supply chains** were analysed: two in the Czech Republic (emerging market), two in Estonia (emerging market), one in Germany and in France (both internal market) and one in Spain (import market). The total unitary gross value added in the French and German cases representing internal markets is highest and very similar (France: 0.53 €/l; Germany: 0.51 €/l). It is lowest in the two Czech supply chains (Supermarket: 0.23 €/l and (Specialised food shop: 0.34 €/l). In the Czech, Estonian and Spanish case studies, the unitary gross value added at the producer level amounts to between 0.01 and 0.04 €/l milk and thus accounts only for 3 % to 12 % of the total unitary gross value added. The retailers in the Czech Republic and Spain and the processors in Estonia hold the highest share of the total unitary gross value added. The two internal market case studies, Germany and France, showed the highest share of added value at the farm level and a proportionally lower share at processor level. In the German drinking milk supply chain this is due to the fact that

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<sup>2</sup> Unitary gross value added refers to one kg of pasta or apples, or to one litre of milk.

the producers formed a producer group, which pools the produced milk and negotiates the price with the dairies, putting the producers in a more powerful market position.

Eight organic **apple supply chains** were analysed: two in Italy and one in France (internal markets), two each in Hungary and Estonia (emerging countries) and one in the United Kingdom (import market). In the apple supply chain case studies, the total unitary gross value added ranges between 0.92 €/kg in Hungary (specialised shop) and 2.74 €/kg in the United Kingdom (supermarket). The apple producers hold between 21 % (Italy) and 64 % (Estonia) of the total unitary gross value added. In Estonia and Hungary (emerging markets), the highest share of the total unitary gross value added is obtained by the apple producers, whereas in Italy and the United Kingdom the highest share lies at the retail level. This result probably reflects the different market conditions across countries: Italy and the United Kingdom have a more mature organic market; with a structure that provides downstream supply chain actors greater market power. In emerging markets, producers are still able to get greater returns, given the limited domestic supply, niche domestic market demand and largely unstructured, emergent supply chain. The unitary gross value added varies considerably between the distributor and wholesale level, depending to what extent they provide or take over services such as cold storage, packing and distribution. For the Italian and the French case studies, the share of the unitary gross value added at wholesale level is remarkably high. These two case studies were conducted in regions which are highly specialised in organic fruit production. The wholesalers in these regions play a central role, providing services for transport, storage, calibrated packaging and distribution.

Eight organic **pasta supply chain** case studies were conducted: two each in Germany (import market) and Italy (internal market), and one each in the Czech Republic and Hungary (emerging markets), in Spain (internal market) and in the United Kingdom (import market). In the pasta supply chain case studies, the total unitary gross value added ranges from 1.50 €/kg pasta in Czech Republic (specialised shop) to 2.29 €/kg in Spain and 2.65 €/kg in Hungary. The unitary gross value added of the producers is lowest in the Spanish and the Czech case studies (0.08 €/kg and 0.09 €/kg respectively), and it is around 0.15 €/kg in Hungary and Italy. In relative terms, the total unitary gross value added of the pasta makers is the highest (54 %) in the Italian supermarket supply chain. In the Czech and Spanish as well as the German specialised shop supply chain, the retail share of the total unitary gross value added varies between 32 % and 48 %, and it is 7 % to 19 % higher than the share of the pasta makers. In four cases (Czech Republic, Spain, and the specialised shop supply chains in Germany and Italy), the distribution of pasta from the processor to the retail is undertaken by a wholesaler, which covers 16 % to 26 % of the total unitary gross value added. In the German and Italian case studies, a broker or elevator between the producer and the miller is included. However, the brokers' shares of the total unitary gross value added are quite low corresponding to about 1 %. Two pasta supply chains from Hungary and Italy operate in a niche market for special pasta types, and show high vertical integration which provides benefits in terms of added value particularly for processors but the producers seem to benefit less.

### **Factors influencing the formation and distribution of added value in organic food chains (Theme 3)**

A panel of experts for the selected supply chains in the different countries provided views and evaluations regarding the repartition of added value along the different supply chains and countries involved in the study, aiming to identify possible differences in market power between the various market actors.

An Analytic Hierarchy Process (AHP) was used to elicit expert information on the **process of added value formation** for the three supply chains. Added value formation can be disaggregated for each supply chain actor into price-related and volume-related components. By doing so, the specific relevance of factors for the added value created in organic supply chains can be identified. The price component reflects the importance of the gap between output prices and intermediate input prices in the process of added value formation (the higher the gap, the greater the positive effect on the formation of added value, and vice versa). The volume component refers to the role of production capacity in the process of added value formation (the higher the quantities produced, the higher the positive effect on the formation of added value, and vice versa). AHP allows ranking the importance of these two added value components by supply chain, actor and country. The analysis considers three main actor categories: farmers, processors and distributors (including retailers and wholesalers) for the supply chains of pasta and drinking milk, while for the apple supply chain, the analysis was limited to farmers and distributors. Experts were asked to evaluate the perceived importance of the price and volume added value component.

For the added value in the drinking milk supply chain, generally, the experts perceive the importance of the farm level as particularly low, with processors and distributors playing a clearly dominant role. Some differences emerge in terms of the relative importance of producers in the added value formation. The results of the specific unitary gross value added analysis show a higher share of added value at farm level for Germany and France. The price component emerges as the main factor in the milk supply chain, for all market actors in most countries.

As far as the formation of added value in the organic apple supply chain is concerned, the relative importance of distributors is higher for the United Kingdom, Italy and Hungary, while farmers have the greatest importance in France and Estonia. The Estonian organic apple market is a small niche market with higher demand than supply which may explain the prevalence of the price component for farmers in the creation of added value. In the French case, this could be due to a growing demand but there are no robust price data for fruits in France, which would allow proving this statistically.

For the pasta supply chain the overall picture is quite diverse between countries in relation to the relative weight of market actors. Italy shows the lowest relative importance attributed to farmers in the added value formation process, and the highest for distributors. Germany shows a similar distribution, though with a higher share for farmers' added value component. Spain shows a rather balanced distribution of the importance attributed to processor and distributor, while processors dominate the distribution of components for Hungary. Also for this supply chain in general, price components are the most relevant in the process of added value formation, with some exceptions, especially for Spain.

In general, the price component is considered as the most relevant at farm-gate, processor and retail level, though with some exceptions. As a result, the retail price is the most relevant elementary added value component. Other highly ranked elementary added value components are: sale prices for processors, efficiency at distribution level, and the plant productivity for processors.

In addition to the evaluation of the contribution of price and volume components, we provide an analysis of the **factors** positively or negatively **influencing** the formation of added value and market share. Experts were asked to provide a list of relevant factors that refer to marketing aspects, management strategies, and consumer preferences etc. for each supply chain. Results show that on the supply side, the main opportunities are expected from increased price competitiveness at farm level, improved efficiency of production and improved production both in quantity and range, through bulk and wide-ranging supply as well as assurance of constant availability that should also result from improved storage facilities to ensure availability. Threats refer mainly to low profitability at farmer level and to low competitiveness of domestic production.

On the demand side, quality driven demand, consumer driven local production and consumer and retail driven market development are considered as the main aspects to consider for improving added value. The need for establishment of leader brands and market concentration is also considered to provide a positive effect, but an excess of market power concentration at retail level is also mentioned as having potential negative effects for added value creation. Other main obstacles are expected from the lack of marketing orientation and inefficient management at retail level.

Finally, several factors refer to general aspects of the supply chain organisation. Opportunities in terms of added value improvements are expected from a more quality-oriented and efficient supply chain organisation and improved product differentiation by local/premium brands. Government support and public sector procurement are also considered as having a positive role in the process of added value creation. Conversely, the main obstacles refer to the lack of critical mass due to inefficient small scale production, and to aspects related to standards and quality such as inefficient logistics to meet quality requirements as well as high costs and standards along the supply chain that represent a challenge in the organic supply chains.

## **Conclusions**

This study shows that organic farmers receive higher prices than conventional farmers, but the producers' share of the total added value created in the entire supply chain remains relatively low. Comparisons of farm-gate and retail prices suggests that also in the organic sector there is a limited link between agricultural commodity prices and the price premium paid by consumers.

There are differences in how added value is created and distributed along the chain in the case studies in the countries. These differences are mainly due to the structure of the supply chains (including in particular the level of supply chain integration) and the availability of special processing and marketing facilities for organic products. Such capacity is lacking mainly in some

emerging markets, for example for pasta making in Spain and for milk production in the Czech Republic.

A number of contingent conditions, such as power relations among market players and collaboration, play a major role as well. The market size also has an impact on the creation and distribution of added value in a limited number of cases, in which farmers obtain a greater share of gross value added in the bigger internal markets, where supply is lower than demand. The stage of development and the outlet or sales channel seem to only have a limited effect on the added value in the investigated organic supply chains.

All retail outlets provide opportunities for improving the farmer share of added value depending on their approaches to marketing organic products. Along with increased consumers demand for organic food in the EU, this presents a strong case for encouraging special agreements between producers and retailers, the development of producer brands and investments in quality aspects.

Small scale of production and the limited number of operators willing to invest in special facilities dedicated to organic produce still represent major barriers to the development of the organic market in most of the case study countries. However, there are a few exceptions such as in some emerging market countries where producers make use of niche market opportunities, or in some mature market countries on where cooperation is more likely to happen. Policy intervention should target both production as well as investment in post-production capacity so that market potentials represented by the growing market for organic products can be realised.

This study makes it clear that strategies and models for a fairer distribution of added value in organic supply chains exist, but they need to be adjusted to the specific contexts. In order to do so, availability of market data is a key issue and market transparency is critical in order to assist market players and policy makers in their decisions. The improvement of the availability of market data at all levels of the supply chains should be a key priority for the future development of the organic sector.

