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Legal-Economic Barriers to Price Transfers in Food Supply Chains¹

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Abstract: Recent price movements have put food supply chains under pressure. On the one side, upward price tendencies on commodity markets result in higher costs to processing firms. On the other side, these firms are confronted with a strong retail sector that is able to prevent compensation to protect consumers' and own economic interests. Regulatory impediments of European law, especially with respect to foodstuffs, can adversely be utilized as barriers to protect the interest downstream the supply chain. The problem is that legal-economic instruments which can serve to smooth price volatility in supply markets can also opportunistically be used at the expense of the middle-section in food supply chains (i.e., mainly small and medium sized producers). The aim of this article is to identify the legal-economic mechanisms that effect price transfers in food supply chains in the European Union and define policy adjustments to improve pricing mechanisms, while safeguarding the interests of the processing industry. Policy alternatives to improve the smooth functioning of notably intermediate markets in food supply chains are the restructuring of competition law, improved processor information management and creating transparency of value added in the supply chain by means of labelling devices.

Keywords: supply chain, price movements, legal system, food supply

Introduction and objective

Effective price transfers within a supply chain are of key importance for the functioning of a competitive European food processing and procurement system (cf Ben-Kaabia and Gil, 2007). Recent volatility in fuel and connected food prices has shown that such transfers encounter barriers within food supply chains. Some of the price movements can be absorbed within the food supply chain, for instance by shrinking profit margins, accounting anomalies, or the exercise of market power invoking a redistribution of costs and benefits over the supply chain actors. Ideally, using economic reasoning, price movements of commodities which serve as input for food production should, depending on price elasticities and with the absence of market imperfections, be translated in changed selling prices. Downward moves of food prices are not only induced by price decreases on world markets for inputs (like of soymeal which is used as feed), but also by increased productivity (Pelleyni, 2007), economies of scale, and process or product innovation. Higher wages and profits can be expected if the

benefits of such efforts are fully transferred to final markets. The practice, however, is that smooth price adjustments are hindered. As we will argue this is among other factors caused by the legal environment. In this article we focus on legal-economic impediments which hinder pricing flexibility from a supply-chain perspective. In effect we focus on the squeeze of producers in the middle section of the supply chain, (to be understood as producers, not being primary or feed producers). A lot of these producers are small to medium-sized (i.e., maximally 250 personnel).

This paper aims to investigate the legal-economic barriers which are vested in the institutional (i.e. legal) environment which determines the transfer of price movements along food supply chains. Specifically, does the EU food law affect pricing flexibility? If yes, what legal-economic measures could be taken to improve price transfers in food supply chains?

We first define a theoretical framework which enables us to identify the factors affecting price movements in food supply chains. Next we categorize the different barriers which impede on flexible pricing, and provide empirical

¹ This paper is among others based on contributions to EU-projects of the authors. The main source has been the Study on the Competitiveness of the Meat Processing Industry (European Commission, 2011), especially § 2.5, of which the primary text has been supplied by the main author of this contribution. However, the content of this article is a responsibility of the mentioned authors only.

evidence of the adverse effects of the legal system on the smooth functioning of food production, procurement and marketing. Finally we define policy alternatives for improving the pricing of food products along the supply chain and will point at ways to improve the food law system.

Theoretical Framework

Williamson (2000) has pointed out that social phenomena are influenced by and can be studied at different levels: cultural embeddedness, institutions, governance and resource allocation.

At the highest level of analysis, the 'right to food' at reasonable prices stands in moral competition with the prime objective of the European Union of realizing a competitive internal market (*cf Stigler*, 1992).

At the institutional level, neo-institutional economics has pointed out that market imperfections obstruct the smooth transfer of costs and benefits from one actor in the market to another. Market imperfections obstruct the reflection of the real costs and benefits in market prices (*Traill and Konig*, 2010, p. 1612; *cf Kuosamen and Niemi*, 2009). From a neo-classical point of view, conditions to realize effective price movements are not met in practice. Markets conditions would have to be transparent, an abundant supply homogeneous product would have to be available and the market would have to provide free entrance, while un-priced hidden externalities should be absent and property rights well defined and protected. If reality would be constituted like this, the market would generate maximum benefits for society, given the income distribution (*Traill and Konig*, 2010, p. 1612). The role of government would be limited under these circumstances. Perfect market conditions are not met in practice, which makes price volatility not to reflect economic changes. It is not even the aim of European authorities to reach such a situation.

At the governance level transaction costs can impede price transfers from on stage in the supply chain to another. Transaction costs are the costs for acquiring the appropriate information, as well as bargaining and enforcement expenditures which have to be made in the market exchange (*Coase*, 1960). It takes into account contractual incompleteness, contracting costs, and adverse (irresponsible, opportunistic or irrational) human behaviour in explanatory economic models (*cf Doyle*, 2007). The legal system, as a major source of transaction costs in the institutional environment (*Ogus*, 1992) should be addressed to be able to predict market irregularities like incomplete price transfers (see on the structure of the food law system: *Van der Meulen and Van der Velde*, 2008; *Cacic et al.*, 2007).

At the level of resource allocation, price movements are signals for the (re)allocation of business resources. Full price transfers are defined as follow-up prices in food supply chains that represent the relative weights of the inputs in semi-finished and finished products.

In this article we mainly focus on the effects of European public and private food law on price transfers. The regulatory system is viewed as influenced by cultural norms and standards and to affect contractual arrangements, the functioning of markets and the allocation of resources. As such, it forms the central regulatory system to affect the playing field for businesses. So the regulatory system is a part of the institutional environment that frames the transfer of goods from one actor in food supply chains to another. Legal requirements, rules and regulations can cause market failure, as well as counteract it. The potential of market failure is an intrinsic element of food supply markets, since foodstuffs are credence goods. This means that by ex-ante inspection the intrinsic quality of the food and its marginal contribution to personal utility cannot be assessed. Often the consumer has no idea of the road a foodstuff has taken until it reaches his or her plate. It is a task of the European legislator to oppose the imperfect and or asymmetrically distributed information in supply chains, as information distortions can provoke opportunistic behaviour.

Legal requirements (or their absence) in the food supply chain can increase transaction costs at different stages for all participants. Rules and regulations can have a positive as well as a negative effect on the functioning of food markets. On the one side, rules and regulations provide clearness and a 'level playing field', on the other side the monitoring of compliance and the implementation of rules and regulations contribute to the operational and administrative burdens of actors on the in the food chains (*Heyder et al.*, 2010). Specific legal impediments to market flexibility are addressed in the next sub-paragraph.

Legal Impediments to Pricing Mechanisms

This section addresses the impact on price distortions of: food safety and quality preservation, product liability, competition policy, labelling requirements, impact of food regulation on innovation and cost structure in-transparencies.

The Problem of Food Safety and Quality

Nowadays, the European system of food law is largely designed to protect consumers from unsafe food. The ban of unsafe food from the European market is well within the range of goals set out in the Treaty on the (Functioning of the) European Union and proclaimed in Article 14 of the General Food Law (Regulation [EC] 178/2002; GFL). The GFL is a direct result of food safety incidents which occurred at the end of the 20th Century. The GFL makes part of an effort to redesign the legal system with the intention to regain consumer trust (*Knowles and Moody*, 2007; White Paper on Food Safety, 2000). Several incidents provided a wake-up call for the European food regulators and induced a turnaround in policy: from producer to consumer's focus, and from a single business unit to a holistic approach

covering all stages of the supply chain (“from farm to fork”). Hygiene of food is controlled –among other- by means of the implementation of Regulation (EC) 852/2004, which is best known is the HACCP-requirement (cf. Hobbs, 2010). This set of rules is nowadays mandatory in the meat & poultry industry (cf. *Unnevehr and Jensen, 1999; Maldonado et al., 2005*). However, it is also costly to the industry (*Bremmers et al., 2010; Hobbs, 2010*).

Quality and risk management serve as instruments to come up to the requirements of the consumer in increasingly complex global markets. They reduce the consumer’s transaction costs in assessing the status of the products he/she buys. However, while systems like ISO, HACCP, Global-GAP reduce transaction costs to customers, they represent a significant cost factor for processors upward the supply chain (*Loader and Hobbs, 1999; Sredojevi et al., 2008*). Moreover, while on the one hand public agencies proclaim standards for risk management systems and minimal levels of contamination, on the other hand in practice food companies – especially those that operate on a global scale – even surpass public requirements by setting private standards and adhering to strict contractual requirements. An obvious reason for this is to avoid the adoption of a multitude of control systems, each one coming up to different national requirements, as well as avoidance of negative publicity and liability. The costs of food safety and quality systems are not easily to be measured in isolation, apart from adjacent business functions. It is the complementarity and integration at a system level (for instance with social and environmental protection management) with similar functionalities that diffuses the boundaries of costs and benefits. This diffusion provides a ‘pricing slack’, which can be used to absorb short term input price volatilities. In other words: the effect of sudden price changes in other cost categories (like input of raw material – soy, maize, meat etc.) can be flattened out by under- or overstating the tacit costs of risk control and management systems. We assert that the character of the cost structure in food firms – including the costs of safety & quality systems - is one of the explanatory factors for the discerned smoothening and/or absorption of price shocks along the supply chain.

The Problem of Product Liability

Product liability is a legal instrument to empower the consumer to claim damages to his personal health from the producer, in case of product deficiencies. The food and feed producer is primarily responsible for guaranteeing safety and compliance (*Dwinger et al., 2009; Cumbers et al., 1995*). However, if the original producer cannot be identified (which can be the case if a product is sold under ‘private label’) the retailer can be made to pay and will be considered as the

‘producer’. Via contracting the retailer can shift the burden to the processor again. This practice becomes distorting in a situation of bilateral information asymmetry. If players are dependent on each other to provide the consumer with safe food, and the measures which are taken by one actor are not visible and/or controllable to the other, one party opportunistically could economise on prevention costs to the expense of the other (similar to the moral hazard risk under collective insurance).

As a side-consequence, the liability of chain actors upward the supply chain has a positive impact on the power of the consumer and notably the retailer,² who provides the gateway to the consumer market. Increased efforts to reduce the chance of liability at the processor’s stage of the supply chain are likely to be harvested at the retailer’s stage (*Dobson, 2003; Dobson et al., 2003*). So risk control measures reduce transaction costs for some actors (retail, consumer) in the supply chain (*Hobbs, 2010; Heyder et al., 2010*), while they boost these costs for other. Or stated more specifically: the costs of system implementation can change the cost structure at the processor’s stage, without guaranteeing a compensation in the form of a bigger portion of value added.

The problem of competition regulation

The Treaty provisions relating to competition intend to safeguard ‘effective’ (not ‘full’) competition within the European Union. While Article 101 of the Treaty on the Functioning of the European Union (TFEU) addresses the incompatibility of agreements between undertakings and concerted practices, Article 102 TFEU opposes the abuse of a dominant position (*Berry and Hargreaves, 2007, p. 262* and next). However, legally as well as in practice, exemptions are made to the prohibition of agreements and concerted practices. Article 101(3) TFEU provides as motivations for exemptions the improvement of production as well as prospected economic progress which benefits the consumers. No safeguard is provided to protect small and medium sized companies against adverse business practices of the retail sector. However, SMEs are considered by the European Commission as of viable importance to the European food industry. In fact, more than 95% of all food firms can be categorized within the SME-range (*CIAA, 2006*). Contractual dependencies are also created by means of private labelling. As large retailers hold the access key to the consumer, SMEs will be dependent on them for market entrance and/or sales. This dependency relationship constantly gains in strength and induces economies of scale, as well as loss of traditional production (*Dobson, 2003*). Notably, retailers in general prefer homogenized produce because of food safety and risk management reasons as well as desired flexibility in procurement (inter-changeability of

²But not in all cases. See for instance case C-315/05 *Lidl Italia Srl v Comune di Arcole* (liability of distributor for incorrect alcoholic strength on the label).

processors). It opens the opportunity to force SMEs to absorb price movements on commodity markets, at the expense of their profit margin. In the short run the consumer will possibly benefit, but in the long run he will lose as the ability to choose becomes narrower. If the hypothesis holds that there exists a power disequilibrium between a heavily concentrated retail sector and a diversified and abundant amount of SMEs (Weldegebruel, 2004), which rely mainly on large retailers to reach the consumer (Gronden and Hertog, 2008), the idea might be projected to arrange for a 'countervailing power' in the contractual negotiations with retailers. However, competition law would not allow this. It could be expected that the consumer will be confronted with higher prices. Evidently, it would not only lead to a redistribution of value added over the supply chain, but also to price increases and loss of purchasing power at the customer's stage. As it is, retail companies can limit the access to consumer markets via contractual arrangements or even by denying access at all. Refusal of access to shelf space for sale of branded products can easily be motivated by pointing at the shelf space's opportunity costs. So the retailers choose for suppliers that provide the highest contribution to their goals, such as profit maximization. Abuse of market dominance is therefore not easily proven, unless clear-cut refusals or pressure is exerted (c.f. Berry and Hargreaves, 2007, p. 301).

The problem of Labelling Intransparency

Food labels serve to inform the consumer about – among other – the compositional and nutritional characteristics of a foodstuff, so that he/she can base his/her choice on solid information. More than 100 directives and regulations are applicable to food labelling, advertisement and consumer information of foodstuffs, the main of which is Directive 2000/13/EC, which is replaced by a Regulation on the basis of Proposal COM(2008)40, but is still applicable in a transitional period. The transfer of price movements along a supply chain can be monitored with more ease if the relative proportion of an ingredient is revealed on the package. However, this is only legally required in specific and exceptional cases (for instance if an ingredient is depicted -in a picture or in words- on a package. So on the one hand detailed quantitative information in the form of the weights of all ingredients could be useful to detect pricing anomalies. On the other hand, the publication of all ingredients in weight would certainly conflict with the firms' strategic (competition) interests (like would be the case with the brand and foodstuff 'Coca Cola', the real composition of which has remained secret over decades, until now). Labelling requirements are by themselves – because of their complexity and scattered nature – sources for transaction costs, and do not help to analyse the transfer of price changes along the supply chain. In defence it should be added that this is also not the primary aim of labelling (compare in this respect: Gellinck and Kühne, 2007; Verbeke and Roosen, 2009).

The Problem of Innovation Compensation

It is generally acknowledged – by European policy makers (Lisbon Summit, 2000) and other food network actors – that innovation provides the key to competitive advantage (as was already the case in the seminal work of Schumpeter). Traditionally, many retailers leave the effort of product innovation to the processing stage of the supply chain. However, such innovation expenditures have to be recovered by increased consumer's willingness to pay. Given the disequilibrium in power structure of supply chains, the benefits of innovation can more easily be harvested by actors near to the consumers' markets. Pressures on profit margins through input price movements may therefore be forced to be absorbed by delaying the recovery of costs of product innovation, or postponing innovation investments in firms upward the supply chain. Such effects will possibly be positive for the consumers in the short run, but detrimental in the long run (see in this respect: Poppe et al., 2008).

The system of European food law – by its very nature and structure – contains barriers to price transmission due to long-lasting, in-transparent and costly procedures for market admittance of novel foods (that is foods which have not been introduced to the European market before May 1997), food with health claims, and for food generated through genetic modification. In some cases, total bans or zero tolerance policies make entrance to the EU market virtually impossible. Innovative firms to be found in the middle section of the supply chain have no choice than to homogenize their produce and focus on short term benefits through process innovations as well as organizational restructuring and integration (i.e., by means of mergers and/or submitting to dominant players by adjusting to generic product and processing schemes, like is the case with Global-GAP).

The problem of Cost Structure Intransparency

Cost structures of food firms are intransparent (Roberts et al., 1997) while at the same time they influence price transmission (Vermeulen et al., 2007; Ollinger and Müller, 2003; Gellinck and Kühne, 2007). There are property rights reasons which prevent the revelation of the real composition of cost prices of single products in the food industry. As a consequence, any price effects on the distribution of value added in the supply chain is therefore hidden also (cf Crutchfield et al., 1997; Ragona and Mazzocchi, 2008). The present European law system on external financial reporting does not help in this respect. Based on Directive 78/660 on the annual accounts of certain types of companies, it is aggregate, retrospective, firm- instead of product-oriented and diversified, and also in comparison to alternative reporting systems, like in the USA. While the continental reporting system is based on positive law, the Anglo-Saxon rules reflect the aim of providing information that comes up to the principle of "substance over form" (as is the case in the GAAPs). The character of present EU financial reporting

guidelines does not facilitate the tracking and tracing of price changes along food supply chains, especially if production is heterogeneous (i.e., composed of multiple ingredients) and/or purchase of inputs is organized globally. The main obstructing factor in monitoring price transmission is secrecy and centrality of the consumer. It appears that the ultimate positive effect to the consumer is regarded as more important than the distribution of value added over the supply chain actors. Possibly the absence of criteria for a fair distribution of value added and measurement problems with respect to the attribution of costs have added to this tendency.

The previous exposure has basically been based on logic and deductive reasoning. In the next paragraph we provide empirical evidence on the impediments of the regulatory system of the European Union.

Empirical evidence

In this section we provide empirical evidence on the adverse consequences of the European food law system from the perspective the food firms. We focus on the consequences of adverse quality of food law with as dimensions content and the context of a competitiveness study for the European Union in 2007 (Wijnands et al., 2007) data were gathered and analysed on the factors affecting the competitiveness of the food industry. More specifically, data on the effect of the legal system on exports of the EU were gathered and analysed.

We performed a regression analysis on the 2007-data using Partial Least Squares to assess the relationship between the content of the legal system (CON), its Predictability and Clearness (PREDCL), the innovativeness of the food sector (INN), the level of administrative burdens (ADM) and the introduction of safety and private systems for enhancing quality (SAFPRIV). The dependent variable was the exporting capabilities to countries outside the EU (EXPO), while size was used as a control variable (SZ). The results are depicted in figure 1.

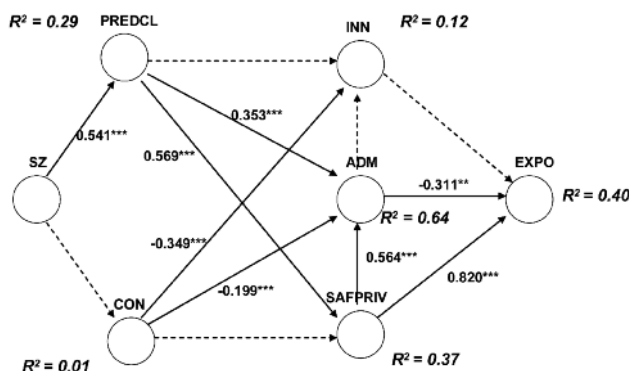


Figure 1: Explaining exporting capabilities outside the EU with PLS (figures represent standardized betas). * = P < 0.10; ** = P < 0.05; *** = P < 0.01 (two-tailed). Non-significant relationships p > 0.10) represented by bracketed lines. N = 44. (also in: Bremmers et al., 2010).

It appeared that Predictability and Clearness (PREDCL) of legal requirements were positively linked with the availability of FSQS (SAVPRIV). In other words, those companies that indicated the legal requirements to be clear and predictable appeared to have invested more in food safety and quality systems.

For companies with a bigger size (SZ), predictability and clearness of European legal obligations appeared to be better than for SMEs. In complementary semi-structured interviews the factual knowledge on the food law system was checked. Surprisingly the impression from the survey questionnaire was not validated: companies were only to a limited extent aware of the state and dynamics of the food law system. The research outcomes, as depicted in figure 1, also show the dissatisfaction on the content of food law, its negative impact on innovation, and adversely, its positive impact on the level of administrative burdens.

In this respect it appeared to be necessary to strengthen the position of processors/SMEs (Wijnands et al., 2007; Poppe et al., 2008). How can this be accomplished?

Policy alternatives

What possible policy alternatives can be proposed to enable effective price transfers from one stage in the food supply chain to another? Three feasible opportunities are mentioned here. The formulation of policy alternatives can be performed on logic grounds as well as on the basis of data analysis.

Competition Law

A first possibility would be the change of competition law to allow the organisation of a countervailing power, for as far as the actual power relations prevent the compensation for price volatility on commodity and intermediate markets. The European food law system has developed from ‘market-oriented’ to ‘consumer-oriented’ at the end of the last century. A new empowerment of processing industry is necessary to prevent SMEs from being squeezed between commodity & primary markets on the one side and retail markets on the other. Traditional production provides the innovation backbone for our European heritage of diversified food. It is a capacity which is not easily imitated, and therefore a source for continuous renewal and competitive advantage. However, in many food supply chains traditional SMEs are doomed to disappear as a consequence of up-scaling. The rigidity and consumer orientation of competition laws and policies contribute further to this tendency.

Information provision improvement

A second possibility is the installment of an information policy to address the actual lack of knowledge on rules and

procedures in the European food sector. For instance, SMEs appear not to be aware of the opportunities that HACCP-regulations provide for means to soften requirements which are burdensome and counterproductive to traditional production. An effective processor information policy is required, while at the same time efforts are to be made to simplify the rules and regulations themselves. This policy could be supplemented with pinpointed subsidies to alleviate barriers to compliance, or even lowering them. Zero-tolerance levels ban products from the market altogether at the cost of the producers/importers. An effective processor information policy could alleviate the transaction cost burdens in the exchange of information with governmental agencies (i.e., in monitoring present and new legislation, compliance to administrative procedures, adjusting reporting structures to come up to (new) requirements etc.). Especially for SMEs these burdens are disproportionately high.

Transparency of value added

A third policy alternative is the improvement of transparency of value added in the supply chain. In an extensive research for the Commission DG Enterprise (reported in *Poppe et al.* 2008), the benefits and pitfalls of creating transparency through the labelling of the origin of foodstuffs was investigated. It turned out, that the creation of a 'made in Europe'-label is perceived to have minor contributions to the competitive power of the middle-segment of food supply chains. It should be noted, that the more downstream a company operates, the less proficient it is to allow for transparency of value added of previous stages in the supply chain. However, the total lack of exposure which can be observed with products that are sold under private label should be reduced so that SMEs are granted opportunities to benefit from improved product quality, safety, as well as their innovation efforts. At present, retailers are to a certain degree 'free riders' on product innovation upward the supply chain.

Improving the logic of food law

As this article shows, the institutional environment of food procurement and production is strongly influenced by the system of food law. This system shows sincere shortcomings (cf. *Van der Meulen*, 2009). It is dynamic of nature. It changes constantly and becomes more and more complex. The more complex the system becomes, the easier it is to use it in an opportunistic way. This is a cause for pressure on profit margins in the middle section of food supply chains. If the basic premise would be accepted that premiums should fall where they are caused, this would implicate that the increase in contribution to the margin of a food firm would be: Innovation Premium + Productivity Premium + Market premium. Unfortunately, this is not the case for many small and medium sized companies in the

European food industry. They could get squeezed between rising commodity price pressures at their supply side and price rigidity at the retailer/consumer side. To protect the innovativeness of companies upstream, a redistribution of bargaining power has to be accomplished.

Finally it should be noted that the choice for a diverse and viable processing industry is a political one, just like the system of food law is a result of political deliberations. So it's out of the hands of science to change the system. This article may contribute to accelerate the pace of institutional renewal, in the European Union and beyond.

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