Administrative burdens and dairy industry competitiveness

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ABSTRACT

The goal of this paper is to assess the effect of regulatory burdens in the European dairy industry on its competitiveness. A theoretical foundation is provided by transaction cost economics and total quality management insights. The effects of legislation on administrative requirements and competitiveness are supposed to be mediated by impacts on innovativeness, company strategy, food safety system availability, as well as the available information & communication capabilities. We will connect to previous research (Wijnands *et al.*, 2007) and the findings therein. Four sub-questions are addressed:

- what is the relationship between administrative burdens, innovation and competitiveness?
- what is the relationship between administrative burdens, food safety & quality system deployment and competitiveness?
- what is the relationship between administrative burdens, food labelling requirements and competitiveness?
- what is the relationship between administrative burdens, supply chain transparency and competitiveness?

In addition to the theoretical framework presented earlier in Bremmers *et al.*, 2008, this paper contains the first results of a survey in the European dairy industry. They are combined with the proceeds from a literature search. The results show that (Q1) especially product innovation is negatively impacted by administrative burdens. Food safety and quality systems (Q2) serve to provide a level playing field in Europe. They would be installed also if no legal requirements would enforce them, because clients ask for it, so that administrative burdens could easily be attributed to business strategy rather than legal obligations. To reduce administrative burdens, we advice to integrate food safety and quality requirements is necessary. It would reduce monitoring and reporting costs, both for private as well as public parties. Food labeling (Q3) (a 'made in Europe' origin marking) could work contra-productive with respect to the competitive position of dairy firms and will have an increase of administrative burdens as a net-effect. And last but not least (Q4), increased chain transparency (mentioning the name of intermediary producers on the end-product package) will accelerate administrative burdens, but will only be beneficial for SMEs with a differentiated product. Commodity-producers in the dairy industry which only follow a cost strategy will gradually merge and/or disappear.

Key words dairy industry, competitiveness, administrative burdens, food safety, labelling

1. Introduction

This paper addresses the research outline and first results of a project to assess the effect of administrative burdens, caused by food legislation, on the competitiveness of the European dairy industry. The project is carried out for the EU (DG Enterprise) in cooperation with the MoniQa network. It encompasses the effects of administrative burdens, labeling, legal prescriptions as well as business dynamics on the future state of the industry. It serves as a foundation for policy development to increase competitiveness as well as food safety and quality. Previous studies (Wijnands *et al.* 2007) are taken as a starting point. A theoretical foundation was presented earlier (Bremmers *et al.*, 2008), which will be used as a framework for statistical analysis. We present first results of our study by addressing four questions:

- ❖ what is the relationship between administrative burdens, innovation and competitiveness?
- ❖ what is the relationship between administrative burdens, food safety & quality deployment and competitiveness?

- what is the relationship between administrative burdens, food labelling requirements and competitiveness?
- what is the relationship between administrative burdens, supply chain transparency and competitiveness?

As a result of the Lisbon call "to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (cited in CIAA-a, 2005), initiatives have been taken to improve legislation and (thereby) reducing administrative burdens. Administrative burdens are a result of public intervention, which is an alternative to the rule of the free market. Public intervention may use instruments like: information procurement, process standards, product performance standards and pecuniary measures (Henson and Traill, 1993).Governance of the European food industry poses a choice between self-regulation (of which voluntary labelling is an example) and command-and–control (of which mandatory food labelling is an example), or a combination of these (Sinclair, 1997). Self-regulation does not make companies survive in a competitive environment, on the contrary (Rumelt 1990, Reinhardt 1999, Christmann and Taylor 2001). In the past decennia, regulatory stringency has been the dominant instrument to achieve food safety and sustainable production. However, the deployment of a "hierarchical enforcement"-policy is considered by many as inefficient and costly, stifling innovation and inviting enforcement difficulties (Fairman and Yapp 2005).
Many companies in the European food industry belong to SMEs (< 250 employees), employing 61.3% of personnel in the sector (CIAA-a, 2005, p.4). They especially experience burdens because of legislative stringency. Such burdens diminish the possibilities to export and imprt. Lengthy customs' procedures are one indicative factor explaining the lack of export growth (CIAA-b 2006, p.28). Profit-seeking firms will only comply to regulatory requirements if the benefits of complying are bigger than the costs; or alternatively stated, if the disadvantages of not-complying exceed the costs of complying (Cornelissen, 2004b; Henson and Heasman, 1998, referring to Baron and Baron, 1980; Ogus, 1992). If marginal error costs are low, it follows that individuals will not spend much money on information costs. Where marginal error costs are high (for instance: possibility of death, heavy injury, costly recalls in food industry etc.), the willingness to spend money on information procurement will be high. Since food consumption is perceived as a serious cause for possible personal harm, the willingness to spend costs on reducing such risk through information may be high.
In general, excessive administrative burdens increase transaction costs in the market and will therefore impede on the competitiveness of food firms. It is not clear in advance whether administrative requirements are higher in a common law system (UK, US) or in a regulatory (European, continental) system of law. Possibly the ex ante costs (costs of acquiring and assimilating information before the legal rule is formulated) are higher (Ogus, 1992) in a continental system, which is based on prevention of risks, in stead of litigation. On the contrary, the ex-post costs in a common law system will presumably be higher. The theoretical foundations (transaction cost economics and cost of quality theory) which can explain business behaviour, are addressed in § 3. With tehse insights we will assess the perceived influence of food legislation on dairy sector competitiveness. First however we will delineate the administrative burden concept in the next paragraph.

2. Delineation of concepts

Administrative burden is a concept easily used in politics. But there are different definitions in use and it is not easy to be precise. It is an expressed goal of the Commission to reduce administrative burdens by 25% in 2012. The effect that is expected from a reduction on EU- as well as national levels is an increase of GDP of 1.4% (€ 150 bln) in the mid-term (COM(2007)23 ref. to: Gelauff and Lejour (2005)). For instance, for The Netherlands at the end of 2002 the administrative burdens were € 23,780 per firm (€ 16.4 bln for 689 623 companies in total, as to the Dutch EIM/CBS; Suyver and Tom, 2004), while in 2007, on the basis of Ministry plans in 2002, these burdens should be € 3 bln lower, reducing the average burdens with € 4,500. However, it was also projected that large firms would benefit 13 times more than small firms. Small companies were projected to benefit € 3560 (in total: 76%), medium-sized companies € 7327 and big companies € 45,735 (Suyver and Tom, 2004, table 2). Other countries and organizations have proposed similar policy goals. The delineation of administrative burdens (based on the standard cost model) is given in figure 1. Administrative burdens as to EU definitions refer to all information requirements (either to public or private bodies) that are induced by regulatory activity and would not be collected if such legal obligations would not exist.

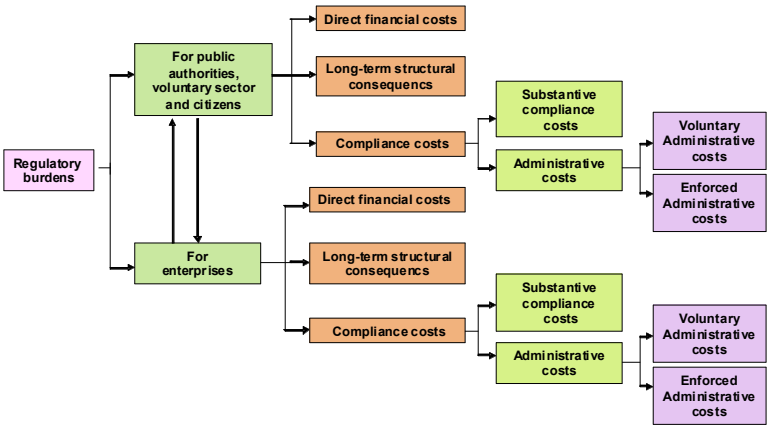

Figure 1: Delineation of Administrative burdens (based on COM(2007)23).

Specifications of the concept 'administrative burdens' are found in the outline that describes the Dutch Standard Cost Model to assess such costs. In the Dutch version (The Hague, 2003) a distinction is made between obligations to "do or don't", and information obligations. As to the Dutch system, administrative burdens are costs to *enterprises* to come up to information obligations which result from regulation and legislation by the government. Costs from self-regulation are not covered by the administrative burden concept.
Within this research a narrow definition of administrative burdens is "the information costs which are caused by changing legal requirements and made for complying with them". We call these "level 1 costs" (figure 2). They can be borne by administrative bodies and/or for private enterprises. A broad view encompasses all impacts to administrative and/or private bodies (so also other costs, expressed in money terms, than information costs are included; this we call: level 2 costs. An even more broadened view encompasses not only financial

burdens, but also qualitative impediments (like environmental and social impacts): this is "level 3 costs". The investigation of such causal effects is of importance for the construction of an impact analysis. Last, also the voluntarily imposed burdens are included (like a private ISO-systems which is installed to protect food safety, and the like (this is level 4 in our analysis). We adopt this broad view. However, empirical results should be organized in such a way, that data on the other levels can be provided also.

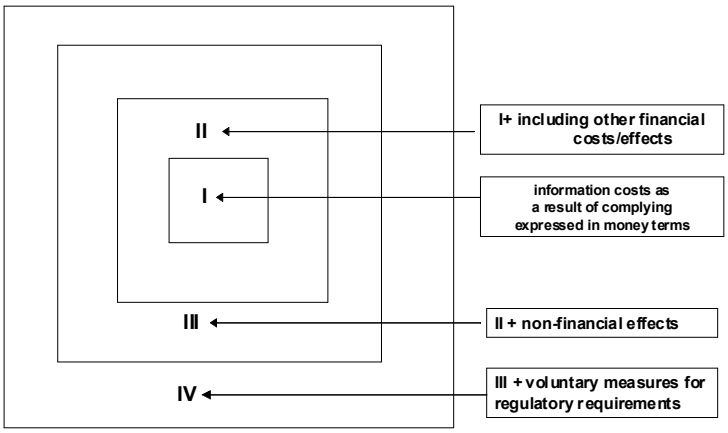

Figure 2: A broad view on administrative burdens

Cumulative administrative burdens are caused by unnecessary legislation. Unnecessary legislation hampers international trade and competition. Regulations are called unnecessary (cumulative) if they are not necessary for coming up to the goal of legislation or for guaranteeing the level of protection the Treaties offer. WTO-articles (article XX) and Agreements (with respect to Trade, Sanitary and Phyto-sanitary measures for instance), restrict regulation to a level that obstructs international trade more than necessary to reach the legal objective (Kalinova, 2005).

As expressed, unnecessary or extra regulations ('goldplating') can cause avoidable costs and obstruct competitiveness substantially. For instance, the costs of plant variety protection with a 15 years' protection period are $ 5687 in China, $ 10,480 in the EU and $ 4344 in the US (based on Louwaars *et al.*, 2005 cited in: Tripp *et al.*, 2007).

An example of 'goldplating' outside the food sector is given by Directive 95/46/EU, governing the protection of privacy. The EU-directive contains 72 considerations and 34 articles, while the Dutch implementation (Wbp) contains more than is required with a minimal implementation: 200 considerations and 83 articles.

Regulatory burdens are a result of legal *content*, but also of their *form* (clearness, consistency etc.) As to Cuijpers (2006) vague and open norms, complexity and uncertainty of interpretation, new procedures and burdens, dis-congruence with the privacy-understanding of the citizen as well as the lack of stimuli for self-regulation are the result of excessive legal requirements. The extra costs to be considered in this respect are classified as mechanic costs (implementation of new prescriptions, handling and IT-costs) as well as organisation costs (education, information etc.) accelerate costs of information processing.

We try to assess the effect of administrative requirements from a theoretical viewpoint, which is described in § 3.

3. Theoretical framework

Two complementary theoretical orientations are used to investigate the effect of regulatory burdens, including its costs, on competitiveness of individual firms. We use:
- the total quality management framework (TQM)
- the transaction cost framework (TCE)

Total quality management is a practical approach to enhance product as well as process quality aspects, strategic attitude (top-management involvement) and organizational behaviour through empowerment of employees. Consumer needs, not technological governance, is the starting-point of all quality processes (Spencer, 1994; Hackman and Wageman, 1995). The basic idea is that quality (i.e., legislation) has a price which could be excessive compared to the advantages, so that the net-effect is negative. Prevention costs increase with higher levels of quality assurance (within this outline: of regulatory stringency), while at the same time failure costs are reduced (costs of non-compliance, such as is the case with food-borne diseases etc.). While the European system fosters prevention (risk avoidance), the US-system of litigation fosters compensation of failure. The question is what, at the firm level, is the 'ideal' combination is of both policies. To solve this problem, prevention costs have to be weighted against failure costs.

Transaction cost theory provides a new perspective on the structuring of economic organisation (David and Han, 2004; Geyskens *et al.*, 2006; Poppo & Zenger, 2002). While former theorizing conceptualized a firm as a production function, transaction cost economics regards a firm as a governance mechanism (Rindfleisch and Heide, 1997; Williamson, 1998). Likewise, economic organisation can be governed in a hierarchical way (like a –vertically integrated – firm by means of government intervention) or leave the economic exchange and its characteristics to the market. Hierarchies (integration) cause bureaucratic costs. However, dimensions of governance like the necessity of asset specific investments (translated to the study at hand: investments in for instance quality assurance systems induced by buyers to enhance food safety, combined with lack of or asymmetrically distributed information, or (market) uncertainty can lead to opportunistic behaviour and shirking, so that a hierarchy is preferred (in our research: governmental intervention is necessary).

We propose the following research model which visualizes the expected effect of regulatory burdens and key factors (innovativeness, strategy, food safety system availability and information processing capabilities) impacting on the competitiveness of a highly innovative sector, like dairy is (see figure 3).

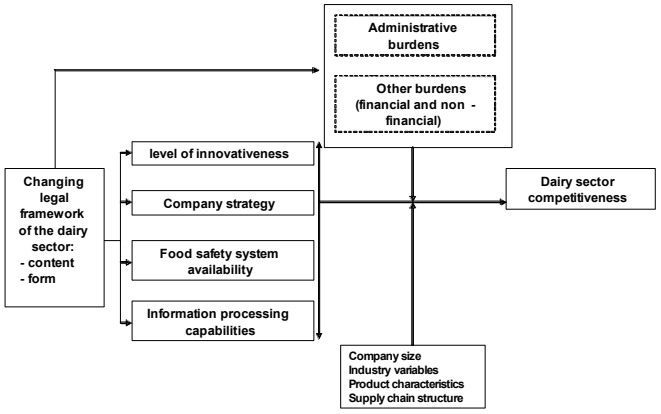

Figure 3: Framework for the analysis of competitiveness of dair y industry

Components of the research model (figure 3) are addressed in the following sub-sections.

Innovativeness and strategy
While the European dairy industry in general is innovative, the spread in innovativeness is very wide, ranging from companies that for instance pack milk and try to optimize processes, and companies that modify the basic characteristics of inputs (Omega3 for instance) and/or output (for instance dairy products to which health claims will be attached). Administrative requirements will hamper the acquisition of capabilities to innovate because of resource scarcity at the firm level (compare: Avermaete *et al.*, 2004; Batterink *et al.*, 2006; Romijn and Albaladejo, 2002; Loader and Hobbs, 1999). The perception of a set of rules being `burdensome`, is dependent on the firm-specific aims and strategies that are deployed. Firm strategies can be classified from 'defender' to 'prospector' (Miles *et al.*, 1978). A defender company will, in general, tend towards a cost-oriented strategy. Prospector companies aggressively seek for new market opportunities and develop new products and/or markets to outperform competitors. Since the EU food industry is control-oriented, efficiency-seeking defender companies are probably better off with legal strictness than prospector companies.
Prospector companies are well equipped for product change with available R&D-departments and information and communication resources. Their innovativeness and dynamic business renewal can be affected along two legal routes: formal and content. Searching for causes for excessive administrative burdens should therefore include an investigation of the formal aspects connected to law change: its predictability, consistency, proportionality and the level of perceived behavioral control of changes in production and/or product characteristics

Food safety system availability
Food safety systems can improve transparency and consumer's trust, but in many cases companies are obliged to install or expand information systems on legal grounds (for instance to adjust for food labelling requirements; see: Caswell and Padberg, 1992; Przyrembel, 2004). Administrative burdens are among others induced by compulsory quality systems (like HACCP). Especially SMEs will possibly be more than proportionally affected in their profitability, while at the same time they cannot easily harvest the "quality-premium". Executing food safety requirements causes operational costs, while also prevention costs will accelerate administrative requirements. Prevention costs are costs which are made to avoid a-conformity with legal requirements. Companies can be confronted with higher administrative loads, but could take this for granted for different reasons, like improved competitive power and/or a better food and drink safety/quality.
To get insight in the dynamic process of absorption of legal requirements we will have to investigate what the perceived advantages and/or disadvantages are for dairy companies of such obligations.

Information and communication capabilities
Information and communication capabilities play a role in two different settings:
- communicating upward and downward the supply chain;
- communicating with and understanding of the dynamics of the institutional environment.

Companies vertically communicate with market parties by means of product labels. Whereas product labels create transparency on (among others) the characteristics of the supply chain, private labels play a special function in this respect. Private labels are "all merchandise sold under a retailer's brand. That brand can be the retailer's own name or a name created exclusively by that retailer(…)" (Private Label manufacturers' Association definition in: Bergès-Sennou *et al.*, 2008). They can create homogeneity with respect to a multitude of

suppliers on the one hand, but on the other hand the craftsmanship of intermediate companies is hidden. This is the more disadvantageous for the intermediary company the more innovative it is, since innovation has a price which can only be earned back by means of a premium on the selling price. With the private label holder controlling the distribution channel, it is a matter of negotiation whether such a premium is harvested. Private label holders will take a strong position because of the scale at which they buy. Moreover, if an intermediary producer also serves the consumer market directly (which could take place in competition with the private label it supplies), he experiences price erosion and sales decline. We expect that companies with well-developed information and communication capabilities will be more open towards the business and institutional environment, and will be able to understand and predict legal requirements with more ease. Since the development of such capabilities costs scarce resources, big companies will most likely be better able to do so. Size is therefore an important control variable in this research.

Control variables: Size, Network embeddedness and product charachteristics
There are a number of firm characteristics ('control variables' in the research framework in figure 3) that influence the effect of the legal framework on competitiveness. An important control variable is the size of companies. SMEs might be confronted with disproportionally larger compliance costs, because economies of scale are lacking (Loader and Hobbs, 1999). Companies are, to a smaller or larger extent, entangled in a web of relationships, forcing them to adopt the norms and practices in the business network. But they also can be change-oriented and put their own goals and standards first, relying on unique resources to adjust their environment inside-out (Porter and Kramer, 2006). In practice, both tendencies can occur at the same time and in the same organization.
Specific requirements with respect to dairy product (like absence of dioxin in raw milk) will have an impact on the production and procurement processes of raw material. Also, differences between countries will affect the competitive position of European dairy industry. Last but not least, generic trends and tendencies in the business environment (which can be categorized by means of Porter's diamond) will affect the individual firms. Differences between countries or regional differences on a global basis will have to be considered.

4. Data collection

We (LEI, Wageningen University, Moniqa network) composed a survey questionnaire (available at http://www3.lei.wur.nl/selectsurvey) and questioned micro, small and medium sized as well as large enterprises on the different topics.
We combined new questions on innovation and strategy with questions which were also used in previous research (Wijnands et al., 2007), to facilitate sector-industry comparisons. Moreover, we redirected the focus of the questionnaire to the dairy industry and to international benchmarking (not included in this paper). Dairy firms were addressed in The Netherlands, France, Germany, UK, Italy and in Poland. For benchmark reasons also Brazil and the US were involved. To ensure a sufficient level of response, we sent a survey to members of each sub-group. Of each participating country 100-200 addresses were selected. Despite additional efforts to improve the response rate (telephone calls to more than 300 firms in The Netherlands, France, UK and US, second mailing to France, involvement of research institutes/universities in Germany, Italy and Brazil), the response was still low when this paper was composed (mid 2008). 28 valid cases (dairy companies) have been included in the data of this paper. Some preliminary results and conclusions on the hypothesized relationships

are addressed in the next sections. They were obtained by combining literature search, responses on the questionnaire and interviews/discussions with key players in the field.

5. Results

In this section the preliminary results of the study are reviewed.

5.1 Innovation

The first research question was:

What is the relationship between administrative burdens, innovation and competitiveness?

As Wijnands *et al.* (2007) already showed, market entrance is limited by heavy legal requirements such as pre-market approval schemes (which is especially the case with additives, sweeteners, GMO-related food, supplements, novel and functional foods, as well as novel packaging and enzymes). This works to the disadvantage of the innovativeness of SMEs, who lack the resources to come up to strict legal requirements. Process innovations are necessary to increase efficiency in a globalizing market. For SMEs innovation takes therefore the structure of combining new impulses with existing skills and routines (Gielen *et al.*, 2003). So a cause for a drain of resources is vested in the required systems to guard for food related diseases and food quality. A low cost strategy (by improving processes) is more in line with a policy of food safety system implementation than a policy of flexibility and product change (§ 2). So we tried to link the strategy of the company with perceived barriers for innovation.

To investigate the strategy that the companies apply, we asked a question to assess whether the product is adjusted to local taste (multi-domestic strategy) or whether a global strategy is used. Moreover, we tried to identify the defenders (in line with a low cost strategy) and the prospectors (differentiation strategy; aiming at high quality).

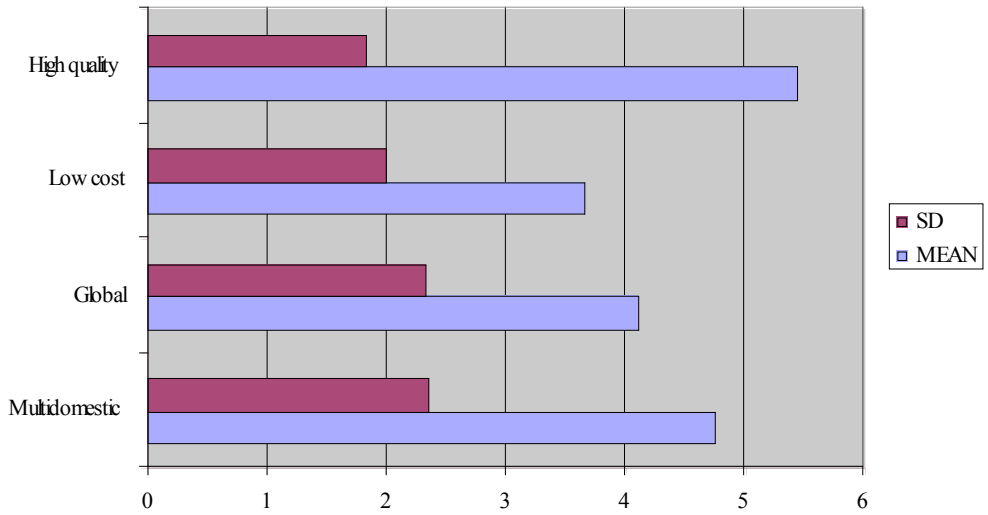

Figure 4: Strategic orientation of companies (7 point scale; N = 21 – 23)

We conclude from the data represented in figure 4, that companies in the European dairy industry focus more on high quality than on low cost, which is in line with the innovative character of the subsector.

We classified the type of the firms' innovation from a Schumpeterian viewpoint (product process, organization, market, raw materials). It appeared that product change scores highest. This is in line with the idea of a highly innovative subsector.
What then are the *barriers* for innovation in the dairy industry?

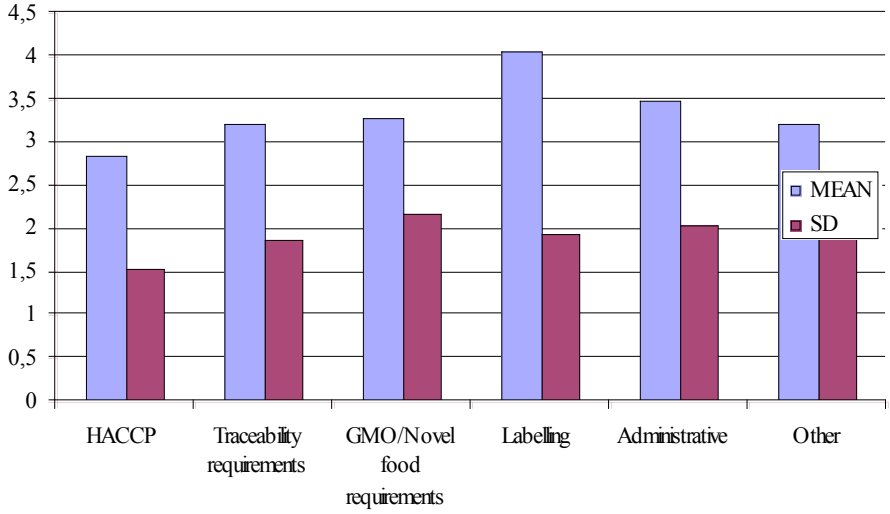

Figure 5: Innovation barriers [N= 17-20; 7 point scale]

Figure 5 shows that labeling requirements are a serious threat to innovation, as well as (second in position) administrative obligations. This is congruent with our theoretical analysis: companies which are innovative, will perceive to be hampered more by bureaucratic information structures.

5.2 Food safety and quality systems

The second research question was:

What is the relationship between administrative burdens, food safety & quality system (FSQS) deployment and competitiveness?

On average, the respondents appeared to have 3.5 FSQSs, of which an average of 2.3 is certified. This is a certification rate of 58%. The survey results show further that especially certified HACCP is considered of primary importance for compliance. This is not surprising, since HACCP is an obligatory system in the dairy industry. Also retailer systems (like BRC) score high. This expresses the positive aspects of supply chain integration: it takes away responsibilities with respect to compliance from the shoulders of the (smaller) upstream producers to a degree, and centralizes administrative burdens (with positive scale effects as a result).
Dominant argument for installing food safety and quality systems are *not* primarily governmental demands, but consumer wishes. This is in line with the *own* expectations with respect to such systems towards suppliers However, some respondents commented the great diversity of systems and standards between EU-countries. This will, as a consequence, have a negative impact on export performance.

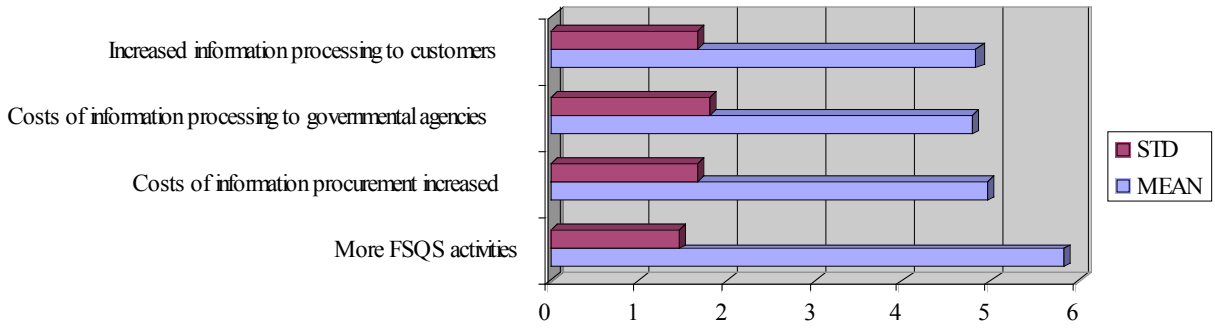

Figure 6: Effects of food legislation (N = 23)

Figure 6 illustrates that on the one side administrative FSQS-activities have increased, but on the other side increased costs have to be made to provide the necessary documentation. FSQS deployment appears to be provoked by at least two parties: legislative authorities and customers (especially in b-to-b transactions).
The obligatory introduction of HACCP causes relatively higher adjustment costs in SMEs than the impact this legislation will have in large organizations. HACCP places burdens on SMEs because of documentation, validation and verification requirement (Taylor, 2001). Barriers for SMEs for smooth HACCP-implementation are the lack of skills, training and technical expertise as well as lack of time and money (Taylor, 2001). On the other hand, benefits can be discerned (and were reported) which can be typified as market-driven (enhanced reputation etc.) or supply-side driven (improvements in efficiency, see Henson & Holt, 2000). Other benefits are increased focus in the organization, team-building, as well as the provision of legal protection (Taylor, 2001). The perceived importance of HACCP and its benefits towards customers which are discerned on the basis of the empirical material underlines this statement.
A distinction should be made between those organizations that are heavily embedded; they tend to copy procedures and rely on safety systems to reduce liability and conform to market standards, ánd companies that act on a "stand-alone"-basis. Companies that already have systems like ISO or certified HACCP available will absorb new legal requirements with more ease than companies which do dispose of such systems. Safety systems reduce organizational flexibility. Highly product-innovative companies will rely on a flexible attitude towards the market and put efforts in R&D to change basic product characteristics. Such companies will regard governmental interference and prescriptions that impede on flexibility as burdensome. In the US, barriers to market entrance are lower because of a fundamental different way of governing newly developed food and foodstuffs. The legal culture in the US is more repressive compared with Europe, while the European food culture is preventive of a kind. It is a matter of moral and political choice to make shifts on the scale of repressive – preventive food legislation. While the US is shifting gradually towards a more preventive system, the EU is holding its position and trying to reduce the extra (prevention) costs this takes at the same time.

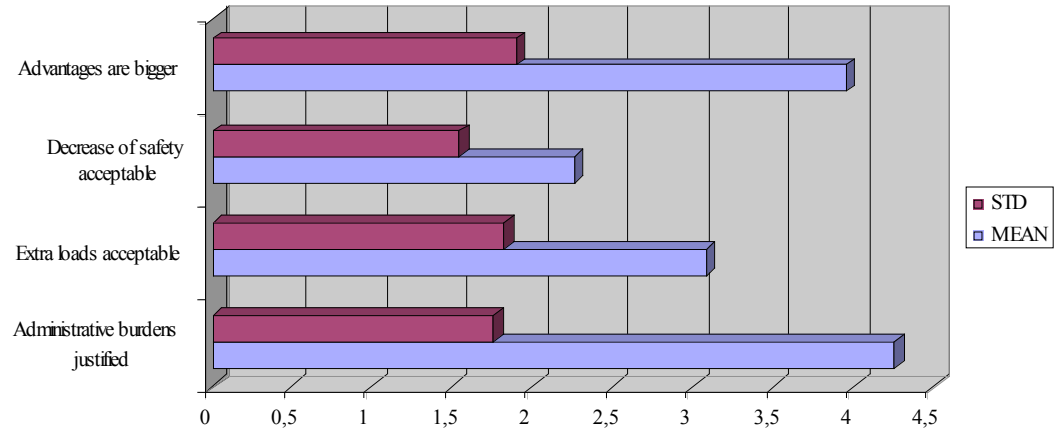

Figure 7: Safety level and administrative burdens (N = 24)

In line with the 2007-study on competitiveness in general of the food industry (Wijnands *et al.*, 2007), the respondents of this survey signaled that they oppose to further increase of administrative loads, but they are not willing to sacrifice food safety to reduce compliance costs (figure 7).

5.3 Labelling

The third research question was:

What is the relationship between administrative burdens, food labeling requirements and competitiveness?

The role of food labels from a transaction cost perspective is the improve information processing so that contracting is facilitated.
Labelling can be regarded as an instrument to promote market efficiency, or as an instrument to control firms. Both are directed at protecting buyers from inefficient purchase decisions. Perceptions on the usefulness of labelling information affect the opinion whether or not mandatory nutritional labelling would be beneficial (Gracia *et al.*, 2006). However, usefulness of labelling information does not always implicate that buying behaviour is adjusted (see in this respect: Hefle *et al.*, 2007). With respect to origin labelling, an extensive research by Loureiro and Umberger (2007) in the US shows that USDA food safety inspection with respect to beef is preferred by U.S. consumers over country-of-origin labelling. As to these authors indication of origin makes sense if the origin stands for higher food safety or quality. Another example in this respect is eco-labelling. Despite European efforts to establish authorized, non-compulsory ecological labeling (Eco-label I in CEE 92/880 and Eco-label II in CE 1980/2000; Proto *et al.*, 2007), variations in eco-labels are widespread and more confusing than informative. As to Van Amstel *et al.* (2006) the reliability of information of five investigated food labels showed severe shortcomings, and did not fill the information gap between seller and buyer.

In general, changes in labeling requirements can lead to additional costs: design of new packaging, information overload to the consumer (problems to digest extra information on the package) and subsequently loss of effect, information gathering costs with respect to form and content etc. A premium is harvested, if labeling contributes to the value of a brand. A

brand value is economically expressed as the value of an image and/or reputation. Image expresses the public's short-run beliefs, while a reputation is more durable (Marwick and Fill, 1997 in: Berthon *et al.*, 2008).
Mark-of-origin labeling is recognized as a source for improved competitive performance if such labeling indicates superior quality and/or safety. Probably especially in internal communal trade, EU- labeling renders no significant contribution to welfare. In international business relationships it can have a definite function, especially to those countries that lack superior quality and/or safety levels (i.e. uncertainty in food safety is high). In general, reading frequency of food labels appears to be dependent on the degree of uncertainty about the food supply (Wandel, 1997), which is bigger in less-developed countries. Golan *et al.* 2001 suggest that the costs of origin labeling exceed the benefits, which is in line with other studies (for instance: Blank, 1998, in Golan *et al.*, 2001).
Private labels and labels of producer's brands serve similar functions as food labels: they inform about the characteristics of the product and the supply chain behind it. Co-labelling (printing the producer's name on the package) is one of the possible options to create chain transparency. It appeared that the companies in the sample on average do not expect strong positive effects of stepping-up labeling efforts. Standpoints are logically very diverse. Retailers which already express their own company name on the package will oppose, while producers upstream will possibly value the benefits of the system. Private label holders will clearly oppose, because mentioning producer's brands on the package is contrary to the intentions of private labeling. Further disadvantages of co-labelling are technical and financial of a kind:

- often there are many contributors to the end-product; if this is the case, increased transparency will lead progressively to information processing costs;
- costs of monitoring and control will be exorbitant;
- the delineation of which producers are mentioned on the label (defining the scope) will, under conditions of a multitude of co-processors, be only realized at great cost;
- even if the input for the end-product is homogeneous, it could be that there are a multitude of (small) suppliers; the costs for the end-producer would be exorbitant.

If, however, such supply chain transparency should be realized, it can be done by means of:

- an obligation to mention the name of the producers upstream;
- giving a producer upstream to claim that his name will be put on the package;
- facilitating the end-producer to mention the names of suppliers on the package.

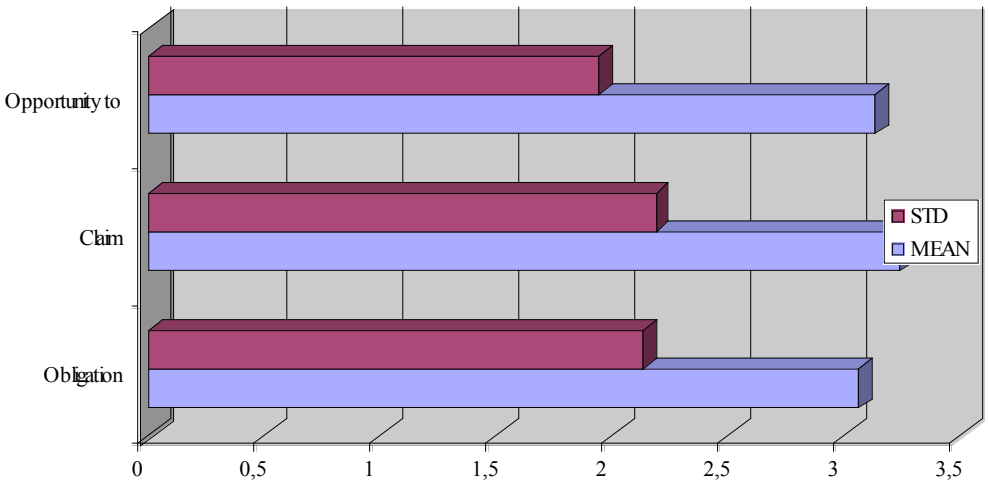

Figure 8: Options for co-labelling (N = 22; 7 – point scale).

On average (figure 8), there appears not to be much support for any of the options, but standard deviations are very high. Preferences within the dairy industry are, as mentioned, possibly dependent on the actual circumstances and position in the supply chain a company takes in. We discerned a negative (but non-significant) relationship between size (number of personnel) and the preference of a system that installs the obligation to print the name of producers upstream on the package of the end-product.

5.4 Transparency

The fourth research question was:

What is the relationship between administrative burdens, supply chain transparency and competitiveness?

As already mentioned, transparency can regard the supply chain and the dynamics of the institutional environment. We asked ourselves in the previous sub-paragraph what the significance is of stepping-up labeling requirements.. Additionally, we gathered empirical information on the transparency of legal rules to the dairy companies. We asked questions concerning the clearness of the rules that apply to the company, and their predictability.

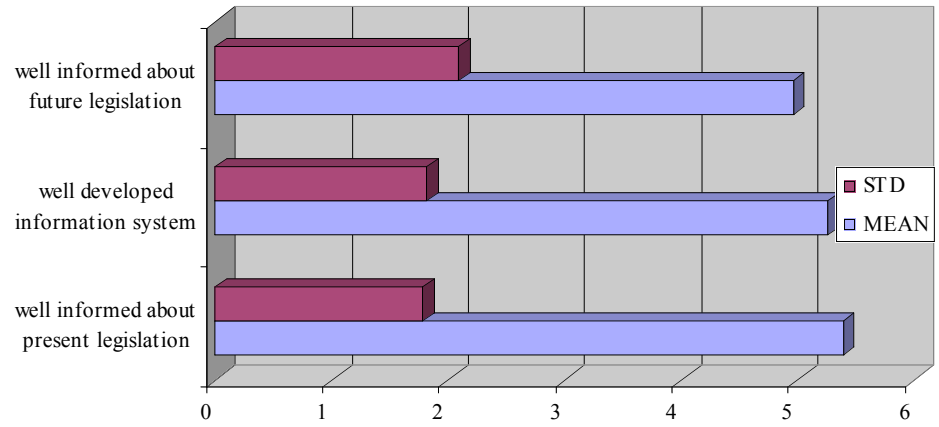

Figure 9: Transparency of legislation (N=22)

In general, companies in the sample appear to be well informed about the present and upcoming legislation that applies to their business unit (figure 9). This result is in line with the outcomes of the competitiveness study of Wijnands *et al.*, 2007. Companies indicate they have a more than average developed information system, and are reasonably well able to predict future food regulation developments.
Transparency in the food chain concerns, among others, the relationship between retailer and producer. However empirical work about producer-retailer relationships is rare (Bergès-Sennou *et al.*, 2008). Lack of clearness and transparency will invoke SMEs to mimicry the behavior of larger organizations in their sector. SMEs are less well informed than bigger companies about present and future legislation. We combined the results on the level of informedness with a size measure (number of personnel). The results show, that in general

bigger companies are in general better informed about the present state of regulatory requirements, and have more certified food safety &quality systems at their disposal.
Last, the question "The food legislation which applies to our own company is good" was asked. EU dairy industry legislation scores on average 4.68 on a 7-point scale. This is in line with the positive picture of the previous report (Wijnands *et al.*, 2007).

6. Conclusions and final remarks

This paper provided an outline for the further research of the effect of administrative burdens on the competitive position of firms in the European dairy industry. This industry is – on average- highly competitive and innovative. However, especially for future growth, the dairy industry will have to operate on the world market rather than on the European market, with specialized, innovative and distinctive products. Excessive administrative burdens connected with hierarchical market structure will not be in the interest of the dairy industry.
A positive perception of the form of regulations is strongly related to the size of companies. As Doyle proposes (Doyle, 2007) firms should be supported to close the gap between regulation dissemination and the translation of such regulation in knowledge at the firm level, to maintain competitive. Possibilities to monitor the level of compliance are limited, so instruments to increase food safety should benefit to the producer; in this way, voluntary compliance is stimulated.
Although companies depict areas where EU food law could be simplified and specific areas of regulations are seen as burdensome, they have a preference for the European system, which puts food safety above ex-post litigation.
A distinction should be made between the form and the content of food law. Especially product innovative companies are dissatisfied with the content of food law. Time-to-market of new output is long, costs are relatively (compared to the US) high, and procedures are not transparent. Legal prescriptions are scattered and a comprehensive overview is often lacking (see Van der Meulen (2008) for details).
Co-labelling (printing the name on the package of the end-producer/retailer) is only beneficial (benefits outweigh administrative burdens) if the upstream product is differentiated (not easy to copy). For commodities (homogeneous produce which is supplied by many companies) upscaling in intermediary production stages will be inevitable, to reduce costs. In the long run, commodity-producing SMEs will necessarily merge to the benefit of economies of scale. Upscaling of commodity-production will be to the benefit of efficiency of food supply chains and should therefore not be obstructed.
Origin labelling will hide intra-communal food safety and quality differences. The positive side is that it could stimulate exports (especially to non-western countries). Companies will prefer to distinguish themselves on their brand-name, PGI/PDO and food safety and quality characteristics. Origin labelling (a 'made in EU'-label) can have a contra-productive effect, because it hides company- and country-specific differences. Moreover, the EU as a whole will be vulnerable should food- or political problems occur.
Last, food safety and quality systems appear to be more primarily provoked by consumer wishes. So the costs which are connected to them would possibly have been made anyway, even if food legislation would not make systems mandatory. To reduce administrative burdens, we advice to integrate food safety and quality requirements is necessary. It would reduce monitoring and reporting costs, both for private as well as public parties.

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