Support for Farmers' Cooperatives

Sector Report
Dairy

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Support for Farmers' Cooperatives; ***Sector Report* Dairy**

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Preface and acknowledgements

In order to foster the competitiveness of the food supply chain, the European Commission is committed to promote and facilitate the restructuring and consolidation of the agricultural sector by encouraging the creation of voluntary agricultural producer organisations. To support the policy making process DG Agriculture and Rural Development has launched a large study, "Support for Farmers' Cooperatives (SFC)", that will provide insights on successful cooperatives and producer organisations as well as on effective support measures for these organisations. These insights can be used by farmers themselves, in setting up and strengthening their collective organisation, and by the European Commission in its effort to encourage the creation of agricultural producer organisations in the EU.

Within the framework of the SFC project this sector report on cooperatives in the dairy sector in the EU has been written. Data collection for this report has been done in the summer of 2011.

In addition to this report, the SFC project has delivered 7 other sector reports, 27 country reports, 6 EU synthesis and comparative analysis reports, 33 case studies, a report on cluster analysis, a report on the development of agricultural cooperatives and relevant policy measures in other OECD countries, and a final report.

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1. Introduction

1.2 Objective of the study

The imbalances in bargaining power between the contracting parties in the food supply chain have drawn much attention, also from policy makers. The European Commission is committed to facilitate the restructuring of the sector by encouraging the creation of voluntary agricultural producer organisations. DG Agriculture and Rural Development has launched a large study, "Support for Farmers' Cooperatives", that will provide the background knowledge that will help farmers organise themselves in cooperatives as a tool to consolidate their market orientation and so generate a solid market income. In the framework of this study, this report provides the relevant knowledge from dairy sector.

In this context, the specific objectives of the project, and this sector report, are the following:

First, to provide a comprehensive description of the current level of development of cooperatives and other forms of producer organisations in the dairy sector. The description presented in this report will pay special attention to the following drivers and constraints for the development of cooperatives:

- Economic and fiscal incentives or disincentives and other public support measures at regional and national levels;
- Legal aspects, including those related to competition law and tax law;
- Historical, cultural and sociologically relevant aspects;
- The relationship between cooperatives/POs and the actors of the food chain;
- Internal governance of the cooperatives/POs.

Second, identify laws and regulations that enable or constrain cooperative development and third, to identify specific support measures and initiatives which have proved to be effective and efficient for promoting cooperatives and other forms of producer organisations in the agricultural sector in dairy sector.

1.3 Analytical framework

There are at least three main factors that determine the success of cooperatives in current food chains. These factors relate to (a) position in the food supply chain, (b) internal governance, and (c) the institutional environment. The position of the cooperative in the food supply chain refers to the competitiveness of the cooperative vis-à-vis its customers, such as processors, wholesalers and retailers. The internal governance refers to its decision-making processes, the role of the different governing bodies, and the allocation of control rights to the management (and the agency problems that goes with delegation of decision rights). The institutional environment refers to the social, cultural, political and legal context in which the cooperative is operating, and which may have a supporting or constraining effect on the performance of the cooperative. Those three factors constitute the three building blocks of the analytical framework applied in this study (Figure 1).

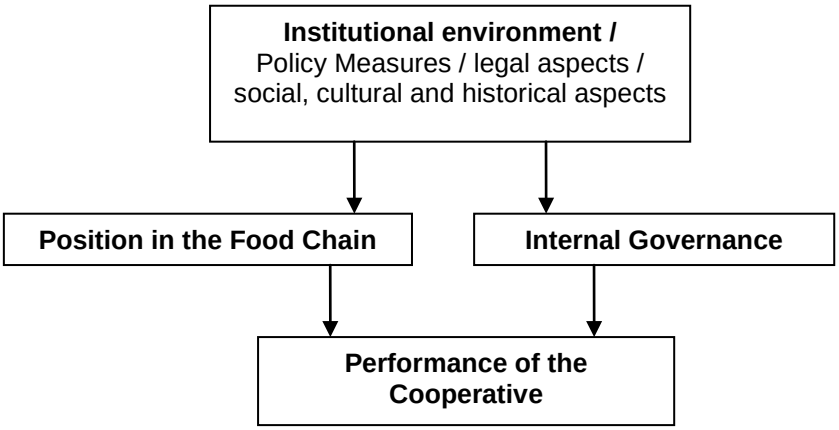


Figure 1. The core concepts of the study and their interrelatedness

1.4 Definition of the cooperative

In this study on cooperatives and policy measures we have used the following definition of cooperatives and Producer Organisations (POs). A cooperative/PO is an enterprise characterized by user-ownership, user-control and user-benefit:

- It is user-owned because the users of the services of the cooperative/PO also own the cooperative organisation; ownership means that the users are the main providers of the equity capital in the organisation;
- It is user-controlled because the users of the services of the cooperative/PO are also the ones that decide on the strategies and policies of the organisation;
- It is for user-benefit, because all the benefits of the cooperative are distributed to its users on the basis of their use; thus, individual benefit is in proportion to individual use.

This definition of cooperatives and POs (from now on shortened in the text as cooperatives) includes cooperatives of cooperatives and associations of producer organisation (often called federated or secondary cooperatives).

1.5 Method of data collection

This sector report is mainly based on the fact finding in 27 country reports, that were made earlier in this project, one per member state. In addition an inventory of policy measures at EU level was used. For these country reports multiple sources of information have been used, such as databases, interviews, corporate documents, academic and trade journal articles. The databases used are Amadeus, FADN, Eurostat and a database from DG Agri on the producer organisations in the fruit and vegetable sector. Also data provided by Copa-Cogeca has been used. In addition, information on individual cooperatives has been collected by studying annual reports, other corporate publications and websites. Interviews have been conducted with representatives of national associations of cooperatives, managers and board members of individual cooperatives, and academic or professional experts on cooperatives.

1.6 Period under study

This report covers the period from 2000 to 2010 and presents the most up-to-date information. This refers to both the factual data that has been collected and the literature that has been reviewed. For member states that joined in 2004 and 2007 the focus is on the post-accession period.

2 Statistics on the evolution and position of agriculture

2.1 Special characteristics of the sector

In the European dairy sector about 135 billion litres of raw milk are produced and processed by ca. 1 Mio farms (ZMP, 2009). The dairy industry represents about 13 per cent of the turnover for the total food and drink industry in Europe. Prices for raw milk are generally volatile with an increasing tendency over the last decade.

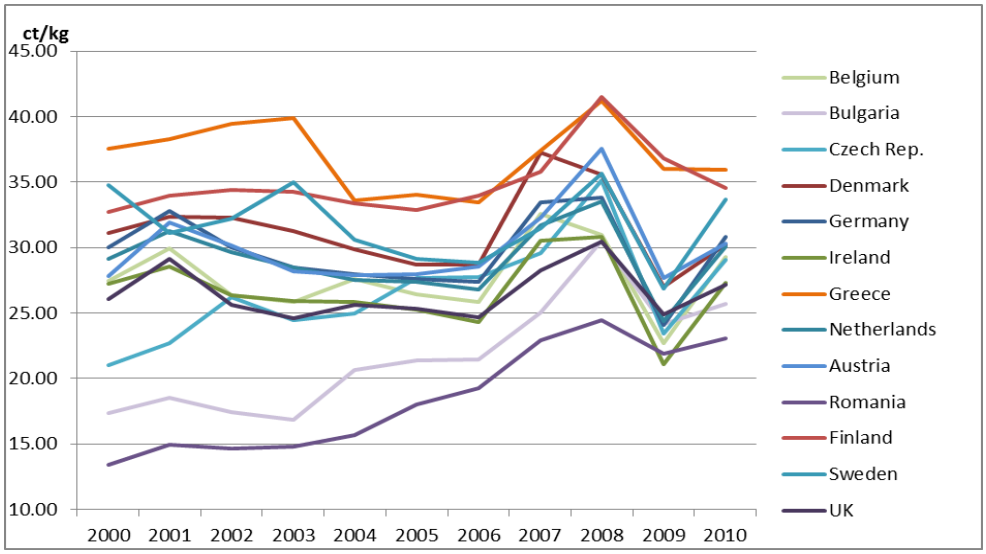


Figure 2 National milk prices from 2000 – 2010. Source: Eurostat

A large proportion of the global dairy market is cooperatively organized (Chaddad, 2007). In the year 2007 the cooperative share of marketed milk in the USA was 83 per cent (United States Department of Agriculture (USDA), 2011). In the EU-27 approximately 57[1] per cent of the turnover is realized by cooperative dairy organizations (EU-stat and own calculations). In the year 2009, more than 60% of the milk processed in German – Europe´s largest milk producer – was handled by cooperatives (Janshen, 2009).

Cooperative organization of farmers has to do with both, the product attributes of milk and the fluctuant nature of agricultural product markets. Because the production of fresh milk requires long-term initiative in infrastructure and skills development, dairy farmers seek to protect their investments by organizing market access. Because fresh milk is perishable, vulnerable to quality differentials and mal-practiced hygiene, and because milk is a comparatively heavy commodity, farmers benefit from collective investments in transportation, processing and quality control. Such investments will not pay back if supply or quality constrains prevail.

Where cooperatives provide long term organization of producers within regions and on the basis of membership, democratic control and binding price and delivery agreements, they often dominate the dairy sector. Over the last few decades concentration processes have resulted in a globalized food retail industry with a few dominant players (Fahlbusch, Steffen, Brümmer, & Spiller, 2011). Together with a stronger market orientation of the Common Agricultural Policy (CAP) this has triggered the on-going industrialization and internationalization of the dairy sector (Heyder, Makus, & Theuvsen, 2011). The organization of "counter-vailing power"

[1]The EU-Share has been calculated by using using the national shares for dairy denoted in the country reports, weighted with the relative size of national markets by turnover from Eurostat data.

(Galbraith, 1952) on the side of producers and – among the dairies – the need to acquire a price relevant market position are additional objectives European cooperative farmers pursue.

Since the introduction of the Common Agricultural Policy, the dairy sector has been subject to numerous reform initiatives. In the year 1984, milk quotas were introduced, fixing per country production levels and stabilizing prices with typical instruments like intervention, export refunds, internal subsidies to increase consumption and private storage until the reform efforts of the CAP had started with the proclamation of the Agenda 2000. As a consequence, in 1999 intervention prices for butter and skimmed milk powder were reduced by 15% and direct payments for milk farmers were introduced. In the year 2003 there was another reduction of intervention prices by 10% and the intervention prices for butter and milk quotas were prolonged until 2015. Since then, direct payments of 3.55 cent/l were decoupled from milk production and related to the fulfilment of conservation and sustainability requirements listed in the "cross compliance" documents.

In the year 2008, the "Health Check" in the dairy sector came to the conclusion that the quota system had to be abolished. From April 2009 on, the decisions of the "Health Check" were implemented. With slow and a stepwise increase of the country quotas a "soft landing" for dairy farmers on the internationalizing dairy market was agreed upon.

Since the end of 2008, price fluctuations and consumers` response to the economic crisis negatively affected the structures of the EU dairy markets, leading to a sharp decline in dairy commodity prices while consumer prices remained maladjusted. This resulted in extremely low milk prices in the year 2009 and several "emergency market interventions." An evaluation of the milk crisis gave rise to concerns about structural deficit in the dairy sector. Major concerns were the felt imbalances in bargaining power in the supply chain. Because dairies often fix prices on the basis of the obtained added value it is difficult for the farmer to know the prices for which he sells. This has triggered a discussion on the role of producer organizations in improving bargaining positions between milk farmers and dairies.

In late 2010, the EC 'milk package' proposal was drafted. Since then, aspects of contractual relations between farmers and dairies, the EU-wide promotion of bargaining organizations and limits of firm concentration on the basis of national market (30%) shares or market shares in the EU (3,5%) were discussed in order to level the playing field between producers and processors. In this debate, the role of existing cooperatives has been sometimes praised and sometimes questioned. In the meantime the prices for dairy products as well as the European Union´s total milk production have been again increasing. At the time of writing this report, the conditions for a 'soft landing,' after the abolition of quotas in the year 2015 are again given. However, at the end of 2011, production levels and price developments indicate that increase in milk prices has come to an end.

2.2 Share of the sector in agriculture and in National Product

Figure provides information on the development of dairy in the EU-27 for the period of 2000 to 2010. In the last decade the total production value of dairy in the EU is approximately 45,000 million euro with relatively large fluctuations during recent years. The two largest producers, Germany and France, account for about one third of this value. This share did not change significantly over the period displayed. When Italy, the United Kingdom and the Netherlands are added, the top five producers account for about 60% of the total production value, likewise this share didn´t change between 2000 and 2010.

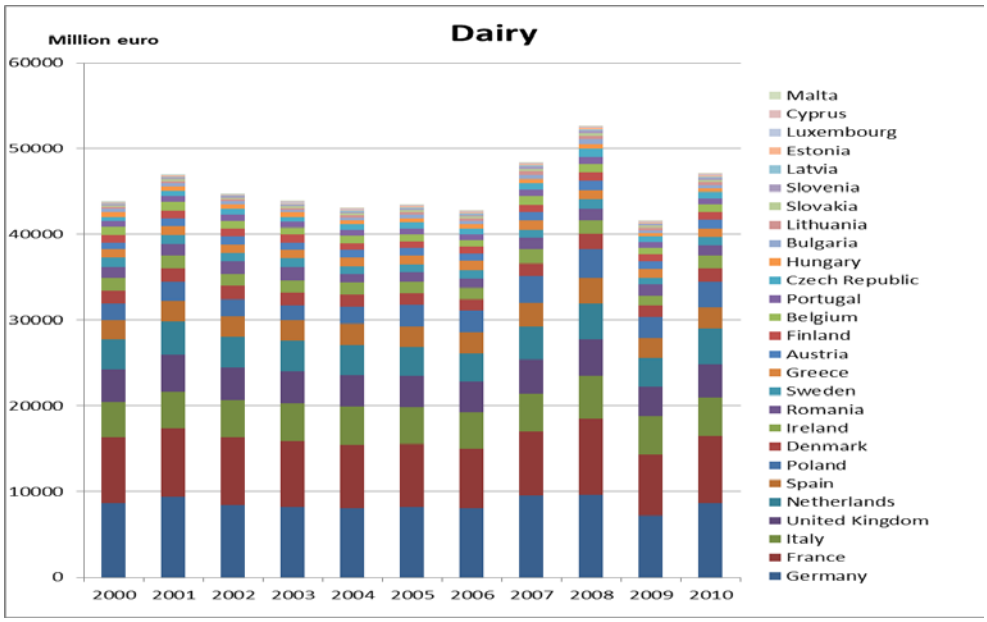


Figure 3 Milk Output 2000 – 2010. Source: Eurostat

However, it can be assumed that the deviations in the total production value over time derive more from changes in milk prices (volatility) and less from variations in production quantities.

For a more specific analysis of the development of dairy production in the countries,

Figure shows the average change of output per year for each country, between 2000 and 2010. A big increase took place in the new member states of the EU, Estonia, Czech Republic, Latvia, Lithuania and Poland. This can be explained by the low production value in the base year 2000/2001.

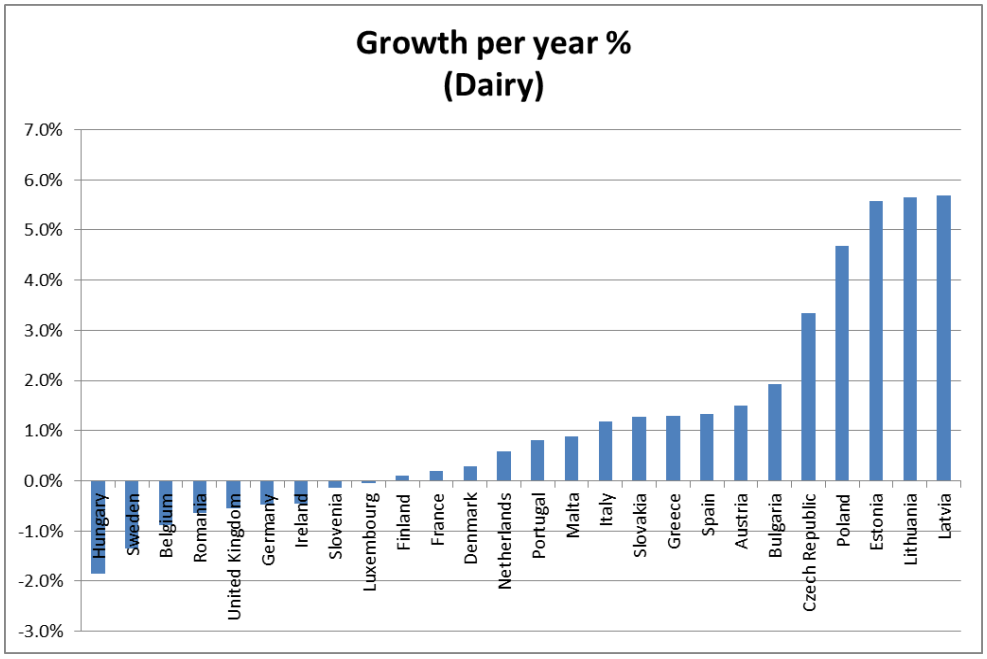


Figure 4 Change in output per year and country (2000 – 2010) Source: Eurostat, Economic Accounts

Interestingly, the steepest reduction in output occurred in the new member state Hungary, followed by Sweden and Belgium, two highly modernized dairy producing countries.

2.3 Development in the number of farms

The number of farms in the dairy sector for 2000 and 2007 and the average change per year are shown in Table 1. The numbers of farms in the member countries experienced an overall decrease reaching from a moderate in Austria (-0.6% p.a.) to drastic declines in Sweden, Denmark and Italy (-9.2%/-8.9%/-9.2% p.a.). A decline of 9% per annum, illustrates the intensity of structural change in the dairy sector. Conversely, it seems that this process has slowed down, or is probably about to complete in Austria´s and Germany´s dairy sectors, with moderate declines in the 7-years period.

Table 1: Number of farms in the dairy sector, 2000 and 2007

Country	2000	2007	Average change per year
Belgium	8100	6190	-3,8%
Bulgaria	0	17650	
Cyprus	0	150	
Czech Republic	0	910	
Denmark	8550	4440	-8,9%
Germany	70870	63670	-1,5%
Greece	1700	1080	-6,3%
Spain	37710	24270	-6,1%
Estonia	0	1300	
France	69430	53040	-3,8%
Hungary	0	3000	
Ireland	26400	19090	-4,5%
Italy	45640	23140	-9,2%
Lithuania	0	8740	
Luxembourg	900	640	-4,8%
Latvia	0	8370	
Malta	0	100	
Netherlan ds	27210	19510	-4,6%
Austria	26900	25730	-0,6%
Poland	0	69970	
Portugal	11500	7790	-5,4%
Romania	0	131330	
Finland	20410	11930	-7,4%
Sweden	12630	6450	-9,2%
Slovakia	0	310	
Slovenia	0	6670	
United Kingdom	24240	15880	-5,9%

Source: Eurostat

Besides, numbers of farms decreased irrespective of declining or increasing levels of production, as shown by Figure 5. This leads to the question of productivity, size and specialization of farms, displayed in the following figures.

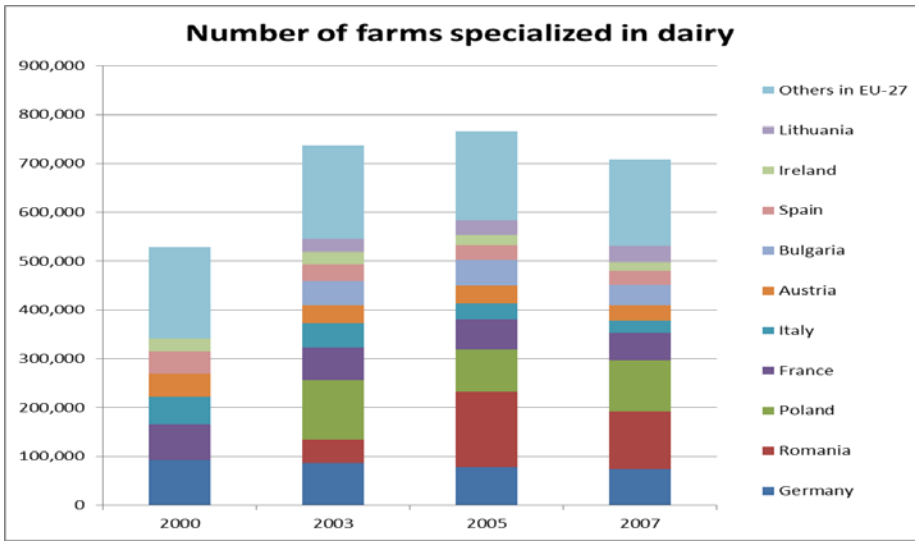


Figure 5 Number of specialised farms per country. *Source*: Eurostat

The highest number of farmers specialized in dairy production are found in Romania, and Poland. All these countries are amongst the newest EU members with a particularly high rate of structural change going on. The numbers of farms are quickly decreasing as the size of operation is increasing.

Size of farms

Farms come in different sizes from small part-time farms to large exploitations. Figure shows the distribution of farms per size class, measured in European Size Units (ESU) per country and for the EU in total. A distinction between farm structures in New Member States and those in the EU-15 can be drawn. In New Member States like Bulgaria, Czech Republic and Romania, but also in the Baltic countries including Poland, a dual farm structure with small to very small sizes on one hand and more sizeable professional holdings on the other are common phenomena.

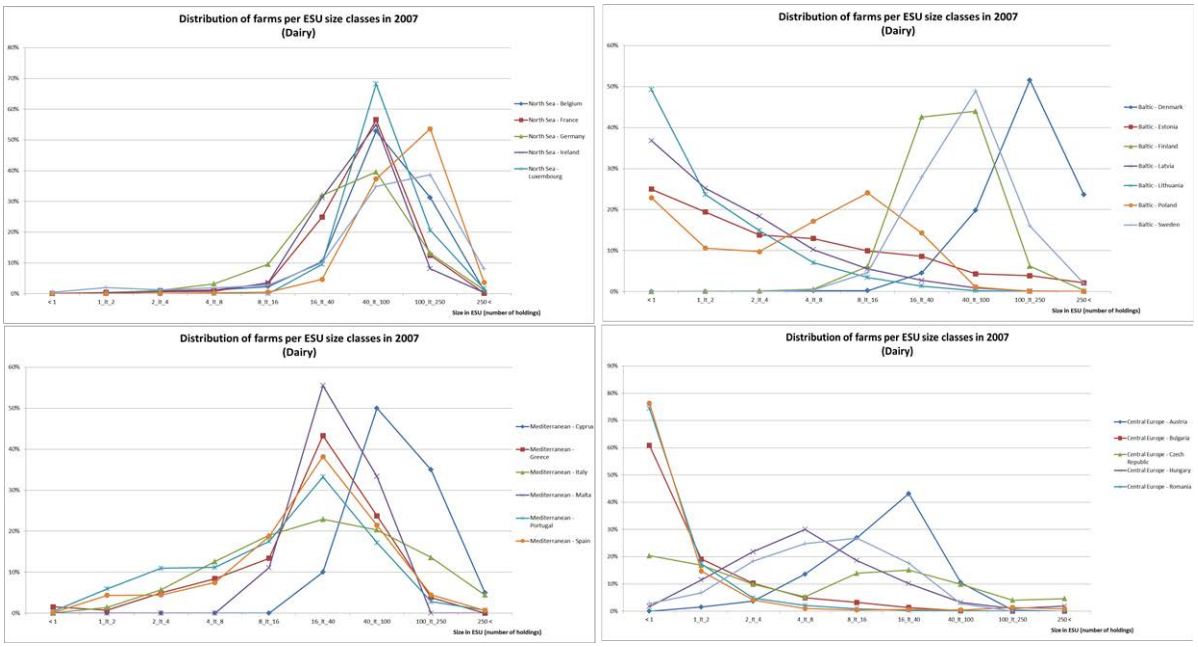


Figure 6 Number of farms by size class, measured in ESU, per specialist type of farming. *Source*: Eurostat

Specialisation of farm production

Cooperatives might not only have member-farmers with different farm sizes or different age. Farms also have a different composition of their production. This is even true for specialist farms, where for example some so called specialist dairy farmers also have beef or sheep or sell hay. In addition, a lot of mixed (non-specialized) farms exist. The heterogeneity of farming in terms of specialisation can be estimated by calculating the share that specialized farms have in total production. This is what Figure shows.

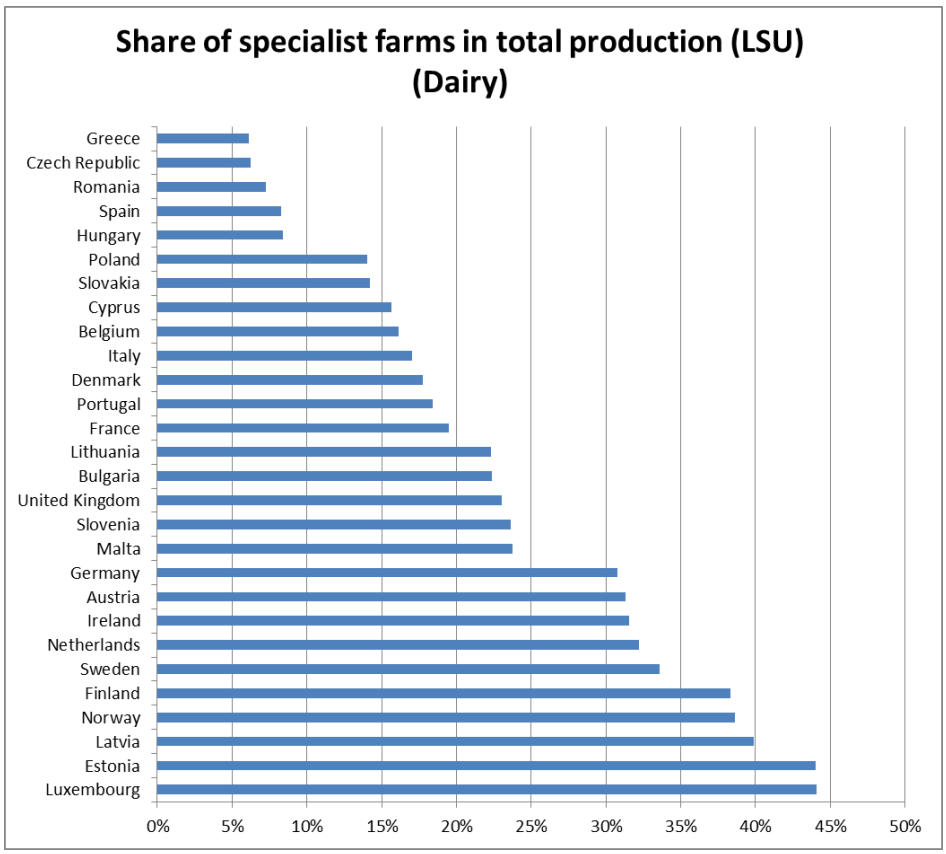


Figure 7 Heterogeneity in farm production – The share of specialist farm types in total production. *Source*: Eurostat

Between 6% and 40% of the cows are raised on specialist dairy farms, the others on more mixed types of farming, including farms that also produce meat. North European farms (including some of the Baltic States) tend to be more specialised than farms in Southern Europe. Interestingly, Denmark and Belgium have a relatively small share of specialist farms, even if both belong to the group of countries where milk production is highly industrialized.

2.4 Economic indicators of farms

The description of agriculture is concluded with some economic indicators (Table 2). These indicators focus on the net value added and income from farming for farmers, as well as the level of their investment. Some of this investment might be in equity of the cooperatives, but far the most will be in farm assets.

Table 2: Economic indicators for farms, a three year average 2007-2009

Dairy	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Germany	Greece	Spain	Estonia	France	Hungary	Ireland	Italy	
Economic size - ESU	88,47	5,15	-	81,33	198,83	70,90	41,20	39,67	40,27	64,67	53,63	57,53	71,00	
Total labour input - AWU	1,60	2,17	-	8,47	2,23	1,82	2,04	1,63	5,47	1,73	3,73	1,58	2,00	
Total Utilised Agricultural Area (ha)	46,38	10,93	-	201,17	117,57	60,43	13,17	22,14	188,88	73,51	87,05	54,37	29,49	
Total output €	147.398	17.323	-	240.976	516.926	159.463	122.853	112.636	157.774	129.471	150.323	119.792	171.098	
Farm Net Value Added €	73.815	7.509	-	98.605	178.384	65.271	34.003	56.950	60.908	44.290	53.858	56.273	84.735	
Farm Net Income €	57.353	5.352	-	32.701	23.586	42.297	29.088	53.982	27.418	32.256	24.798	44.255	75.110	
Total assets €	609.773	31.937	-	687.781	2.957.057	683.191	236.792	502.906	342.100	334.297	288.386	1.402.875	880.658	
Net worth €	471.414	29.096	-	518.226	1.104.864	571.259	234.929	487.705	234.175	209.066	204.009	1.346.674	858.738	
Gross Investment €	43.804	1.954	-	34.351	242.705	30.440	2.274	5.157	42.064	27.340	15.294	29.552	8.634	
Net Investment €	23.948	1.180	-	7.308	190.639	6.806	-3.351	-212	24.497	678	4.121	12.143	-6.974	
Total subsidies - excl.on investm. €	23.754	1.981	-	72.156	63.091	29.720	17.313	10.720	31.981	26.398	28.671	22.639	16.668	
Farms represented	6.207	15.700	170	910	4.447	63.670	1.220	23.773	1.300	53.070	2.903	19.413	23.093	

Dairy	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Austria	Poland	Portugal	Romania	Finland	Sweden	Slovakia	Slovenia	United Kingdom
Economic size - ESU	6,40	81,83	9,63	33,57	122,80	26,00	12,50	28,23	2,85	51,83	74,23	168,93	12,63	130,60
Total labour input - AWU	1,86	1,66	2,06	2,48	1,65	1,70	1,82	1,82	1,68	2,05	2,12	29,90	2,03	2,52
Total Utilised Agricultural Area (ha)	35,59	90,12	46,62	5,83	45,85	31,25	20,40	17,96	6,35	46,72	101,65	821,42	14,00	103,52
Total output €	25.037	188.346	27.244	176.115	237.559	64.804	29.145	66.102	11.541	96.635	218.528	631.768	35.987	312.640
Farm Net Value Added €	13.658	72.308	12.322	54.346	100.448	37.519	14.263	24.765	6.542	44.157	72.051	138.510	10.974	107.031
Farm Net Income €	14.914	57.193	11.481	50.329	56.081	32.739	13.036	21.611	5.763	35.406	37.752	-84.757	10.424	67.910
Total assets €	84.635	1.021.420	68.482	892.684	2.139.480	437.305	112.127	110.502	32.538	387.353	716.959	1.849.242	264.416	1.264.306
Net worth €	73.211	839.558	55.353	838.613	1.493.412	395.806	100.239	99.442	31.467	277.552	460.307	1.696.437	258.498	1.073.200
Gross Investment €	10.403	70.981	8.806	23.206	70.707	22.630	7.064	5.480	352	42.441	62.056	84.443	10.010	49.098
Net Investment €	7.308	22.937	4.766	16.546	41.479	7.225	2.952	-699	-431	15.449	31.214	-134.135	1.748	20.154
Total subsidies - excl.on investm. €	5.817	46.365	10.254	36.216	27.259	19.528	4.685	10.940	1.785	50.769	51.311	242.288	7.554	36.837
Farms represented	8.737	640	8.370	100	19.510	25.730	69.813	8.377	126.085	11.993	6.450	313	6.670	16.023

Source: DG Agri, FADN

The milk producing farms are typically larger than 50 ESU. The largest farms are in Denmark, Slovakia and the Netherlands. Based on output, Denmark and Latvia had clearly the largest production units; Luxembourg, the Netherlands, Sweden and Denmark are on top in the net investment numbers. The FADN data is, however, not fully representative for the whole EU dairy sector. The share of farms represented is in many countries rather low and concentrated in the largest size classes, which does not display the reality in the Balkans and Baltic States. In Slovakia the net value added and the net investments are both negative indicating some more severe structural problem regarding the future of dairy farms in Slovakia.

3 The evolution and position of cooperatives and their performance

3.1 Description of the food chain issues in the sector

With increasing demand – especially from the newly emerging economies such as China, India, Indonesia, or Brazil – future milk price volatilities are hardly predictable. Figure 8 displays trends in milk production for the most important milk producers.

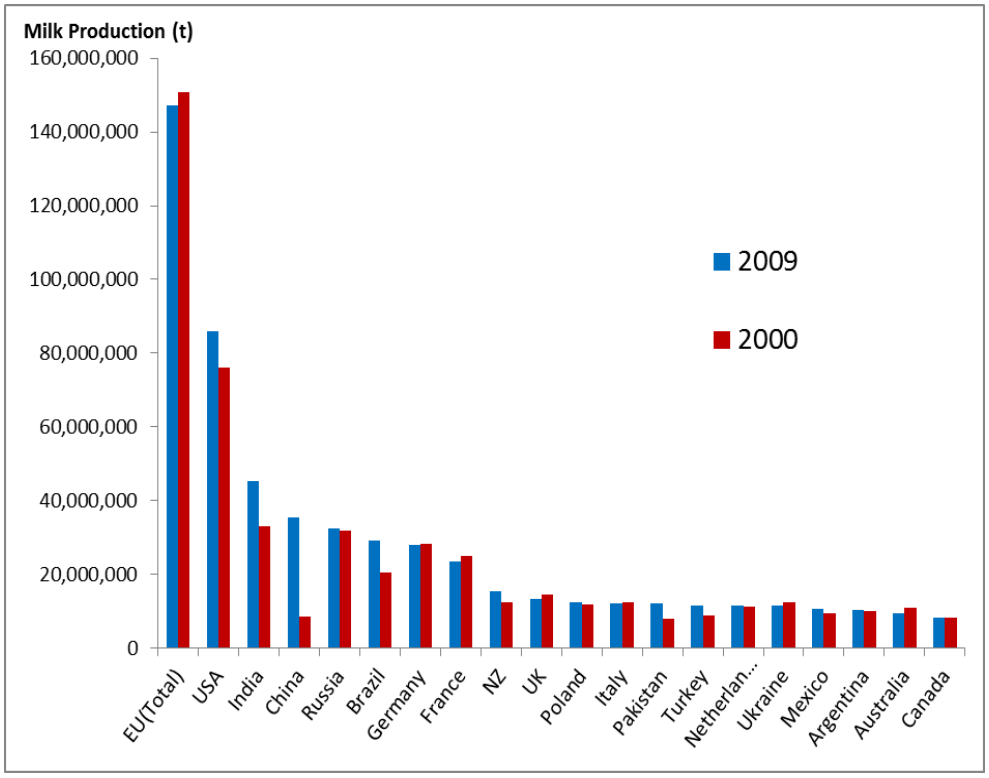


Figure 8 Trends in International Milk Production. Source: Faostat

The figure shows that over the last ten years some of the larger global producers have considerably extended their production. China, for example, has more than tripled its milk production and will soon catch up with India. Also, the large exporters such as the USA or New Zealand increased their production.

Another trend is that international milk trade is becoming more important. Consequently, dairies are increasingly becoming international. Within dairy product markets, it is observed that product differentiation, growth via mergers and product innovation become important strategies (Heyder et al., 2011). Harte & O'Connell (2007) analyse strategies among a number of larger cooperative dairies in Europe and find that the degree of diversification and internationalization and the volume of milk all seem to be positively related to the milk price paid to the members.

In Europe, dairy cooperatives are major players on the market. As indicated by Table 3, ten out of the "top 20"- largest European dairy companies are cooperatives. They control a large share of the turnover in the milk market.

Table 3: The 20 Largest European Dairies

Ranking	Company name	Country	Type of company	Turnover dairy products (in billion €)	Dairy share of total turnover	Processed milk (in billion kg)
1	Nestlé	CH	IOF	21.2	19%	12
2	Danone	FR	IOF	12.3	77%	n.a.
3	Lactalis	FR	IOF	9.1	97%	10.2
4	FrieslandCampina	NL	cooperative	8.8	98%	10.3
5	Arla Foods	DK/SE	cooperative	6.9	100%	8.7
6	DMK	DE	cooperative	4	100%	6.8
7	Sodiaal	FR	cooperative	4	100%	5.2
8	Parmalat	IT	IOF	3.9	89%	3.6
9	Bongrain	FR	IOF	3.6	100%	3.1
10	Groupe Bel	FR	IOF	2.4	100%	1.6
11	Tine	NO	cooperative	2.4	100%	1.4
12	Theo Müller Gruppe	DE	IOF	2.2	100%	2.6
13	Glanbia	IE	cooperative	2.2	84%	1.9
14	Emmi	CH	cooperative	1.9	100%	0.9
15	Dairy Crest	UK	IOF	1.9	100%	2.3
16	Valio	FI	cooperative	1.8	100%	2
17	Kerry Group	IE	cooperative	1.7	33%	n.a.
18	Wimm Bill Dann	RU	IOF	1.5	83%	n.a.
19	Hochwald	DE	cooperative	1.1	96%	2
20	Robert Wiseman	UK	IOF [2]	1.1	100%	2.1

Source: Zuivelzicht/Rabobank (2011)

In many countries cooperatives control major shares of the milk market. In some countries there are virtually no investor-owned dairies. The average share of cooperatives (weighted by turnover) in the dairy sector of the EU-27 is about 57% (own calculations). Figure illustrates the relative importance of cooperative organizations in the dairy sectors of the EU-27. With the exception of some smaller producers (Portugal, Malta, Slovakia), cooperatives dominate the dairy sectors in Central and Northern Europe. Strong cooperative movements in Scandinavia, Austria and Germany, but also agro-ecological differences, consumption patterns and the historical development of trade may contribute to explain this pattern.

[2] Robert Wisemann was listed as a cooperative in the original table despite the fact that it is a joint stock company.

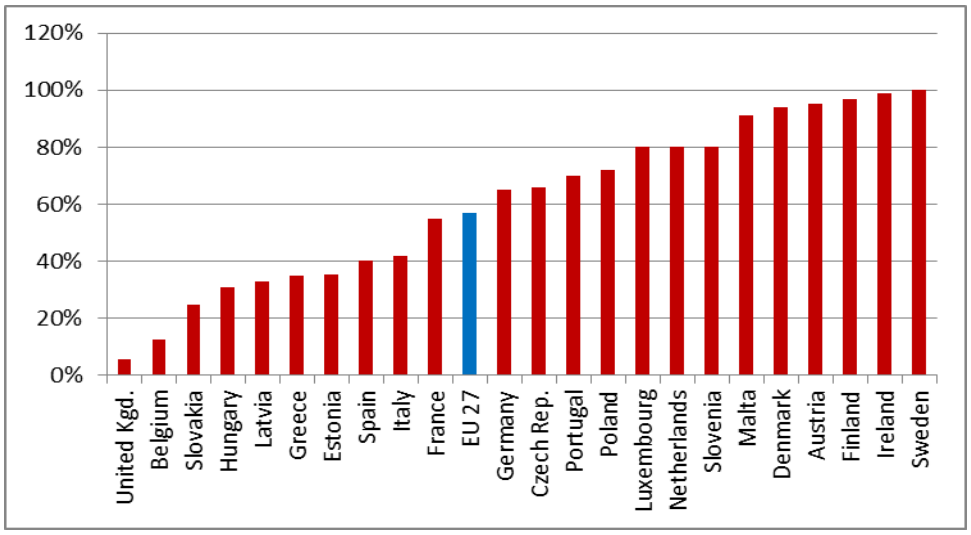


Figure 9 Relative Market Share of Dairy Cooperatives. *Source*: Country reports

Table 4 also summarizes the data on market shares and their development over time from the country reports.

Table 4: Market Share of Cooperatives in the dairy sector

	"2000"		"2010"		**Comments**
Country	**Number of members**	**Market Share (%)**	**Number of members**	**Market Share (%)**	
Austria	67,000	92	64,000	95	40% market share in milk collecting by the newly (2011) merged companies Berglandmilch and Tirol Milch
Belgium	n.a.	n.a.	n.a.	12.5	
Bulgaria	n.a.	n.a.	n.a.	n.a.	
Czech	n.a.	n.a.	n.a.	66	
Denmark	n.a.	n.a.	n.a.	94	Arla Foods 87%
Estonia	3000	33.0	377	35.1	
Finland	21407	96	10890	97	If ArlaFood's subsidiary is counted in, the market share is more than 99%
France	75000 (2003)	47 (2003)	45000	55	
Germany	165,000	60 (processing level: volume) 45 (turnover)	73,000	65 (processing level: volume) 50 (turnover)	Numbers on market share are estimates of experts
Greece	n.a.	20	n.a.	n.a.	
Hungary	414	27.5	558	30.8 (2008)	Prox. 30% in 2010
Ireland	86834	99	74882	99	
Italy		40		42 (2008)	
Latvia	15 (2004)	50 (2004)	17 (2008)	33.3 (2008)	Numbers refer to number of cooperatives
Lithuania	n.a.	n.a.	n.a.	25	
Luxembourg	n.a.	n.a.	n.a.	n.a.	
Malta	189	89	129	91	Total milk production
Netherlands	21600	83	15.200	>80	
Poland				70-74	
Portugal	n.a.	65 (2003)	n.a.	70 (2009)	
Romania	n.a.	n.a.	n.a.	n.a.	
Slovakia	6	9	18	24,5	Numbers refer to number of cooperatives

Slovenia	56 (2003)	n.a.	59 (2008)	80 (2008)	Numbers refer to number of cooperatives
Spain	43500 (2003)	40 (2003)	27800 (2008)	40 (2008)	
Sweden	n.a.	≈ 100	n.a.	≈100	Arla alone ca. 64%
UK	n.a.	n.a.	n.a.	5.5 (2009)	
TOTAL EU	n.a.	n.a.	n.a.		

Sources: Country reports

A major difference between IOF and cooperative dairies is the way they design milk delivery contracts with farmers. Typically, IOF dairies demand farmers to deliver fixed amounts of milk, whereas cooperative farmers have "a right to deliver" all of their produce to the dairy (Theuvsen, 2009).

Duration of the contract, delivered amounts and flexibility of amounts, price and regulation – including for example quality control rights, information duties – all are important attributes of contracts between dairies and farmers. With the announced end of the quota and the accompanying increase in production and price volatility, new types of contracts will emerge. Cooperative dairies may lack capacities to process additional amounts of milk expected to be delivered under "traditional" contracts. With the end of the milk quota, strategic positioning – especially growth strategies – will gain importance for both farmers and dairies. Communicating these strategies and designing tailored contracts will be a major challenge for milk-processing cooperatives and their farmer-members in the years to come (Spiller, 2009).

Internationally, cooperatives are not only important in processing, but also play a role in collective marketing and bargaining. In the US, for instance, three quarters of the dairies are bargaining cooperatives, handling a quarter of the produce while diversified and fluid processing cooperatives made up to 11% of all cooperative dairies but handled 66% of the produce (USDA, 2005). Also in Germany there are producer organizations and smaller region-based cooperatives which have given up own processing and now concentrate on collection and bargaining. The law for market structures, *Marktstrukturgesetz*, generally allows farmers to be members in several producer organizations at the same time. However, in the past bargaining cooperatives have frequently failed, often because they were unable to countervail the bargaining power of larger dairies (Theuvsen, 2009). On the liberalized milk market without quantity restrictions, farmers and their cooperatives will have to review their contract relations. The strengthening of the bargaining power of the farmer vis-à-vis ever ever-growing dairies, are two of the up-coming challenges cooperatives and their farmers face. Inside the cooperatives, the mechanisms of member-communication, internal governance and delivery rights may become the subject of reform efforts which may or may not be supported by policies. Outside at the market, farmers as well as their cooperatives will have to consider new means of networking and collective action to improve their overall bargaining position.

3.2 Performance of coops (market shares, growth, other indicators)

Rural cooperatives and producer organizations are a global phenomenon. They often dominate respective agricultural sectors in Europe, the US, Latin America and many regions in Asia (Chaddad, 2007). In order to explain this, the economic theory of cooperative organization has occupied prominent scholars of classical and neo-institutional schools of thought (Bonus, 1986; Cook, 1995; Hansmann, 1996; Helmberger & Hoos, 1962; LeVay, 1983; Marshall, 1890 [1920]; Nilsson, 1999; Pigou, 1924, Pigou, 1920; Staatz, 1983; Walras, 1865). Most of the contemporary approaches have their roots in classical and neoclassical treatments developed by the

eyewitnesses of larger cooperative movements at the beginning of the 20th century (Hoppe, 1976).[3]

While contributions of contemporary scholars focus on the dynamics of cooperative development (Chaddad, 2007; Cook, 1995; Cook & Iliopoulos, 1999; Hansmann, 1996; Ménard, 2007; Nilsson, 1999), classical theorists have often focussed on single functions that cooperatives fulfil in the development of the overall economic system (Cotterill, 1984; LeVay, 1983; Marshall, 1890 [1920]; Pigou, 1924, Pigou, 1920; Walras, 1865).

A function often allocated to the cooperative enterprise is the provision of higher margins and fair pricing for their members in a situation of market failure and structural imbalances (Royer, 1995; Sexton, 1986). Apart from the cooperative role in fair trade and in speciality and organic segments of agricultural markets which concentrate on particular characteristics of the product (Bacon, 2005; Levi & Linton, 2003), the question arises how cooperatives manage to provide fairer pricing to their members for the bulk types of agricultural commodities?

A particularly interesting approach to explain the function of a cooperative enterprise where markets are riddled by structural imbalances is The Competitive Yardstick Theory. This theory is inspired by Chamberlin´s seminal work on monopolistic competition (Chamberlin, 1933) and Andrej Shleifer`s work on controlling prices with inter-firm comparisons of large public service industries (Shleifer, 1985).

In a similar vein, Cotterill (1984) develops a theory of cooperative price, investment, and finance decisions under conditions of risk. He explains the pricing mechanism in a situation in which cooperatives and IOFs regionally coexist. In this situation, members of the cooperative can judge the fairness of IOF pricing by the cooperative´s internal pricing mechanism. Over time, cooperative price information spills-off into the public domain and serves market actors as a "yardstick" for the overall performance of the market system. Cooperative prices then become disciplining factors for the prices comparable industries offer, thereby contributing to the price development of the overall economy.

Cotterill´s argument works in both directions: for situations where a cooperative exists to supply members with cheaper inputs; *ceteris paribus* the presence of a cooperative enterprise over time will lower regional prices. For situations in which cooperatives exist to retail or process primary products of members, the presence of the cooperative leads to higher producer prices. A similar argument is provided by LeVay´s "Pacemaker theory" (Chaddad, 2007; LeVay, 1983).

Ironically it is to be expected that once a cooperative by means of its services and pricing method has established some degree of market dominance, other firms may have to pay a price premium in order to attract customers, so that the price benefit for non-members may even exceed the benefit for cooperative members. In this situation, it may be difficult for the cooperative management to keep members motivated to finance the cost of maintaining a superior market position and therewith the yardstick effect because non-members can free-ride on these price advantages.

In order to further analyse and explain the impact and performance of cooperative organization in the European dairy sectors we suggest a simple analytical model in which prices paid to producers depend – among other things – on the relative strength of cooperatives in the sector (also see Harte & O'Connell, 2007). According to the competitive yardstick theory of cooperatives, a high share of cooperatives in a country will result in a relatively higher price for

[3] See for example Hansmann (1996) for agency and ownership cost advantages, Bonus (1986) for information cost advantages, Eschenburg (1971) for economies of scale advantages. An overview over famous classical and neoclassical treatments of the cooperative can be found in Hoppe (1976).

producers. This will in turn force investor-owned firms of that country to pay higher prices to farmers (also see Shleifer, 1985). Cooperatives may also strive to pay higher prices for the produce of their members, as they are not primarily profit-oriented (Steffen, Schlecht, & Spiller, 2009; Theuvsen, 2009). IOFs – in the vicinity of cooperatives – may have to pay price premiums in order to attract customers.

For this analysis we use Eurostat panel data on milk farm gate prices, maize fodder prices, per capita GDP and trade balances for the years 2000–2010 for the EU-27. In addition, we make use of two time-invariant dummy variables for the importance of dairy cooperatives per country which we derived from several sources, including the country reports.[4] Table 5 shortly describes these variables.

Table 5: Variable Description Milk Price Model

Variable	Description
Price	Farm gate price in Euro for 100 kg milk
LNmaize	Natural logs of fodder maize price 100 kg
LNgdp	Natural logs of per capita GDP
Trade balance	= Milk exports - milk imports in million t
COOP_DOM	=1 if cooperatives have a market share of more than 50% (turnover)
COOP_IMP	=1 if cooperatives have a market share of 20–50% (turnover)

Source: own design

Maize and other fodders are an important input into dairy farming and an increase of its price, most probably will also increase the price of milk. GDP is an important control variable. It may proxy incomes, price level, efficiency, labour and capital intensity of agriculture. For trade balance we expect that exporting countries have a competitive advantage that should be reflected in lower domestic prices. We include the dummy variables on dairy cooperative market share to test whether the price is higher in countries which have relatively more cooperatives.[5] Table 6 presents summary statistics for these variables.

Table 6: Summary Statistics for the variables used in the regression model

	N	Mean	Std. Dev.	Minimum	Maximum
Price	241	29.68	6.38	13.83	47.50
LNmaize	172	2.73	0.33	2.00	3.51
LNgdp	297	9.67	0.81	7.44	11.30
Trade balance	213	0.24	0.19	-0.46	0.96
COOP_DOM	297	0.48	0.50	0.00	1.00
COOP_IMP	297	0.33	0.47	0.00	1.00

Source: Eurostat, Country Reports, own calculations

In our analysis we fit the following basic regression model (also see Allison, 2009 and Rabe-Hesketh & Skrondal, 2008):

$$y_{it} = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i + \varepsilon_{it}$$

where y_{it} is the dependent variable – farm gate milk prices for country *i* and year *t*. The μ_t are time-variant intercepts, the x_{it} are time-variant independent variables (fodder prices, GDP and trade balance), the z_i are time-invariant variables (the Coop share dummy variables from Table 5), β and γ are parameter vectors to be estimated and α_i and ε_{it} are error terms for constant

[4] We would like to thank Petri Ollila and Hanna Karikallio for generously sharing their approach and data with us. We applied a similar model to the dairy sector as they did for pig meat.

[5] To reduce skewness, we used log-transformed data for GDP and maize prices. For price (almost normally distributed without transformation) and trade balance (negative values) we use untransformed data.

country effects over time and random variation over time and countries, respectively. The results for different model specifications are presented in Table 7.[6]

Table 7: Regression results farm gate price milk

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pooled	Pooled	Pooled	Fixed Effects	Random Effects	Random Effects	Random Effects
LNmaize	5.3643***			6.3341***	6.2534***	5.8297***	
	(1.1596)			(1.6789)	(1.3467)	(1.3932)	
LNgdp	5.5283***	3.7857***	4.2484***	3.4771	3.3360***	4.3188***	6.6643***
	(0.9823)	(0.6094)	(0.7230)	(2.5193)	(1.1220)	(1.5383)	(1.1797)
tradebalance	3.1101*	-1.4078	-1.3194	-0.5390	1.0665	1.2843	0.6986
	(1.6075)	(1.8426)	(1.9343)	(3.8064)	(2.6755)	(2.7410)	(2.8013)
coop_dom	2.7437**		4.4416***			3.2266	4.6116
	(1.1683)		(1.2863)			(2.3921)	(3.2970)
coop_imp	6.0670***		4.6068***			4.4870	6.3669*
	(1.5860)		(1.5309)			(2.9591)	(3.6204)
_cons	-43.5053***	-6.8838	-15.5306**	-21.8858	-20.7767**	-32.6368**	-40.3495***
	(9.2661)	(6.0425)	(7.5250)	(22.6860)	(10.2766)	(14.7195)	(12.4975)
N	104	175	175	104	104	104	175
chi2					48.5476	52.0167	35.6425
r2_a	0.5353	0.1738	0.2210	0.1242			
N_g				16.0000	16.0000	16.0000	23.0000
r2_o				0.4727	0.4867	0.5450	0.2297
F	24.7267	19.2963	13.3396	10.8687			

Standard errors in parentheses

Own calculations

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Eurostat, Country Reports, own calculations

As expected, an increase in maize price has a positive effect on farm gate milk prices. Depending on the particular model, a unit increase in log maize prices increases the milk price by

[6] The first three columns display estimation results for simple pooled OLS regressions, the fourth column presents a fixed effects model (where γz_i and α_i drop out of the equation) and the last three columns random effects models. We have used the Hausman test to check models 4 and 5 for systematic differences of the estimated coefficients (Hausman, 1978). The test statistic ($Chi^2(3)= 0.39$, p-Value=0.9421) shows that the null hypothesis of equal coefficients cannot be rejected – a result we already could have guessed from looking at the comparatively small differences between coefficients and standard errors of the two models. Assuming uncorrelated γz_i and α_i thus seems reasonable. Given this assumption, the statistically more efficient random effects model yields consistent estimates, even if we do not control for unobserved time-invariant heterogeneity. To estimate the effect of the time-invariant dummy variables denoting the share of cooperatives in the sector, we have included them in the pooled and random effects models. To increase the number of observations, we have also estimated two models (2, 3 and 7) without the maize price. In Eurostat panel data for several different fodder prices are available. The ones which are relevant for dairy farming have a high number of missing observations. There are even more missing observations for other data on fodder prices. In models 1, 3, 4 and 5 some countries completely drop out of the analysis due to missing data. These are Estonia, Finland, Ireland, Italy, Latvia, Poland, Malta and Sweden – hence our decision to trade-off an important explanatory variable for more observations.

approximately 6 Euros for 100 kg.[7] Also, per capita GDP increases farm gate milk prices. Depending on the particular model, a unit increase in logged GDP increases the milk price by a factor of about 4.[8] For the trade balance we cannot say anything definite. The coefficients change their signs and because of high standard errors are statistically not different from zero. Most probably this is the case because the data are relatively noisy (also see Table 6).

Interestingly, we observe a positive effect of the share of dairy cooperatives on milk prices in all four models which include these variables (1, 3, 6 and 7).[9] Moving from a cooperative market share below 20% (the reference category) to a share of 20–50%, increases the milk price by roughly 4.50 to about 6.00 Euros – a relative increase of more than 15%. A further increase in the market share of cooperatives beyond 50% then slightly decreases prices, but price levels remain well above the reference category.[10] Depending on the particular model, farmers still receive 2.50 to 4.50 Euros more for 100 kg milk compared to countries where cooperatives are unimportant in dairy. From these findings the question whether cooperatives generally pay a higher price to their members immediately follows.

To answer this question we have collected monthly price data for a number of large dairies in Western and Central Europe (January 2007 to August 2011) from the European Milk Board (EMB, 2011) on both investor-owned firms and cooperatives.[11] The price differences are displayed in Table 8.

Table 8: Comparison of Milk Prices paid by large Western European Dairies (Euro/100 kg) differentiated by Cooperative and Investor-owned Firms

Time	Cooperatives (Mean, SD, N)	Investor-owned Firms (Mean, SD, N)	Price Difference (Cooperatives - Investor-owned firms)	Test statistic (p-Value)
Dec 2007 – Aug 2011	28.25, 4.41, 442	29.10, 3.99, 157	-0.85**	2.480 (0.0131)
2008	31.43, 3.47, 123	32.82, 2.90, 47	-1.39***	2.589 (0.0096)
2009	24.18, 2.55, 137	25.25, 2.52, 47	-1.07***	2.589 (0.0096)
2010	28.42, 3.32, 131	28.48, 2.06, 43	-0.06	0.752 (0.4520)
2011	30.77, 3.83, 47	30.05, 1.28, 19	0.72	-0.135 (0.8929)

Source: EMB (2011), own calculations

[7] If, for instance, the price of maize increases from 20 to 30 Euros, the milk price increases by approximately 2.43 Euro ((ln (30) – ln (20)) * 6).

[8] For a GDP increase from 15,000 to 20,000 Euros per capita this would mean an increase in farm gate milk price of about 1,15 Euro ((ln(20,000) – ln(15,000)*4).

[9] In all models the two dummies add to the explanatory capacity (Adjusted R^2 increases from model 2 to 3, and overall R^2 increases from model 5 to 6). Also the Chi^2 statistic increases from model 5 to 6. In the OLS regressions an F-Test shows, that the two dummies are jointly different from zero. The same does not hold for the random effects models, however. Here the higher standard errors lead to wider confidence intervals. The sizes of the coefficients are somewhat similar across all models, however.

[10] From these results it seems as if there was an inverted quadratic relationship between the market share of cooperatives and farm gate price in European countries. We have modelled this relationship with the available data and found that, indeed, such a relationship exists and is relatively robust. Our results indicate, that – depending on the particular model assumptions – the farm gate price maximizing market share of cooperatives is between 56% and 62%.

[11] The dairies in the sample are Arla and the Arla Group (DK, UK), Berglandmilch (AT), CONO (NL), DFOB (UK), DOC (NL), Dairy Crest (UK), EKABE (LU), First Milk (UK), FrieslandCampina (NL), Glanbia (IE), Gmundner Milch (AT), Humana (DE), Nordmilch (DE)[11], MGN (AT), Mila (IT), Milk Link (UK), Müller (DE) and Tirolmilch (AT). For these dairies we have in total price data for 599 months. Roughly three quarters (73.8%) of these data are for cooperatives, the remaining quarter for investor-owned firms.

Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test[12]

* p < 0.10, ** p < 0.05, *** p < 0.01

From Table 8 we see that cooperatives on average pay less than investor-owned firms. Except for 2011, this is also the case when we analyse the single years 2008 to 2011.[13] The difference is, however, decreasing over the years and most recently cooperatives have reached a point where they even pay more than investor-owned firms. At this point, there is no strong evidence that dairy cooperatives pay more.

To account for one problem with the dairy data, we repeat this analysis for price differences from the national mean. We use the same Eurostat data as in the econometric model above – yearly farm gate milk prices for the EU-27. From this we calculate the price difference $pricediff_{icmy}$ for dairy *i* in country *c*, month *m* and year *y* as follows:

$$pricediff_{icmy} = price_{icmy} - countryprice_{cy}$$

where $price_{icmy}$ is the price the dairy pays and $countryprice_{cy}$ is the average milk price for country *c* in year *y* taken from the Eurostat data. The results are presented in Table 9.

Table 9: Comparison of Milk Price Differences paid by large Western European Dairies (Euro/100 kg) differentiated by Cooperative and Investor-owned Firms

Time	Cooperatives (Mean, SD, N)	Investor-owned Firms (Mean, SD, N)	Price Difference (Cooperatives - Investor-owned firms)	Test statistic (p-Value)
All years	-3.77, 4.33, 371	-0.64, 2.45, 127	-3.13***	7.878 (0.0000)
2008	-4.69, 4.94, 123	-1.25, 2.52, 47	-3.44***	4.830 (0.0000)
2009	-3.45, 3.63, 137	-0.43, 2.40, 47	-3.02***	5.125 (0.0000)
2010	-3.26, 4.08, 107	-0.34, 1.78, 32	-2.92***	4.089 (0.0000)

Source: EMB (2011), Eurostat (no data for 2011, no data for France, no data for Germany 2010), own calculations

Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test

* p < 0.10, ** p < 0.05, *** p < 0.01

From the comparison we see that the dairies in our sample on average pay below the country price. In 372 of 498 (about 75%) of the observations the price difference is negative. Also here, cooperatives pay less. The results are even more pronounced. When standardized by the country average, cooperatives pay about 3 Euros less than IOFs per 100 kg of milk. Assuming a milk price of 30 Euros/100 kg this is ten per cent less – a substantial amount. To test the robustness of this surprising finding, we make use of two more dairy price datasets. Firstly, we utilize more data on European dairies (LTO Nederland, 2011) and conduct the same analysis as for the EMB data.[14] Secondly, we use dairy price data of the largest European milk producer –

[12] For simplicity, we assume that the price data are independent of the particular dairy and time.

[13] The data were not sufficient to perform a similar analysis for 2007.

[14] The LTO data include the following companies: Milcobel (BE), Müller (DE), Humana (DE), Nordmilch (DE), Arla Foods (DK), Hämeenlinnan Osuusmeijeri (FI), Bongrain CLE (FR), Danone (FR), Lactalis (FR), Sodiaal (FR), Dairy Crest (UK), First Milk (UK), Glanbia (IE), Kerry (IE), DOC Kaas (NL), Friesland Foods/Campina/FrieslandCampina (NL) and Granarolo (IT). Partly, the prices refer to the same dairies as in the European Milk Board data. There, however, price differences between the two data sets even for the same dairy and the same month due to different accounting and standardization practices. One problem with the LTO data is that there are only five investor-owned dairies, three of which are in France. Unfortunately, there is no Eurostat data available for France which makes comparisons between cooperatives and investor-owned firms difficult for price differentials from the country average.

Germany (Agrar Heute, 2011).[15] Detailed results are presented in the appendix. The comprehensive results are presented in Table 10.

Table 10: Price Differences in Euro/ 100 kg milk between Cooperative and IOF Dairies

Time	EMB data	EMB data standardized by countries	LTO data	LTO data standardized by countries	Agrar Heute German dairies
Full Period	-0.85**	-3.13***	-0.51	-1.49	0.23
2007					0.07
2008	-1.39***	-3.44***	-0.42	-0.73	-0.08
2009	-1.07***	-3.02***	-1.62***	-1.60***	0.65**
2010	-0.06	-2.92***	-0.46	-2.26**	0.56*
2011	0.72		0.88		0.41*

Source: Agrar Heute (2011); EMB (2011); LTO Nederland (2011); Eurostat, own calculations

Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

As we have already seen in the other European dataset, on average cooperatives pay lower prices than investor-owned firms. In the LTO data, this difference was particularly large in 2009. An exception is the year 2011. Until August, cooperative dairies have paid on average 88 cents more than investor-owned firms, very similar to the 72 cents in the other dataset. Most of the differences in the LTO data are not statistically different from zero, however. To account for country differences we have also calculated deviations from the Eurostat country prices – analogous to the procedure with the LTO data. Again cooperatives pay less than IOFs.

The German data have the advantage that country effects are eliminated.[16] Contrary to the European data, German cooperatives pay more than IOF dairies, even though these differences are comparatively small and statistically different from zero on the 5% level only in 2009. However, the maximum of 65 cents that cooperatives have paid more in 2009, can also not explain the large price increases we see on the country level for countries with strong dairy cooperatives.

To sum up, it seems as if an overall strong cooperative sector increases prices in the country while at the same time this may not necessarily be attributable to the prices individual cooperatives pay. Rather, a strong cooperative sector makes *all* dairies pay higher, while dairy cooperatives – at least in our limited sample – even pay a little less than investor-owned firms. In the two European datasets (EMB and LTO) cooperative dairies on average pay less than IOF dairies – in all studied periods except 2011. This finding is a little less pronounced in the LTO data.[17] Nonetheless, there are clear indications that the substantially higher prices paid in countries with large market shares of cooperatives do not result from higher average prices,

[15] In total, data from 25 dairies with 1,116 monthly prices from July 2007 to June 2011 are compared between cooperatives (41.04 %) and investor-owned firms (58.96%). Again, these data are not representative for Germany and would ideally be weighted by the market share. In Germany by turnover the dairy cooperative share is about two thirds.

[16] Of course, regional differences remain. It is a well-known fact that South-German dairies on average pay more than their Northern competitors. Often, these price differences are explained by the proximity to the Italian import market.

[17] The small number of observations for investor-owned firms may partly explain the lower p-values in the LTO data. Because the three French investor-owned firms drop out due to missing Eurostat data in the LTO price difference column, only two investor-owned dairies (Müller and Dairy Crest) remain in the sample. Due to missing data for Germany for 2010, only Dairy Crest remains for 2010. Thus, the comparison is solely based on Dairy Crest and Müller as investor-owned firms.

because cooperatives pay more. Rather, on the European level even the opposite seems to be the case. Partly, these lower prices may be explained by the differences in contracts. As mentioned earlier, farmers usually sell all their produce to the cooperative, whereas investor-owned firms often buy fixed contracted amounts. It may thus either be the case that IOF dairies have to pay a premium for not buying all milk, or that cooperatives have higher costs because they cannot plan as reliable as IOF dairies and may have too much or too little capacities for processing.

From our limited data it is difficult to conclude which of the two countervailing effects is larger. If, as we estimate, a strong cooperative dairy sector increases milk prices by 2.50–6.00 Euros this effect would dominate the lower prices by individual cooperatives. Western European dairies in our sample pay about three Euros less. Thus, in most cases a net benefit would remain for farmers in countries with strong cooperatives. Ironically, on the European level, this benefit is higher for farmers who trade with IOF dairies. These findings are very much in line with the competitive yardstick theory.

This may also mean that in a situation with a high market share, cooperatives set the price. As their cost of capital is rather low (e.g., tax advantages in some countries, lower risk premium asked by farmers for their investment as they have low returns on capital themselves, often backed by a low leverage due to high land values), they pay a relatively high price. However having a large market share, they are also the 'swing producer' that has some milk for the bulk market segments (milk powder etc.), or there may be some cooperatives which specialise in that. IOF dairies in the same region may focus on specialty products and have to pay a higher price to compensate for the fact that farmers face a risk that their market disappears suddenly. In addition, IOF dairies may be able to offer higher farm gate prices from selling more higher-value products than cooperatives.

3.3 Description of largest farmer's cooperatives in the sector

In this section we present the most important dairy cooperatives for each country and Europe as a whole. For this purpose we have created two tables from the country reports. Table 11 presents the most important cooperatives per country and Table 12 the largest cooperative dairies in Europe.

Table 11: Most important cooperatives in dairy per country

Country	**Names of Cooperative**	**Turnover 2010* (million Euro)**
Austria	1. Berglandmilch	770
	2. NÖM AG	345
	3. Gmundner Molkerei	170
	4. Tirol Milch	136
	5. Alpenmilch Salzburg	114
Belgium	1. Milcobel	873
	2. Molkerei – Laiterie Walhorn	n.a.
	3. Eupener Genossenschaftmolkerei	n.a.
	4. Laiterie Des Ardennes	n.a.
	5. Compagnie Fermière de l'Entre-Sambre-et-Meuse	n.a.
Bulgaria	1. Edinstvo(Единство)	n.a.
	2. Izgrev-93(Изгрев-93)	n.a.
	3. Kablehkovo(Каблешково)	n.a.
	4. Jitnica(Житница)	n.a.
	5. Tetovo(Тетово)	n.a.
Czech	1. Mlékařské a hosp. družstvo JIH	74.5
	2. Mlékařské hospodářské družstvo Střední Čechy	50.0
	3. Morava, mlékařské odbytové družstvo	43.7
	4. VIAMILK CZ družstvo	33.1

	5. MILKAGRO a.s.	28.7
Denmark	1. Arla Foods Amba	6183
	2. Thise Mejeri Amba	66
	3. Them Andelsmejeri	n.a.
	4. Bornholms Andelsmejeri	32
	5. Naturmælk AmbA	26
Estonia	1. Piimandusühistu E-Piim (Dairy cooperative E-Piim)	32.5
	2. Saaremaa Piimaühistu (Saarema Dairy Cooperative)	18.7
	2. Rakvere Piimaühistu (Rakvere Dairy Cooperative)	8.9
	3.Tori-Selja Piimaühistu (Tori-Selja Dairy Cooperative)	3,4
	4.Tulundusühistu Mulgi Piim (Cooperative Mulgi Milk)	2,1
Finland	1. Valio	1844
	2. Osk. Pohjolan Maito	224
	3. Osk. Maitosuomi	160
	4. Osk. ItäMaito	258
	5. Osk. Tuottajain Maito	157
France	1. SODIAAL UNION	4500
	2. EVEN	1767
	3. GLAC	n.a.
	4. 3A	n.a.
	5. EURIAL	n.a.
Germany	1. Nordmilch eG	1862
	2. Humana Milchunion eG	1692
	3. Hochwald Nahrungsmittel-Werke GmbH	1692
	4. FrieslandCampina Germany GmbH	875
	5. Bayernland eG	615
Greece	1. U.A.C. of Kalavryta	n.a.
	2. DODONI S.A.	n.a.
	3. NEOGAL	n.a.
	4. U.A.C. of Naxos	n.a.
	5. TRIKKI S.A.	n.a.
Hungary	1. Alföldi Tej Értékesítő és Beszerző Kft.	n.a.
	2. Fehérvár-Tej Tejértékesítő és Beszerző Kft.	n.a.
	3. TEJÉRT Tejértékesitő és Beszerző Kft.	n.a.
	4. Magyar-Tej Értékesítő és Beszerző Kft.	n.a.
	5. Fino-Tej –Tejtermelői Csoport Értékesítő Szövetkezet	n.a.
Ireland	Kerry Group	4790
	Glanbia	2232
	Dairy Gold	688
	Lakeland Dairies	434
	Connacht Gold	310
Italy	Granlatte	917
	Consorzio Latterie Virgilio	398
	Granterre	223
	Cooperlat	225
	Latteria Soresina	222
Latvia	1. LPKS "Trikāta KS"	n.a.
	2. LPKS "Piena ceļš"	n.a.
	3. LPKS "Dzēse"	n.a.
	4. LPKS "Māršava"	n.a.
	5. LPKS "Kalnmuiža"	n.a.
Lithuania	1. Kooperatinė bendrovė „Dzūkijos pienas“	n.a.
	2. Žemės ūkio kooperatyvas „Pakražantis“	n.a.
	3. Žemės ūkio kooperatyvas „Rešketėnai“	n.a.
	4. Kooperatyvas "Pieno puta“	n.a.

	5. Žemės ūkio kooperatyvas „Pienas LT“	n.a.
Luxembourg	1. Luxlait Association Agricole	n.a.
	2. Procola (subsidiary of Milch-Union Hocheifel eG)	n.a.
	3. Fairkoperativ, SC	n.a.
Malta	Koperattiva Produtturi tal-Halib Limitata (Milk Producers Co-operative Ltd)	n.a.
Netherlands	1. FrieslandCampina	8972
	2. DOC Cheese	390
	3. CONO Cheesemakers	175
	4. Rouveen Cheese Specialties	87
	5. Delta Milk	27
Poland	1. Mlekpol	n.a.
	2. Mlekowita	n.a.
	3. Łowicz	n.a.
	4. Piątnica	n.a.
	5. Spomlek	n.a.
Portugal	1. União das cooperativas Produtoras de Leite	175
	2.União das Cooperativas de Lacticínios Terceirenses, UCRL (Azores)	64
	3. Cooperativa Agrícola de Barcelos, CRL	63
	4. Proleite- Cooperativa Agrícola de produtores de leite do centro litoral, CRL	62
	5. União das Cooperativas de lacticínios dos Açores	57
Romania	1. Societatea Agricola Prolactoserv	n.a.
	2. Cooperativa Agricola Sulita	n.a.
	3. Biolact Cooperativa Agricola	n.a.
	4. Arinisul – Calimani Cooperativa Agricola	n.a.
	5. Tataragro Cooperativa Agricola	n.a.
Slovakia	1. Odbytové družstvo mlieka Levice, družstvo	n.a.
	2. Výrobno odbytové družstvo Mliečny východ	n.a.
	3. NOVOMILK Slovakia, a.s.	n.a.
	4. SAVYN, odbytové družstvo	n.a.
	5. Odbytové družstvo mlieko Bebrava	n.a.
Slovenia	1. KGGZ Slovenj Gradec	n.a.
	2. KZ Trebnje	n.a.
	3. MLEKARSKA ZADRUGA Ptuj z.o.o.	n.a.
	4. KGZ Sloga Kranj	n.a.
	5. KZ Cerklje	n.a.
Spain	1.Covap, S.C.A	n.a.
	2. SAT Central Lechera Asturiana	n.a.
	3. Feiraco, S.C.G	n.a.
	4. Kaiku, S.Coop	n.a.
	5. Cadi S.C.C.L.	n.a.
Sweden	1. Arla Foods (DK)	n.a.
	2. Skånemejeriers ek. för.	370
	3. Milko ek. för.	252
	4. Norrmejerier ek. för.	201
	5. Falköpings mejeri ek. för.	64
UK	1. Milk Link ltd.	676
	2. First Milk ltd.	659
	3. United Dairy Farmers ltd.	n.a.

	4. Fane Valley Co-operative Society	n.a.
	5. Ballyrashane Co-operative Agricultural and Dairy Society (1990) Limited	n.a.

*: 2010 or latest year available

Table 12: The largest farmers' cooperatives in the food chain of dairy, by turnover 2010

	Name of the Cooperative	**Country**
1.	FrieslandCampina	Netherlands
2.	Arla Foods	Denmark/Sweden
3.	Kerry Group*	Ireland
4.	Sodiaal Union	France
5.	Glanbia	Ireland
6.	Nordmilch**	Germany
7.	Even	France
8.	Valio	Finland
9.	Humana**	Germany
10.	Hochwald Nahrungsmittel-Werke	Germany

* It is questionable whether the Kerry group can be classified as a cooperative, as only a fifth of the company has remained in the hands of the farmers.

**Merged to DMK in 2011 (German Milk Kontor)

Nordmilch and Humana after having merged (DMK), account for a common turnover of approximately 4 billion Euro in 2010 and would rank fourth. In addition, the DMK revealed in autumn 2011 the intention to merge with the Dutch dairy cooperative DOC Kaas. Very recently (3 November 2011), the merger has, however, failed as the necessary two third majority of the DOC Kaas members has not been reached in the general assembly. Together the three companies would have been among the top three European dairy farmers´ cooperatives.[18]

In some cases it is difficult to classify a business entity solely as a farmers´ cooperative due to its hybrid character. For example the Irish Kerry Group, where the original Kerry Cooperative holds merely 22.8% shares of the demutualized Kerry Public Limited Company.[19] However, even if we would not consider the Kerry Group to be a cooperative, following the definition of cooperatives in section 1.3, the market share of cooperatives in Ireland would still remain dominant – for instance with Glanbia which also controls a large share of the market.

Transnational cooperatives

Many cooperatives are active internationally. In most cases the foreign activities of cooperatives are limited to marketing, trade and sales. Usually, they do not buy agricultural products from farmers or supply inputs to them. However, there is a growing group of cooperatives that do business with farmers in other EU Member States. We call these cooperatives international cooperatives. They can be marketing cooperatives which buy from farmers in different countries or supply cooperatives which sell inputs to farmers in different countries. One particular group

[18] Critical members in the Dutch farm press cited the lack of transparency towards the membership assembly. Requests for information on the balance sheet of DMK and the milk prices paid out by Humana and Nordmilch (and if they had been paid from operational income) in recent years were said to have been turned down. We would like to thank Krijn Poppe for providing us with this assessment of the Dutch farm press.

[19] More detailed information is presented in the Irish Country Report.

of international cooperatives are the so-called transnational cooperatives. These cooperatives do not just contract with farmers to buy their produce, but are actively engaging in membership relations. In other words, a transnational cooperative has members in more than one country. Table 13 presents the transnational and international cooperatives in the European dairy sector.

Table 13: Transnational cooperatives and international dairy cooperatives which are trading with farmers

Name of the Cooperative	**Mother country**	**Countries involved in:**
Transnationals		
Milcobel	BG	Netherland, France
Arla Foods	DK/SE	Germany, Sweden (Milko)
Milch-Union Hocheifel EG	DE	Belgium, Luxembourg
Glanbia Co-op/Plc	IE	USA- Idaho and New Mexico
Dairygold	IE	France
FrieslandCampina	NL	Germany, Belgium
DOC Kaas	NL	Germany
Internationals		
NÖM AG	AT	UK, Ukraine, Hungary, Italy
Berglandmilch e Gen	AT	Slovenia, Czech Republic, Hungary, Italy, Estonia,
Milcobel	BG	Netherland, France
Arla Foods	DK/SE	UK, Poland, Germany, Finland, Saudi Arabia
Piimandusühistu E-Piim (Dairy cooperative E-Piim)	EE	Russia
Valio (subcompany Valio Eesti AS)	FI	Estonia
Sodiaal	FR	Italy, Spain, Portugal, Germany, United Kingdom, Ireland…??
Hochland	DE	Romania
Hochwald	DE	Netherland
Kerry Group	IE	France, Italy, Poland, the UK, North and South America, Africa and Asia
Glanbia	IR	UK, Belgium, France, Germany, North and South America, Africa and Asia
FrieslandCampina	NL	Hungary, Rumania, Greece, France, Belgium, Germany,

Source: Country Reports

A few countries do not have transnational cooperatives. According to the country reports, these are Bulgaria, Czech Republic, Greece, Latvia, Italy, Lithuania, Malta, Portugal, Romania, Slovakia, Slovenia and Spain. There are no international cooperatives in Malta and Slovenia.

4 Assessment of developments among cooperatives

4.1 The institutional environment

Today, dairy cooperatives are often large and increasingly international enterprises (Heyder et al., 2011). In most Western European countries they are major players who often control large shares of the dairy market – according to our estimates 57% in the EU-27. In the Scandinavian countries, Austria and Ireland (also see the discussion on the Kerry group above) there are virtually no IOFs, but also in Germany, Portugal, Czech Republic, Poland, Malta, Luxembourg, the Netherlands or Slovenia they control more than half of the market. Only in a few countries, such as UK, Belgium, Slovakia, Hungary, the Baltic States and Greece, cooperatives are relatively unimportant. Yet, in most countries (more than 80%) they are still well above a market share of 20%. As also depicted in Figure , dairy cooperatives fulfill different functions for their members, which also considerably differ between countries.

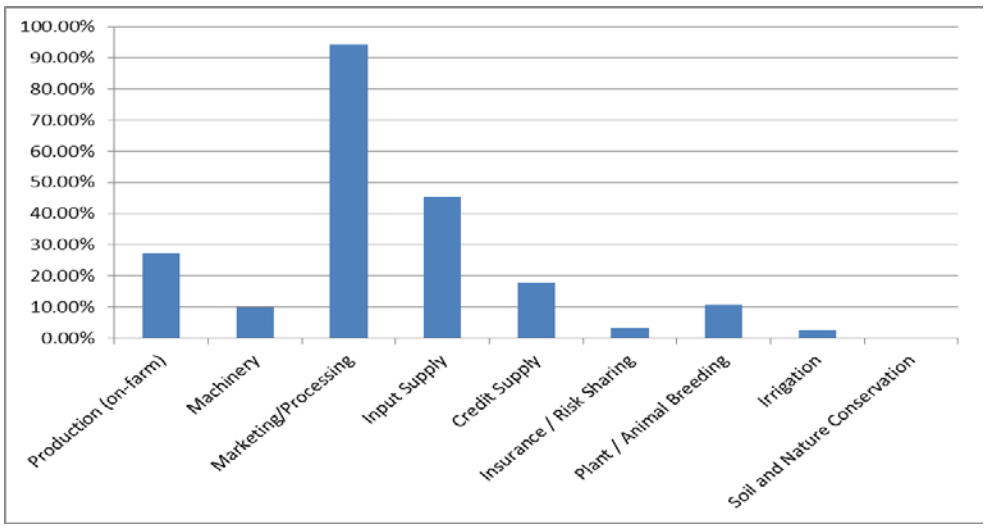


Figure 10 Relative Frequencies of Functions of Dairy Cooperatives. Source: Own data "Support for Farmers' Cooperatives" project

More than 90% of the sampled cooperatives are engaged in marketing and processing of milk. Almost half of the cooperatives also supply inputs to their members. In some countries – such as Ireland, France, Portugal or Czech Republic – a large share of the cooperatives supplies inputs to its members. In others – for instance Germany, Denmark, the Netherlands, Austria or Sweden – cooperatives do not provide inputs for their members.

More than 25 per cent of the cooperatives are also producers of milk. Production cooperatives are predominately located in Estonia, Spain, Greece, Romania, Slovakia or Romania. In most Western and Northern production is organized on private farms and the dairy's function is limited to processing and marketing.

About 20% of the dairies also supply credit to their members – half of the sampled dairies in Hungary, about three quarters of the Irish and all Romanian dairies do so. Also, both dairies from Malta in the sample (one of which is not engaged in processing but mainly in animal breeding and production) supply credit to their members. In all other countries, either a very small share or no dairies at all are active in credit provision. In almost all Western and Central European countries – Ireland being a prominent exception – credit is not supplied by dairies.

A few dairies are also engaged in machinery provision, animal breeding, irrigation and insurance or risk sharing (about ten per cent and less). Again, country-specific characteristics explain the relative share of these functions. All dairies which also provide irrigation, for instance, are

located in Latvia. Cooperatives also use different strategic generic strategies (Porter, 1980), as depicted in Figure 11.

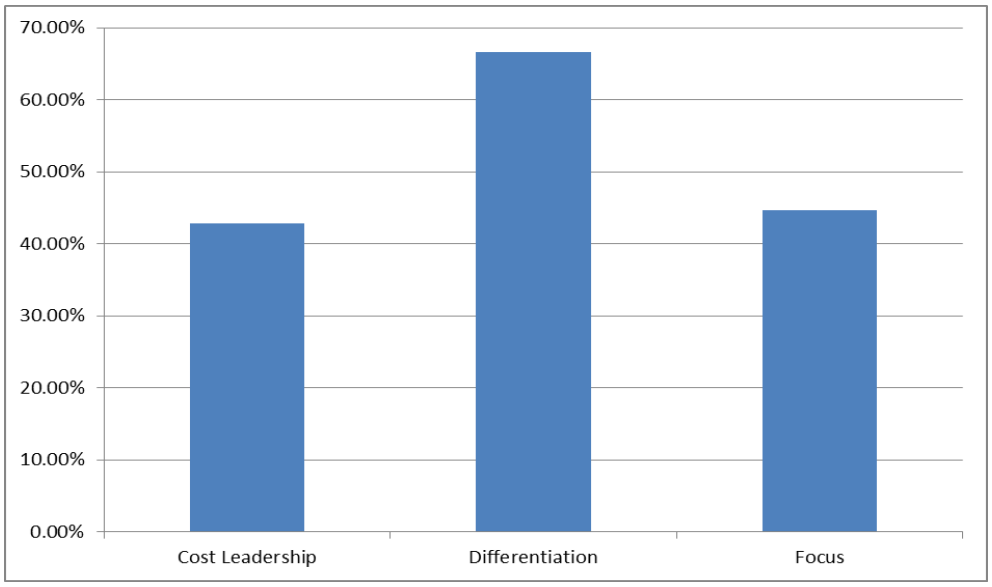


Figure 11 Relative Frequencies of Generic Strategies of Cooperative Dairies. Source: Own data "Support for Farmers' Cooperatives" project

Obviously, many dairies could not be classified into a single strategy (the frequencies add up to more than 100%). Most dairies (~65%) follow a differentiation strategy and a little more than 40% follow cost leadership and focus strategies. Like before, there are differences in these figures between countries. Cost leadership is mainly pursued by cooperatives in the new Eastern member states, for example in Romania, Estonia, Hungary or Slovakia. In Denmark, German, Austria. Sweden, Ireland or the United Kingdom cost leadership is relatively unimportant as a generic strategy.

For differentiation the figures are somewhat reversed. This strategy is, for instance, relatively unimportant in Estonia, Hungary or Slovakia. Similarly, relatively few cooperatives in these states follow focus strategies, which is much more common in the old member states. It may as well that a lack of capital prohibits the research and development needed for differentiation in these countries.

4.2 The role of cooperatives in the food chain

Dairies are placed at different positions of the food chain. Cooperatives in dairy may also be more or less vertically integrated. Related functions range from simply providing market access, over gaining market power by bundling farmers to the collection, processing, retailing and wholesaling of processed products. **Chyba! Nenalezen zdroj odkazů.** depicts relative frequencies of the position cooperatives take in the food chain.

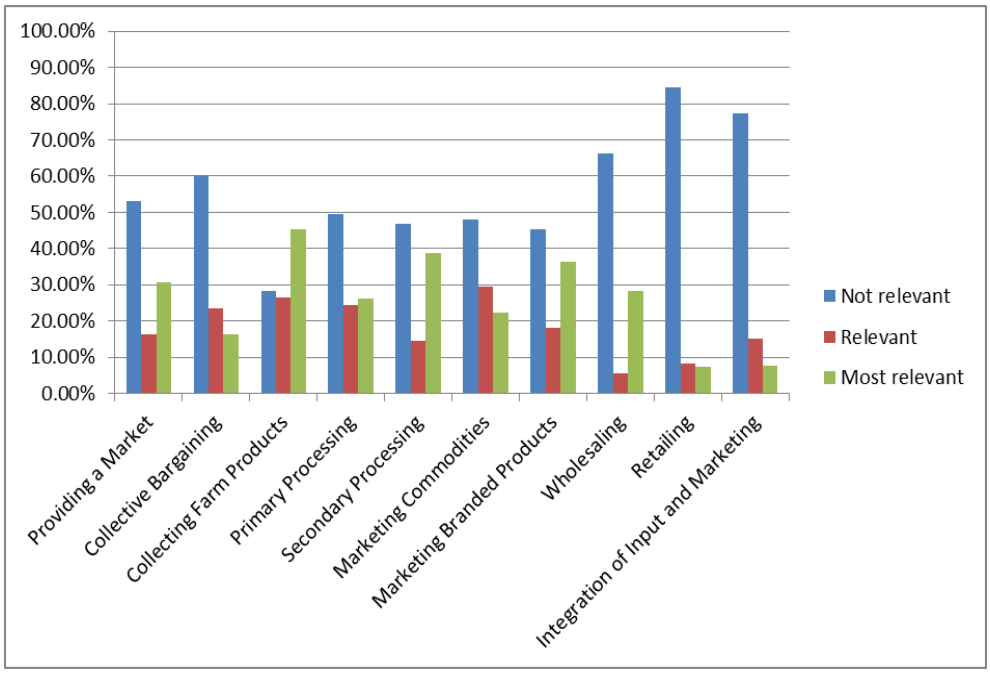


Figure 12 Relative Frequencies of the Position of Dairy Cooperatives in the Food ChainSource: Own data "Support for Farmers' Cooperatives" project

Apparently, dairy cooperatives are most relevant in collecting, processing, and marketing of milk. However, many cooperatives also are engaged in positions even closer to the farmer – providing a market and collective bargaining. Supplying input to the farmers is, however, largely irrelevant. Only about 20% of the cooperatives integrate marketing and input supply – with the aforementioned regional specialities (e.g., credit an input supply by cooperatives Ireland). About half of the cooperatives are engaged in marketing of both commodities and branded products. More than 30% of the sampled cooperatives are also involved in wholesaling. For wholesaling we see a strong polarization; either this field is very relevant or not relevant at all for dairies. For very few dairies this is of medium-range relevance. Most probably, large dairies trade most of their produce directly with the large food companies on a wholesale level, whereas small dairies sell to intermediate traders.

Cooperatives are also important in marketing branded products and providing a market. Dairies are rather irrelevant in retailing produce and the integration of input, processing, and marketing. The position in the food chain may also very much relate to growth strategies. Some dairies may follow a horizontal growth strategy to gain market power and therewith countervail power of large food retailers, whereas others may specialize in niche products or value addition which calls for vertical growth. These strategies will also be influenced by the national market structures, e.g. competition in the industry or a country's competitive advantages in value-addition for certain products such as cheese. Figure depicts relative frequencies of growth strategies pursued by individual cooperatives.

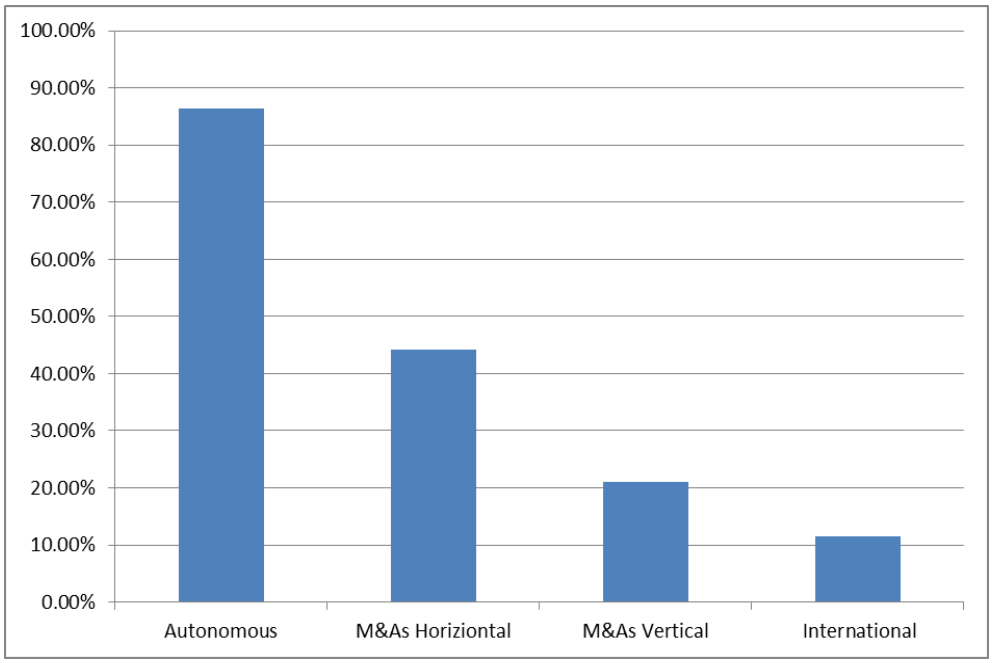


Figure 13 Relative Frequencies of Dairy Cooperatives' Growth Strategies**.** *Source*: Own data "Support for Farmers' Cooperatives" project

The vast majority of the sampled cooperatives try to grow autonomously and more than 40% of the cooperatives try to grow by horizontal mergers and acquisitions. About a fifth also tries to grow by vertical mergers and acquisitions, most probably by integrating higher-level processing or wholesaling activities.

All cooperatives which do not engage in autonomous growth follow a strategy of horizontal mergers and acquisitions. A relatively high share of these dairies is located in the newly emerging milk exporting countries Lithuania, Latvia and Poland where consolidation and concentration processes of the sector happen at an even faster pace than in the West (van Berkum, 2007). But also the largest European dairy cooperative FrieslandCampina focuses on growth by mergers and acquisitions and does not pursue autonomous growth. Again, country differences exist for the growth strategy regarding horizontal mergers and acquisitions. In some countries there are no sampled cooperatives which are following this strategy, for example Slovakia (most probably because many of the local dairies are production cooperatives), Czech Republic or Sweden. In most other countries there are at least some cooperatives which pursue growth by horizontal mergers and acquisitions. Little surprisingly, many of the large cooperative dairies in the sample such as First Milk, Bergland Milch, Gmundner Milch, Humana or Nordmilch[20] state they are interested in growing by horizontal mergers and acquisitions. On the other hand, there are some large dairies in the sample – Milcobel or Sodiaal would be prominent examples – which focus more on vertical growth. This preference for vertical mergers and acquisitions as a growth strategy is particularly pronounced among French, Irish, Italian and Portuguese dairies. The reason may be that the comparatively higher importance of processed dairy products such as cheese or butter in these countries (also for export) makes vertical mergers and acquisitions more attractive. In some low-value markets also mergers and acquisitions to produce milk powder may play a role.

[20] By 2011, the latter two have merged into the newly named Deutsches Milchkontor (DMK).

International mergers and acquisitions are pursued mainly by a few large dairies, including Arla, Berglandmilch and FrieslandCampina. A few Irish cooperatives which are also active in other sectors such as pig meat and cereals are an interesting exception.

To sum up, Western European cooperatives often pursue differentiation strategies, whereas in the most new member states cost leadership dominates as a generic strategy. All of the larger dairy cooperatives in our sample have plans to grow by mergers and acquisitions. While the Dutch, Danish or German cooperatives mainly engage in horizontal activities to gain market share, French, Italian, Portuguese or Irish dairies focus on vertical integration in their growth strategy. Supposedly, these differences are related to differences in the relative importance of processed dairy products and the concentration of food retailers and thus the importance of bargaining power in these countries.

4.3 Internal Governance

A large variety of mechanisms exists to govern the enterprise. Clearly, these may vary between organizations, sectors and countries, for example with respect to incentive aligning contracts or reputation enhancing mechanisms (Hansmann, 1996). Regarding the internal governance of cooperatives, Cornforth (2004) highlights the main areas of conflict in the cooperative enterprise. Cooperative members want to be represented in interest groups within the firm, whereas outsiders and their expert knowledge also have to be brought in. What is more, performance and accountability need to be balanced. In addition, managements need freedom and support on the one hand, but have to be controlled on the other. These problems have been solved differently across sectors and countries. The following information is taken from the Internal Governance Report.

In the data on individual cooperatives, some of these mechanisms of governance differ strongly between sectors. Board composition and structure of dairy cooperatives, for instance, differ from other sectors. On average, 17 per cent of the dairy cooperatives have professionals serving on their board, which is more than in other sectors (fruit/vegetables and wine) and only slightly less than in cereals and meat. There are also differences within the dairy sub-sample. As one would expect, the larger the cooperative (measured by turnover) the more likely it is that professionals serve on the board. In the lower half of the distribution only 8% of the dairies have professionals serving on their boards; in the upper half these figures increase to 26%. More often than in other sectors, cooperatives are organized in holding structures. Strategic decisions on the organization of enterprise may explain this phenomenon (Nilsson, 1999). Mergers and acquisitions have led to increased market concentration – often deemed necessary to countervail increasing concentration of market power on the retailer's side (Fahlbusch et al., 2011). In addition competition and scale economies – for instance in research and development – may explain the prevalence of holding structures. Again, the larger the cooperative, the more likely it is organized in a holding structure (26% in the lower half vs. 34% in the upper half of the turnover distribution).

Another structural peculiarity worth to note, is that about a fifth of the cooperatives, use product groupings. This is not the case for any of the sampled cooperatives in other sectors. Once more, large dairies make use of this mechanism more often. Large cooperatives with a diverse product portfolio, may want to make sure that members are represented in interest groups according to specialized products. Members may also demand such mechanisms from their cooperatives.

More than any other sector, dairies make use of subsidiaries. About a quarter of the dairies have subsidiaries, as compared to only 7–14 per cent for the other. For the upper half of the dairies (by turnover) these figures go up to more than 30%.

Compared to other sectors, dairy cooperatives and their members maintain closer ties, as reflected in the smaller openness to non-members and the relatively high shares of dairies who

do not engage in trade with non-members. This finding is mirrored in the literature on milk delivery contracts (Spiller, 2009; Steffen et al., 2009; Theuvsen, 2009). However, in our sample we also observe some considerable polarization between countries. In some countries (Austria, Denmark, Estonia, Finland, Greece, Ireland, Sweden and Slovakia) farmers are free to choose whom to deliver their produce to, whereas in other countries (Belgium, Czech Republic, Germany, Spain, France, Hungary, Malta, Netherlands, Portugal, Romania, Slovenia and the United Kingdom) all sampled cooperatives use contracts where farmers have to deliver all their produce to the cooperative exclusively. In only a few countries (Italy, Lithuania, Luxembourg, Latvia and Poland) contractual diversity exists within the sample.

Most cooperatives (~65%) in the dairy sector do not differentiate milk prices for farmers – as compared to roughly 50% of the other sectors that do so. Most probably, product characteristics – milk is comparatively homogeneous – play a role here. The large and statistically significant difference with the more heterogeneous wine and fruit and vegetables sectors further supports this notion. While quality may not play a large role, quantity does. Many dairy cooperatives pay premiums for large trade volumes (~40%). This may be explained by the high relative share of transportation costs. With relatively little value added per kg (compared to wine, fruit and vegetables or meat) high volumes may help to reduce transport costs. This notion is supported by the high share of cereal cooperatives which pay volume premiums – the only sector where value addition is presumably below the milk sector.

The differences between large and small dairies are again notable. Almost 60% of the large cooperatives pay volume premiums, compared to less than 20% of the small. Larger cooperatives are also more likely to apply differentiated cost policies, supposedly because they have a larger product portfolio and therefore demand more differentiated milk qualities.

To sum up, dairy cooperatives – especially large ones – differ from cooperatives in other sectors in several ways. On average they have more professionals serving on the board of directors. They are also more often organized in holdings and more often have subsidiaries, which we can attribute to the international orientation of dairy cooperatives. Also, contracts where farmers have to deliver all their produce – and cooperatives have to buy all produce – are more prevalent among dairies. Few cooperatives differentiate costs, but many pay premiums for large volume trade. Supposedly, the relatively low value per kg can explain these practices, especially as the figures are mirrored by cereals – the other "low-value sector."

5 Overview of policy measures and assessment of the influence of policy measures on the evolution and current position of cooperatives

5.1 Introduction

The performance of cooperatives (including producer organisations) is influenced by the regulatory framework. This framework is multi-level: EU regulations, national laws and – in some countries – even regional policies influence the way cooperatives can operate. In this chapter we look especially at the regulatory framework that influences the competitive position of the cooperative versus the IOF and the regulations that influence the competitive position of the cooperative versus other players in the food chain.

5.2 Overview of regulatory framework including fiscal and competition issues

Table 14 below identifies the policy measures that influence the competitive position of the cooperative versus the investor-owned firm, or the competitive position of the cooperative versus other players in the food chain.

Table 14: Explanatory Table for Policy Measures

Country	**Score**	**Name of Policy Measure**	**Type of Policy Measure**	**Objective of the Policy Measure**	**Target of the Policy Measure**	**Expert comment on effects on development of the cooperative**
EU Country code (ISO 3166)	NA	Integated CMO Regulation ((EC) 1234/2007, and (EC) 361/2008)Official name of the policy measures (In English)	**1. Mandate** e.g. 1.1. Cooperative legislation/ incorporation law e.g. 1.2 Market regulation and competition policies **2. Inducement** e.g. 2.1 Financial and other incentives **3. Capacity Building** e.g. 3.1 Technical assistance **4. System Changing** **5.Other**	**1.** Correction of market or regulatory failures **2.** Attainment of equity or social goals1	**1.** Specific to cooperatives **2.** Specific to an agricultural subsector **3.** Applicable to business in general	Description on how the policy measure affects development of cooperatives, by reasoning through the building blocks: - Position in the food chain - Internal Governance - Institutional environment of the cooperative

The following table (

Table 15) summarizes the most important policy measures on the EU level. These data are taken from the policy measures document.

Table 15: Most relevant policy measures at EU level affecting the dairy sector

Country	Score	Name of Policy Measure	Type of Policy Measure	Objective of the Policy Measure	Target of the Policy Measure	Expert comment on effects on development of the cooperative
EU	NA	Health Check Smooth landing Quota increment	2	2	3	The health check paved the way for significant alterations to the CAP and impacts the operation of cooperatives in various ways. At this general level one could say it made a change to the institutional environment in which cooperatives operate.
EU	NA	Crisis dairy sector Resolution 2010/C 224 E/05	2	1	2	By signing this resolution, the Commission has responded to the crisis in the dairy sector. Afterwards, the milk prices became more stabilised. COPA-COGECA has been very critical about the actions undertaken by the Commission. In their opinion, there should be continuous action to strive towards a healthy dairy sector.
EU	NA	Council Regulation 1782/2003 direct support schemes for farmers	2	1	3	The Regulation strives towards a market-oriented and sustainable agriculture and provides a decoupled income support for farmers. The Regulation mainly deals with environmental and employment issues.
EU	NA	School Milk Programme	5	2	2	Similar to the School Fruit Scheme, albeit for the dairy sector. Additionally it promotes product differentiation, creating added value in the food chain and improving the potential competitiveness of the sector and the cooperatives.
EU	NA	Commission Implementing Regulation 543/2011	2	2	2	7 June 2011, very recent. This document describes an implementation of Integrated CMO Regulation ((EC) 1234/2007
EU	NA	Council Regulation (EC) No 1184/2006	1.2	1	3	This is a specific regulation with the aim to extend rules on competition to the agricultural sector, in order to avoid the distort of competition and the abuse of dominant positions in the agricultural sector.
EU	NA	Joint Production Agreements	1.2	1	3	The EU competition laws recognise the benefits of cooperation between farmers. The Joint Production Agreements provide flexible approaches to cooperation. Cooperative organisations are considered as contributing towards the rationalization and modernisation of the agricultural sector.
EU	NA	Community Competition Law	1.2	1	3	The competition law regulates the market power and aims to ensure a borderless European internal market with free flow

		(97/C 372/03)				of goods, working people, services and money. The competition law protects the market against unfair practices and treatments.
EU	-2	Council Regulation (EC) No 1698 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)	Community legislation supporting agricultural and food products. Definition of entities admitted to "funding and incentives"	Defining of entities admitted to "funding and incentives"	Target of the policy were the large companies, cooperatives and non-cooperatives, operating in the agri-food industry that have been excluded from access to European funding for rural development	The 2007-2013 Rural Development Policy has introduced laws that have negative impact on cooperatives. The regulation (EC) 1698/2005 provides the exclusion of large-sized cooperatives from the European Agricultural Fund for Rural Development grants (previously all firms, cooperative or not, were entitled to that type of support). According to the new laws, now only the intermediate-sized companies (up to 750 employees and with turnover lower than 200 million euros) can take advantage of financial support (with the intensity of support decreased by 50%). Consequently, even the EU guidelines on state aid acted in the same direction (C 319/01/2006). This orientation has hindered the development of cooperation, especially in countries where, like in Italy, the average size of cooperatives is still limited and the agricultural production processed and marketed by farmer's cooperatives is lower than in other countries (especially Northern Europe). The leader cooperatives can no longer rely on the aid from EU member countries and this fact goes against the aim of promoting the concentration of supply of farm production and the income level of farmers. Larger cooperatives are usually those that can improve members' products (by setting the prices of members' agricultural products above the average), through increased efficiency (scale economies), a greater degree of market power (integration of supply) and a better management of assets that are more profitable for members (marketing, manufacturing their own brand, etc.). To avoid this measure limiting the development of the Italian agri-food cooperation, the Italian cooperatives have requested exclusion of cooperatives from limitations related to the size, within the CAP reform debate.

Source: Own data "Support for Farmers' Cooperatives" project

Table 16 summarizes policy measures for the countries, where cooperatives dominate the dairy sector, i.e. the share of cooperatives is above 50%.

Table 16: Most relevant policy measures in countries where cooperatives have a dominant role in the dairy sector

Country	Score	Name of Policy Measure	Type of Policy Measure	Objective of the Policy Measure	Target of the Policy Measure	Expert comment on effects on development of the cooperative
AT	2	Tax Law	**2.**			In principle, cooperatives are liable to pay corporate income taxes on their income as legal person; trade tax on their trade profits and trade capital by virtue of their legal status; property tax on their property. All taxes are payable by cooperatives on the basis of the same principles on which they are payable by all other taxpayers. There are some tax exemptions for special types of cooperatives and specific trade or processing functions. Agricultural marketing and processing cooperatives (dairy, wine, fruit and vegetable) which are selling their members` products after having refined or processed them are excluded from corporate income tax if certain economic and financial conditions are prevailing. But, this tax exemption works only for a limited share of the regular business of the above mentioned types of cooperatives. Cooperatives are entitled to deduct the membership business assets from their gross operating assets but only if their gross operating assets do not exceed certain upper limits. Cooperatives are tax exempt if less than 10% of their taxable turnover is comprised by specific businesses that are subject to these rules. Today, most of the cooperatives are far beyond that limit.
DE	2	Tax Law	2.	2.	3.	In principle, cooperatives are liable to pay corporate income taxes on their income as legal person; trade tax on their trade profits and trade capital by virtue of their legal status; property tax on their property. All taxes are payable by cooperatives on the basis of the same principles on which they are payable by all other taxpayers. There are some tax exemptions for special types of cooperatives and specific trade or processing functions. Agricultural marketing and processing cooperatives (dairy, wine, fruit and vegetable) which are selling their members' products after having refined or processed them are excluded from corporate income tax if certain economic and financial conditions are prevailing. But, this tax exemption works only for a limited share of the regular business

						of the above mentioned types of cooperatives. Cooperatives are entitled to deduct the membership business assets from their gross operating assets but only if their gross operating assets do not exceed certain upper limits.
DE	1	Law for Adjusting Agricultural Production to Market Requirements ("Marktstrukturgesetz") from 1969	1.1. & 1.2		2.	In its original formulation, §7 of the law drew a clear line between producer associations based on the German Law and producer organisations based on European Community Law. Producer organisations (EU law) are primarily found in the fruit and vegetable sector; producer associations (German law) are important in the hop, potato, hog and piglet, and quality grain sector. The attainment of state recognition is a precondition for producer associations to apply for financial support and to receive legal competitive privileges. The development of these producer associations has not been that successful as the initiators expected them to be. There are numerous obstacles in the internal organisation, behavioural attitude of its members towards the association, the precondition for the development of promising marketing activities, and management problems prevent these producer organisations from being a favourable alternative for cooperative solutions.
DK	1	Consolidated Act on Taxation of Companies	2.1	2	3	In general, commercial cooperatives are taxed at 25% of the taxable income/surplus as are public and private limited liability companies. When fulfilling specific conditions some types of commercial cooperatives can have different kinds of tax benefits. They can be taxed only at 14,3% of 4 or 6% of a positive balance when fulfilling the following conditions: (1) a purpose of furthering the common business interest of at least 10 members through the participation of these persons in the activity of the company as buyers, suppliers or in any other, similar way (2) a turnover with non-members that does not exceed 25% of the total turnover. (3) and whose profit, other than normal interest on the paid-up capital (normally = to discount rate of Danish National Bank), can be distributed to members as dividend in proportion to their turnover with the company. According to section §14.2 dividend is free of taxation.
DK	1	The Competition law	1.2	1	3	The Danish Competition Act and other legislation in relation to competition are to a large degree similar to Community law. The opportunities for agricultural producers to group together are also a result of the

						implementation of the relevant Community law.
FI	-1	Tax regulation	2.1	2	1	The taxation of interest paid to members of cooperatives differs from taxation of dividends paid to IOF owners. The tax free interest is much smaller for cooperative owners than for IOF owners (1.500€ vs. 90.000€)
FI	-	Competition law	1.2	1	3	According to the Act on Competition Restrictions Section 2 Paragraph 2 the Act does not apply to agreements, decisions or other comparable acts regarding primary production of agricultural products made by agricultural producers or agricultural producer organisations, when such acts promote increase of productivity, functioning of markets, availability of food supplies and achievement of reasonable consumer prices as well as lower the level of costs. According to Paragraph 3, however, the Act does apply to acts specified in paragraph 2 if they significantly restrain healthy and functioning competition in agricultural product markets or lead to abuse of a dominant market position.
FR	3	Law of 5th August 1920 art. 1382-6° General Tax Code (GTC) Loi du 5 août 1920 art. Code Général des Impots1382-6°	2.1	2	1	Exoneration of **property tax** for properties with buildings permanently and exclusively dedicated to farming using by cooperative companies and their unions.
IE	-2	Competition Law	1.2	1.	3.	One of the main customers for agricultural co-operatives are the food retailers. The retail sector has become very concentrated with three large players dominated the market. Many of the retailers are small scale players by comparison. Competition law has limited the ability of co-operatives to work together and act as a countervailing force to the powerful retailers.
IE	-1	Co-operative Law/PracticePractice	1.1	1.	1.	The manner in which co-operatives operate in practice in Ireland has limited their access to capital. This has arisen mainly due to the culture surrounding agricultural co-operatives in Ireland. Investment by members has been very limited and co-operatives rely on borrowings for investment. This limitation has motivated some co-operatives to change their structure to PLC/hybrid PLC status. This has been done to access funds for investment in particular investment for internationalisation. The result has been to dilute the co-operative influence among the larger agricultural co-operatives. In

						some cases it has led to internal division between producer and investor interests.
IT	3	Law No 4 of 3 February 2011 (and previous laws on labeling of food products). *Measures relating to labeling and quality of food productsproducts*	1.2 & 5.		2.	The Law No 4/2011 introduced the compulsory labeling of farming place of food products. This law is the logical continuation of a series of legislative acts that in the past decade introduced the obligation to designate the place of farming on the label of many important foods (eggs, milk, beef, meat chicken, tomato sauce, extra virgin olive oil and honey). This issue has been long under examination by European Union institutions*. In this framework of mandatory indication of the place of origin, Italian farmers' cooperatives are ahead respecting to other companies. The cooperatives are the ideal subject for communicating the place of origin of food products to interested consumers, thank to the traceability assured by this form of firms. In fact, most of the Italian cooperatives mainly use the raw material of agricultural members for production. Evidently this feature facilitates the implementation of the procedures required by the tracking systems and the promotional communication, which is based especially on the geographic origin of the products. ** (see country report)*
MT	2	Income Tax ACT Chapter 123 Article 12 (1) (q)	2.11	1 & 21 & 2	11	The Income Tax Act Chapter 123 exempts Cooperatives Societies, Both Agricultural and not from paying Income Tax, on the other hand, the Cooperatives Societies ACT 30 of 2001 obliges all Cooperatives to pay 5% of their surplus to the Central Cooperative Fund.
NL	2	Tax regimeregime	2.	2.	Business in general plus special provisions for cooperativescooperatives	The concept of vertical integration provides an advantage over IOF, effect is unclear. In case of profits no divend tax, but economic effect is small Small cooperatives can have some additional small advantages (see text)
NL	-	Competition law	1	1.	General	No special clauses for coops. Netherlands is a small country with a lot of potential imports
PL	2	Amendment of the Producer Group's Law of Dec 15th, 2006	1.2.	1	1	Producer groups can get income tax reduction for selling the products that they are registered for. Moreover, they are free of property tax for the buildings that are connected to production of the goods the

						group is registered for. This legislation improves the situation of the producer groups, providing enhancement to start an organised group. However, both of these reductions in reality can be assessed as secondary important for PGs – most of newly established producer groups have no buildings yet, and the main reason for starting a group is common purchase and common bargaining when selling the products.
PL	0	Introduction of milk quota in the Polish market, after the EU accession (2004).	1.2.	11	22	Introduction of milk quota enforced some dairy cooperatives to limit their production. This regulation might have but not necessarily have an impact on the diary sector (in terms of position in the food chain and the institutional environment).
PL	2	Possibility to obtain help by producer group and dairy cooperatives from programs focused on processing: "Increasing value added", within Rural Development Programme 2007-2013, First Pillar	2	1.1.	22	The position of many cooperatives in the food chain is weak. Obtaining financial help by producer groups and cooperatives enables them to develop presence in the wider range of the food chain and strengthens the position of cooperatives in the market. Food processing is of particular importance.
PT	-1	Competition law	1.	1	3	The main aim is protect the consumers (monopoly power). Needs to be reformulated to simultaneously fight and eliminate monopsony power along the total agro -food chain. Necessary to implement regulation and control of commercial practices of the players with significant market power
SE	1	The Taxation law	2.1	2	1	The taxation law permits deductibility for money that is paid to members (though not all money), which is to say that cooperatives enjoy single taxation. Investor-owned firms have double taxation.
SE	1	The Competition law	1.2	1	3	Competition legislation allows cooperatives to exist; otherwise they could be considered cartels. Cooperatives seem to be allowed to do things that would not be permitted in investor-owned firms, for example mergers resulting in nation-wide firms.
SI	4	Cooperative Act	1.1	1	1	Passing the Cooperation act has enabled the transformation of the socialist type cooperatives to the classical cooperatives, It also acknowledged a contribution of the cooperatives in building the equity in Slovenian food processing industry and secures their share in the ownership structure. This measure had a positive effect on the development of the farmers run cooperatives in Slovenia. It also gave a possibility to

						cooperatives to influence the management of the food processing industry over the ownership shares. Cooperatives have in the process of ownership transformation under the Cooperative Act gained more than 45% equity share, in that the level of this share was in many cases lower in the first place, because the companies were not evaluated as the whole, but only parts of them. And the evaluated companies had the possibility to demand the evaluation of the smaller share according to various activities the company performed. …(See country report)

Source: Own data "Support for Farmers' Cooperatives" project

Table 17 summarizes policy measures for countries, where cooperatives are important, i.e. the share is between 20% and 50%.

Table 17: Most relevant policy measures in countries where cooperatives play an important role in the dairy sector

Country	**Score**	**Name of Policy Measure (PM**	**Type of PM**	**Objective of the PM**	**Target of the PM**	**Expert comment on effects on development of the cooperative**
ES	3	Co-operative Tax Law 20/1990, 19 December	2.	2.	1.	National-Measure allows for the favourable tax treatment of co-operatives such that certain taxes do not apply such as for example, Tax on capital transfers and documented legal acts, Corporation Tax, etc. and to a greater degree of specially protected co-operatives, in which agricultural co-operatives are included.
ES	1	Royal Decree 460/2011, 1 April, regulating the recognition of milk producer organisations and of interprofessional organisations in the dairy sector and the explanation of the decisions of Spain regarding the arrangement in the dairy sector in relation to the European norm that modifies for the dairy sector Council Regulation (CE) no. 1234/2007	1.	1. & 2.	2.	-Establishes the basic norm applicable to a) the recognition of organisations of milk producers, b) the activities to be carried out by inter-professional organisations in the sector, c) the improvement of transparency in the milk sector, understood as the availability in real time of objective and accurate information and the same equality of conditions for both buyers and sellers of milk.
GR	3,0,3	<u>Incentives for mergers</u> Law 2810/2000, Art. 21, par. 4 and 9 - Several tax exemptions - No stamp duty	2.1		1	While the system of incentives provided by succeeding governments is well designed, it has not achieved its main goal; to convince agricultural co-operatives to merge into larger, competitive business enterprises.

	,0,0,0	Law 2810/2000, Art. 21, par. 10A - Up to 300.000 € to secondary co-operatives that merge, for several reasons (e.g., compensation payments to employees fired) Law 2538/1997, Art.33. par.2 - Corporate income tax exemption of the surplus allocated to reserves - Capitalisation of the losses through an interest free loan Law 3399/2005 Art. 6, par. …(see country report)				
GR	3	<u>Economic motives and tax exemptions</u> Law 2810/2000 Art. 35 and Law 3399/2005, Art. 6, Par. 3 - No stamp duty or other taxation in a number of transactions - No tax for capital accumulation - No VAT in a number of cases	2.1			These legislations have helped agricultural co-operatives to improve their positioning vis-à-vis their competitors by providing a pro-co-operative institutional environment. However, the overall positioning of agricultural co-operatives (with the exemption of some very successful co-operatives) has not improved.
GR	1	Law 3147/2003, Art. 18, Par. 8 - Primary agricultural co-operatives have to submit annual balance sheet to the Ministry of Agricultural Development and Food - Primary agricultural co-operatives can participate in PASEGES (Umbrella organisation that represents the interests of agricultural co-operatives)	1.1			This law intends to facilitate the Ministry of Agricultural Development and Food in monitoring agricultural co-operatives. Given that no penalty threatens co-operatives which do not submit their balance sheets, the initial goal of the legislation has not been achieved. By allowing primary co-operative to be represented by PASEGES, the national umbrella organisation for secondary agricultural co-operatives), this law allows PASEGES to improve its bargaining power.
GR	4	Besides national and European regulation, there are several other Ministerial Decrees that are issued to deal with specific situations like the spillover effect of financial crisis to the co-operatives (e.g., interest free loans to winemakers' co-	2.1		1	This is highly anti-competitive subsidy, often being criticised by farmers who are not members of co-operatives and all IOFs.

		operatives-FEK B 578/2011)				
HU	0	Law LVII/1996 on prohibition of unfair market behaviour and restriction of competition (Competition Law)	1.2	1	3	General Law on Competition it sets up the institutional environment of the co-ops.
HU	0	Law IV/2006 on Companies (business economic organisations law).	1.2	1	3	General Law on the different forms and rules of the possible business organisations (except co-operatives) and influences the institutional environment of the co-op.
IT	2	Legislative Decree No 6 of 17 January 2003 (*Reform of Company Law*)	5.	Updating of the business law and achievement of social goals with respect to the regulation of specific forms of enterprise	Applicable to business in general with a focus on cooperatives	The 2003 Reform of Company Law has introduced a clear distinction between the two types of cooperatives, based on the intensity of mutual exchange: - <u>Mainly mutual cooperatives</u> (where the activity is mainly carried out with members, e.g.. in processing and marketing cooperatives the products of the members represent at least 50% of the input processed or marketed by the cooperative); - <u>Other cooperatives</u>. The compliance with the requirements of mainly mutuality is subject to verification. Some specific dictates of the law - the so-called mutual clauses - and the tax treatment of benefits come from the recognition of the requirement of mainly mutuality. Actually, even before the reform, only cooperatives that worked primarily with farmer members could enjoy tax advantages; in spite of that, before that reform, the Civil Code did not indicate a method of calculating the level (and so the prevalence or not) of mutual exchange and the determination of this aspect was not strictly defined. Furthermore, for the first time the Reform has introduced a specific statutory and tax treatment for the so-called other cooperatives. Overall, the Reform of Company Law clarifies the regulatory framework in which farmers' cooperatives operate. According to this objective, the reform also aimed at defining the role of investor members in order to improve the access of cooperatives to the financial market. However, on this side, after almost a decade, we can say that not much has changed compared to the past and that in many cases the capital market that has been created by the issuance of instruments with administrative rights has remained restricted within the members with which the cooperatives have a mutual exchange.
IT	3	Law No 231 of 11 November 2005.		To avoid	Cooperati	The Law No 231/2005 introduces the possibility for the "Protection Consortia"

		Production Plans for Protected Designation of Origin cheeses		market crisis and to guarantee the minimum qualitative levels required for POD cheeses	ves and IOF which work in the prod-uction of POD cheese	(responsible for product quality control and promotion of Protected Designation of Origin) to present production plans for PDO cheeses. It should be noted that this possibility becomes active only in the event of alterations to the standard market conditions and it is strictly connected to some binding conditions: - It is not allowed to provide a decrease in production or a limitation of producers competition; - It's required to give an additional financial share to those firms that produce an additional quantity respect to the reference quantity, with the aim to fund the additional advertising and promotional expenses that the Consortium has to support to allow the absorption of increased production. … (see country report)
LV	4	Competition law	1.2	2	3	The competition law relates to both to business in general, and also to corporations. Factors that affect competition – corruption, rise or reduction of prices, other types of unfair competition – covers both business, and corporations. The law strictly defines the unfair competition and what are the sanctions in the case of unfair competition.
LV	2	About taxes and dues	1.2	2	3	The tax law does not include any special easement neither to the cooperative nor to the farmers. It only restricts obligations to cooperatives in the order of making and submitting the reports.
SK	-2	Tax policy	1.2	2		Agriculture cooperatives paid advantaged income tax rate until 2003 (15% other companies 19%) Since 2003 there are arguments that cooperatives are tax burden with the higher 19% tax rate however they fulfil also non profit function in rural development. The Cooperatives are influenced by raised VAT on agricultural products from 19% to 20% in 2011. The tax rate for direct sale from farm increased in 2011 from 6% to 20%. Since 2005 the real estate taxes for agricultural land have been increased however it was decentralised under municipality domain. Raised consumption tax on Red diesel (equalisation with regular diesel) used only in agriculture. There is a government proposal to increase consumption tax on Wine (0,4€/l) which

						will have negative influence on local wine producers (POs). Mentioned tax changes equalized the position of cooperatives with the other companies but with the negative influence on their performance. The role of cooperatives is not only doing business but also the rural development. The corporation such as join stock companies and limited liability companies are not taxed by the income tax if they are established for other purposes than doing business. The same possibility should be given to the coop. The real estate tax as well as consumer taxes and VAT are too high for coop that should fulfilled also non investor function for rural areas. Dividends of coop members are not taxed that has positive influence on performance.
SK	2	Lower basic capital in comparison with business companies - limited liability company, share company	1.1		Target cooperatives in general	Basic capital - at least 1250 euro; indivisible fund - at least 10% of the basic capital in the phase of coop establishment

Source: Own data "Support for Farmers' Cooperatives" project

Table 18 summarizes policy measures for countries, where cooperatives are rather unimportant, i.e. the share is between 0% and 20%.

Table 18: Most relevant policy measures in countries where cooperatives are unimportant in the dairy sector

BE	1	School Milk Programme	5.	2	2.	Similar to the School Fruit Scheme, albeit for the dairy sector (again a sector of considerable weight in Belgium). Additionally it promotes product differentiation, creating added value in the food chain and improving the potential competitivity of the sector and the cooperatives.
BE	2	Milk Plan	3.	1.	2.	Being a plan, it mainly sets out lines of action in order to, in this case, suppor the dairy producers. As such, it can be regarded as affecting the institutional environment.
BE	2	Milch cow premium	2.	1.	2.	As a direct financial intervention, this measure impacts on the economic performance, and position in the food chain, of the cooperative.
BE	2	Milk Campaigns	4.	1.	2.	Annual plans for the dairy sector, suggesting the comparison with the previous "milk plan" (which was a response to the crisis).
BE	1	Quota mobility	4.	1.	2.	This measure allows for a substantial change in the institutional environment, as it opens up opportunities to flexibly manage production processes.

BE	1	Quota funds	2. 4.	1.	2.	Similarly, this option instigates flexibility in the institutional environment.
BE	1	Grass premium	2.	1.	2.	Premiums (i.e. direct financial aid linked to some prestation) directly intervene with the performance of organisations, therefore impacting on the food chain position.
UK	0	FSA policy towards Industrial and Provident Societies was liberalised in 2006, following the Statute for a European Cooperative Society (SCE),to allow investor shares for non-user investor members, subject to restrictions to protect the interests of user members through restricted voting rights for non-users, compliance with Financial Services and Markets Act 2000 regulations, and an overriding requirement that the society remains, in the FSA's view, a bona fide co-operative	1.	Development of regulatory to respond to need	Applicable to agricultural cooperatives that adopt IPS legislation	The research has found no examples of this policy actually being used by agricultural cooperatives. It seems that organisations are split between those who would prefer to maintain farmer control and ownership within this model, those who convert to plcs or to companies limited by share in order to attract outside investment, or those who set up joint ventures for specific activities, or subsidiaries for specific purposes. One of the main reasons mooted for the non-use of this policy was the difficulty of aligning interests in one organisation when the farmers wished to increase benefit to themselves and the external or non-user shareholders primarily interested in profit. The latter might also be dissuaded by the Rules unless their motivations were similar to the farmers' group since it would alter the risk-return profile.
UK	3	A Legislative Reform Order proposed in April 2008, and put out to consultation, has not yet been passed. (An LRO can be used to remove or reduce burdens resulting directly or indirectly from legislation.) It proposes to abolishes the minimum age for society membership, and would reduce the minimum age for becoming an officer or member of the committee/board of the society to 16. …(see country report)	1.	1. Regulatory change to respond to needs and to reduce some disadvantages relative to companies	Applicable to all agricultural cooperatives who take on an IPS form.	If all of the LRO is implemented this could have a substantial effect since it removes the limit on non-withdrawable share capital which has been one of the asks of those wishing to change the IPS regulation as a result of lobbying from the particular situation of agriculture and farming.

Source: Own data "Support for Farmers' Cooperatives" project

5.3 Expert assessment of impact of policy measures

Policy measures affecting the dairy sector are numerous and sometimes country-specific. No single policy measure of the ones identified in the country studies can be solely made responsible for successes or failures of cooperatives. However, country differences show us the wide spectrum of policies currently applied.

Quotas have been very influential in shaping the institutional environment for all types of milk producers and dairies. The nature of otherwise unrestrained delivery rights/obligations of the members is such that in the past quota limits in delivery may have reduced the amount of surplus milk and the quality of milk processed by cooperatives, particularly so in countries with high quota rent such as Denmark or the Netherlands.

The abolition of quotas, reduced price intervention and the expected future increase in production may result in price fluctuations similar to the ones of the past few years. In this situation it is important to understand both the nature of the milk producing firm and the nature of its processor. The reason why producers in Europe have chosen the cooperative as "the dairy organization of choice" lies in the internal governance structure and the relation of trust that has been built up over generations coupled with an often market dominating role of the enterprise. In other words: milk producers expect their dairy to smoothen the impact of price fluctuations. They often deliver before they know the price for which they deliver. The changing institutional environment until 2015 may make it necessary for the dairy cooperatives to design and add contract stipulations similar to a right to deliver in IOF dairies. Another option is to refrain from an open membership policy in order to control production levels. Both alternatives deviate from traditional cooperative principles.

Another effect of quota abolition may be an increased demand for "secure" delivery rights. Some cooperatives may develop this idea into a marketing strategy directed towards processing all surplus milk of members. However, a look at current strategies of cooperatives in the dairy sector shows a strong focus towards growth by mergers and acquisitions instead of attracting additional members.

In the presence of the great organizational und geographical diversity of cooperative organization displayed in this report it is highly questionable if contracting aspects should become the subject of the activities of regulators.

Important with regard to the shaping of the future institutional environment for dairy cooperatives may be the findings of our economic analysis. We find that cooperatives can best play their roles if and only if they possess a relevant market position. Figures about rapid structural changes in the sector (concentration) together with the limited role the producer organizations play in the dairy sector underpin this statement. It has been argued that strengthening the role of bargaining cooperatives or producer organizations may improve the situation of producers. Our analysis shows that the logic of the yardstick competition argument in explaining why cooperatives are important for the European dairy sector cannot be overstated. Results show that a yardstick effect does not require a dominant but an important position of the cooperative in the sector. Producers have to decide which side of the market they want to control. In any case considerable shares of the market have to be organized. As long as producers are the legal owners of dairy cooperatives it seems reasonable to assume that investments in the internal governance of their cooperative may achieve better results than investments in the organization of bargaining groups on a different level.

Figures show that the current speed of the race to the top market positions, internationalization and professionalization barely allow cooperative management to take breath when the next opportunity for a merger occurs. This is because the latest developments show that the regional balance of powers in the dairy sector may change at any moment. This global development bares

risks for both, the proper functioning of the cooperatives internal governance system and for the overall balances on the market for milk.

However, regulators` size restraints for mergers on the dairy market (milk package) have to be discussed with great caution. The numbers displayed in

Table 3 and Table 12 show that the currently discussed size limits at least for some countries and some players seem to be outdated.[21] More important with regard to cooperative development seem to be measures which assure that in the speedy process of merger the owners of the cooperative understand objectives and dangers and can play their roles in supervision and control. Mergers require mergers of boards, assemblies and councils. Literature and own empirical experience show us that current developments often ask too much from traditional board structures. Some failed merger attempts – Humana and Milch-Union Hocheifel in Germany, First Milk and Milk Link in the UK, or most recently DOC Kaas and DMK in the Netherlands and Germany being popular examples. Without a healthy information policy and co-development of monitoring and control structures, the race to size may ultimately result in a race for control over the existing dairy cooperatives. Measures to make sure that changes in legal structures will not leave producer-owners on the losers` side may target transparency and capacity building in organizational structures.

6 Discussion

The organization of the European dairy sector is largely in the hands of producers. Cooperatives play a decisive and sometimes price stabilizing role for the sector as a whole. In this situation the effects of the phasing out of the quota system have to be carefully analysed with regard to their effect on cooperative development. Freedom of contract may be an important means to apply the needed flexibility for cooperatives and their members to adapt.

In the light of the yardstick theory applied in this analytical report, co-operators cannot avoid to participate in the on-going race to size in the dairy industry. However, the adaptation of the complex internal governance system of the cooperative may not hold pace with this race. Regulators may give a helping hand to producers in crafting rules which allow member-owners and elected office holders in boards likewise to acquire the necessary knowledge and profession to properly perform their task in the control of their enterprise.

[21] In the current state of the discussion a milk producer's organization production should not exceed 3.5% of the total EU production and not exceed one third of the national production.

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Appendix

Table 19: Another Comparison of Milk Prices paid by large Western European Dairies (Euro/100 kg) differentiated by Cooperative and Investor-owned Firms

Time	Cooperatives (Mean, SD, N)	Investor-owned Firms (Mean, SD, N)	Price Difference (Cooperatives - Investor-owned firms)	Test statistic (p-Value)
Jan 2008 – Aug 2011	31.16, 5.47, 521	31.67, 4.05, 213	-0.51	1.064 (0.2871)
2008	34.23, 4.47, 137	34.81, 3.41, 53	-0.42	1.355 (0.1755)
2009	26.57, 5.36, 144	28.19, 3.69, 60	-1.62***	3.583 (0.0003)
2010	30.65, 3.74, 144	31.11, 2.66, 60	-0.46	1.059 (0.2894)
2011	34.45, 3.65, 96	33.57, 2.43, 40	0.88	-1.302 (0.1930)

Source: LTO Nederland (2011), own calculations
Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 20: Another Comparison of Milk Price Differences paid by large Western European Dairies (Euro/100 kg) differentiated by Cooperative and Investor-owned Firms

Time	Cooperatives (Mean, SD, N)	Investor-owned Firms (Mean, SD, N)	Price Difference (Cooperatives - Investor-owned firms)	Test statistic (p-Value)
All years	-1.09, 3.60, 365	0.40, 2.83, 53	-1.49	3.308 (0.0009)
2008	-0.92, 4.36, 125	-0.19, 3.45, 17	-0.73	1.034 (0.3012)
2009	-1.07, 3.06, 132	0.53, 2.38, 24	-1.60***	2.599 (0.0094)
2010	-1.30, 3.25, 108	0.96. 2.80, 12	-2.26**	2.266 (0.0234)

Source: LTO Nederland (2011), Eurostat (no data for 2011, no data for France, no data for Germany 2010), own calculations
Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 21: Comparison of Milk Prices paid by German Dairies (Euro/100 kg) differentiated by Cooperative and Investor-owned Firms

Time	Cooperatives (Mean, SD, N)	Investor-owned Firms (Mean, SD, N)	Price Difference (Cooperatives - Investor-owned firms)	Test statistic (p-Value)
All years	31.80, 4.84, 458	31.57, 5.07, 658	0.23	-0.674 (0.5003)
2007	38.01, 3.38, 54	37.94, 3.97, 84	0.07	-0.002 (0.9983)
2008	34.04, 3.75, 120	34.12, 3.34, 168	-0.08	0.400 (0.6893)
2009	25.85, 2.36, 110	25.20, 2.56, 154	0.65**	-2.016 (0.0438)
2010	31.17, 2.65, 120	30.61, 2.73, 168	0.56*	-1.755 (0.0793)
2011	34.14, 0.99, 54	33.73, 1.29, 84	0.41*	-1.686 (0.0918)

Source: Agrar Heute (2011), own calculations
Note: Test statistics refer to the non-parametric Wilcoxon-Mann-Whitney-Test
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$