

IDEGA-Universidad de Santiago de Compostela

Evaluation of CAP measures applied to the dairy sector

Case study report on Spain

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Executive summary

The Spanish dairy sector is characterized by a low self-sufficiency rate and a high dependence on imports, a key role in processing of drinking milk and a weak organization of the dairy chain.

The dairy sector is very diverse in geographical terms, both in the structure of farms and in production systems, with a marked contrast between the humid northern regions, where most of the farms are concentrated, and those located in the central and Mediterranean area, with larger farms and highly intensive systems. Galicia, located in the northwest, is by far the largest milk producing region, with 38% of the total milk production and 56% of the dairy farms. This corresponds with the central place that this activity plays with 31% of the production value in the regional agricultural sector. Galicia's leadership position in milk production is not reflected in the processing stage, where it has a secondary position as its share in the value added of the Spanish dairy industry is only 7%, less than a fifth of its weight in raw milk.

Characteristics of dairy farming

In the period 2000-2009 dairy farms have continued, both in Spain and Galicia, with the intense process of restructuring of the last decades, although at a more moderate rate. Specifically, the number of farms with quota was reduced by an annual rate of -9%, which allowed the average quota per farm to increase up to 243 t in Spain and to 166 t in Galicia.

Dairy farms are quite specialized and have intensive production systems. Structural surveys indicate that in the last decade there was a slight reduction in stocking rates over the forage area, and at the same time maize silage has gained ground at the expense of the grassland area.

About 77% of the dairy herd in Galicia is located in less favoured areas, but only 17% in mountain areas, that are in a declining trend in milk production. The relative weight of quality protection schemes as the PDO and ecological production is very low. The milk production under PDO schemes hardly reaches 2.5% of total milk production and 7% of the cheeses.

Milk production, prices and processing

Both the total milk production and deliveries to dairies in Spain recorded an increase from 2000 to 2003, matching the expansion of the quota approved in the 1999 CAP reform. However since 2004 they show a downward trend and current production is similar to the beginning of the decade. In Galicia production has continued with a gentle but steady growth, raising its relative weight in Spain from 35.4% in 2000 to 38.5% in 2009.

Direct sales have lost volume throughout the decade, taking a residual value in 2009 in Galicia and Spain (0.1% and 0.7% of production, respectively).

In the absence of a stable inter-professional relationship, the pricing policy of milk has traditionally been defined by the strategies of each buyer. Price formation responds to the general scheme of base price, fat and protein, bacteriology and "other premiums". Besides the differences in the base price, "other premiums" have a decisive influence in the formation of milk price. This concept of "other premiums" includes such diverse items as the payment for volume, fidelity, etc.; and in many cases represents more than 10% of the final price received by producers.

Milk prices in Spain have followed a particular pattern compared with those observed in the whole EU-15. Price is generally maintained at lower levels but had more pronounced peaks in stressful market situations (1989, 2007-2008) and even had an opposite trend in the years following the 2003 CAP reform. The structural deficit of the Spanish dairy sector and the weak chain relationships could explain, at least in part, this atypical behaviour. Milk prices in Galicia remain at similar values to those in Spain until 2003, but afterwards have distanced gradually to reach a negative differential of 2 euro per 100 kg in recent years.

The dairy industry is characterized in Spain by its high dependence on drinking milk and the importance of sheep and goat milk in the cheese sector. Although there are almost 700 companies, most of them are very small and making cheese. The level of concentration is relatively low as the five largest process a third of total production. The weight of cooperatives in the industry is very low in comparison with most UE Member States, processing about 21% of milk in Spain and only 7% in Galicia. Retailer brands have reached a high market share representing around 50% of purchases of drinking milk. In the case of Galicia the development of the dairy industry has been quite limited. A substantial part of its milk production (27%) is sold to dairy industries outside Galicia, while the firms established in the region are mostly oriented to drinking milk with a high degree of dependence on private labels of food retailers.

Three groups are leading the market in drinking milk in the evaluation period (Capsa, Puleva and Pascual). The development of the cheese sector has been limited at the outset by the weakness in demand and shortages of raw milk, while the continued consumption growth in recent years has been covered by increasing imports. After successive acquisitions of several dairies Lactalis has become the largest multipurpose group present in the market of drinking milk, cheese and fresh products and is the leader in the collection of milk in Spain.

The structural deficit of Spain in the dairy sector has increased in the last decade and net imports have raise from 1.21 to 2.65 million tonnes of milk equivalent, due mainly to cheese (from 0.69 to 1.60 million tonnes).

Quota administration

Before 2005/06 private transfers of milk quota among farms of the same region were liberalized, while there were considerable restrictions for those made between producers from different regions. Since this year transfers of quota without land are banned and the Administration has taken control of the redistribution of quota, through cessation programs and subsequent reassignment. The total quota transferred through the Administration and the private marketing in the period 2002/03 to 2009/10 is equivalent to 28% of the Spanish quota and rises up to 39% in the case of Galicia. Prices of quota experienced an important increase to reach 0.70 euro/kg in 2004/05, which was the main reason that supported the change in the system operated in 2006 with the closing of this market. The price in the last public programme of abandonment has been reduced to 0.27 euro. Since 2006/07 deliveries of milk in Spain have been below the quota, reaching -4% in the last two years, while in Galicia they continue to exceed the quota, but in a quantity that tends to decrease.

Analysis of dairy farm accountancy data

The economic results of dairy farms are analysed from the FADN network for Spain and Galicia, from 2003 to 2007. These results are compared with those obtained from other regional networks in particular with that of the Galician Department of Rural Affairs (CMR), as there are doubts about the adequacy of the FADN results for dairy farms of Galicia and Spain as a whole. Firstly, with respect to the representativeness of the sample of farms, because its size and an evolution is quite different from those obtained in the structure surveys 2003 and 2007. Secondly, in the under-estimation of costs in relation to other studies carried out in Galicia and Spain, which therefore also affect margins and income.

Except for the smaller ones, the dairy farms are highly specialized as is confirmed by the high share of milk output in the total value of production. However, there is a declining trend in the evolution of this share, which suggests that other sources of income become gradually more important over time.

Per-unit costs are a declining function of farm scale as measured by herd size. This is mainly due to imputed labour costs which show important economies of scale, as the reduction in the amount of labour needed per dairy cow leads to a decrease in the per unit cost of milk production. The FADN costs are on average 24% lower than those of CMR network. There are differences in all cost items, except for the owned factors, and these are particularly high in specific costs.

According to FADN data the returns obtained from milk and its by-products would be able to remunerate all the production factors, in all levels of size and years considered. However the CMR shows negative results for the smaller farms in 2007, even in a year with a high milk price.

The average FNVA/AWU of dairy farms in Galicia is about 5,000 euro lower than for Spain as a whole. This difference in labour productivity is mainly due to economies of scale, as the milk output per farm in Galicia is about 32% lower.

Results from survey among dairy producers

The level and fluctuation of milk prices is listed as the primary cause of the production decisions, followed at some distance of two types of factors: those related directly to policies implemented in the sector (level of public support, availability of quota) and other arising from structural constraints of the farms (access to more land and credit) and the regional socio-economic environment (such as the lack of productive alternatives or off-farm jobs availability).

The responses about minimum prices required to continue production in the medium-term, taking into account current costs, pointed to values considerably higher than existing prices, as half of them indicate they should be over 0.35 euro, a level that may be affected by the strong increase in feed costs at the time of field work was carried out.

The maintenance of milk quota and the increases obtained since 2000/01 have been important to stay in production. In contrast, the responses on the impact of its abolition show a greater division of opinions, which reflect uncertainty about the future effect of this measure. Almost all producers disagree with the model for transfers of quotas and many of the additional observations by producers concern the loss of value of quota after making a high investment for its purchase

Also 6 farmers who stopped milk production in the evaluation period were asked about the reasons for that decision. Changes made in policy measures played no direct role. The reasons cited for the cessation of milk production were the lack of succession in the smaller producers, while in the others has been a change of activity in/or outside the farm and also low milk prices.

Results for questionnaires to dairy processors

Seven companies were interviewed; five that collect more than 100 thousand t devoted mainly to the production of drinking milk and two of a lower size that made cheese, some under a PDO scheme. In all the cases the great majority of sales are directed to the domestic market.

They consider that the impact of policy changes on the system of producer prices was very limited. On the contrary these changes, the action of competitors and food retailers have put downward pressure on the prices of dairy products.

Some of the perceptions of respondents about a very small effect of policy changes on the dairy market must be understood in the context in which they work, i.e., the domestic market and a low utilization of existing aids for market regulation

Most of them expect some increase in deliveries with the abolition of quotas. It is quite surprising that some firms do not consider a limiting effect of quota on their structural development and growth

All of them recognize that state aid / regional investment has been positive because they are linked to improvements in productive capacity or efficiency.

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Abbreviations

Abbreviation	Description
€ (EUR)	Euro
AAP	Arable Area Payment
AWU	Annual Working Unit
BUT	Butter
CAP	Common Agricultural Policy
CR	Concentration ratio
DC	Dairy cow
DM	Drinking milk
EC	European Commission
e.g.	for example
EQ	Evaluation question
et al.	et aliae (and others)
etc.	et cetera
EU	European Union
Excl.	Excluding
FADN	Farm Accountancy Data Network
FNVA	Farm net value added
ha	Hectare
HC	Health Check
i.e.	id est (that is)
Incl.	Including
kg	Kilo gram
LFA	Least Favoured Area
MTR	Mid Term Review
n° (No)	Number
p	Pence / Page
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
ppl	Pence per litre
Pr	Price
Prod	Product
SE025	UAA
SE085	Dairy cows
SFP	Single Farm Payment
SMP	Skimmed milk powder
t	Tonnes
UAA	Utilized Agricultural Area

VAT Value-added tax
 vs. Versus

Abbreviations (FADN)

Abrevations	Description
	MilkPrice € t
MLKPRG	Price (Output)
MOUSubCa	Milk prices (sales) ... incl coupled milk premia + silage cereals / maize prem incl slaes of male calves
	Structural indicators
SE025	UAA
SE085	DairyCows
MilsFoAr	MilkYield t/ha of MiForrage Area (=MilsFoAr)
	Cost items (€t on milk)
MTOTSPC	Milk total specific costs" ;
MTOTNSP	MTOTNSP - Milk total non specific costs" ;
MDEPREC	Milk depreciation costs" ;
MEXTFAC	Milk external factors" ;
MIMUNFF	Total costs excluding remuneration owned factors
Mtco_owFac	Total costs excluding remuneration owned factors
MIMUNFF	Remuneration of owned factors
	Income indicator referring to ton of milk
MFFIsCA	Referring to milk output + coupled subsidies + sales of male calves
	Income indicators referring to milk branch (farm)
MCFIsCA	FamilyFarmIncome, incl. Coupled subsidies and sales of male calves
	Income indicators whole farm
FNVAAWU	FNVA_AWU
	Margin over total input
MMrg_oSC	Margin Price % MTOTINP ... Price + subs % Price + subs + sales male calves % ...
FNVA_p	Milk MFNVAF to total FNVA
FNVAAWU	FNVA_AWU

Classification criteria for FADN analysis

Classification criteria

Region

A1 or NUTS_ code

Year

Number of dairy cows (SE085) in Year i

le 25: '1'

25 <= 50: '2'

50 <= 75: '3'

75 <= 100: '4'

100 <= 150: '5'

> 150 : '6'

LFA regions in Year i

LFA='LM'

LFA='LO'

LFA='NO'

LFA mountain

LFA not mountains

not

Quant Quantiles referring to FNVA / AWU

Quant defined by FNVA/Se010 [AWU] ...by regions * year [case study regions + the remaining 'oth']

1: lowest 25 % (0-25%)

4: top 75 (75-100%)

1 Introduction – Features of the dairy sector in Spain.

According to the implementing rules of the Financial Regulation applicable to the general budget of the European Union (Council Regulation (EC) No 1605/2002), all measures causing budgetary expenditure shall have their results evaluated in a cycle of six years. The Commission's Directorate-General for Agriculture and Rural Development (DG AGRI) is in charge of the regular evaluation of agricultural policy measures.

The multi-annual evaluation plan 2010-2012 of DG AGRI foresees an evaluation of Common Agricultural Policy (CAP) measures applied to the dairy sector. Objective of this retrospective evaluation is to analyse the economic and structural aspects of the sector, and to assess the impacts of the CAP measures applied to this sector since the 2003 CAP reform. The evaluation period begins on 1 July 2004, when the first cuts to intervention prices were implemented. However, in order to capture the impacts of implementing the 2003 CAP reform, data from the previous period are used to establish a reference point.

The evaluation is intended to examine the effectiveness, efficiency and relevance of the policy measures in relation to their objectives. The evaluation addresses possible unintended side-effects of the measures and deadweight. The coherence of the measures for dairy with the overall concept and principles of the 2003 CAP reform, and with rural development measures are also to be assessed. Finally, the coherence of measures financed by state aid with the CAP dairy measures is also within the scope of the assessment. Part of the evaluation is to analyse in-depth the dairy sector within selected case study areas and within the associated Member State as a whole.

This report provides the information from the Spanish case study. It contains and analyses information on the Spanish dairy sector, its characteristic features and developments in the various links in the value chain. As a particular analysis, the report focuses on the study of the dairy sector in Galicia, the region in which are concentrated half of farms and more than a third of milk production in Spain.

The dairy sector in Spain has had a limited and delayed development, conditioned at the outset by the soil and climate conditions, and by the fragility of the structures of production and consumption due to the weakness of both traditional food habits and economic difficulties.

The demand of dairies had pushed production of raw milk in areas close to consumption areas, creating a sector distributed across the country. The limitations for the refrigeration of milk in origin and the long-distance to transport had failed to take advantage of the best natural conditions for milk production in the North and Northwest regions.

At the time of integration in the EC (1986) Spain had over 200,000 dairy farms, a production close to the current 6.0 million tonnes, a delivery to dairies about 75% of production, and an industry oriented to drinking milk.

The stage following the integration is marked by deep structural changes in production, processing and consumption. The limitation of quotas has conditioned the increase in production and the volume of milk processed to cope with the expanding demand of dairy products.

Currently the characteristics of the dairy sector in Spain are quite different from those prevailing in most other EU countries

- In the structures of production, with an important representation of small farms
- In production systems, with a limited forage base and the consequent increase in the purchase of feed
- In the structural deficit, which results in a reliance on net imports

- In the development of the dairy industry, conditioned by the scarcity of raw milk and the dominant orientation towards drinking milk.

- In the weakness of the inter-relationships along the chain that makes it difficult to undertake joint action in the development and management of the sector

In order to help understand the situation of the dairy sector in Spain and in Galicia this first section is dedicated to presenting some of these specific characteristics:

- the low level of self-sufficiency and a high import dependence

- the importance of drinking milk and its use as a loss leader product by the retail sector

- the weak organization of the dairy chain.

- the position of Galicia in the Spanish dairy sector.

1.1 A deficit for a third of the consumption of milk products

The consumption of dairy products in Spain in 2009 was around 10.1 million tonnes of milk equivalent, of which 7.3 corresponds to domestic production of milk. Sheep and goat milk provide 14% of domestic production; it is mainly utilized for the production of cheese, of which 40% is obtained by mixing it with cows' milk, which prevents a complete separation of both types of production. However, it is estimated that the consumption of dairy products made from cows' milk is around 9.1 million tonnes, of which some 6.3 million come from domestic production, with a self-sufficiency rate of 69% (Table 1).

Table 1 Dairy products: domestic production, net imports, balance and self-sufficiency rate (in thousand tonnes milk equivalent)

	2000	2003	2006	2009
Domestic production of milk	6909	7564	7411	7288
- Cow's milk	6206	6637	6561	6251
- Sheep and goat milk	703	927	850	1037
Net Imports	1211	1368	2339	2814
Total dairy products	8120	8932	9750	10102
% self-sufficiency	85.1	84.7	76.0	72.1
<i>Total dairy products from cow's milk</i>	<i>7417</i>	<i>8005</i>	<i>8900</i>	<i>9065</i>
<i>% Cow's milk self-sufficiency</i>	<i>83.7</i>	<i>82.9</i>	<i>73.7</i>	<i>69.0</i>

Source: own calculations from Statistical surveys of milk and milk products, MARM; DataComex, MICYT

Table 2 Domestic production of milk, trade deficit, population and consumption of milk products in Spain (year 2000 = 100)

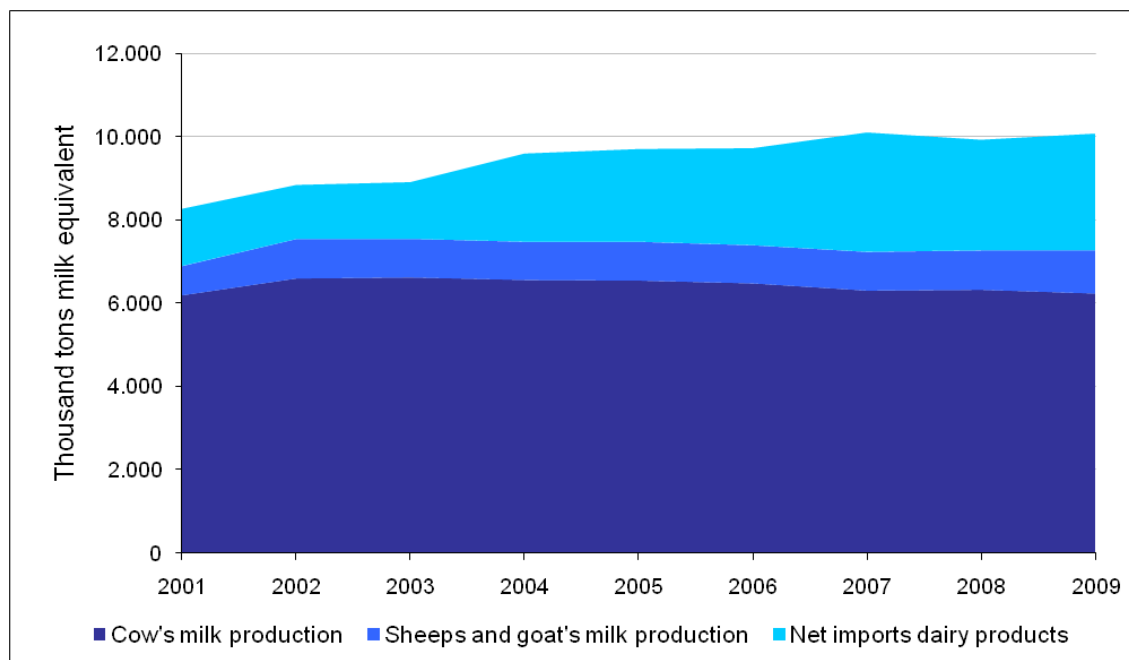
	2000	2003	2006	2009
Domestic production of milk	100.0	109.5	107.3	105.5
Net imports of dairy products	100.0	113.0	193.1	232.4
Total consumption of dairy products	100.0	110.0	120.1	124.4
Population	100.0	103.2	110.4	115.3
Per capita consumption of dairy products	100.0	106.6	108.8	107.9

(Include dairy products from sheep and goat milk)

Source: own calculations from Statistical surveys of milk and milk products, MARM; Population, INE; DataComex, MICYT

The consumption of dairy products has increased by 24.4% from 2000 to 2009, of which 15.3% was due to the increase in population caused by immigration and 7.9% per capita consumption. This increase in consumption of dairy products has been met mostly with an increase in imports, due to the domestic production being limited by quotas (Figure 1). The net import value is about 950 million euro in 2009¹

Figure 1 Production of cows', sheep and goats' milk, and net imports (2000 to 2009 in thousands of tons of milk equivalent)



Source: own calculations from Statistical surveys of milk and milk products, MARM; DataComex, MIYCT

Most of the imports are cheeses, which in 2009 represented 52% of total imported dairy products expressed in milk equivalent (44% in 2000). Milk and cream imports have been stable at around 20% of the total, although with a gradual substitution over the last decade of drinking milk by raw milk to be further processed by the dairy industry. Another 20% is composed of milk powder for the food industry.

1.2 An industry highly dependent on drinking milk

The structure of products made by the processing sector is consistent with the low self-sufficiency ratio and is also very different from that in other European Union countries. It relies on the manufacture of drinking milk, with very low production of milk powder and cheese, which also has an important contribution from sheep and goat's milk. In 2009, 55% of all milk processed (60% of cow's milk only) was used for the production of drinking milk (Table 3).

It follows that the activity of the major dairy companies, with rare exceptions such as Danone, is highly dependent on drinking milk. To this high dependence should be added the use of drinking milk as a loss leader product for food retailers, with a strategy of low prices and high penetration of store brands, which comprised 54% of the sales in 2009.

¹In this document imports and exports include arrivals and dispatches, Intrastat terms

Table 3 Shares of milk processed into different dairy products (percentage of total milk equivalents)

	2000	2003	2009
Drinking milk	57.5	56.4	54.7
Yogurts and desserts	10.6	11.2	12.2
Cheese	25.4	24.6	26.0
Milk powder	2.6	3.6	3.0
Other products	3.9	4.2	4.1
Total	100.0	100.0	100.0
Total milk processed (000 tons)	6476.4	7231.0	7228.9

Source: Statistical surveys of milk and milk products, MARM

This is reflected in a lower relative weight in the economic performance of industries mainly operating on drinking milk. They processed 59% of milk, but only get 28% of earnings before interest, taxes, depreciation, and amortization (EBITDA) of all the dairy companies (Table 4).

Table 4 Shares of product categories in processed milk, revenues and economic results (% of total). 2007

	Drinking milk	Fresh products	Cheese	Total
% processed milk	59.2	13.0	27.8	100.0
% revenues	56.6	24.9	18.5	100.0
% EBITDA	27.6	56.4	16.0	100.0

Source: Sineiro et al, 2009

1.3 Weak organization of production and inter-professional relationships.

The limited role of cooperatives and the low development of relationships along the chain is another distinguishing feature compared with the situation in other countries, where the dairy sector is more structured and organized due to the strong presence of cooperatives in the north or to the combined effect of the cooperatives and the industry-wide ('inter-professional') organizations as in the cases of France and Italy.

Cooperatives process 21% of milk in Spain and only 7% in Galicia, although for milk collection these figures are doubled. An inter-professional body was formed in Spain in late 2000, but so far it has developed only very limited activity in actions of common interest and in promoting negotiations and price agreements. But in recent months, this body is trying to develop a framework of contracts for the sale of milk based on the proposals of the Commission derived from the work of the High Level Group of the dairy sector.

The weak organization of the dairy sector is reflected in an almost complete absence of contracts between producers and dairy companies, in a prevalence of the spot price for milk as the price received by producers and in low transmission to primary producers of the impacts of the market regulation measures, which all apply to processed products.

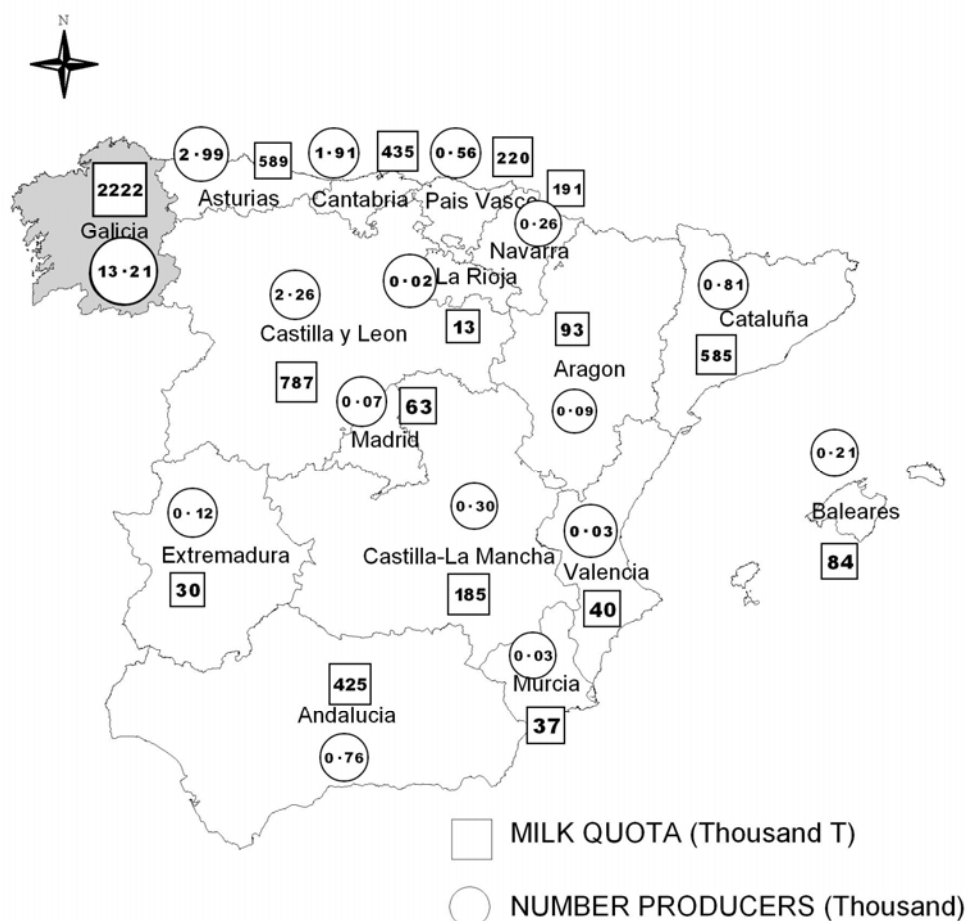
The bilateral relationships between the industry and farmers, although relatively stable, are developed outside any contractual framework in the short to medium term. This situation results in a market characterized by a lack of transparency regarding the prices received by producers, which move over a wide range, with considerable differences even among the suppliers of the same industry. The lack of a minimum homogeneity translates into a non homogeneous base price, different models of payment for quality and a wide variety of additional premiums that rarely respond to objective criteria.

There is a “spot market” for raw milk, which comprises about 10% of production, of a floating nature and without a stable relationship with the processing industry, that resells the milk in refrigerated tanks according to demand. The spot market operates in normal situations with no major differences in average prices with respect to direct procurement, but it tends to increase price movements in times of supply-demand imbalance, such as has occurred in recent years, with a greater rise in prices at the end of 2007 and a sharper decline in 2009.

1.4 Galicia in the Spanish dairy sector

The Spanish dairy sector is very heterogeneous in geographic distribution and structure. Most of the farms and the production are concentrated in the humid climate area situated in the north, which is more favourable for fodder production. This area includes Galicia, Asturias, Cantabria and the Basque Country and accounted for almost 80% of producers but only 58% of the volume of milk, as the size of the farms is 27% below the Spanish average (Figure 2).

Figure 2 Regional distribution of the amount of milk quota and number of producers in Spain. 2009/2010 (in 1,000 t of quota and producers)



Galicia is the leading region, with 38% of the total milk production and 55% of the dairy farms. It has reached this position due to the major effort made by its farmers over the past three decades, reflected in a significant increase in herd sizes and production equipment, made in the restrictive context of the quota regime, established in Spain at the time it joined the European Community in 1986, when most of the farms were involved in a process of modernization (Table 5).

Milk is the basis of Galician agriculture, contributing 31% of the value of agricultural production, which in the case of the main producing province (Lugo) reaches 45%.

By contrast, the farms situated in the Mediterranean regions are a smaller group but larger in size, especially in Catalonia where farms are almost three times larger than the average. In between are those of Castile and Leon, the second-largest production region, with farms located either in mountain areas or based on forage production in irrigated areas.

Table 5 Relative position of Galicia in the Spanish dairy sector, 2008

	Milk Production (thousand t)	Dairy industries (million €)	
		Revenues	Gross Added Value
Galicia	2378.0	1198.2	115.8
Spain	6341.9	10853.9	1578.0
%Galicia/Spain	37.5	11.0	7.3

Source: Statistical surveys of milk and milk products, MARM; Industrial Companies Survey, INE

Galicia's leadership position in milk production is not transmitted to the processing stage, where it has a secondary position. Its share in dairy industry revenue is 11% of the total, one third of that obtained at the milk production level, and it is even lower in terms of value added with only 7%. This discrepancy is caused, first, by the fact that 27% of its raw milk is collected for processing in other regions, and second, by its high dependence on drinking milk, largely on private label.

In this respect the localization of Galicia, in the northwest, at a considerable distance from the major consumption areas, concentrated in the central, southern and eastern Spain, has affected the early development of the dairy industry and marked in part its future development.

1.5 Conclusion

Although milk production has a secondary role in Spanish agriculture as whole, it plays a basic role in the Galician and other regional agricultures of the Northern humid area.

The Spanish dairy sector is characterized by a low level of self-sufficiency and a high dependence on imports, a key role in processing for the drinking milk and a weak organization of the dairy chain.

The selection of Galicia for the case study is based on its leading position in milk production, although is relegated to a secondary situation in processing.

2 General inventory

2.1 Raw milk

2.1.1 Farm structure

Dairy farms have experienced an intense process of restructuring over the past two decades. According to the annual information obtained from the farms with milk quota this rate of disappearance has moderated somewhat in recent years (Table 6). Faced with declines of 11.5% annually, in the 1990s, as well as in the period immediately preceding the 2003 CAP reform, this rate has fallen to -9.0% between 2003 and 2009, due to a moderation of the decline recorded since 2005, when it is reduced to an annual rate of -6.6%. This change coincides with the change in quota administration in 2005, which eliminated private transfers (see detail in 2.3 of this report). Thus, the slower abandonment rate may be related to the loss of incentive to the exit from production and to the deterioration in the labour market due to the economic crisis, which has reduced the chances of obtaining alternative employment outside the farm. Currently, there are about 23,620 farms with quota in Spain, of which 56% are in Galicia.

Table 6 Number of dairy farms with quota in Galicia and Spain (beginning quota years indicated)

Number of dairy farms (thousand)	1993	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Galicia	68.75	35.66	32.10	28.36	23.78	21.95	19.03	16.56	15.77	14.59	13.49
Spain	141.68	67.85	60.29	53.47	44.93	41.61	36.46	31.06	28.62	26.25	24.13
%Gal/Spain	48.5	52.6	53.2	53.0	52.9	52.8	52.2	53.3	55.1	55.6	55.9

Dairy farms with quota, MARM, FEGA

The rate of decline in the number of farms with quota has been somewhat slower in Galicia. Therefore, between 2003 and 2009, the relative proportion of Galician farms increased by about 3 percentage points to reach 56% of the total.

Average farm size increased strongly in the last decade to reach 26.4 and 19.8 cows in Spain and Galicia, respectively, (average annual growth of 6.5 and 7.0%), which was somewhat lower in recent years and matching well with the least decline also recorded in the number of farms (Table 7).

Table 7 Average size of dairy farms: 1999 to 2007

dairy cows/farm	1999	2003	2007
Galicia	11.5	15.9	19.8
Spain	16.0	21.5	26.4

Source: INE, Agricultural census 1999 and structural surveys 2003 and 2007

The intensive restructuring process which operated in the last decade is reflected in the structure of farms and herd size levels, with an increasing concentration and consolidation of the group of medium to large farms. In Spain, farms with more than 20 cows have increased their share during this period to 44% in 2007, and now contain 85% of the national herd. These changes have also been important in Galicia, although their relative weight is somewhat lower because of its initial smaller size. So farms above 20 cows represent 37% of the total and have 76% of the regional herd (Table 8).

Table 8 Distribution of number of farms and dairy cows by size levels of herds

cows/farm	1999 % of		2003 % of		2007 % of	
	farms	cows	farms	cows	farms	cows
Galicia						
<20	80.6	45.5	68.8	30.6	63.1	23.7
20 - 49	17.6	43.3	26.6	48.7	28.6	44.0
50 - 99	1.6	8.5	4.1	16.3	6.7	21.3
>=100	0.2	2.6	0.5	4.4	1.5	10.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Spain						
<20	73.7	30.8	62.7	19.5	56.5	15.2
20 - 49	20.8	38.0	27.5	38.6	30.1	35.6
50 - 99	4.1	16.2	7.4	22.7	9.5	23.4
>=100	1.3	15.0	2.4	19.3	3.9	25.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: own calculations from INE database, Agricultural census 1999 and structural surveys 2003 and 2007

This restructuring process was made possible by a major investment effort. Surveys conducted between 1992 and 2003 in Galicia showed that investments made by dairy farms amounted to 20% of their production value (IGE, 2004).

The censuses and structural surveys indicate a slight reduction in stocking rates over the forage area during the last decade, because the rate of increase in the available land was slightly greater than in the herd (Table 9). Maize silage has gained ground at the expense of reducing grassland area, especially in Galicia where it doubled its share to reach 20% of forage area between 1999 and 2007. Both stocking rate and maize area tend to increase with farm size.

The level of specialization is high; about 72% of farms are classified as specialist dairy farms both in Galicia and Spain in the last structural survey (INE, 2009).

Table 9 Stocking rates and the share of maize in the forage area of dairy farms

	1999	2003	2007
Galicia			
LU/ha forage	2.6	2.3	2.1
%maize/forage area	8.4	11.6	19.7
Spain			
LU/ha forage	2.8	2.7	2.4
%maize/forage area	5.2	6.8	10.9

Source: own calculation from database INE, Agricultural census 1999 and structural surveys 2003 and 2007

The average revenue per dairy farm in 2009 stood at around 77,200 euro in Spain and almost 29,000 less in Galicia, due to smaller farm sizes. In both cases, the annual average increase in nominal values has been close to 11% from 2000 to 2009, due mainly to increased production. The price effect is significant only in 2007 and 2008 when revenue peaked due to high milk prices (Table 10).

There is no overall information available about the percentage contribution of farm income to the total household income. We can only provide some information obtained in recent surveys by team members. Farm income contributed to 40% of household income on dairy farms of less than 20 cows and rose to 70-80% in larger.

Table 10 Sales revenues from milk (1,000 EUR per farm).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Galicia	19.1	26.3	28.7	29.4	34.9	40.5	42.7	57.2	63.1	48.3
Spain	28.6	37.4	42.1	48.3	55.5	64.1	66.0	85.2	99.7	77.2

Source: own calculation from MARM and CMR

2.1.2 Milk Production

Cows' milk destined for human consumption in Spain increased from about 6.1 to 6.4 million tons from 2000 to 2003 as a result of an increase in the quota approved by the CAP reform of 1999. Subsequently production fell reaching about 6 million tons in 2009 (Table 11).

Milk production in Galicia has increased slightly but continuously from 2.2 million tons in 2000 to 2.3 million in recent years. Because of its better performance Galicia increased its share in Spanish production from 35.4% to 38.5%, reinforcing its position as the largest producing region

Table 11 Milk production for human consumption: deliveries to dairies, direct sales and on-farm consumption.

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Quantity 1,000 t									
Galicia	2156.3	2284.4	2281.6	2198.3	2156.5	2259.4	2284.0	2295.2	2316.6	2319.6
Spain	6083.8	6314.7	6389.7	6421.1	6320.6	6280.5	6124.6	6086.3	6134.4	6030.4
Galicia's share in total, %	35.4	36.2	35.7	34.2	34.1	36.0	37.3	37.7	37.8	38.5

Source: Anuario Estadístico , MARM, CMR

Deliveries to dairies increased from 5.8 million tonnes in 2000 to 6.1 in 2003 after having decreased somewhat less than total production, due to a slight increase the percentage of milk collected, from 95% to 97% during this period. In Galicia, deliveries increased from about 2.0 million tonnes in 2000 to 2.2 in 2009, and the collection rate increased from 94% to 96% (Table 12).

Table 12 Quantity of milk collected by dairies

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	1,000 t									
Galicia	2020.7	2084.3	2074.8	2027.9	2013.5	2135.8	2184.1	2195.2	2217.6	2228.9
Spain	5776.2	6090.8	6166.0	6135.8	6041.3	5983.6	5888.9	5859.0	5942.5	5851.7

Source: Anuario Estadístico , MARM, CMR

Direct sales in 2009 accounted only 0.7% of total milk production for human consumption, and even less in Galicia (0.1%) and have lost half of this share over the last decade (Table 13).

Table 13 Share of direct sales

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	in percent									
Galicia	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1
Spain	1.8	0.9	0.8	0.9	1.1	1.0	0.9	0.8	0.8	0.7

Source: Anuario Estadístico , MARM, CMR

Table 14 Composition of milk output: protein and fat content

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	in percent										
Galicia											
Protein content	3.16	3.12	3.13	3.12	3.13	3.14	3.15	3.16	3.13	3.15	3.16
Fat content	3.80	3.81	3.84	3.83	3.87	3.89	3.86	3.87	3.83	3.83	3.85
Spain											
Protein content	3.12	3.13	3.15	3.15	3.14	3.15	3.15	3.18	3.19	3.28	3.24
Fat content	3.74	3.74	3.75	3.75	3.74	3.75	3.75	3.74	3.71	3.80	3.68

Source: Dairy Survey for Spain, MARM; LIGAL for Galicia

There were no significant changes in the composition of milk in recent years both in Spain and in Galicia. It can point only to a slight increase in protein content in Spain (Table 14).

Producer prices

Producer prices in Spain and Galicia have almost identical values until 2003, but since then the price has been slightly lower in Galicia. The gap was initially of 1 cent but over the last three years it has reached 2 cents (Table 15).

Table 15 Producer prices

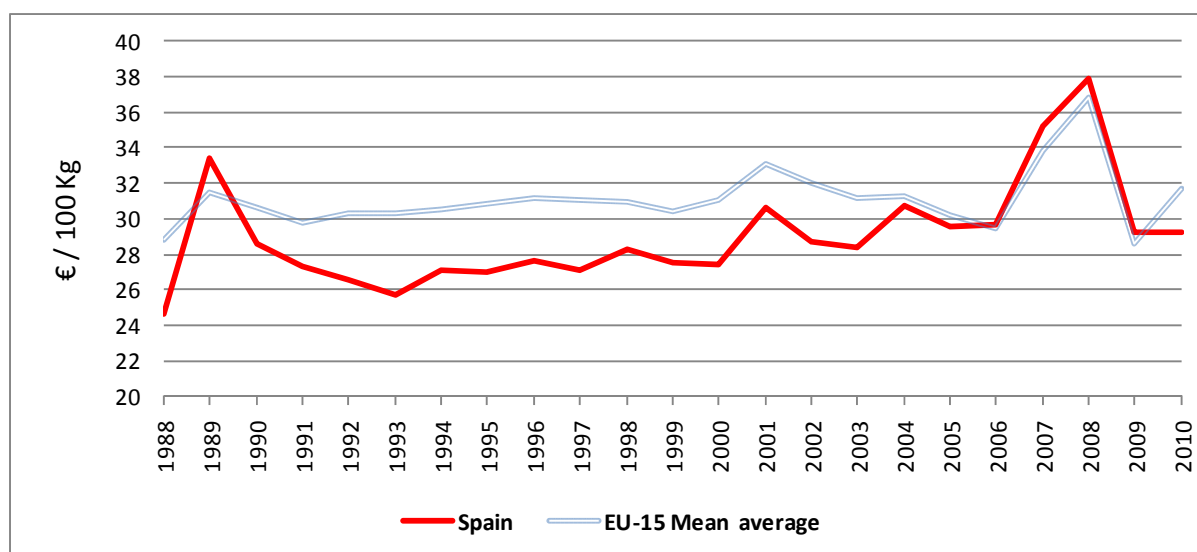
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002
Price									
Galicia	27.20	27.92	27.76	28.50	29.73	27.97	28.97	33.26	30.43
Spain	26.57	28.08	28.26	28.71	30.10	29.23	29.05	32.55	30.39
Year	2003	2004	2005	2006	2007	2008	2009	2010	
Price									
Galicia	30.01	31.57	30.60	30.50	37.64	37.95	28.52	28.87	
Spain	30.42	32.63	32.19	31.43	37.50	40.25	30.92	31.17	

Source: MARM for Spain, and IGE for Galicia

The monthly price series in Spain behave somewhat differently from those in other Member States, including France and Germany, countries with which Spain has the bulk of its trade in raw milk and milk products.

The deficit situation of the Spanish dairy sector could explain, at least in part, the pronounced variation in prices during situations of imbalance between supply and demand, with the tensions registered in situations of high international prices as occurred in 1989 and more recently in 2007-2008 (Figure 3). The lack of organization and the weak chain relationships limit efforts to achieve greater stability or a better balanced transmission of price and margins along the chain.

Figure 3 Average year milk prices in Spain and EU-15, 1988-2010



Source: CIRCA_C4.xls, EU DG Agriculture

2.1.3 Specific regional characteristics

Share of less favoured area and non-less favoured area

According to estimates from MARM referring to 2009, 76% of dairy farms and 75% of dairy cows are in less-favoured areas, rates slightly lower than the weight of these zones in the total area. These aggregate data hide a certain contrast between the mountain areas, which occupy 40% of the territory and contain about 32% of farms and dairy cows, and the non-mountainous areas classified as disadvantaged by the risk of depopulation, whose percentages of dairy farms and herd (41-43%) are considerably above its territorial weight (35%) (Table 16).

Table 16 Percentage of dairy farms and cows in less favoured areas in Spain. 2009

Type of area	% area	% dairy farms	% cows
Not less favoured areas	22.0	24.0	25.0
Mountain	39.9	32.2	31.8
Areas with depopulation risk	35.3	42.5	41.1
Areas with other specific handicaps	2.8	1.4	2.1
<i>Total less favoured areas</i>	<i>78.0</i>	<i>76.0</i>	<i>75.0</i>

Source: own calculations from MARM

Over the last two decades, there has been a decline in production in mountain areas and its gradual concentration in regions with better natural conditions, mostly classified within the other types of less favoured areas. This trend may have been stimulated by three factors. Firstly, the low valorisation of mountain milk production linked to the manufacture of differentiated and quality products (mainly cheese covered by quality labels). To this we must add the comparatively small amount of direct aids to farmers in these zones in Spain, compared to other Member States. Finally, it has been also influenced by the quota administration system established during most of the period, characterized by a quota-free market which has allowed the concentration of production in areas with natural better conditions.

About 77% of dairy cows in Galicia are located in less-favoured areas, a percentage that is only slightly below of its share in surface. But within these zones, the dairy herd is mainly concentrated (60%) in

non-mountainous zones of the interior (LFA risk of depopulation), while the mountain, occupying 45% of the territory, has only 17% of dairy cows (Table 17).

Table 17 Evolution of percentage of dairy cows in less favoured areas in Galicia

Type of area	% area	% dairy cows		
		1993	2003	2009
Not less favoured areas	24.9	28.0	23.9	22.5
Mountain	44.5	18.7	17.3	16.9
Areas with depopulation risk	30.6	53.3	58.8	60.5
Total less favoured areas	75.1	72.0	76.1	77.5

Source: own calculations from CMR

During the last two decades there was an increasing concentration of milk production in some inland areas of the northern half of Galicia. At the same time, dairying has disappeared entirely or almost entirely from most of the coastal areas (and other zones with high population densities) and also from most of the mountainous zones (especially in the East and Southeast) (Sineiro et al., 2006).

This is reflected in a decline in dairy cattle in both the non-less favoured areas (decrease from 28% of dairy cows in 1993 to 22% in 2009) and in the mountain zones (from 19% to 17%). At the same time the regional herd became increasingly concentrated in less-favoured areas with a depopulation risk (from 53% of the herd in 1993 to 60% in 2009). These trends have been continuing in the last decade without noticeable changes since the 2003 reform of the CAP. However there seems to be a certain slowdown in the process of concentration since 2005, coinciding with changes in the quota administration system in Spain (the closing of the quota market and its replacement by public programmes of abandonment and reallocation).

With respect to farm size, there are no substantial differences between different types of zones. However, it should be noted that the dairy farms that survive in mountain zones are somewhat smaller (around 90% of the average for Galicia), due to a slightly larger share of small farms.

Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI)

In Spain there are currently 25 protected designations for cheese in accordance with European standards. Except for one Protected Geographical Indications (PGI), all are Protected Designation of Origin (PDO), and all of them have been recognized since 1996. In addition, there are another four in the registration process. There are also 2 PDO labels for butter, but with a very small volume. In 2008, they processed 11.7 million litres of milk and produced 555.8 tonnes of butter (MARM, 2010).

According to data from MARM 2008, those 25 PDO/PGI cheeses have 4,910 registered farms and 433 dairies. The volume of milk processed amounted to 153.1 million litres, being equivalent to 2.3% of the milk of cows, sheep and goats processed in Spain. Of the 20,759 tonnes of cheese obtained, 70% went to the Spanish market and the remaining 30% was exported in similar proportions to the EU and to third countries (MARM, 2010).

The production of cheeses covered by official quality schemes is very modest as it represents only 6.6% of the volume of cheese produced that year. Taking into account that the PDO cheeses with a higher volume of production are made mostly from sheep or goats' milk or in mixtures with cows' milk, the impact of formal quality schemes on production of cows' milk is very small.

Four of the 25 PDO cheeses operating in Spain are located in Galicia; all of them use exclusively cows' milk. These quality designations link with the tradition of artisanal cheese-making that historically existed in several counties of Galicia, but the official recognition is fairly recent, all of them from 1996 onwards.

The 4 PDOs had 2,125 farms registered in 2009, that is, 16.1% of dairy cattle farms in Galicia, but only 48,435 tons of processed milk, which is 2.2% of total production in the region (Table 18). This sharp

contrast between the production potential by numbers of producers and the volume of milk processed into PDO is due to the low volume delivered by farmer, with an average of 23 tonnes. Since the farms are not small (their average herd size is 32.2 cows, which is above the Galician average of 25.7), this means they deliver only part of their milk for the PDO. This low farmer involvement in PDO cheese is related to the fact that the milk price received by farmers for PDO milk is similar to that paid by all dairies. In 2008 the price for the PDO milk producers was only 1.0% over the average milk price received in Galicia. Therefore, it appears that these official quality schemes are unable to offer a better milk price to farmers.

Table 18 Basic data for the PDO cheeses in Galicia

Total 4 DOP	2000	2009
N° producers	1279	2125
N° dairies	54	66
Cheese produced (t)	3800	5503
Milk equivalent (t)	33291	48434
% milk produced in Galicia	1.8	2.2

Source: own calculations from CMR, production of DOP

These cheeses are mainly produced for the regional market and to a lesser extent for the rest of Spain, with exports representing about 3% of production. Despite the weaknesses noted above, these PDOs have been expanding over the last decade. Between 2000 and 2009, production increased 1,700 t (45%).

Within these official quality schemes organic production must be also mentioned. So far it has had only a token presence in Spain and Galicia, although it is a growing segment. The dairy farms in organic production in 2009 are limited to 83 (0.3% of the total), with about 4,000 cows (0.5% of the total), and these shares are similar or slightly lower in Galicia, 32 farms (0.2% of total) and 1,550 cows (0.5% census) (Table 19).

Table 19. Organic production: number of farms and dairy cows

	2004	2009	% dairy sector 2009
N° Farms			
Spain	43	83	0.4
Galicia	18	32	0.2
N° Dairy cows			
Spain	2338	3978	0.5
Galicia	1322	1550	0.5

Source: own calculations from MARM, statistics of organic production

2.2 Processing industry

The development of the processing sector has been conditioned by a cow's milk deficit, a weakness in consumption of milk products and a rigidity of the institutional framework existing before the integration in the European Community in 1986.

The processing sector is characterized by the specialization of manufacturers by dairy products (milk, fresh products and cheese), the high dependence on drinking milk and the importance of sheep and goat milk in the cheese sector.

The map of the current business structure is the result of successive merger or absorption operations that occur mainly in the nineties prior to consolidation of the major drinking milk groups (Capsa, Puleva, Pascual, CLV-3A and Iparlat).

In yogurt and other milk fresh products Senoble and Danone concentrate most of the production in the manufacturer brand and the private label, respectively.

Cow's milk cheese production has been limited by the scarcity of the raw material and the low consumption of cheeses. The main companies are largely dependent on sheep and goat milk for cheese production.

Recent acquisitions by Lactalis (purchases of Forlasa and Puleva purchases in 2010 and CLV Group-3 A in 2005 and the joint venture established with Nestle in fresh products also in 2005) has carried to the formation of the major multipurpose dairy group in the Spanish market. It is present in the different groups of dairy products and is the leader in milk collection from farms.

In the case of Galicia the development of the dairy industry has been quite limited. A substantial part of its milk production (27%) is sold to the high value dairy industries established outside Galicia (the manufactures brand in drinking milk, cheese and fresh products), while the firms established in Galicia are mostly oriented to the drinking milk with a high degree of dependence on private labels of food retailers.

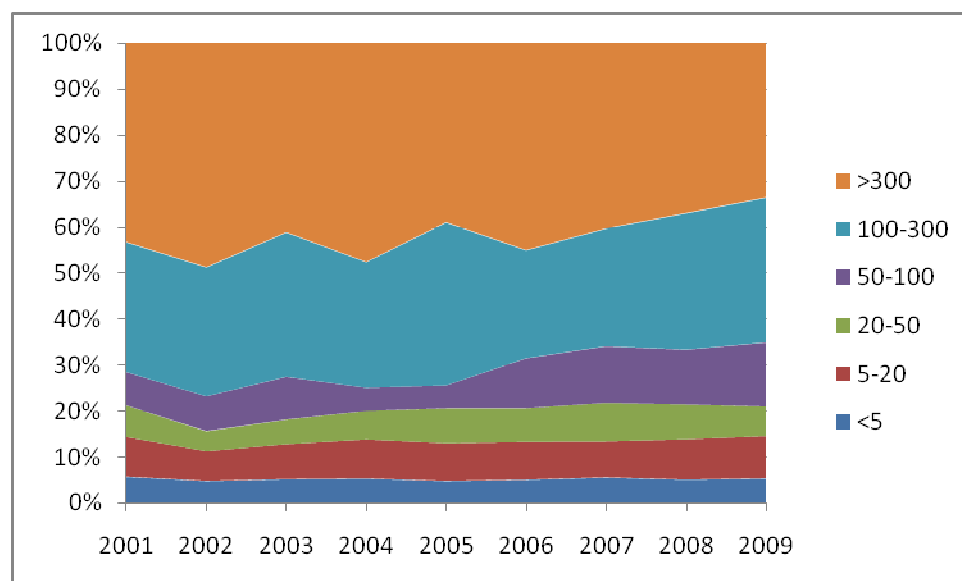
Company structure

The number of dairy companies in Spain is high with a total of 692 in 2009, which has even been rising over the last decade. But 93% of them are small with less than 20,000 tonnes that transform only 15% of total milk. The vast majority of these small firms are engaged in the manufacture of cheese. On the other hand the 19 companies with more than 100,000 tonnes processed 65% of the total and even the top 5 that are over 300,000 tonnes comprise a third of the total (Table 20 and Figure 4).

Table 20 Number of firms by amount of milk processed

Year	Number of dairies	Total available milk quantity in 1,000 t	of that number dairies with an available milk quantity of more than ... and below ... 1,000 t / year					
			less than 5	5 to 20	20 to 50	50 to 100	100 to 300	More than 300
Spain								
2000	615	6.801	512	60	20	8	9	6
2003	594	7.283	501	51	13	10	14	5
2009	692	7.270	581	62	16	14	14	5

Source: Statistical surveys of milk and milk products, MARM

Figure 4 Share of processors by amount of milk processed (in 1,000 t)


Source: Statistical surveys of milk and milk products, MARM

The dairy industry as a whole has a relatively low level of concentration. The three biggest companies represent 30% of turnover and the first five do not reach 40%. These indexes barely changed over the last decade (Table 21).

Table 21 Share of the first dairy companies in Spain (in percentage of revenue)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Share of the largest dairy companies in Spain (in percentage of revenue)									
First 3	28.4	27.3	27.1	27.5	27.4	27.4	26.9	26.5	26.3	30.4
First 5	37.4	37.2	37.1	36.6	36.0	35.7	35.2	35.4	35.9	38.8

Source: own calculations from annual accounts, Sabi-Amadeus database

Half of the raw milk is collected by 7 companies that exceed 300 thousand tonnes per year. About a hundred companies produce drinking milk, of which 5 are making more than 250 thousand tonnes (53% of the total). There are 554 firms making cheese; the top 7 produce over 10,000 tonnes annually, concentrating 43% of the production (Table 22).

Table 22 Level of concentration by groups of dairy products. Spain 2009

Products	Total firms		The biggest firms		
	number	000 t	number	000 t	% share (t)
fresh products (1)	187	5122	6 with >250000 t	2682	52.4
milk	89	3578	5 with >250000 t	1899	53.1
cheese	554	315	7 with >10000 t	137	43.5
milk collected	640	6520	7 with >300000 t	3235	49.6

(1) Including milk

Source: Statistical surveys of milk and milk products, MARM

The information for Galicia is limited due to the wider operational level of the national dairy companies. The available information comes from the structure of employment in dairy plants located in the region, indicating a stable structure over the period 2000-2009. There are 10 companies with 50 or more

employees, another 20-25 small firms with 6 to 50 employees and about 80-90 micro firms with fewer than 6 (Table 23). The three largest concentrate 49% of the milk collected and the proportion for the top five rises to 64%.

Table 23 Number of firms by number of employees in Galicia

Year	Number of dairies	number of employees by company				
		0 - 5	6-9	10 - 49	50 - 99	100 and more
2000	114	84	9	11	3	7
2003	108	75	6	18	2	7
2009	120	84	11	15	2	8

Source: own calculations from Directorio de Empresas, IGE.

The weight of cooperatives in the industrialization of milk is very low in comparison with most EU Member States. It is estimated that cooperatives process about 21% of milk in Spain and only 7% in Galicia. However in both cases they double their participation in the milk marketed by acting as first-time buyers, selling the production to other industries (Table 24).

Table 24 Share of cooperative dairies

Region	2000	2010
	in percentage of milk processed	
Galicia	5	7
Spain	19	21

Source: own calculations from Cooperativas Agroalimentarias

Export and import share

The structural deficit of Spain in the dairy sector has increased in recent years. A steady growth of the consumption of dairy products, especially cheese, was not covered by a domestic production limited by the quota and also by competitive factors.

The 2000-2010 series of trade shows a strong growth in imports which are above the 3.6 million tonnes of milk equivalent at the end of the decade, while at the same time exports registered a slight fall (Table 25 and Table 26).

Table 25 Imports of milk products (000 tons milk equivalent)

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Galicia										
1,000 t (1)	56	75	57	63	256	298	238	140	167	202
% import/production	2.6	3.3	2.5	2.9	11.9	13.2	10.4	6.1	7.2	8.7
Spain										
1,000 t	2205	2468	2414	2501	3120	3172	3290	3935	3569	3627
From UE-27 (1,000 t)	2168	2432	2354	2435	3049	3119	3246	3905	3560	3611
From third countries 000 t	37	35	59	66	71	53	44	31	9	17
%third Countries/total	1.7	1.4	2.5	2.7	2.3	1.7	1.4	0.8	0.3	0.5
% import/production	32.4	34.3	32.4	34.3	39.5	42.0	44.8	55.0	48.6	49.9

(1) 100% from UE. Source: own calculations from DataComex, MITYC

In relative terms exports in 2009 represent 11% of domestic production of milk products, about 4 percentage points less than in 2000-2003. The fall in exports is mainly due to milk powder or concentrated milk (from 66,000 t in 2000 to just 30,000 in 2010), while cheese and other dairy products are stable over the decade.

Non-EU countries absorbed 25% of exports at the beginning of the decade, but since 2005 only represent 10%.

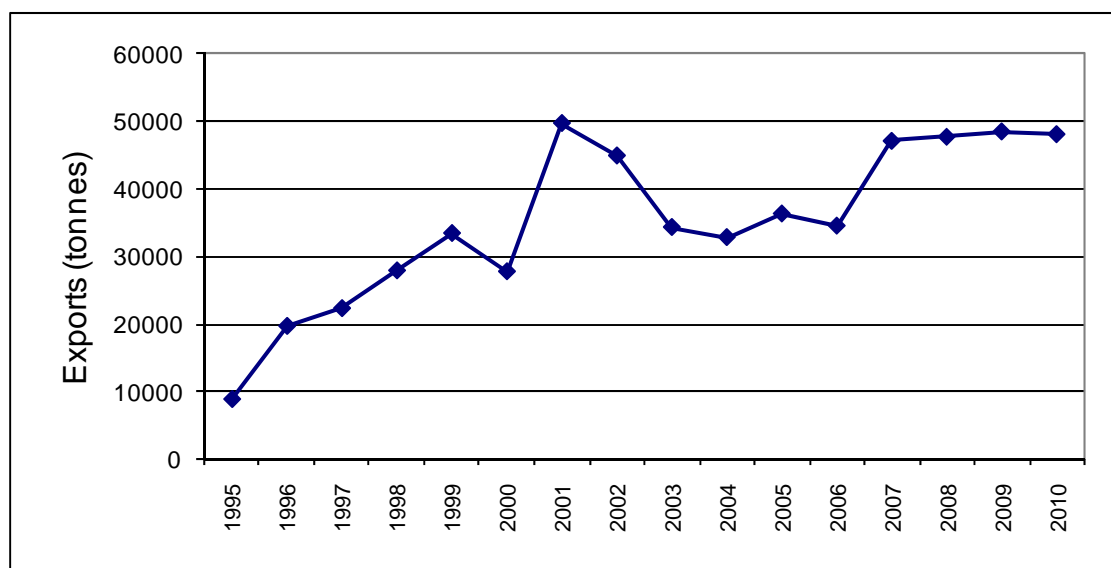
Table 26 Exports of milk products in Galicia and Spain.

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Galicia 1,000 t milk equivalent										
total	139.2	139.6	119.0	107.7	152.3	97.7	99.6	146.7	125.2	72.4
UE-27	109.2	100.0	93.7	97.5	131.3	86.4	92.0	141.6	123.1	70.4
Third countries	30.0	39.6	25.4	10.2	21.0	11.3	7.5	5.1	2.1	2.0
%third Count/total	21.6	28.4	21.3	9.4	13.8	11.6	7.6	3.5	1.7	2.7
% export/production	6.5	6.1	5.2	4.9	7.1	4.3	4.4	6.4	5.4	3.1
Spain 1,000 t milk equivalent										
total	997.4	1099.0	1119.2	1139.1	975.8	965.6	963.3	895.8	888.1	789.8
UE-27	749.2	875.6	887.6	1000.9	834.9	881.5	885.6	817.9	816.9	712.8
Third countries	248.2	223.2	231.5	138.2	140.9	84.1	77.7	77.9	71.2	77.0
%third Count/total	24.9	20.3	20.7	12.1	14.4	8.7	8.1	8.7	8.0	9.8
% export /production	14.7	15.3	15.0	15.6	12.4	12.8	13.1	12.5	12.1	10.9

Source: own calculations from DataComex, MITYC

Exports of raw cream have risen from 10 to 50 thousand tonnes during the last fifteen years. This increasing weight of milk fat in the structure of exports is the result of the preponderance of drinking milk in the Spanish dairy industry, and the trend in consumption to substitute whole milk with the semi-skimmed and skimmed milk types (Figure 5).

Figure 5 Exports of cream. Spain (1995-2010)

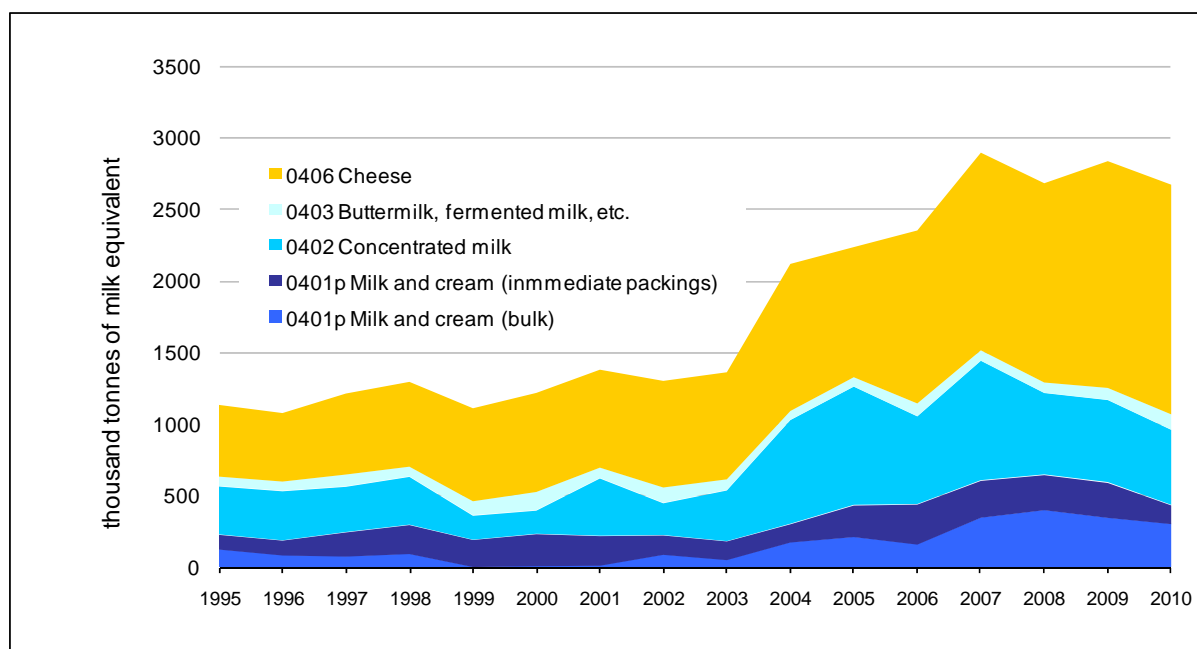


Source: own calculations from DataComex, MITYC

The imports of dairy products come almost entirely from the other EU countries. Net imports have increased from 1,210 to 2,650 thousand tonnes of milk equivalent over the decade. This growth is due

mainly to cheese (from 690 to 1,600 thousand tonnes) and to raw milk (from 10 to 310 thousand tonnes) (Figure 6).

Figure 6 Net imports of milk and milk products (in 1000 t of milk equivalent). Spain (1995-2010)



Source: own calculations from DataComex, MITYC

The figures for values of external trade for Galicia must be taken with reservations due to the limitations existing at the regional level in the context of the accounting of exchanges that have always been based on records in accordance with the delimitation and customs declarations in the statistics of Community transactions (Intrastat declarations).

2.2.1 Production

Retailer brands have reached a high market share on the purchase of dairy products by households, especially in the case of milk and yoghurts. Currently these represent around 50% of purchases of both products, although its share in value drops to 40% for milk and to 33% for yoghurts due to lower unit prices (Table 27).

Table 27 Share of retailer brands on drinking milk and yogurts

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Retailer brands of drinking milk											
Volume (%)	29.2	31.5	33.4	35.1	36.0	36.8	41.3	41.5	48.4	50.7	49.8
Value (%)	24.2	26.8	28.2	28.6	29.3	29.5	34	34.4	42.3	40.8	39.8
Retailer brands of yogurts											
Volume (%)	NA	NA	29.3	33.2	35.7	39.3	40.8	43.3	45.5	50.9	52.0
Value (%)	NA	NA	18.5	20.4	21.8	24.4	25.1	26.8	28.4	31.5	32.9

Source: own calculations from Alimarket

These products, particularly the milk, are used as a "loss leader product" by retailers. Current offerings include sales from 0.45 to 0.48 euro per litter of milk. This strategy, which leads retailers to sacrifice

their own margins, does not have an impact for these enterprises as they recover those lower margins in the increasing sales of other products. However, it is very damaging for the drinking milk industry and for farmers, suffering significant cuts in the margins of their core business.

The Spanish dairy industry is very dependent on the processing of drinking milk, with a production of about 3,578 thousand tonnes. However, cheese production is very low with some 313 thousand tonnes, of which only 39% is made with milk cows; the rest is either pure goat or sheep's or cow's milk mixtures (Table 28).

Milk powder production is also very low and subjected to a considerable variation from year to year, due to the deficit of the Spanish market which gives priority to the processing of fresh products. Whey production is low as a result of lower cheese production.

In terms of milk equivalent drinking milk absorbs 55% of the processed milk in Spain, which rises to 60% if we consider only cow's milk; 12% is used in the production of yoghurts and another 26% for cheese. The dependence of the industry on drinking milk is still higher in Galicia using some 81% of processed milk in its production.

Table 28 Production of milk products in Spain, 2000-2009 (in thousand tons)

Products	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Drinking Milk	3562.3	3734.8	3791.5	3783.8	3813.9	3677.4	3543.1	3578	3609	3577.8
Butter	38.6	31.9	55.7	52.1	50.5	58.9	46.7	39.1	40.6	36.7
Cheese	255.0	265.2	289.1	298.4	303.7	308.9	314.5	316.6	317.1	312.9
Cream	68.6	103.0	78.2	70.1	66.6	74.9	76.4	94.7	120.5	133.1
SMP	11.4	10.2	8.1	9.6	6.5	5.6	8.6	5.9	4.0	1.8
WMP	3.0	7.9	19.9	15.8	4.2	3.8	0.5	1.2	4.7	8.5
Whey powder	2.0	7.9	14.0	15.0	8.4	11.6	12.4	13.3	14.5	17.2

Source: Dairy Survey, MARM

Most of the fat obtained in the standardization of milk in the processing of drinking milk is sold as raw cream and butter in large containers for industrial use, due to the low household consumption of butter. Also most of the milk powder produced is used by the dairies or other food industries.

Pricing policy/strategy/practices with regard to raw milk

In the absence of a stable inter-professional relationship in Spain, the pricing policy of milk has traditionally been defined by the strategies of each buyer. This practice continues despite the very modest progress made under the basic regulation for contracts approved in 2008.

Price formation responds to the general scheme of base price, fat and protein, bacteriology and "other premiums". The base price, under various names, corresponds to the price of standard milk (3.7% fat and 3.1% protein), and the amount paid differs between buyers and even amongst farmers who deliver milk to the same company. The analysis of mean values of Galicia in 2009 shows a clear relationship between the base price and volume of deliveries, with mean differences of 3.40 € / 100 litres between the producers of less than 70 and more than 500 tonnes of quota. The base price includes a part of the above premium for volume, a concept which is criticized by the producers.

Besides the differences in the base price, "other premiums" have a decisive influence in the formation of milk price. This concept of "other premiums" includes items as diverse as the payment for volume, fidelity, etc. ; and in many cases represents more than 10% of the final price received by producers.

Table 29 Price of milk to producers. Galicia, 2009

prices in €/100 l	tonnes delivered by producer					Differences	
	<72	72-240	240-500	>500	mean	>500 - <72	% mean
Base price	23.56	25.17	26.39	26.97	25.64	3.41	13
premium	1.21	1.57	2.47	3.33	2.05	2.12	103
of which other premium	0.73	1.3	2.09	2.97	1.74	2.24	129
Total price	24.77	26.74	28.86	30.3	27.69	5.53	20
% premium/total price	4.9	5.9	8.6	11.0	7.4		

Source: own calculations from CMR, milk prices to producers

With these strategies on base price and premiums, the payment of milk to producers shows significant differences from about 5.5 euro/100 litres between the groups delivering less than 72 tons and more than 500, which are equivalent to 20% of the mean price. The differences in the payment of "other premiums" rise to 2.2 euro/100 litres (Table 29).

There are no available series of industrial prices of milk products; we only have the price series at the three levels: at farm gate, at wholesale by processors and at consumption. During the period from 2005 to 2010 the wholesale prices have risen 11.9%, slightly below prices at the consumption level and 15 percentage points more than the producer prices, which in the past two years have fallen below the existing in 2005 before its sharp increase in late 2007 and 2008 (Table 30).

Table 30 Annual index of price at the farm level, industry and consumption in Spain (1995=100)

Price index	2002	2003	2004	2005	2006	2007	2008	2009	2010
Farm gate milk price	96.8	96.8	103.2	100.0	100.0	116.1	125.8	96.8	96.8
IPRI dairy products (1)	94.4	95.0	97.4	100.0	102.9	106.9	118.4	113.7	111.9
IPC milk products (2)	92.7	95.4	98.0	100.0	102.1	108.2	120.7	116.0	112.5

(1) IPRI ("Indice de Precios Industriales"): Index of price received by processors for dairy products

(2) IPC ("Indice de Precios al Consumo"): Index of price paid by the consumers

Source: INE annual index of prices, 2005=100.

2.3 Quota administration

Table 31 provides an overview of the evolution of the amount of quota for Spain, both for deliveries to dairies and for direct sales. Also indicated is the amount allocated to individual farmers, the rest not being distributed and acting as a National Reserve.

With the CAP reform of Agenda 2000 an increase of 550,000 tonnes of quota was approved, of which two thirds were implemented in the 2000/01 year and the remaining third in 2001/02. The resolutions of the CAP mid-term reform of 2003 did not involve any novelty in this aspect, since the increase had already occurred before. So in the evaluation period covered by this study the only increases in quota are those that have occurred since the 2008/09 year: 2% in that year and 1% per annum from 2009/10.

The quota allocated to farmers has evolved in parallel, although maintaining in the national reserve an amount generally less than 1% of the quota, except during the last years. The increases since 2008/09 in the Spanish quota have not been distributed among farmers, which results on an increase in part of quota in the national reserve (4.8% in 2009/10).

The quota of Galician farmers has increased from 1.64 million tonnes in 1999/2000 up to 2.22 million in 2009/10, raising its relative weight in Spain from 30.6 to 37.0%.

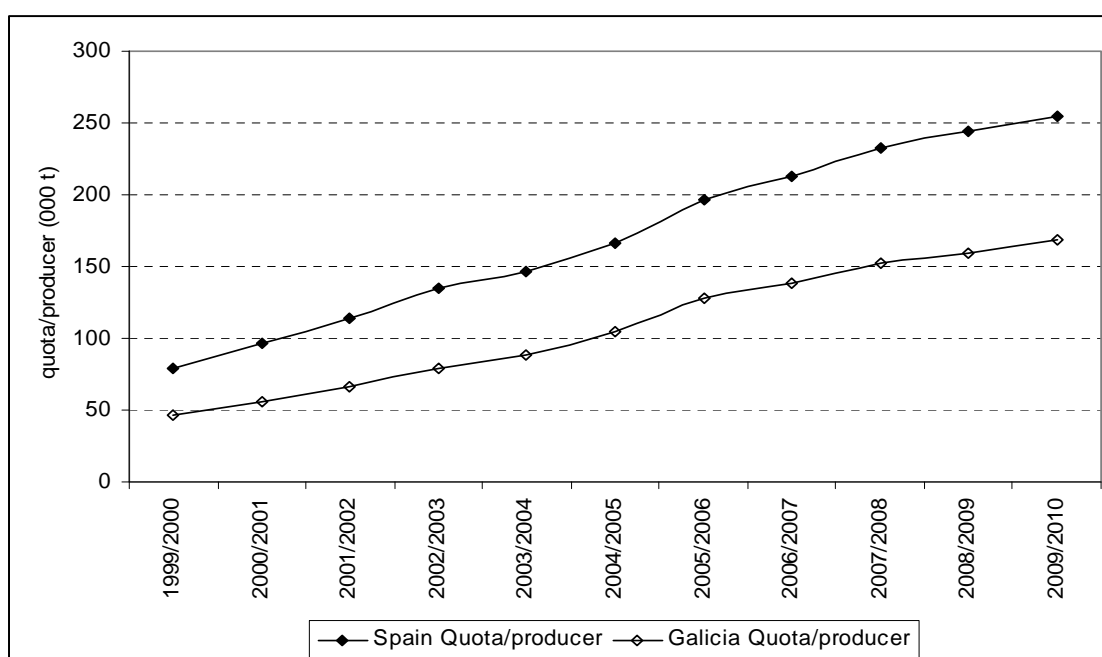
Table 31 Evolution of milk quota in Spain

Year	Milk quota (1,000 t)			
	Total	Deliveries to dairies	Direct sales	Allocated to producers
1999/2000	5567.0	5469.7	97.2	5498.6
2000/2001	5917.0	5829.0	88.0	5828.5
2001/2002	6117.0	6035.6	81.4	6062.1
2002/2003	6117.0	6035.6	81.4	6043.6
2003/2004	6117.0	6040.0	76.9	6086.7
2004/2005	6117.0	6045.8	71.2	6072.6
2005/2006	6117.0	6045.4	71.6	6096.2
2006/2007	6117.0	6049.9	67.1	6088.9
2007/2008	6117.0	6051.0	66.0	6105.7
2008/2009	6239.3	6173.2	66.1	5902.1
2009/2010	6301.7	6235.3	66.4	6001.4

Source: own calculations from quota data, MARM and FEAGA

The amount of quota per dairy farm has had a substantial increase, up to 254 t in Spain and to 168 t in Galicia in 2009/10, due to the rise in the Spanish quota and the reduction in the number of producers (Figure 7).

Figure 7 Evolution of the amount of quota available per dairy farm in Spain and Galicia



Source: own calculations from quota data, MARM and FEAGA

Quota implementation

Milk production quota is based on a penalty mechanism, which is activated when the produced quantity exceeds the quota. This rule is applied at the farm level, which means that the producer gets the

market price in the limit of his quota and for the excess production he will not receive the market price, but the market price less a fine (the so-called super-levy).

The quota super levy is applied in Spain through a clearing system at three successive stages, between the excesses and deficits of supplies of individual farmers. Firstly it is performed by compensation on a "first purchaser" scale among farmers delivering their milk to the same company. Afterwards compensation at the national level takes place with the remaining balances. Finally the existing quota balance in the national reserve is computed. The individual overshoots are only penalized with the corresponding super levy when the Spanish deliveries exceed the quota. In this case the penalty is distributed according to the overproduction of each producer remaining after the previous compensations.

However, when a farm is exceeding its quota it will suffer a retention, which will be returned in the event that the Spanish quota is not exceeded in that year. The only relevant change in the system adopted during the evaluation period has consisted in a flexible scheme for these retentions. Since 2009/10 the retentions are only performed when at November 30 (at one third of the end of milk year) a risk of exceeding the Spanish quota is predicted. This measure can be understood as a step in the gradual adaptation of the sector to the future horizon without quotas.

Quota tradability

There are three types of quota transfers amongst producers: permanent transfers of quota, with or without the land, and temporary leasing of quota.

The transfer of quota with land may occur by sale, inheritance, donation, lease or similar legal process. In practice, the vast majority corresponds to changes in ownership of the farm, mainly due to hereditary transmission, but also includes merger or grouping of farms.

Up to the beginning of 2005/06 there were two methods of quota transfer without the land: by public abandonment schemes and by private transfers amongst producers. Since that year these transfers are only possible through public schemes.

Until the beginning of 2005/06 private transfers of quota among producers of the same region were liberalized, while there were considerable restrictions for those between producers from different regions. Coexisting with this private marketing, was also a redistribution of quotas by the Administration, through abandonment plans and the subsequent reallocation of the resulting quota to farmers according to defined criteria of allocation at a price previously set. However this mechanism played a quite secondary during role these years.

Since 2005/06 transfers of quota without land are banned and the Administration takes control of the redistribution of quota, through cessations programs and subsequent reassignment. The aim of this change was to reduce the price of the quota which had risen considerably in previous years and limited the possibilities of restructuring to medium-sized farms. But simultaneously this change has restrained the growth of production in larger farms that have been discriminated against by public reallocation criteria.

This is the current scheme during the last six years and therefore for most of the evaluation period on which this study is focused. However, specific mechanisms were experiencing some changes, so that the three following phases can be distinguished in this stage. At the beginning of 2005/06 a deadline was set for the transfer of quota without land, just before being banned, and at the same time a powerful official abandonment plan was applied, with a reallocation of quota based on general criteria at the Spanish level, without any regionalization. During the two following years 2006/07 and 2007/08 there were abandonment plans, but there was a return to a regionalization in the allocation of the majority of quota renounced. In the last three campaigns abandonment plans have not been implemented, limiting the actions of the Administration to an allocation of quota in 2009/10 for a limited amount and directed only to very specific categories of farms (those with public aid for the incorporation of young farmers).

During the years 2002/03 to 2004/05 about 77% of quota was transferred through the private marketing, mostly amongst farmers of the same region. The total quota transferred through the Administration and the private marketing in the period 2002/03 to 2009/10 is equivalent to 28% of the Spanish quota, which in the case of Galicia rises up to 39%. During this period the transfers of quota in Galicia are equivalent to 44% of Spain (Table 32).

Table 32 Milk quota volume transmitted through the different instruments in Spain and Galicia. 2002/03 to 2009/2010

Year	Landless transfers (1,000 t)				Transfers with land (1,000 t)
	Administrative	Intra-regional	Inter-regional	Total	
Spain					
2002/03 to 2004/05	190.2	488.9	117.0	796.0	676.0
2005/06	349.4	215.9	27.0	592.3	254.6
2006/07 to 2009/10	365.3	0.0	0.0	365.3	803.1
Galicia					
2002/03 to 2004/05	57.0	188.3	77.0	322.3	249.4
2005/06	190.2	66.1	20.3	276.6	97.4
2006/07 to 2009/10	168.6	0.0	0.0	168.6	473.5

Source: own calculations from MARM and CMR

The volume of leasing of quota, which was limited at the beginning of the decade to a quarter of the transfer of quota without land, shows a rising trend since the end of that marketing of quota (2005/06), especially following the relaxation of the disposals regulations adopted in 2009 which allow it to be renewed annually (Table 33).

Table 33 Amounts of leasing quota in Spain and Galicia (annual means)

annual mean periods	(1,000 t)	
	Spain	Galicia
2002/03 to 2004/05	68	6
2005/06	23	2
2006/07 to 2009/10	121	33

Source: own calculations from MARM and CMR

Quota prices

There is no available statistical information on prices of quota, so we can only provide an approximation based on data provided by some studies or by sector agents. Furthermore, we also collect data on the price paid by the administrative allocations of quota.

Prices of quota experienced an important increase from 0.15-0.20 euro paid in the first years (1994/95) up to 0.70 euro in the last year the quota market was open (2004/2005). This was the main reason for the change in the system operated in 2006 with the closing of this market (Table 34).

Table 34 Milk quota price in Spain

Year	(euros/kg)	
	Estimated market price	Price in Administrative allocations
1997/1998		
1998/1999	0.38	0.37
1999/2000	0.40	0.32
2000/2001	0.51	0.36
2001/2002	0.54	0.30
2002/2003	0.60	0.32
2003/2004	0.60	0.43
2004/2005	0.67	0.66
2005/2006	0.70	0.56
2006/2007		0.27

Source: own calculations from MARM, CMR and other sources

Share of quota fulfilment

Table 35 Balance campaigns in Spain; adjustments between quota and milk deliveries

year	Deliveries-Quota (1,000 t)		% over quota	
	Spain	Galicia	Spain	Galicia
2002/2003	-39.7	58.5	-0.7	3.1
2003/2004	-47.2	40.0	-0.8	2.1
2004/2005	68.2	107.7	1.1	5.4
2005/2006	13.3	26.0	0.2	1.2
2006/2007	-92.5	17.1	-1.5	0.8
2007/2008	-131.5	39.4	-2.2	1.8
2008/2009	-259.2	82.2	-4.2	3.8
2009/2010	-380.0	4.0	-6.1	0.2

Since 2006/07 deliveries of milk in Spain have been below the quota, reaching -4% in the last two years. Milk deliveries in Galicia continue to exceed the quota, but in a quantity that tends to decrease. This different behaviour may be related to the greater dependence of Galician agriculture on milk production and the limited development of other productive alternatives (Table 35).

2.4 State aid and rural development measures applicable for dairy

For the implementation of rural development policy with European financing (from the EAFRD) for the period 2007-2013, Spain has opted for a regionalized programme. Thus there are 17 regional rural development programmes, one for each Autonomous Region, based on the guidelines of the National Strategic Programme and National Rural Development Framework.

The measures applicable to the Galician dairy farms are therefore included in the Rural Development Programme (RDP) of Galicia 2007-2013. The actions in this RDP are not directed in general to a sector or activity and therefore it cannot refer to specific measures for the dairy sector.

It is important to mention that in 2009 a modification of the RDP was made to incorporate changes resulting from the CAP Health Check and the European Recovery Plan. This involved the incorporation of additional funds to finance the "new challenges" set by the Health Check, including the restructuring of the dairy sector.

There are three points to highlight: the additional funds are quite limited (EAFRD resources have only increased by 2.7%); two-thirds of these additional resources are allocated to the dairy industry; it does not involve the creation of new lines of action but an increased funding available for certain existing measures in the initial RDP (aid for the modernization of farms and food industries, adding value to agricultural products and forestry).

Although there are almost no specific measures for the dairy sector, this orientation will probably be the main beneficiary of many measures. This is due to the fact that a substantial part of Galician farms, especially the most dynamic, are dedicated to milk production. The same applies to measures aimed at the food industry.

Table 36 summarizes those measures in the Galician RDP for which it is expected that a significant portion of public spending will benefit the dairy sector (farm and industries), indicating for each the public spending which is allocated to the RDP for the whole period 2007-2013.

Table 36 Measures of the Galician Rural Development Programme 2007-2013 with a direct impact on the dairy sector

Measure	Public spending (1,000 euro)
Axis 1	
(111) Information and professional training	25,198
(112) Installation of young farmers	107,826
(113) Early retirement of farmers and farm workers	62,628
(114) Use of advisory services by farmers and foresters	14,297
(115) Setting up of management, relief and farm advisory	29,385
(121) Modernization of agricultural holdings	172,085
(123) Adding value to agricultural and forestry products	149,535
(132) Supporting farmers who participate in food quality	7,291
(133) Supporting producer groups within programs on food quality	15,026
Axis 2	
(211) Aid to compensate farmers for natural handicaps in mountain areas	48,747
(212) Aid to compensate farmers for natural handicaps in areas other than mountain	17,352
(214) Agri-environmental aids	154,176
TOTAL RDP	1,516,774

Source: Galician PDR, CMR

2.5 Conclusion

Dairy farms have continued with the intense process of restructuring of the last decades, although at a more moderate rate. Farm size, as measured by the volume of milk production, has increased during the last decade by about 160 t in Spain and 110 in Galicia. Cow milk production has been stabilized around 6.0 million t in Spain and had a 7% increase in Galicia.

About 77% of the dairy herd in Galicia is located in less favoured areas, but only 17% in mountain areas, that are in a declining trend in milk production. The relative impact of quality protection schemes such as the PDO and ecological production is very low.

The processing sector is characterized by its high dependence on drinking milk and the importance of sheep and goat milk in the cheese sector. Although there are almost 700 companies, most of them are very small and making cheese; the level of concentration is relatively low as the top five process a third of total production. The impact of cooperatives in the industrialization is very low in comparison with most UE Members States, processing about 21% of milk in Spain and only 7% in Galicia.

The structural deficit of Spain in the dairy sector has increased in the last decade and net imports have raise from 1,210 to 2,650 thousand tonnes of milk equivalent, due mainly to cheese (from 690 to 1,600 thousand tonnes).

Retailer brands have reached a high market share, representing around 50% of purchases of drinking milk.

In the absence of a stable inter-professional relationship, the pricing policy of milk has traditionally been defined by the strategies of each buyer

Since 2005/06 transfers of quota without land are banned and the Administration has taken control of the redistribution of quota, through cessations programs and subsequent reassignment. The total quota transferred through the Administration and the private marketing in the period 2002/03 to 2009/10 is equivalent to 28% of the Spanish quota and rises up to 39% in the case of Galicia.

Prices of quota experienced an important increase to reach 0.70 euro/kg in 2004/05 which was the reason for the change in the system operated in 2006 with the closing of this market. The price in the last Public programme of abandonment has been reduced to 0.27 euro.

Since 2006/07 deliveries of milk in Spain have been below the quota, reaching -4% in the last two years, while deliveries in Galicia continue to exceed the quota, but in a quantity that tends to decrease.

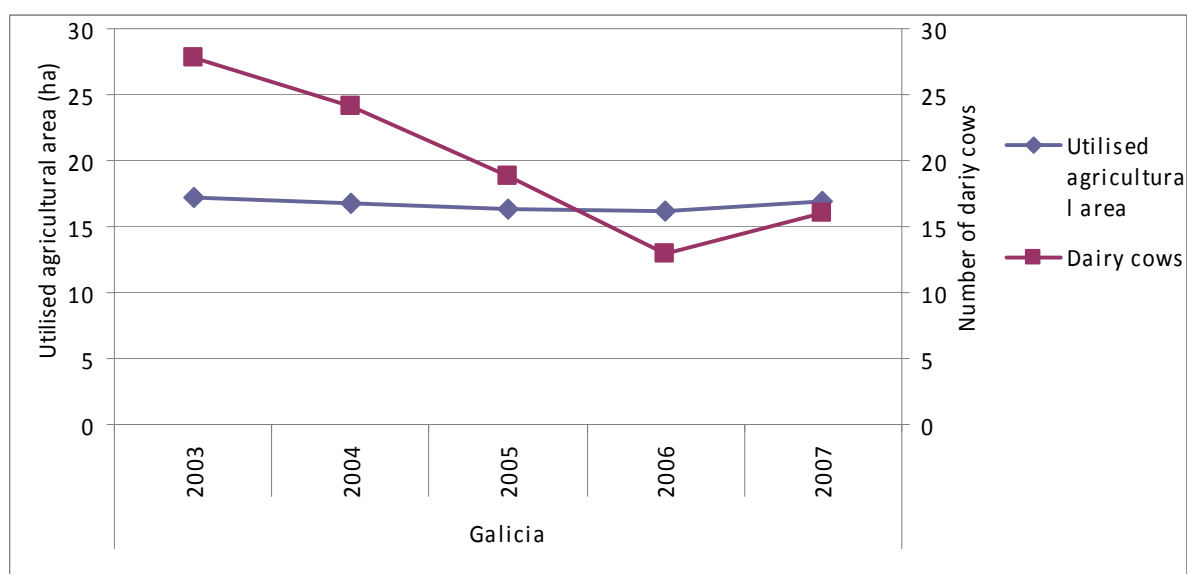
3 Cost and income analysis

3.1 Introduction

An in-depth analysis of the dairy branch of farms is carried out for the case study areas. A simulation model developed by the RICA unit of the EU Commission has been modified by the Von Thünen Institute in Braunschweig (vTi) and applied to calculate costs and margins of milk production as well as income shares of the dairy branch². Reallocation of costs to the dairy sector is based on output or livestock shares. The model should only be applied for specialised dairy farms. FADN data of the years 2003 to 2007 are used, of which unbalanced samples of specialised farms are selected³. Calculations are based on the level of individual farms, but results are aggregated by different criteria, of which only regions, farm size (expressed by number of dairy cows) and Less Favoured Area categories are used⁴. We discuss the results for Galicia FADN dairy farms for the years 2003 to 2007. At the same time these are compared with those obtained from the network of dairy farms of the Conselleria do Medio Rural (CMR)⁵, which is the Agricultural Department of Galician (Barbeyto et al, 2007, 2009). This CMR network is composed by a mean of 245 farms between 20-100 dairy cows.

3.2 Structural characteristics and development of productivity indicators

The average size of farms included in the FADN has been decreasing over the years, while the surface remained stable around 16-17 ha of UAA (Figure 8). This evolution in the size seems to be caused by the composition of the sample, since it disagrees with that registered in the Galician dairy farms; as according to the survey of structures the herd size has increased from 20.6 to 24.5 cows and the area from 13.9 to 17.1 ha between 2003 and 2007 (INE, 2005, 2009).



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTi

Figure 8 Average farm size: number of cows and UAA

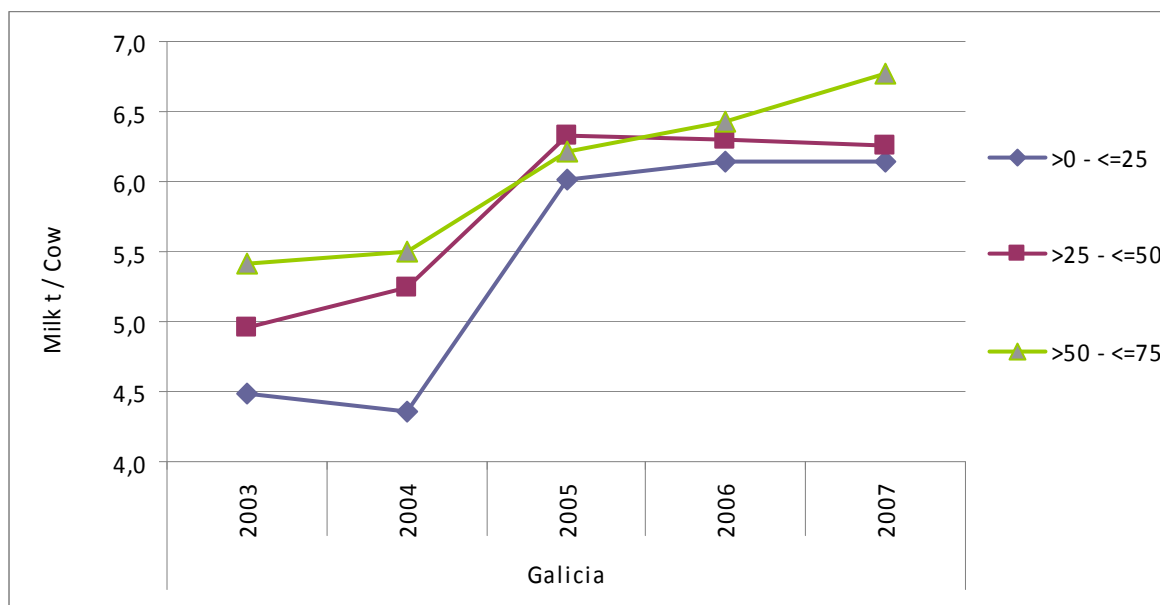
² For further details about the modifications made to the RICA simulation model see Annex of this report.

³ With respect to figures showing evolution over time the reader should be aware of the basic nature of the data and that small changes in data over time may be a statistical phenomenon related to the changes in the sample.

⁴ Groups with less than 15 observations are not shown due to reasons of confidentiality. Note that this might pop up in the graphs as blank or missing observations.

⁵ Referred in the text as CMR network.

There is a rising trend in milk yields, particularly noticeable in the size class with less than 50 cows, which in the past two years were almost equal to the greatest, reaching all between 6.1 and 6.5 t /cow (Figure 9). These yields differ from those obtained in the CMR network both in its average, which is about 7.9 t /cow, as in the increase in farm size from 5.9 t in less than 20 cows to 9.0 in those with more than 75.

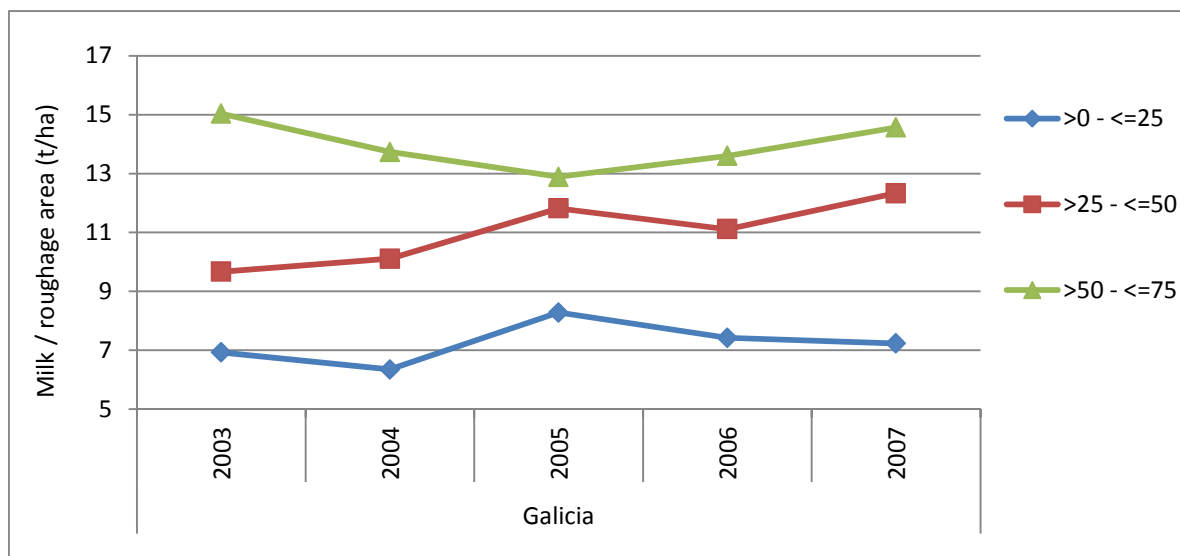


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 9 Milk yield per cow

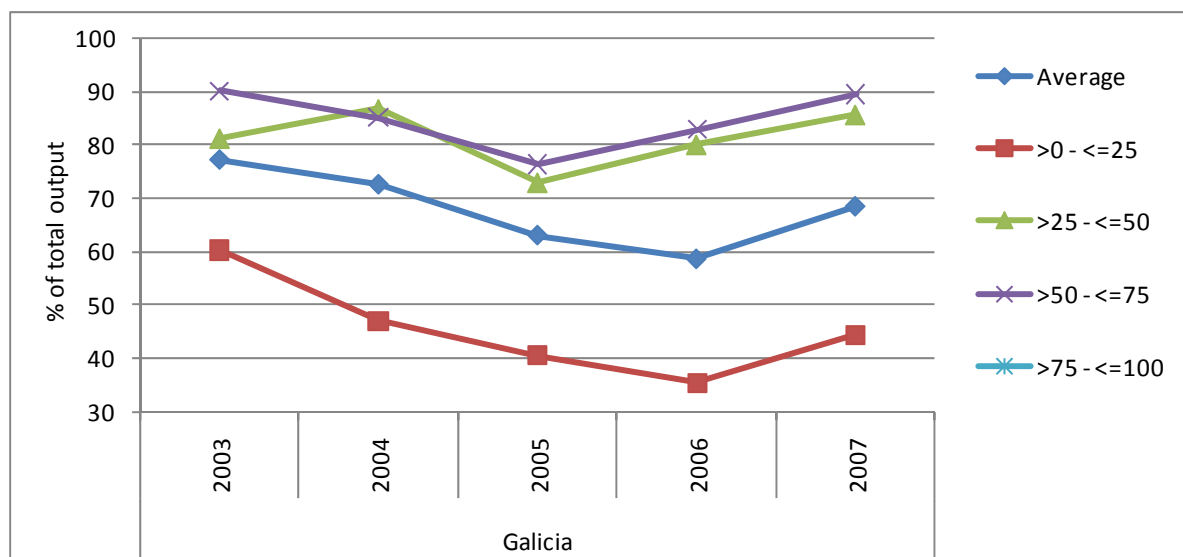
There are important differences by size in the level of intensification, as measured by milk production over the surface of forage, which rises from some 7 t/ha in the smaller farms up to 14 t in those over 50 cows. These differences are mainly due to increased stocking rate as the milk yields have been levelling amongst sizes (Figure 10).

The level of specialization, measured by the percentage contributed by the milk to production value of the farms, varies with the size. In the smallest farms this has been falling below 60%, while in the others it is about 80% (Figure 11).



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

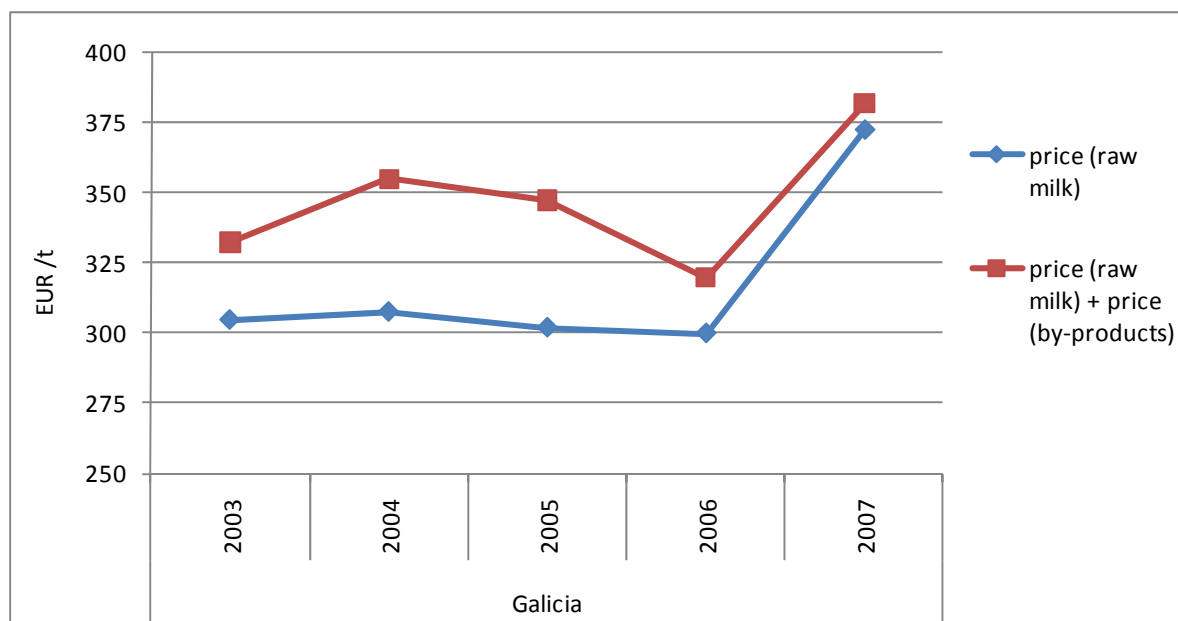
Figure 10 Milk production per hectare of forage area used for milk production (differentiated with respect to farm size)



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 11 Dairy farm specialisation: Share of milk output of total farm output (%)

Milk prices have slightly declined till 2006 and rise sharply to 370 euro/ t in 2007 (Figure 12). When by-products yields from sale of calves are included, remuneration per t of milk rises some 30-40 euro.

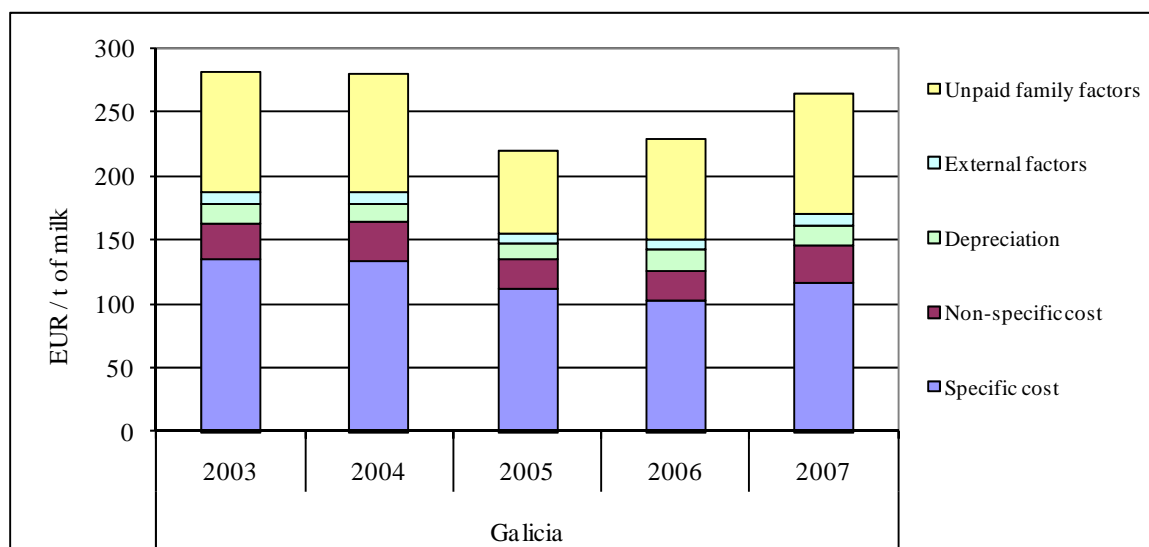


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 12 Development of raw milk price (excluding and including by-products) in Euro/t

3.3 Costs of production

Costs are summarized in the following groups. The specific cost category comprises feed costs, costs associated with herd renewal, other specific costs (and super-levy payments if relevant). Non-specific costs consist of costs associated with machinery, energy, contract work, direct inputs such as water, specific taxes and costs for assurance. In addition opportunity costs of owned factors (labour, land and capital) are calculated to assess full costs. All items are allotted to milk production.



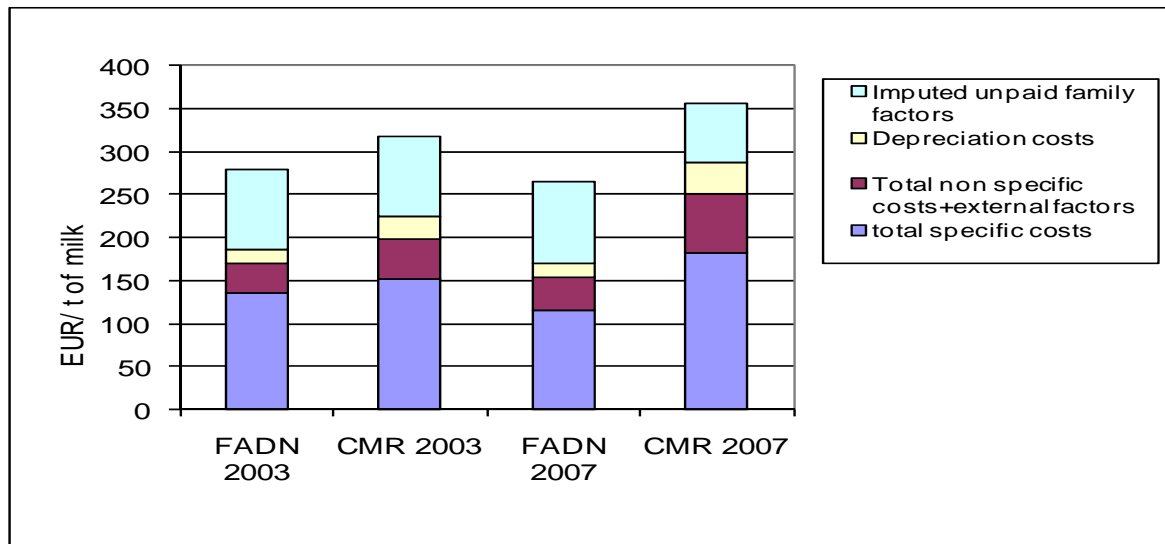
Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 13 Development of cost structure of dairy farms

The average total costs for the five years rises to 170 euro / t. and the full resulting economic cost of adding the opportunity costs from owned factors amounted to 255 euro (Figure 13). The specific costs

equal 47% of the total, other operating costs 10%, depreciation 6% and the opportunity costs of own factors 33%.

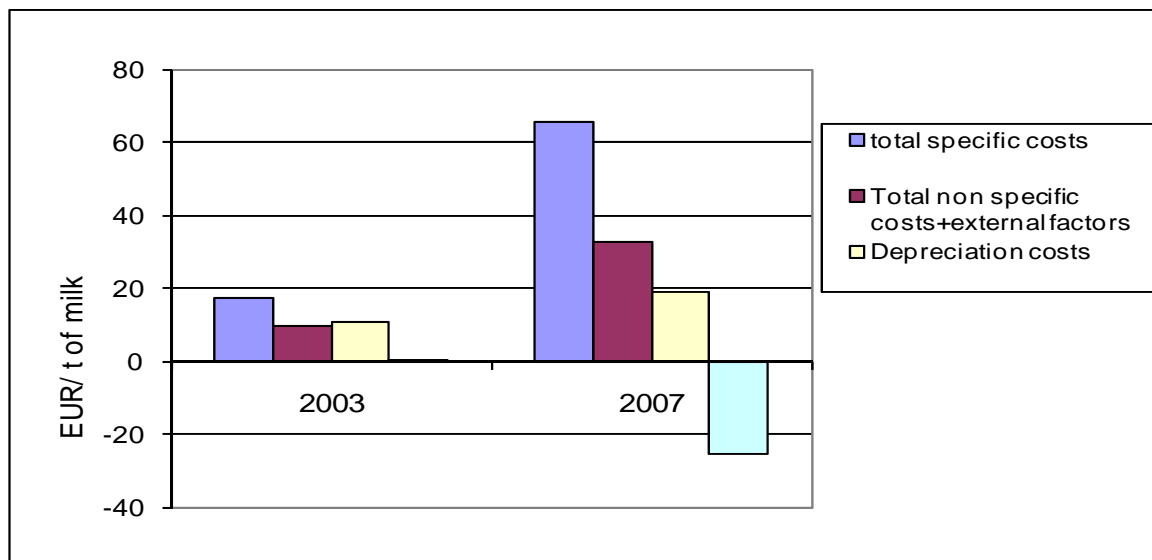
These costs are significantly lower than those derived from the CMR network. The full economic cost is about 40 euro/ t higher in 2003 and rises to 90 euro in 2007; i.e., in relative terms is about 14% and 35% higher than FADN for those years (Figure 14).



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI and CMR

Figure 14 Cost structure comparison based on: FADN and CMR

These differences affect all cost items, except the imputed owned factors in 2007, and are particularly high in specific costs (180 euro / t in 2003 and 66 euro in 2007), and in other operating and external costs (Figure 15).

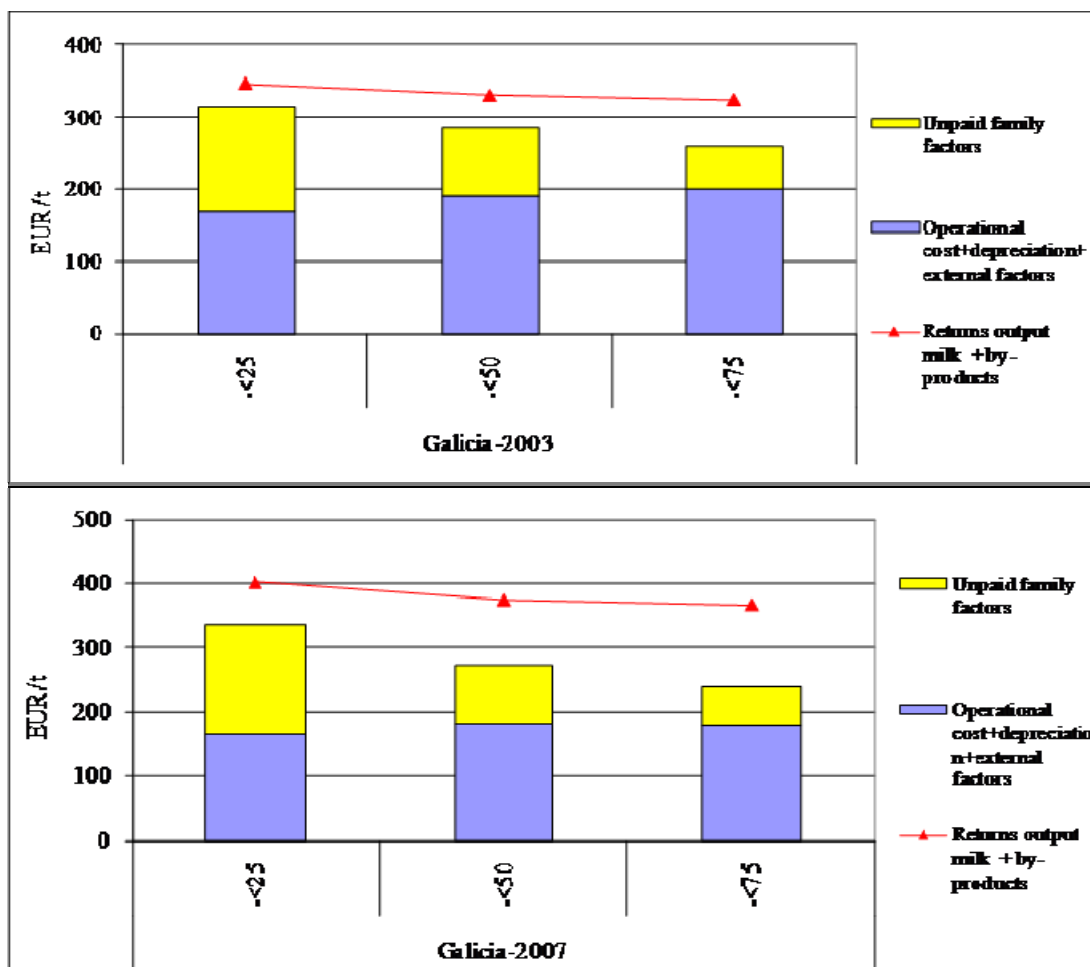


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI and CMR

Figure 15 Differences in cost structure in FADN and CMR dairy farms (CMR-FAND costs)

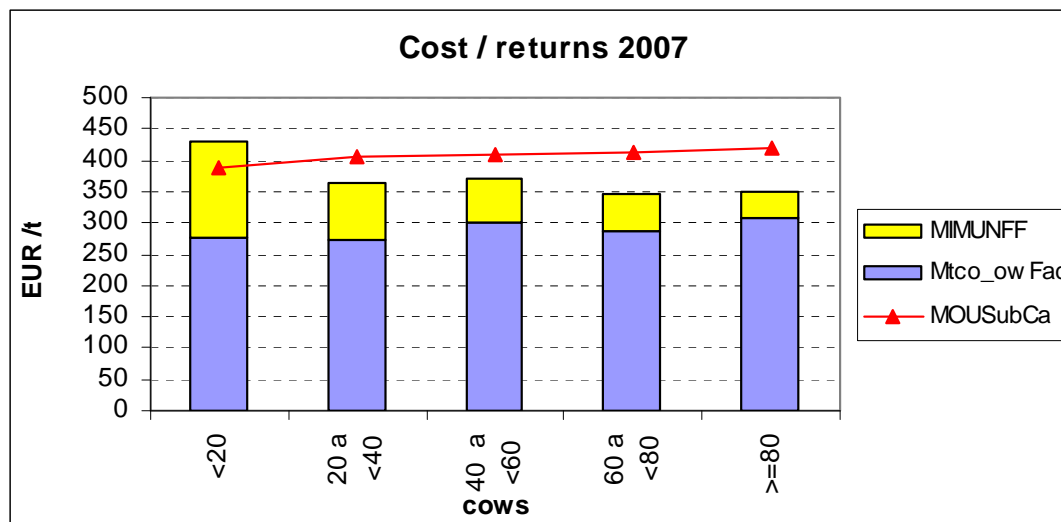
This significant under-estimation of FADN costs appears not only when it is compared with CMR network data but also in relation to other costs studies on dairy farms in Spain (MARM, ITG Ganadero, Observatori Llet). Therefore we consider that the information provided by FADN results in a significant under-estimation of the costs.

According to FADN data the returns obtained from milk, calves and coupled subsidies would be able to remunerate all the production factors, including those provided by the owner and family, to all levels of size and years considered. In 2003 this difference between returns and full costs amounts to about 33 euro / t on smaller farms, and rises to 62 in the bigger ones. This margin increased up to 128 euro in 2007 for the farms with more than 75 cows, due the higher milk prices of that year (Figure 16).



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 16 Costs and returns of milk production for specialized dairy farms by herd size class (2003, 2006)



Source: CMR Galicia

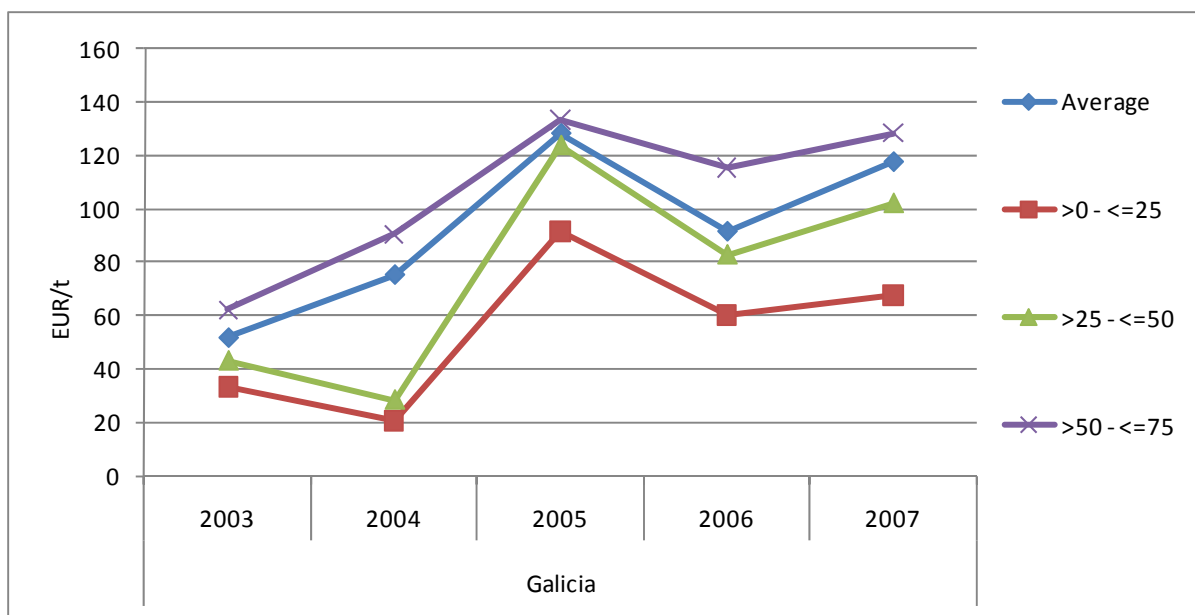
Figure 17 Cost and returns in CMR dairy farms, 2007⁶

These FADN results are very different from those obtained in the CMR network (Figure 17). The difference in returns from milk, livestock and subsidies over the full costs reach 70 euro /t in larger farms and reach a negative value of 40 euro in those with less than 20 cows. Therefore these are about 80 to 120 euro/t lower than those obtained on FADN farms.

The analysis of the revenues over costs can be assessed by means of the margins obtained. These values are positive in all years and for different size levels, even when the opportunity costs of own factors are allocated (Figure 18). These margins are about 51 euro higher in larger farms over smaller ones, due to the cost impact of the owned factors.

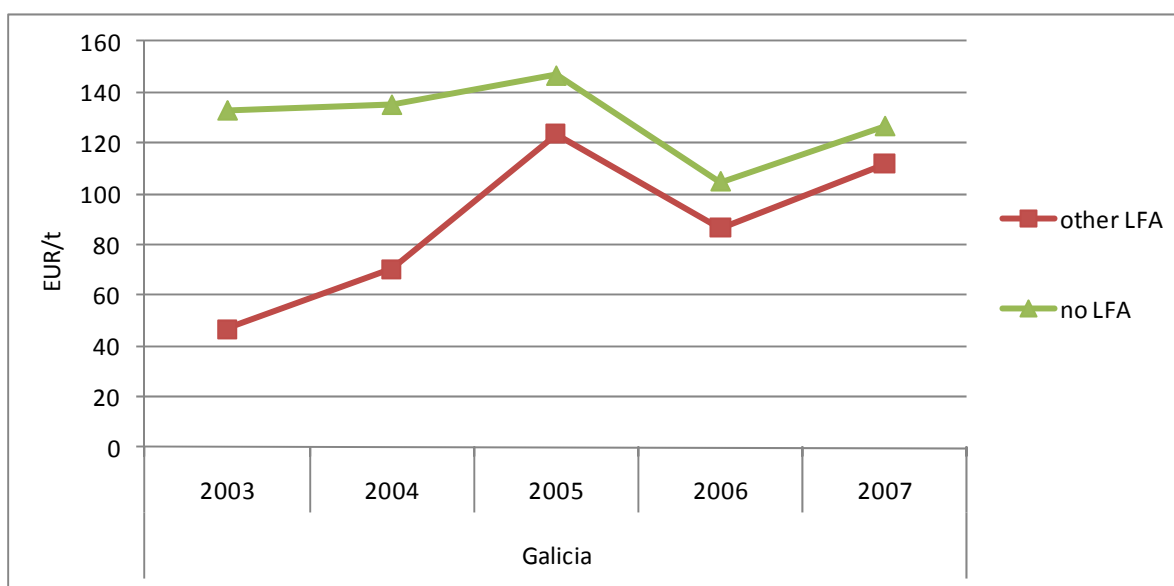
It is not possible to estimate the effect of location on the margin of the farms due to lack of representation of the mountainous areas and to the annual variation in the margins of those situated in other disadvantaged areas, which may be affected by the change in the composition of the sample between years (Figure 19).

⁶ Mtco_owFac: costs excl. remuneration of owned factors; MIMUNFF: opportunity costs owned factors; MOUSubCa: Milk output + coupled subsidies and sales of male calves



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 18 Margin over total cost (incl. unpaid family factors) by size class (cows)

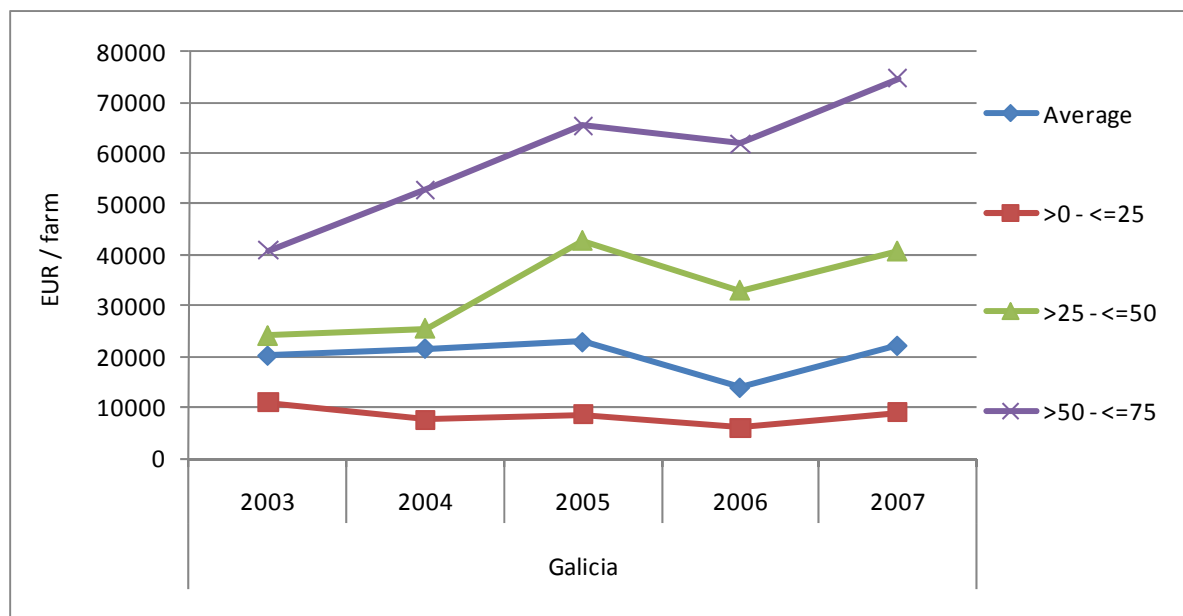


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 19 Margin over total costs (incl. unpaid family factors) by LFA category

The amount of family farm income provided by milk, including sales of calves and subsidies coupled to production, is clearly related to farm size. It is increased from 8,400 euro for farms under 25 cows to 59,100 for those with 50-75 (Figure 20).

Average differences in income between years must be taken with reservations. Besides the effects due to milk prices and costs, the income is also affected by changes in the decoupling of direct aids since 2006 and by the annual variations in the composition of the sample, as the herd size is reduced from 28 dairy cows in 2003 to only 16 in 2007. The decoupling of direct aids may explain its lower value in 2006 and the reduced herd size the small rise in the farm income in 2007, when milk reached its highest price.

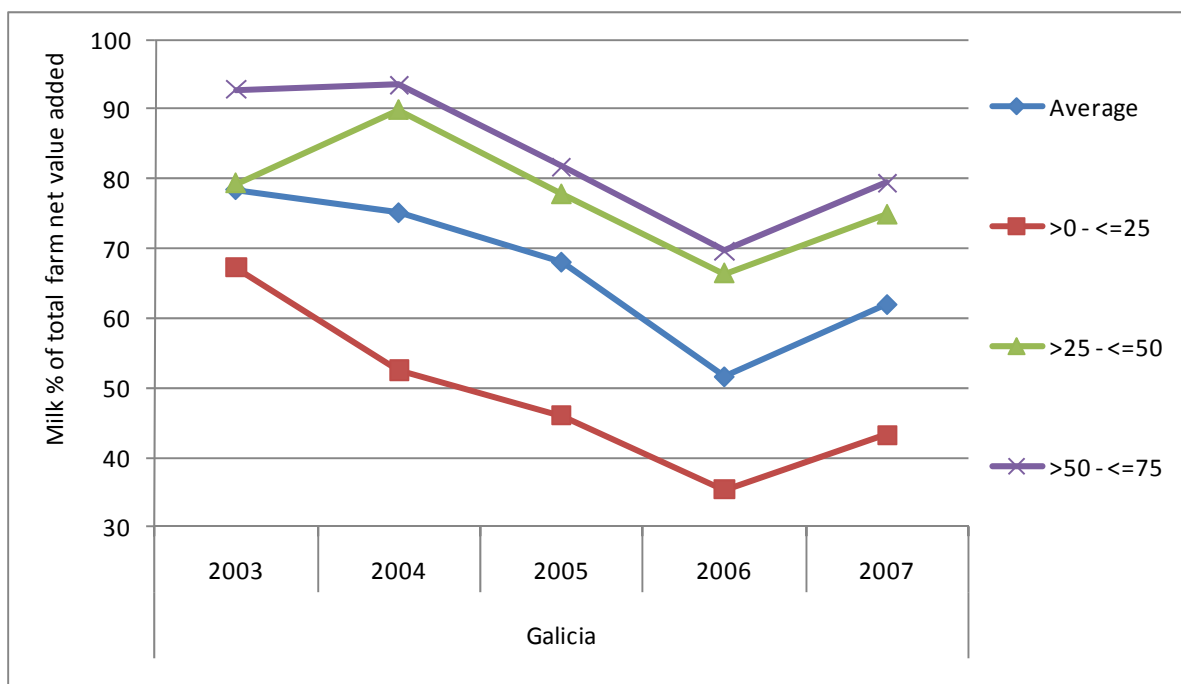


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 20 Family farm income related to milk production size class (cows)

For the dairy farms with more than 25 cows the farm net value added (FNVA) coming from milk contributes to more than 70% of the total FNVA (Figure 21). The contribution of milk is about 50% of the FNVA in the smaller farms, which are less specialized and often combine milk and beef production.

This share shows a declining pattern over time, which might reflect the increasing importance of income from other sources by the decoupled aids of the Single Farm Payment.

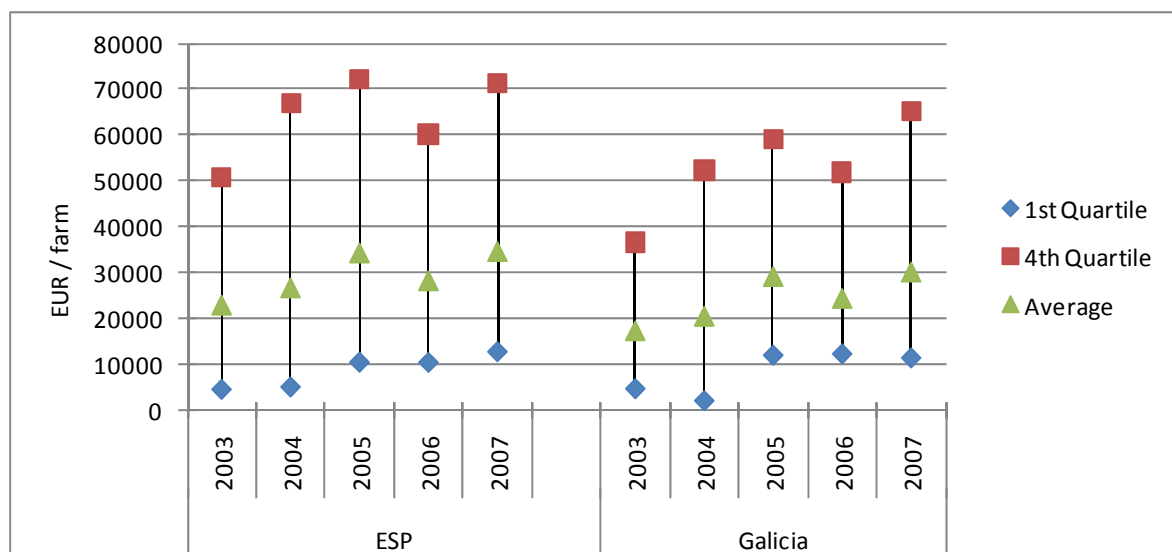


Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 21 Share of farm net value added of milk production on total farm net value added by size class (cows)

Figure 22 provides some insights into the level and evolution of farm net value added per working unit in agriculture. For comparison, numbers are provided for the dairy sector in Spain as a whole and for the Galician dairy farms. The average FNVA/AWU in Galicia is 24,480 euro, which is about 5,010 euro lower than the Spanish average. This difference in labour productivity is mainly due to the economics of scale, as the milk output per farm in Galicia is about 32% lower than in Spain as a whole. The FNVA/AWU has a tendency to grow, which is something greater in the case of Galicia.

Figure 22 also provides information on incomes over farms and the range of income. This is reflected in the upper and lower quartile information shown by the bars. The spread between the upper and lower quartiles, which can be interpreted as an indicator for the range of income variation over farms, shows a tendency to increase over time.



Source: EU FADN and DG AGRI model for the allocation of costs for milk; calculations by vTI

Figure 22 Farm net value added per working unit for specialized dairy farms and other farms

3.4 Conclusion

We have doubts about the adequacy of the FADN results for the dairy farms of Galicia and Spain as a whole. Firstly, with respect to the representativeness of the farms sample, because its size and evolution is quite different from those obtained in the structure surveys 2003 and 2007. Secondly, in the under-estimation of costs in relation to other studies carried out in Galicia and Spain, which therefore also affect margins and income. For this reason we have indicated in this chapter some of the results derived from the CMR network of dairy farms.

Except for the smaller ones, the dairy farms are highly specialized as is confirmed by the high share of milk output in the total value of production. However, there is a declining trend in the evolution of this share, which suggests that other sources of income become gradually more important over time.

Per-unit costs are a declining function of farm scale as measured by herd size. This is mainly due to imputed labour costs which show important economies of scale, as the reduction in the amount of labour needed per dairy cow leads to a decrease in the per unit cost of milk production. The FADN costs are on average 24% lower than those of CMR network. There are differences in all cost items, except for the owned factors, and are particularly high in specific costs.

According to FADN data the returns obtained from milk and its by-products would be able to remunerate all the production factors, in all levels of size and years considered. However the CMR shows negative results for the smaller farms even in 2007, a year with a high milk price.

The average FNVA/AWU of dairy farms in Galicia is about 5,000 euro lower than for Spain as a whole. This difference in labour productivity is mainly due to scale economics, as the milk output per farm in Galicia is about 32% lower. The FNVA/AWU has a tendency to grow over time and also to spread the differences between the upper and lower quartiles, which can be interpreted as an indicator for the range of income variation over farms.

4 Results from questionnaires among producers in Galicia

4.1 Introduction

Almost three quarters of the dairy farms in Galicia are specialized on milk, and these have 90% of dairy cows due to the small size of the diversified ones (Table 37). The average milk quota is low with only 170 tons, but the third of producers that exceed this volume provide about two thirds of total quota.

Table 37 Some characteristics of case study region and Spain.2007

	(1,000)			Dairy cows/100 ha
	Farms	Dairy cows	Forage area	
Galicia				
total	19.57	387.64	284.50	136
%specialist milk (41)	72.3	89.6	81.2	
Spain				
total	36.71	967.39	663.35	146
%specialist milk (41)	72.0	88.3	71.9	

Source: Structural survey 2007, INE

Table 38 Distribution of the Galician dairy farms by size of quota: percentage in number and volume of quota and number of farms included in the sample of producers

Quota (t)	% over Galicia		Number of farms in sample
	Number farms	Quota	
<100	43	12	7
100 a 250	36	34	8
250 a 500	15	31	6
500 a 1000	4	12	8
>1000	2	11	6
total	100	100	35

The selection of farms was obtained from a list of 370 dairy farms satisfying representativeness criteria for the region. The distribution of the sample was mainly based on size, stratified into five size levels of quota, using the specialization as a second criterion in order to have diversified farms also included. The 35 farms selected were spread out around the region. The questionnaires were conducted through direct interviews with the owners of the farms (Table 38).

4.2 Farm background

The manager is on average 46 years old, and almost two thirds of them are under 50. The average herd size is 54 dairy cows. The farms have strongly increased the size over the period considered, 35% in the herd and even more in the quota (59%), because the milk output per cow, measured in terms of quota per cow, has grown by about 18%. These findings support the idea that Galicia is an expanding production region, as was already shown in the section 2.12, increasing its share of production in Spain from 34.2% to 38.5% (Table 39).

Table 39 Basic data of farm milk production

Year	Number of cows	Delivery Quota in kg	Quota per cow in kg
2003/04	46	294078	6393
2009/10	62	468129	7550

The land base has been expanding over the evaluation period at rate almost similar to the milk quota with a 50% increase in the UAA. About two-thirds of this land expansion has been based on renting. Dairying in Galicia, as well in the other northern regions, is typically pasture based, but silage maize is increasing its area (Table 40).

Table 40 Land use of dairy farms

Year	Total utilized agricultural area (UAA)	Share grassland for milk production (%)	Share fodder for milk production (%)	Share of rented land (%)
2003/2004	22.8	72.2	27.9	20.3
2009/2010	34.2	64.7	34.2	27.1

This increase in size took place extensively in nearly all size levels, with the exception of the smallest farms (those with less than 100,000 litres of milk in 2009/10). But the magnitude of this increase is clearly correlated with size, reaching the highest rates in the larger farms. Therefore the changes in the last 6 years have increased significantly the concentration of the UAA, dairy cows, quota and production in larger units (Table 41).

Table 41 Milk quota and UAA by level of quota/farm

Quota (t)	N° farms	Quota (kg)		UAA (ha)	
		2003/04	2009/10	2003/04	2009/10
<100	7	74875	84785	10.3	10.5
100 a <250	8	192648	256234	22.5	25.9
250 a <500	6	298242	350458	25.0	31.0
500 a <1000	8	658697	934604	42.6	59.5
>=1000	6	1217882	1717097	75.8	108.1

21 out of 35 farms that make up the sample analysed have the 'individual farm' legal entity, whereas the rest are partnerships, which correspond to the greater farms. All these partnerships are still family farms and most of them involve a father-son participation.

Two-thirds of farms are located in less favoured areas, and 2 of the 35 farms deliver milk to cheese-making in one of the 4 DOP in Galicia. There are no farms either on organic production or under direct sales, according to the almost negligible presence of the latter two cases in the Galician dairy sector.

Dependence of farm revenues on milk is high, although varies greatly according to size. Thus, in the 15 farms (out of 35 surveyed) with deliveries exceeding 400 t, milk contributes in all them over 75% of total revenues, and only 4 have other activities. While in the other 20 farms with a production less than 400 thousand litters, about three-quarters have other activities and milk provides more than 75% of household revenues only in 8 of them` (Table 42).

Table 42 Number of farms by percentage of revenues from milk and from other on and off-farms activities

Milk production (t)	N° farms	% revenues from milk			Farms with revenues from other on- and off-farm activities
		<50%	50-75%	>75%	
<400	20	3	9	8	14
>=400	15	0	0	15	4
total	35	3	9	23	18

In 20 farms (almost 60% of the sample) its medium-term continuity is assured, either because the owner is still young, and therefore the issue of succession is not yet raised (15 farms), or because there is a successor (5 farms). While in the remaining 15 farms there is no succession or it is uncertain (Table 43).

Table 43 Succession of dairy farms

Not an issue	Succession	
	With succession	No or uncertain succession
15	5	15

4.3 EQ 1: Production to/demand by dairies

Table 44 summarizes the information derived from the questionnaires with respect to whether policy changes that occurred during the evaluation period gave the farmers the desire to adjust their milk production level.

For all the measures described, an important part of the producers interviewed (from 1/3 to more than half of them in most of the cases) consider that these changes did not have an effect on production. Also for most of the measures none or few of them were encouraged to stop or to decrease production. It is not easy to interpret the high number of answers considering the measures were not relevant to their production. Part of the explanation may be related to the smaller size of many of these farms, which can consider that they are outside of these measures. Possibly farms whose production has been encouraged by the policies exceed the responses that recognize an increase, because in some of the cases that declare that they are at the current level may have increased production but not to a sufficient extent to give a positive answer.

In our opinion the small number of farms (only 3 of 35) who attribute an important role to rural development aids is surprising, because include some of great importance to the recent dynamism of the Galician dairy farms (in terms of aid for the modernization of farms and the establishment of young farmers).

On the other side only the measures related to the quota or the introduction of milk premium and the single farm payments comprise from a fifth up to a third of answers. In this case the measures with a higher number of answers are the increases in quota in 2000/01 and 2001/02, derived from the Agenda 2000 for Spain. This suggests, in short, that maintaining the quota system, combined with successive State plans quota allocation applied since 2000, had a positive effect on the production of a significant portion of the farms, a diagnosis that is consistent with responses to other questions. In the case that they had not received previous quota increases from 2000/01, half of the producers claim that they would have a smaller herd, half of them 20% fewer cows. Also these quota increases have been important or very important to stay in production for half of producers.

In contrast, the responses on the impact of the decision to eliminate the quota system from 2015 show a greater division of opinion; for 6 of the 35 farms this is an incentive to increase production, while it is a stimulus to leave for 4 of them. These responses reflect uncertainty about the future effect of this measure.

Table 44 Incentives to deviate from production level

Policy/Policy change	Not relevant	Incentive to... milk production			
		stop	decrease	continue at current level	increase
Decision taken in 2003 to maintain milk quotas until 2015	16	1	1	8	9
Introduction of Milk Premium	16	0	0	9	10
Introduction of Single Farm Payments	12	0	0	14	9
Decoupling of Milk Premium	23	0	1	10	1
Confirmation in 2008 to abolish milk quotas in 2015	16	4	0	9	6
Rural Development Aids	20	0	0	12	3
State Aids	18	0	0	13	4
Increase 2000/01 and 2001/02	18	0	0	5	11
Special plan 2005	19	0	0	5	10
2006 and 2007 plans	20	0	0	6	9
Annual quota expansion	19	0	0	6	9
Other	0	0	0	0	0

Almost one third of farmers (11) recognize that in recent years (since 2003) they seriously thought of leaving milk production. The main reasons are related to price, due to its low level or to the increase in its fluctuation, and others with the possibility of an off-farm work, the lack of succession or potential to grow. There are only two responses related to policy (changes in quota regulation) (Table 45).

Table 45 Reasons to stop milk production

Reasons	Number
Yes, because of...	11
...no successor	1
...no potential to grow	1
...changes in quota regulation	2
...quota prices	0
...environmental regulations	0
...other off-farm become more profitable	2
...increased fluctuation of milk prices	2
...low milk prices	8
...introduction of Cross Compliances	0
...alternative farm activities became more profitable	0
...other	0
No	24

The main factors conditioning the decision of farmers to continue or not in milk production are: the price of milk (almost all of them considered that this is important or very important), the level of public support, which is identified primarily with direct payments (26 of 35 farms valued this as important or very important), and recent investments in the farm (that 25 of the 35 farms consider important or very important) and acts as a barrier to exit. On a second level there is a number of other factors, identified as important or very important by 17-20 of the 35 farms and that reflect the influence of the socio-economic environment: the lack of productive alternatives either in other agricultural activities or in other out-farm jobs, personal preferences and tradition in production (Table 46).

Table 46 Factors for continuing milk production

Factor	Not important at all	Less important	Important	More important	Very important
Personal preferences	6	8	7	3	10
Historic reason	9	8	14	1	2
Recent investments in on-farm dairy facilities	6	3	5	8	12
Prices sufficient to cover milk production costs	0	1	5	7	21
Policy support	1	7	10	4	12
Lack of other agricultural alternatives	5	10	9	5	5
No alternative off-employment	7	8	7	6	6
Other	1	0	1	1	1

Table 47 summarises the farmer responses with respect to adjusting their herd size. The most important factor to keep more cows was the price (19 of them would have 10% or more cows). There were also important the increases in quota from 1999 CAP reform; without those increases 18 producers would have 10% fewer cows. Again the number of farms affected by last changes of phasing out the quota policy in 2015 are very low (only 3 or 7 would have more cows) and most of them (27 to 30) would have the same herd size.

Table 47 Effects on herd size

I would keep ... milk cows if...	Compared to current level				
	-20 %	-10 %	Same	+10 %	+20 %
...milk prices had been 20 % higher than 2003/04	0	1	14	8	11
...milk quota had not increased 2006/07, 2007/08, 2008/09					
...milk quota had not prolonged until 2015	1	0	30	1	2
...milk would not be phased out in 2015	0	0	27	3	4
... your milk quota had not increased since 2000/2001	9	9	14	0	0

Table 48 contains the answers farmers gave to other factors that might have constrained them from expanding the herd size or modernizing their farm more than they actually did since 2003 and a total of 20 out of 35 surveyed farms have been affected. The main constraints mentioned are: in first place the low milk prices and insecurity in its evolution, and secondly, various aspects directly related to regulation and policies in the sector, for the difficulty of obtaining more quota and its high price or the

uncertainty about future policies. Two other important determinants of farm growth are the problems of access to credit and the difficulties in getting more land, while they are only mentioned in a few cases other factors such as environmental restrictions and lack of skilled workers.

Therefore, the level and instability of milk prices is listed as the primary cause of the production decisions of farms in recent years, followed at some distance by two types of factors: those related directly to policies implemented in the sector (level of public support, availability of quota) and those arising from structural constraints of the farms (access to more land) and regional socio-economic environment (as the lack of productive alternatives or off-farm jobs availability).

Table 48 Constraints against investments in herd size or production system

Constraints	Herd size	Production system
In general	20	19
Lack of credit	10	11
Lack of qualified workers	4	2
Uncertainty about future dairy policies	8	8
Milk price insecurity	15	15
Low level of milk prices	15	15
Non-availability of milk quota	7	8
Milk quota to expensive	10	9
Cross Compliance	2	-
Environmental restrictions	3	4
Alternative farm activities became more profitable	1	-
Difficulty of getting more land	8	9
Other	1	2

4.4 EQ 2: Producer price

The average price received in December 2010 for the sample farms amounted to 0.30 euro per litre, ranging from a minimum of 0.25 to a maximum of 0.34 euro (Table 49). During the last years prices showed a marked instability, reaching the highest values in early 2008 and the lowest in mid-2009.

Table 49- Average milk price and milk contents for December 2010

	Value	Minimum	Maximum
	Euro/l with VAT		
Milk price	0.30	0.25	0.34
	Percent		
Fat content	3.96	3.77	4.05
Protein Content	3.28	3.13	3.38

The responses of producers about minimum prices required in the medium-term to continue production, taking into account current costs, they suggest values considerably higher than existing prices. Half of the responses indicate a higher price up to 0.35 euro, with only 2 that are below 0.30 euro (Table 50). However, in evaluating of these responses one should consider the specific situation in which the interviews are carried out, which coincides with a time of a substantial rise in the price of concentrates while milk prices have not had in Galicia the rise recorded in other countries after the 2009 crisis. Therefore farmers may have wanted to ensure a higher price to take account of the sharp rise in costs. We have some evidence about this question from a survey of a wider group of farmers we carried out only two months before. The level of abandonment was 66% for a price of 0.24 euro per litter, decreasing to 31% at 0.28 and to 11% for 0.32 euro.

Table 50 Long-term milk price to stay in milk production

Average milk Price Cent Euro/l	Number
< 30.00	2
30.00 – 35.00	13
35.01 – 40.00	11
>40.00	5

In addition to general concepts (protein, fat, bacteriology, somatic cells, absence of inhibitors and water), the most common premiums in milk pricing are those relating at the volume delivered (25 cases) and special quality (content of certain fatty acids and management practices) with other 20 (Table 51). In response to these types of premiums some producers report that their production decisions are affected by the payment system, in 9 cases it affects the quantity and in other 15 the quality.

Table 51 Additional payments offered by dairies

Premium for...	Number
seasonal adjusted milk delivery	0
large milk deliveries	25
longer delivery times	0
organic production	0
special qualities	20
other	1

Almost half of the producers have the option of delivering more than one company, but changes are very rare and some producers complain of agreements between companies to make it difficult to change (Table 52).

Table 52 Choice to deliver to different dairies

Choice	Number
No	19
Yes	15

Farmers were asked whether they realized higher profits when the milk prices peaked recently and how they spent the money they earned. The use of these extra revenues has been diversified in measures and in volume, dominating the answers "to some extent". About two-thirds of them made investments in repair and maintenance of facilities for milk and reduced debt. At a second level are savings, private consumption and investment to expand capacity of its facilities and the herd of milk. In a third level are non-agricultural investments (on or off the farm) and quota or land purchases with about a quarter of responses (Table 53).

The intended use of other extra future revenues is similar to the above, with limited differences. According to these forecasts there would be a reduction of investment in maintenance and new in farm facilities, while savings and investments outside the farm would increase. There is also a slight increase in investments for expanding the herd and land purchase, that (especially the latter) seems somewhat contradictory to the reduction in other farm investments (Table 54).

Table 53 Usage of extra revenues from high milk prices in 2007/08

Usage for...	No usage for this	To some extent	To a large extent
...investments in repairs and/or replacements with regard to milk production	1	32	0
...investments in expanding fixed technical capacity of milk production	14	18	1
...investments in expanding dairy herd size	20	9	4
... investments to purchase milk quota	27	5	1
...investments in land	29	4	0
...investments in other agricultural production enterprises	32	1	0
...investments in other non-agricultural activities on-farm	25	7	0
...investments off-farm	24	8	1
...saving money	10	19	3
...reducing debts	5	19	9
...private consumption	12	21	0
...other	0	1	0

Table 54 Usage of extra revenues in case of high milk prices in future

Usage for...	No usage for this	To some extent	To a large extent
...investments in repairs and/or replacements with regard to milk production	13	19	1
...investments in expanding fixed technical capacity of milk production	17	10	6
...investments in expanding dairy herd size	16	12	5
... investments to purchase milk quota	28	5	0
...investments in land	24	7	2
...investments in other agricultural production enterprises	31	1	0
...investments in other non-agricultural activities on-farm	26	4	1
...investments off-farm	19	12	1
...saving money	5	17	11
...reducing debts	7	15	11
...private consumption	11	19	3
...other	2	0	1

4.5 EQ 3: Producer income

All the farmers receive decoupled aids (Single Payment) and the great majority (30 out of 33) considered these payments as important or very important. About three-quarters of them perceive the coupled payments specific to dairy (aid of Articles 69 and 68 as applied in Spain), although these are generally of much less value as shown in the valuation of the importance of farmers do. The same applies for coupled payments for other sectors, which mainly include premiums to suckler cows, the non-decoupled part of the slaughter premium for calves (to 2010) and the aid to areas of crops. These payments are received by almost three-quarters of farms in the sample. This percentage drops a bit for the farms receiving the aid for Less Favoured Areas and only a quarter of them obtain environmental payments. Also in the last two cases the aids are considered important or more by 14 and 7 of the farms, which shows the low profile of the aids of the second pillar for the Galician dairy farms, despite their increased rural development programming for 2007-2013 (Table 55).

Table 55 Importance of policy payments for farm revenue

Payment	Not receiving	Not important at all	Less important	Important	More important	Very important
Decoupled Direct Payments	0	0	3	13	9	8
Agri-Environmental Payments	24	0	2	3	0	4
Less Favoured Area Payments	13	2	4	9	1	4
Coupled and Complementary National Direct Payments Dairy Sector	8	5	4	11	0	4
Other Coupled Payments	10	5	9	5	0	4

A bit more than a third of the farms (13) considered that compliance requirements have increased their production costs. Half of the farmers consider that the time to be devoted to administrative or bureaucracy (in tasks such as form filling, record keeping, etc) has increased in recent years, which suggests, among other things, that the simplification of the CAP is, from their perspective, an unfinished task (Table 56).

Table 56 Additional time effort because of bureaucracy

Time effect	Number
No effect	14
Increase	16
Decrease	0

The farms are highly dependent on milk; in 60% of cases it provides more than 75% of agricultural revenues, and in another third between 50-75% (Table 57).

Table 57 Percentage of farm revenues from dairy farming

Revenues from dairy farming	Number
< 50 %	3
50 – 75 %	9
> 75 %	20

Almost half of farms receive other revenues apart from milk; mainly from pensions obtained by a household member, or from the work carried out outside the farm. By contrast the number with other farm revenues is very low, with only 2 cases in beef cattle (Table 58).

The set of these two last groups of responses reflect the high level of specialization in milk and the heavy dependence of these farms on the revenues from milk.

Table 58 Revenues from other on-farm and/or off-farm activities

Additional revenues	Number
No	16
Yes, from...	16
...crop farming	0
...beef production	2
...other animal production	0
...biogas production	0
...other renewable energies	0
...farm tourism	0
...off-farm activities	7
...other	14

4.6 EQ 4: Producers' competitiveness and market orientation

Farmers were asked several questions in order to better assess responsiveness to market signals or market orientation.

During the period of evaluation the great majority of producers (27) increased the quota, mainly through purchase, and the rest kept it stabilized because none of them has reduced it (Table 59). This dynamic is reflected in an average quota increase of 42 t per farm during the evaluation period.

Table 59 Change in milk quota since 2003

Change in quantity	Number			
No	6			
		Selling	Leasing out	Low production
Yes, decrease	0			
		purchasing	Renting	Quota expansion
Yes, increase	27	21	5	20

Table 60 Excess delivery of delivery quota

Quota overrun	Number	
No	6	
Yes	25	
	Overrun of milk quota	
Year	Planned	Unplanned
2003/04	21	3
2004/05	20	4
2005/06	21	2
2006/07	21	2
since 2007/08	20	1

The vast majority of them (25) have milk deliveries exceeding the quota during most of the period, although the gap between production and quota has been narrowing in the last years. In most cases these deliveries of milk above the quota are planned (Table 60). The existence of these differences

between production and quota are in part due to not having carried the distribution of quota increases during the last two years, so that the national reserve stores about 5% of the Spanish quota.

As a consequence of the insufficiency of existing quota many of the farms (19) considered the quota increases since 2000/01 as relevant or very relevant for staying in milk production (Table 61).

Table 61 Importance of annual milk quota increase for staying in milk production

Relevance	Number
Not relevant at all	15
Relevant	17
Very relevant	2

The reduction of the penalty (super levy) for over-quota production, which has been lowered during the evaluation period, is not enough stimulus to make deliveries above quotas, motivating only a minority of producers (3 cases).

Almost all producers disagree with the model for transfers of quotas (Table 62). This high level of dissatisfaction can be related to several factors: the various changes that have occurred in their administration, the high prices paid during the period that prevailed during the free marketing of quota (up to the beginning of 2005/06) and from the point of view of some of the most dynamic producers with the lower possibilities of receiving administrative allocations of quota during the last years. Also many of the additional observations expressed by producers concern the loss in the value of the quota considering the high investment they made for its purchase.

Table 62 Satisfaction with quota transfer regime

Satisfaction	Number
No	29
Yes	3

4.7 Results from questionnaires to farmers who stopped milk production

As part of the survey among dairy farmers, not only farmers who at this moment have a dairy farm were interviewed, but also 6 farmers were asked who had stopped milk production during the evaluation period. The selection of these cases to interview was obtained from a dairy association (Africor). All the farms ceased production during the last three years (Table 63).

Table 63 Year of stopping milk production

Year	Number
2004	0
2005	0
2006	0
2007	0
2008	1
2009	2
2010	3

Current revenues of producers who stopped come from three origins, which in several cases are perceived at the same time (Table 64). Four of them carry out some small-scale agricultural activity all in beef production and one some crop farming. Beef cows had already been identified in previous works as the main alternative for producers who stopped milk production, although in most cases it was carried out on a reduced scale as an intermediate step to cessation of any agricultural activity and the disappearance of the farm. Three producers obtain revenues from off-farm activities, in all cases combined with some farm production. In four of the farms there are revenues coming from retirement

pensions of one member of the family. Only in one case has the producer stopped farming completely and leases the quota and part of the land.

Table 64 Current revenues of household/company

Additional revenues	Number
Crop farming	1
Beef production	4
Other animal production	0
Biogas production	0
Other renewable energies	0
Farm tourism	0
Off-farm activities	3
Other ¹⁾	5

Note: ¹⁾ Leasing part of land and quota, retirement pension.

None of the policy changes made during the evaluation period induced producers to stop milk production (Table 65).

Table 65 Incentives to deviate from decision to stop milk production

Policy/Policy change	No incentive to stop	Incentive to stop
Decision taken in 2003 to prolong the milk regime only until 1 st April 2015	6	0
Introduction of Milk Premium	6	0
Introduction of Single Farm Payments	6	0
Decoupling of Milk Premium	6	0
Introduction of Cross Compliance	6	0
Rural Development Programmes	6	0
Annual quota expansion	6	0
Confirmation in 2008 of the decision to abolish milk quotas in 2015	6	0
Other	0	0

The reasons to stop production cited by farmers were the lack of succession in the smaller producers, while the in the rest it has been the change of activity in/or outside the farm. The low milk prices have also been cited as a reason for four of the producers (Table 66). The existence of a specific problem in the farm has not influenced the decision to stop, except in one case because the cowshed does not meet suitable conditions and the farmer was unable to build a new one.

Table 66 Reasons to stop milk production

Reasons	Number
No successor	4
No potential to grow	0
Changes in quota regulation	0
Quota prices	0
Problems in liquidity	2
Alternative farm activities became more profitable ¹⁾	1
Other off-farm become more profitable	2
Increased fluctuation of milk prices	0
Low milk prices	4
Availability of milk quota	0
Environmental regulations	0
Other ²⁾	1

Note: ¹⁾ Beef cows. ²⁾ Retirement pension.

All the producers who stopped were organized as individual farms and have a milk production below or close to the average of Galicia: two of them less than 100 tonnes, three between 100 to 150 and only

one had 280 tonnes (Table 67). Milk provided most of the farm revenues in three of them and only in one case under 50%.

Table 67 Basic data of farm milk production

Year	Average number of cows	Average quota in kg	Quota per cow in kg
2003/04	35.5	157,099	4,425
2009/10	27.3	190,466	6,968

Milk prices received in the year 2003/04 were not lower than the average for Galician farmers, although results from the table suggest that farmers stopped when the price was declining in relation to 2003 (Table 68).

In most cases the quota is leased to other farms, because since 2005/06 the quotas are managed by an administrative system and can only be sold with the farm or to the abandonment plans established by the Administration. Most producers are dissatisfied with the administration of quotas, expressly stating in the final comments to the questionnaire their disagreement with the current loss of value of quotas for whose acquisition they paid high prices some years ago.

Table 68 Average milk price in 2003/04 and year of decision to stop milk production

Year	Price with VAT	Minimum	Maximum
	Sales to dairy		
2003/04	30.40	28.00	34.00
Year of decision	28.40	25.00	31.00

The changes with respect to the quota regime would have not been a factor to stay in dairy production for any of the producers, while two producers answer that they would not have stopped if prices had been 20% higher (Table 69).

Table 69 Policy incentives to stay in milk production

I would still produce milk if...	Yes	No
...milk prices had been 20 % higher than 2003/04	2	4
...milk quota had not increased 2006/07, 2007/08, 2008/09	0	1
...milk quota had not prolonged until 2015	0	6
...milk would not be phased out in 2015	0	6

4.8 Conclusion

The level and fluctuation of milk prices is listed as the primary cause of the production decisions, followed at some distance by two types of factors: those related directly to policies implemented in the sector (level of public support, availability of quota) and others arising from structural constraints of the farms (access to more land and credit) and the regional socio-economic environment (as the lack of productive alternatives or off-farm jobs availability).

The responses about minimum prices in the medium term to continue production, taking into account current costs, pointed to values considerably higher than existing prices, as half of them indicate it should be over 0.35 euro, a level that may be affected by the steep increase in feed costs at the time of field work was carried out.

The maintenance of milk quota and the increases obtained since 2000/01 have been important to stay in production. In contrast, the responses on the impact of its abolition show a greater division of opinions, which reflect uncertainty about the future effect of this measure. Almost all producers disagree with the

model for transfers of quotas and many of the additional observations by producers concern the loss of value of quotas after making a high investment for its purchase.

Also 6 farmers who stopped milk production in the evaluation period were asked about the causes of that decision. Changes made in policy measures played no direct role. The reasons cited for the cessation of milk production were the lack of succession in the smaller producers, while for the rest the reason has been a change of activity in/or outside the farm and also in part low milk prices.

5 Results from questionnaires to dairy processors

5.1 Dairy company background

Seven interviews were carried out, in most cases with main executives of the dairy firms. In order to preserve anonymity of the participating firms as much as possible no references which could identify them are made explicit. Four have all of their processing establishments in Galicia and the other three also have some in other Spanish regions. Except for one that is a cooperative, the others are private companies. The answers to the questionnaires refer to their activity in Galicia, processing together a very substantial part of the milk deliveries.

The largest volume of milk is acquired directly from farmers. However, all dairies also purchase certain amounts from milk brokers. Some of them also buy some quantities from other dairies or from other EU countries. All acquire raw milk and some limited amounts of semi-processed product (concentrated milk).

The volume of milk collected and processed is very different according to the main activity of the enterprise and the geographical scope of its activity. Five are devoted mainly to the production of drinking milk and all processed more than 100 million tonnes of milk. Drinking milk and milk beverages account for over 80% of their sales; the rest is composed of butter and cream, resulting from the standardization of milk. Some of them occasionally made milk powder. The other two made cows' milk cheese, some under a Protected Designation of Origin, and both collect less than 10 million tonnes of raw milk.

The main customer of these companies is wholesale distribution, followed by retailers and to a much lesser extent by other dairy and food industries. Almost all production is consumed in the Spanish market, dedicating less than 5% to sales to other EU countries.

5.2 EQ 5: Prices of milk Products

Based on questionnaire responses, the impact of policy change on the system of producer prices seems very limited. This arises from the small number that claim to have changed (2 of 7), as well as the specific responses to the components of the payment. In effect, there are very limited changes in premium for fat content, which could be related to the decline in support measures for butter. The others are mostly adjustments for specific reasons to some companies, such as valuation of certain types of special quality milk. The most generalized change has been the decline in premium for volume of deliveries (Table 70).

Table 70 Change of additional payments due to policy decisions since 2003

Premium for ...	We do not pay	No change	Yes, we changed	Up	Down
...seasonal adjusted milk delivery	4	1	1	1	0
...large milk deliveries	0	1	5	0	4
...longer delivery times	6	0	0	0	0
...for organic production	6	0	0	0	0
...special fat content	2	2	2	1	1
...special protein content	2	3	1	0	1
...low bacteria content	0	4	2	2	0
Other premiums	0	1	2	1	1

There is no general view on the impact of volatility on the demand of dairy products; but 4 out of 7 consider it does exist. The consequence is a greater volatility in raw milk prices and also a trend to reduce somewhat the volume of raw milk collected directly from producers and increase the volume purchased.

The most common perception among the surveyed firms (4 of 7) is that the administrative burden due to EU policies such as filling in forms and following procedures has increased.

A majority of companies (5/6 of 7) considered that the changes in agricultural policies, as well as their competitors and the food retailers put downward pressure on prices of dairy products. By contrast they think the actions of producers do not have a significant effect on prices (5 of 7) (Table 71).

Table 71 Effects of elements/groups of agents on prices

Element/group of agents	No price effect	Price increase	Price decrease
EU policy measures	1	1	5
Competitors	0	1	6
Wholesalers/Milk broker	2	0	5
Milk producers	5	1	1
Others	0	0	1

Companies were also asked to give more details on how EU policy measures affected the prices of drinking milk, butter, SMP, WMP, cheese and cream, although most of them only answered regarding the milk products that they made almost exclusively (drinking milk or cheese).

The five companies processing drinking milk estimate that a good part of the changes in agricultural policies have not had an effect on prices. Specifically they refer to changes related to quotas, as well as export subsidies and the processing aid for some products. The reasons for these responses seem quite different. For the quotas it may be that changes are not yet perceived, because they were recently approved and it only a small part of the progressive abolition period has passed. For the second group of measures, the main reason is there are almost not utilized by these companies. Only a few of them (2 of 5) consider those related to supporting of butter, which is a by-product from the processing of drinking milk and is mostly sold in industrial formats due to its low final consumption, had a negative impact.

There are 3 responses on cheese and there is only one significant response (2 of 3) on a price reduction as a result of decreasing the intervention prices in the years from 2004/05 to 2007/08. These processors consider that the reduction of price support for butter and skimmed milk powder has promoted a deviation from these productions towards the basic types of cheese, sales of which from other EU countries have increased considerably in recent years, putting downward pressure on the price of cheese in the Spanish market.

Regarding the effect of policy changes on the stability of prices of dairy products, three groups of responses can be identified. The first consists of measures that appear to have resulted in less stability, which are those related to public intervention, private storage and the withdrawal of schemes for butter and cream. All the responses agree on the negative effects of these measures on the price of drinking milk or butter indicated in the previous response by group of dairy products. The second group is made up of the measures they consider do not have a direct effect on their firms due to not being utilized by them or to their very limited export activity. These are the welfare milk scheme, school milk programme and those related to exports/imports. The last group are those considered to provide more stability, which can only be identified with the state/regional aid to investments that have benefited a good part of these companies (Table 72).

The processors admit to a lesser extent than producers that they have had extra benefits during the years 2008 and 2009, characterized by a greater decline in producer prices than those at the industrial and consumption level. Although 5 of 6 firms answering this section recognize these extra benefits, it is only worth mentioning the reduction of debt (4 of 6) and some replacement investments or new product lines (Table 73).

Table 72 Effect of changed policy instruments on the price stability

EU-policy instruments	No effect	More stability	Less stability
Milk quota	3	2	2
Public intervention	0	1	6
Private storage aid	0	1	6
Aids in the milk and milk product sector	3	1	2
Butter, concentrated butter and cream withdrawal scheme	2	1	4
Welfare milk scheme	5	1	1
National aids in the milk product sector	4	3	0
Licence system	6	0	0
Tariff rate quotas	5	0	1
Import duties	5	0	2
State aids	3	4	0
Rural development programmes	5	2	0
School milk programme	6	1	0
Export refunds	2	3	1
Others	-	-	-

Table 73 Use of extra profits

Higher profits	No	1	
	Yes	5	
Used for ...	Not at all	To some extent	To a large extent
...investments in repairs and/or replacements	2	2	0
...investments in expanding fixed technical capacity of processing	3	0	1
...investments in expanding the company	4	0	0
...investments in new production lines	3	1	1
...reducing debts	1	4	0
...increase of capital resources	4	1	0
Other			
... <i>innovation and development</i>	0	0	1

5.3 EQ 6: market balance

Almost all respondents consider that changes in agricultural policies did not have an effect on market equilibrium. In fact all of the responses for 4 of the changes indicate no effect and for the remaining 7 there is only one respondent estimating an increase in the supply, due to the decision to abolish quota and its annual increases or to measures related to the reduction in the support instruments of market regulation (Table 74). However some of them consider there are important indirect effects such as noted by one firm about the increased supply from other EU countries of standard types of cheese possibly made with milk used before year 2003 for SMP and butter for sold to intervention.

Table 74 Effects of EU policy measures on demand and supply

Measure	Effect		Supply			Demand		
	yes	no		increase	decrease		increase	decrease
Decision taken in 2003 to prolong the milk quota regime only until 1 April 2015	0	7	Number			Number		
			Product			Product		
Confirmation in 2008 of the decision to abolish milk quotas in 2015	yes	No		increase	decrease		increase	decrease
	1	6	Number	1	0	Number	0	0
			Product	Raw milk	-	Product	-	-
Annual milk quota increases since 2006/07	yes	no		increase	decrease		increase	decrease
	1	5	Number	1	0	Number	0	0
			Product	Raw milk	-	Product	-	-
Changes in the regulation of milk quota transfer	yes	no		increase	decrease		increase	decrease
	0	7	Number			Number		
			Product			Product		
Adjustment of the fat correction coefficient in 2009	yes	no		increase	decrease		increase	decrease
	0	7	Number			Number		
			Product			Product		
Reduction of trigger intervention price level from 2004/05 until 2007/08	yes	no		increase	decrease		increase	decrease
	1	6	Number	1	0	Number	0	0
			Product	(*) see foot note	-	Product	-	-
Abolition of the private storage aid for cheese in 2009	yes	no		increase	decrease		increase	decrease
	0	7	Number			Number		
			Product			Product		
Suspension of the processing aid for skimmed milk to casein	yes	no		increase	decrease		increase	decrease
	1	6	Number	1	0	Number	0	0
			Product	(*) see foot note	-	Product	-	-
Reduction of the payments of the withdrawal scheme for butter, concentrated butter and cream to zero in 2007	yes	no		increase	decrease		increase	decrease
	1	4	Number	1	0	Number	0	0
			Product	(*) see foot note	-	Product	-	-
Abolition of the withdrawal scheme for butter, concentrated butter and cream in 2009	yes	no		increase	decrease		increase	decrease
	1	5	Number	1	0	Number	0	0
			Product	(*) see foot note	-	Product	-	-
Suspension of export refunds for butter and skimmed milk powder since 2010	yes	no		increase	decrease		increase	decrease
	1	5	Number	1	0	Number	0	0
			Product	(*) see foot note	-	Product	-	-
Others	yes	no		increase	decrease		increase	decrease
	-	-	Number			Number		
			Product			Product		

(*)Milk previously used for SMP and butter now processed for standard types of cheese

These perceptions of respondents about the very small effect of policy changes on the dairy market must be understood in the context in which these companies are focused, i.e. the domestic market and a low utilization of existing aids for market regulation. Thus there was only one answer about the use of private storage aid, which has been only used occasionally by one of the firms (Table 74).

Four of the seven interviewees consider that reducing the super levy has caused an increase in milk deliveries, albeit not important. This contrasts with the point of view of the producer questionnaires, since very few of them had been stimulated by this change. Most firms (6 of 7) consider that there will be some increase in deliveries with the abolition of quotas, the estimate of such increase being quite variable between respondents.

In recent years some of the firms have increased their processing capacity (4 in drinking milk and 1 in cheese). However, so far there is no definite response of industries to these expectations of an increase in deliveries with the abolition of quotas. No decisions have been made about it nor is it likely to be significant in most cases; only 2 of them have increased the processing capacity or have intended to do it.

5.4 EQ 7: Structure of processing industry

Most of the firms considered that a majority of the existing agricultural policy measures have not affected the structural development of their businesses. In this sense are the answers relating to regulatory actions on the Community market, including export subsidies (with 6 negative responses). They only recognize a positive effect on state / regional aids to on investment and rural development, which have supported the improvement of industrial and production structure of farms, which has allowed the development of the productive capacity of these companies (Table 75).

Table 75 Impact of policy measures of market regulation on structural development

EU-policy instruments	No impact	Company increased	Company decreased
Milk quota	3	2	1
Public intervention	6	0	0
Private storage aid	6	0	0
Aids in the milk and milk product sector	6	0	0
Butter, concentrated butter and cream withdrawal scheme	6	0	0
Welfare milk scheme	6	0	0
National aids in the milk product sector	6	0	0
Licence system	6	0	0
Tariff rate quotas	6	0	0
Import duties	5	0	1
State aids	1	6	0
Rural development programmes	3	4	0
School milk programme	6	0	0
Export refunds	6	0	0
Others	-	-	-

The response to the effect of quotas is more diverse and nuanced. There are more answers stating that there is no impact. However there are two affirmative answers because they understand that this framework has not prevented them from developing, although recognizing the limitation of quotas on the production of their raw material; and one estimates that quotas had a negative effect limiting its development (Table 76). All interviewees believe that the policy changes since 2003 have not affected the structural development of their firms.

It is quite surprising that some firms do not consider the limiting effect of quota in their structural development and growth. On the contrary it is widely recognized that the limited volume of raw material has prevented the development of the Spanish dairy industry to cover a larger part of the growth in the domestic demand of dairy products.

Table 76 Effects of policy changes since 2003 on structural developments

Policy measure	No effect	Effect	How?
Decision taken in 2003 to prolong the milk quota regime only until 1 April 2015	7	0	
Confirmation in 2008 of the decision to abolish milk quotas in 2015	7	0	
Annual milk quota increases since 2006/07	6	0	
Changes in the regulation of milk quota transfer	7	0	
Adjustment of the fat correction coefficient in 2009	7	0	
Reduction of trigger intervention price level from 2004/05 until 2007/08	7	0	
Abolition of the private storage aid for cheese in 2009	6	0	
Suspension of the processing aid for skimmed milk to casein	6	0	
Reduction of the payments of the withdrawal scheme for butter, concentrated butter and cream to zero in 2007	7	0	
Abolition of the withdrawal scheme for butter, concentrated butter and cream in 2009	6	0	
Suspension of processing aid in 2008	6	0	
Suspension of export refunds for butter and skimmed milk powder since 2010	6	0	
Others	-	-	-

5.5 EQ 8: Competitiveness of international markets

None of the companies interviewed has applied for export refunds in the last years, which is understandable considering their very low volume of sales outside of the domestic market (Table 77).

Table 77 Application for export refunds

Application for export refunds	Number	Butter	SMP	Cheese	Other
No	7				
Yes	0				
2003/04 to 2009/10	-				

Most or all of the firms do not participate in the measures of market regulation or do so only in a limited and occasional way. Two out of seven have participated occasionally in the sale of butter for intervention to take out some of the milk fat obtained from the standardization of the drinking milk (Table 78). With regard to the effect of market regulation measures on the competitiveness in domestic markets there is consensus about a positive impact of state/regional aids (6 of 7) and rural development programs (5 of 7). For the rest of the measures, a majority of responses (4 to 6 of 6 / 7) estimate there is no impact.

Table 78 Impact of policy measures of market regulation on competitiveness of milk products on national and/or international markets

EU-policy instruments	Competitiveness on National market			Competitiveness on International markets		
	Positive Impact	No Impact	Negative Impact	Positive Impact	No Impact	Negative Impact
Milk quota	1	4	2	0	1	0
Public intervention	2	4	0	0	1	0
Private storage aid	1	4	0	0	1	0
Aids in the milk and milk product sector	0	6	0	0	1	0
Butter, concentrated butter and cream withdrawal scheme	1	5	0	1	0	0
Welfare milk scheme	2	4	0	0	1	0
National aids in the milk product sector	1	5	0	0	1	0
Licence system	0	6	0	0	1	0
Tariff rate quotas	0	5	0	0	1	0
Import duties	0	5	1	0	1	0
State aids	6	1	0	1	0	0
Rural development programmes	5	2	0	0	1	0
School milk programme	1	5	0	0	1	0
Export refunds	1	5	0	1	0	0
Others	-	-	-	-	-	-

No firms comment on the question about the effect of policy changes on exports, which is understood considering that there are almost no exports to non-EU countries.

Finally the processors were asked about the impact of agricultural policy payments. All of them recognize that state aid / regional investment has been positive because they are linked to improvements in productive capacity or efficiency. One of the two firms that have participated in the public intervention also estimates as positive the effect of this measure on its competitiveness (Table 79).

Table 79 Impact of policy payments on competitiveness of the company

Policy measure/ payment	Impact		How?
	No	Yes	
Public intervention	0	1	Selling butter
Export refunds			
Private storage aid			
Direct payments for farmers			
State aids		6	Improvement in production capacity and efficiency
Rural development aids			
Other			

5.6 Conclusion

Seven companies were interviewed; five collect more than 100 thousand t devoted mainly to the production of drinking milk and two of a smaller size that made cheese, some under a PDO scheme. In all cases the great majority of sales are directed to the domestic market.

They consider that the impact of policy changes on the system of producer prices were very limited. On the contrary these changes, the action of competitors and food retailers have put downward pressure on prices of dairy products.

Some of the perceptions of respondents about a very small effect of policy changes on the dairy market must be understood in the context in which they work, i.e., the domestic market and a low utilization of existing aids for market regulation

Most of them expect some increase in deliveries with the abolition of quotas. It is quite surprising that some firms do not consider a limiting effect of quota in its structural development and growth

All of them recognize that state aid / regional investment has been positive because they are linked to improvements in productive capacity or efficiency.

5.7 Expert consultation

During the research four experts were consulted on specific issues. One expert of the Galician Department of Agriculture was consulted with respect to the implementation of policies in Galicia. Two experts from the Cooperative´s Association and one from an Organization of Agricultural Producers were also consulted about their points of view with respect to the evolution of dairy farms and the implementation of policies during the evaluation period

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7 Annex

7.1 Cost aggregation and income criteria

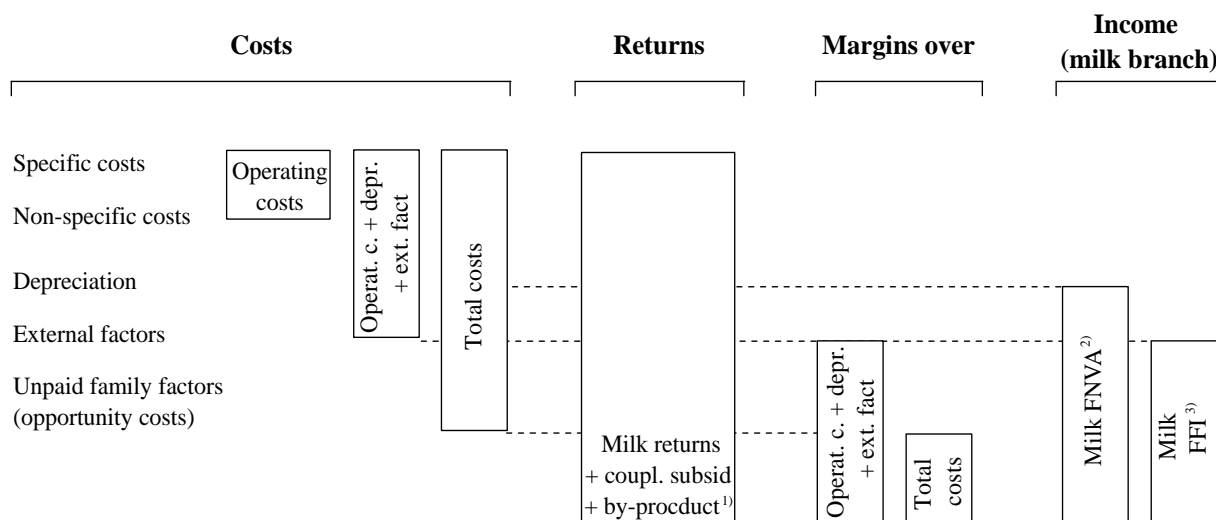
As in some EU Member States milk production in other than ‘specialized dairy farms’ is quite considerable, samples of farms have been built up in the study regions based on the following ‘particular type of farming (SE085 > 0)’: 41’ Specialist dairying; 43’ Cattle-dairying, rearing and fattening combined; 71’ Mixed livestock, mainly grazing livestock; and 81’ Field crops-grazing livestock combined. FADN data of the years 2003 to 2007 are used, of which unbalanced samples of specialised farms are selected.

Modifications are made with respect to handling inconsistencies in data and also with respect to the consideration of by-product ‘beef’, which is important for farms having dual purpose type of dairy breeds. In case of inconsistent data observations were dropped. This is the case for calculated total costs of milk > 650 €/t.

As regards the farm revenues coupled milk premiums were still included in the output value. Revenues of dairy related by-products, such as sales of beef and calves were taken into account. Coupled premiums for silage cereals (used for feeding dairy cows) were included in the by-product revenues.

Calculations are based on individual farm data but presented results are aggregated by different criteria, of which only region, farm size (expressed by number of dairy cows), Less Favoured Area categories⁷ and Quartiles⁸ are used.

Scheme of cost aggregates and calculation of margins/incomes



1) by-product: sales of male calves

2) Farm Net Value Added referring to milk

3) Family Farm Income referring to milk

⁷ LFA mountain; LFA not mountains; not LFA

⁸ Quartiles defined by FNVA/AWU...by regions * year [case study regions + the remaining 'oth']. 1st: lowest 25 % (0-25%); 4th: top 75 (75-100%)

For further details about the concepts used see as a reference “European Commission, Agriculture and Rural Development: EU dairy farms report 2010 based on FADN”.
http://ec.europa.eu/agriculture/rca/pdf/dairy_report_2010.pdf⁹

⁹ More details are available upon request.