EU dairy farms report 2010

based on FADN data

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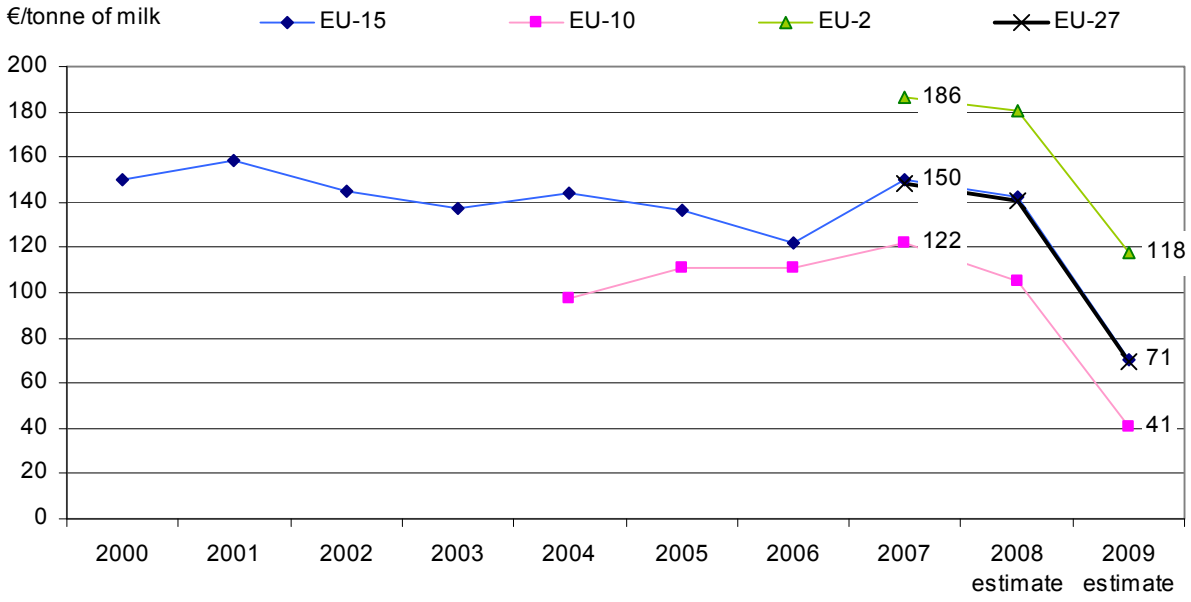
EU DAIRY FARMS REPORT
-2010-

Executive summary

This annual report provides an **overview of the EU dairy farms** based on the latest available data from the Farm Accountancy Data Network (FADN) for 2007. It analyses the developments of milk margin per tonne and the trend in income per work unit until 2007. In order to illustrate expected **impacts of the dairy crisis at farm** level estimates of milk margins for years 2008 and 2009 were made**.** The full impact of the crisis on farm performance in 2008 and 2009 using observed FADN data, rather than estimates, will be available in the coming years reports.

The sample of milk specialised farms studied for margins represents 71% of the dairy cows in the EU-27. The average milk **gross margin** has shown a slight decreasing trend over the period 2000-2006 in the EU-15, and an increasing trend in the EU-10 over 2004-2007 (see graph hereunder). It should be underlined that decoupled payments, progressively introduced from 2005, are not included in margins, but they are of course part of farmers' income.

Trend in dairy farmers' gross margin



Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

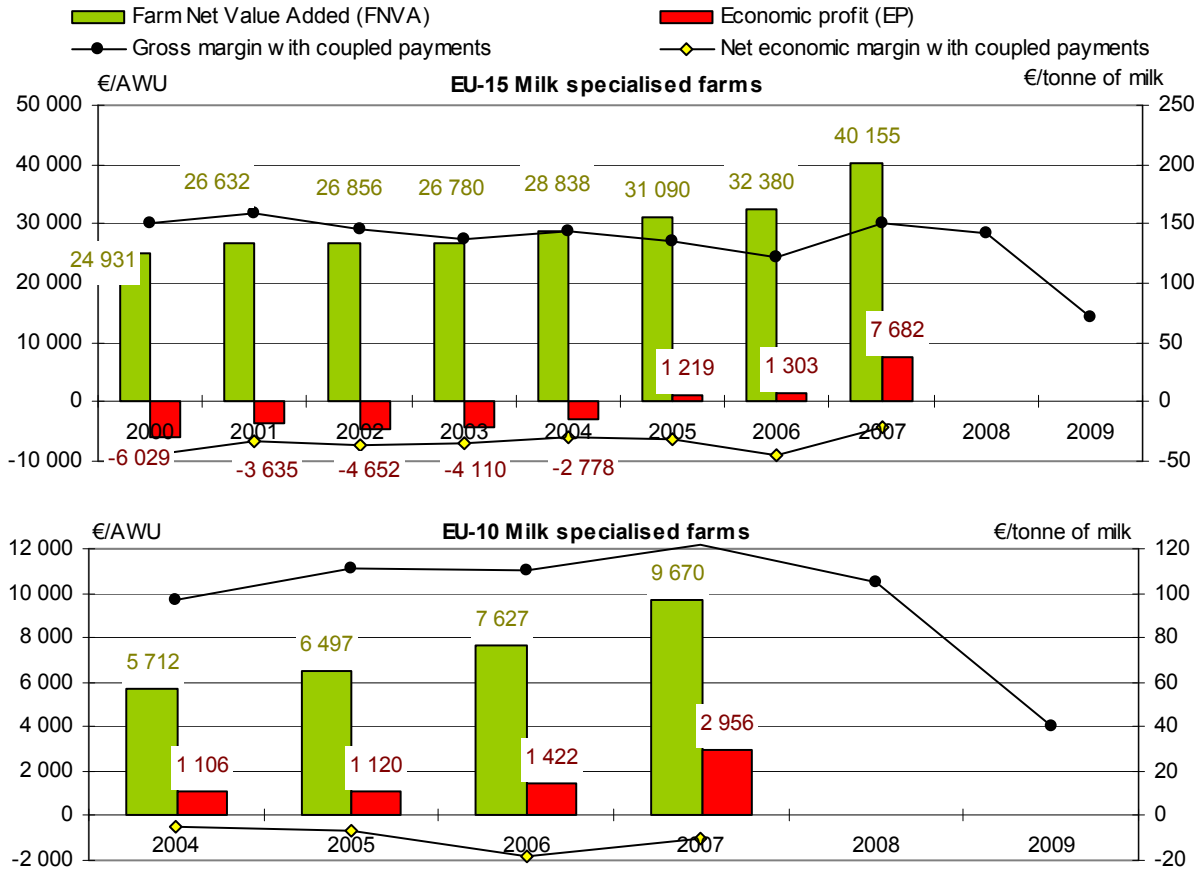
The year 2007 has marked a clear break: in all EU-groups the gross margin has peaked thanks to the boom in agricultural prices and the delay in the increase of input costs. It amounted on average to 149 €/t for the EU-27. Following a slight downward correction in 2008, the gross margin is estimated to have decreased substantially (by 51%) in 2009, as a result of the

dramatic price drop and only limited decline in operating costs. The share of specialised farms with positive gross margin in the EU-27 is estimated to have dropped from 98% in 2007 to 86% in 2009 (but representing still 91% of EU-27 total milk production).

The highest impacts of the **dairy crisis** on the milk gross margin are estimated for Malta, Latvia, Hungary, Slovakia, the Czech Republic, Estonia, Germany and Ireland. The weight of the explaining factors may differ from one Member State to the other: a combination of milk price fall and rise in feed costs (Ireland), or mainly the milk price drop (Hungary, Slovakia and Germany), or mostly the rise in production costs (Malta). In those Member States, the share of farms with positive margins is falling with the dairy crisis. In Hungary, Malta and Latvia, the specialised farms with positive gross margins are likely to represent only 26%, 32% and 33% of the specialised farms' production respectively in 2009. However, at EU-level the percentage is more limited, because those Member States do not account for a large share of milk farms and milk production.

After deduction of imputed family factors (opportunity costs for own labour, land and capital), the **net economic margin** amounted on average to -21 €/t in 2007 for the EU-27. The lowest values of the EU-15 net economic margin between 2000 and 2007 (-45 and -46 €/t) were observed in 2000 due to high costs (especially imputed family factors) and in 2006 due to low milk revenues (see graphs hereunder). The margin rose abruptly in 2007 to -22 €/t due to the sharp increase in the milk price, which more than offset the rise in operating costs. In the EU-10, given the regular increase of the imputed family factors, the net economic margin seems to be following a slightly decreasing trend between 2004 and 2007, even though the period of four years is too short to identify a firm trend.

Trend in margins and incomes for EU-15 and EU-10 milk specialised farms



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. 2008 and 2009 are estimates.

However, despite the negative net economic margin and thanks to decoupled payments, the **income** indicators of milk specialised farms were positive:

- the Farm Net Value Added per Annual Work Unit (FNVA/AWU), remuneration of land, labour and capital, amounted to 22 890 €/AWU, and
- the Economic Profit per AWU (EP/AWU), which is the amount remaining after remuneration of all production factors, was 4 306 €/AWU.

Given the continuous increase in milk farm size, all income indicators of milk specialised farms are showing a rising trend until 2007 (see graphs above). However, given the estimated gross margin trend after 2007, a significant drop in income can be expected.

Moreover, except in the EU-2, milk specialised farms on average are in a relatively good situation in terms of income by comparison with other types of farming. This is not the case for non-specialised milk farms, which have a significantly lower income on average. The income gap was especially wide in the EU-10 (-34% for the non-specialised farms compared to the specialised ones in 2007) and in the EU-2 (-38%), where non-specialised farms accounted for 44% and 24% of the milk production respectively.

In total (specialised and non-specialised), 39% of EU-27 farms producing milk had a positive economic profit in 2007. However, they represented 70% of milk production. It is noticeable that there is not always a strict correlation between high margin (€/t) and high income (€/AWU), due to different farm size: even if a producer has a low margin per tonne, he can have a high income if the quantity produced is big. EU averages conceal a wide range of situations at national and regional levels as it is illustrated in the core of the report.

Table of contents

1. INTRODUCTION

This report provides an **overview of EU dairy farms** based on the latest available FADN data, i.e. for **2007**. Production costs and gross margins for **2008 and 2009** are also estimated. The main feature of the three-year period 2007-2009 has been the high level of volatility in agriculture in general, and in the milk sector in particular. In 2007, producers experienced a sharp increase in milk prices alongside the general boom in agricultural prices. Input prices followed suit, albeit with a certain time lag and to a different extent. Producer prices have fallen dramatically since mid-2008. Against this backdrop, this report provides an analysis of the economic situation of dairy farms in 2007 (milk margin per tonne and income per work unit) and an assessment of trends in milk production costs and gross margins in 2008 and 2009. It enables the **impacts of the dairy crisis at farm level** to be identified.

The report analyses both the margin and income indicators and their recent trends since 2000. The second chapter sums up the **methodology** used, in particular, for calculating the milk margins and for estimating 2008 and 2009 based on 2007 farm structures data. It defines the sample of milk-specialised farms studied in terms of margins and income. Non-specialised milk farms are also studied in terms of income. The constraints of the model do not allow actually estimating production costs for non-specialised farms. The third section details the **analysis of milk margin** of specialised farms for the EU and by Member State. It also looks at the distribution of the margins by Member State and their trend over the period 2000-2009. The fourth section is dedicated to the **income analysis of the milk specialised and non-specialised farms** at EU and national level. The final section concludes with an overview of the main economic results of EU dairy farms.

2. METHODOLOGY

2.1. General introduction to FADN

The **Farm Accountancy Data Network (FADN)** is a European system of sample surveys that take place each year and collect structural and accountancy data relating to the farms; their aim is to monitor the income and business activities of agricultural holdings and to evaluate the impacts of the Common Agricultural Policy (CAP).

The scope of the FADN[1] survey covers only those farms exceeding a minimum economic size (threshold) so as to cover the most relevant part of the agricultural activity of each EU Member State, i.e. at least 90% of the total Standard Gross Margin[2] (SGM) covered in the

[1] For more information on FADN: http://ec.europa.eu/agriculture/rica/index.cfm

[2] The Standard Gross Margin (SGM) is the difference between the standardised monetary value of gross production and the standardised monetary value of certain special costs. This difference is calculated for the various crop and animal characteristics (per hectare or per animal), at the level of the survey district for each Member State and given in €. By multiplying the areas or the number of animals by the corresponding SGM and then adding the products together, the total SGM of the holding is obtained. By adding the total SGM of all holdings of a Member State, the total Member State SGM is obtained. The concept of SGM is used for

Farm Structure Survey (FSS, EUROSTAT). For 2007, the sample consists of approximately 78 000 holdings in the EU-27, which represent 5.4 million farms (39%) out of a total of some 14 million farms included in the FSS.

The applicable rules are aimed at providing representative data along three dimensions: region, economic size and type of farming. FADN is the only harmonised source of micro-economic data, which means that the accounting principles are the same in all EU Member States.

The most recent FADN data available for this report are for the 2007 accounting year[3]; this is because of the time needed to collect, check and correct the data of all the EU Member States.

2.2. The model for estimating milk production costs and margins

The FADN database contains information about output and subsidies per product, but as far as costs are concerned it only provides information relating to the farm as a whole. Hence, the direct contribution of each enterprise to the farm income is not available, which means that the production costs by product have to be estimated. The EU FADN unit has built several models to estimate costs and margins for the different products: arable crops, milk and beef, and permanent crops. These models allocate farm costs to a particular product using different ratios. Annex I gives details of the model for estimating milk production costs and margins which is used in this analysis (refer to Methodology 1).

2.3. Opportunity costs for unpaid family factors

Since 2008, imputed costs for unpaid family factors have been estimated. The aim is to enable a comparison to be made between Member States with different structures in terms of labour (share of family and paid labour), land (rented/owned) and capital. The methodology for estimating the opportunity costs of family labour, land and capital is explained in Annex I (refer to Methodology 2).

2.4. Definitions

The gross margin (over operating costs)[4] is generally used when making comparisons with alternative types of production (labour, land and capital costs still have to be paid whichever type of production is chosen). The net margin (before own factors) is calculated as the gross

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the determination of the economic size and the type of farming in FADN and in the Farm Structure Survey (FSS) organised by EUROSTAT.

[3] Some information is still provisional for Spain and Greece 2007. Moreover it should be noted that Malta 2004 is missing and that Dutch 2000 data are estimates based on 1999 data.

[4] Gross margin = milk and milk products revenues minus specific costs (feed, veterinary…) and other operating costs (upkeep of machinery, energy, contract work, taxes on land and buildings…).

margin minus depreciation and external factors (wages, rent, interest paid). The net economic margin (after own factors) allows assessment of the residual revenue obtained from the production after remuneration of all production factors including own land costs, own capital costs and family labour (imputed family factors)[5].

2.5. Estimates for 2008 and 2009

The output, operating costs and gross margin (over operating costs) for 2008 and 2009 are estimated on the basis of milk price indices and input price indices. It is assumed that structures and milk production remain unchanged. The sources of the indices used are the following:

- For the milk price: DG AGRI
- For purchased feed: DG AGRI FEEDMOD
- For the other inputs: EUROSTAT databases (Agricultural prices and price indices, EAA Economic Accounts for Agriculture and HICP[6] and GDP[7] inflation rate).

2.6. The sample of milk specialised farms

To obtain reliable estimates of production costs and margins, it is necessary to focus on milk specialised farms. The criteria used are explained in Methodology 1 (annex I), the main criterion being a specialisation rate[8] of more than 50%.

In FADN 2007, 12 755 sample farms fulfil these criteria. They represent **557 674** farms in the EU-27; **52%** are in the **EU-15, 17%** in the **EU-10** and **31%** in the **EU-2**. Table 10 in Annex I shows the share of dairy cows accounted for by the milk specialised farms by Member State (compared to the FSS 2007 data). Results for Cyprus and Greece are not displayed because there are fewer than 15 farms in the sample (confidentiality rule). Coverage of dairy cows ranges from 15% for Slovakia to 102% for Finland. Coverage is particularly low (below 50%) in the following Member States: Slovakia (15%), the Czech Republic (22%), Lithuania (32%), Poland (42%), Romania (43%) and Hungary (46%). The overall **EU-27** coverage of dairy cows by the FADN sample of milk specialised farms is **71%**.

Table 1 presents some **structural information about milk specialised farms by Member State** and their share of the total milk production represented by FADN (average 2007). The

[5] For a detailed definition of the margins and costs presented, please refer to the description of the milk model in annex I.

[6] Harmonized Indices of Consumer Prices.

[7] Gross Domestic Product.

[8] Specialisation rate: the share of milk output & subsidies in the total output & coupled subsidies (forage farm use deducted).

range of average forage area is wide: from 4 ha in Romania to 699 ha in Slovakia. The average number of dairy cows ranges from 4 in Romania to 190 in Slovakia. High numbers are also found in Denmark (119 dairy cows), the United Kingdom (118) and the Czech Republic (93). The structure of labour is also very different within the EU-27: for example, the milk specialised farms in Slovakia have an average of 26.9 Annual Work Units (AWU), of which only 2% employ family labour. The share of family labour is also low in the Czech Republic (15%) and Hungary (20%), and among the EU-15 Member States in Denmark (59%) and the United Kingdom (65%). The average milk yield is between 3 883 kg/cow (Romania) and 8 578 kg/cow (Finland). The average milk price obtained by the specialised producers ranges from 249 €/t in Lithuania to 385 €/t in Italy. The value is also high (i.e. above 360 €/t) in Germany (382 €/t), Finland (361 €/t) and Malta (360 €/t), and low (i.e. under 270 €/t) in Estonia (262 €/t), Latvia (269 €/t) and Bulgaria (269 €/t).

Table 1: Structural information on milk specialised farms by Member State (2007)

	Specialised milk farms							
FADN 2007	Forage area - ha	Dairy cows - LU	Total labour - AWU	Share of family labour - %	Milk yield - kg/cow	Milk production /farm - tonnes	Milk price - €/tonne	Share of milk production - %
Belgium	39	50	1.6	99%	6 756	340	349	72%
Denmark	81	119	2.2	59%	8 268	984	333	95%
Germany	48	50	2.0	76%	7 190	359	382	85%
Greece	nd	nd	nd	nd	nd	nd	nd	nd
Spain	16	31	1.5	95%	6 942	217	352	93%
France	59	46	1.8	93%	6 513	300	320	74%
Ireland	54	55	1.6	87%	5 439	300	323	97%
Italy	26	48	2.2	84%	6 993	333	385	93%
Luxembourg	69	43	1.7	92%	7 254	315	352	79%
The Netherlands	44	72	1.6	93%	7 787	558	358	96%
Austria	27	19	1.7	98%	6 755	129	333	61%
Portugal	17	29	2.0	83%	6 842	198	306	99%
Finland	31	24	2.0	91%	8 578	207	361	98%
Sweden	71	53	2.2	76%	8 364	442	323	93%
The United Kingdom	95	118	2.6	65%	7 171	849	316	95%
EU 15	**46**	**51**	**1.9**	**84%**	**7 019**	**355**	**349**	**87%**
Cyprus	nd	nd	nd	nd	nd	nd	nd	nd
The Czech Republic	175	93	10.4	15%	6 488	605	301	28%
Estonia	156	63	6.0	26%	6 761	428	262	86%
Hungary	55	54	4.5	20%	6 946	375	293	45%
Lithuania	28	14	1.9	87%	5 265	72	249	56%
Latvia	42	14	2.2	72%	5 270	76	269	71%
Malta	6	63	2.6	92%	5 822	368	360	99%
Poland	14	16	1.9	95%	5 303	86	284	63%
Slovakia	699	190	26.9	2%	5 779	1096	302	19%
Slovenia	14	15	2.0	98%	5 654	87	277	80%
EU 10	**22**	**18**	**2.1**	**81%**	**5 567**	**102**	**283**	**56%**
Bulgaria	7	10	2.0	73%	3 928	41	269	92%
Romania	3	4	1.9	94%	3 883	17	330	72%
EU2	**4**	**5**	**1.9**	**91%**	**3 889**	**20**	**316**	**76%**
EU27	**29**	**31**	**1.9**	**86%**	**6 707**	**208**	**342**	**83%**

Source: EU FADN – DG AGRI. Nd: not displayed, fewer than 15 farms in the sample.

These data reflect the **diversity of milk farm structures** in the EU-27, linked to the differences in natural potentialities and also in the social, economic and regulatory context. In

particular, the different national policies on milk quota management are very likely to have had an impact on the level of restructuring within each Member State.

The share of milk production covered by specialised farms on average is high in the EU-15 (87%), significant in the EU-2 (76%) and relatively low in the EU-10 (only 56%), with big differences among EU-10 Member States (only 19% in Slovakia, but 99% in Malta). It means that the margin and production costs presented in the next section are **valid for 83% of the EU-27 milk production**[9], a very high share in the EU-15, a significant share in EU-2 and a variable share, depending on the Member State, in the EU-10.

2.7. Non-specialised milk farms

As explained in the previous section, milk specialised farms do not represent the majority of the milk production in some Member States. To get a complete picture of milk producing farms in the EU-27, it is therefore relevant to look at non-specialised farms. This is especially important for those Member States where these farms account for a large share of milk production, namely: **Slovakia** (81%), **the Czech Republic** (72%) and **Hungary** (55%).

The non-specialised milk farms generally produce less milk than the specialised ones, but not systematically (exceptions are the Czech Republic and Slovakia). They receive on average a lower milk price than the specialised farms. It might be linked to a difference in quality of milk produced (due to more or less expertise in milk production). The price difference is particularly high in **Portugal** (220 €/tonne instead of 306 €/tonne for specialised farms) and **Romania** (258 €/tonne instead of 330 €/tonne).

[9] Milk production represented by FADN farms.

Table 2: Structural information on non-specialised milk farms by Member State (2007)

	Non-specialised milk farms							
FADN 2007	Forage area - ha	Dairy cows - LU	Total labour - AWU	Share of family labour - %	Milk yield - kg/cow	Milk production /farm - tonnes	Milk price - €/tonne	Share of milk production - %
Belgium	42	35	1.9	98%	5 980	209	329	28%
Denmark	55	68	2.2	53%	7 721	526	315	5%
Germany	48	41	3.0	47%	6 883	284	371	15%
Greece	nd	nd	nd	nd	nd	nd	nd	nd
Spain	13	4	1.0	99%	6 096	26	357	7%
France	65	41	2.0	89%	6 490	263	304	26%
Ireland	44	20	1.4	91%	4 563	92	311	3%
Italy	17	16	1.7	88%	4 132	66	367	7%
Luxembourg	76	37	2.0	90%	6 724	248	351	21%
The Netherlands	36	62	2.1	86%	7 963	497	352	4%
Austria	29	11	1.7	97%	5 867	67	317	39%
Portugal	23	10	1.3	92%	2 420	24	220	1%
Finland	30	14	2.1	88%	7 922	112	352	2%
Sweden	78	32	2.2	71%	7 374	234	319	7%
The United Kingdom	146	81	3.6	42%	6 426	519	303	5%
EU 15	**39**	**25**	**1.9**	**80%**	**6 326**	**160**	**331**	**13%**
Cyprus	nd	nd	nd	nd	nd	nd	nd	nd
The Czech Republic	277	158	25.0	4%	6 257	987	298	72%
Estonia	76	17	2.8	60%	5 937	100	262	14%
Hungary	55	37	4.8	17%	6 451	239	290	55%
Lithuania	23	8	2.1	77%	4 856	41	237	44%
Latvia	29	8	2.3	71%	4 833	37	244	29%
Malta	nd	nd	nd	nd	nd	nd	nd	nd
Poland	6	5	1.6	96%	3 925	20	250	37%
Slovakia	593	199	41.5	2%	5 812	1155	297	81%
Slovenia	9	8	2.4	99%	4 298	32	263	20%
EU 10	**13**	**8**	**2.0**	**76%**	**4 771**	**38**	**269**	**44%**
Bulgaria	9	8	2.3	64%	2 870	24	234	8%
Romania	3	2	2.1	94%	3 283	8	258	28%
EU2	**3**	**3**	**2.1**	**94%**	**3 254**	**8**	**257**	**24%**
EU27	**16**	**10**	**2.0**	**82%**	**5 521**	**56**	**308**	**17%**

Source: EU FADN – DG AGRI. Nd: not displayed, fewer than 15 farms in the sample.

3. ANALYSIS OF MILK MARGINS

The resulting revenues, costs and margins are presented in terms of **€/t of milk** produced. It should be noted that the averages used (called "global ratios") are obtained by dividing the average revenues, costs or margins in the Member State (or region) by the average quantity of milk produced in this Member State (or region) (i.e. not by the average of the individual farm ratios). This chapter highlights the main results. The tables in annex II show all the margins both with and without the milk coupled payments (EU and national).

The figures shown are expressed in current €.

3.1. EU group level

3.1.1. 2007 average by EU group

Table 3 presents **structural information** and the average **milk margins of the milk specialised farms** in the EU-15, EU-10, EU-2 and EU-27. The structural information shows the difference in farm size between the EU-15, the EU-10 and the EU-2: the milk specialised farms in the EU-15 have 51 dairy cows on average, with a milk yield of 7 018 kg/cow, producing 355 t of milk per year, whereas in the EU-10 they have 18 dairy cows, with a yield of 5 567 kg/cow, and producing 102 t of milk per year. In the EU-2, farm size is even lower, and the milk specialised farms have 5 dairy cows on average, with a yield of 3 889 kg/cow, producing 20 t of milk per year.

In **2007,** the average **gross margin** for the **EU-27** amounts to **149 €/t** with the dairy payments (Article 69, POSEI and national aids). It is similar for the EU-15 at 150 €/t, lower for the EU-10 at 122 €/t, and higher for the EU-2 at 186 €/t. Both revenues and operating costs are higher on average in the EU-15 than in the EU-10. The average milk price is 23% higher in the EU-15 (349 €/t) than in the EU-10 (283 €/t) and the operating costs (specific and non-specific costs) are 25% higher (201 €/t in the EU-15 and 162 €/t in the EU-10). In the EU-2, the high level of the margin is driven by the relatively high milk price obtained by the specialised farms (316 €/t), the dairy national aids (13 €/t) and low operating costs (143 €/t).

The average **net economic margin**[10] with coupled payments amounts to **-21 €/t** for the **EU-27,** -32 €/t for the EU-2, -11 €/t for the EU-10 and -22 €/t for the EU-15. Depreciation and external factors are higher in the EU-15 than in the EU-10, which in turn are higher than in the EU-2. However, the imputed family factors per tonne of milk are much higher in the EU-2 (170 €/t) than in the other two EU-groups (84 and 69 €/t for the EU-15 and EU-10 respectively), mainly because of the low level of milk production, which does not allow economies of scale. This means that, after the remuneration of all factors (including imputed costs for own land, own capital and family labour), based on the estimation method applied, the specialised producers producing milk would *on average* suffer a loss in the long run.

[10] Net economic margin = gross margin minus depreciation, external factors (wages, rent, interest paid) and imputed family factor costs.

Table 3: Structural information and average milk margins for the EU in 2007

	EU-15	EU-10	EU-2	EU-27
Sample farms	9 443	2 955	357	12 755
Farms represented	288 604	97 516	171 554	557 674
% total production	***87%***	***56%***	***76%***	***83%***
Forage area - ha	46	22	4	29
Dairy cows - LU	51	18	5	31
Land in own occupation - %	39%	54%	53%	42%
Total labour - AWU	1.87	2.14	1.88	1.92
Family labour - %	84%	81%	91%	86%
Milk yield - kg/cow	7 018	5 567	3 889	6 707
Milk production - t	**355**	**102**	**20**	**208**
€/t				
Total revenues from milk	351	283	329	345
Total operating costs	201	162	143	196
Depreciation	46	37	26	44
External factors	42	26	22	40
Imputed family factors	84	69	170	85
€/t				
Gross margin	148	121	173	146
Gross margin with CP*	**150**	**122**	**186**	**149**
Net margin	60	57	126	62
Net margin with CP*	**62**	**58**	**139**	**64**
Net economic margin	-24	-11	-44	-24
Net economic margin with CP*	**-22**	**-11**	**-32**	**-21**
%spe.farms with positive net economic margin	*28%*	*34%*	*29%*	*29%*
%spe.farms' milk production with positive net economic margin	*44%*	*53%*	*50%*	*45%*

*CP: coupled payments
Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

The analysis at farm level shows that, in **2007** in the EU-27, only **29% of the milk specialised farms** represented by FADN had a **positive net economic margin**, but these farms represent **45% of the milk production of specialised farms**.

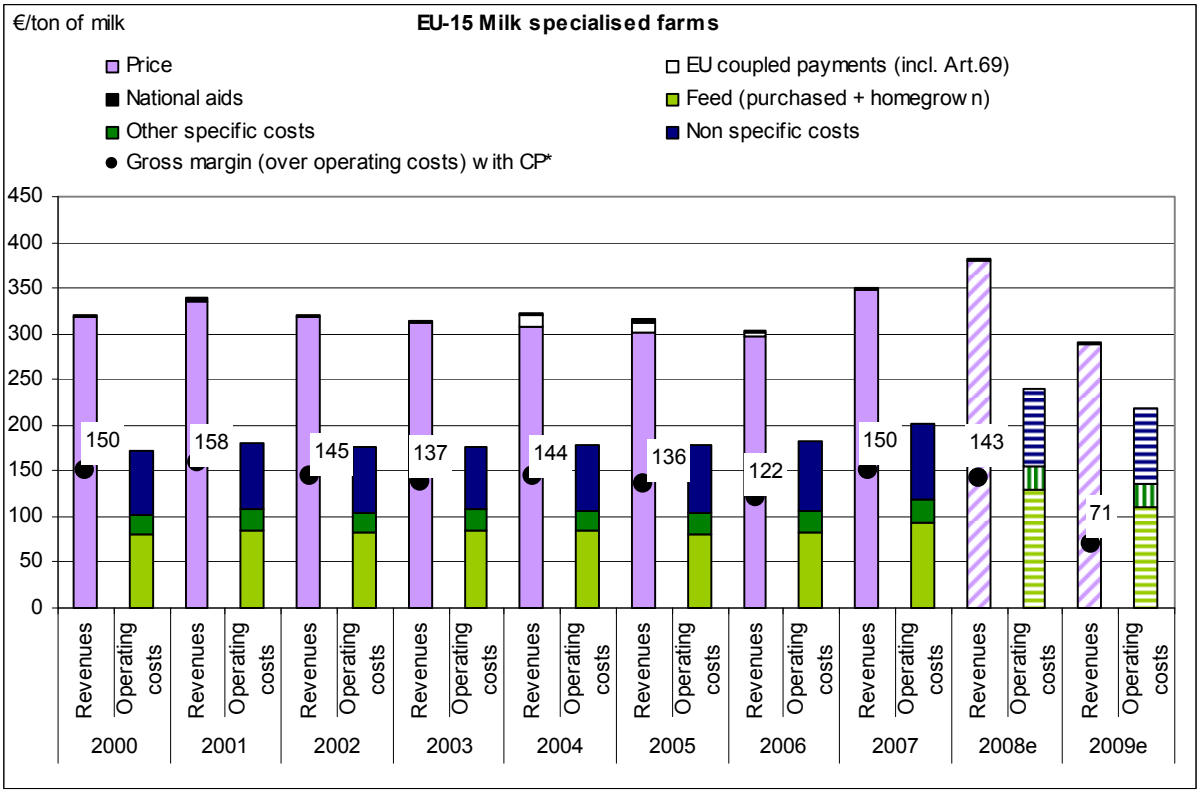
3.1.2. The impact of the dairy crisis on the gross margin by EU group

On average in the **EU-15**, the milk specialised farms increased their annual **production** of milk by **38%** between 2000 and 2007, increasing the herd size (+25%) and the milk yield (+10%). During the same period the number of such farms fell by **24%** (see Annex II). In parallel to this structural trend, the average **gross margin per tonne** shows a decreasing trend over the period 2000-2006 (-19%), but this trend was disrupted after 2007 by the agricultural price boom and thereafter by the dairy crisis (refer to Figure 1). Over the period 2002-2009, the gross margin reached its **peak in 2007** (150 €/t) with a significant rise in the milk price and a still moderate increase in operating costs. In 2008, even though the estimated milk price[11] continued to rise, this did not compensate for the higher increase in operating costs. Thus the gross margin dropped to 143 €/t. Milk revenues in 2009 are estimated to have fallen by 24% compared to 2008. Operating costs have also decreased (-9%), but not sufficiently to

[11] Reminder: 2008 and 2009 milk revenues, operating costs and gross margins are estimated on the basis of 2007 FADN structural data and price indices.

maintain the margin, which is estimated to have **decreased by 50%** (71 €/t) compared to 2008.

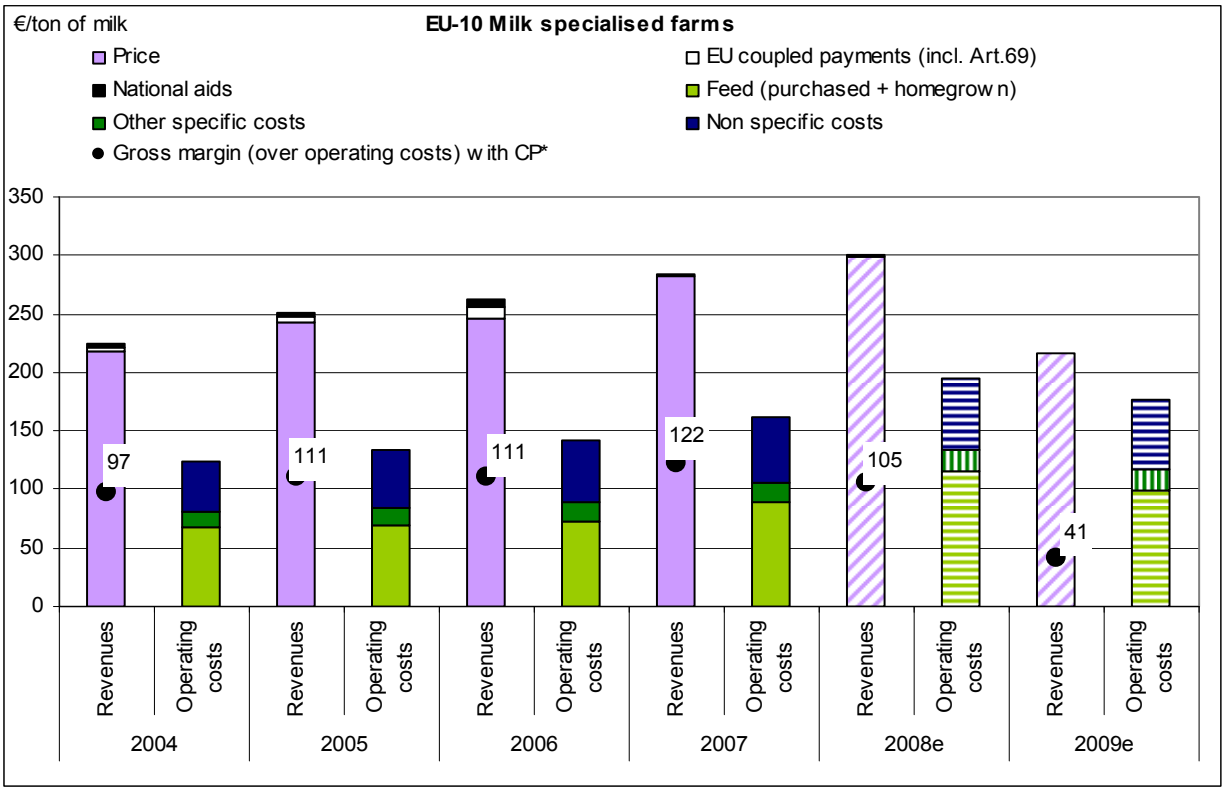
Figure 1: Trend 2000-2009 of the milk gross margin in the EU-15



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments. 2008e, 2009e: estimates based on 2007 FADN data and price indices.

On average, annual milk production in the **EU-10** rose by **13%** between 2004 and 2007 for milk specialised farms, due to an increase in milk yield (+7%) and in the average number of dairy cows per farm (+5%). The number of milk specialised farms has fallen by 6%. Annex II contains detailed data for the EU-10 and by Member State. Figure 2 presents the **trend in milk revenues, operating costs and gross margins for the EU-10 during 2004-2009**. Total milk revenues (per tonne of milk), operating costs and gross margin grew steadily between 2004 and 2007. From 2007 onwards, the trend in price, costs and margin in the EU-10 is very similar to the one described above for the EU-15, although the absolute levels in €/t were lower.

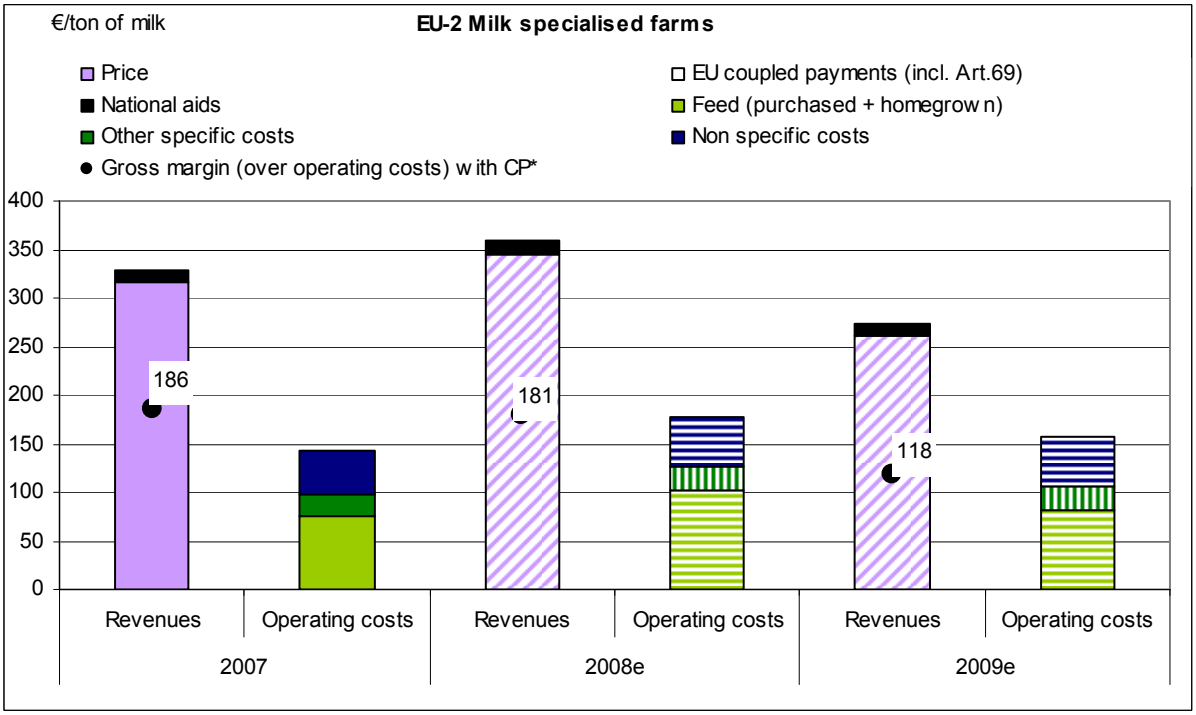
Figure 2: Trend 2004-2009 of the milk gross margin in the EU-10



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments. 2008e, 2009e: estimates based on 2007 FADN data and price indices.

Figure 3 displays the trend of the gross margin for the **EU-2** between 2007 and 2009. This is similar to what is described for the EU-15 and the EU-10, with a higher level of margin.

Figure 3: Trend 2007-2009 of the milk gross margin in the EU-2



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments. 2008e, 2009e: estimates based on 2007 FADN data and price indices.

Table 4 shows that the **share of specialised farms with positive gross margin** in the **EU-27** is estimated to have dropped from 98% in 2007 to 86% in 2009. The **14% of specialised farms with negative gross margin in 2009** represent 10% of the specialised farms' milk production and **9% of total milk production** (taking the milk production of non-specialised farms into account). It means that, based on 2009 milk and input index prices, and considering that structures, techniques and yields have not changed since 2007, it is estimated that 14% of EU-27 specialised milk farms do not cover their operating costs. If prolonged, this situation may incite producers to change or cease milk production.

Table 4: Share of specialised farms with positive gross margin by EU-group

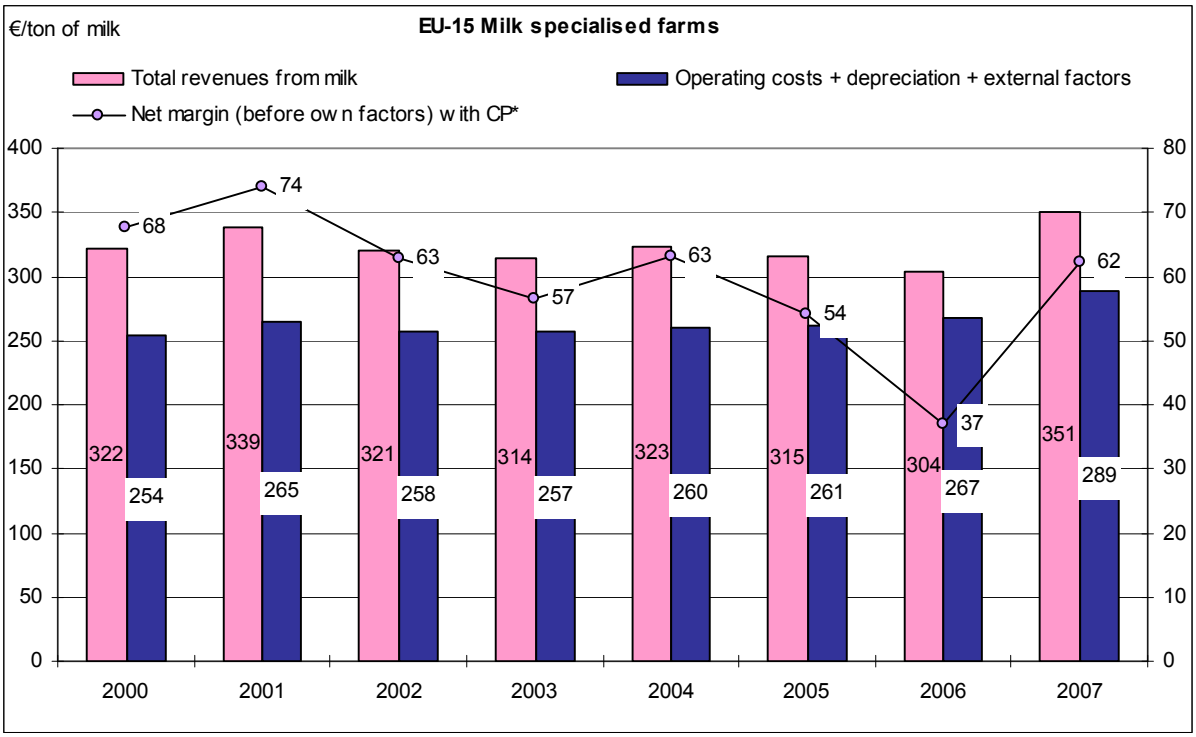
	Share of milk **specialised farms** with positive gross margin			Share of specialised farms' milk **production** with positive gross margin		
Member State	2007	2009e	***Difference between 2007 and 2009***	2007	2009e	***Difference between 2007 and 2009***
EU 15	98%	87%	***-11%***	99%	91%	***-9%***
EU 10	97%	80%	***-17%***	98%	79%	***-19%***
EU2	97%	88%	***-8%***	95%	85%	***-10%***
EU27	98%	86%	***-11%***	99%	90%	***-10%***

Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

3.1.3. The trend of net margins by EU group

Over the period 2000-2007, the **EU-15 average net margin per tonne** (gross margin minus depreciation and external factors) has remained between 37 €/t (lowest value observed in 2006) and 74 €/t (highest value observed in 2001) (refer to Figure 4). The general downward trend observed between 2001 and 2006 was interrupted in 2007: the net margin rose by 69% between 2006 and 2007, due to a peak in the milk price and a relatively moderate increase in operating costs. Depreciation and external factors (wages, rent and interest paid) actually remained fairly stable between 2006 and 2007, as Figure 5 illustrates.

Figure 4: Trend 2000-2007 of the net margin in the EU-15

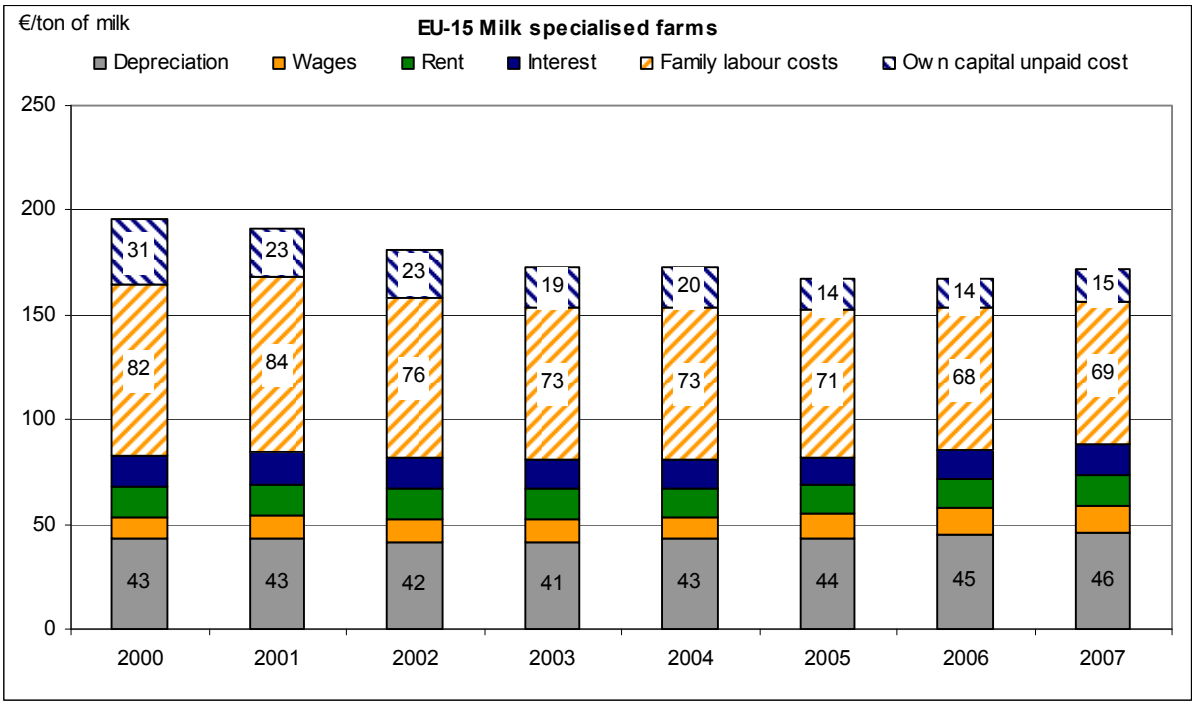


Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

The next graph shows that, whereas **depreciation and external factors** in €/t have not changed much over the period, the **imputed family factors** (opportunity costs for family labour, own land and capital) have decreased continuously in the EU-15: down by 26% between 2000 and 2007 (mainly due to the reduction of opportunity cost for own capital).

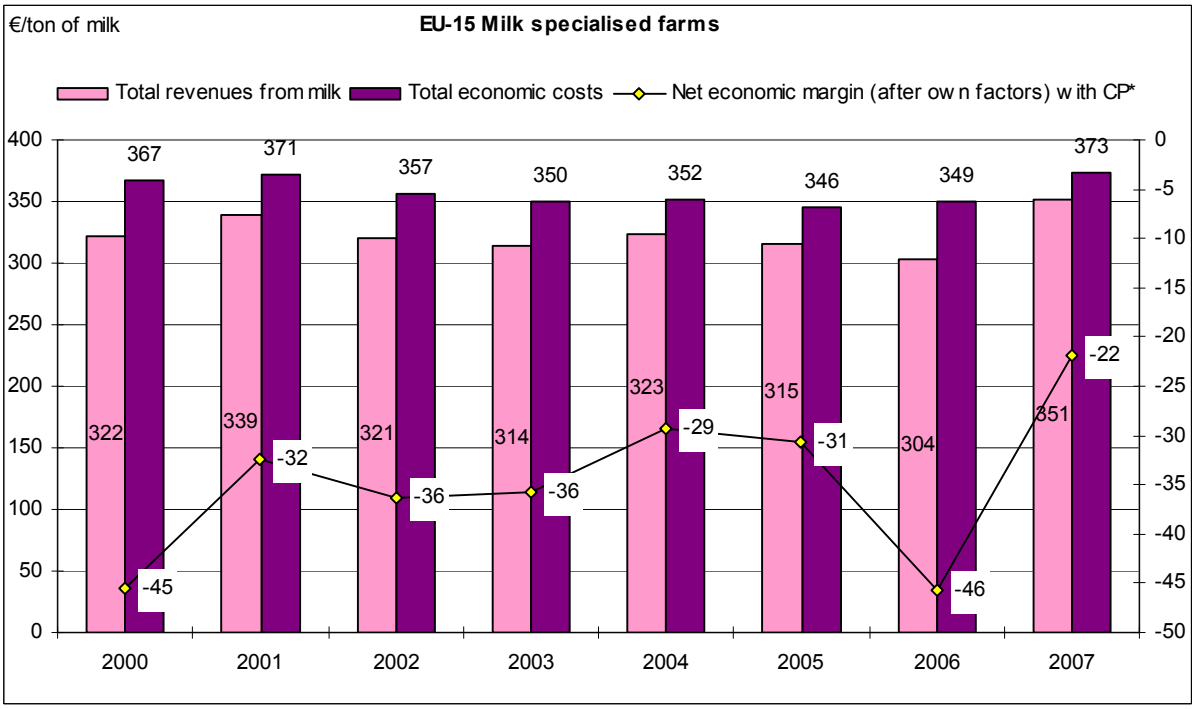
Figure 6 presents the resulting trend in the EU-15 **net economic margin** between 2000 and 2007. The lowest values (-45 and -46 €/t) were observed in 2000 due to high costs (especially imputed family factors) and in 2006 due to low milk revenues. The margin rose abruptly in 2007 to -22 €/t due to the sharp increase in the milk price (+18% over 2006), which more than offset the rise in operating costs (+17%).

Figure 5 Trend 2000-2007 of non-operating costs in the EU-15



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

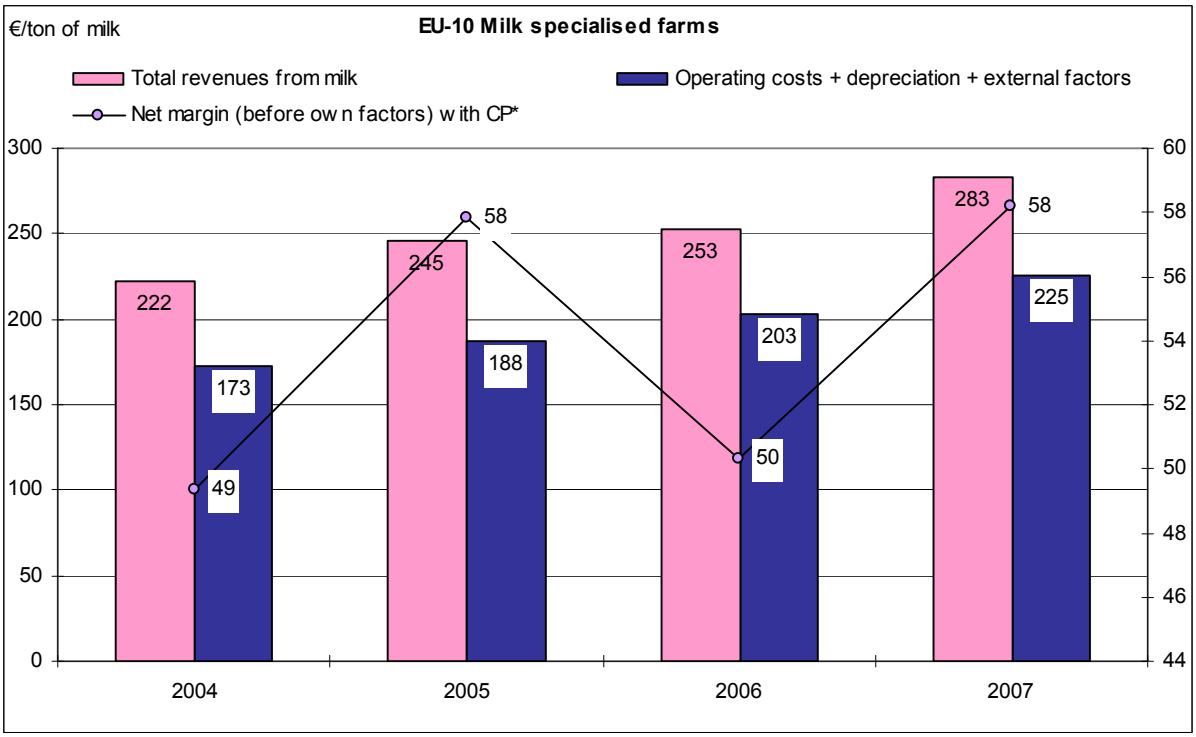
Figure 6 Trend 2000-2007 of the net economic margin in the EU-15



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

Over the period 2004-2007, the **EU-10 average net margin per tonne** oscillated between 49 €/t (lowest value observed in 2004) and 58 €/t (highest value observed in 2005 and 2007) (refer to Figure 7). All revenues and cost elements increased regularly between 2004 and 2007: revenues by 29%, operating costs by 30%, depreciation by 26%, and external factors by 43% (see Figure 8).

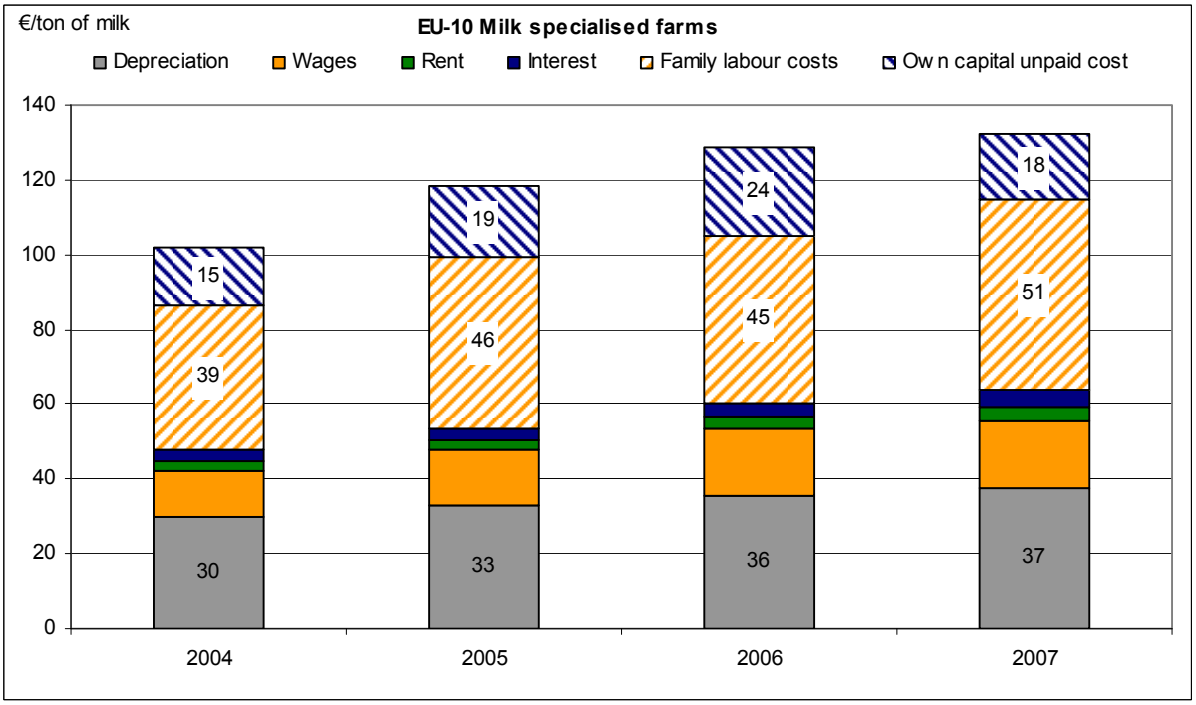
Figure 7: Trend 2004-2007 of the net margin in the EU-10



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

Figure 8 also illustrates the continuous increase of imputed family factors (opportunity costs for family labour, own land and capital, in €/t) in the EU-10. Those increases (wages, family labour costs, rent, etc.) reflect the gradual increase of the EU-10 standard of living after accession. External wages increase indeed quicker than the net margin (amount available to remunerate the own factors) in the EU-10.

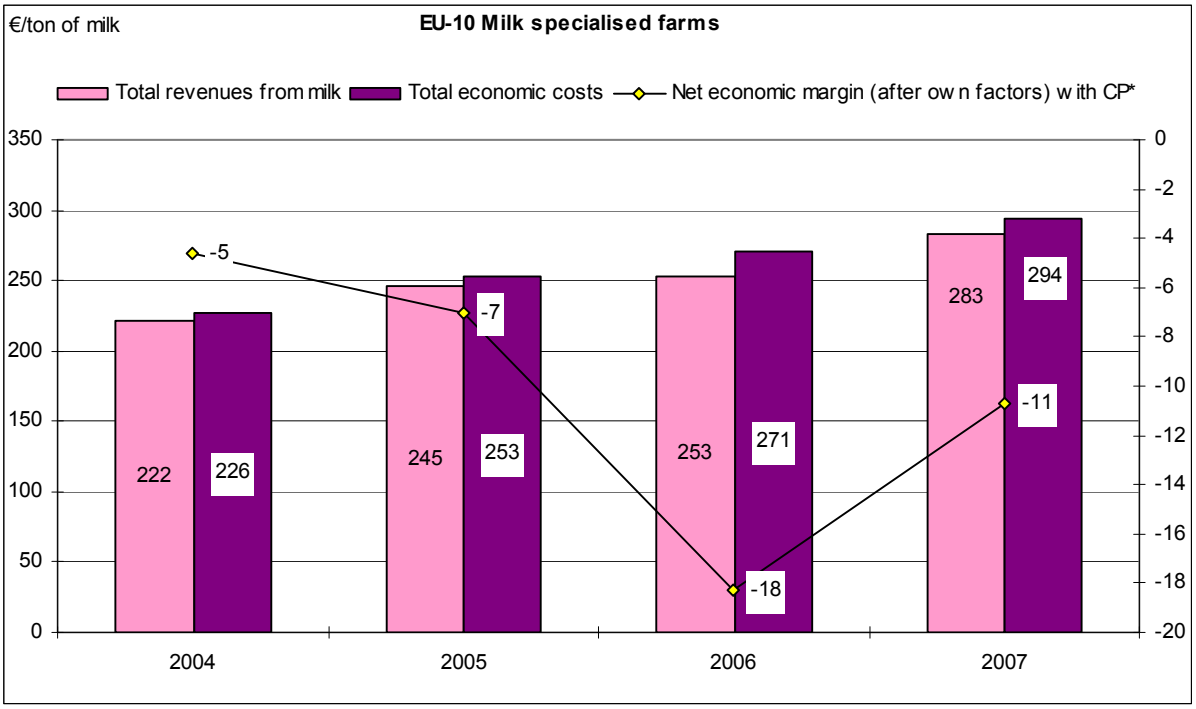
Figure 8 Trend 2004-2007 of non-operating costs in the EU-10



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

The resulting trend in the EU-10 **net economic margin** between 2004 and 2007 is shown in Figure 9. Given the regular increase of the imputed family factors, the net economic margin seems to be following a slightly decreasing trend, even though the period of four years is too short to identify a firm trend.

Figure 9 Trend 2004-2007 of the net economic margin in the EU-10



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

For the **EU-2**, no trend is available for the net margins, given that only the 2007 data are available.

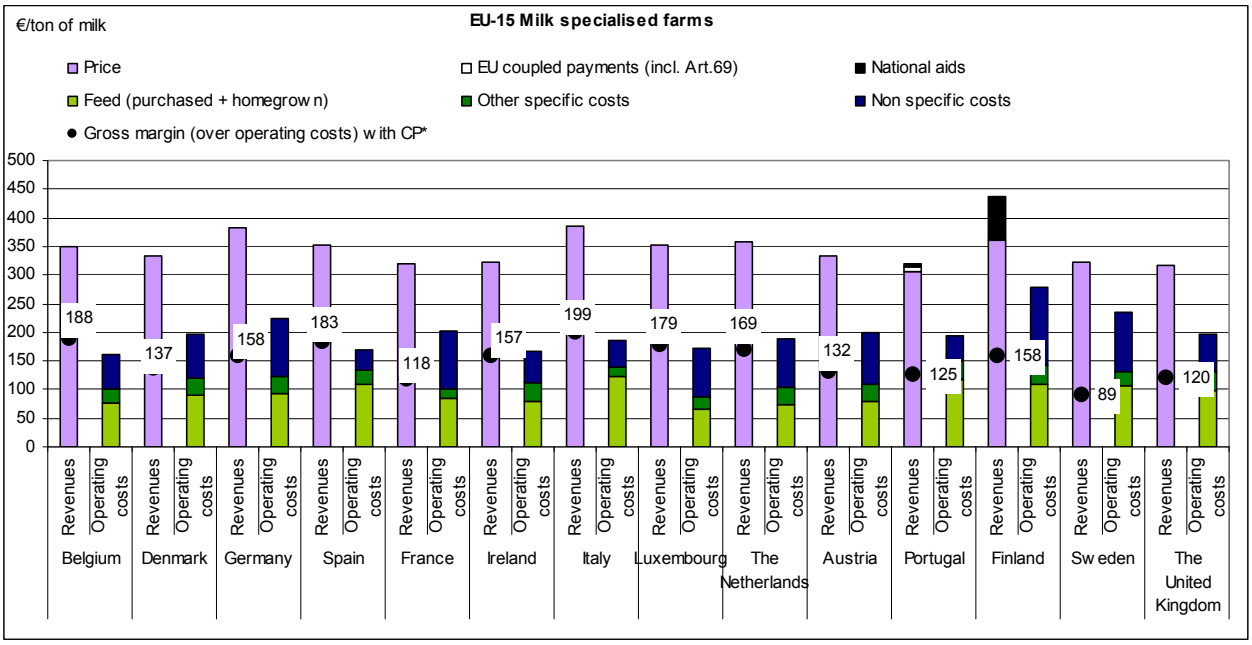
3.2. National level

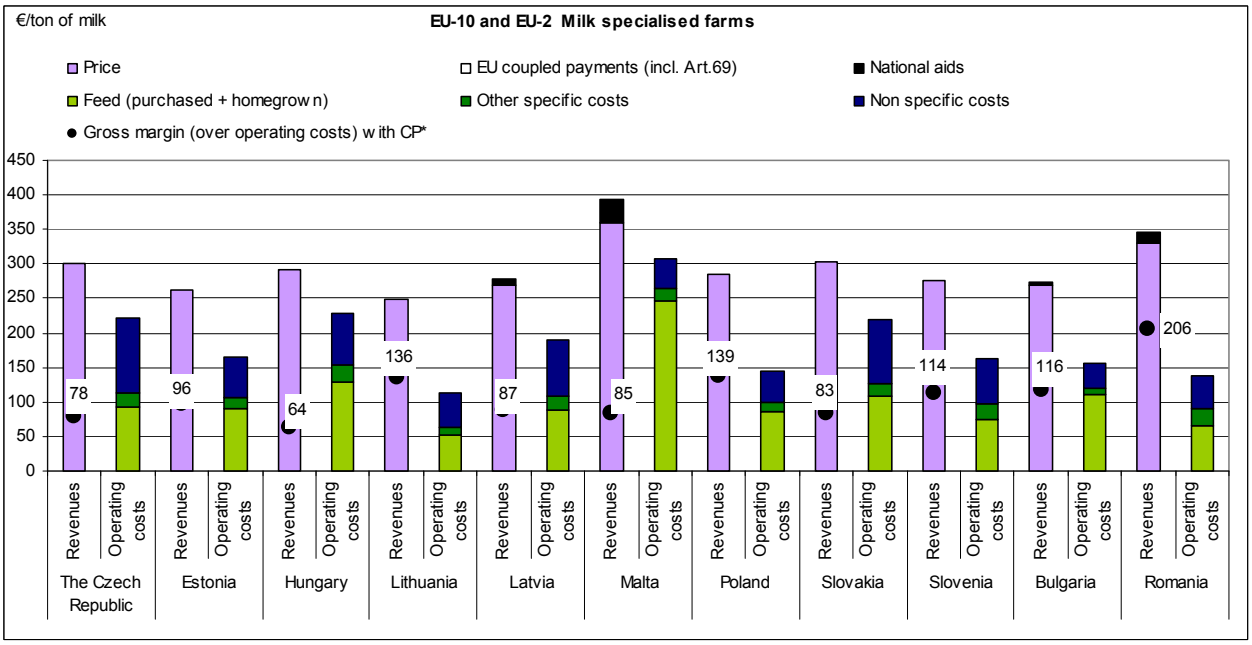
3.2.1. The gross margin

There are big differences in milk revenues, operating costs and gross margin between Member States, as illustrated by Figure 10, which is based on 2007 data. The average gross margin values are specified on the chart. They are generally higher in the EU-15 Member States than in the Member States of the EU-10 and EU-2, the main exception being Romania (206 €/t). The **Romanian milk *specialised* farms** do receive a fairly high milk price (330 €/t), supplemented by coupled national aids (15 €/t) which allow them to have the same level of milk revenues as the EU-27 average. At the same time, their operating costs are 29% lower than the EU-27 average (feed, in particular, is cheaper in Romania). Due to these factors Romanian milk *specialised* farms had the best milk gross margin of the EU-27 in 2007. However, it should be noted that the Romanian non-specialised milk farms receive a much lower price for their milk. One explanation might be the big difference in the quality of the milk provided by specialised and non-specialised farms in this country. Moreover, despite the excellent margin, the average income of Romanian milk specialised farms is very low, owing to the very small farm size (see table in annex II).

After Romania, the next highest average gross margins are found in **Italy** (199 €/t), Belgium (188 €/t), **Spain** (183 €/t), and Luxembourg (179 €/t). In Italy this can be linked to the very high milk price (385 €/t, the highest in the EU-27). In Belgium, the good gross margin can be related to the relatively moderated operating costs (especially feed and other direct inputs are lower in Belgium). In Spain and Luxembourg, the high margin is linked to a relatively good price and limited operating costs. Germany and France, the two major EU producers, have an average gross margin of 158 €/t and 118 €/t respectively.

Figure 10: 2007 milk gross margin by Member State





Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

Finland, despite very high operating costs, which are mainly due to the extreme climatic and natural conditions, obtains a relatively good average margin, mainly thanks to significant coupled national aids (see table in annex II).

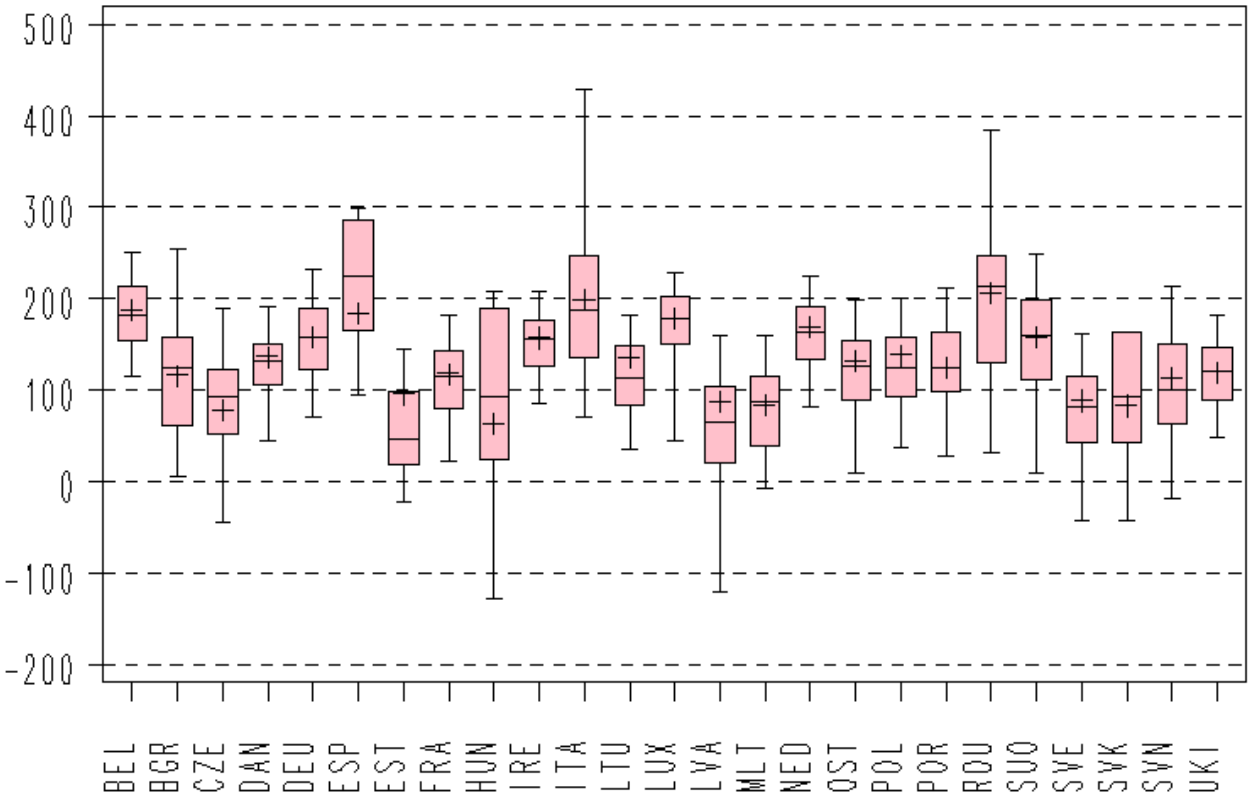
The highest operating costs are observed in **Malta** (310 €/t), due to its insular characteristics and the necessity to import feed. Although Malta grants some national aids to dairy farms (34 €/t in 2007) in order to compensate, the resulting gross margin is still among the lowest in the EU. The lowest margins in 2007 were in **Hungary** (64 €/t) and **the Czech Republic** (78 €/t), because of a low milk price and relatively high costs. However, as mentioned in the previous section, the milk specialised farms that are used to estimate the margin do not cover a large share of milk production in these two Member States. Therefore, the results might not be particularly representative.

The average margin value may conceal wide disparities within the country, as Figure 11 illustrates (box-plot). The vertical axis represents the values of the 2007 gross margin at individual level in €/t and the horizontal axis represents the Member States studied[12]. For each Member States, the farms are ranked according to the ascending margin. The line in the box represents the median, showing that 50% of the farmers have a margin less than or equal to the median. The '+' sign represents the average margin in the Member State. The box delimits the first quartile (Q1) and the third quartile (Q3), which are the values separating one quarter and three quarters of the milk specialised farms respectively. The whiskers represent the percentiles 5 (P5) and 95 (P95). 5% of the farms have a margin of less than P5. The extreme values (below P5 and above P95) are not displayed.

[12] Data for Cyprus and for Greece are not displayed because there are not enough milk specialised farms in the sample.

Figure 11: Distribution of the milk gross margins by Member State in 2007

€/tonne of milk



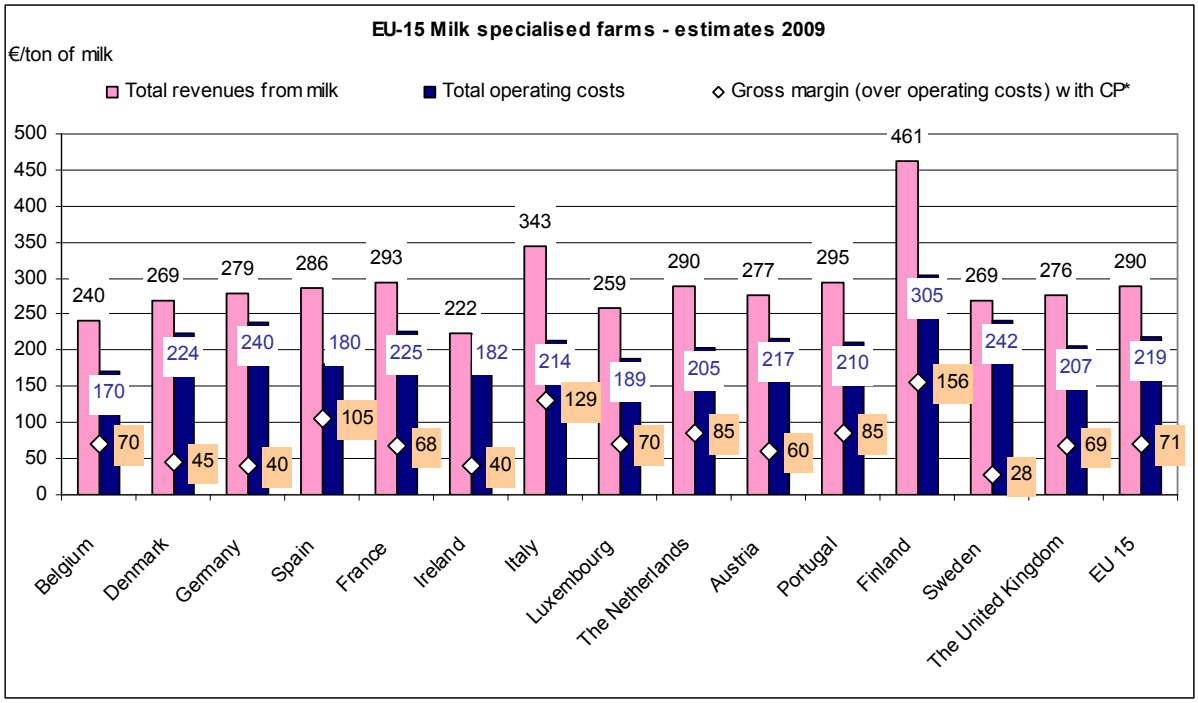
Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

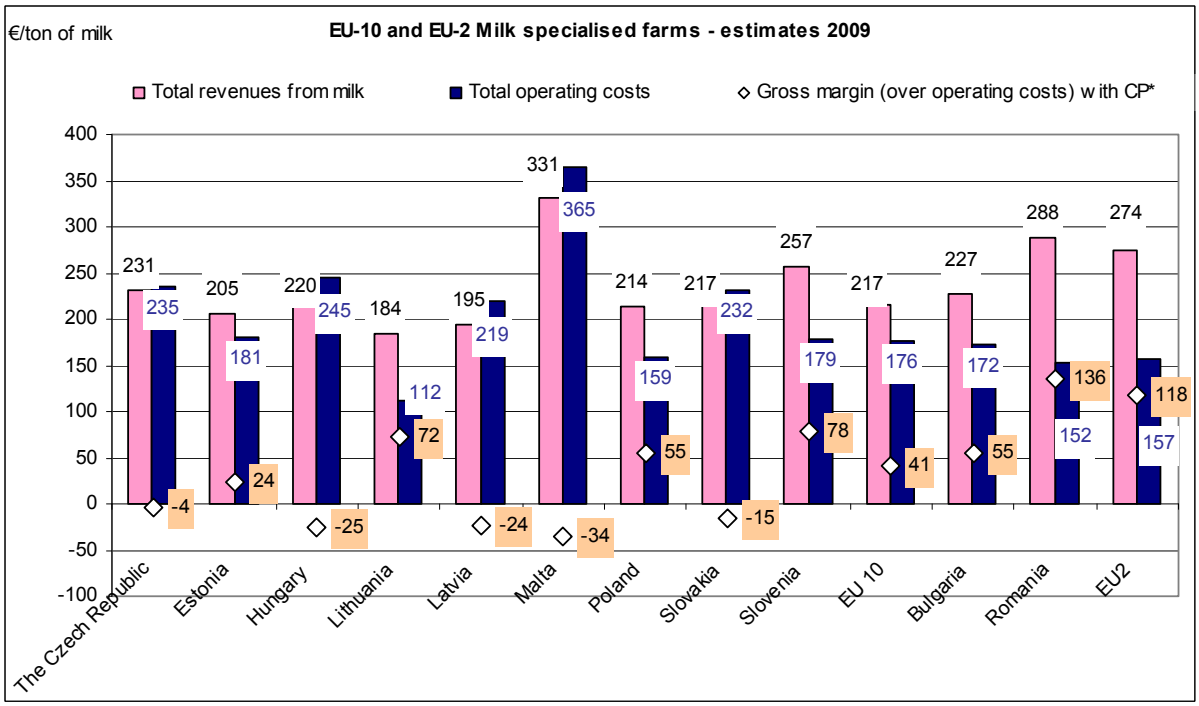
The range of values of the gross margin is relatively smaller and more concentrated around the average in Denmark, Ireland, the United Kingdom, the Netherlands and Poland. The distribution of the margin is particularly **broad,** on the other hand, in **Italy, Spain, Hungary, Latvia** and **Romania**. For these Member States the average margin is not sufficient to represent the diversity of the situation in the country.

3.2.2. The impacts of the dairy crisis on the gross margin by Member State

As explained in the previous section, 2007 was a peak year and the start of a more volatile period. Therefore it is interesting to look at the **2009 estimates** in order to assess how the different Member States reacted to the crisis (refer to Figure 12 and Table 5).

Figure 12: Estimated 2009 milk gross margin by Member State





Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments. 2009 estimates based on 2007 FADN data and price indices.

The highest relative falls in average gross margin between 2007 and 2009 are observed for **Malta** (-235%, from 85 €/t to -34 €/t), **Latvia** (-142%, from 87 €/t to -24 €/t), **Hungary** (-139%, from 64 €/t to -25 €/t), **Slovakia** (-118%, from 83 €/t to -15 €/t), **the Czech Republic** (-105%, from 78 €/t to -4 €/t), **Estonia** (-75%, from 96 €/t to 24 €/t) **Germany** (-75%, from 158 €/t to 40 €/t) and **Ireland** (-74%, from 157 €/t to 40 €/t). The weight of the explaining factors may differ from on Member State to the other. In Ireland the fall is explained by a bigger decrease in the milk price (-31% between 2007 and 2009, see Table 5) and a substantial increase in feed costs (+20% compared to +16% on average in the EU-27). In

Latvia the main drivers of the decrease are the sharp fall in the milk price (-30% between 2007 and 2009), the increase in veterinary costs and also higher energy prices. In Hungary, Slovakia and Germany, the gross margin decrease is mostly due to the milk price drop. In Malta, the main element is the rise in production costs (feed among others).

Conversely, the dairy crisis has had no impact on the estimated average gross margin in **Finland,** which remains stable at 156 €/t: the rise in operating costs (+10%) has been offset by the increase in the milk price (+6%).

Table 5: % of change of milk revenues, costs and gross margin between 2007 and 2009

Member State	Total revenues from milk per tonne	*Feed (purchased + homegrown) per tonne*	*Energy (fuel, electricity) per tonne*	Total operating costs per tonne	**Gross margin with coupled payments per tonne**
Belgium	-31%	*8%*	*-2%*	6%	**-63%**
Denmark	-19%	*22%*	*5%*	14%	**-67%**
Germany	-27%	*14%*	*-9%*	7%	**-75%**
Spain	-19%	*9%*	*-6%*	7%	**-43%**
France	-8%	*21%*	*-4%*	11%	**-42%**
Ireland	-31%	*20%*	*-1%*	10%	**-74%**
Italy	-11%	*19%*	*10%*	15%	**-35%**
Luxembourg	-26%	*18%*	*13%*	9%	**-61%**
The Netherlands	-19%	*13%*	*11%*	8%	**-50%**
Austria	-17%	*11%*	*-5%*	8%	**-54%**
Portugal	-7%	*13%*	*-2%*	8%	**-32%**
Finland	6%	*19%*	*0%*	10%	**-1%**
Sweden	-17%	*9%*	*9%*	3%	**-69%**
The United Kingdom	-13%	*13%*	*24%*	5%	**-43%**
EU 15	**-17%**	***16%***	***0%***	**9%**	**-53%**
The Czech Republic	-23%	*9%*	*-4%*	6%	**-105%**
Estonia	-22%	*10%*	*15%*	9%	**-75%**
Hungary	-25%	*9%*	*10%*	7%	**-139%**
Lithuania	-26%	*3%*	*-6%*	0%	**-47%**
Latvia	-30%	*5%*	*32%*	15%	**-142%**
Malta	-16%	*20%*	*7%*	18%	**-231%**
Poland	-25%	*14%*	*10%*	9%	**-61%**
Slovakia	-28%	*7%*	*-9%*	6%	**-118%**
Slovenia	-7%	*15%*	*-4%*	10%	**-32%**
EU 10	**-24%**	***12%***	***8%***	**9%**	**-67%**
Bulgaria	-17%	*7%*	*18%*	10%	**-53%**
Romania	-17%	*9%*	*14%*	10%	**-34%**
EU2	**-17%**	***8%***	***14%***	**10%**	**-37%**
EU27	**-18%**	***15%***	***2%***	**9%**	**-53%**

Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

This is also reflected in the trend of the **share of specialised farms with positive gross margin** (refer to Table 6). The share of farms with positive margins is falling the most in Malta (-66%), Latvia (-50%), Hungary (-40%), Estonia (-39%) and Slovakia (-38%). Among the EU-15 Member States, it is decreasing significantly in Sweden (-23%), Germany (-22%) and Ireland (-21%). In Hungary, Malta and Latvia, the specialised farms with positive gross margins are likely to represent only 26%, 32% and 33% of the specialised farms' production respectively in 2009. However, at EU-level the percentage is more limited, because those Member States do not account for a large share of milk farms and milk production (refer to Table 11 in annex I).

Table 6: Share of specialised farms with positive gross margin in 2009 by Member State

	Share of milk specialised farms with positive gross margin		Share of specialised farms' milk production with positive gross margin	
Member State	2009e	***Difference between 2007 and 2009***	2009e	***Difference between 2007 and 2009***
Belgium	93%	*-7%*	96%	*-4%*
Denmark	82%	*-17%*	91%	*-8%*
Germany	77%	***-22%***	83%	*-17%*
Spain	97%	*-3%*	95%	*-4%*
France	89%	*-9%*	92%	*-7%*
Ireland	79%	***-21%***	85%	*-15%*
Italy	94%	*-5%*	96%	*-4%*
Luxembourg	89%	*-9%*	94%	*-5%*
The Netherlands	94%	*-5%*	97%	*-3%*
Austria	82%	*-14%*	90%	*-9%*
Portugal	93%	*-3%*	96%	*-4%*
Finland	95%	*0%*	97%	*0%*
Sweden	66%	***-23%***	74%	***-22%***
The United Kingdom	95%	*-5%*	96%	*-4%*
EU 15	**87%**	*-11%*	**91%**	*-9%*
The Czech Republic	63%	***-31%***	46%	***-50%***
Estonia	43%	***-39%***	83%	*-13%*
Hungary	51%	***-40%***	26%	***-67%***
Lithuania	91%	*-9%*	95%	*-5%*
Latvia	29%	***-50%***	33%	***-61%***
Malta	25%	***-66%***	32%	***-61%***
Poland	85%	*-14%*	91%	*-8%*
Slovakia	52%	***-38%***	41%	***-52%***
Slovenia	86%	*-9%*	92%	*-6%*
EU 10	**80%**	*-17%*	**79%**	*-19%*
Bulgaria	75%	***-22%***	77%	*-19%*
Romania	90%	*-7%*	87%	*-8%*
EU2	**88%**	*-8%*	**85%**	*-10%*
EU27	**86%**	*-11%*	**90%**	*-10%*

Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

3.2.3. The net margins

In 2007 in the **EU-15** the average net margin ranged from **-12 €/t in Sweden** (refer to Figure 13), due to high external factors, to **156 €/t in Spain**, thanks to very low depreciation[13] and external factors (refer to Figure 14). These costs are indeed generally low in the southern Member States: this is the case for Portugal, Malta and Italy, which has the second best net margin, also due to a high milk price.

In **Denmark** the net margin is very low (-8 €/t), due to high wages and very high interest levels. In this Member State the high interest paid probably reflects the high levels of investments in machinery, equipment and buildings. Although they weigh heavily on the farm economic accounts now, these investments could have a positive impact on income in the

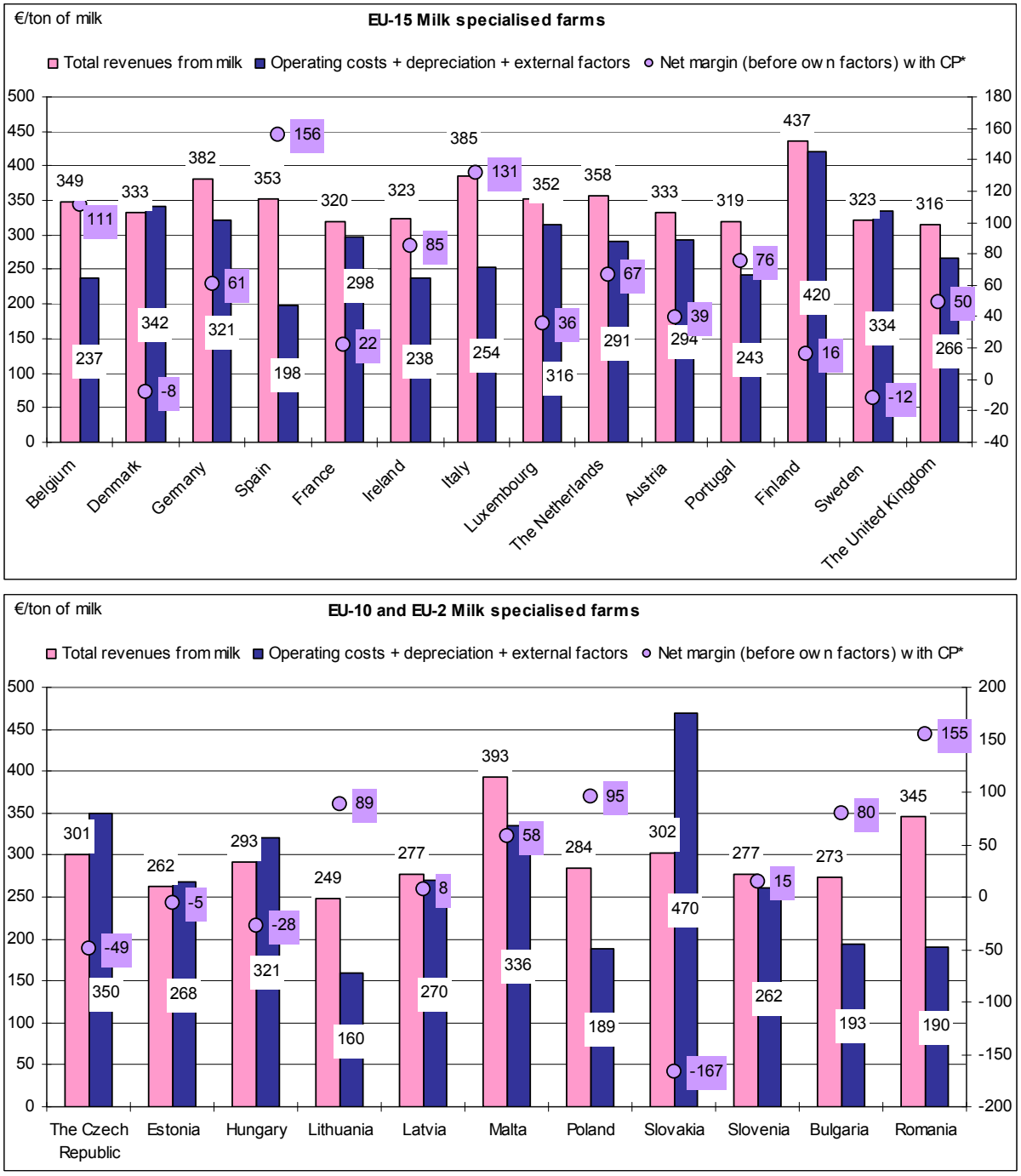
[13] As regards Spain, the result should be interpreted cautiously because depreciation is deemed to be underestimated in this Member State (particular depreciation method applied).

future. In **Luxembourg** and **Finland**, depreciation is very high (99 €/t and 104 €/t respectively), making the resulting net margin relatively limited in spite of high milk revenues. The **depreciation** cost actually varies widely between Member States. Here it should be emphasized that the method of estimating depreciation in FADN is only partly harmonised. The number of years for the depreciation of machinery or buildings cannot be the same in all Member States (for example, a tractor has a longer life in Poland than in France).

In the **EU-10 and EU-2**, the average net margin is between **-167 €/t in Slovakia,** because of exceptional depreciation[14] and very high wages, and **155 €/t in Romania,** thanks to low depreciation and limited external factors. The average net margin is also good in Poland and Lithuania for the same reasons as Romania. In the Czech Republic, Hungary and Estonia, on the other hand, the margin is very low because of the large share accounted for by wages. In these Member States, as in Slovakia, the **wages costs** are far more prominent as a percentage of the milk costs than imputed family labour costs; farms rely heavily on paid labour and relatively little on family labour. In Czech Republic and Slovakia, national experts explain the subsistence of the farms despite negative or very low net margins by the fact that farms are often big structures with a lot of other gainful activities (other than agriculture) which compensate for the loss in agriculture, and that the farms may keep workers on the farm for social reasons (especially in Slovakia).

[14] As regards Slovakia, depreciation is deemed to be overestimated and some data checks and corrections are ongoing.

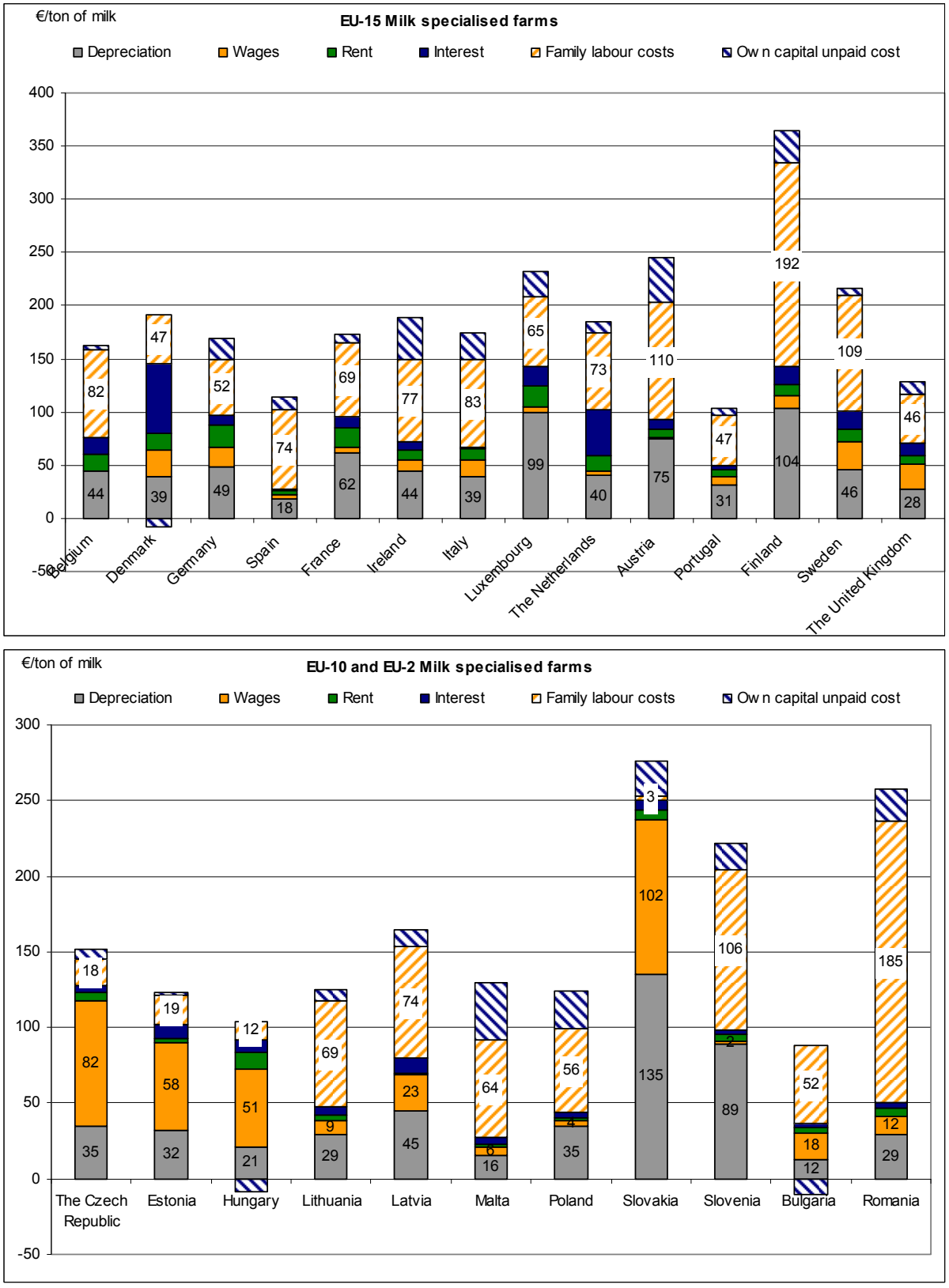
Figure 13: 2007 average net margin by Member State



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

On the other hand, **family labour costs** are very high in Finland (192 €/t), Austria and Sweden (mainly due to the high level of wages) and also in Romania (185 €/t) and Slovenia (but due to the high family labour input).

Figure 14: Breakdown of non-operating costs by Member State in 2007



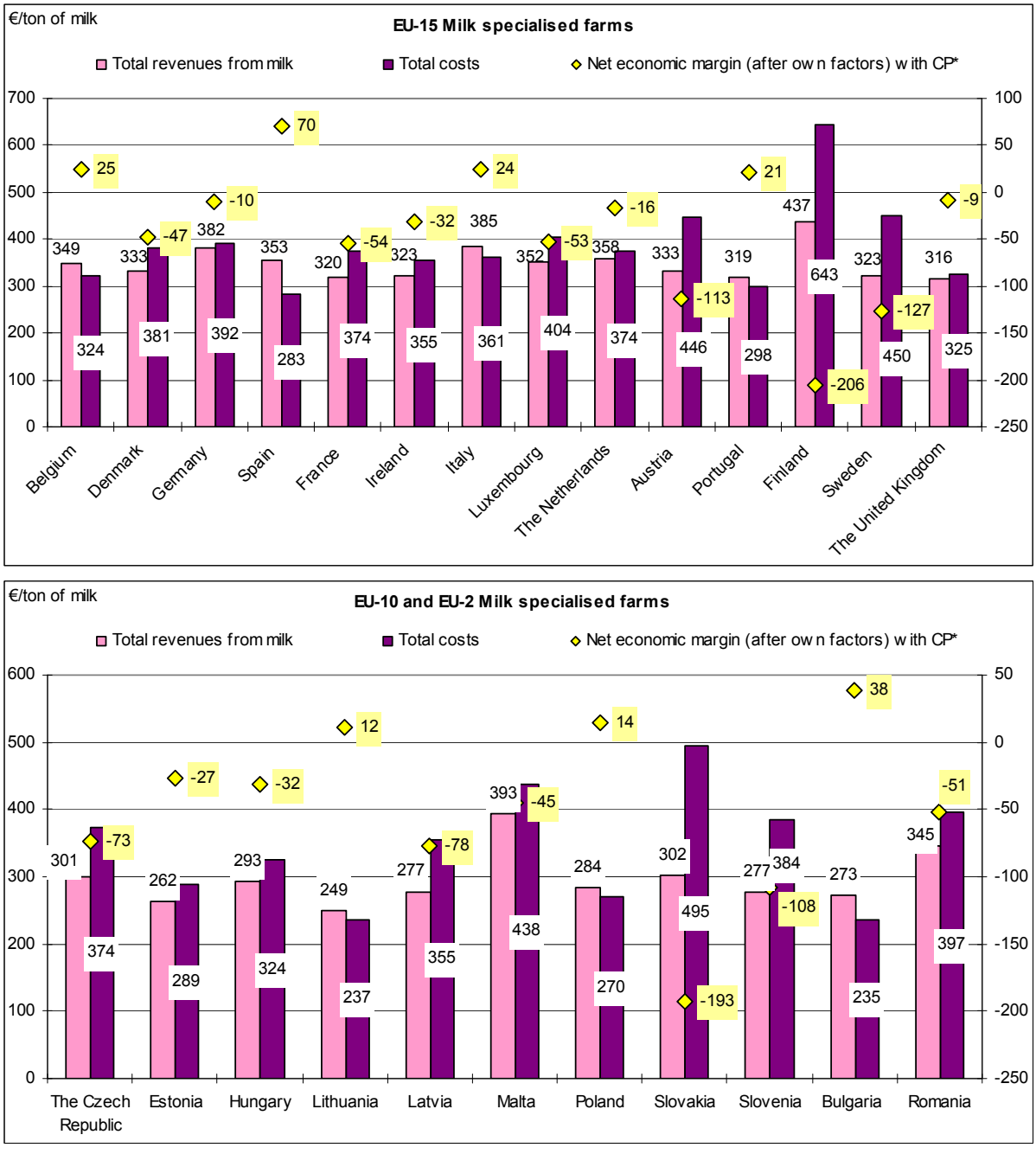
Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

Own capital unpaid costs, i.e. the interest the owner would have to pay if he were to borrow all the money to buy his assets (or the interest the farmer would get if he were to put all his money in the bank instead of investing in agriculture) are high in Austria (42 €/t) and Ireland

(40 €/t). By contrast, they are very low – sometimes even negative – in Bulgaria (-10 €/t), Hungary (-8 €/t) and Denmark (-8 €/t). This means that for this year, in these Member States, it was more profitable in practice to invest in agriculture than to deposit the money in the bank.

After deduction of all costs (cash costs and imputed own factors), the resulting **average net economic margin** is negative in a majority of Member States. However, it remains positive in some, notably **Spain** (70 €/t in 2007), **Bulgaria** (38 €/t), **Belgium** (25 €/t) and **Italy** (24 €/t). In Spain this is due to due to the low level of each of the non-operating costs (depreciation, external factors and imputed family factors). In Bulgaria, depreciation is very low and the own capital cost is in reality a benefit.

Figure 15: 2007 average net economic margin by Member State



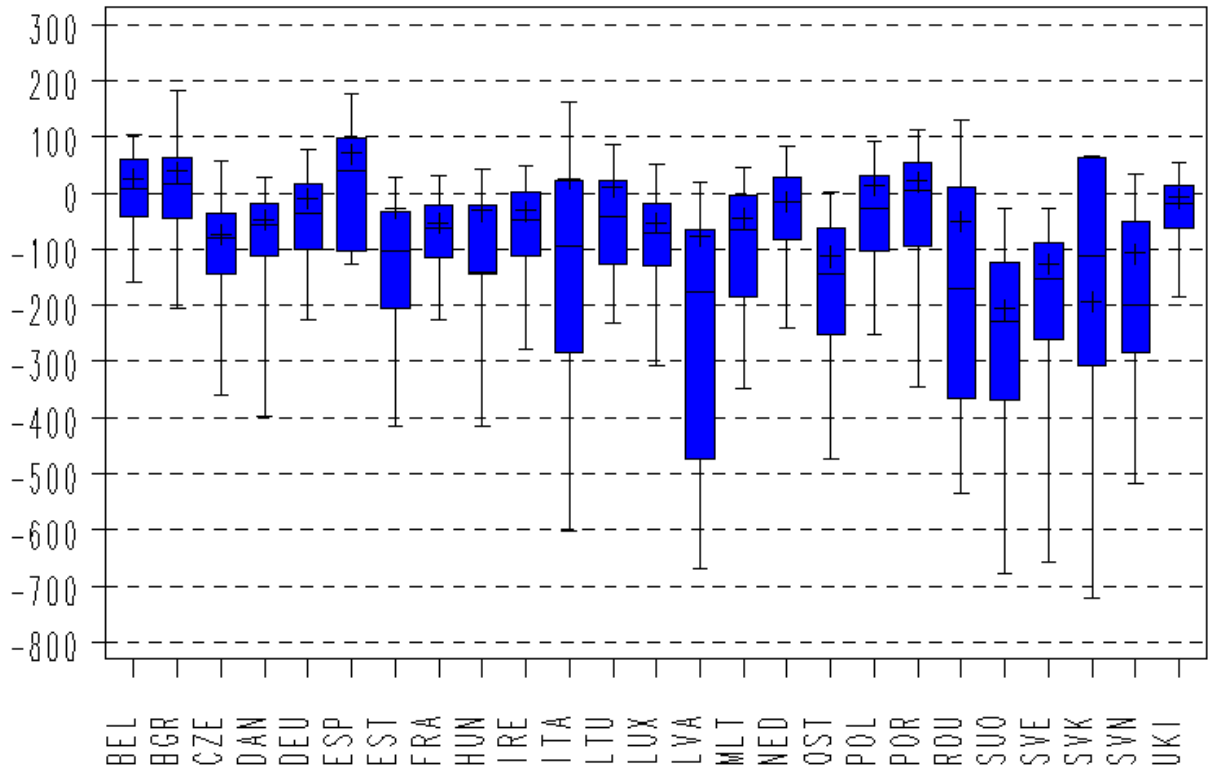
Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

The net economic margin is particularly low on average in **Finland** (-206 €/t), **Slovakia** (-193 €/t[15]), **Sweden** (-126 €/t), **Austria** (-113 €/t) and **Slovenia** (-108 €/t). In Finland this is both due to high depreciation and family labour costs. In Austria, Sweden and Slovenia, this mainly due to high family labour costs. In Slovakia, high depreciation and wages are the explanatory factors.

Figure 16 illustrates the distribution of the **net economic margins for milk** by Member State in 2007. The widest distributions are observed in Slovakia, Latvia, Romania, but also to a lesser extent in Italy and Finland. For these Member States the average margin is not sufficient as an indicator of the diversity of the situation in the country. The range of values is more concentrated in the United Kingdom, France, Belgium and Germany. The majority of the Member States still have averages above the median. For example, in Italy the average net economic margin is 24 €/t, but the median is around -100 €/t, which means that 50% of Italian farms specialised in milk production have a net economic margin that is lower than -100 €/t. The exception is Slovakia, where the average is -193 €/t, but the median is around -110 €/t.

Figure 16: Distribution of the milk net economic margins by Member State in 2007

€/tonne



Source: EU FADN – DG AGRI, Model of the allocation of milk costs.

The **margin analysis at national level** shows that good margin results might be driven by a wide range of factors among the Member States, including: maximisation of milk price (high value added milk and milk products), minimisation of costs, good balance between price and

[15] In Slovakia, national experts explain the subsistence of the farms despite negative net margins by the fact that farms are often big structures with a lot of other gainful activities (other than agriculture) which compensate for the loss in agriculture, and that the farms may keep workers on the farm for social reasons (especially in Slovakia).

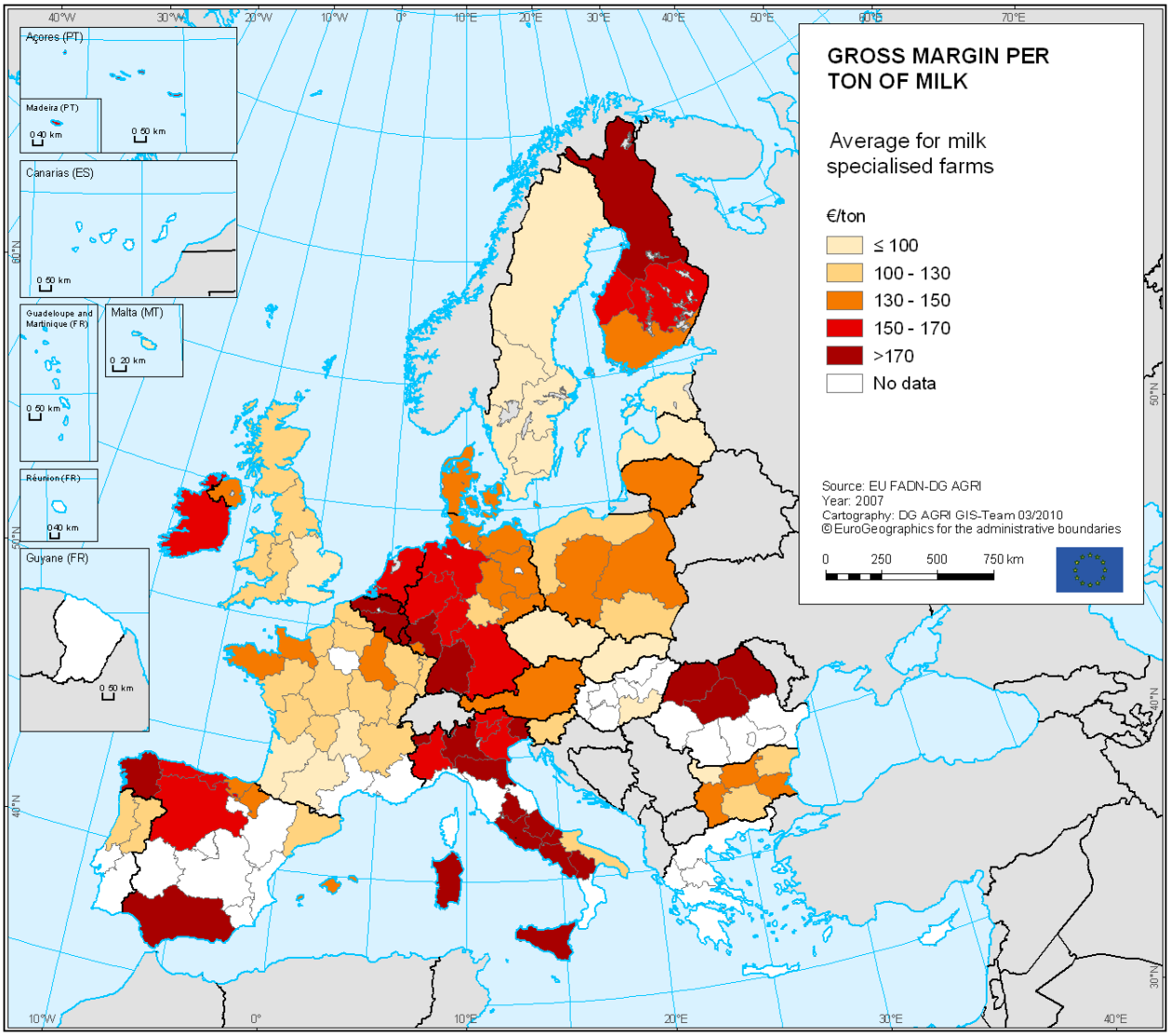
costs, cost strategies (more use of external factors or of own factors), farm size, and so on. Italy, Belgium and Spain demonstrate good results for all margins (in €/t), which is not the case in Romania, for example, where - despite showing the best gross margin (thanks to low operating costs) - there is a very low net economic margin (small size does not permit economies of scale for fixed costs). The highest impacts of the **dairy crisis** are estimated for Malta, Latvia, Hungary, Slovakia, the Czech Republic, Estonia, Germany and Ireland. The weight of the explaining factors may differ from one Member State to the other: a combination of milk price fall and rise in feed costs (Ireland), or mainly the milk price drop (Hungary, Slovakia and Germany), or mostly the rise in production costs (Malta).

3.3. Regional level

The following two **maps** show the average **milk gross margin** and **net economic margin** respectively (both with coupled support) by region in 2007. Where there are not enough farms in the sample (i.e. fewer than 15 farms), the data are not displayed. These maps illustrate the high variability of milk margins between regions, especially in certain Member States such as Spain, Italy, and Germany. On the other hand, the regional margin in €/t appears more homogeneous in Sweden, the United Kingdom and Poland.

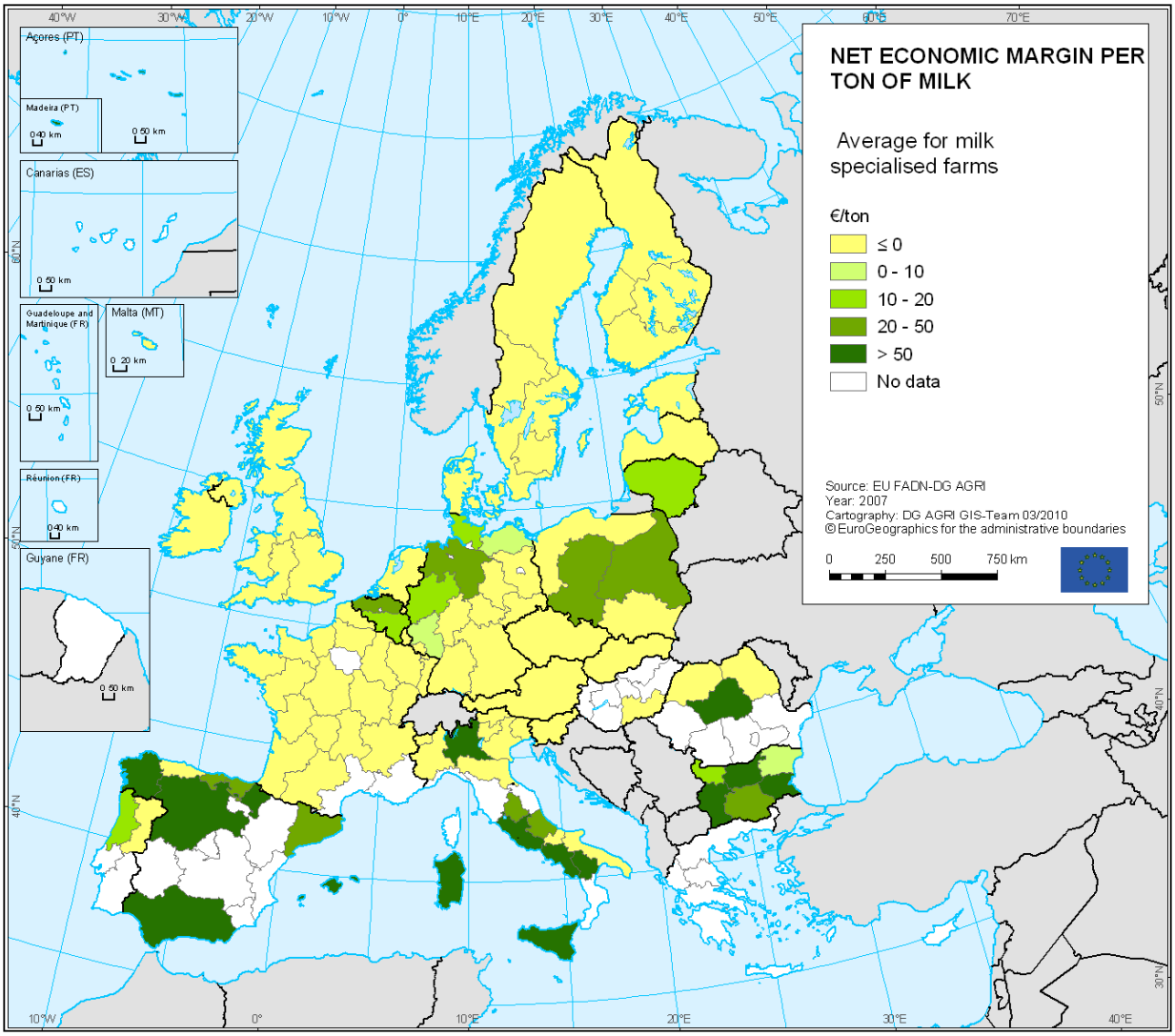
Regionally, the highest 2007 gross margins are observed in some regions of **Italy** (*Campania* 306 €/t, *Lazio* 289 €/t*, Basilicata* 285 €/t and *Molise* 279 €/t). They are also high in the *Centru* region of **Romania** (279 €/t). The lowest regional gross margins are found in *Del-Alfold* (54 €/t, Hungary), *Aquitaine* (69 €/t, France) and *Lan I norra* (67 €/t, northern Sweden). The highest regional net economic margins are found in *Lazio* (144 €/t), *Campania* (126 €/t) (Italy), *Andalucia* (124 €/, Spain) and *Centru* (124 €/t, Romania). In the Finnish regions, northern Sweden and Slovakia, on the other hand, levels are very low.

Map 1



For **Germany**, it is interesting to note the disparity in the margin between eastern and western regions, even though - as the previous report observed - the gap seems to be gradually narrowing. Some years ago, the disparity was very visible, with higher production costs and lower margins in the eastern *Länder*. Although there are still differences between west and east in terms of average structure, with the large farms being in the eastern regions it does appear that these regions have at least partially closed the gap in terms of production costs and margins. The regional gross margin ranges from 130 €/t in *Thueringen* to 171 €/t in *Rheinland-Pfalz* and *Baden-Württemberg*.

Map 2



In **Spain**, the regional gross margin ranges from 125 €/t in *Cataluña* to 228 €/t in *Galicia*. In these two regions, the difference in the gross margin (over operating costs) can be correlated to a clear difference of structure: *Galicia* is characterised by an average herd size of 21 dairy cows and a milk yield of 6 516 kg/cow, whereas *Cataluña* farms specialising in milk have an average of 85 dairy cows, with a milk yield of 9 282 kg/cow. This might reflect the very different orientation of the milk sector in the two regions.

In **Italy**, the regional milk price ranges from 352 €/t in *Veneto* to 479 €/t in *Valle d'Aoste*, which is the highest regional milk price among the EU regions studied. *Valle d'Aoste* also holds the record for the lowest average milk yield (3 269 kg/cow). However, production costs, especially non-operating costs, are very high. That is why the average net economic margin is low (-221 €/t), despite an excellent gross margin (270 €/t). This is a region geared to the production of a high value-added cheese (*Fontina*) with a Protected Designation of Origin (PDO) and requiring very specific production methods (in particular the use of the local *Valdostana* breed of cow). The PDO cheese producing regions generally have a high average milk price. The regional margins also vary considerably in Italy, and they do not necessarily follow the milk price, owing to differences in production costs linked to different production methods and possible requirements for the PDO.

4. INCOME ANALYSIS

In this chapter, we study the following **income indicators**:

- Farm Net Value Added (FNVA) equals total output (total production value), plus direct payments minus intermediate consumption and depreciation. It corresponds to the amount available to remunerate all fixed production factors (land, labour and capital), either owned by the farm or external;

- Farm Net Income (FNI) equals FNVA minus external factors, plus balance on subsidies and taxes on investments. It is the amount available to remunerate the family factors (labour, land and capital);

- Economic profit (EP) equals FNI minus imputed family factors. It represents the amount remaining after remuneration of all production factors.

These indicators are expressed **per Annual Work Unit** (AWU) to take account of the differences in the total labour force remunerated on the holding. All income indicators are calculated before deduction of income taxes and expressed in current €.

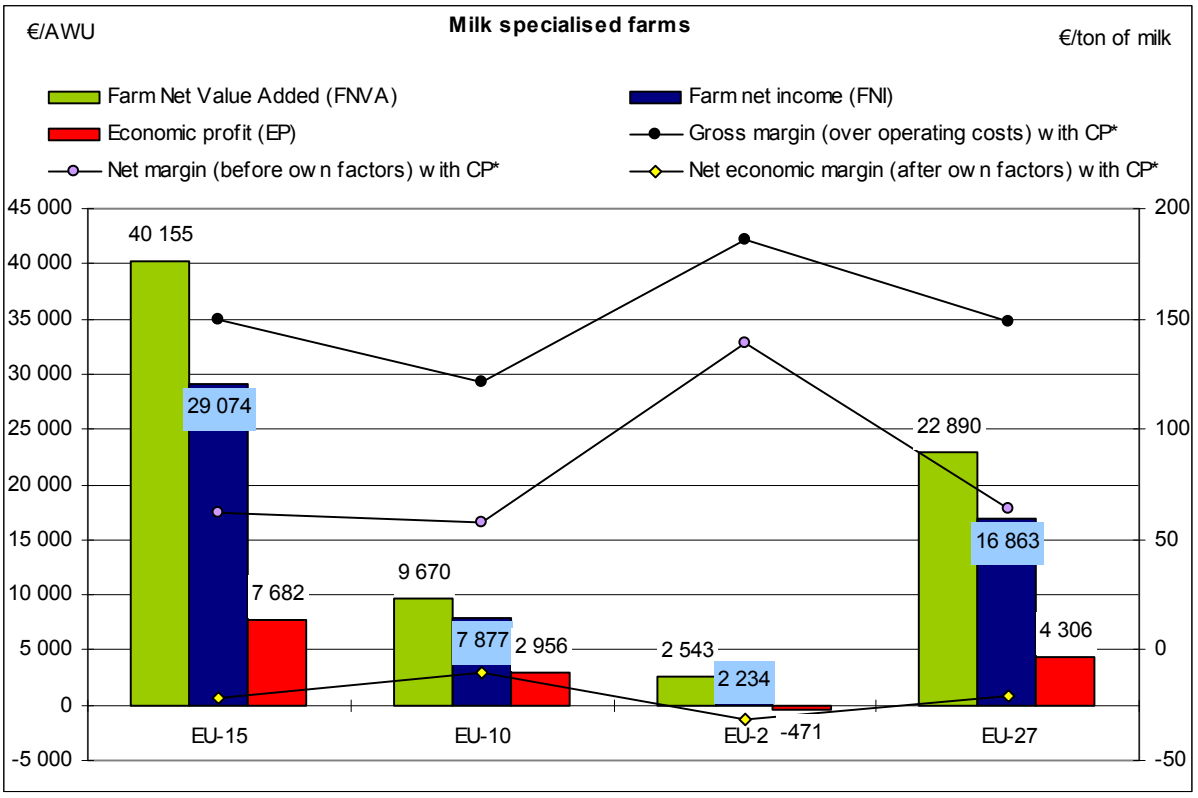
4.1. EU groups level

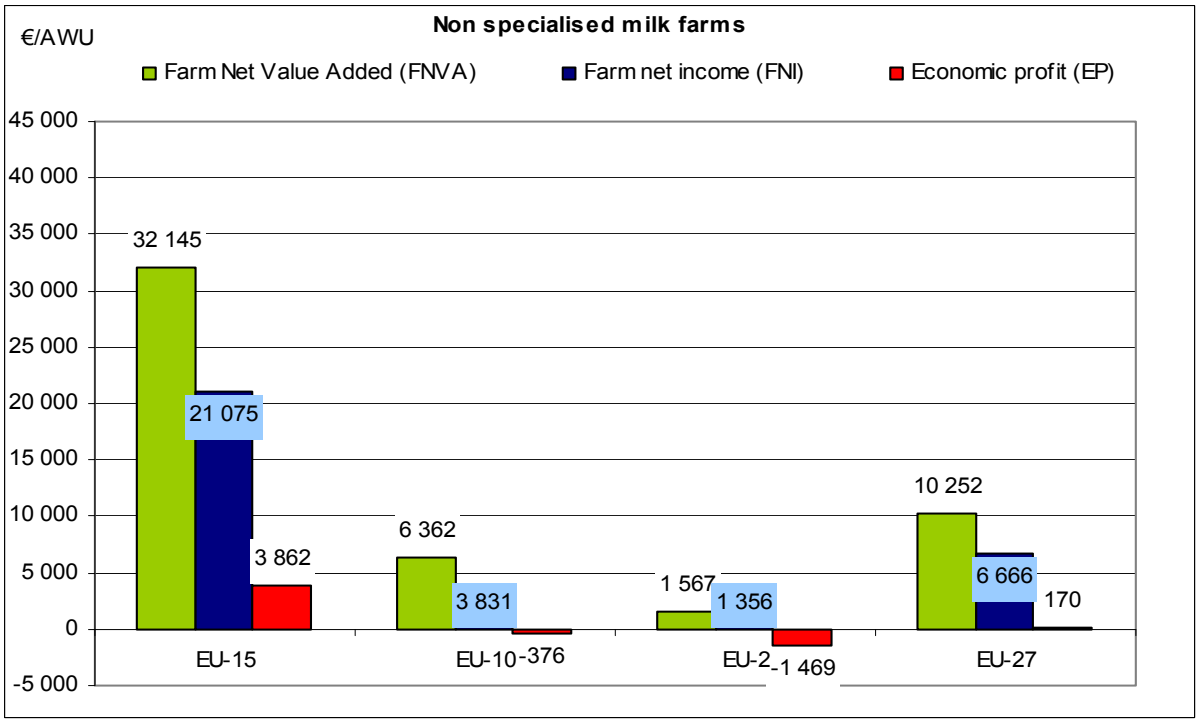
4.1.1. 2007 average by EU group

Figure 17 presents the average results of **income for the milk specialised farms and non-specialised farms** in the EU-15, EU-10, EU-2 and EU-27 for 2007. The margins are also indicated on the graph for specialised farms: the gross margin (€/t) can indeed be compared to the FNVA (€/AWU), the net margin to FNI and the net economic margin to EP. It shows that in 2007, for both specialised and non-specialised milk farms, income indicators (FNVA, FNI and EP, per AWU) are all significantly higher in the EU-15 than in the EU-10. The average FNVA/AWU in the EU-15 is four times that of the EU-10. The indicators are also significantly higher in the EU-10 than in the EU-2.

The income **gap between specialised and non-specialised farms** must also be emphasized. It is especially wide in the **EU-10** and in the EU-2, where non-specialised farms account for 44% and 24% of the milk production respectively (see Table 7). In the EU-10, the FNVA/AWU of non-specialised farms is 34% lower than that of the specialised farms. In the EU-2, it is 38% lower.

Figure 17: Income and margins for milk farms in the EU 2007





Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

The graph shows that there is not always a strict correlation between high margin (€/t) and high income (€/AWU). For example, EU-2 has very good average gross margin (186 €/t) and net margin (139 €/t), but very low FNVA/AWU and FNI/AWU, due to very low production volumes (20 t per farm per year on average, see Table 7).

Table 7: Structural information and income indicators by EU group 2007

Milk specialised farms	EU-15	EU-10	EU-2	EU-27
% total production	***87%***	***56%***	***76%***	***83%***
Forage area - ha	46	22	4	29
Dairy cows - LU	51	18	5	31
Land in own occupation - %	39%	54%	53%	42%
Total labour - AWU	1.87	2.14	1.88	1.92
Family labour - %	84%	81%	91%	86%
Milk yield - kg/cow	7 018	5 567	3 889	6 707
Milk production - t	**355**	**102**	**20**	**208**
in€/AWU				
Total output	91 142	20 907	5 031	51 529
Intermediate consumptions	54 005	12 151	2 728	30 410
Balance subsidies and taxes	14 950	3 584	654	8 431
Gross Farm Income (GFI)	**52 088**	**12 340**	**2 957**	**29 550**
in€/AWU				
Depreciation	11 933	2 670	414	6 660
Farm Net Value Added (FNVA)	**40 155**	**9 670**	**2 543**	**22 890**
Wages	3 397	1 339	187	2 030
Rent	3 751	258	76	1 964
Interest	3 736	303	47	1 957
External factors	10 884	1 901	311	5 950
Balance investments subsidies and taxes	-197	108	2	-78
Farm net income (FNI)	**29 074**	**7 877**	**2 234**	**16 863**
in€/AWU				
Family labour costs	17 495	3 666	2 465	10 275
Own capital unpaid cost	3 897	1 256	240	2 281
Imputed family factors	21 392	4 921	2 705	12 556
Economic profit (EP)	**7 682**	**2 956**	**-471**	**4 306**
%spe.farms with positive profit	*55%*	*56%*	*30%*	*47%*
%spe.farms' milk production with positive profit	*71%*	*78%*	*52%*	*71%*

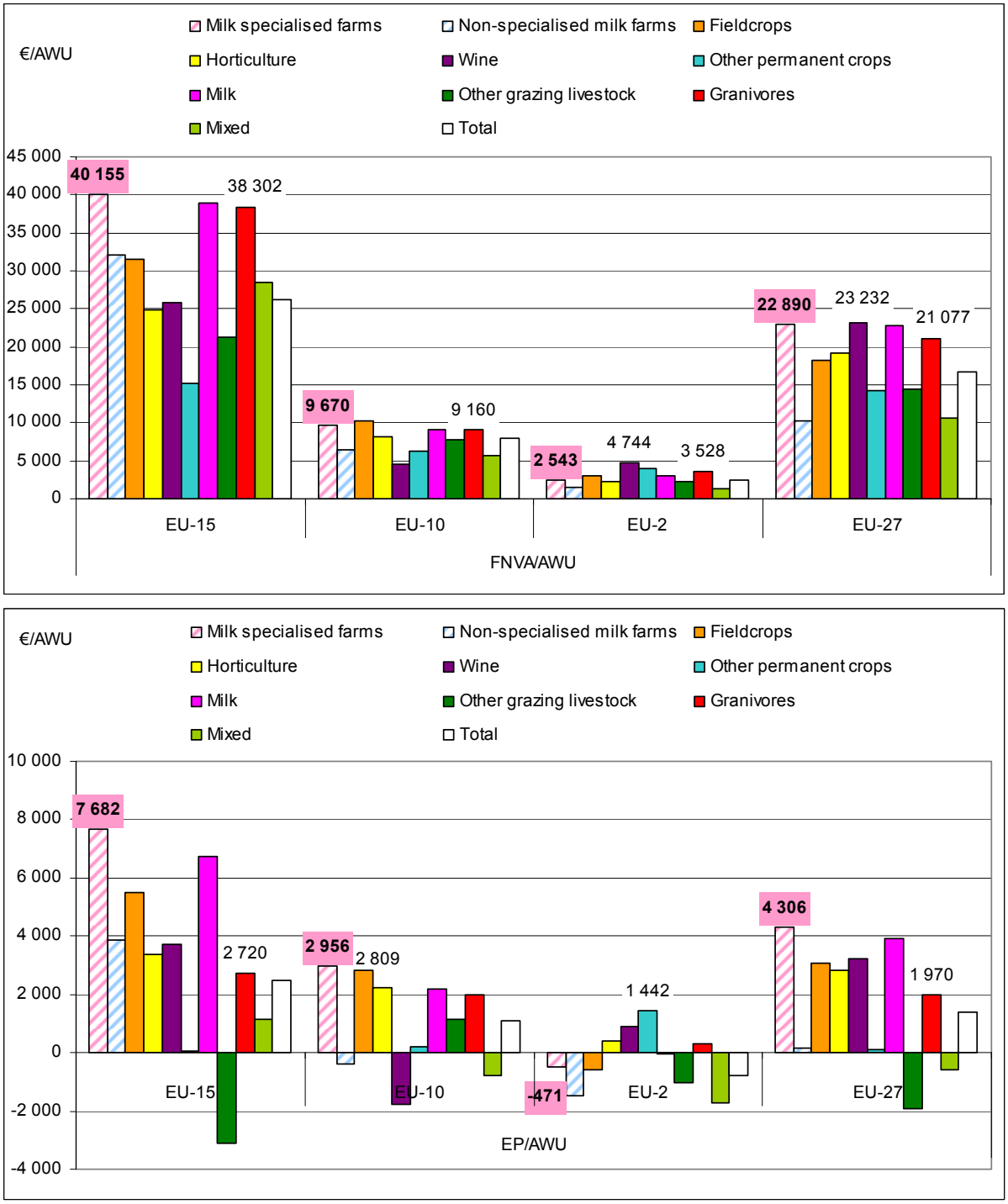
Non-specialised milk farms	EU-15	EU-10	EU-2	EU-27
% total production	***13%***	***44%***	***24%***	***17%***
Forage area - ha	39	13	3	16
Dairy cows - LU	25	8	3	10
Land in own occupation - %	27%	44%	75%	37%
Total labour - AWU	1.91	2.04	2.12	2.04
Family labour - %	80%	76%	94%	82%
Milk yield - kg/cow	6 327	4 771	3 254	5 523
Milk production - t	**160**	**38**	**8**	**57**
in€/AWU				
Total output	74 346	15 931	3 538	24 256
Intermediate consumptions	46 174	10 637	2 060	15 371
Balance subsidies and taxes	15 249	3 352	358	4 898
Gross Farm Income (GFI)	**43 420**	**8 646**	**1 836**	**13 784**
in€/AWU				
Depreciation	11 276	2 284	269	3 532
Farm Net Value Added (FNVA)	**32 145**	**6 362**	**1 567**	**10 252**
in€/AWU				
Wages	4 617	2 089	169	2 007
Rent	4 086	294	31	1 008
Interest	2 344	216	10	598
External factors	11 047	2 599	211	3 613
Balance investments subsidies and taxes	-23	68	0	27
Farm net income (FNI)	**21 075**	**3 831**	**1 356**	**6 666**
in€/AWU				
Family labour costs	14 011	3 289	2 545	5 302
Own capital unpaid cost	3 202	918	280	1 194
Imputed family factors	17 213	4 207	2 825	6 496
Economic profit (EP)	**3 862**	**-376**	**-1 469**	**170**
%non-spe.farms with positive profit	*49%*	*25%*	*16%*	*27%*
%non-spe.farms' milk production with positive profit	*72%*	*60%*	*32%*	*66%*

For all farms producing milk	EU-15	EU-10	EU-2	EU-27
% farms with positive profit	*53%*	*35%*	*24%*	*39%*
% milk production with positive profit	*71%*	*70%*	*47%*	*70%*

Source: EU FADN – DG AGRI

The share of milk farms (specialised and non-specialised together) with positive Economic Profit is also higher in the EU-15 (53% in 2007, accounting for 71% of milk production) than in the EU-10 (35% of farms, accounting for 70% of milk production), and is only 24% (producing 47% of milk production) in the EU-2. Based on ***2007 data***, **39% of EU-27 milk farms** have a positive economic profit, despite the fact that they represent **70% of milk production**.

Figure 18: Comparison of the income of milk farms with other farms 2007



Source: EU FADN – DG AGRI

Figure 18 shows a comparison of income in terms of FNVA/AWU and EP/AWU with the different types of farming in 2007. In all EU groups, both income indicators are higher for milk specialised farms than for the total average. On average for **EU-27**, the **FNVA/AWU** of the **milk specialised farms** is 37% higher than the total average (16 659 €/AWU). It comes second, just behind *Wine* farms (39% higher than the total average), and closely followed by *Milk* (which differs slightly from the sample studied, see section 2.6) and *Granivores*. It is noticeable that **milk non-specialised farms** have the lowest FNVA/AWU for the EU-27 on average, because a large proportion of these farms are in the EU-10 and EU-2 with lower income levels. However, the hierarchy of types of farming differs between the EU groups. Milk specialised farms generally have a good FNVA/AWU in comparison with other types of farming: it is best in the EU-15, and second best in the EU-10 (after *Fieldcrops*), whereas in the EU-2 the FNVA/AWU is exactly on the average, after *Wine*, *Other permanent crops*, *Granivores* and *Fieldcrops*.

On average for **EU-27**, the **milk specialised farms** have the **best EP/AWU** (4 306 €/AWU). This also applies to the EU-15 and EU-10 average, but not in the EU-2 where the milk specialised farms have a negative EP/AWU on average. Moreover, the EP/AWU of milk non-specialised farms is very low for the average EU-27, EU-10 and EU-2.

This shows that the milk **specialised** farms on average are in a **relatively good situation in terms of income compared with other types of farming**, except in the EU-2. This is not the case for non-specialised milk farms.

4.1.2. The trend in the EU-15

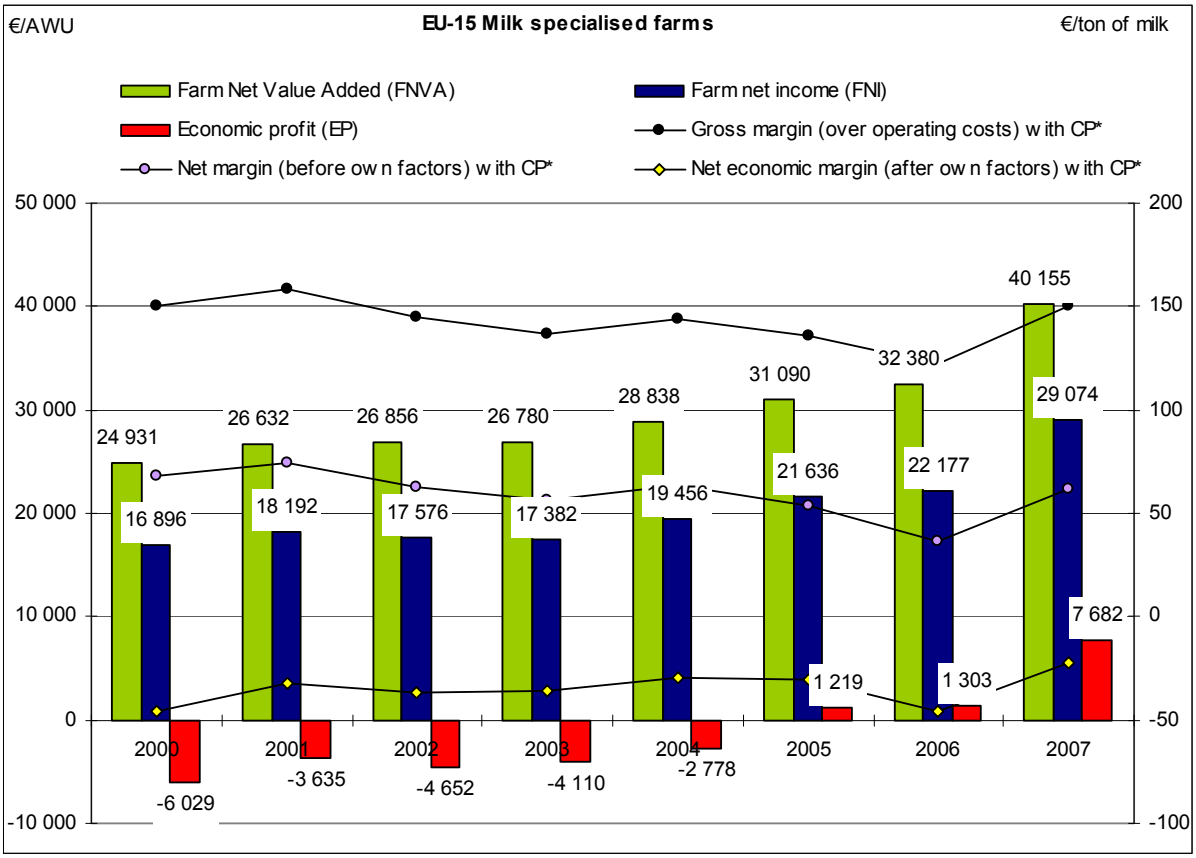
The figures displayed are expressed in current €. Figure 19 presents the **trend in the income indicators for milk farms** (specialised and non-specialised) **in the EU-15** during the period 2000-2007. For specialised farms, the margins are also indicated for information purposes. Detailed data on income by EU group are presented in Annex II.

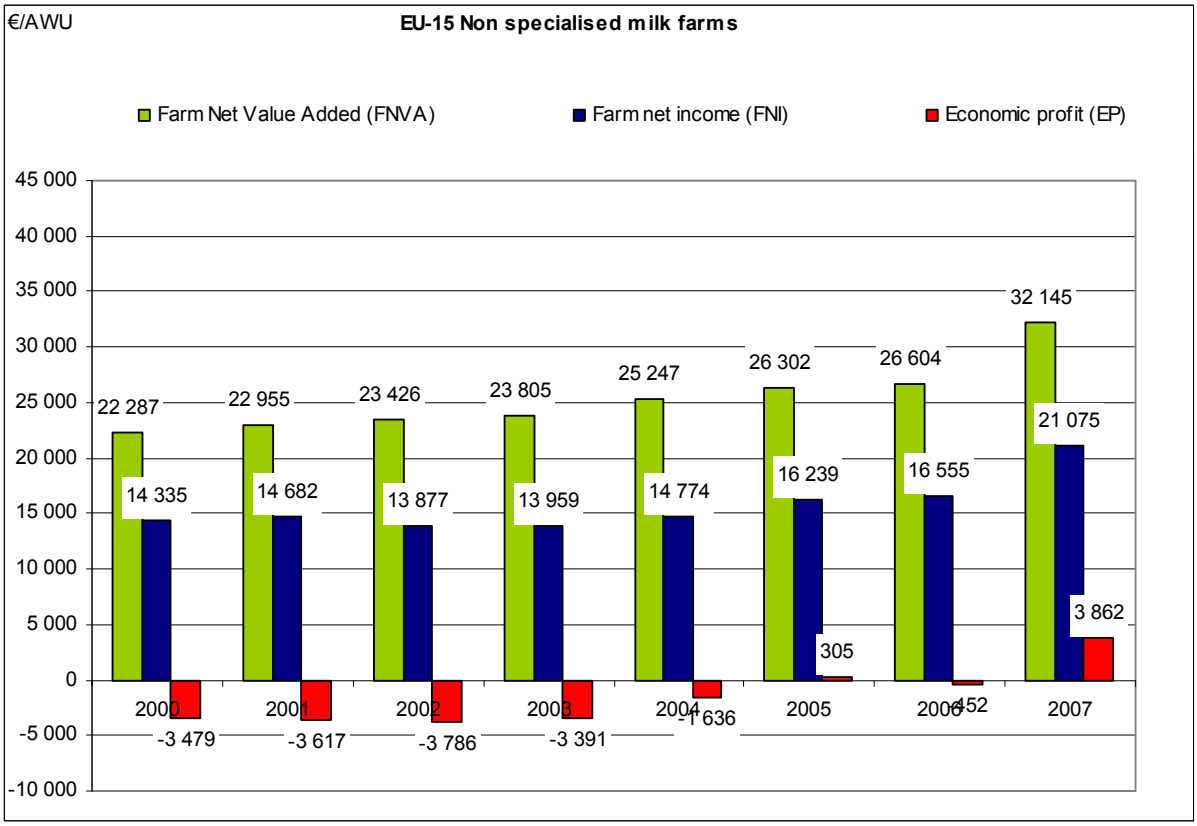
For the **milk specialised farms**, the FNVA/AWU has increased steadily over the period, with **+61% between 2000 and 2007**, from 24 931 €/AWU to 40 155 €/AWU. During the period 2001-2006, income increased despite the relative decrease of the milk margin in €/t, thanks to the increase in farm size and the gradual implementation of decoupling. The highest annual increase is observed between 2006 and 2007 thanks to the general agricultural price boom in 2007. The FNI/AWU and EP/AWU have also shown a clear increase, mainly since 2003. Between 2000 and 2007, the high increase in wages (+64%), rent (+27%) and interest paid (+28%) has been offset by the decrease in own capital unpaid cost (-39%) (see Annex II).

For the **non-specialised milk farms**, the trend is similar, but the income levels are lower: in 2007 the FNVA/AWU of non-specialised milk farms was 20% lower than for specialised farms.

Moreover, the share of milk farms with positive profit has grown regularly and significantly over the period, from 30% in 2000 to 53% in 2007 (see Table 8). These farms accounted for 42% of total milk production in 2000 and 71% in 2007.

Figure 19: Trend of income indicators for milk farms in the EU-15





Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

Table 8: Trend of EU-15 milk farms with positive Economic Profit

For all farms producing milk	2000	2001	2002	2003	2004	2005	2006	2007	2007 /2000
% farms with positive profit	*30%*	*34%*	*34%*	*32%*	*37%*	*44%*	*43%*	*53%*	*23%*
% milk production with positive profit	*42%*	*48%*	*44%*	*44%*	*50%*	*58%*	*57%*	*71%*	*29%*

Source: EU FADN – DG AGRI

4.1.3. The trend in the EU-10

Figure 20 presents the **trend in the income indicators for milk farms** (specialised and non-specialised) **in the EU-10** during the period 2004-2007.

For the **milk specialised farms**, between 2004 and 2007 both FNVA/AWU and EP/AWU have increased significantly over the period, with +69% (from 5 712 €/AWU to 9 670 €/AWU) and +167% (from 1 106 €/AWU to 2 956 €/AWU) respectively (see Annex II). This might reflect economic efficiency gains resulting from structural adaptations, the gradual rise in EU direct payments and the fact of joining the EU market. The increases in wages (+61%), rent (+71%) and family labour costs (+40%) are all important, but the increases in output (+49%) and in direct payments and subsidies (+81%) are sufficient to compensate the increases in these costs, leading to a significant increase in the EP/AWU.

For the **non-specialised milk farms**, the trend is similar, but the income levels are lower: in 2007, the FNVA/AWU of non-specialised milk farms was 33% lower than that of specialised farms. However, unlike specialised farms, their EP/AWU is negative on average for the whole period.

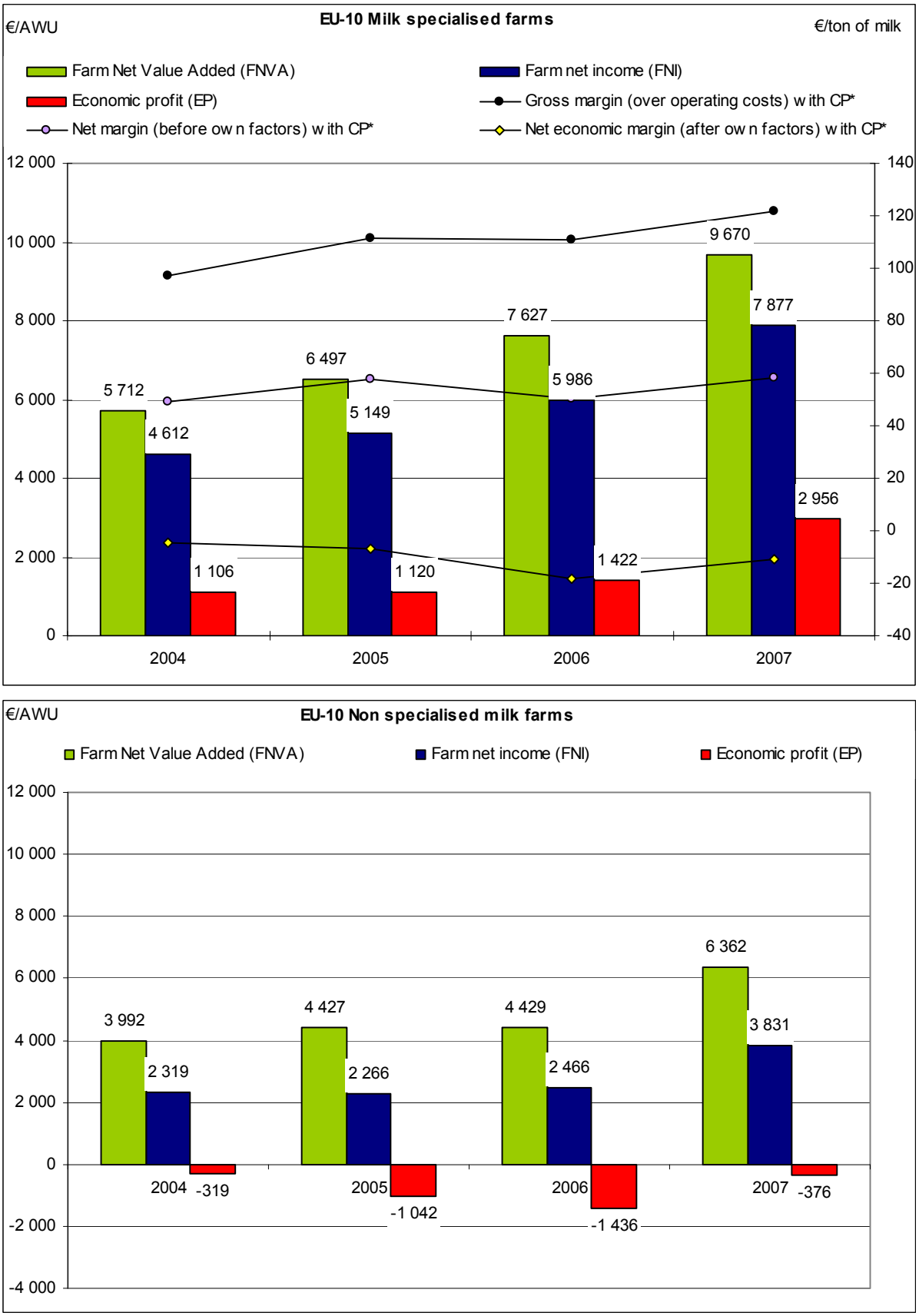
The share of milk farms with positive profit has increased slightly over the period, from 30% in 2004 to 35% in 2007 (see Table 9). These farms accounted for 64% of total milk production in 2004 and 70% in 2007.

Table 9: Trend of EU-10 milk farms with positive Economic Profit

For all farms producing milk	2004	2005	2006	2007	2007 /2004
% farms with positive profit	*30%*	*28%*	*30%*	*35%*	*4%*
% milk production with positive profit	*64%*	*60%*	*60%*	*70%*	*6%*

Source: EU FADN – DG AGRI

Figure 20: Trend of income indicators for milk farms in the EU-10



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

4.2. National level

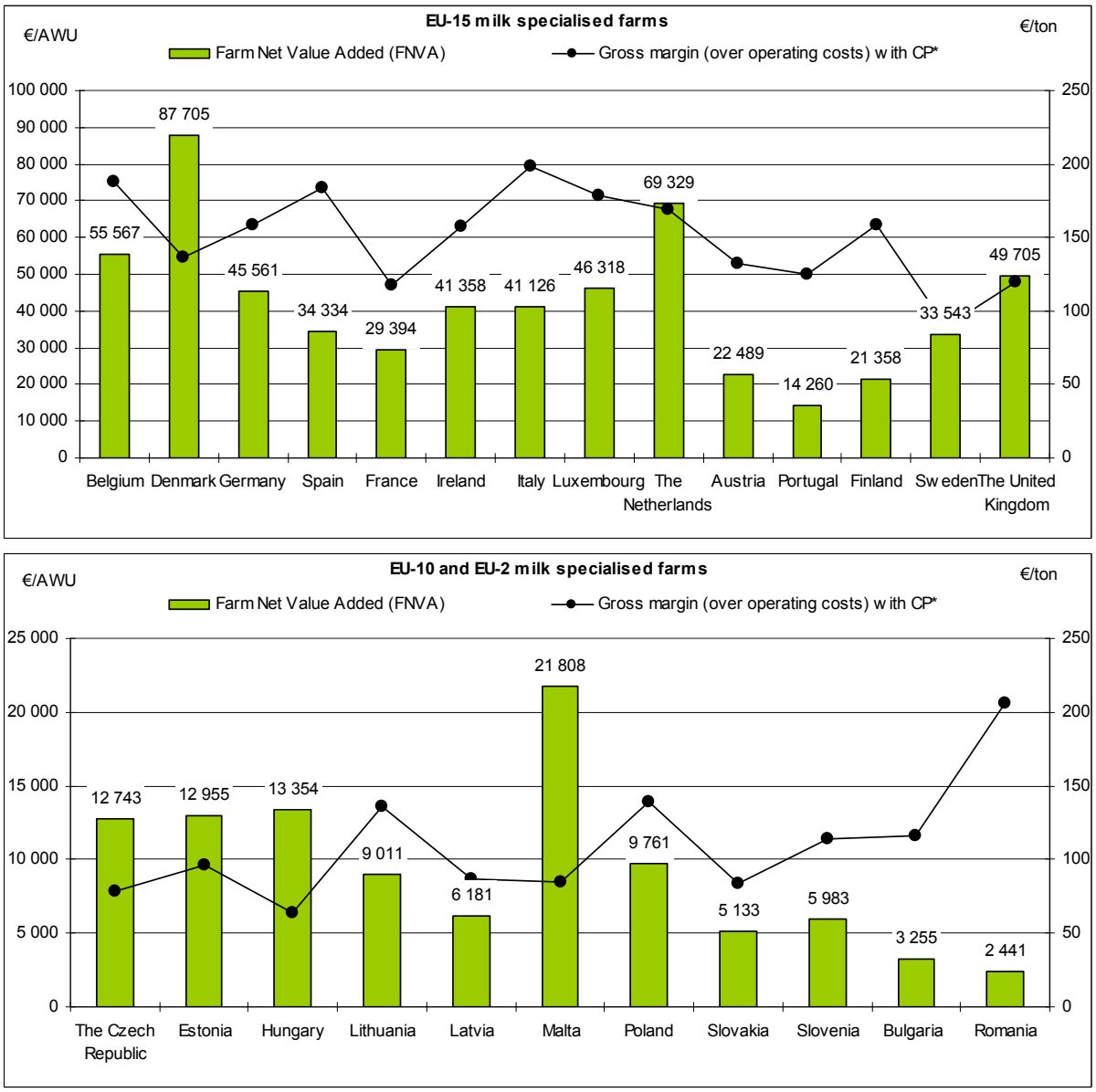
Figure 21 shows the average **FNVA/AWU** of the **milk specialised farms by Member State** in **2007**. The margins are also provided for information purposes. Detailed data by Member State are presented in Annex II.

In the **EU-15**, the highest FNVA/AWU are found in **Denmark** (87 705 €/AWU) and the Netherlands (69 329 €/AWU), followed by Belgium (55 567 €/AWU) and the United Kingdom (49 705 €/AWU). These Member States are also the ones with the biggest average dairy herds (119, 72 and 118 dairy cows/farm in 2007). The Italian milk specialised farms post the highest average gross margin, but their average FNVA/AWU is 41 126 €/AWU, just above the EU-15 average (40 155 €/AWU). Spain, which has the second highest average gross margin in €/t, has an FNVA/AWU (34 334 €/AWU) which is below the EU-15 average. The average FNVA/AWU in Germany is very good (45 561 €/AWU) by comparison with 2006 (34 483 €/AWU). It remains below the EU-15 average in France (29 394 €/AWU), which is the other major EU producer. The lowest FNVA/AWU in the EU-15 are observed in Portugal (14 260 €/AWU), Finland (21 358 €/AWU) and Austria (22 489 €/AWU), due to the smaller farm size.

In the **EU-10** and **EU-2**, the values are significantly lower. Except for Malta (21 808 €/AWU), the average FNVA/AWU for milk specialised farms in each Member State of the EU-10 is lower than the lowest FNVA/AWU of the EU-15. The lowest average FNVA/AWU of milk specialised farms is observed in **Romania** with 2 441 €/AWU, despite the excellent gross margin per tonne (206 €/t in 2007). Bulgaria has the second lowest average (3 255 €/AWU). Slovakia, Slovenia, Latvia, Lithuania and Poland have an average FNVA/AWU between 5 000 €/AWU and 10 000 €/AWU. The Czech Republic, Estonia and Hungary are doing better, with averages between 12 500 €/AWU and 13 500 €/AWU.

The degree of positive correlation between gross margin and FNVA/AWU is not equally strong in all Member States. This is mostly due to **differences in farm size**: Denmark, in particular, shows an intermediate margin (in €/t), but has the highest average FNVA/AWU due to the large size of Danish farms; Italy has the highest gross margin (over operating costs), but a medium income; Finland has a good margin, although the FNVA/AWU is relatively low in comparison with other Member States; and Romania has the best gross margin in €/t, but the lowest average FNVA/AWU because of the very small size of Romanian farms.

Figure 21: FNVA/AWU of milk specialised farms by Member State 2007



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

The box-plots of Figure 22, Figure 23, and Figure 24 illustrate the **distribution** (i.e. the range of values) **of the FNVA/AWU** for the milk specialised farms by Member State in 2007[16]. The vertical axis represents the values of the FNVA/AWU at individual level in €/AWU and the horizontal axis represents the Member States studied[17].

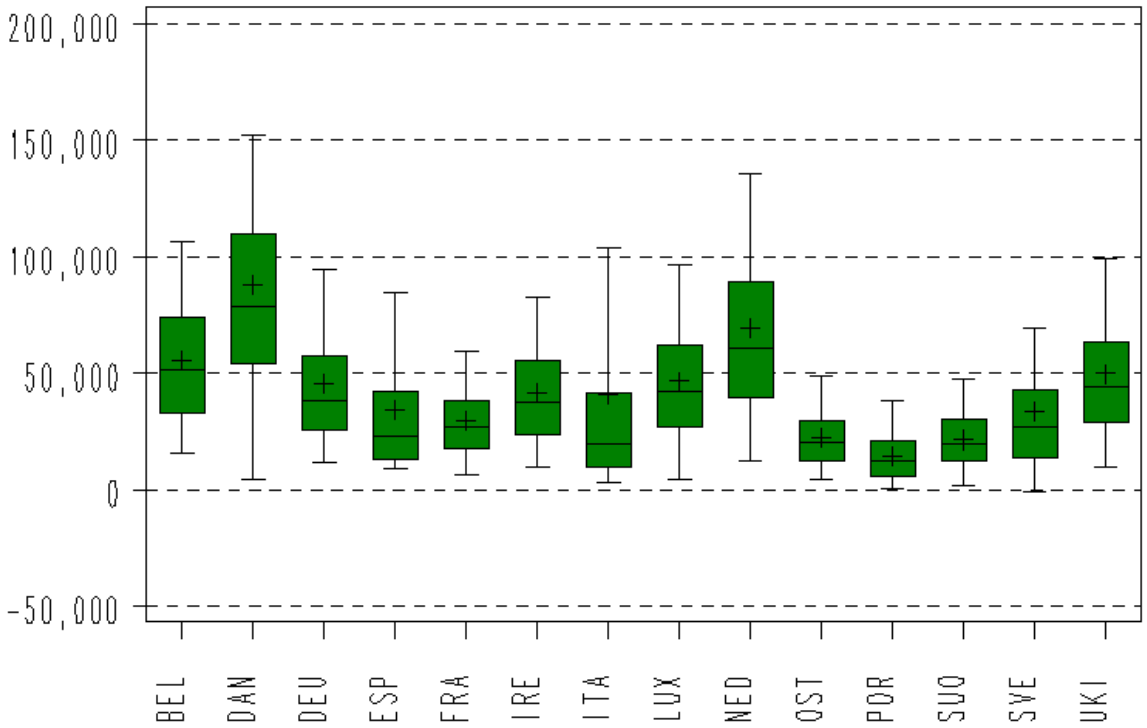
[16] The farms are ranked according to the ascending margin. The line in the box represents the median, showing that 50% of the farmers have a margin less than or equal to the median. The '+' sign represents the average margin in the Member State. The box delimits the first quartile (Q1) and the third quartile (Q3), which are the values separating respectively one quarter and three quarters of the milk specialised farms. The whiskers represent the percentiles 5 (P5) and 95 (P95). 5% of the farms have a margin of less than P5. The extreme values (below P5 and above P95) are not displayed.

[17] Data are not displayed for Cyprus and for Greece because there are not enough milk specialised farms in the sample.

The range of values of the FNVA/AWU is relatively small and concentrated around the average in most of the Member States of the EU-10 (except Malta): the Czech Republic, Estonia, Lithuania, Latvia, Poland and Slovenia. This is also the case in France, Austria, Portugal and Finland. On the other hand, the range is particularly wide in **Denmark**, the **Netherlands** and **Italy**. In Italy, the median is much lower than the average, i.e. 50% of the milk specialised farms in Italy have an FNVA/AWU lower than 25 000 €/AWU, while the average is 41 126 €/AWU.

Figure 22: Distribution of FNVA/AWU for milk specialised farms in EU-15 2007

€/AWU

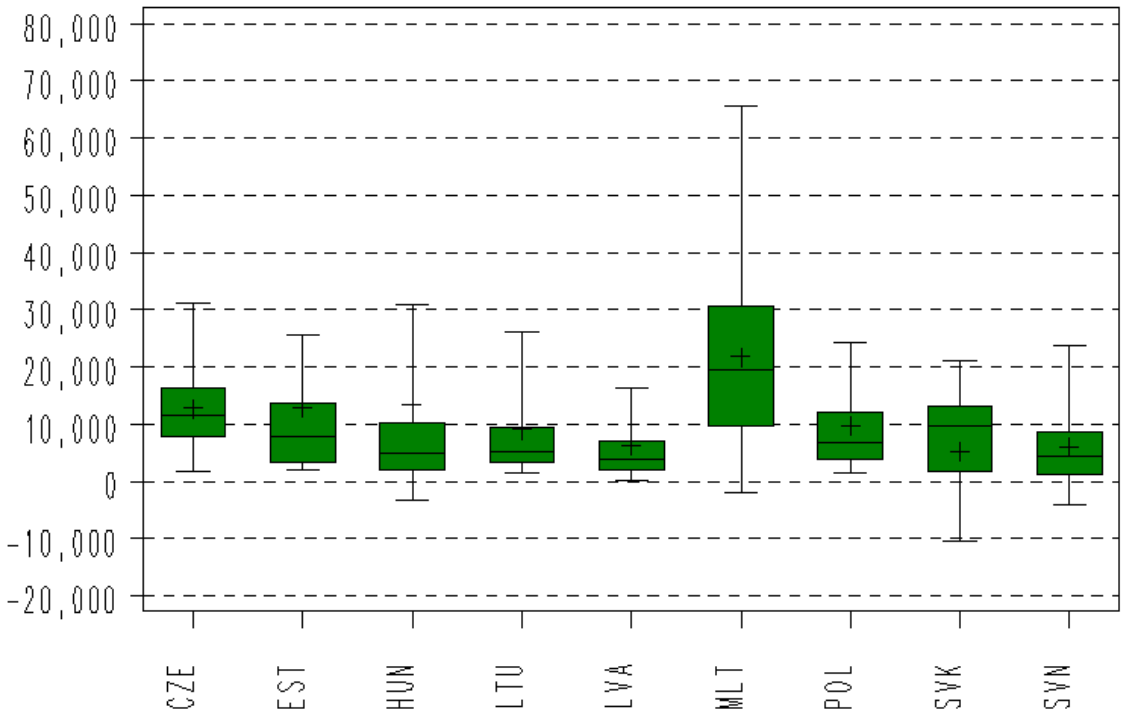


Source: EU FADN – DG AGRI

In **Bulgaria and Romania**, the average values also mask some disparities within the country, but to a lesser extent in absolute terms than in other Member States: the inter-quartile range[18] is above 50 000 €/AWU in the Netherlands and Denmark, but only a little over 2 000 €/AWU in Bulgaria and Romania. In relative terms, however, (in % of the average FNVA/AWU) the disparities are similar in both groups because the inter-quartile range corresponds to approximately 100% of the average income. In both Bulgaria and Romania the median is much lower than the average. In Romania, for example, although the average FNVA/AWU of specialised farms is 2 441 €/AWU, half of them have an FNVA/AWU below 500 €/AWU.

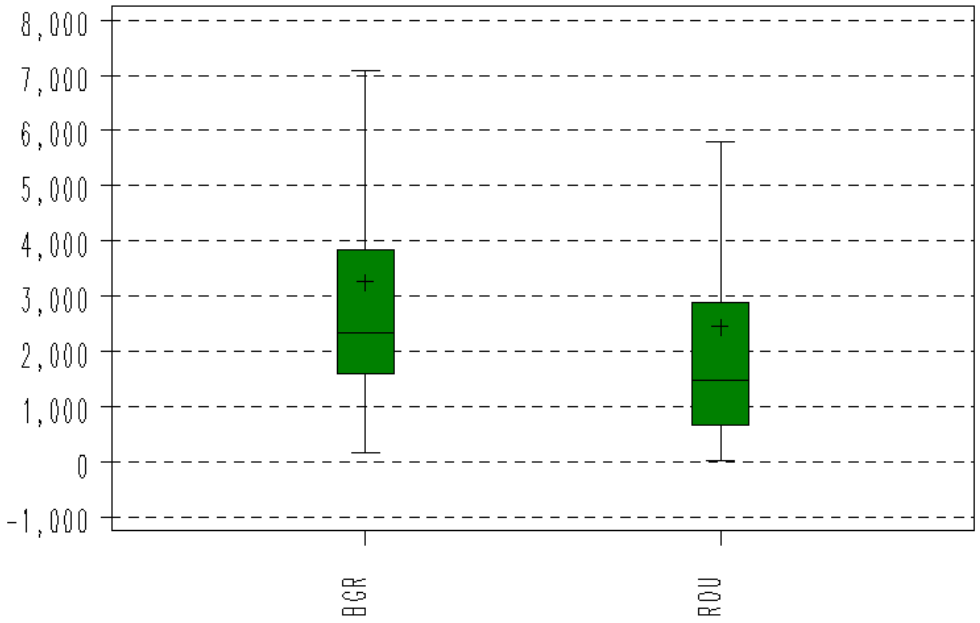
[18] The inter-quartile range is the difference between the first quartile (Q1) and the third quartile (Q3), which are the values separating respectively one quarter and three quarters of the milk specialised farms.

Figure 23: Distribution of FNVA/AWU for milk specialised farms in EU-10 2007
€/AWU



Source: EU FADN – DG AGRI

Figure 24: Distribution of FNVA/AWU for milk specialised farms in EU-2 2007
€/AWU

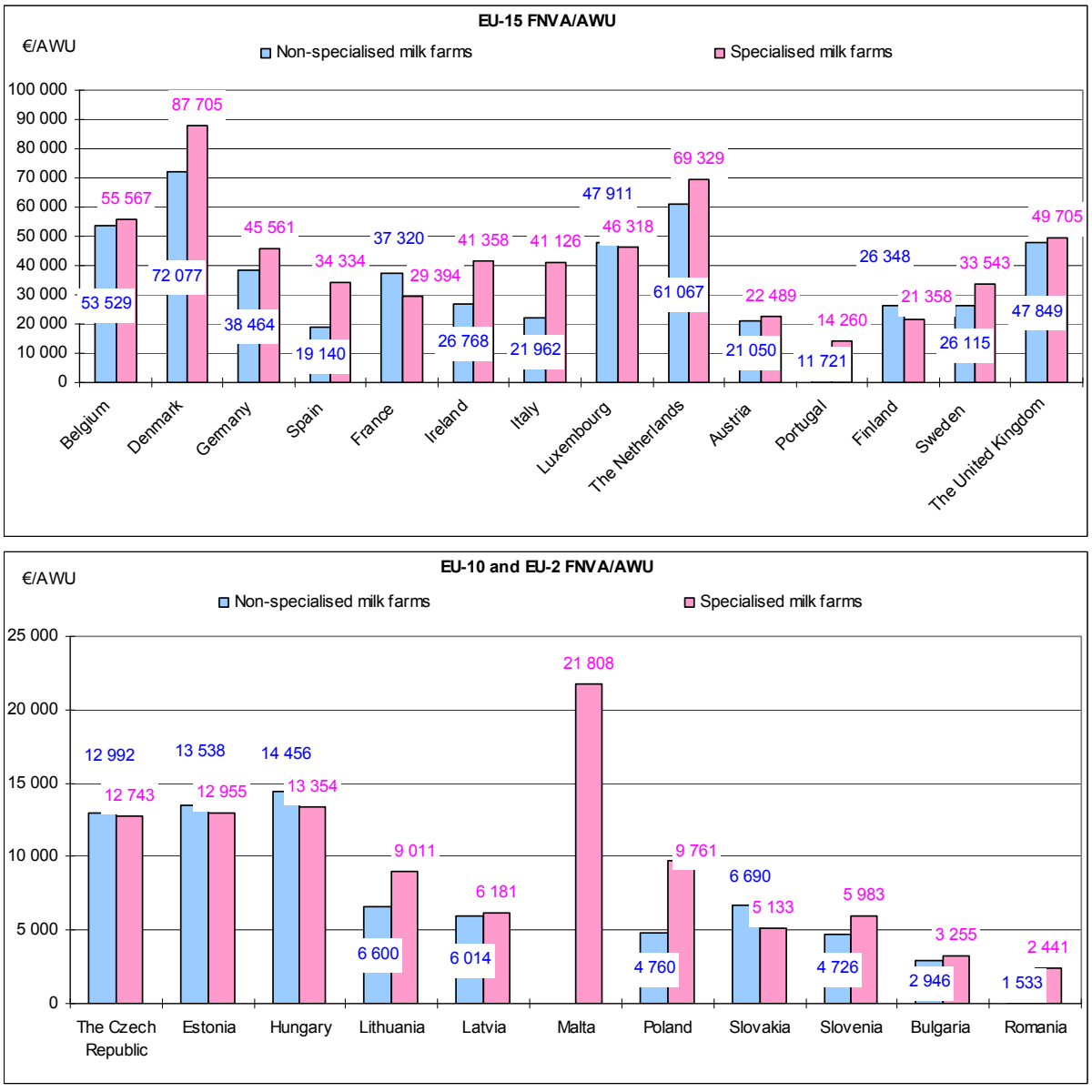


Source: EU FADN – DG AGRI

Figure 25 compares the average FNVA/AWU of **specialised and non-specialised** milk farms by Member State. In the EU-15 Member States, the FNVA/AWU of specialised farms is generally higher than for non-specialised farms. The exceptions are France, Luxembourg and Finland.

In the EU-10 Member States, non-specialised farms have a better FNVA/AWU on average than specialised ones in four Member States: the Czech Republic, Estonia, Hungary and Slovakia. However, the difference between them and the specialised farms is not great.

Figure 25: FNVA/AWU of non-specialised and specialised farms by Member State 2007



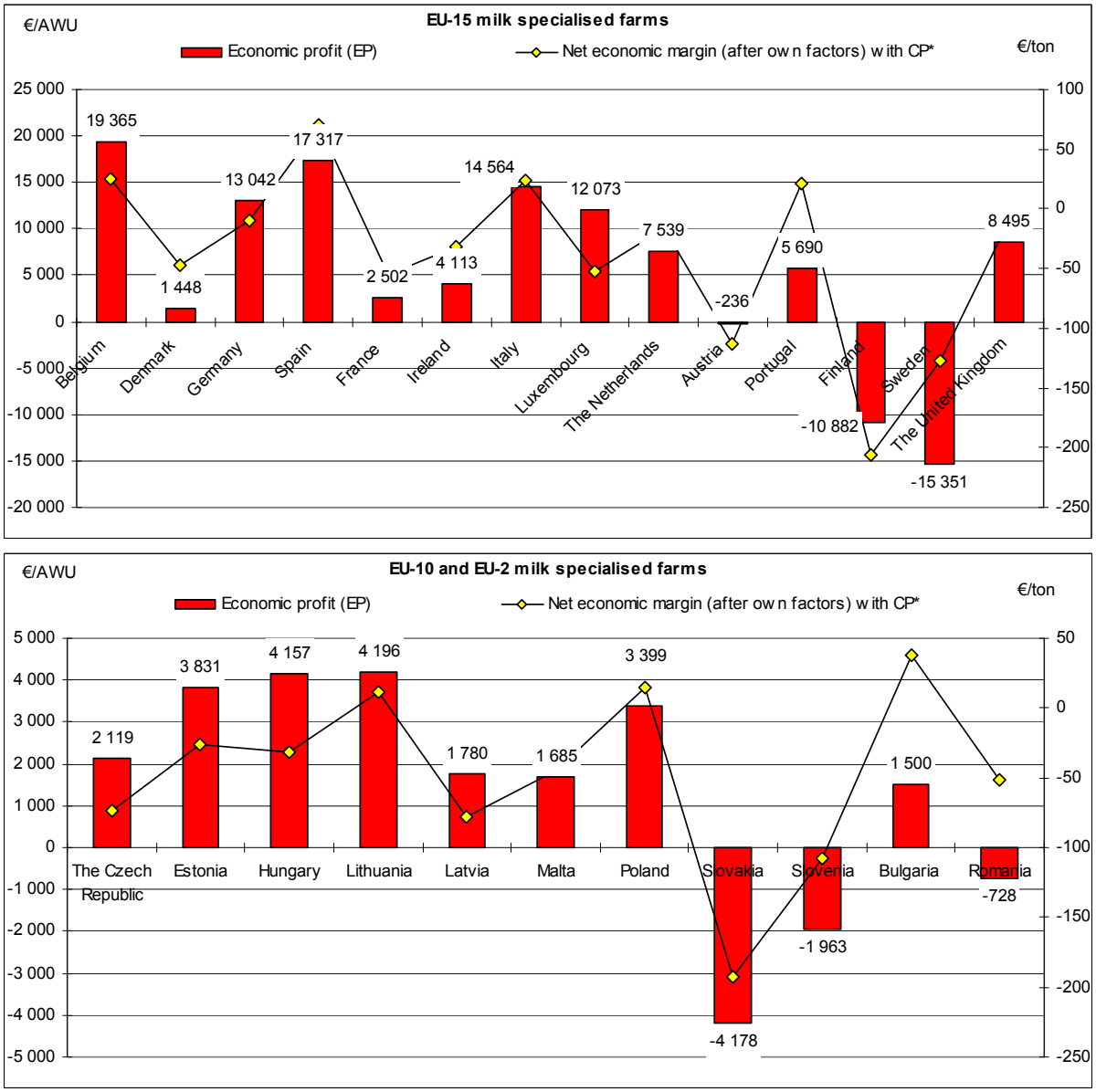
Source: EU FADN – DG AGRI

Figure 26 shows the average **EP/AWU** of the **milk specialised farms by Member State** in 2007, together with the average net economic margin. The highest 2007 **EP/AWU** figures in the **EU-15** are observed for Belgium (19 365 €/AWU), Spain (17 317 €/AWU), Italy (14 564 €/AWU), and Germany (13 042 €/AWU). In Belgium, the total output per AWU is high and external factors relatively low, hence the favourable EP/AWU. In Spain, this is due to very low depreciation[19] and external factors (wages, rent and interest paid). In Finland the

[19] However, as regards Spain, the result should be interpreted cautiously because depreciation is deemed to be underestimated in this Member State (particular depreciation method applied).

figure is negative because of high family labour costs and limited average farm size (24 dairy cows compared to 51 for the EU-15 average). In Sweden it is negative because of very high external factors and family labour costs (see Annex II).

Figure 26: Economic profit / AWU of milk specialised farms by Member State 2007



Source: EU FADN – DG AGRI, Model of the allocation of milk costs. *CP: coupled payments.

In the **EU-10** and **EU-2**, the average EP/AWU figures are positive, apart from Slovakia (-4 178 €/AWU), Slovenia (-1 963 €/AWU) and Romania (-728 €/AWU), but they remain relatively small (all are below 5 000 €/AWU). The range is from 1 500 €/AWU in Bulgaria to 4 196 €/AWU in Lithuania.

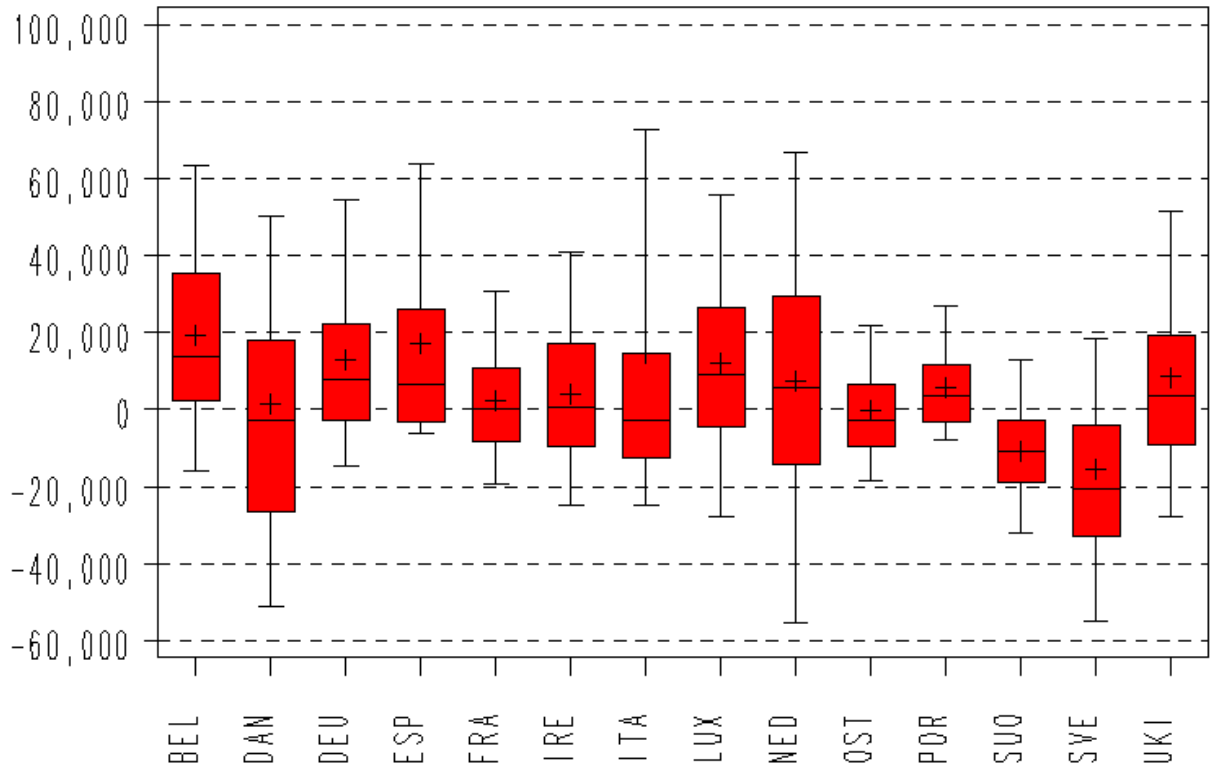
The EP/AWU ratio is positively correlated to the net economic margin (€/t), but the coefficient of correlation is not equally high in all Member States. These differences can be explained by the different farm sizes, but also by the variable weight of wages, rent and own factor costs among the Member States.

The box-plots of Figure 27, Figure 28 and Figure 29 illustrate the **distribution** (i.e. the range of values) **of the EP/AWU** for the milk specialised farms by Member State in 2007. The vertical axis represents the values of the EP/AWU at individual level in €/AWU and the horizontal axis represents the Member States studied[20].

Similarly to FNVA/AWU, the range of values of the EP/AWU is relatively small and concentrated around the average in France, Austria, Portugal and Finland, and in most Member States of the EU-10 (except Malta). It is particularly wide, on the other hand, in **Denmark**, the **Netherlands** and **Italy**. In the latter country, the median is much lower than the average, i.e. 50% of the milk specialised farms have an EP/AWU lower than -1 000 €/AWU, while the average is 14 564 €/AWU.

Figure 27: Distribution of EP/AWU for milk specialised farms in EU-15 2007

€/AWU

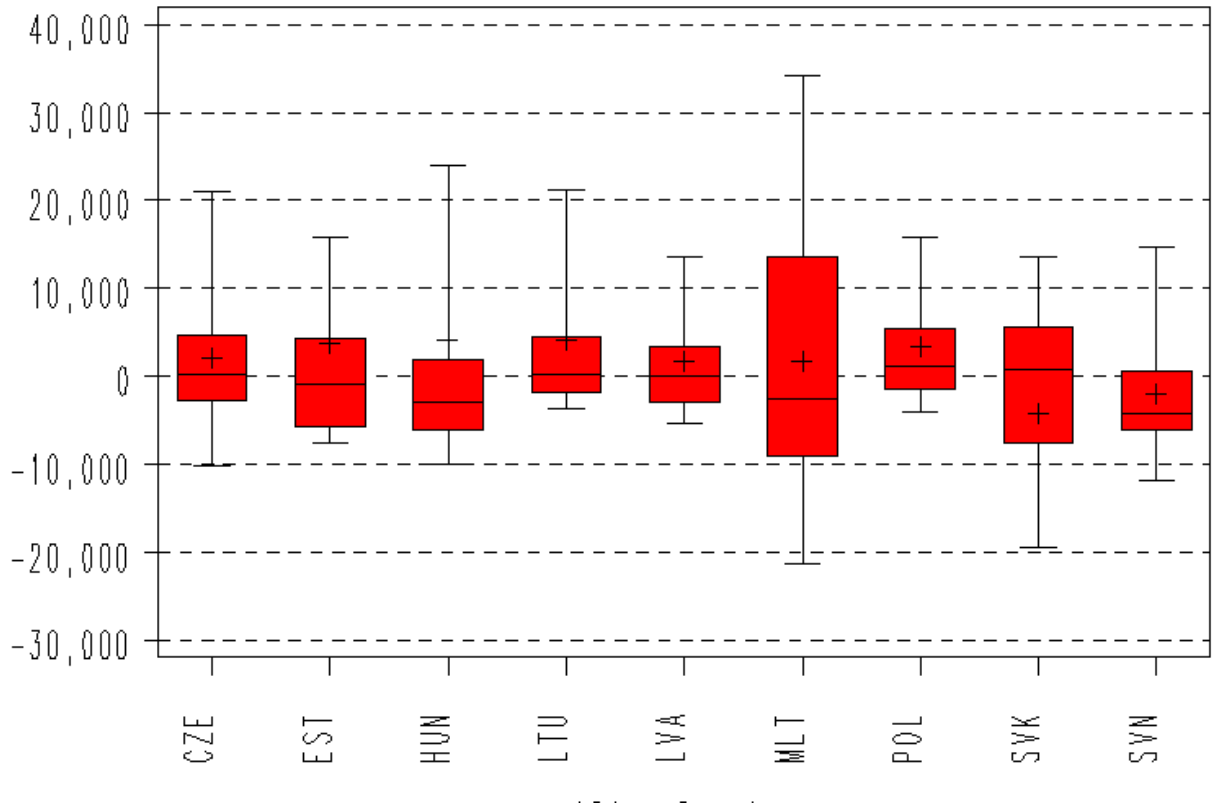


Source: EU FADN – DG AGRI

[20] Data are not displayed for Cyprus and for Greece because there are not enough milk specialised farms in the sample.

Figure 28: Distribution of EP/AWU for milk specialised farms in EU-10 2007

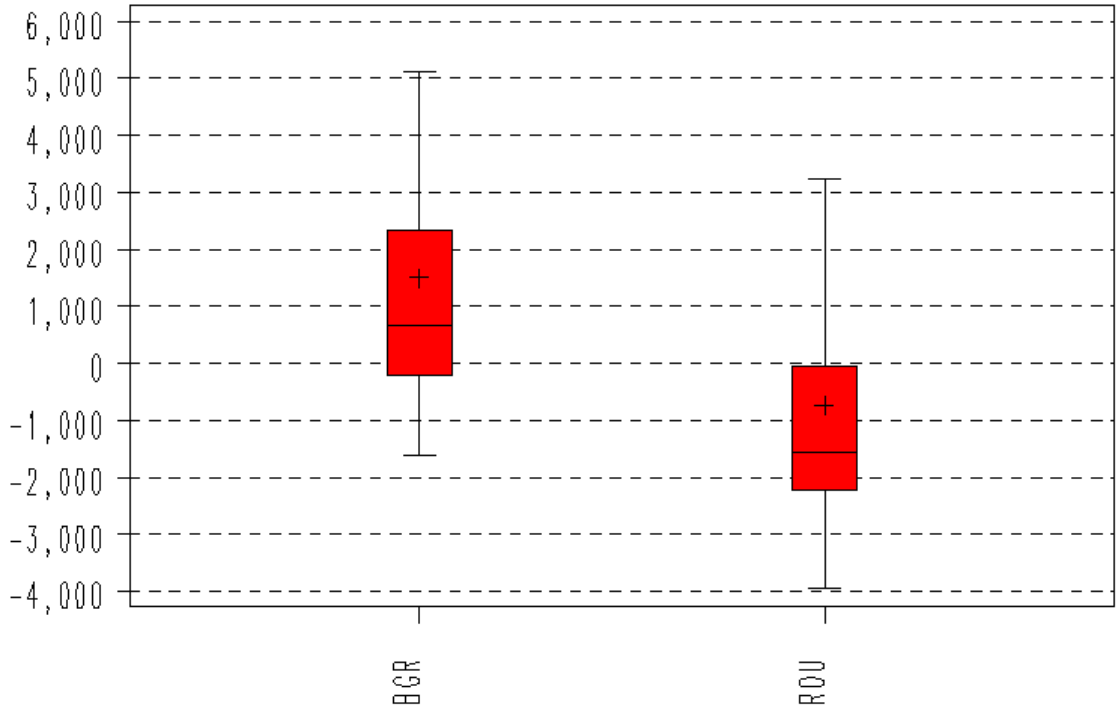
€/AWU



Source: EU FADN – DG AGRI

Figure 29: Distribution of EP/AWU for milk specialised farms in EU-10 2007

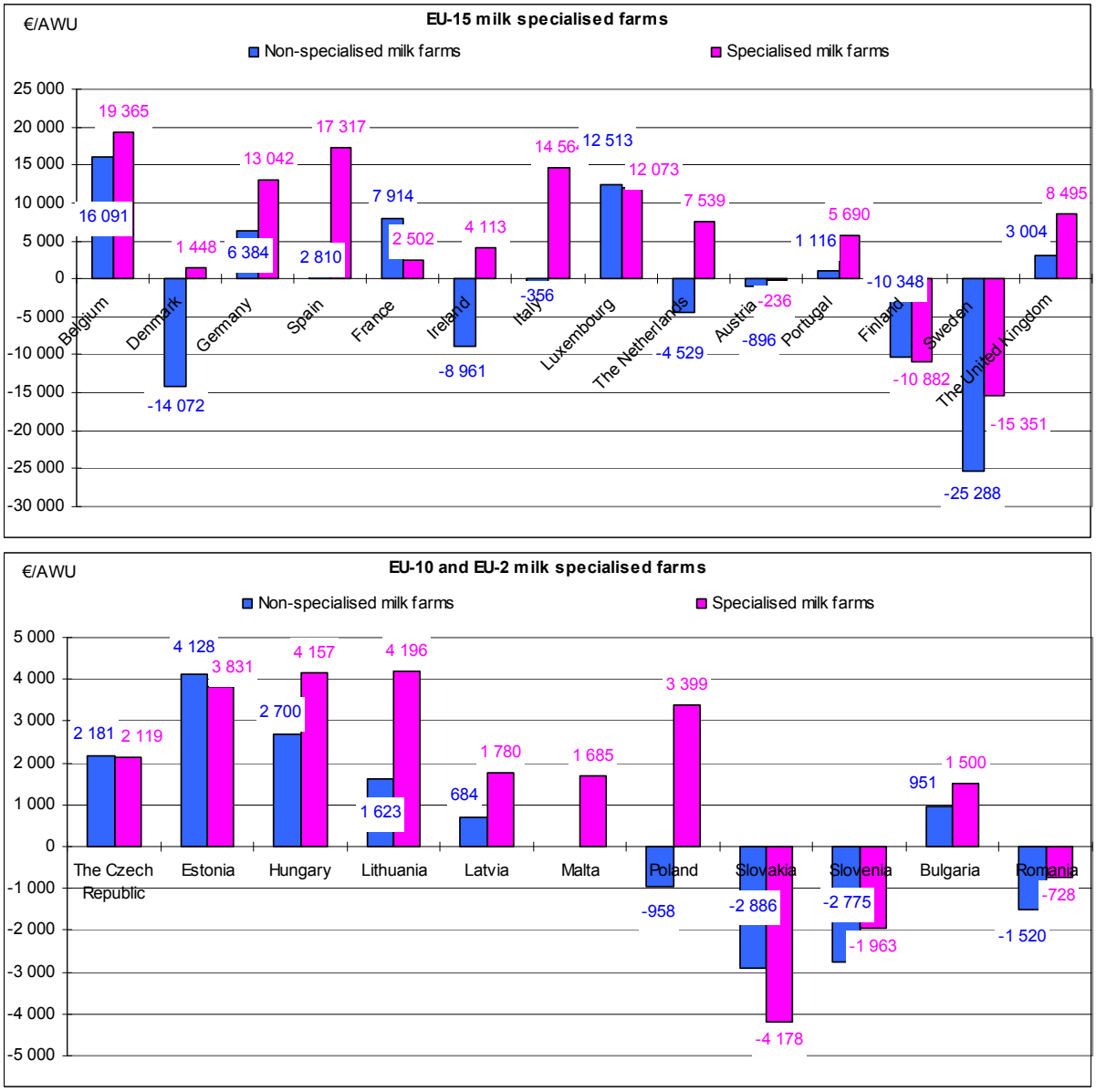
€/AWU



Source: EU FADN – DG AGRI

In **Bulgaria and Romania**, the average values also mask significant disparities within the country, but to a lesser extent in absolute terms than in other Member States: the inter-quartile range[21] is higher than 45 000 €/AWU in the Netherlands and Denmark, but just over 2 000 €/AWU in Bulgaria and Romania. However, in relative terms Romania and Bulgaria also exhibit large disparities. In both countries, as for the FNVA/AWU, the median is much lower than the average. In Bulgaria, for example, the average EP/AWU of specialised farms is 1 500 €/AWU, but half of them have an EP/AWU below 700 €/AWU.

Figure 30: EP/AWU of non-specialised and specialised farms by Member State 2007



Source: EU FADN – DG AGRI

Figure 30 compares t**he EP/AWU of specialised and non-specialised milk farms** by Member State. As for FNVA/AWU, the EP/AWU for specialised farms in the EU-15 Member

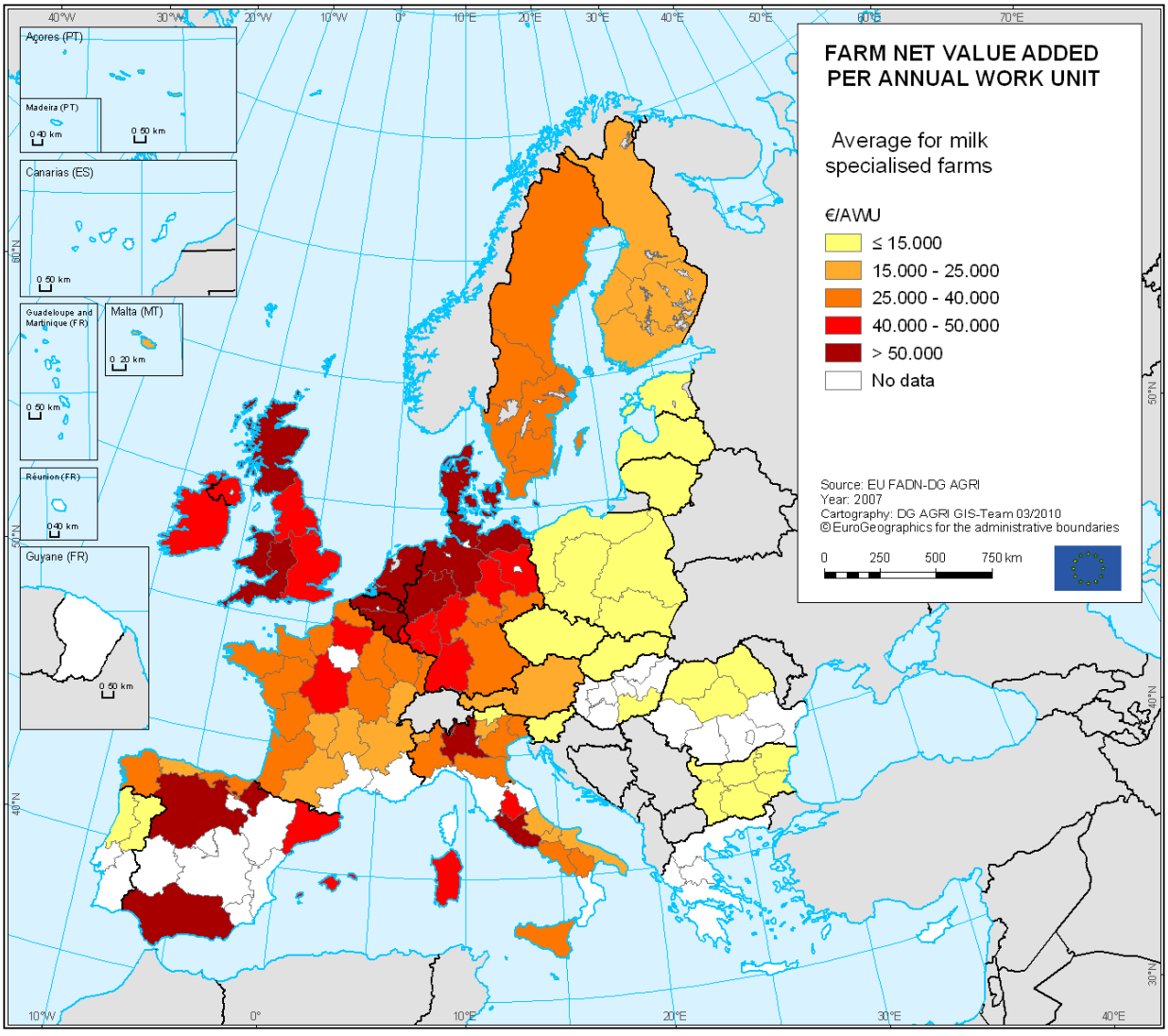
[21] The inter-quartile range is the difference between the first quartile (Q1) and the third quartile (Q3), which are the values separating respectively one quarter and three quarters of the milk specialised farms.

States is generally higher than for the non-specialised farms. The exceptions once again are France, Luxembourg and Finland. In the EU-10 Member States, the non-specialised farms have a better EP/AWU on average than specialised farms in three Member States: the Czech Republic, Estonia, and Slovakia, but there is not a particularly big difference between the non-specialised and the specialised farms.

4.3. Regional level

The two **maps** below show the **average FNVA** and **EP/AWU** respectively by region for 2007. Where there are not enough farms in the sample (fewer than 15 farms), the data are not displayed. These maps illustrate the high interregional income variability for milk specialised farms, particularly in some Member States such as Spain, Italy, Germany and France. On the other hand, income appears to be more evenly spread in Poland, the United Kingdom, Finland and Sweden.

Map 3

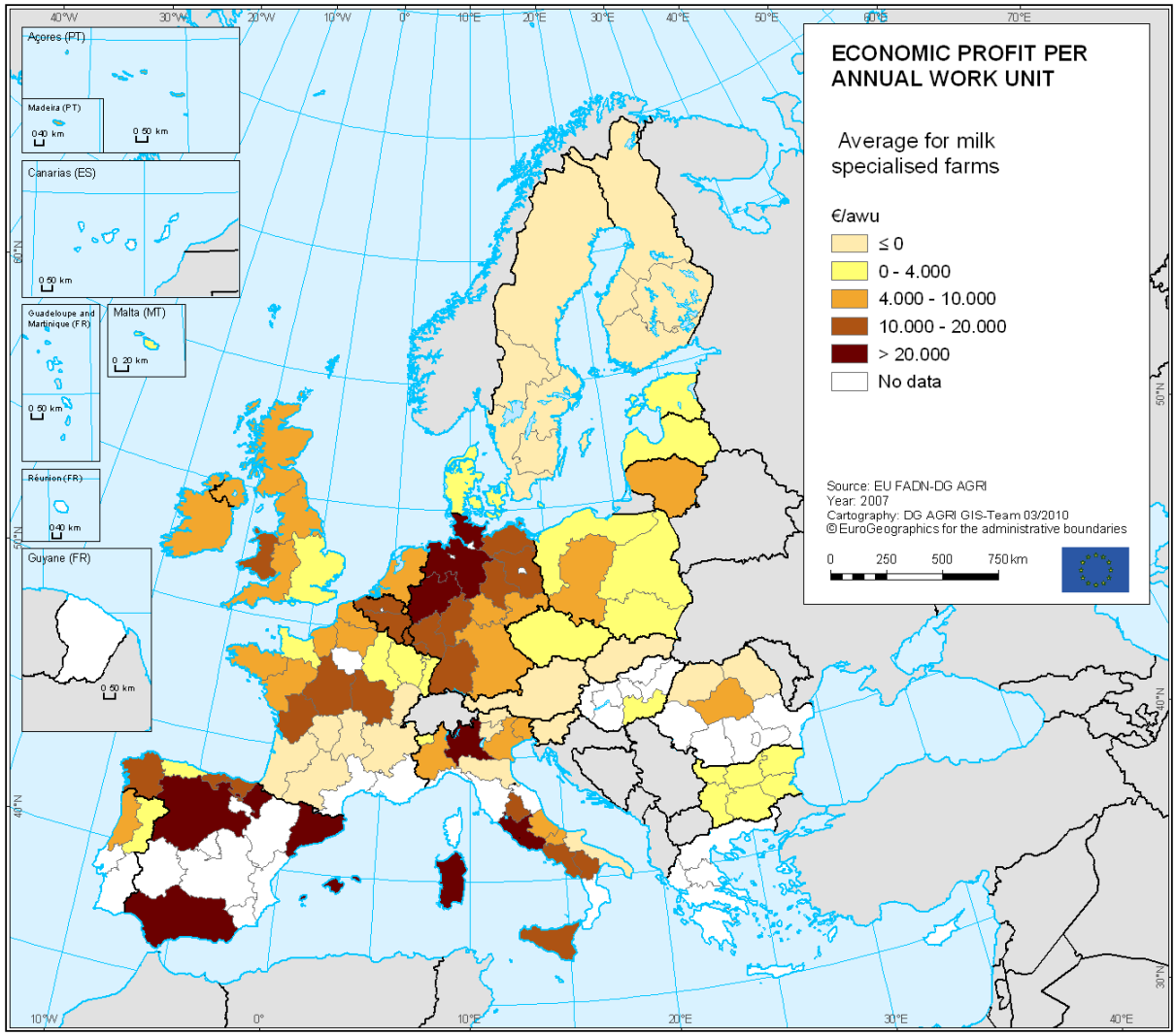


The highest **FNVA/AWU** figures are observed in Denmark (87 705 €/AWU), *Lombardia* (71 267 €/AWU, Italy), The Netherlands (69 329 €/AWU), *Schleswig-Holstein*

(64 363 €/AWU), *Nordrhein-Westfalen* (60 973 €/AWU) (Germany) and *Castilla-Leon* (62 513 €/AWU, Spain). The lowest regional averages (below 5 000 €/AWU) are seen in the Member States of the EU-2.

The **EP/AWU** is high in *Lombardia* (42 396 €/AWU), Lazio (35 085 €/AWU) (Italy), *Navarra* (42 364 €/AWU) and *Andalucia* (42 472 €/AWU) (Spain). It is particularly low in *Alto-Adige* (-10 138 €/AWU, Italy), Sweden and in the southern regions of Finland (below -10 000 €/AWU).

Map 4



In **Germany**, the regional average of the FNVA/AWU ranges from 34 906 €/AWU in *Sachsen* (-23% compared to the national average, 45 561 €/AWU) to 64 393 €/AWU in *Schleswig-Holstein* (+41%). The EP/AWU ranges from 7 522 €/AWU in *Bayern* to 23 314 €/AWU in *Schlelswig-Holstein*. It is interesting to note that no obvious difference can be established between the western and eastern *Länder* in terms of income (unlike for margin indicators).

In **Spain**, the regional FNVA/AWU varies from 23 495 €/AWU in *Asturias* (-31% in comparison with the national average, 34 145 €/AWU) to 62 513 €/AWU in *Castilla-Leon* (+83%). The FNVA/AWU remains limited in *Galicia* and *Asturias* despite high gross margins per tonne due to smaller farm sizes in these two regions (21 and 26 dairy cows as against

more than 43 in the other regions). *Cataluña*, which has the lowest gross margin, has an FNVA/AWU of 48 010 €/AWU, which is 41% above the national average. The spread of the regional EP/AWU is from 3 138 €/AWU in *Asturias* (-82% in comparison with the national average 17 317 €/AWU) to 42 364 €/AWU in *Navarra* (+145%) and 42 472 €/AWU in *Andalucia* (+145%).

In **Italy**, the regional FNVA/AWU varies from 10 075 €/AWU in *Alto-Adige* (-76% compared to the national average of 41 125 €/AWU) to 71 267 €/AWU in *Lombardia* (+73%). Despite a moderate gross margin, *Lombardia* has a particularly high FNVA/AWU in relation to the relatively bigger farm size in this region (86 dairy cows compared to 48 on average for Italy). *Valle d'Aoste*, which has a high gross margin, has a relatively low FNVA/AWU of 21 647 €/AWU (-47% compared to the national average), due to a particularly low milk production (lowest average yield). The regional EP/AWU ranges from -10 138 €/AWU in *Alto-Adige* (high imputed family costs) to 42 396 €/AWU in *Lombardia*, due to a good net economic margin and the large farm size.

5. CONCLUSIONS

The diversity of dairy farm **structures** among the EU-27 is very wide: from 4 dairy cows on average in Romania to 190 in Slovakia (specialised farms). Based on 2007 data, the average milk production per year is 355 t in the EU-15, 102 t in the EU-10 and 20 t in the EU-2.

At **EU level**, the average milk gross margin has shown a decreasing trend over the period 2000-2006 in the EU-15, and an increasing trend in the EU-10 over 2004-2006. Events in 2007 disrupted the observed trends: in all EU-groups the margin reached a peak thanks to the agricultural price boom and the delay in the increase of input costs. The 2007 milk gross margin with coupled payments amounts to 150 €/t in the EU-15, 122 €/t in the EU-10 and 186 €/t in the EU-2, i.e. 149 €/t for the EU-27. Since then, prices have dropped dramatically and the margin has shrunk by more than half between 2007 and 2009. The share of specialised farms with positive gross margin in the EU-27 is estimated to have dropped from 98% in 2007 to 86% in 2009. The 14% of specialised farms with negative gross margin in 2009 represent 9% of EU-27 total milk production.

The average net economic margin with coupled payments, after remuneration of family factors, amounts to -21 €/t for the EU-27, -32 €/t for the EU-2, -11 €/t for the EU-10 and -22 €/t for the EU-15. Only 29% of the milk specialised farms had a positive net economic margin in 2007, but these represent 45% of the milk production from specialised farms.

In terms of income, the average 2007 FNVA/AWU amounts to 22 890 €/AWU for milk specialised farms and 10 252 €/AWU for non-specialised milk farms in the EU-27. The EP/AWU, after remuneration of all production factors, is 4 306 €/AWU and 170 €/AWU respectively. All income indicators are on average higher in the EU-15 than those in the EU-10, which in turn are higher than those in the EU-2. The average FNVA/AWU in the EU-15 is four times that of the EU-10. The income gap between specialised and non-specialised farms must also be emphasized. It is particularly wide in the EU-10 (-34% for the non-specialised farms) and in the EU-2 (-38%), where non-specialised farms represent 44% and 24% of the

milk production respectively. Although 39% of EU-27 milk farms have a positive economic profit, they account for 70% of milk production.

Moreover, on average, milk specialised farms occupy a relatively good position in terms of income compared to other types of farming (except in the EU-2). This is not the case for non-specialised milk farms, which have significantly lower income. In the EU-15, all income indicators have risen during the period 2000-2007 for both specialised and non-specialised milk farms. This is also the case for the specialised farms of the EU-10. For the EU-10 non-specialised farms, there was a fall in the economic profit per work unit between 2004 and 2006.

At **national level**, the best results for margins in general are observed for Italy, Belgium and Spain, although the average masks a wide spread of values and regional differences In Italy and Spain. Gross margin is low in Hungary, the Czech Republic, Slovakia and Malta. Net economic margin is very low in Finland, Slovakia, Sweden, Austria and Slovenia. Finland and Romania demonstrate very good gross margin, but intermediate or low net economic margin (due to high external factors and low production, respectively). Good results in terms of margin might be driven by very different factors: high milk price (as in Italy), minimisation of operating costs (as in Romania for the operating costs only), good balance of price/costs (Spain), and large farm size (allowing economies of scale on fixed factors).

On the other hand, good results in FNVA/AWU seem mainly to be driven by herd size. For 2007 the highest FNVA/AWU values are observed in Denmark, the Netherlands and Belgium. The lowest values are in Romania, where the lowest herd sizes are also found. There is a broad spread of FNVA/AWU values in Italy, the Netherlands and Denmark. Thus, the high average values for these Member States cover a broad range of income situations within the country. High FNVA/AWU does not necessarily mean high EP/AWU: indeed the latter is relatively low in Denmark and the Netherlands. The highest 2007 EP/AWU values are found in Belgium Spain, and Italy. The lowest averages (below -4 000 €/AWU) are in Finland, Sweden and Slovakia.

The highest impacts of the **dairy crisis** on the milk gross margin are estimated for Malta, Latvia, Hungary, Slovakia, the Czech Republic, Estonia, Germany and Ireland. The weight of the explaining factors may differ from one Member State to the other. In Ireland the fall is explained by a bigger decrease in the milk price (-31% between 2007 and 2009, see Table 5) and a substantial increase in feed costs (+20% compared to +16% on average in the EU-27). In Latvia the main drivers of the decrease are the sharp fall in the milk price (-30% between 2007 and 2009), the increase in veterinary costs and also higher energy prices. In Hungary, Slovakia and Germany, the gross margin decrease is mostly due to the milk price drop. In Malta, the main element is the rise in production costs (feed among others). Conversely, the dairy crisis has had no impact on the estimated average gross margin in Finland, which remains stable at 156 €/t: the rise in operating costs (+10%) has been offset by the increase in the milk price (+6%).

ANNEX I

Methodology 1

The model estimating milk production costs and margins on the basis of FADN data

The FADN (Farm Accountancy Data Network) database contains information on output and subsidies per enterprise; however, as regards costs, it only provides information referring to the farm as a whole[22]. In this context, the contribution of each enterprise to the farm income is not directly available. Therefore the production costs by product have to be estimated. The EU FADN unit has constructed several models to estimate costs and margins, for a range of different products: arable crops, milk and beef, permanent crops. This note describes the methodology used to estimate milk production costs and margins.

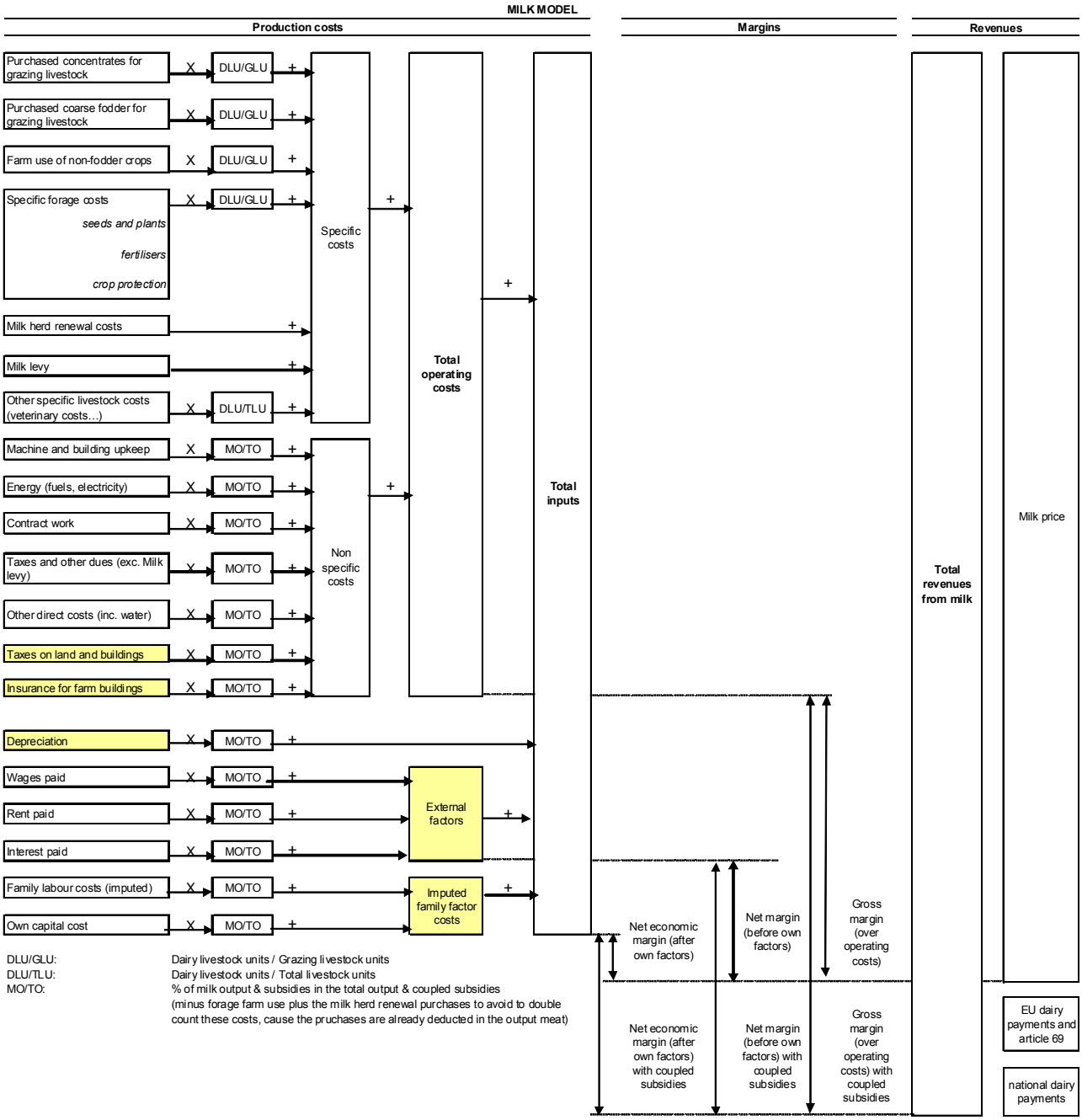
The allocation of costs

The following terminology is used with regard to costs:

- The **operating costs** include the following:
  - **Specific costs**: for milk production, they cover purchased concentrates, purchased coarse fodder, farm use of non-fodder crops, specific forage costs, milk herd renewal costs, the milk levy and other specific livestock costs (veterinary etc.);
  - Operating **non-specific costs**: upkeep of machinery and buildings, power (fuel and electricity), contract work, taxes and other dues (excluding the milk levy), taxes on land and buildings, insurance for farm buildings and other direct costs (including water as regards the model for milk);
- **Depreciation**;
- **External factors**: i.e. wages, rent and interest;
- The **imputed family factors,** which cover: family labour cost and own capital cost (own land cost + estimated cost for own capital except land – interest paid).

The costs are illustrated in the breakdown overleaf.

[22] It is indeed difficult for the accountant and the farmer to assess the share of water or electricity or fertilisers attributable to each enterprise, especially for mixed farms…


MILK MODEL
Production costs
Margins
Revenues
Purchased concentrates for grazing livestock
Purchased coarse fodder for grazing livestock
Farm use of non-fodder crops
Specific forage costs
seeds and plants
fertilisers
crop protection
Milk herd renewal costs
Milk levy
Other specific livestock costs (veterinary costs…)
Machine and building upkeep
Energy (fuels, electricity)
Contract work
Taxes and other dues (exc. Milk levy)
Other direct costs (inc. water)
Taxes on land and buildings
Insurance for farm buildings
Depreciation
Wages paid
Rent paid
Interest paid
Family labour costs (imputed)
Own capital cost
DLU/GLU
DLU/TLU
MO/TO
Specific costs
Non specific costs
External factors
Imputed family factor costs
Total operating costs
Total inputs
Total revenues from milk
Milk price
Net economic margin (after own factors)
Net margin (before own factors)
Gross margin (over operating costs)
Net economic margin (after own factors) with coupled subsidies
Net margin (before own factors) with coupled subsidies
Gross margin (over operating costs) with coupled subsidies
EU dairy payments and article 69
national dairy payments
DLU/GLU: Dairy livestock units / Grazing livestock units
DLU/TLU: Dairy livestock units / Total livestock units
MO/TO: % of milk output & subsidies in the total output & coupled subsidies
(minus forage farm use plus the milk herd renewal purchases to avoid to double count these costs, cause the pruchases are already deducted in the output meat)

The basis of the methodology is to allocate a share of the farm costs to milk production. Different **ratios** are used:

– The share of dairy livestock units[23] on the grazing livestock units (DLU/GLU on the flow chart) is used to allocate grazing livestock feed costs;

– The share of dairy livestock units out of the total livestock units (DLU/TLU) is used to allocate other livestock specific costs;

– The share of milk output and subsidies in the total output[24] plus linked subsidies (MO/TO) is used to allocate the non-specific inputs and the fixed costs. Subsidies are taken into account to enable the results to be compared over time since, from 2004 onwards, part of the milk support that was previously included in the price has been allocated via a direct payment. Moreover, this makes it possible to distinguish and to take better account of the co-existence of beef production on farms where costs of milk production are estimated (increasing importance of direct aids support compared to market price support in beef production). The total output (TO, denominator) is also adjusted by deducting the value of home-grown fodder registered in FADN and adding the purchase costs for milk herd renewal (see below).

As the **milk levy**[25] is directly linked to milk production only, it is fully allocated to the costs of milk production.

Some disparities in FADN recording among Member States also have to be taken into account in order to be able to make comparisons. Some Member States (generally from the north of the EU) do not put a value on **fodder** in FADN, mainly because of the difficulty of estimating production and the value of forage. Based on the principle that forage production is simply an input for animal production, and that failure to record it - either on the crops output side, or on the animal costs side - does not affect income, no effort is made to estimate it. In other countries - generally those where fodder production is more expensive - a value is assigned to the production of fodder. Even if this difference is unlikely to affect margins, it can lead to biases when comparing costs between Member States. To take account of the differences in records, fodder production used on the farm is treated as follows for the purpose of the model:

– the value of the **farm use of non-fodder plants** (e.g. barley, rye, etc) is maintained in the item *'Crops used for feed'*, but the farm use value of all crops used as forage (fodder roots, other fodder plants - e.g. silage of cereals, temporary grass, meadows and pastures and rough grazing) is excluded;

– the value of **fodder plants produced on the farm** is estimated on the basis of the specific costs of the crops (seeds, fertilisers, crop protection). Specific costs are allocated to fodder production according to a ratio (fodder on total area). However,

---

[23] Dairy livestock units are defined as dairy cows and a share of total breeding heifers and young females. This share is equal to the proportion of dairy cows in total number of cows (dairy cows, cull dairy cows and other cows).

[24] Output after deduction of forage crops farm use.

[25] In the previous model design, the milk levy was deducted from the subsidies in the revenues side.

some forage crops do not benefit from all inputs (e.g. no crop protection on temporary grass). Therefore, the area taken into account in the ratio varies according to the input. The following table details the calculation. This item is called *'Specific forage costs'*.

Estimation of *'Specific forage costs'*

Cost item	Allocation key[26]
Seeds costs	% area of fodder crops (144), other forage crops (145) and temporary grass (147) in the total Utilised Agricultural Area (UAA) - after exclusion of fallow lands (146), areas leased to others (149), meadows (150) and rough grazing (151)
Fertilisers costs	% area of fodder crops (144), other forage crops (145), temporary grass (147) and meadows (150) in the total UAA - after exclusion of fallow lands (146), areas leased to others (149) and rough grazing (151)
Crop protection costs	% area of fodder crops (144) and other forage crops (145) in the total UAA - after exclusion of fallow lands (146), temporary grass (147), areas leased to others (149), meadows (150) and rough grazing (151)

– The **home-grown fodder value is deducted from the total output** (denominator in the allocation ratio MO/TO) because it is included in the farm total output and it has to be deducted in order to obtain a comparable ratio between the Member States that value fodder and those that do not.

The **milk herd renewal purchases cost** was introduced when the model was revised in 2008. Although the costs of rearing own milk heifers were already included in the model, the cost of purchase of new heifers (for example, to renew the genetic potential of the herd) was not included. It was indirectly taken into account in part by the MO/TO ratio, because the total output of the farm includes the meat output, which is calculated by deducting the purchases. Therefore, for the farms that rely heavily on purchases rather than on rearing their own animals, the total output (denominator) was lower and therefore the ratio used for the allocation of costs to milk was higher, with the result that all of their costs calculated using this ratio were higher. However, it was done regardless of whether these purchases were linked to the milk enterprise or to the meat enterprise. With the new method, an attempt has been made to take direct account of the share of the purchases that can be related to milk.

The aim is therefore to take direct account of the cost of purchases of young female bovines to be used for milk production[27]. This cost is calculated by multiplying the farm purchases of female cattle from 12 to 24 months and of breeding heifers by the ratio of dairy cows over the total of dairy cows plus suckler cows. This makes it possible to allocate a share of the young female cattle purchases to milk production. The information

[26] Codes refer to products or costs codes in the farm return (Commission Regulation n°2237/77 and 868/2008).

[27] The value of sales of cull dairy cows cannot be deducted because of the scarcity of information about this item in the FADN database. Moreover, it can be considered as a meat by-product, which anyway has not been integrated in the model design until now. The value of calves is not taken into account in the revenues, despite the fact that it is an obligatory by-product of milk production.

on details of purchases of animals is available in FADN only from 2000 onwards; therefore this estimate can only be made from 2000 onwards. Moreover, it is not obligatory and, in practice, some Member States did not record it in the initial years of its implementation[28]. This has to be taken into account when interpreting the results.

However, a correction should be made for the total output (denominator in the allocation ratio MO/TO) to avoid double counting of these costs. The total output already deducts all purchases of animals, so the calculated milk herd renewal costs should be added back into the total output used in the allocation ratio MO/TO.

Another disparity of recording among Member States concerns the **depreciation of milk quota**, which is applied in some Member States and not in others (in part because of the differences in milk quota management). Moreover, for the most recent accounting years, a specific instruction has been given to Member States that depreciation of quotas should not be entered in the FADN table related to capital[29]. This means that depreciation is not taken into account in the calculation of income. In order to be consistent with this principle and to allow comparability over time and among Member States, our estimates apply a rule of non-depreciation of milk quota. It should be mentioned that the cost of buying or renting milk quota is covered (when it is not self-financed) through interest and rent paid.

The following FADN cost items have been included in the 2008 revision of the model:

- **taxes and other dues** (excluding the milk levy) (part of farming overheads, non-specific costs),
- **insurance for farm buildings** (part of farming overheads, non-specific costs),
- **taxes on land and buildings** (part of farming overheads, non-specific costs).

The estimation of the imputed unpaid family factors has also been integrated into the margin and income calculation. The methodology used is explained in another annex.

The revenues from milk

The **revenues from milk** take into account:

- The value of **sales of milk and milk products**;
- The **EU dairy payments** (11.81€/t of quota in 2004, 23.65€/t in 2005, 35.50€/t in 2006 until its decoupling; the actual implementation date of the payments depends on the Member State) and Article 69 payments for dairy (used in Spain);

[28] Namely: milk herd renewal purchases cannot be estimated for Greece, Italy (2000-2005), Ireland (2000), Finland (2000), Sweden (2000).

[29] Document RI/CC 1256: Deprecation of quota should NOT be entered in Table G (Land and buildings, deadstock, circulating capital), but may be entered in Table L

– The possible **national dairy payments**.

This means that the value of the calves and of the sales of cull dairy cows is not taken into account, because no satisfactory method has been found to estimate this value on the basis of the current data.

The margins

The following terminology is used in relation to margins:

– The **gross margin (over operating costs)**: sales of milk and milk products minus operating costs;

– The **net margin (before own factors)**: sales of milk and milk products minus operating costs, depreciation and external factors;

– The **net economic margin (after own factors)**: sales of milk and milk products minus operating costs, depreciation, external factors, imputed unpaid family factors.

All the margins are displayed **with and without the milk coupled payments** (EU and national). This makes it possible to simulate the removal of coupled payments.

The sample of farms

Given the estimation methodology, i.e. the necessity to allocate costs, and in order to obtain reliable estimations of production costs and margins, it is necessary to focus on **milk specialised farms**. Depending on the specific objectives of the analysis, different specialisation criteria might be chosen. In general, the following criteria have been used:

– Farms within the following types of farming (TF): 41 *Specialists dairying*, 43 *Cattle dairying, rearing and fattening combined*, 71 *Mixed livestock, mainly dairying*, 81 *Field crops – grazing livestock combined.* The decision was made to include the types of farming 43, 71 and 81 (and not only 41) in the sample so as to cover a larger share of the dairy cows, in particular in the new Member States.

– A specialisation rate[30] greater than **50%**;

– An average milk price at farm level of less than 900€/t of milk, in order to exclude the farms producing **buffaloes' milk**. These farms are mainly located in the two Italian regions *Lazio* and *Campania*, essentially for the production of "*Mozzarella di buffala*". It was decided to exclude them because of their major differences in terms of milk yield, price, costs and margins.

[30] Specialisation rate: the share of milk output & subsidies in the total output & coupled subsidies (forage farm use deducted).

Moreover, given the use of different ratios for the allocation keys[31], some precautions are necessary in order to prevent problems in estimates:

– The total output and the total output plus subsidies should be strictly positive,

– The total output plus subsidies should be greater than the milk output plus subsidies,

– The total output should be greater than the milk output[32].

Farms that do not respect these conditions are excluded from the sample used to estimate cost and margins.

The results are presented in **€/t of milk**. They are the so-called "global ratio", i.e. they are obtained by dividing the average revenues, costs or margin in the Member State (or region) by the average quantity of milk produced in this Member State (or region) (and not by the average of the individual ratio by farm).

[31] Allocation keys: the share of dairy livestock units on the grazing livestock units, the share of dairy livestock units on the total livestock units, the share of milk output & subsidies in the total output & coupled subsidies, the share of milk output in the total output.

[32] Moreover, the number of dairy cows and of grazing livestock units must be greater than 0.

Methodology 2

Estimation of the imputed unpaid family factors costs - Method

- **Family labour cost**: this is estimated on the basis of the wages which the owner of the farm would have to pay if he were to hire employees to do the work carried out by the family members.

It is estimated as the average regional wage per hour obtained in the FADN database[33] multiplied by the number of hours worked by family workers on the farm.

It is commonly acknowledged that the number of hours of family workers is sometimes overestimated. Thus the method uses a maximum of 3 000 hours per Annual Work Unit (this is the equivalent of 8.2 hours a day, 365 days a year, and corresponds more or less to the time that can be spent on a farm by farmers milking cows)[34].

The fact of using the hours makes it possible to remunerate a manager more than an employee if he is working more hours.

It is challenging to calculate a reliable estimate because records of hours worked on the farm might be overestimated and it is not easy to determine what is an appropriate remuneration for family labour. Farmers may indeed agree to be remunerated less than they would be according to the average agricultural wage. They may consider farming as a way of life or benefit from other sources of income for their household (other gainful activities directly related to the holding, spouse working outside the farm, etc).

- **Own capital cost**

  - **Own land cost**: this is estimated on the basis of the rent that the owner of the farm would have to pay if he needed to rent the land he is using.

    It is estimated as the owned area multiplied by the rent paid per ha on the same farm or, if there is no rented land on the farm, by the average rent paid per ha in the same region and for the same type of farming[35].

  - **Cost for own capital (except land)**: the cost of own capital (permanent crops, buildings, machinery and equipment, forest land, livestock and crop stocks) is estimated at its opportunity cost. That is how much money the farmer could gain if he were to invest the equivalent of its capital value in a bank.

The interest paid on the capital is not known, as this information is optional in the FADN farm return. Nevertheless, to take into account the actual interest rate paid on the farm, a

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[33] If there are not enough farms (fewer than 20) with paid labour at regional level, the national average is taken into account.

[34] A constraining factor of the estimation method is that if a farmer were to receive a salary he would probably work less.

[35] If there are not enough farms (fewer than 20) in a given region for a type of farming, the national rent per ha for the given type of farming is used (the TF8 classification is used).

"weighted" interest rate is calculated as the weighted average of this interest rate for debts and the long term interest rate taken from the Global Insight database for the net worth. It should be noted that if the "weighted" interest rate is lower than the LT interest rate (which means that the calculated rate of interest paid is lower than the LT interest rate), the LT interest rate is used instead of the "weighted" interest rate.

In the end, the own capital value (excluding land and land improvement) is estimated as the average value of the assets (closing plus opening valuation divided by 2) multiplied by the real interest rate[36]. The correction is made by subtracting the inflation rate[37] from the nominal interest rate. Where the inflation rate is higher than the interest rate, the real interest rate may be negative, leading to a negative cost of capital which will contribute positively to the profit (it is more profitable to invest in farm assets than put the money in the bank).

The total circulating capital is not valued because of the unreliability of this variable in some MS. Nevertheless, the crop stocks value is taken into account.

To calculate the **unpaid capital costs,** in order to avoid double counting, we have to deduct the **interest paid** from the sum of the own land cost and the cost for own capital except land:

Imputed unpaid capital costs = own land cost + estimated cost for own capital except land – interests paid

Total cost of imputed unpaid family factors is then the sum of family labour costs and unpaid capital costs:

Imputed unpaid family factors = family labour cost + unpaid capital costs

Or

Imputed unpaid family factors = family labour cost + (own land cost + estimated cost for own capital except land – interest paid)

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[36] The increase in the value of assets is excluded from income calculations. For example, land appreciates in value over time, which is one of the reasons why investors invest in land. This gain is not included in the income; therefore it would not be consistent to include it in the cost of capital. In addition in FADN assets are valued at replacement value. Depreciation is based on this replacement value and therefore already takes the increase in prices (inflation) into account. Consequently, it would be double counting to include the inflation part of interest in the cost of capital.

[37] The inflation rate is based on the Eurostat annual average rate of change in Harmonized Indices of Consumer Prices (HICPs) – **available from 1997**. Inflation rates based on price indexes of GDP and gross fixed capital consumption have been tested, but they are very high and were leading to very high negative costs for capital, mainly in the EU-10. An inflation rate calculated on the basis of price indexes for gross fixed capital consumption has been tested, as it seemed to be more closely related to assets. However, this rate has been fluctuating widely over the years for certain MS. In addition, land is one of the most important assets which does not depreciate. Therefore the inflation rate of gross fixed capital consumption must not have a closer relationship with the change in the price of agricultural assets than with the consumer price indices.

Long Term Interest Rate from Global Insight (10-year Government Bonds from Eurostat for 1995-1997 in Greece and The Netherlands)

CTRY	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Belgium	7.37	6.30	5.71	4.76	4.76	5.60	5.14	4.99	4.19	4.16	3.43	3.82	4.34	4.42	3.91
Bulgaria	49.76	133.26	61.03	10.10	10.05	7.38	6.70	6.81	5.54	4.62	3.34	4.09	4.27	5.38	7.15
Czech Republic						6.77	6.31	4.88	4.12	4.75	3.51	3.78	4.27	4.63	4.86
Denmark	8.27	7.19	6.26	5.04	4.92	5.66	5.09	5.06	4.31	4.30	3.40	3.81	4.29	4.28	3.60
Germany	6.88	6.18	5.59	4.58	4.49	5.27	4.79	4.77	4.03	3.99	3.31	3.75	4.21	3.98	3.27
Estonia	15.99	15.09	11.71	13.93	10.24	8.79	9.80	7.92	5.93	5.50	6.61	8.19	8.69	13.75	17.98
Ireland	8.23	7.25	6.26	4.75	4.65	5.48	5.09	4.99	4.15	4.07	3.32	3.79	4.34	4.55	5.19
Greece	17.27	14.62	10.17	8.48	6.31	6.11	5.30	5.03	4.27	4.27	3.59	4.07	4.50	4.85	5.07
Spain	11.27	8.73	6.38	4.83	4.75	5.51	5.10	4.94	4.13	4.09	3.39	3.79	4.31	4.36	3.99
France	7.54	6.32	5.57	4.65	4.61	5.40	4.90	4.87	4.13	4.10	3.41	3.80	4.30	4.23	3.64
Italy	12.21	9.40	6.86	4.90	4.73	5.58	5.19	5.03	4.25	4.24	3.56	4.05	4.47	4.66	4.27
Cyprus				7.18	7.34	7.54	7.10	5.33	4.54	5.75	4.90	4.11	4.48	4.60	4.60
Latvia	28.29	19.05	15.10	13.14	13.59	10.55	10.45	8.72	7.50	9.47	9.48	10.42	14.97	16.50	16.01
Lithuania	19.20	13.08	6.36	6.79	7.33	9.56	9.24	6.44	5.01	5.56	7.06	6.78	7.93	10.24	13.22
Luxembourg	7.23	6.32	5.60	4.73	4.66	5.52	4.86	4.70	4.03	4.19	3.37	3.92	4.56	4.61	4.23
Hungary				15.73	11.76	9.07	8.55	7.70	7.60	9.12	6.78	7.40	7.02	9.26	9.27
Malta							6.19	5.82	5.04	4.69	4.56	4.32	4.72	4.81	4.53
Netherlands	6.90	6.15	5.58	4.65	4.64	5.41	4.97	4.90	4.14	4.11	3.38	3.79	4.29	4.24	3.76
Austria	7.13	6.32	5.68	4.71	4.68	5.56	5.07	4.94	4.11	4.08	3.36	3.80	4.29	4.25	3.91
Poland						11.87	10.76	7.38	5.77	6.93	5.22	5.23	5.48	6.07	6.11
Portugal	11.47	8.56	6.36	4.85	4.81	5.61	5.18	5.02	4.19	4.14	3.44	3.91	4.42	4.51	4.19
Romania	52.32	35.00	20.40	20.41	78.66	52.32	35.00	20.40	20.41	17.96	7.50	8.75	7.50	10.25	8.00
Slovenia									6.40	4.68	3.81	3.85	4.53	4.61	4.37
Slovakia						8.34	8.04	6.94	4.99	5.03	3.52	4.41	4.49	4.72	4.75
Finland	8.79	7.08	5.96	4.81	4.72	5.47	5.04	4.97	4.13	4.12	3.35	3.78	4.29	4.29	3.74
Sweden	10.24	8.02	6.65	5.02	4.98	5.37	5.11	5.30	4.63	4.43	3.39	3.70	4.16	3.88	3.23
United Kingdom	8.16	7.79	7.01	5.53	4.98	5.27	4.91	4.87	4.48	4.87	4.41	4.50	5.01	4.50	3.58

Inflation rate used for the calculation a capital cost

(Annual average rate of change in Harmonized Indices of Consumer Prices (HICPs) - Eurostat)

data source = eurostat home page http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&language=en&pcode=tsieb060&tableSelection=1&footnote

HICP - all items - annual average inflation rate

Annual average rate of change in Harmonized Indices of Consumer Prices (HICPs)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Belgium	1.5	0.9	1.1	2.7	2.4	1.6	1.5	1.9	2.5	2.3	1.8	4.5	0.0
Bulgaria		18.7	2.6	10.3	7.4	5.8	2.3	6.1	6.0	7.4	7.6	12.0	2.5
Czech Republic	8	9.7	1.8	3.9	4.5	1.4	-0.1	2.6	1.6	2.1	3.0	6.3	0.6
Denmark	2	1.3	2.1	2.7	2.3	2.4	2.0	0.9	1.7	1.9	1.7	3.6	1.1
Germany	1.5	0.6	0.6	1.4	1.9	1.4	1.0	1.8	1.9	1.8	2.3	2.8	0.2
Estonia	9.3	8.8	3.1	3.9	5.6	3.6	1.4	3.0	4.1	4.4	6.7	10.6	0.2
Ireland	1.3	2.1	2.5	5.3	4.0	4.7	4.0	2.3	2.2	2.7	2.9	3.1	-1.7
Greece	5.4	4.5	2.1	2.9	3.7	3.9	3.4	3.0	3.5	3.3	3.0	4.2	1.3
Spain	1.9	1.8	2.2	3.5	2.8	3.6	3.1	3.1	3.4	3.6	2.8	4.1	-0.3
France	1.3	0.7	0.6	1.8	1.8	1.9	2.2	2.3	1.9	1.9	1.6	3.2	0.1
Italy	1.9	2.0	1.7	2.6	2.3	2.6	2.8	2.3	2.2	2.2	2.0	3.5	0.8
Cyprus	3.3	2.3	1.1	4.9	2.0	2.8	4.0	1.9	2.0	2.2	2.2	4.4	0.2
Latvia	8.1	4.3	2.1	2.6	2.5	2.0	2.9	6.2	6.9	6.6	10.1	15.3	3.3
Lithuania	10.3	5.4	1.5	1.1	1.6	0.3	-1.1	1.2	2.7	3.8	5.8	11.1	4.2
Luxembourg	1.4	1.0	1.0	3.8	2.4	2.1	2.5	3.2	3.8	3.0	2.7	4.1	0.0
Hungary	18.5	14.2	10.0	10.0	9.1	5.2	4.7	6.8	3.5	4.0	7.9	6.0	4.0
Malta	3.9	3.7	2.3	3.0	2.5	2.6	1.9	2.7	2.5	2.6	0.7	4.7	1.8
Netherlands	1.9	1.8	2.0	2.3	5.1	3.9	2.2	1.4	1.5	1.7	1.6	2.2	1.0
Austria	1.2	0.8	0.5	2.0	2.3	1.7	1.3	2.0	2.1	1.7	2.2	3.2	0.4
Poland	15	11.8	7.2	10.1	5.3	1.9	0.7	3.6	2.2	1.3	2.6	4.2	4.0
Portugal	1.9	2.2	2.2	2.8	4.4	3.7	3.3	2.5	2.1	3.0	2.4	2.7	-0.9
Romania	154.8	59.1	45.8	45.7	34.5	22.5	15.3	11.9	9.1	6.6	4.9	7.9	5.6
Slovenia	8.3	7.9	6.1	8.9	8.6	7.5	5.7	3.7	2.5	2.5	3.8	5.5	0.9
Slovakia	6	6.7	10.4	12.2	7.2	3.5	8.4	7.5	2.8	4.3	1.9	3.9	0.9
Finland	1.2	1.3	1.3	2.9	2.7	2.0	1.3	0.1	0.8	1.3	1.6	3.9	1.6
Sweden	1.8	1.0	0.5	1.3	2.7	1.9	2.3	1.0	0.8	1.5	1.7	3.3	1.9
United Kingdom	1.8	1.6	1.3	0.8	1.2	1.3	1.4	1.3	2.1	2.3	2.3	3.6	2.12

Table 10: Share of dairy cows covered by FADN per Member State

	FADN 2007			FSS 2007	Coverage FADN/FSS		
Number of dairy cows	Non-specialised milk farms	Specialised milk farms	**Total**		Non-specialised milk farms	Specialised milk farms	**Total**
Belgium	145 971	336 830	482 802	523 700	28%	64%	92%
Denmark	30 281	530 938	561 218	545 420	6%	97%	103%
Germany	600 345	3 260 845	3 861 189	4 076 380	15%	80%	95%
Greece	nd	nd	87 442	157 410	nd	nd	56%
Spain	70 263	809 741	880 004	974 860	7%	83%	90%
France	953 459	2 747 451	3 700 909	3 814 630	25%	72%	97%
Ireland	40 036	1 025 115	1 065 151	1 058 210	4%	97%	101%
Italy	185 806	1 494 472	1 680 278	1 890 910	10%	79%	89%
Luxembourg	8 297	28 964	37 261	40 040	21%	72%	93%
The Netherlands	56 714	1 377 294	1 434 008	1 468 300	4%	94%	98%
Austria	220 576	297 335	517 911	521 680	42%	57%	99%
Portugal	4 563	185 970	190 533	272 660	2%	68%	70%
Finland	6 614	300 749	307 364	296 070	2%	102%	104%
Sweden	28 308	329 555	357 863	369 650	8%	89%	97%
The United Kingdom	106 512	1 796 569	1 903 081	1 953 490	5%	92%	97%
EU 15	**2 463 470**	**14 603 543**	**17 067 013**	**17 963 410**	**14%**	**81%**	**95%**
Cyprus	nd	nd	nd	22 650	nd	nd	nd
The Czech Republic	255 033	93 675	348 708	416 520	61%	22%	84%
Estonia	15 004	78 601	93 605	107 840	14%	73%	87%
Hungary	154 272	115 567	269 839	265 430	58%	44%	102%
Lithuania	108 222	127 159	235 381	398 370	27%	32%	59%
Latvia	43 405	95 430	138 835	182 320	24%	52%	76%
Malta		6 093	6 204	8 080		75%	77%
Poland	907 520	1 159 349	2 066 869	2 767 780	33%	42%	75%
Slovakia	112 504	26 382	138 887	177 220	63%	15%	78%
Slovenia	26 057	80 827	106 883	124 190	21%	65%	86%
EU 10	**1 622 127**	**1 791 704**	**3 413 831**	**4 470 400**	**36%**	**40%**	**76%**
Bulgaria	21 883	194 372	216 255	350 180	6%	56%	62%
Romania	313 752	687 344	1 001 097	1 586 690	20%	43%	63%
EU2	**335 636**	**881 716**	**1 217 352**	**1 936 870**	17%	46%	63%
EU27	**4 421 233**	**17 276 963**	**21 698 196**	**24 370 680**	**18%**	**71%**	**89%**

Source: FADN 2007, FSS 2007.

Table 11: Share of milk production by Member State in FADN 2007

Member State	Share of total milk production 2007
Belgium	2%
Denmark	3%
Germany	20%
Greece	0%
Spain	4%
France	17%
Ireland	4%
Italy	8%
Luxembourg	0%
The Netherlands	8%
Austria	2%
Portugal	1%
Finland	2%
Sweden	2%
The United Kingdom	10%
EU 15	**84%**
Cyprus	0%
The Czech Republic	1.6%
Estonia	0.4%
Hungary	1.3%
Lithuania	0.9%
Latvia	0.5%
Malta	0.0%
Poland	6.9%
Slovakia	0.6%
Slovenia	0.4%
EU 10	**12.6%**
Bulgaria	0.6%
Romania	2.6%
EU2	**3.2%**
EU27	**100.0%**

Source: FADN 2007.