Modelling the impacts of alternative CAP reform scenarios on Finnish agriculture

JYRKI NIEMI
Natural Resources Institute Finland (Luke)
jyrki.niemi@luke.fi

LAURI KETTUNEN
Natural Resources Institute Finland (Luke)
lauri.kettunen@kolumbus.fi

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Abstract

The objective of this paper is to assess the impacts of further reform of the Common Agricultural Policy (CAP) on the agri-food sector in Finland. An econometric model for Finnish agriculture - built as a part of the AGMEMOD project - was utilised. The simulations presented in the paper demonstrate that the model provides the basis for agricultural policy analysis. The impacts of the CAP reform experiments in Finland analysed can be summarised as follows: A small projected reduction in the production level, but a large decrease in farm income as a result of cuts in CAP support payments.

Keywords: **EU, CAP, Finland, AGMEMOD, impact assessment**

1 Introduction

The Common Agricultural Policy (CAP) of the EU has changed significantly since the early 1990's. Successive reforms have diminished the role of market management tools, and increased market orientation of the CAP. Further reform of the CAP is back on the political agenda as the EU gears up for the next round of changes, scheduled after 2020. Serious debate on the post-2020 CAP is expected to start following European Commission's legislative proposals which are scheduled to be released before summer 2018. In the context of the CAP reform negotiations, quantitative analysis is crucial for policy-makers. Agricultural models are important tools for assessing the impact of policies and economic parameters on market variables and sector income, though analysts face many challenges in modelling and analyzing CAP policies.

This paper examines the potential impact of further changes to CAP on the Finnish agri-food sector utilising an AGMEMOD model, which is an econometric model developed within the framework of projects financed by the European Commission. It is a sectoral, dynamic, partial equilibrium model, which takes into account national specifics and is built up with models for the EU28 Member States. Compatibility and performance of the country models is promoted by the common guidelines for model building in the AG-MEMOD partnership (Chantreuil et al. 2012).

One of the principal objectives of this paper is to assess the impact of various policy scenarios on the Finnish agriculture as part of the EU and the global market up to 2025. To simulate the response of the Finnish agricultural production and farm income on different policy changes over the period 2017-2025, the no-policy change baseline scenario will be conducted and alternative policy scenarios regarding the future CAP will be developed. To identify the policy effect, these alternative different policy scenarios will be compared with the 'non-policy change' baseline.

The paper is organized as follows. Section 2 provides an overview of the main trends in the development of agriculture as well as agricultural policies in Finland, which serves as starting point for the policy analyses. Section 3 summarizes the AGMEMOD model, and describes the policy variables implementation in AGMEMOD. The results of the policy scenarios conducted in this study are available in Section 4, while the conclusions can be found in the section 5.

2 Agricultural policy developments in Finland

The operating environment of Finnish agriculture and food economy changed radically when Finland joined to the EU in 1995 and the sector became subject to the market and guidance instruments of the CAP. It was no longer possible to regulate the market price level of agricultural products through national border protection and export subsidies. The minimum prices for agricultural products in the EU were much lower than the producer prices in Finland. The change in the operating environment highlighted the need to improve the competitiveness of Finnish agriculture and food industry. The transition from an economy with closed markets to open and more competitive markets was not easy to realise in a short notice.

When Finland joined the EU, the producer price level fell by 40% right in the beginning of 1995. The reduction in the input prices was not sufficient to compensate for the decrease in the total return, which is why lower producer prices and disadvantages due to the natural conditions were compensated through various support payments. On market prices alone, the survival of Finnish agricultural production would have been very difficult. Therefore, support payments have played a central role during the membership years in ensuring that Finnish agriculture has succeeded in the common EU markets.

In 2018, the support for Finnish agriculture under the CAP totals around € 1,412 million. This consisted of the CAP payments for arable crops and livestock (€524 million), less-favoured area (LFA) payments (€540 million) and environmental payments (€348 million). These are funded either by the EU alone or co-financed by the EU and Finland. CAP payments are an integral element of the common market organizations and they are funded in full from the EU budget. The EU contributes a little more than a quarter of the LFA and environmental payments. The rest is paid from national funds. The whole of Finland is entitled to LFA payments.

Besides the EU support about €323 million was paid to Finnish farms as national aid in 2016. The national aid scheme comprises northern aid (€295 million), national aid for southern Finland (€23 million), and certain other national aid programs (€5 million). Support payments to agriculture as well as their characteristics and amounts have had a central role in maintaining the preconditions for competition in different parts of the country and production sectors. Support payments are much more significant in the income formation of agriculture in Finland than in the other EU countries.

Most of the CAP support financed in full by the EU is paid through the single payment scheme adopted in 2003. However, in the CAP health check in 2008, Finland was authorized to pay 10 percent of the support as coupled payments until 2013. Coupled CAP support has been very important especially as regards the supply of domestic beef in Finland (Lehtonen 2010).

The possibility of applying coupled support payments remains in the EU agricultural policy. The reform of 2013 even allowed payment to be re-coupled to the production of certain commodities in the program period 2014–2020. In Finland, the share of coupled payments of the total amount of CAP support increased to 20 percent in 2015.

Despite the large changes caused by the EU accession, the membership has not led to any significant changes in the volume of Finnish agricultural production. The total production volume in 2016 was 98% of the level in 1995. The cereal cultivation area has slightly increased. The cereal area was 978,000 ha in 1995 and 993,000 ha in 2016. The area under bread cereals, in particular, has grown all through the EU period, and the area of spring wheat has more than doubled since 1995.

Milk production declined initially after joining the EU, but grew again between 1997 and 2001. Then the production decreased by 7%, but has increased again in recent years. In 2016, a total of 2 320 million kg of milk was produced in Finland. This is 1,2 % more than in 1995. Finnish meat production has increased significantly during the EU period. In 2015, a total of 400 million kg of meat was produced in Finland. This is almost 30% more than in 1995. Poultry meat production has grown the most, by as much as 172%. Pigmeat production grew by about 15% betweeen1995 and 2016.

3 The model

This section presents the EU agricultural policy analysis model known as AGMEMOD (AGricultural MEmber States MODelling), employed by the study for analysing the impacts of CAP policy changes on the Finnish agri-food sector. AGMEMOD is an econometric, dynamic, multi-product partial equilibrium model which is built up as a system that integrates 25 EU Member State models and the world level variables (Chantreuil et al. 2005, 2012, Hanrahan et al. 2010). Based on a common country model template, country level models with country specific characteristics has been developed to reflect the specific situation of their agriculture and to be subsequently combined in a composite EU AGMEMOD model. Many components of these templates are based on the information and common guidelines delivered by Hanrahan (2001), but then adapted to country-specific conditions. This approach captures the inherent heterogeneity of the agricultural systems existing across the EU while still maintaining analytical consistency across the country models via as close as possible adherence to template, facilitating the comparison of the impact of a policy across different member states (Salamon et al. 2008).

Each country level model is built up as a system of mutually related commodity markets models. The EU model distinguishes 34 primary and processed agricultural commodities, although not all commodities have been introduced in each country model. The ruling conditions to incorporate commodities for the individual country are that they should either be influenced by CAP, or they should be of major importance for a country agricultural production. Any commodity model includes behavioural equations and identities explaining production supply, demand creation and price formation. The supply and demand sides for all commodities have been modelled using behavioural equations based on the microeconomic theory of consumer and producer behaviour.

To represent rigidity in the adjustment of agricultural production levels and consumption patterns, previous production or stock levels are used in order to explain production development, while previous consumption levels are used to explain consumption growth. This introduces the dynamics into the model. Also, time trends are used as a proxy for technological change, while dummy variables are used to represent a special policy regulation (e.g. a quota period) or extraordinary events such as very bad weather and periods of animal health crises. Besides of the variables mentioned above, the agricultural production and consumption is influenced by agricultural policy variables.

Commodity markets are mutually linked via technological relations on the production side and via complementarity/substitutability relations on the consumption side. To assure common trend in agricultural price developments for all EU counties, the agricultural prices are not determined as market-clearing prices but they are linked to the EU prices via price transmission equations. Therefore, for each commodity market there is one endogenous variable, generally the export or import variable, which is determined through a supply and demand identity and which closes the commodity market balance. At the EU-level, the EU net export variable is used as the closure variable.

The EU price (the so called ‘key price’ in AGMEMOD language) is mostly defined as the price of the most important national market for that commodity in the EU. The EU key price formation equation is the only behavioural equation of the EU model. It explains the EU key price formation as a function of the world price, the intervention price level, the EU market equilibrium condition for the commodity in consideration - described by the EU level self-sufficiency rate - and EU trade policy variables. The self-sufficiency ratios in the EU key price equations, in combination with the country specific price transmission equations, ensure a mutual link between all national models. The remaining EU model equations consist of accounting identities, summing the demand and supply variables of all individual country models up to EU level balances and self-sufficiency ratios.

Among other variables, the agricultural policy variables influence the agricultural production and consumption levels in AGMEMOD. There are five types of policy variables, which influence both crop and animal production:

- intervention prices;
- direct (headage or area) payments;
- decoupled payments;
- budget available for the direct support measures.

The intervention prices influence the EU key prices and enter the stock level equations of the commodities in the country models. The coupled direct payments influence the production levels as well. It is also assumed that the decoupled payments increase the returns from production and accordingly influence the production levels. Finally, the level of the support payments is affected by the budget available.

The importance of policy variables on the development of agricultural production depends on the parameter values for these variables in the model equations. These parameters have been estimated econometrically or calibrated using the historical data up to 2015. In cases, where an estimated parameter in a particular equation had a wrong sign or a wrong magnitude, the parameter value had been set (or calibrated) based on expert’s knowledge and literature, while the remaining parameters in that particular equation were estimated. The economic plausibility of the estimated equations are regarded as superior to statistical tests and this could result to the adjustment of particular model specifications (although these could be statistically correct).

Analysts face many challenges in modelling and analyzing CAP policy reforms. As a result of the CAP reforms since 1992 price support mechanisms have progressively been transformed into decoupled direct payments for farmers (the so-called Single Farm Payment). Agricultural production is no longer required to receive the benefits of the payment. On the other hand, farmers will be subjected to cross-compliance conditions, in particular, the obligation to keep their land in good agricultural and environmental condition. The move from coupled payment policy instruments to payments that are decoupled from production has made estimating the future behaviour of farmers clearly more difficult (Salputra et al. 2011).

One important issue affecting the AGMEMOD model results is therefore the assumptions relating to the supply inducing impact of decoupled direct payments. Decoupling represents a policy shift for EU agriculture and there is considerable uncertainty regarding the extent to which these payments are treated by farmers as being 'truly' decoupled. The decoupled payments still require that farmers carry out some activity on land, and imposing conditions on maintaining land in agricultural use generate costs that make the "set aside" option less attractive than other alternative activities.

It is also known that risk-related effects of direct payments can be quite large and often a similar magnitude to standard relative price effects. Recent studies (Bhaskar and Beghin, 2009, Howley et al. 2010, Moro and Sckokai 2013), which have examined this issue suggest that decoupled payments appear to still have a positive impact on agricultural production, although this effect is less than would be observed if these payments were still fully coupled. The empirical observations in Finland after decoupling also indicate that the intensity of farming has not decreased as expected.

4 CAP reform analysis

'Business as usual' baseline scenario

The baseline scenario, which is applied to assess the suitability of the model for policy purposes, is a view of the world where policies remain unchanged over the projection period to 2025. More specifically, the baseline simulation corresponds to the continuation of EU agricultural policy agreed under the CAP agreement of 2013. The CAP budget and national ceilings of the support are expected to stay constant at the 2020 level until 2025. National support in Finland will stay at the 2016 level. Projections of world prices of agricultural commodities are taken from the 2016 OECD Outlook. First observation of the baseline is that changes in prices are relatively small (Table 1). Grain prices are also rather stable. Dairy prices are increasing slightly. Finnish prices follow closely the key prices.

The projections for the baseline are dependent on the assumptions of various macroeconomic indicators. The most important of these indicators are population, macroeconomic growth rates and inflation rates and key currency exchange rates such as the euro/US dollar. Macroeconomic projections for Finland date from spring 2015 and reflect the medium term outlook for economic growth in Europe. Finnish macroeconomic variables are updated in 2015.

Under the baseline, where current polices continue to 2025, no significant changes in the Finnish agri-food sector are projected to occur (Table 2). Livestock sector is characterized by the increase in the production of poultry meat and the decrease in the production of beef and pork.

Beef production - which is closely linked with milk production - falls due to the decrease in the number of dairy cows. Average slaughter weight is increasing but not enough to keep beef production at the present level. Therefore, an important issue in the future development of the beef production is on how the weakened supply of calves from the dairy herds is compensated by the specialized, suckler cow based beef production. Specialized beef cattle stock has been increasing in recent years but it is still relatively small compared to the beef production originating from the dairy sector.

Milk production in Finland is projected to decrease by five per cent by 2025 from the 2015 level (2267 mill litres). Total grain area seems to be rather stable towards 2025, but total grain production is increasing due to the rising hectare yields. The relatively stable grain area is also an indication of small supply elasticity with respect to price. Feed grains cover the major part of the grain production. Domestic use of feed grains depends mainly on livestock production. Livestock production is decreasing slightly and the feed use efficiency improves. Thus, the self-sufficiency in grain sector tends to increase.

Since milk and beef meat production is decreasing, it means that the pasture area for grass decreases and a part of that may be utilized for grain production. Total area for agriculture is not expected to grow, however. Low quality land will drop out of agricultural production and will be used for other purposes or will be afforested. The clearing of new land is rather limited.

Income development is assessed through the concept of farm income, which indicates the compensation for farm family's labour and capital invested in agriculture. Farm income is calculated by deducting the total costs from the total return on agriculture. Under the Baseline scenario, farm income is projected to decline by 26% from EUR 581 mill. in 2015 to 430 mill. in 2025. The productivity of agriculture is assumed to continue growing by 1 % a year on average.

Alternative CAP reform scenarios

In this section, we design four alternative scenarios for the CAP in the period 2021–2025. The alternative policy scenarios represent different reform options relating to the first (P1) and second pillar (P2) policies of the CAP.

As there are not yet European Commission's proposals for a reform of the CAP after 2020, this leaves many degrees of freedom in the design of the alternative policy scenarios. On the other hand, as we intend to estimate the results of the scenarios with the Agmemod model, the degrees of freedom are restricted to some extent as the scenarios have to be designed in such a way, that they can be modelled by the model. This implies that the scenarios have to use variables that are known in the Agmemod. Therefore, to assess the impacts of the possible future CAP reform decisions on the Finnish agriculture, the following policy experiments have been conducted:

• Scenario (1) introduces a common EU wide flat rate payment entitlement per eligible hectare across all Member States, but adjusted with purchasing power parity. Such a policy will not change the level of EU overall support within the first pillar, but it results in significant changes at a Member State level. Second pillar policies and coupled payments remain unchanged. In Finland the level of CAP support within the first pillar increases by 18 %.

• Scenario (2) imposes the same flat rate payment entitlement fixed at EUR 210 per eligible hectare applies to all Member States. The overall CAP budget within the first pillar decreases by

7% relative to the baseline scenario in the period 2021-2025. Second pillar policies and coupled payments remain unchanged. In Finland the level of CAP support within the first pillar decreases by 5 %.

• Scenario (3) assumes that budgetary resources devoted to CAP I pillar measures are significantly reduced. The first pillar CAP payments are reduced by 20 per cent in a linear fashion over a five year period during 2021–2025. Furthermore, the scenario assumes continuation of the system of direct payments, but more equity in the level of direct payments per ha between EU Member States. Second pillar policies and coupled payments remain unchanged. In Finland the level of CAP support within the first pillar decreases by 20 %.

• Scenario 4) Abolition of the Single Farm Payment and production linked payments in a linear fashion over a five year period during 2021–2030. Second pillar policies remain unchanged. In Finland the level of CAP support within the first pillar decreases by 50 % by 2025. All coupled direct payments are fully decoupled by 2025.

The results of these reforms will be compared with the baseline simulation results. All other variables – mostly macroeconomic variables concerning GDP population, inflation and world prices developments – are kept the same in all simulations.

Table 3 summarizes the scenario effects on the incentive prices faced by farmers in Finland. In the grain production, the direct supports take account for 28 percent in the gross returns (euro per hectare) in 2025. In the beef and milk sector, the direct supports take account for 22 percent, and 20 percent in the gross returns, respectively.

The move to EU wide flat rate payment (adjusted with purchasing power parity) increases the policy support impacts in Finland for grains, beef, and milk (relative to the baseline). However, the introduction of a €210/ha EU wide flat area payment reduces the policy support in Finland.

Since the scenario 1 increases the incentive price faced by grain farmers, the total grain area is projected to increase by 2 percent relative to the baseline (scenario 1). All other three scenarios, on the other hand, lead to a reduction in the production of grains (Table 4). Under the scenario 2, where a 210 Euro/ha flat area payment is introduced, the total grain area is projected to decline by one percent relative to the baseline. Under the scenario where the first pillar CAP payments are reduced by 20 per cent, the grain area is projected to be 2 percent lower by 2025 compared to the baseline scenario, and under the scenario where the SFP is gradually reduced to zero, the total grain area harvested is projected to be 6 percent lower by 2025.

The decline in the oilseed area under the scenarios 2-4 is clearly smaller than the change in the cereal area harvested. The largest change is projected to occur under the scenario where the SFP is gradually reduced to zero, in which the total oilseed area declines by almost two per cent. Changes in beef and veal production and cattle slaughter are a direct consequence of changes in total cattle stocks, which are made up of beef cow stocks and dairy cow stocks. As a result of the CAP reform changes, beef and veal output will decline slightly to stand at around 1-1,5 percent below the baseline levels by 2025.

The impacts of the four scenarios on the pig meat, poultry meat and egg production sectors are relatively minor. The scenarios are based on different levels of direct payments which are not playing important roles in these two sectors. Due to the tiny increases in the prices of grains and oilseeds, the cost of producing grain based meats and eggs increases only slightly relative to the baseline and, as expected, production of pig and poultry meat are quite stable under all of the scenarios.

As regards to milk, the main outcome of the alternate policy scenarios analysed is a relatively small decrease in milk production over the projection period to 2025. The support on milk is relatively smaller than the support on grains or meats. Therefore, by 2025 the milk incentive price does not decrease significantly under the scenarios from 1 to 3. The largest change is projected to occur under the scenario 4, where the SFP is gradually reduced to zero by 2030, and all coupled direct payments are fully decoupled by 2025. Under this scenario, milk production declines by 3% by 2025.

Although of the impacts of the four scenarios on production levels are very small, scenarios 2, 3 and 4 lead to very drastic reduction in Finnish farm income (Figure 1). Under the scenario 2, where a 210 Euro/ha flat area payment is introduced, farm is projected to decline by 6 percent relative to the baseline. Under the scenario where the first pillar CAP payments are reduced by 20 per cent, farm is projected to be 26 percent lower, and under the scenario where the SFP is gradually reduced to zero, farm income is projected to be 64 percent lower by 2025 compared to the baseline scenario. These drastic results are explained by the significant role of support payments in the income formation of Finnish agriculture, representing 40% of the total return on agriculture.

5 Discussion and conclusions

After the simulation carried out to assess the impacts of further reform of the Common Agricultural Policy (CAP) on the Finnish agro-food sector, the following questions naturally arise: What are the major findings and what do they mean? To what extent do the results reflect reality and to what extent can they be ascribed to the characteristics of the analytical tool used? How useful is the chosen modelling approach as an analytical tool? What are the methodological or analytical lessons to be learned from the research?

The projection and policy simulations presented in the paper demonstrate that the Finnish AGMEMOD model provides the basis for relatively straightforward baseline projection, and an initial framework for agricultural policy analysis. The baseline projections allow us to highlight key medium term market developments and draw some conclusions about future policy developments and their likely impact on Finnish agriculture. It should be also acknowledged that the Finnish model is well adapted for inclusion into a framework of multi-country model of the whole EU. Such a comprehensive interactive framework of model is suitable for the study of the commodity market, its responses to EU market changes, and the international transmission of concurrent price changes.

The impacts of the CAP reform experiments in Finland analysed by the model can be summarised as follows:

- A small projected reduction in the production level as a result of CAP policy reforms
- A large projected decrease in farm income as a result of cuts in support payments

However, caution is deemed necessary when interpreting these simulation results which show very small reactions in production levels, even though farm income is reduced considerably. There are some important modelling limitations involved in the use of AGMEMOD as a base for agricultural policy analysis. In particular, the effects of big policy shocks are clearly not adequately captured by the model. The development of agricultural production depends on the parameter values for price and policy variables in the model equations. These parameters have been estimated econometrically or calibrated using the historical data up to 2015. The historical data exhibit relatively small changes in prices and support payments, and the parameter estimates are known to apply best within the range of the variation of the variables. The confidence interval for the model estimates gets worse, if the values of the scenario variables are a good deal outside the observation range. Yet, in this study we used these parameter estimates for situations involving policy changes that are much larger than those in the historical data. Therefore, our linear equations of supply together with estimated low elasticities generate simulation results, which do not fully capture farmers' reactions to these changes.

One further point is that the projections produced with the model are conditional in that they depend on data used on the future evolution of the wider economy (economic growth rates, inflation and currency exchange rates), and on assumptions relating to the wider set of policies that affect agriculture (agricultural policy in non-EU countries, WTO). Large shocks to the wider macroeconomy and/or unforeseen changes in agricultural and other policies affect agriculture and are "missed" by this analysis.

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7 Tables

Table 1: Price development in Finland according to the baseline scenario, euro/100 kg.

Product	20005	2010	2015	2020	2025
Wheat	10.6	14.3	15.1	14.1	15.2
Barley	10.0	11.8	14.2	13.6	15.0
Oats	8.7	11.9	13.3	13.0	14.4
Rye	11.8	16.0	17.5	17.8	18.8
Oilseeds	25.8	28.1	28.3	27.0	26.0
Beef and veal	205.0	240.0	289.9	265.3	278.6
Pork	128.0	137.4	145.6	152.1	153.2
Poultry	114.0	123.4	138.8	129.0	128.5
Eggs	4.0	5.9	6.8	5.5	5.6
Cow milk	31.5	33.4	34.1	35.8	37.4

[1] Historic values for 2005 – 2015 and projected values for 2020 and 2025.

Table 2: Areas (000 ha) and production (000 tons) of main products and farm income (mill. euros) in Finland according to baseline scenario[1].

Product	2005	2010	2015	2020	2025
Total grain area, ‘000 ha	1186	1145	1017	1012	1026
Wheat area, ‘000 ha	215.1	211.0	242.0	237.0	250.0
Barley area, ‘000 ha	594.8	417.8	452.0	493.7	490.3
Oats area, ‘000 ha	345.9	278.9	283.8	258.3	262.4
Rye area, ‘000 ha	14.3	25.1	31.4	22.9	23.2
Oilseeds area, ‘000 ha	76.5	112.5	55.3	44.5	43.8
Beef production, mill. kg	86.7	83.0	86.5	80.7	78.9
Pork production, mill. kg	203.6	203.2	192.0	192.1	191.4
Poultry production, mill. kg	86.7	96.3	117.3	130.0	140.4
Eggs, mill. Kg	58.0	61.5	71.5	69.8	69.4
Cow milk, mill.kg	2362	2268	2367	2257	2243
Farm income, mill. euros	868	735	581	517	430

[1] Historic values for 2005 – 2015 and projected values for 2020 and 2025.
Source: own elaboration

Table 3: Changes of the incentive prices under alternative scenarios (in percent compared to the baseline scenario).

	Baseline 2025	Change, %			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
	euro/ha				
Grains – total returns	815	5,1	-1,0	-4,6	-13,1
- support price	225	17,8	-4,4	-18,6	-50,0
- market price	590	0,2	0,5	0,7	0,9
	euro/100 kg				
Beef price – total	359	1,7	0,1	-1,6	-8,0
- support price	80	6,8	-1,2	-7,3	-38,9
- market price	279	0,3	0,4	0,6	0,9
Milk price – total	46	0,5	-0,1	-0,0	-8,4
- support price	9	1,9	-0,8	-2,1	-45,0
- market price	37	0,2	0,3	0,5	0,5

Source: own elaboration

Table 4: Changes in the areas of grains, production of main animal products, and in farm income under alternative scenarios (in percent compared to the baseline scenario).

Item	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Total grains area	1,9	-1,0	-1,8	-6,2
Wheat	2,0	-1,1	-1,9	-6,3
Barley	1,9	-0,9	-1,8	-6,2
Oats	1,9	-1,0	-1,8	-6,3
Rye	1,5	-0,6	-1,4	-5,4
Oilseeds	0,4	-0,3	-0,4	-1,8
Beef and veal	0,7	-0,1	-0,8	-4,4
Pork	0,2	0,2	0,1	0,2
Poultry	0,3	0,3	0,3	0,4
Eggs	0,1	0,1	0,1	0,1
Cow milk	0,3	-0,2	-0,4	-3,1
Farm income	27,1	-6,2	-26,4	-63,9

Source: own elaboration