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The economic effects of the CAP reform on Aragonese sheep farms

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SUMMARY – The last CAP reform decouples subsidies from production and is, therefore, the most radical reform that has been implemented to date. This reform is generating many uncertainties in the sector and is perceived as a factor that will speed up structural changes. Aragon is an important sheep-farming region in Spain, both in terms of sheep census and the modernity and dynamism of the sector. Based on a sample of sheep farmers located in Aragon belonging to the Spanish "Farm Accountancy Data Network", the implications of the reform have been simulated at farm level, considering several scenarios.

Keywords: CAP, sheep systems, economic results, simulation.

RESUME – *"Effets économiques de la réforme de la PAC sur les exploitations ovines d'Aragon". Dans la dernière réforme de la PAC les soutiens directs seront découplés de la production, il s'agit, donc, d'une réforme sans précédent. Cette réforme a engendré beaucoup d'incertitudes et peut accélérer changements structurels dans le secteur. L'Aragon est une région espagnole où l'activité ovine est très importante au niveau des effectifs et de la modernité et du dynamisme du secteur. En nous basant sur un échantillon d'exploitations ovines du Réseau d'Information Comptable Agricole localisées dans l'Aragon, on analyse les implications de la réforme de la PAC sur les types d'exploitations, en considérant plusieurs scénarios.*

Mots-clés : *PAC, sytèmes ovines, résultats économiques, simulation.*

Introduction

The first Common Organisation of Sheep meat Markets was established in the European Union in 1981 (CEE, 1982); with three supporting pillars: (i) "*general intervention"* in relation to the evolution of the market price, which was never used; (ii) the *"incentives"* to exports to third countries, which has been employed on very few occasions; and (iii) the *"premium system"* which is still maintained today and has become the only regulating mechanism currently in practice. Three reforms have been introduced since then, the first in 1988 limited the maximum number of sheep per farm eligible for the premium; in 1992, the rights system was introduced, and in 2000 the first single premium per sheep system for all countries that includes a supplement for farms in less-favoured areas.

Regardless of the general negative effects that have been brought to the attention of the CAP, the appraisals in relation to the sheep meat sector have, in general, been positive. It can also be said that this sector has been one of the least burdensome for EU budgets. In Spain the CAP for sheep farming has contributed to maintaining farmers' income; it has palliated market uncertainties and has permitted the modernisation and capitalisation of farms.

The measures established in the *"new CAP"* (2003) that will come into force in 2006 will bring about a radical change in the present situation, especially in the channels for sustaining incomes. The most noteworthy characteristic is what has been termed decoupling of subsidies from production. In Spain, in the case of sheep farming, a partial decoupling (50%) has been agreed, that is, the premium is 100% for the flock that is maintained (the mean between 2000 and 2002) and 50% for the flock that disappears. The coupled part implies the commitment to maintain the flock. The period of application will be from 2006 to 2013. Another important characteristic of the reform is *modulation*, which implies an annual reduction of the premium over this period of time (3% in 2006; 4% in 2007 and 5% from that year onwards). The application to sheep farming of other aspects such as cross-compliance or those referring to rural development are not specified.

With regard to the expectations and business behaviour of farmers, the reform introduces more uncertainties. The freezing and gradual reduction of subsidies with market-liberalising objectives, may also be interpreted as a de-incentiving measure that may accelerate the process of withdrawal from the sector, distorting its structure and creating difficulties for those businesses that remain active.

When considering the behaviour of family-run farms it must be taken into account that apart from economic factors they are affected by many others of a sociological or psychological nature (McGregor *et al*., 1996; Gil *et al*., 2003). However, the measures introduced by economic policy and their incidence on economic results, in so far as they can determine farm sustainability, may have a decisive influence.

The aim of this work is to carry out an initial evaluation of the possible economic incidence of the CAP reform (2003) on sheep meat farms in a Mediterranean region and, in particular, on farmers' disposable income (Net Value Added +depreciation).

Material and methods

The results of the samples of Aragonese sheep farms of the Farm Accountancy Data Network (2002) have been used as the basic information (RCAN, 2004). We have considered mean data referring to the whole sample and to farms of 8<16 and 16<40 European Size Unit (ESU), as equivalent to those of the three standard farms. The mean characteristics that form the initial situation in the analysis are shown in Table 1.

These are farms with agricultural land. The greater surface area of the largest group is due to tenancies. Work is of a family nature and employed labour does not exceed 10% of total availabilities. Total work availabilities are far from proportional to the economic dimension or to the flock. Total output per head is slightly higher in the group of the smaller farms but the difference is greater if we consider animal output only. The percentage of total revenue accounted for by the subsidies is slightly more in the group of larger farms. Unlike revenue, costs per head are higher in the larger farms. Moreover, in these farms, subsidies account for 84% of Net Value Added, compared to just 60% in the smaller ones.

Based on the initial situation of these three *"farm types"* the evolution of their annual disposable income (revenue less costs) has been estimated to the year 2013, measured in current values of 2005. The farm structure has been considered to be stable (except for the flock when this is indicated) and invariable with regard to functioning, technical results, cost structure, etc.

Three hypotheses have been considered: (i) that farms maintain their sheep farming activity with the same flock size; (ii) that they abandon this activity but continue with the agricultural activity of the farm; and (iii) that as well as withdrawing from this activity the farmer has a remunerated job outside the farm (taking up half of his day's work) and receives half of the average guaranteed annual interprofessional wage. Throughout the period studied, each farm receives the modulated premiums to which it is entitled, as established by the new CAP reform. Revenues are maintained constant in nominal values and the costs increase by 1% per year. Annual disposable income is calculated at the present value (2005) in accordance with the following formula:

$$\text{Present Disposable Income} = \frac{I_n - C_n}{(1+k)^n}$$

where I_n = Total revenue year n (2006 to 2013)
C_n = costs year n
k = discount rate established

The discount rate includes annual inflation previsions of 3% up to 2009 and 2.5% for the rest of the period up to 2013 as well as 3% capital interest and 2% business risk.

Table 1. Average characteristics of Aragonese sheep farm types (2002)

	Smaller size†	Larger size††	Aragón
No. farms	13	31	53
Structure			
Utilized agricult. area (ha)	26.0	40.4	35.4
% own land	76.2	51.7	59.3
Sheep	379	822	542
Labour input (AWU)	1.1	1.3	1.2
Paid labour input	0.0	0.1	0.1
Revenue (€)			
Total output (sales)	23,095	47,860	32,983
% animal production	95.3	92.4	94.3
Subsidies	12,331	27,014	17,594
% crops	6	5.3	6
Total revenue	35,426	74,874	50,577
Animal output/sheep	58.1	53.8	57.4
Inputs (€)			
Crop specific inputs	759	1607	1.136
Livestock specific inputs	10,709	30,135	19,076
No specific inputs	2,504	8,508	5,780
Depreciation	611	2,935	2,188
Interest and financial charges	49	958	597
Taxes	96	354	209
Total inputs	14,728	44,497	28,986
Livestock specific inputs /sheep	28.3	36.7	35.2
Economic results (€)			
Disposable Income	21,309	35,034	24,966
Net Value Added (NVA) †††	20,698	32,099	22,778
NVA / AWU	18,816	36,815	27,486
% subsidies / revenue	34.8	36.1	34.8
% subsidies / NVA	59.6	84.2	77.2

Source: RCAN (2004).
†<8<16 ESU (9,600-19,200 € Gross Margin); ††>16<40 ESU (19,200-48,000 € Gross Margin);
††† Net Value Added: Total revenue-Total inputs.

Results and discussion

The results of the simulations are linked to the calculation hypotheses. The simulations of economic results are sensitive to the evolution in prices, both those of productive factors and raw materials and of production. The hypotheses of price previsions considered in this initial analysis are simplistic and pessimistic, although the annual percentage of premium modulation established does not seem to be definitive and it could finally be greater.

The results indicate that the CAP reform has a significant impact on sheep farmers' income especially due to the reduction in the subsidies received (Tables 2 and 3). Throughout the period the subsidies are reduced by up to 65% compared to the those of the base period, i.e. to an annual mean accrued rate of 4.4%. In the case of the hypotheses that consider withdrawal from the activity, the reduction is obviously greater. In this case the subsidies received in 2013 will amount to 34.5% of those initially received (accrued annual rate of 8.2%). It must be taken into account that these percentages refer to the monetary units of each year, whilst their reflection on disposable income is in current values.

The reduction of subsidies is decisive in the considerable decrease in disposable income, considering their relative weight in the global income of farms and their participation in the formation of income over the past few years.

Table 2. Evolution of disposable income (present value 2005) (000 €)

Year	Larger sheep farms			Smaller sheep farms		
	No change Hypothes. 1	Abandonment Hypothes. 2	Abandonment Hypothes. 3	No change Hypothes. 1	Abandonment Hypothes. 2	Abandonment Hypothes. 3
2006	30.18	9.49	12.66	19.88	4.73	7.89
2007	26.58	8.19	11.11	17.83	4.11	7.03
2008	23.41	7.05	9.76	15.99	3.56	6.27
2009	20.61	6.06	8.56	14.35	3.09	5.59
2010	18.66	5.35	7.72	13.26	2.75	5.12
2011	16.48	4.60	6.80	11.96	2.39	4.59
2012	14.54	3.94	5.99	10.79	2.07	4.12
2013	12.81	3.37	5.27	9.74	1.79	3.69

Table 3. Evolution of subsidies (000 €)

Year	Aragon		Larger sheep farms		Smaller sheep farms	
	No change Hypothes. 1	Abandonment Hypoth. 2 and 3	No change Hypothes. 1	Abandonment Hypoth. 2 and 3	No change Hypothes. 1	Abandonment Hypoth. 2 and 3
2005	17.07	9.05	26.20	13.79	11.96	6.34
2006	16.38	8.68	25.16	13.24	11.48	6.09
2007	15.56	8.25	23.90	12.58	10.91	5.78
2008	14.79	7.84	22.70	11.95	10.36	5.49
2009	14.05	7.45	21.57	11.35	9.84	5.22
2010	13.34	7.07	20.49	10.79	9.35	4.96
2011	12.68	6.72	19.46	10.25	8.89	4.71
2012	12.04	6.38	18.49	9.73	8.44	4.47
2013	11.44	6.06	17.57	9.25	8.02	4.25

If the farming activity is continued, the overall disposable income of farms will have dropped, by 2013, to 42.2% of that of the basis year (a reduction at an accumulative annual rate of 7.2%) Only slight differences have been observed between the groups of small and large farms (47.1% and 45.6% respectively). These differences are explained by the different economic structure of both groups: in the smaller ones greater income is observed, with subsidies having less weight in the total income and with less unit costs per head.

Disposable income plummets in the hypotheses of withdrawal from the activity. In the first case, the set of farms would lose 90.6% of income (91.3% in the case of small farms and 88.9% in the case of large farms) with a mean accrued annual reduction of more than 11%. In hypothesis 3, withdrawal from activity and work outside the farm, the income earned by the farms increases, although it is still far from that obtained from the sheep farming activity. The set of farms would loose, in 2013, 81.8% of annual income (Figs 1, 2, and 3)

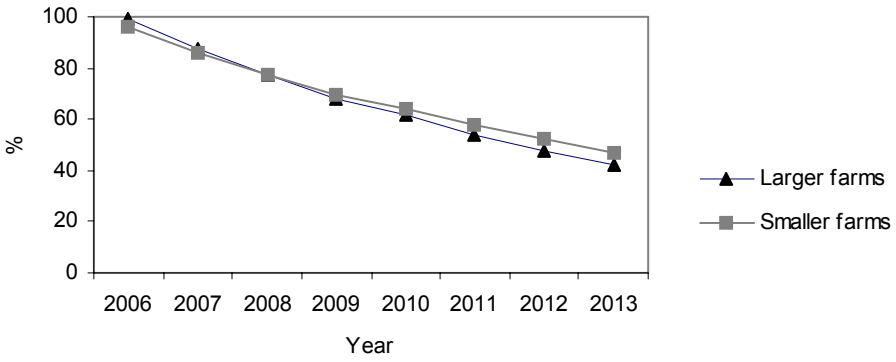

Fig. 1. Evolution of present disposable income. Hypothesis 1 (Basis year 2005=100).

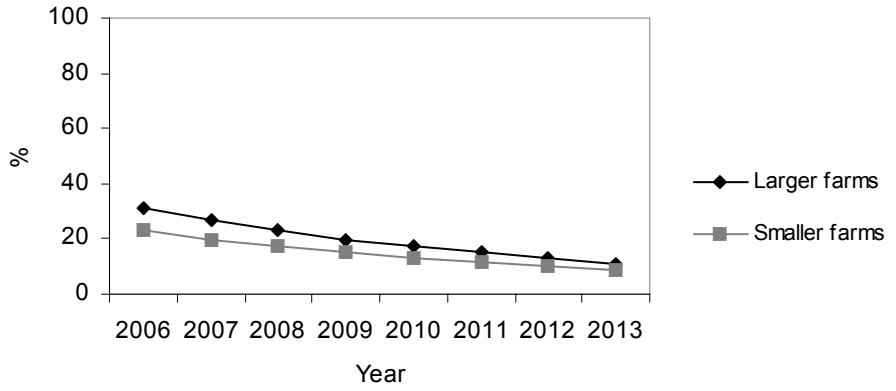

Fig. 2. Evolution of present disposable income. Hypothesis 2 (Basis year 2005=100).

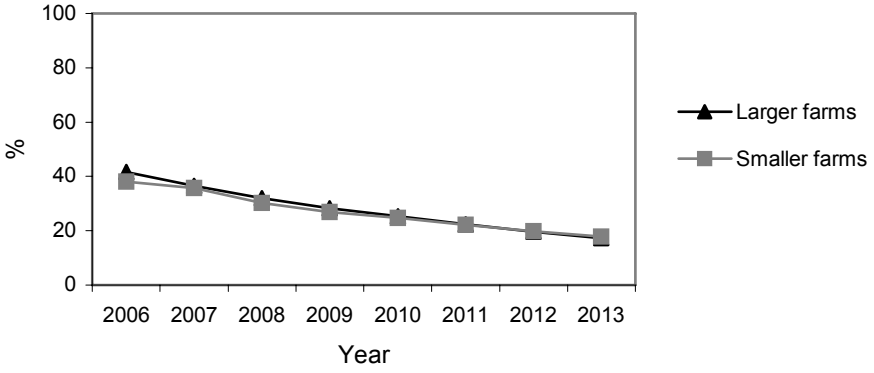

Fig. 3. Evolution of present disposable income. Hypothesis 3 (Basis year 2005=100).

These projections would seem discard the risk that the CAP reform encourages withdrawal from the activity, especially if it is considered for the whole of the period of application. However, on farms with short-term business strategies or particular, sociological or other types of characteristics, the incertitude that the reform provokes may accelerate the process of abandonment of the activity that this sector is experiencing.

We consider that the analysis should be continued, contemplating, at the very least, a more

favourable ratio between prices paid and prices perceived, the increase in the size of the flock and an improvement in the current productive parameters of sheep production.

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