What explains farmers' participation in Rural Development Policy in Italian southern region? An empirical analysis

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Abstract

The importance of farming activities in disadvantaged areas is acknowledged by the Common Agricultural Policy (CAP) within its rural development policy whose significance has grown in the last two decades. In this paper an econometric approach is developed to consider the likelihood of farmers participating in various rural policy measures in disadvantaged areas, e.g. southern regions in Italy. We carried out an empirical analysis by using a bivariate probit model aimed to analyse the main driver factors which lead farmers' participation in Rural Development Policy in such areas. We used an extensive cross-sectional database related to the Italian Farm Accountancy Data Network for 2009. Our results indicate that location and farm(er) socio-economic features are the major factors. Moreover, complementarity was found between different policy schemes.

Keywords: Rural development policy, bivariate probit model, Italian southern regions.

Résumé

L'importance des activités agricoles dans les zones défavorisées est reconnue par la Politique Agricole Commune (PAC) dans son volet développement rural qui a pris de l'ampleur ces deux dernières décennies. Dans ce travail, nous avons utilisé une approche économétrique pour évaluer la probabilité de participation des exploitants à différentes mesures de politiques rurales dans les zones défavorisées telles les régions de l'Italie du sud. Nous avons réalisé une analyse empirique en appliquant un modèle probit bivarié afin d'étudier les principaux facteurs qui déterminent la participation des producteurs à la Politique de Développement Rural dans ces zones. Nous avons adopté une base de données transversales corrélées au Réseau des données comptables des exploitations agricoles italiennes pour l'an 2009. Les résultats indiquent que la localisation des exploitations et les caractéristiques socio-économiques des exploitants et de leurs entreprises sont les facteurs principaux. De plus, une complémentarité a été mise en évidence entre les différents programmes politiques.

***Mots-clés**: Politique de développement rural, modèle probit bivarié, régions de l'Italie du sud.*

1. Introduction

Despite the long-term trend of urbanization, rural areas still represent in the EU-27 some 91% of the territory and, according to OECD definition which is based on population density, 56% of the population. In 2004, they generated 43% of GVA in the EU-27 and provided 53% of the employment. The role of farming in the conservation of the environment and landscape in rural areas in the EU is well known and acknowledged. Such role is particularly relevant in disadvantaged region, e.g. southern Italian regions, where farming is still one of the most important sources of income for the population living there contributing to create the economic conditions for social viability of these regions.

One key point to be outlined is that farming activities in disadvantaged areas are carried out mainly by small farms. There are several reasons pushing for such organization which are related on one side to the accessibility of factor markets, particularly labor and land, on the other side to natural resources disadvantages.

The importance of farming activities in disadvantaged areas is also acknowledged by the Common Agricultural Policy (CAP) within its rural development policy whose significance has grown in the last two decades. Both the measures of direct payment to farmers and those tied to RDPs now aim to achieve a variety of objectives linked to a balanced development perspective of European society. Thus the commitments undertaken by farmers as regards animal welfare, energy saving, water use efficiency, biodiversity and climate change are a condition for access to most agricultural policy options. However, broadly speaking the whole set of agricultural income support policies may be thought of as having the objective of boosting the conditions for the sustainability of farming activities also in disadvantaged areas. At present, the main instrument of farm income support consists in direct payment (DP). It is also the CAP's main intervention instrument in terms of expenditure, accounting for 75% of the total. However, this is an extremely sensitive context in which to intervene, given on the one hand the close dependence between farm income and DP and, on the other, the significant shift in resources that could be generated by an inevitable action of re-equilibrium. These two aspects were clearly pointed out in a recent study by the European Parliament[4]: the contribution of DP to income generated by European farmers is on average 35% and for many Member States this rises to over 50%.

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[4] "Element of the post 2013 CAP", Allan Buckwell – DG IPOL, EU Parliament (2009).

Future prospects of post 2013 CAP are likely to exacerbate these issues; in this context, the implementation of adaptation strategies and the possibility supplied by RDP policy would become relevant for farmers competitiveness.

In this context, farmers' motivations for participating in different RDP measures have been analyzed elsewhere (Peerlings and Polman, 2008; 2009; Defrancesco et al., 2008, Pascucci et al., 2011). Most such studies have focused on farmers' participation in Agro-Environmental Schemes (AES) in different EU contexts. The findings suggest that the decision on participating in AES is driven by several potential factors, like farm structural features, specialization, non-farm activities, the local context, policy networks, institutions, and farmers' attitudes (Beedell and Rehman, 2000; Wynn et al., 2001; Defrancesco et al., 2008). It is believed that the way these factors interact and influence the likelihood of farmers entering RDP measures is crucial in order to assess whether the capacity of a policy intervention is successful. This eventuality is more stressed if we focus the attention on farmers located in disadvantaged area.

Moving from such premises the objective of this paper is to determine which are the factors affecting the capability of these farmers to participate in RDP policy, so that, we are wondering for what combinations of factors correlate significantly with the occurrence of participation in RDP measures in disadvantaged area and, to what extent do the factors explain the variance of participation in RDP measures by different types of farmers in these area?

2. The methodological approach

The empirical analysis on Italian farmers' participation in RDP measures located in southern regions is based on the information from the 2009 Farm Accountancy Data Network (FADN). This dataset contains detailed information on more than 4.500 farm businesses for these regions[5]. The Italian National Institute of Agricultural Economics (INEA) is responsible for collecting and organizing the FADN on a yearly basis. The data are representative for the population of farmers in Italy and are in keeping with the formal procedures of the European Commission. Data are counter-checked by the National Institute of Statistics (ISTAT). The sample is stratified on three key variables, i.e. location (7 NUTS2 regions), economic size (6 classes) and farm types (19 types) (INEA, 2008). We use the information related to farm location to attach site-specific variables to each observation. In 2009 FADN recorded farmer participation in RDP measures for the different Regional Rural Development Plans 2000-2006 as defined by Council Regulation (EC) 1259/99. Accordingly, we define the two types of RDP contracts: Supporting Competitiveness Schemes (SCS) and Supporting Agri-Environmental Services (SAS), as described in table A1 in the Appendix.

Table 1 describes the variables that are used to explain the choice of RDP contracts. We select the types of explanatory variables that have been signalled in the literature as most affecting RDP contractual costs and hence farmers' participation, namely farm and farmer characteristics, institutional characteristics and location.

In our empirical model we considered farm characteristics, especially farm size (*small*), specialization (*arable, horticult, perm_crop, livestock*) and structure (*fixasset*), which were considered of primary importance, in literature, to explain farmers' participation for example in different agri-environmental contracts (Wynn et al., 2001; Damianos and Giannakopoulos, 2002; Vanslembrouck et al., 2002; Polman and Slangen, 2008; Defrancesco et al., 2008; Peerlings and Polman, 2009). Moreover, Jongeneel et al. (2008) indicated that income from non-farming activities also had an important and positive role in conditioning farmer likelihood to participate in AES. Therefore, the variables related to labour use (*lu_uaa, fam_labor*), off-farm income (*offfarm*), land tenure (*uaa_rent*) and farm management (*dev_plan, acc_serv*) were also taken into account. Following previous findings in Defrancesco et al. (2008) and Polman and Slangen (2008) we also took into account the role of farmer-specific characteristics in our model and hence controlled for farmer's style of management (*manager*), age and experience (*age*) and presence of a successor (*succes*).

Polman and Slangen (2008) also highlighted the relevance of the location of farmers in different geographical contexts, that we carried out into the econometric analysis.

Table 1 - *Description of variables.*

Variables		Explanation	Mean	Standard deviation
Dependent variables				
Participating in Supporting Competitiveness Schemes (SCS)		1 if farmer participates in SCS	0.048	_
Participating in Supporting Agri-Environmental Services (SAS)		1 if farmer participates in SAS	0.121	_
Internal factors (farm/farmer)				
Farm characteristics				
Farm size	*small*[a]	1 if farm < 16 ESU	0.31	0.35
Farm structure	*fixasset*[a]	Total fixed assets	6,532	21,287
Farm specialization	*arable*[a]	1 if specializing in arable crop production	0.26	0.38
	horticult[a]	1 if specializing in horticulture	0.18	0.22
	perm_crop[a]	1 if specializing in permanent crops	0.21	0.41
	livestock[a]	1 if specializing in livestock	0.08	0.25
Labour use	*lu_uaa*[a]	Labour intensity measured in Annual Working Units (AWUs) per hectare of Utilized Agricultural Area (UAA)	7.32	372.44
	fam_labor[a]	% AWU provided by family members	92.54	16.32
	offfarm	1 if family off-farm labour is present		
Land tenancy	*uaa_rent*[a]	% UAA rented	27.35	31.24
Farm management	*dev_plan*[a]	1 if farm follows a business plan for development	0.4126	0.4275
	acc_serv[a]	1 if farm uses an accountancy service	0.0614	0.2173
Farmer characteristics				
Type of land manager	*manager*[a]	1 if manager also provides farm labour	0.94	0.27
Farmer age	*age*[a]	Number of years	57.15	11.69
Presence of successor	*succes*[a]	1 if a successor is present	0.15	0.18
External factors				
	assoc[a]	1 if member of an association	0.29	0.42
Farm location				
Population density	*pop_den*[c]	Population density per km^2	176.54	479.17
Mountain	*mount*[b]	1 if located in a mountainous area	0.24	0.42

Source: (a) INEA, 2006; (b) MIPAAF, 2007; (c) ISTAT, 2001 (d) ISTAT, 2006.

[5] Molise, Campania, Apulia, Basilicata, Calabria, Sicily and Sardinia.

These variables concern whether some farms are situated in a mountainous area (*south* and *mount*) and the degree of urbanization in the area in question (*pop_dens*).

3. Econometric specification

To answer the aims of this investigation, in our econometric strategy we implemented a Bivariate Probit Model (BVP). We carried out a BVP analysis to analyze the complementarity/substitutability of SCS and SAS contracts (Polman and Slangen, 2008).

The BVP model with endogenous dummy belongs to the general class of simultaneous equation models with both continuous and discrete endogenous variables introduced by Heckman (1978), and it is listed among the recursive models for dichotomous choice (Model 6) by Maddala (1983). The recursive structure builds on a first reduced form equation for the potentially endogenous dummy and a second structural form equation determining the outcome of interest.

With a bivariate probit model approach the empirical model related to farmer j choosing an RDP contract s can be written as follows:

$$Y_{sj}^{*} = X_{j}^{'}\beta_{s} + \varepsilon_{sj} \qquad \forall s \in S \qquad (1)$$

$$Y_{sj} = 1 \quad if \quad Y_{sj}^{*} > 0$$
$$Y_{sj} = 0 \quad otherwise \qquad \forall s \in S \qquad (2)$$

where Y_{sj}^{*} is the unobservable value of contract s for farmer j (latent variable), Y_{sj} is the observable contract choice, for s = 1 in case of SCS type of contracts and s = 2 in case of SAS type of contracts. As defined in equation (3) $X_{j}^{'}$ is the vector of explanatory variables for farmer *j*, β_{s} a vector of coefficients for contract s and ε_{sj} a vector of unobservable characteristics related to farmer j and contract s. The BVP model enables us to model farmers' decisions to choose more than one contract simultaneously (Greene, 2003). Since the outcomes are treated as binary variables any combination of contracts is possible. The contracts can be complements rather than only substitutes (Polman and Slangen, 2008). The two equation model (one for s = 1 and the other for s = 2) is featured by correlated disturbances, which (due to identification reasons) are assumed to follow a normal distribution (variance is normalized to unity). That is, for each j^{th} farmer:

$$E[\varepsilon_{1j}] = E[\varepsilon_{2j}] = 0$$
$$\mathrm{cov}[\varepsilon_{1j}, \varepsilon_{2}j] = \rho = \{\rho_{12}\} \qquad (3)$$
$$\mathrm{var}[\varepsilon_{1j}] = \mathrm{var}[\varepsilon_{2j}] = 1$$

where ρ is a vector of correlation parameters denoting the extent to which the error terms co-vary. Should this be the case, we would need to estimate the two equations jointly, following a bivariate normal distribution: $\{\varepsilon_1, \varepsilon_2\} = \phi_2$ (0,0,1,1, ρ). Because in this model we are interested in simultaneous contractual decisions we have to define the joint probability. For example, the probability of farmer j choosing the two types of RDP contracts at the same time ($Y_{1j} = Y_{2j} = 1$) would be:

$$\gamma_{sj} = P(Y_{1j} = 1, Y_{2j} = 1) = \int_{-\infty}^{\varepsilon_{1j}} \int_{-\infty}^{\varepsilon_{2j}} \phi_2(X^{'}{}_{1j}\beta_1, X^{'}{}_{2j}\beta_2, \rho) d\varepsilon_{1j} d\varepsilon_{2j}$$
$$= \Phi_2(X_{1j}^{'}\beta_1, X_{2j}^{'}\beta_2) \qquad (4)$$

In this model the log-likelihood is then a sum across the four possible contracting variables (that is, four possible combinations of participation ($Y_{1j} = Y_{2j} = 1$) and non-participation ($Y_{1j} = Y_{2j} = 0$) times their associated probabilities (Greene, 2008). These probabilities may be drawn from (4) as well.

4. Results

Estimation results and measures to assess the goodness of fit for BVP model are reported in table 2. Maximum likelihood estimates were predicted using STATA 11. First of all, we discuss the robustness test and then the impact and significance of each explanatory variable by comparing the results obtained in the two empirical models.

In BVP model 21 variables were used. In order to control for potential multicollinearity we checked pairwise correlation coefficients between all 22 variables used in the BVP model and MNL model. None of the pairwise correlation coefficients exceeded 0.5, with the largest correlation coefficient being 0.40. We also calculated the variance inflation factors (VIF) using OLS (thus basically assuming linear probability model specifications). The highest VIF was 1.98 (average of 1.285) (see Menard 2002: 76). This value was below the often chosen critical value of 10 (Hill and Adkins, 2001). Hence we can confirm that our models were not subjected to multicollinearity issues.

Second, exogeneity was tested using the Durbin-Wu-Hausman (DWH) augmented regression test in bivariate probit model (Davidson and MacKinnon, 1993). The results show that the t-ratio test for the individual insignificance of the predicted/residual values for each SAS and SCS variable in the augmented regression for the two endogenous variables is significant, meaning that the null hypothesis of exogeneity was rejected[6]. Hence, our findings imply that the SAS and SCS variables were not treated as exogenous in bivariate models and the estimation method suggested by Gourieroux (2000) was applied. Moreover, the correlation between the residuals of two equations (ρ) was significantly different from zero (see table 2), meaning that SAS and SCS regressors variables were treated as endogenous when we estimated the two probits jointly. In other words, since (ρ) is different from zero, then random shocks to the second SCS/SAS equation affect the SAS/SCS outcome, respectively.

[6] Follows a Student's t distribution: t-test for SCS=14.46(<0.0001); SAS=14.40(<0.0001).

Several of the explanatory variables related to farm characteristics showed a significant impact on the likelihood of farmers participating in RDP contracts. For example, being a small farm (*small*) increases the likelihood of participating in an SCS contract, but especially with a joint decision on SCS and SAS. As stated in the previous section the role of farm size is very controversial. In this case the result is in line with previous findings from Vanslembrouck et al. (2002) for small farm participation in environmentally-oriented policy contracts, while it is somewhat new in terms of participation in investment-related policy contracts. On the other hand, farm structure (*fixasset*) is significantly different from zero when SCS and SAS decisions are made jointly. This result suggests that the farm structure increases the probability of participating in both contracts. As regards farm specialization (i.e. the intensity of input use and type of management), the results indicate that the less specialized the farms are in crop production (*arable*), the higher the probability of participating in an SCS contract. By contrast, this parameter is not statistically significant in SAS contracts and when farms participate in an RDP contract jointly. In the same line, farms specialising in horticulture (*horticult*) are less likely to participate in RDP contracts, both individually and jointly. However, farms specialising in permanent crops (*perm_crop*) are less likely to participate in an SAS contract. Finally, those farms specialising in livestock (*livestock*) are more likely to participate in RDP contracts. As regards labour use input, the results show that family farms (*off-farm*) and farms with intense use of labour (*lu_uaa*) are less likely to participate in RDP contracts (Capitanio and Adinolfi, 2010). To illustrate, the intensive use of labour increases the likelihood of taking part in an SAS contract and when SAS and SCS contracts are chosen jointly. Land tenure (*uaa_rent*) shows a negative significant effect only on the likelihood of farmers contracting an SAS policy while it has a positive effect in the event of participation in both types of policy. In contrast, dairy farms, and farms with "advanced" management systems, such as the adoption of a business and development plan (*dev_plan*), and the use of accountancy services (*acc_serv*), show a positive probability of using SCS and SAS types of contracts.

The results of our analysis reveal that farmer characteristics also matter. To illustrate, the greater the farmer's age (*age*), the lower the probability of participating in SCS and SAS contracts. In contrast, the positive sign of the coefficient of the manager variable confirms that those farms with the position of manager (*manager*) are more likely to participate in both SAS and SCS contracts.

With regard to explanatory variables concerning social capital issues, negative social embeddedness (*crim*) leads to lower farmer participation in RDP contracts. Nevertheless, those farmers who are members of an agriculture-related cooperative (*coop*) are likely to participate in SAS and RDS contracts jointly, while those farms who are members of an association (*assoc*) are more likely to participate in an SCS programme. Polman and Slangen (2008) revealed that higher levels of trust in society increased the likelihood of participation in AES contracts. Agricultural networks focus on improving agricultural practices. For example, participation in more than general networks increased the probability of choosing agri-environmental contracts because such farmers felt greater social responsibility. In contrast, participation in agricultural networks was expected to positively influence participation in investment supporting schemes because the farmers were more oriented towards improving agricultural operations.

Finally, with respect to farm location, our findings suggest that being located in a mountainous area (*mount*) increases the probability of participation in RDP contracts.

Table 2 - *Estimation results of the BVP model.*

Explanatory variables		BVP (Model 1)								
		SCS				SAS				
		Coef.	Robust Std.Err			Coef.	Robust Std.Err			
Farm characteristics	*cons*	-1.7345	(0.1588)	***		-0.3810	(0.0981)	***		
	small	0.3612	(0.0442)	***		0.1719	(0.0283)	***		
	fixasset	0.0000	(0.0000)	***		0.0000	(0.0000)			
	arable	-0.0925	(0.0738)			-0.0637	(0.0400)			
	horticult	-0.3715	(0.1290)	***		-0.5747	(0.0721)	***		
	perm_crop	-0.0958	(0.0647)			0.0217	(0.0378)			
	livestock	0.3867	(0.06071)	***		0.1643	(0.0387)	***		
	lu_uaa	-0.0106	(0.0043)	***		-0.0017	(0.0010)	**		
	fam_labor	-0.0073	(0.0009)	***		-0.0023	(0.0006)	***		
	offfarm	0.1766	(0.0467)	***		-0.1268	(0.0311)	***		
	uaa_rent	0.0002	(0.0005)			0.0003	(0.0003)			
	dev_plan	0.4500	(0.0467)	***		0.2304	(0.0264)	***		
	acc_serv	0.7917	(0.0482)	***		0.8606	(0.0426)	***		
Farmer characteristic	*manager*	0.1993	(0.0935)	**		0.0913	(0.0526)	*		
	age	-0.0016	(0.0016)			-0.0030	(0.0010)	***		
	succes	0.0898	(0.0780)			-0.0474	(0.0536)			
Social capital	*criminalit*	-0.0121	(0.0020)	***		-0.0156	(0.0013)	***		
	coop	0.1610	(0.0412)	***		0.0773	(0.0262)	***		
	assoc	0.1438	(0.0480)	***		-0.1048	(0.0290)	***		
Farm location	*south*	-0.8575	(0.0832)	***		-0.0818	(0.0309)	***		
	pop_den	0.0000	(0.0007)			-0.0004	(0.0007)	***		
	mount	0.6830	(0.0407)	***		0.2953	(0.0314)	***		
	$\rho_{(SCS,SAS)}$	0.2097	(0.02080)	***						
		Likelihood ratio test of $\rho_{(SCS,SAS)}$= 0: chi2(1) = 105.271 > chi2 = 0.0000 Wald test(42)= 2250.85 chi2=0.000 Log likelihood = -8936.29663; Pseudo-R^2 = 0.1665; LR chi2(63) = 2250.85 P > chi2 = 0.0000 AIC= 17962.59 BIC= 18306.43 % correctly predict ion 84.5%								

Statistical significance: * = P < 0.10; ** = P < 0.05; *** = P <0.01;
Standard errors in parenthesis; N.obs. = 4,652

5. Discussion and Conclusions

In this paper we tried to develop a research framework in order to highlight the main factors affecting farmers participation in two major typologies of RDP measures in Southern regions in Italy. We explicitly used a new institutional economic perspective with a contractual design approach. Our aims have been to identify the combinations of factors correlated significantly with the occurrence of participation in these RDP measures, the specific factors explaining the variance of participation in RDP measures by different

types of farmers and the specific role of institutional factors such as the social capital.

If we look at the overall results we can notice that many variables have the same influence on the likelihood of farmers participation in all the two different types of contractual solutions, namely SCS and SAS. However, some relevant differences have to be considered here. On one hand SCS contracts are described as being related to investments and marketing activities. Both imply higher ex-ante rather than ex-post transaction costs mainly due to information and negotiation costs. Implementation of investments and marketing activities requires the collection of complex information, specific skills and knowledge. It also involves asset specificity and uncertainty because of the problem of farmers of being helped-up or locked-in after the investment and/or the marketing strategy has been implemented. Therefore farms which can rely on specific competences such as using an accountancy service, a development plan or networks of information can show significant comparative advantage in entering in SCS contracts with relatively low information and negotiation costs. Farms with lower asset specificity and/or uncertainty, such as animal production compared to permanent crops and horticulture, extensive farms compared to intensive farms, owned farms compared to rented farms and professional farmers compared to family-managed farms, and can rely on multiple source of income (*offfarm*) they are also more likely to experience less transaction costs when participating in SCS and/or SAS contacts. Farmers located in areas with poor socio-economic conditions, such as in the mountainous areas, experience relatively lower opportunity costs in participating in SCS and/or SAS contracts than farmers located in richer and more economically dynamic regions. On the other hand SAS contracts are typically connected to the provision of an environmental service. If compared to SCS contracts they call for higher ex-post transaction costs due to the need of monitoring both processes and performances of the environmental service provision and opportunity costs due to the reduction of production capacities. The results achieved indicate that farmers participation in different RDP contracts are driven by similar factors. This provides new insights for the policy debate around the different strategies to be implemented for further profiling RDP contracts according to farmers needs and capacities. Taking into account the difficulty of the current RDP framework to warrant a widespread significant impact on farms competitiveness, our results seem to suggest that a more targeted framework of RDP policy should be followed to achieve the main objective declared by the EC throughout the years and the reforms. Our findings are also indicating how relevant it is to further investigate farmers participation in RDP measures and how a contractual design approach can enrich the interpretation on farmers behaviour and provide insights for policy debate. However, this being the main weakness of this paper, it should be noticed that further investigations have to be carried out based on direct measurements of the transaction costs associated to different RDP contracts.

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Appendix

RDP contract choice		RDP measures 2000-2006	Description of the support scheme
(1) Supporting Competitiveness Schemes (SCS)	**Investment subsidies for supporting the competitiveness of agricultural activities**: all subsidies for investment in farm assets (agricultural land, human capital, buildings, property rights, forest, land, machinery and equipment) received during the accounting year. They also include any subsidies on interest rates. In addition, they may include national (or regional) investment aids	(a) Investment in agricultural holdings	The total amount of support, expressed as a percentage of the volume of eligible investment, is limited to a maximum of 40% and 50% in less favoured areas. Where investments are undertaken by young farmers these percentages may reach a maximum of 45% and 55% in less favoured areas.
		(b) Young farmers setting up	The setting-up aid may comprise (i) a single premium up to the maximum eligible amount of 25,000 euro per farmer, (ii) an interest subsidy on loans taken on with a view to covering the costs arising from setting up; the capitalized value of the interest subsidy may not exceed the value of the premium.
		(c) Training	The total amount of support is a percentage of the total investment in training activities fixed per year and farm at Member State level.
		(g) Improving processing and marketing of agricultural products	The total amount of support, expressed as a percentage of the volume of eligible investment, is limited to a maximum of (a) 50% in Objective 1 regions and (b) 40% in the other regions.
		(m) Marketing of quality agricultural products and setting up of quality schemes	The total amount of support is set as a percentage of the total investment in marketing and quality management activities per year and farm at Member State level.
		(j) Land improvement	The total amount of support is a percentage of the total investment in land improvement fixed per year and farm at Member State level.
		(y) Use of farm advisory services	The total amount of support is a percentage of the total investment in advisory services fixed per year and farm at Member State level.
(2) Supporting Agri-Environmental Services (SAS)	**Rural development ("second pillar") direct payments due to agricultural activities which provide environmental services**: all direct payments received during the accounting year.	(f) Agri-environment	Support is granted to farmers who give agri-environmental commitments for at least five years. Where necessary, a longer period is determined for particular types of commitments in view of their environmental effects. Support in respect of an agri-environmental commitment shall be granted annually and be calculated on the basis of (1) income foregone, (2) additional costs resulting from the commitment given, and (3) the need to provide an incentive. The cost of any non-remunerative capital works necessary for the fulfillment of the commitments may also be taken into account in calculating the level of annual support. Maximum amounts per year eligible for community support are 600 euro per hectare in case of annual crops, 900 euro per hectare in case of specialized perennial crops and 450 euro per hectare in case of other land uses. These amounts shall be based on that area of the holding to which agri-environmental commitments apply.
		(e1) Less favoured areas and areas with environmental restrictions	Compensatory allowances granted to farmers per hectare of areas used for agriculture. Minimum compensatory allowance is fixed at 25 euro and maximum compensatory allowance is fixed at 200 euro per hectare of areas used for agriculture.
		(h) Afforestation of agricultural land	Support shall be granted for the afforestation of agricultural land provided that such planting is adapted to local conditions and is compatible with the environment. Such support may include in addition to planting costs (i) an annual premium per hectare afforested to cover maintenance costs for a period of up to five years, (ii) an annual premium per hectare to cover loss of income resulting from afforestation for a maximum period of 20 years for farmers or associations thereof who worked the land before its afforestation or for any other private law person. Maximum amounts per year of the annual premium to cover loss of income eligible for community support are fixed in 725 per hectare
		(i) Other forestry measures	Payments are granted to the beneficiaries provided that the protective and ecological values of these forests are ensured in a sustainable manner and the measures to be carried out are laid down by contract and their cost specified therein. Payments are fixed between a minimum payment of 40 euro per hectare and a maximum payment of 120 euro per hectare.
		(t) Protection of the environment	The total amount of payment is a percentage of the costs determined per year and/or farm and/or hectare at Member State level.