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Conference Paper

European agri-environmental policy and local institutions: A case study on French Regional Nature Parks

50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Décamps, Mélanie (2010) : European agri-environmental policy and local institutions: A case study on French Regional Nature Parks, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

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<https://hdl.handle.net/10419/119097>

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European Congress of the Regional Science Association International
19-23 August 2010 - Jonkoping, Sweden

European agri-environmental policy and local institutions : a case study on French Regional Nature Parks

**** Temporary version ****

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Abstract

This paper explores the role of local institutions in the implementation of agri-environmental policy. Translating the European agri-environmental policy at a local scale implies costs of implementation, especially when a local cohesion is required. In the case of agri-environmental schemes (AES), farmers are supposed to contract individually and voluntarily but a territorial effect is expected. Then, the effectiveness of the policy depends on the coordination of the individuals' plans. In this paper, we assume that local institutions such as French Regional Nature Parks can have a key role in this coordination. We suppose that their knowledge of the territory and their proximity with the local population allow them to adapt pertinently the policy. To address this issue empirically, we questioned 120 farmers about the costs due to the contract and their perception of AES, both within and outside of French Regional Nature Parks (Volcans d'Auvergne, Livradois-Forez, Morvan and Millevaches). Then, using concepts from new institutional economics, we model the farmers' transaction costs and analyze how parks influence them, considering control variables. We also discuss how parks can restore farmers' confidence in the European policy. The main result of the study is that Regional Nature Parks do contribute to the efficiency of the European policy by being an intermediary between the farmer and the State.

1. Introduction

The balance of objectives of the Common Agricultural Policy (CAP) has considerably shifted over the past two decades. The First Pillar is still a cornerstone of the CAP but the importance of the support to farmers' income has been fading away through the successive reforms (Canton and al., 2009). Rural development and environmental protection - the Second Pillar of the CAP - have been increasingly emphasized (Knickel, 2002; European Commission, 2003) and agri-environmental schemes (AES) have become the dominant instrument of EU agri-environmental policy (Latacz-Lohmann and Hodge, 2003).

AES are payments to farmers and other landholders to address environmental problems and/or promote the provision of environmental amenities (OECD, 2003a). Through AES contracts, farmers voluntarily commit themselves to adopting practices that go beyond the minimal "Good Farming Practices". In return, they are entitled to payments meant to compensate incurred costs and foregone income. These payments are designed to address protection, maintenance, and enhancement of natural resources (water and soil), biodiversity (species and habitats) as well as landscape values¹. More than a quarter of the EU-25 utilized agricultural area is covered by an agri-environment programme (European Commission, 2008), with a span between under 5 and over 70%, depending on the member country². Expenses for agri-environmental payments have strongly increased since 1993³, both in relative and absolute terms (OECD, 2003a). Herzog (2005) explained this phenomenon by the increasing public demand for more environmentally friendly agriculture, and by the WTO negotiations which aim to reduce producer support for agriculture (agri-environment schemes are generally considered as belonging to the "green box", which payments are allowed even under more severe WTO regulations). Despite high participation rates, existing environmental policies aiming to enhance the conservation or restoration of natural resources and landscapes by direct payment schemes often fail to meet their aims (e.g. Kleijn et al., 2001; Dobbs and Pretty, 2004; Sierra and Russman, 2006,). Agri-environment schemes have been questioned on the grounds of possible violation of the 'polluter-pays' principle and/or because of their unclear or imprecise environmental objectives (Bartolini et al., 2005; Finn et al., 2007; Hodge, 2001; Primdahl et al., 2003). Some studies show that AES evaluations often fail to document whether environmental objectives were delivered (Kleijn and Sutherland, 2003; Kleijn et al., 2001, 2006).

¹Herzog (2005) noticed that more than 300 different policy measures are implemented in the member countries of the Organisation for Economic Co-Operation and Development (OECD), mostly addressing water, biodiversity and landscape protection. Agri-environment schemes of the European Union are an example based on the Rural Development Regulation (no. 1257/99).

² Over the period 2000–2006, agri-environment measures have made up about 40% of the EU-15 budget for rural development (less than 10% of the whole budget), although this differs greatly among the member states, ranging from about 5% (Greece) to almost 70% or 80% in Sweden (Gay et al., 2005, p. 12). Only about 20% of the EU agricultural budget from 2007 until 2013 will be spent on rural development, including expenditure on agri-environment measures.

³ The total average annual expenditure on agri-environmental payments is estimated at € 2.2 billion for the period 2000-2003 and it only represents 5% of the total budgetary spending on agriculture (OECD, 2003b). CAP Mid-Term Review proposals recommended an increase in the aid intensity for agri-environment programmes from 50% to 60% in the better-off regions, and from 75% to 85% in Objective 1 areas (Knickel, 2002).

Herzog (2005) underlines the shortcomings of AES in terms of environmental and costs effectiveness. First, there is a budgetary constraint since only a small share of the budgets for agriculture in the EU is available for buying environmental goods and services. The value-for-money from AESs is often perceived as insufficient and fail to stimulate entrepreneurship (Hodge, 2001). Second, the scale at which AES are designed, implemented and/or monitored varies greatly. Some of the agri-environmental measures in place in the EU are restricted to farmers located in narrowly-delineated zones, whereas others are available to all farmers regardless of their geographic location (Canton et al. 2009). As a consequence, agri-environment measures are not effectively targeted with respect to environmental needs (Haaren et al., 2008). In combination with the previous point, this means there is an unsatisfactorily low impact of agri-environment measures in comparison to other driving forces that stimulate farming intensification (Herzog 2005, GACE, 2004a). In contrast, many evaluations of the effectiveness of AES show the good results of regional and site-specific measures as well as measures linked to certain ecological conditions and problems. In terms of effectiveness, the policy measures have been producing positive results, particularly when clear targets or objectives have been set (OECD, 2005, p. 11). Indeed, environmental performances are not independent of spatial dimensions. A third shortcoming is the sceptical attitude towards more demanding environmental services and a lack of training and awareness of the farmers, which further hinders the successful implementation of such programs (for example for Germany by Gay et al., 2004; for Greece in OECD, 2005). More generally, Stobbelaar et al. (2009) attribute the limited effectiveness of environmental policies to the fact that policies for environmental management are generally means-oriented, for instance prescribing the date of first harvest of grasslands, the amount and method of manure application or the detailed methods of hedgerow management. Moreover, participants are rewarded for minimum compliance to a level that penalties are avoided or benefits are acquired (external motivation), whereas ecosystem services generally require large-scale, persistent adaptive and site specific management (Dietz et al., 2003). This is particularly true when environmental effectiveness of AES is limited by threshold effects, especially when a territorial effect is expected. For example, if few farmers are under AES concerning a restraint measure of fertilization on a catchment area, the environmental effects will not be visible. That leads to wasted public funds and perhaps to a discouragement of the farmers. The threshold effects thus require a coordination of the farmers on a territorial scale.

In France, the latest evaluation of the National Rural Development Plan highlighted a quite low effectiveness taking into consideration the strategic objectives, except some localised successes (Oréade-Brèche 2008). For example, the measures aiming at preserving and developing amenities had a rather weak total effect (opportunity effect on the maintenance of meadows and the maintenance of the hedges, practically no effect on diversity of the rotations, weak penetration of measures of re-creation of landscape elements) but some localised effects have been significant: maintenance of the landscape opening in areas of abandonment of farmland (high mountain for example), maintenance of the marshes, maintenance of low walls in the Mediterranean zone. According to the evaluators, "that reflects the low ambition of the measures used and above all the absence of targeting on specific areas".

Surprisingly little is known about the effectiveness of AES. Despite the substantial and increasing expenditure on agri-environment schemes, monitoring and evaluation have been insufficient and published data on the environmental effects of agri-environment programmes are scarce (Petersen, 1998; Kleijn et al., 2001; Kleijn and Sutherland, 2003; Primdahl et al., 2003). At the same time, the role of farmers on farm biodiversity is highlighted (Schmitzberger et al., 2007). But, the role of farmers in the implementation of AES is often not adequately taken into consideration.

A large range of determinants influence the participation to AES. Profile of the owners (age, education...) and the expected change in the profit seem particularly important to take into account (Drake and Al, 1999). Technical and economic aspects are mainly studied whereas research about the factors influencing the costs of involvement is quite recent (Knowler D., Bradshaw B., 2007). However, these costs can constitute obstacles to participate (Falconer K., 2000). More largely, the participation to AES depends on the local context (Allaire, 2007). Effectiveness of AES would be largely determined by the quality of its institutional environment. This paper aims at analysing the role of specific institutions : the French Regional Nature Parks (RNPs). Their implication as a mediating structure between the parties could be efficient. A study about the implementation of AES in a French department showed that the development of means of action and their distribution between the actors contribute to the success of the contractual relation between farmers and government (Desjeux et al., 2006)⁴. RNPs would thus be legitimate actors to carry the social request. However, assessments of AES evoke a contrasted participation of the actors, mainly carried by the agricultural professional organizations. The implication of RNPs in the implementation of the AES could balance these power struggles and better do to adapt the policy at a local scale. Moreover, if RNPs are perceived as "confidence and proximity institutions"⁵, their implication could restore farmer's confidence in the European policy.

2. Theoretical background

2.1. Transaction costs and AES efficiency

There are numerous definitions of transaction costs. They are generally connected with property rights and can be define as the cost of resources used to define, establish, maintain and transfer property rights (McCann et al., 2005)⁶. Transaction costs arise because of information uncertainty and occur due to actions of information collection and policy design, policy enactment and establishment, implementation and contracting, administration and monitoring, and enforcement.

We follow here the definition of Matthews (1986) who describes transaction costs as the costs of arranging a contract ex ante (searching for contract partners, gaining knowledge of materials and production, negotiating and concluding contracts) and monitoring and enforcing that contract ex post.

⁴ See the papers of the European project called "Integrated Tools for the implementation of Agri-Environment Schemes"

⁵ Confidence is a factor often highlighted in the literature for its potential effect on the reduction of information asymmetries (Ducos and Dupraz, 2007).

⁶ See Coggan et al. (2010) for a larger definition of transaction costs.

Table 1 : Categories and types of transaction costs for private parties

Activity category	Time period	How are transaction costs experienced by	
		Policy administrator/public	Private parties
1. Research, information gathering and analysis and policy design	Prior to implementation	Time and resources associated with investigating the problem and the benefits and costs of alternate solutions	Time and resources of policy analysis (consultation, etc.) and information collection to enable future compliance and for lobbying
	Development and implementation	Time and resources associated with refining policy design such as trials, public consultation, training, development of procedures, investment in monitoring and auditing infrastructure	Time and opportunity cost of involvement in trials. Time and resources invested in learning about the policy. Investment in resources to enable monitoring compliance
	Ongoing	Time and resources invested in policy review and adjustment, information collection to support legal proceedings, auditing, monitoring and enforcement	Time and resources to find trading partners, research contractual needs, understand policy amendments or application in different circumstances, conduct monitoring and support legal proceedings
2. Enactment	Development and implementation	Time and resources invested in policy briefing and policy change. Time and resources (staff, printing costs) of preparing background documentation for legislation changes (if required)	Time and resources of lobbying the agencies either for or against a new policy (meetings, materials). Opportunity cost of waiting for legislation finalisation and clarity of allowable actions
3. Establishment	Development and early implementation	Time and resources in hiring and training staff, purchasing equipment, advertising	Time and resources of hiring and training staff and purchasing equipment
4. Implementation, including contracting	Implementation and ongoing	Time and resources invested in implementing policy, allocating permits, brokering contracts, verifying contracts	Time and resources to negotiate and finalise contracts
5. Support and administration	Ongoing	Time and resources invested in assessing applications, auditing processes, keeping records, interpreting policy	Time and resources invested in doing applications and keeping records
6. Monitoring	Ongoing	Time and resources invested in auditing compliance and reporting on effectiveness	Time and resources associated with activities to present monitoring data and comply with monitoring process
7. Enforcement	Ongoing	Opportunity cost of time to engage in enforcement. Cost of litigation (if required)	Opportunity cost of time, fines and legal costs

Sources: Coggan et al. (2010)⁷

Concerning the environmental policy, Coggan et al. (2010) identify three key influences to transaction costs : (i) the characteristics of the transaction for the environmental good, (ii) the nature of the transactors, and (iii) the current institutional environments and arrangements. Regarding the characteristics of the transaction, we focus here on private transaction costs and local institutions. As far as we know, few studies give an assessment of private transaction costs and none analyses the role of local institutions on transaction costs.

2.2. The role of local institutions

Considering the unsatisfactory present situation and future prospects, ways should be found to better target agri-environmental payments and to motivate farmers to promote sustainability. Implementation and monitoring may be the responsibility of a national agency or delegated to sub-national authorities (Oréade-Brèche, 2005, p. 12). While in theory PES is seen as a market solution to environmental problems — as an alternative to state (hierarchical) and community governance — a review of a large amount of case studies shows that PES in practice depends rather fundamentally on state and/or community engagement. Hence PES are foremost a reconfiguration of the roles of public bodies and communities becoming core intermediaries or ‘buyers’ (Vatn, 2010). Considering the diversity of local contexts, we can wonder about the role of local institutions.

⁷ Adapted from Thompson, 1999 and McCann & Easter, 1999; Falconer and Whitby, 1999; McCann et al., 2005 and Buitelaar, 2007; Kuperan et al., 2008; Ofei Mensah, 2008.

Institutions are defined as an organization or foundation, but also as a custom, practice or behaviour pattern (Farlex, 2007). Commons (1931) describes institutions as: collective action in the control, liberation and expansion of individual action. This underlines the idea that institutions are basically frames that guide or steer the behaviour of people involved in this institution. Institutional aspects can play an important role in the internalization of environmental policies and in catalyzing and facilitating the cooperation between farmers (Stobbelaar and al., 2009).

The social environment of the implementers should be supportive of the policy goals (Nelissen et al., 1988; De Molenaar, 1998) and the relations with the governmental agency issuing the policy should be based on trust. Implementers who choose their actions autonomously while being strongly connected to others (Kagitçibasi, 1996), are more prone to adopt values or behaviours of the group they belong to, and function with mutual interests in mind (Chirkov et al., 2003). This is of crucial importance for the effectiveness of agrienvironmental policies that are designed to address problems that surpass the field and farm scales, as the conservation of landscapes. Vertical orientations and practices that embody hierarchical or sub-ordinate social relations are generally expected to be more difficult to internalize (Chirkov et al., 2003; Pinto-Correia et al., 2006).

French Regional Nature Parks can be considered as an example of new institutional arrangements implementing horizontal collectivism by focusing on information, negotiation and cooperation.

2.3. The case of French Regional Nature Parks (RNP)

A Regional Nature Park is an inhabited rural area, recognized at a national level for its high heritage and landscape value, which organizes itself around a concerted project of sustainable development, based on the protection and valorisation of its heritage. A Regional Nature Park has for its objective to protect and valorise the natural, cultural, human and landscape heritage of its area by implementing an innovative policy of regional planning, economic, social and cultural development respecting the environment. The missions of RNPs are quite large (see table 1).

The expertise of a Regional Nature Park originates from its capacity to stimulate and bring together partners to support projects of protection and sustainable development in its area, to initiate exemplary and innovative actions, and to find and mediate solutions to benefit the environment. The specificity of a Regional Nature Park compared to other protected areas lies not only in the complementarities between its objectives of protection and development, but also in the voluntary commitment of all the partners (Communities, Region(s), Department(s) and State) to orientate their actions for the benefit of environment and heritage within the framework of the contract that is the Park charter. Thus, a Regional Nature Park implements contractual measures of management and protection, which is the difference with other areas which benefit from regulatory protection.

Our assumption in this paper is that RNPs make easier the implementation of AES by reducing the implication costs of the farmers.

Table 2. Missions of a Regional Nature Park

Missions	Contents
1. Protection and management of natural, cultural and landscape heritage	It commits itself to manage its rural areas harmoniously, to preserve the biological diversity of its environments, to preserve and valorise its natural resources, its landscapes, its remarkable and fragile sites, and to valorise and give dynamism to its cultural heritage.
2. Regional planning	It is an integrated part of the policies for national and regional planning and contributes to define and orientate the landscaping projects within its area in respect of the environment.
3. Economic and social development	It organizes and mediates social and economic action to assure a quality of life in its area , it supports the companies who respect the environment and who valorise its natural and human resources.
4. Induction, education and information	It favours the contact with nature, sensitizes its inhabitants to environmental issues, and incites visitors to discover its area through educational, cultural and tourist activities.
5. Experimentation	It contributes to research programmes and has for a mission to initiate new procedures and methods of action which can be repeated in other areas at national and international levels.

Source : Federation of the Regional Nature Parks of France⁸

3. Materials and method

3.1. Study area and data collection

The French CTE⁹ (Territorial Farm Contract) is a contractual and voluntary scheme. It aims at developing environmental friendly practices while preserving the rural fabric. It takes into account environmental and territorial functions of agriculture (AES include several measures) and has an economic and social component (investments, installation, employment) which allows the farmer to invest in the farm's modernization and diversification. CTE were signed between the government (represented by the prefect of department) and the farmer, from 2000 to 2003, and for 5 years.

Since 1999, agri-environmental schemes are adapted through regional syntheses defining implementation methods of CTE, priority stakes linked to environment and relevant measures to choose¹⁰. Local actors were mobilized, for example to draw up standard contracts concerning specific areas (canton or small agricultural area for example), on production and processing network or on a mode of diversification (CTE "farm produce").

Before conducting interviews with the farmers, general information was gathered from key informants. Then, data was collected on transaction costs arising during the two phases (ex ante and ex post). Data on the time and expenses of the farmers was collected for the two phases through in-dept interviews, based on a detailed questionnaire. The questionnaire concerns the characteristics of the

⁸ Website : <http://www.parcs-naturels-regionaux.fr>

⁹ "Contrats Territoriaux d'Exploitation" in french

¹⁰ Measures are selected among a national catalogue.

farm (usable agricultural area, productions, quality labels, etc.) and the farmer (age, education level, professional networks, etc.). It also deals with the formalization of CTE by contract (characteristics of the contract), its implementation (administrative tasks, time invested, etc.) and the farmer's perception of AES. A total of 120 farmers (41 living in a Regional Nature Parks, 79 living out of a Regional Nature Park) were face to face interviewed in 2008 and 2009. All of them had subscribed a CTE containing agri-environmental measures not connected to their agricultural production¹¹. They are distributed across four french departments (Nièvre, Cantal, Puy-de-Dôme, Creuse) each of them being composed of RNP and non-RNP areas. Four Regional Nature Parks are concerned (Volcans d'Auvergne, Livradois-Forez, Morvan and Millevaches). To control the various degree of involvement of the departments, we choose those which were rather involved in the AES process.

3.2. The econometric model

In this paper, we analyses three econometric models almost similar. The main change among them is the explicative variable. The first one deals with total transaction costs bore by the farmer, whereas the second and the third one distinguish ex ante and ex post costs. All of them have been assessed as time volume (time to search information, time to establish the contract, etc.). The explicative variables are nearly the same for the three models (see table 3). The choice of the variables is adapted from Mburu et al. (2003), who analyses the determinants of landowners' transaction costs in collaborative wildlife management in Kenya.

The general model is as follow :

$$y_i = \alpha + \beta X_i + \delta RNP_i + \varepsilon_i$$

where the level of transaction costs y_i is explained by several déterminants X_i (characteristics of the farmer, the farm, the contract and the institutional context) and by a dummy variable (RNP) representing the localisation of the farm Inside or outside a Regional Nature Park. ε_i represents the inobservable factors.

¹¹ The study focuses on AES containing at least one of the following agro-environmental measures : "hedges rehabilitation" and "opening of overgrown fields".

Table 3. Variables included in the econometric model

Variable	Meaning
<i>Dependant Variables</i>	
(1) TOT_TC	Farmers' total transaction costs
(2) Expost_TC	Farmers' transaction costs <i>after</i> the contract is signed
(3) Exante_TC	Farmers' transaction costs <i>before</i> the contract is signed
<i>Explanatory variables</i>	
Age	Age of the farm head in years
Headmale	Dummy variable =1 if the farm is male headed and =0 if female headed
Children	Ratio of children below 15 years of age to the total household size (household of the farm head)
Formagen	Dummy variable =1 if the farm head has a general education (i.e. another education than agricultural), otherwise =0
RNP	Dummy variable =1 if the farm is located on a Regional Nature Park area, otherwise =0
ProdAnim	Total livestock units of the farm
Respxet	Number of groups (e.g. municipality, non-agricultural association) in which the farm head is an active member
Sensib	Level of sensitivity of the farm head to the protection of the environment, ranked from 1=not at all to 10=very much (self evaluation)
Respxnte	Balance between previous practices and practices due to the contract, ranked from 1=no balance to 4=no change in practices
Modif	Dummy variable =1 if the contract were changed, otherwise =0
Control	Dummy variable =1 if the contract were controlled, otherwise =0
Cantal	Dummy variable =1 if the farm is located on the department of Cantal, otherwise =0
Nièvre	Dummy variable =1 if the farm is located on the department of Nièvre, otherwise =0
PuyDeDome	Dummy variable =1 if the farm is located on the department of Puy-de-dôme, otherwise =0
RemunAE	Payment received for agri-environmental contract in Euros

4. Results and discussion (to be completed)

Table 4 presents the results of the econometric estimations. For total and ex post transaction costs, almost all the explicative variables have the expected sign at a significant level. Surprisingly, quasi none of them is significant to explain ex ante transaction costs. This can be explained by a very high influence of departmental structures to implement AES in the ex ante phase.

The influence of the farm localisation inside a Regional Nature Park is highly significative and negative, both in ex post and total costs analyses. Thus, being located in a RNP seem to reduce transaction costs, in particular ex post transaction costs.

Table 4. Determinants of the magnitude of landowners' transaction costs

Independent variables	(1) TOT_TC		(2) Expost_TC		(3) Exante_TC	
	Coef.	t	Coef	t	Coef.	t
RemunAE	0.005	1.65	0.004	1.61		
Age	-0.084**	2.54	-0.077**	2.37	-0.006**	2.28
Headmale	-131.907*	1.97	-130.219**	2.03	0.240	0.04
ChildrenT	-169.958*	1.95	-175.770**	2.00	3.264	0.34
Formagen	-80.967	1.59	-74.632	1.50	-6.851	1.41
RNP	-135.422***	2.80	-130.739***	2.78	-3.271	0.92
ProdAnim	0.002***	3.00	0.002***	2.87	0.000	0.52
Respect	-49.523**	2.21	-52.595**	2.46	3.689	1.60
Sensib	25.267*	1.81	26.575*	1.95	-1.133	0.87
Respante	-69.355**	2.57	-69.505***	2.64	-1.170	0.48
Modif	-12.603	0.33	-4.517	0.12	-6.124	1.35
Control	-112.743**	2.13	-120.131**	2.31	7.692*	1.98
Cantal	-164.341***	3.08	-155.087***	2.96	-13.997***	2.68
Nièvre	-245.704***	3.06	-230.258***	2.99	-13.992***	2.90
PuyDeDome	-100.113*	1.71	-100.152*	1.75	-5.117	0.75
Constant	422.203***	3.21	384.784***	3.01	47.239***	2.85
Observations	97	97	97	97	117	117
R-squared	0.56	0.56	0.56	0.56	0.19	0.19

Robust t statistics in parentheses : * significant at 10%; ** significant at 5%; *** significant at 1%

5. Conclusion (to be completed)

6. Acknowledgements

The authors thanks Laure Agrare, Jérémie Bosch, Delphine Denat, Mathieu Dufour and Laura Pouget for gathering the database. We also thank Kimm Gnanon for his useful help to use econometric software. However, any errors or omissions are solely the responsibility of the authors.

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