# Decentralization and Capture under State Corporatism: French Farmers' Unions and Payments for Green Services in France<sup>\*</sup>

Florimond Brun<sup>† ‡</sup> and Sylvain Chabé-Ferret<br/>§ $\P$ 

May 2012

VERY PRELIMINARY: DO NOT QUOTE NOR CITE, COMMENTS WELCOME.

Prepared for the Final Symposium PSDR 2012, « Pour et Sur le Développement

Régional », 19-20-21 June 2012, Clermont-Ferrand, FRANCE.

#### Abstract

In this paper, we provide evidence on the extent of capture of a public policy in a developed country. In France, between 2000 and 2006, farmers could receive assistance from local union-run *Chambres d'Agriculture* (CA) when applying for receiving payments for green services. We show that CAs dominated by right-wing unions have increased overall participation in the PGS program, but in favor of schemes prone to large windfall effects. We overcome endogeneity by using spatial differencing.

<sup>\*</sup>We gratefully acknowledge financial support from the REGIAB program « Pour et Sur le Développement Régional ». We thank Eric Dubois for kindly sharing the data on the results of the elections to the *Chambres d'Agriculture* with us.

<sup>&</sup>lt;sup>†</sup>IRSTÉA, UMR MÉTAFORT, Aubière, France.

<sup>&</sup>lt;sup>‡</sup>Clermont Université, UMR CERDI, Clermont-Ferrand, France.

<sup>&</sup>lt;sup>§</sup>Toulouse School of Economics, UMR LERNA, Toulouse, France.

<sup>&</sup>lt;sup>¶</sup>Corresponding author. Correspondence to: Toulouse School of Economics, LERNA, 21 allée de Brienne, 31015 Toulouse Cedex 6, France. Email: sylvain.chabe-ferret@tse-fr.eu.

## 1 Introduction

Capture by local special interests is key to the (in)efficiency of the decentralized implementation of public policies. The literature studying capture has mostly been designed with developing countries in mind. As Bardhan (2005) puts it:

the « second generation » literature on federalism focuses on the accountability and incentives of government officials, in contrast to the traditional literature on fiscal federalism which stressed the role of preference heterogeneity for public goods, and interjurisdictional externalities. This latter approach, principally designed with developed country contexts in mind, abstracted entirely from issues of government accountability by assuming that politicians and government officials act benevolently on behalf of citizens.

In this paper, we provide evidence on the extent of capture of a public policy in a developed country, thereby suggesting that accountability issues may also be critical in developed countries as well.

We study the implementation of payments for green services (PGS) paid to farmers in France between 2000 and 2006. Farmers self-selecting into the program received compensating per hectare payments for adopting greener practices. Because per hectare payments were roughly the same across France, there is a large scope for adverse selection. Chabé-Ferret and Subervie (2010) indeed find strong windfall effects when estimating the causal effects of these programs. Moreover, farmers could choose their preferred combination among the more than 300 specific schemes. There is thus a large scope for self-selecting into the less demanding schemes.

Entry into the programs required a lot of effort from farmers: on top of choosing their preferred combination among more than 300 schemes, the area they wanted to submit to each scheme, farmers had to fill in an application file containing a thorough description of their farm and of the environmental challenges justifying the payments. In each french *département*, farmers could receive assistance from two types of institutions when they considered applying for PGS: the *Chambres d'Agriculture* (CA) and the *cooperatives*. The CA provides assistance to farmers thanks to the counselors it hires. The CA could thus alter the implementation of the PGS program by choosing whether or not to support the overall PGS program or the types of schemes to propose to farmers. Each CA is run by an assembly elected by farmers among lists set up by farmers' unions.

Farmers' unions did not agree on whether or not to support PGS. The dominant rightwing union FNSEA and the extreme right *Coordination Rurale* opposed to contracting the support received by farmers, and to conditioning it on environmental performance. But, under the pressure of its members, it supported the program at the local level and especially the schemes that did not require a lot of environmental effort. Left-wing unions (*Confédération Paysanne* and MODEF) did not support the program at the national level, because they were favorable to price-support. At the local level, they supported schemes that required a lot of environmental effort.<sup>1</sup>

In this paper, we show that farmers' unions have influenced both the implementation of the PGS program at the local level and its effectiveness. First, we show that CAs dominated by the FNSEA have increased overall participation in the PGS program, but in favor of schemes prone to large windfall effects. Second, we show that indeed this increase in participation into the program has not lead to an improvement in farmers' practices.

The identification problem we face is that farmers decide the composition of the CA assembly, whether or not to participate in the PGS program and which practices to implement. Thus, there may be unobserved variables (environmental awareness, management ability, type of production) that are correlated with the strength of the FNSEA in a given *département* and participation in the PGS program and agricultural practices. To overcome this endogeneity problem, we use spatial differencing (Duranton, Gobillon, and Overman, 2011). We restrict our sample to farmers living close to *département* boundaries. We associate to each farmer the set of the closest farmers living in the neighboring *département*. We then relate the difference in behavior of each farmer relative to the average behavior of her neighbors to the difference in composition of the CA assembly

<sup>&</sup>lt;sup>1</sup>Brun (2006) provides a very detailed overview of how the PGS program was set up by the government and how the farmers' unions reacted to it.

between the *départements*.

This strategy is akin to a form a spatial regression discontinuity design. If the unobservables causing the endogeneity problem are continuously distributed across space, then they are differenced out by our procedure.

This paper contributes to several literatures. First, we show that public policies can also be captured in developed countries, opening up the possibility of applying the « second generation » literature on federalism in developed countries as well. Note however that the type of capture we study differs from the one modeled in Bardhan and Mookherjee (2000). In this paper, a policy can either be devolved to a local representative of the central authority or be decentralized to a local elected authority. The latter can be captured by elites whereas the former can receive bribes. In our application, only implementation is decentralized, and the local authority is not elected by all citizens but only by the farmers. Thus, capture of the local authority is built-in in the institutions. CAs indeed receive financial support from the government and are included in the decision and implementation of agricultural policy by law. This co-management of the agricultural sector by both the government and the agricultural corporation is an instance of what Algan and Cahuc (2007) call state corporatism. We provide evidence on how state corporatism undermines the efficiency of public policies, as advocated by Algan and Cahuc (2007). Perhaps the closest paper to ours is Bertrand and Kramarz (2002). The authors study the effect of official commissions that decide in each départe*ment* whether or not to authorize entry and/or extensions of wholesale retailers. These commissions are also an instance of co-management and state corporatism, since they include representative of the retailers along with elected officials. Bertrand and Kramarz (2002) use political affiliations of elected officials as an instrument for the toughness of the commission. We directly study the effect of the unions on the implementation of the policy. We also contribute to the political economy of agricultural policies (Gorter and Swinnen, 2002). This literature focuses on the causes of farm support. We show that not only the conception of the policies but also its implementation can be altered by lobbies. Finally, we also contribute to the evaluation of PGS and to the study of their implementation. Chabé-Ferret and Subervie (2010) show that these programs exhibit large windfall effects. Pufahl and Weiss (2009) find similar results in Germany. Ducos, Dupraz, and Bonnieux (2009) show that the administrative costs of entering the schemes are large. Allaire, Cahuzac, and Simioni (2009) identify strong spatial autocorrelation in the entry into the schemes, thereby suggesting that there are spatial spillovers when entering the schemes. We finally contribute to the study of the role of farmers' unions in France.<sup>2</sup>

This paper is organized as follows: section 2 describes the French PGS program and the role of the CAs, section 3 describes our identification strategy, section 4 describes the data, section 5 lists the results and section 6 concludes.

## 2 The French program of Payments for Green services and the role of the Chambres d'Agriculture

#### 2.1 The French PGS program

In France, the PGS program has been implemented between 2000 and 2006 as part of the National Plan for Rural Development (*Plan de Développement Rural National* (PDRN)). This plan contained a very thorough description of the different schemes that farmers could apply for, with some adjustments at regional level (mainly on payments, but regional variation of payments remained low (ASCA, 2003)). schemes were referred to with a seven digit code: the first two digits referred to the general category of the scheme, the following two referred to the particular requirements the farmer had to meet to enter the PGS, the fifth digit coded for even more detailed requirements, and, finally, the last two digits referred to the regional variation in the PGS. These schemes aim at improving the environment by altering farmers' practices. Scheme 02 encourages crop diversification, which is likely to increase biodiversity, directly by increasing cropped biodiversity, but also indirectly by enhancing non-cropped biodiversity. Schemes 03 (resp. 04) subsidizes the planting of cover crops (resp. grass buffer strips) and thus contributes to the reduction

 $<sup>^{2}</sup>$ See for example the special issue introduced by Facchini and Magni-Berton (2009).

of nitrogen, phosphorus and pesticides leakage (resp. runoff) from the field. This in turn decreases the concentrations of pollutants in surface and ground waters. Schemes 08 and 09 aim at decreasing the levels of pesticides and nitrogen applications on the fields, which also might decrease leakage and runoff. Scheme 21 encourages diversification toward organic farming, a practice that has been shown to be friendlier to the environment than conventional farming.

Schemes are five-year contracts, with yearly payments and possible control of how well the requirements are met. Farmers can enroll only part of their farm under an PGS, and combine different schemes on the same part of their farm or on different ones. Farmers receive the same payments per hectare for a given PGS. These payments have been calculated so as to compensate an average farmer for the profit loss following the adoption of the practice. Total payments are proportional to the area on which the farmer declares to implement the requirements. The main way for farmers to benefit from an PGS during this period was to submit a written application containing an environmental diagnosis of their farm and the particular measures they were applying for. An administrative authority then had to approve or refuse the application. Almost all applications were approved. A contract was then signed, stipulating the farmer's commitments and a schedule of annual payments. In 2003, all applications were temporarily frozen by the newly elected government because of an unexpected surge in the number of applications. Contracts were gradually reinstated with an informal restriction on the total payments that an individual farmer could receive. This delay had not been anticipated by farmers who had applied to the PGS program; as a result they altered their practices before being recorded as beneficiaries in the administrative files.

## 2.2 The role of local « Chambres d'Agriculture » in the implementation of the PGS program

The time between a farmer's application and the signing of the contract was of at least a year. In order to submit a valid application, most of the farmers benefited from the assistance of union-run local public administrations called *Chambres départementales*  *d'Agriculture* (CA). The CA provides assistance to farmers thanks to the counselors it hires. The CA could thus alter the implementation of the PGS program by choosing whether or not to support the overall PGS program or the types of schemes to propose to farmers. Each CA is run by an assembly elected by farmers among lists set up by farmers' unions.

Farmers' unions did not agree on whether or not to support PGS. The dominant rightwing union FNSEA and the extreme right *Coordination Rurale* opposed to contracting the support received by farmers, and to conditioning it on environmental performance. But, under the pressure of its members, it supported the program at the local level and especially the schemes that did not require a lot of environmental effort. Left-wing unions (*Confédération Paysanne* and MODEF) did not support the program at the national level, because they were favorable to price-support. At the local level, they supported schemes that required a lot of environmental effort.<sup>3</sup>

CAs receive financial support from the government and are included in the decision and implementation of agricultural policy by law. This co-management of the agricultural sector by both the government and the agricultural corporation is an instance of what Algan and Cahuc (2007) call state corporatism.

## 3 Empirical strategy

We write participation and practices as the following system of equations:

$$T_{isd} = \alpha + \delta Z_d + \beta X_{isd} + \phi_{sd} + \rho_d + \eta_{isd}, \tag{1}$$

$$Y_{isd} = \lambda T_{isd} + \gamma X_{isd} + \theta_1 \phi_{sd} + \theta_2 \rho_d + \epsilon_{isd}, \qquad (2)$$

where  $T_{isd}$  is an indicator variable taking value one when farmer *i* in *départment d* located *s* kilometers from the border between *départements* participates in the PGS program and 0 otherwise;  $Y_{isd}$  is the variation in the level of agricultural practices between 2000 and

 $<sup>^{3}</sup>$ Brun (2006) provides a very detailed overview of how the PGS program was set up by the government and how the farmers' unions reacted to it.

2005;  $X_{isd}$  a set of observed variables measured in 2000;  $Z_{isd}$  the respective proportions of farmers' unions in the CA of département d;  $\phi_{sd}$  unobserved variables varying across space and  $\rho_d$  unobserved variables that vary at the *département* level and  $\eta_{isd}$  and  $\epsilon_{isd}$ idiosyncratic shocks.

 $\delta$  measures the effect of farmers' unions on entry into the PGS schemes and  $\lambda$  measures the effect of the schemes on practices. There is by assumption no direct effect of the unions on practices. Substitution of (1) in (2) yields a reduced form equation relating farmers' unions to agricultural practices:

$$Y_{isd} = \lambda \delta \Delta_s Z_d + (\gamma + \lambda \beta) X_{isd} + (\theta_1 + \lambda) \phi_{sd} + (\theta_2 + \lambda) \rho_d + \epsilon_{isd} + \lambda \eta_{isd}, \tag{3}$$

$$=\pi_1 \Delta_s Z_d + \pi_2 X_{isd} + \pi_3 \phi_{sd} + \pi_4 \rho_d + \epsilon_{isd} + \lambda \eta_{isd}, \tag{4}$$

Even under the maintained assumption that  $\eta_{isd}$  and  $\epsilon_{isd}$  are independent and independent of  $Z_d$ , there is still an identification problem because  $\phi_{sd}$  simultaneously determines  $T_{isd}$  and  $\Delta_t Y_{isd}$  and  $Z_d$ . Variables unobserved to us may simultaneously determine farmers' vote for a given union, farmers' participation in PGS scheme and farmers' practices. Therefore, estimation of equations (1) and (2) by OLS leads biased coefficients.

Our identification strategy is to spatially differentiate participation, outcomes and control variables to get rid of unobserved variables whose distribution is continuous across space. As shown by figure 1, in practice, we select all observations located in a *commune* located within 1 km of a *département* border, and we pair them with every commune whose centroid is within 3.5 km. We then differentiate each observation with respect to all the observations belonging to the same *commune* or to the neighboring *communes*, as in Duranton, Gobillon, and Overman (2011).

We then estimate the following equations:

$$\Delta_s T_{isd} = \alpha + \beta \Delta_s X_{isd} + \delta \Delta_s Z_d + \Delta_s \phi_{sd} + \Delta_s \rho_d + \Delta_s \eta_{isd}, \tag{5}$$

$$\Delta_s Y_{isd} = \pi_1 \Delta_s Z_d + \pi_2 \Delta_s X_{isd} + \pi_3 \Delta_s \phi_{sd} + \pi_4 \Delta_s \rho_d + \Delta_s \epsilon_{isd} + \lambda \Delta_s \eta_{isd}, \tag{6}$$

where  $\Delta_s$  denotes spatial differencing.



Figure 1: Spatial differencing

In order to ensure identification, we require that  $\Delta_s \phi_{sd} \approx 0$ , *i.e.* the spatial distribution of the unobservables is continuous, and  $\rho_d$  is independent from  $Z_d$ , *i.e.* there are no unobservables varying at the *département* level that are correlated with the composition of CAs. There are two threats to this assumption: policies of decentralized institutions (*Conseils généraux et regionaux*) and co-ops.

In order to estimate standard errors, we proceed in two steps: in a first step, we regress our outcome variables on all individual level control variables and *départements* dummies and in second step we regress these dummies on the results of the CA elections.

### 4 Data

The empirical analysis is based on a longitudinal data set constructed from a statistical survey on agricultural practices conducted in 2005 by the statistical services of the French ministry of Agriculture paired to both the 2000 Census of Agriculture and several administrative files recording information on the participation in the AES between 2000 and 2006 constructed by Chabé-Ferret and Subervie (2010). We combine this database with data on the results of the 2001 elections to the CAs compiled by Dubois, Facchini, and Foucault (2009).

#### 4.1 Definition of the participation variables

For each AES, participation is a binary variable taking a value of one when the surveyed farmer appears in administrative files as receiving subsidies compensating him for coping with the requirements of the AES between 2001 and 2005, and a value of zero when the surveyed farmer does not appear in the administrative between 2000 and 2005. The few farmers receiving an AES before 2001 are excluded from the sample, because no pretreatment observation exists for them. Because farmers may benefit from several AES, the participation variables partially overlap.

#### 4.2 Definition of the outcome variables

Two outcome variables allow us to estimate the impact of the measures 03 and 04 which aim at reducing nitrogen carrying by rain drainage: the land area dedicated to cover crops for soil nitrate recovery and the length of fertilizer-free grass buffer strips located at the edge of agricultural fields which attenuate nitrate lixiviation. As cover crops may be a way to retain nitrogen during winter, we study whether farmers participating in AES 09 aimed at curbing the use of nitrogen fertilizers have an increased use of cover-crops, even when they are not participating in AES 03. The impact of AES 02 encouraging crop diversification is measured on four outcome variables: the area dedicated to the main crop and the proportion of the total usable arable area (UAA) it covers, the number of crops, and a crop diversity index.<sup>4</sup> Finally, we use two outcome variables to estimate the impact of the measures, which aim at encouraging conversion to organic agriculture: the

<sup>&</sup>lt;sup>4</sup>We use a regularity index, which is an evenness measure of crop diversity, independent of the number of crops and dependent solely on the distribution of land area among the crops.

Scheme	Aim	Number of participants	Total Sample	Proportion
All		18580	78828	16%
0201	Adding one crop to the rotation	486	78827	0.34%
0205	At least four different crops on the farm	1833	78827	1.2%
0301	Cover crops	2083	78827	2%
04	Grass buffer strips	1613	78827	1.1%
19	Grassland	3694	78827	2.5%
20	Extensive herding	12474	78827	12%
21	Organic farming	746	78827	0.7%

 Table 1: Complete sample

#### Table 2: Sample used for spatial differencing

Scheme	Aim	Number of participants	Total Sample	Proportion
All		2095	9666	16%
0201	Adding one crop to the rotation	72	9666	0.4%
0205	At least four different crops on the farm	272	9666	1.4%
0301	Cover crops	260	9666	1.7%
04	Grass buffer strips	241	9666	1.3%
19	Grassland	309	9666	1.9%
20	Extensive herding	1297	9666	10.4%
21	Organic farming	104	9666	0.7%

land area dedicated to organic farming and the land area under conversion. All areas are measured in hectares.

#### 4.3 Definition of control variables

We have data on production factors (equipment, buildings, herd size and composition, composition and size of UAA, size of the labor force, age and education level of farm associates, etc.). The dataset also includes measures of technical orientation of the farm, labels of quality, past experience with the previous AESs (1993-1999) and other agricultural policies. The main unobserved variables are thus managerial ability, ecological preferences and prices. The complete list of control variables is in the appendix.

Almost all our control variables are measured at the farm level. The only exceptions are the variables measuring altitude and slope, that are measured at the commune level.

The resulting samples are described in the following tables:

## 5 Results

#### 5.1 Farmers' unions and entry into the PGS program

Table 3 presents the estimates of the effect of farmers' unions on participation in the PGS program. When using no control variables, it seems that FNSEA was strongly deterring entry into the program. Once we control for the control variables, unions seem to play no role on the entry in the schemes. When we now apply spatial difference, we find that FNSEA had a strong positive effect on entry into PGS while MODEF seems to have reduced entry overall. We moreover find contrasted effects depending on the scheme under study. Right-wing (resp. left-wing) unions (as FNSEA and *Coordination Rurale*) (resp. MODEF) decrease (resp. increase) participation in very stringent schemes, as 0201, which required adding one crop to the rotation, while they encourage (resp. discourage) entry in less stringent schemes, as 0205 which required having at least 4 crops on the farm. There is thus strong evidence that farmers' unions promoted very different schemes, and that right-wing unions tried to promote less stringent schemes that were more prone to windfall effects.

#### 5.2 Farmers' unions and the effects of PGS on farmers' practices

Table 4 presents the estimates of the effects of farmers' unions on farmers' practices. Consistent with the results on participation, we find no effects of right-wing unions on farmers' practices while we find evidence that MODEF improved practices, especially in the case of AES 0201. It thus seems that right-wing farmers' unions promoted entry into inefficient schemes, with large windfall effects.

Sample		All	Spatial difference	Spatial difference
Controls	No	Yes	Yes	Yes
Spatial diff	No	No	No	Yes
Toutes MAE				
FNSEA	-0.44(0.18)*	-0.08(0.05)	-0.10(0.07)	0.88(0.24) * **
Coordination rurale	-0.41(0.15) * *	-0.05(0.04)	-0.10(0.06)	0.41(0.20)*
MODEF	-0.32(0.15)*	0.04(0.04)	0.04(0.06)	-0.57(0.21) * *
Divers	0.01(0.19)	0.00(0.05)	0.00(0.09)	0.45(0.33)
MAE 0201		( )	( )	( )
FNSEA	0.015(0.008).	0.009(0.008)	0.015(0.012)	0.00(0.05)
Coordination rurale	0.015(0.007)*	0.002(0.007)	0.006(0.01)	-0.08(0.04).
MODEF	0.001(0.007)	0.007(0.006)	0.009(0.01)	0.11(0.04)*
Divers	0.006(0.009)	0.004(0.008)	0.005(0.015)	0.03(0.06)
MAE 0205		. ,		
FNSEA	0.07(0.03).	0.02(0.03)	0.04(0.03)	0.71(0.11) * **
Coordination rurale	0.11(0.03) * **	0.03(0.02)	0.06(0.03)*	0.30(0.09) * *
MODEF	-0.003(0.03)	0.01(0.02)	0.02(0.03)	0.13(0.09)
Divers	0.06(0.04).	0.03(0.03)	0.08(0.04).	0.73(0.15) * **
MAE 0301		~ /		· · · · ·
FNSEA	0.03(0.02)	0.00(0.02)	-0.03(0.03)	0.46(0.12) * **
Coordination rurale	0.03(0.02)	-0.019(0.017)	-0.02(0.02)	0.23(0.10)*
MODEF	-0.04(0.01)*	-0.02(0.017)	-0.05(0.02)*	-0.30(0.11) * *
Divers	-0.01(0.02)	-0.02(0.02)	-0.04(0.03)	0.18(0.17)
MAE 04				
FNSEA	0.03(0.02)	0.00(0.01)	0.00(0.02)	0.33(0.09) * *
Coordination rurale	0.07(0.01) * **	0.02(0.01)	0.01(0.02)	0.25(0.08) * *
MODEF	0.012(0.01)	0.01(0.01)	0.01(0.02)	-0.03(0.08)
Divers	0.020.02	0.00(0.02)	0.02(0.03)	0.20(0.13)
MAE 19				
FNSEA	-0.12(0.08)	-0.004(0.07)	-0.01(0.06)	0.50(0.22)*
Coordination rurale	-0.17(0.07)*	-0.007(0.05)	0.00(0.05)	0.13(0.18)
MODEF	-0.02(0.07)	0.09(0.05)	0.06(0.05)	-0.25(0.19)
Divers	0.07(0.09)	0.05(0.07)	0.12(0.08)	0.00(0.31)
MAE 20				
FNSEA	-0.47(0.18) * *	-0.08(0.04).	-0.03(0.05)	0.45(0.21)*
Coordination rurale	-0.52(0.15) * **	-0.08(0.03)*	-0.07(0.04)	0.20(0.17)
MODEF	-0.36(0.14)*	-0.00(0.03)	0.04(0.05)	-0.55(0.18) * *
Divers	-0.04(0.19)	-0.04(0.04)	-0.10(0.07)	0.17(0.29)
MAE 21				
FNSEA	$-0.016(\overline{0.006})*$	-0.007(0.006)	0.007(0.01)	0.05(0.05)
Coordination rurale	0.000(0.00)	0.000(0.005)	-0.00(0.009)	-0.02(0.04)
MODEF	0.004(0.005)	0.007(0.005)	0.0050.01	0.09(0.04).
Divers	-0.000(0.007)	0.00(0.006)	0.020.01	0.15(0.07).

Table 3: Entry into PGS schemes and farmers' unions

	Effect of scheme	FNSEA		MODEF	
Scheme		Participation	Practices	Participation	Practices
Number of crops					
MAE 0201	$1.094(0.108)^{***}$	0(0.05)	-2.99(1.62).	$0.11(0.04)^*$	$3.04(1.39)^*$
MAE 0205	-0.0128(0.0053)*	$0.71(0.11)^{***}$	-2.99(1.62).	0.13(0.096)	$3.04(1.39)^*$
Cover crops (ha)					
MAE0301	$12.18(2.42)^{***}$	$0.46(0.13)^{***}$	-37.5(54.98)	$-0.30(0.11)^{**}$	$-14.789(4.739)^{**}$
Grass buffer strips (m)					
MAE04	495.2(43.73) * **	0.33(0.1) * *	-677(414.11)	-0.03(0.08)	-250(357)
Loading (bovine head per hectare)					
MAE19	-0.299(0.322)	$0.5(0.23)^*$	-5.84(5.58)	-0.25(0.2)	7.24(4.78)
MAE20	0.0391(0.153	$0.45(0.21)^*$	-5.84(5.58)	$-0.55(0.18)^{**}$	7.24(4.78)
Grassland					
MAE19	11.17(5.10) * **	$0.5(0.23)^*$	21.71(36.87)	-0.25(0.2)	16.92(31.78)
Organic farming (ha)					
MAE21	43.57(3.86) * **	0.05(0.05)	-6.25(7.63)	0.09(0.04).	15.16(6.57)*
Conversion to organic farming					
MAE21	5.44(0.93) * **	0.05(0.05)	-7.17(11.814)	0.09(0.04).	1.232(1.01)

Table 4: Farmers' unions, PGS and farmers' practices estimated using spatial differencing

## 6 Conclusion

In this paper, we provide evidence of capture of the implementation of the French PGS program by farmers' unions. We show that right-wing unions seem to have promoted participation into the less stringent schemes, which increased windfall effects. We still need to study the proportion of participation due to unions, in order to measure the role of capture in the overall windfall effects.

## References

- ALGAN, Y., AND P. CAHUC (2007): La société de défiance: comment le modèle français s'autodétruit. Editions Rue d'Ulm.
- ALLAIRE, G., E. CAHUZAC, AND M. SIMIONI (2009): "Contractualisation et diffusion spatiale des mesures agro-environnementales herbagères," *Revue d'Etudes en Agricul*ture et Environnement, 90(1), 23–50.
- ASCA (2003): "Evaluation à Mi-Parcours du RDR, Partie sur le Soutien à l'Agroenvironnement (Chapitre VI)," Rapport d'évaluation, Ministère de l'Agriculture et de la Pêche, http://agriculture.gouv.fr/IMG/pdf/ch\_6.pdf.
- BARDHAN, P. (2005): "Decentralization, Corruption And Government Accountability: An Overview," in *Handbook of Economic Corruption*, ed. by S. Rose-Ackerman. Edward Elgar.
- BARDHAN, P., AND D. MOOKHERJEE (2000): "Capture and Governance at Local and National Levels," *The American Economic Review*, 90(2), 135–139.
- BERTRAND, M., AND F. KRAMARZ (2002): "Does Entry Regulation Hinder Job Creation? Evidence from the French Retail Industry," *Quarterly Journal of Economics*, 117(4), 1369–1414.
- BRUN, G. (2006): L'agriculture française à la recherche d'un nouveau modèle. L'Harmattan.
- CHABÉ-FERRET, S., AND J. SUBERVIE (2010): "How Much Green for the Buck? Estimating Additional and Windfall Effects of the French Agro-Environmental Schemes by Difference-In-Difference Matching," in 4èmes journées INRA-SFER-CIRAD de recherches en sciences sociales, Rennes, France.
- DUBOIS, E., F. FACCHINI, AND M. FOUCAULT (2009): "Un modèle explicatif du vote FNSEA aux élections des Chambres d'agriculture départementales (1995-2001)," Économie rurale, 312(4), 32–50.

- DUCOS, G., P. DUPRAZ, AND F. BONNIEUX (2009): "Agri-Environment Contract Adoption Under Fixed and Variable Compliance Costs," *Journal of Environmental Planning* and Management, 52(5), 669–687.
- DURANTON, G., L. GOBILLON, AND H. G. OVERMAN (2011): "Assessing the Effects of Local Taxation using Microgeographic Data," *The Economic Journal*, 121(555), 1017– 1046.
- FACCHINI, F., AND R. MAGNI-BERTON (2009): "Le syndicalisme agricole," Économie rurale, 312(4), 7–13.
- GORTER, H. D., AND J. SWINNEN (2002): "Political economy of agricultural policy," in Handbook of Agricultural Economics, ed. by B. L. Gardner, and G. C. Rausser, vol. 2 of Handbook of Economics, chap. 36, pp. 1893 – 1943. Elsevier.
- PUFAHL, A., AND C. R. WEISS (2009): "Evaluating the Effects of Farm Programmes: Results from Propensity Score Matching," *European Review of Agricultural Economics*, 36(1), 79–101.

	Table 5: Description des variables de contrôles			
SAU	La surface agricole Utile en ares			
STH	La Surface Totale en Herbe en ares			
Fourrage	La surface dédiée à la culture de fourrages en ares			
Cereales	La surface dédiée à la culture de céréales en ares			
LSP	La surface dédiée à la culture de légumes secs et protéagineux en ares			
Industriel	Les surfaces dédiées aux cultures industrielles en ares (Colza, Tabac)			
Legenf	Légumineuses enfouies à des fins de fertilisation en ares			
Cipan	Couvert végétal implanté pour piéger les nitrates en ares			
Nb cult	Le nombre de cultures différentes de l'exploitation			
Eveness	Un indicateur de diversité des cultures compris entre 0 et 1			
Sth over sau	La part de la STH dans la SAU			
Cereales over sau	La part de surfaces dédiées aux céréales dans la SAU			
Fourrage over sau	La part de surfaces dédiées aux fourrages dans la SAU			
Cult maj	La part de la culture majoritaire dans la SAU			
Gel	La jachère aidée en ares			
Propr	La surface en faire valoir direct			
qmbs96~5	Marge Brut Standard Céréales, oléaoprotégaineux, jachères			
qmbs96 13	Marge Brut Standard Herbivores			
qmbs96 41	Marge Brut Standard totale			
agecex	Age de l'exploitant			
Pmsee	Contractualisation de la PMSEE			
Ichn	Contractualisation de l'ICHN			
Phyto	Engagement dans un programme de culture raisonnée			
Olae	Contractualisation d'une Olae			
label	Production sous un label			
Aoc	Production sous une AOC			
Agbio	L'exploitant a des parcelles en agriculture biologique			
Maraich	L'exploitant a des cultures maraichères			
Vignes	L'exploitant a des vignes			
Mean alt4	Altitude moyenne de la commune de l'exploitant			
Pente	Indicateur de la pente moyenne de la commune de l'exploitant			
Form general expl	Formation générale de l'exploitant (Indicatrices pour primaire, CAP			
	Baccalauréat, BTS)			
Form agro expl	Formation agricole de l'exploitant (Indicatrices pour Primaire,			
	Secondaire courtes, Secondaire longue, supérieur courte, supérieur longue)			
Ugb	Quantité d'UGB sur l'exploitation			
C ugb	L'exploitation détient des animaux et indicatrices de chargement			
	(1  a  2  UGB par hectares incrementalement par palier de  0.2)			
El intensif	L'exploitation fait de l'élevage intensif			
Matpro	L'exploitation détient un tracteur			
	(Indicatrice par puissance de $55$ a $170$ chevaux DIN en 5 paliers)			
Matcop	L'exploitant détient un tracteur en copropriété			
	(Indicatrice par puissance de $55$ a $170$ chevaux DIN en 5 paliers)			