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## Case study Midi-Pyrénées

Yann Desjeux, Pierre Dupraz, Élise Maigné, Eric Cahuzac

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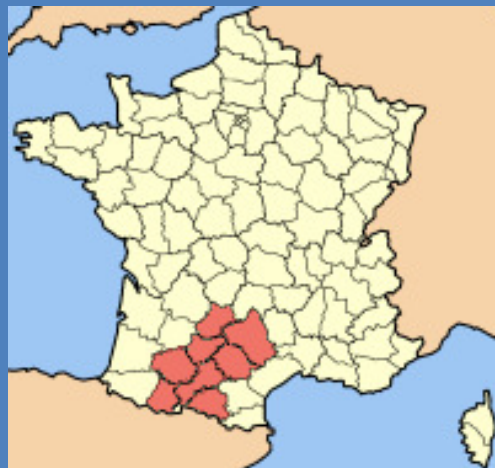
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## Case study Midi-Pyrénées

Yann DESJEUX & Pierre DUPRAZ (INRA – UMR SMART, Rennes)  
Elise MAIGNE & Eric CAHUZAC (INRA – US ODR, Toulouse)  
National Institute for Agricultural Research, France



## The region Midi-Pyrénées

### Programming level

### The French RDP

- a) National program,
- b) Regional (NUTS 2) implementation

Position of the area with respect to the convergence and competitiveness objectives (following definition of Reg. 1083/2006)

Competitiveness and Employment Regions  
Measures aiming at meeting local stakes  
Designed by the regional administration with local actors.





Small scale farming – small field sizes – hilly

# Midi-Pyrénées soil and climate



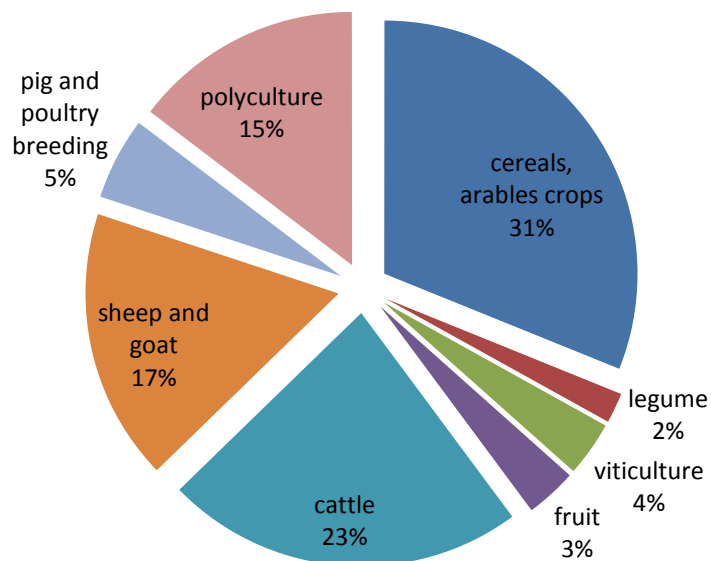
Clay soils – heterogeneous site conditions – dry summers



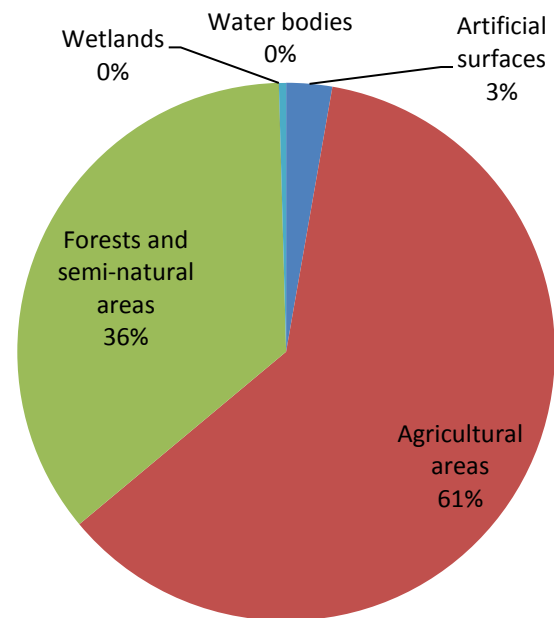
# Midi-Pyrénées agriculture pattern



## Agriculture pattern



## Land-Use in Midi-Pyrénées (CLC)





Natural regional park of Haut-Languedoc

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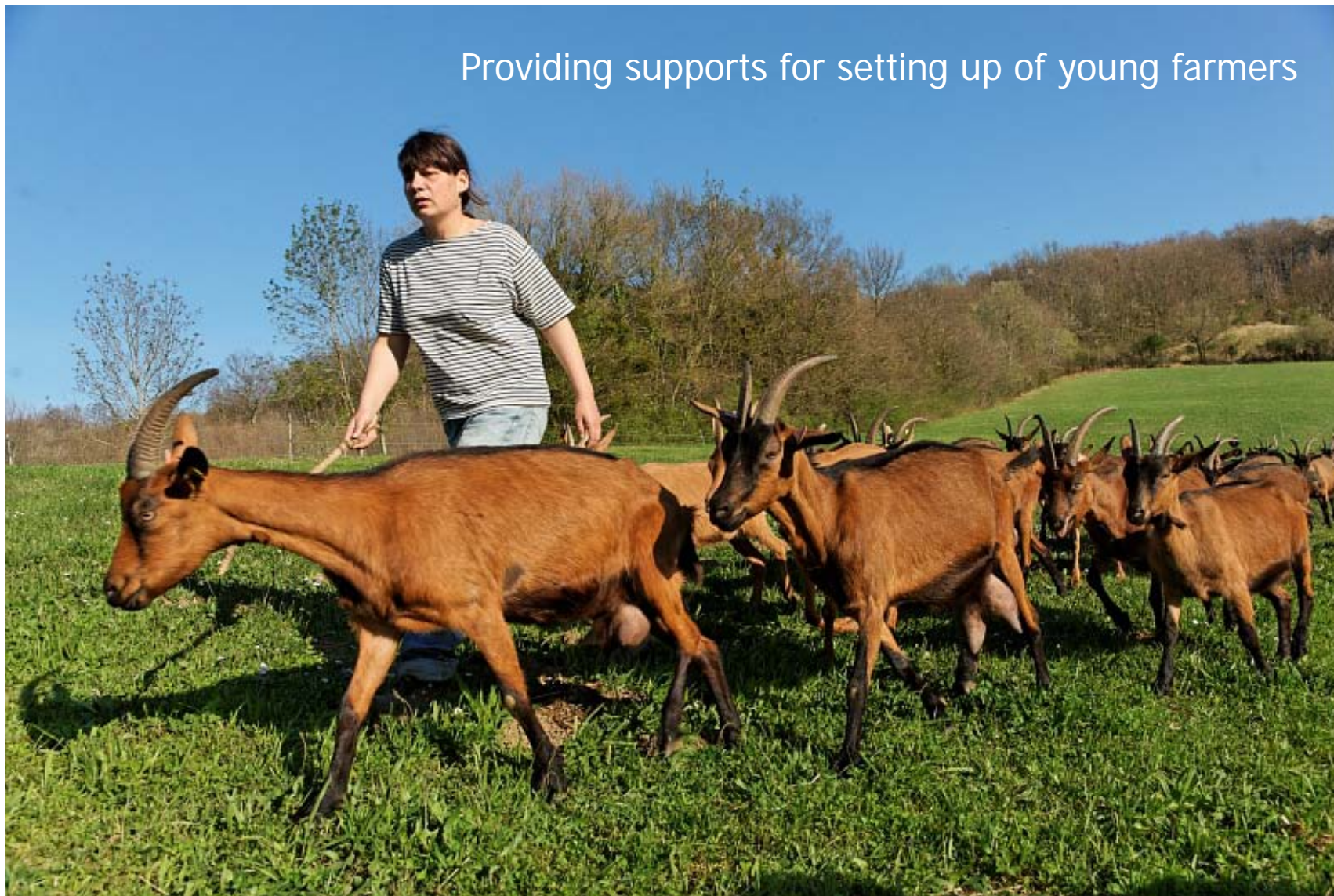
## Grid connected power

6 highest national producer :  
Wind energy = 322 MW  
Photovoltaic = 53 MW





Providing supports for setting up of young farmers





Free-range cattle





Beautiful village and landscapes

## Midi-Pyrénées land use data



Surface (ha)	45,348 km <sup>2</sup>
Usable Agricultural Area (ha)	2.3 millions ha
Population	2.6 millions inhabitants
Number of municipalities (#)	3020
Population density of the Region	58 inhabitants/ km <sup>2</sup>
Density urban/rural (Pop/kmq)	Urban : 1085 inhabitants/ km <sup>2</sup> Rural : 26 inhabitants/ km <sup>2</sup>



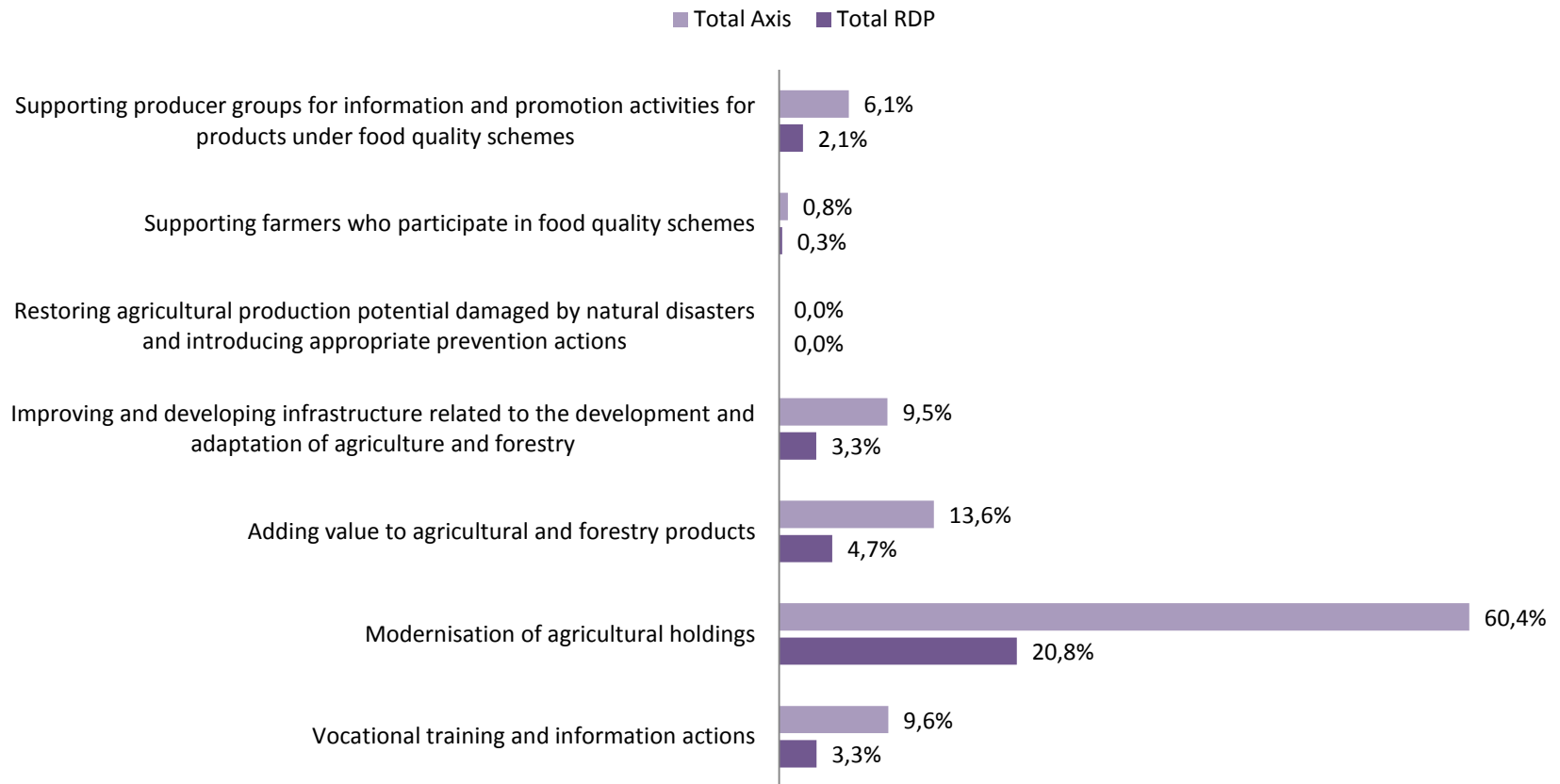
# Midi-Pyrénées Rural Development Programme (RDP)



Total EU contribution (€)	1,094.025 millions
EU contribution (€ per ha of UAA)	475.66
Total RDP budget (€)	200.645 millions
RDP budget (€ per ha of UAA)	87.24
RDP budget for axis (%)	(private funds excluded)
Axis 1	49.2%
Axis 2	15.8%
Axis 3	17.2%
Axis 4	15.5%

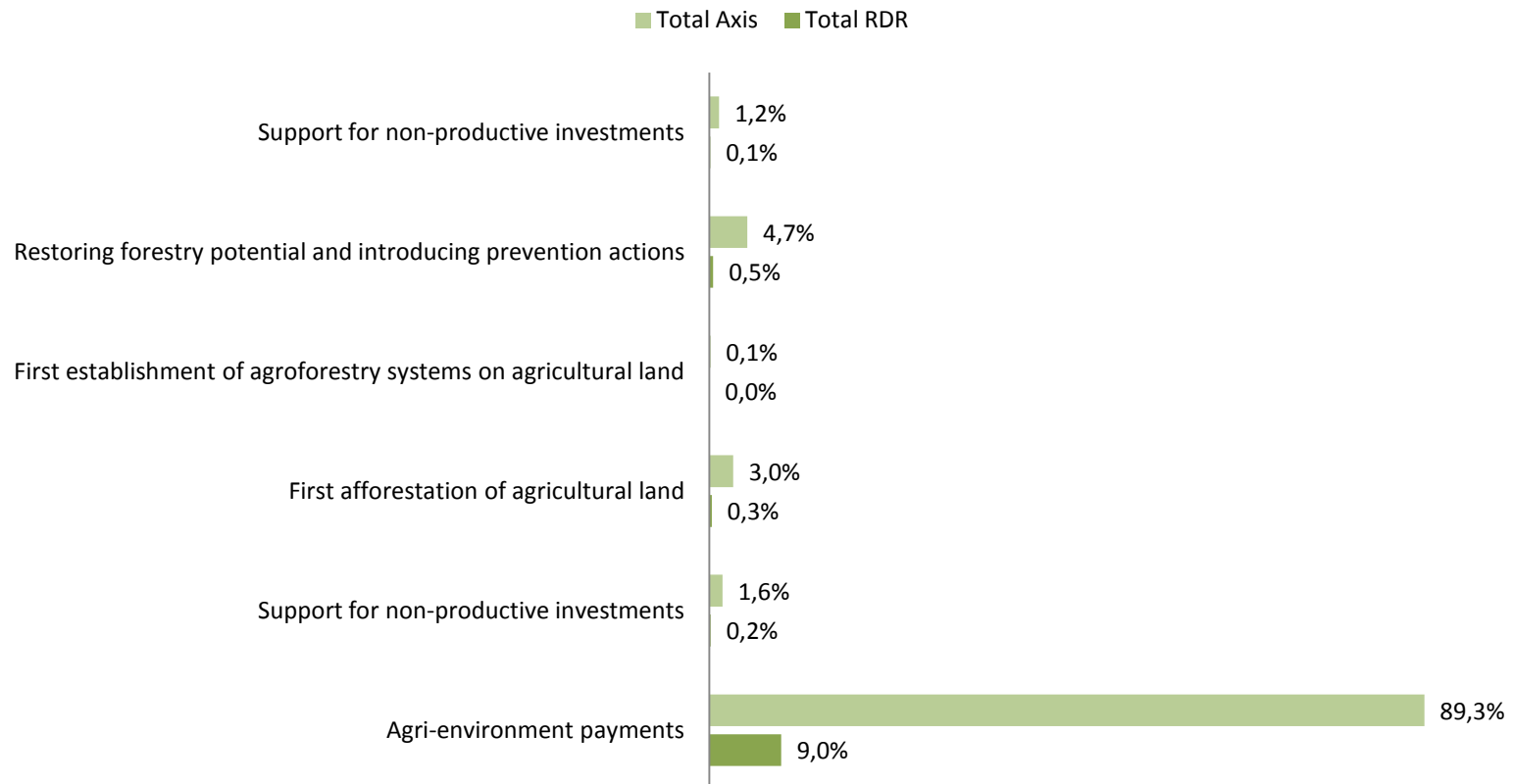
## SPARD research focus

### Axis 1 budget allocation



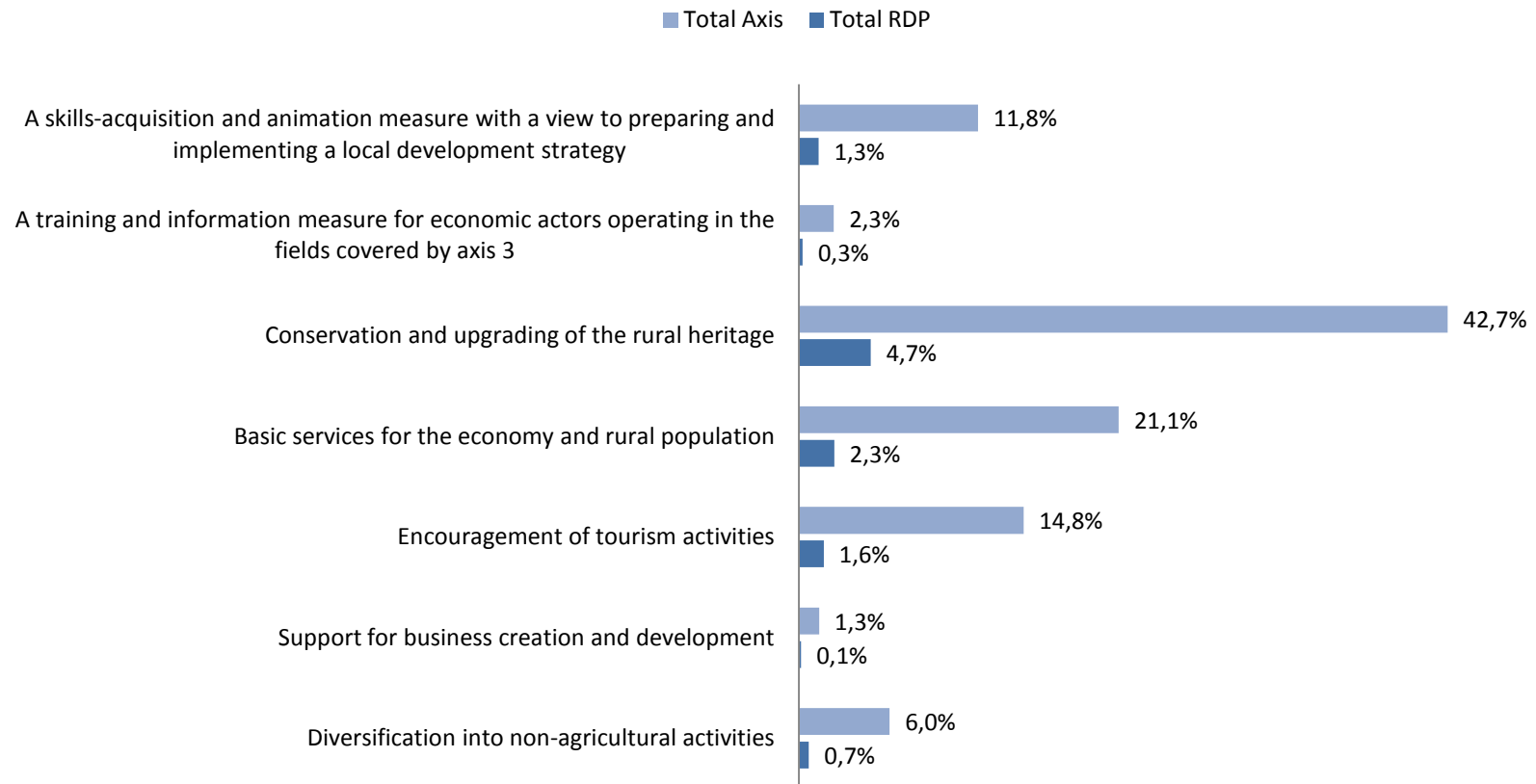
## SPARD research focus

### Axis 2 budget allocation



## SPARD research focus

### Axis 3 budget allocation





# Our hypotheses on neighborhood effects in Midi-Pyrénées

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- Neighborhood effects emerge from learning from good practice
- Neighborhood effects exhibit in participation rather than in expenditure results
- In general programming authorities assume neighborhood effects low
- They estimate them to exist for
  - investments in farm modernization, particularly where work in agriculture is high
  - farm diversification, particularly where tourism is developed
- Regional baseline data also determine participation and expenditures
- Which baseline data explain participation and expenditures is highly measure dependant and region specific

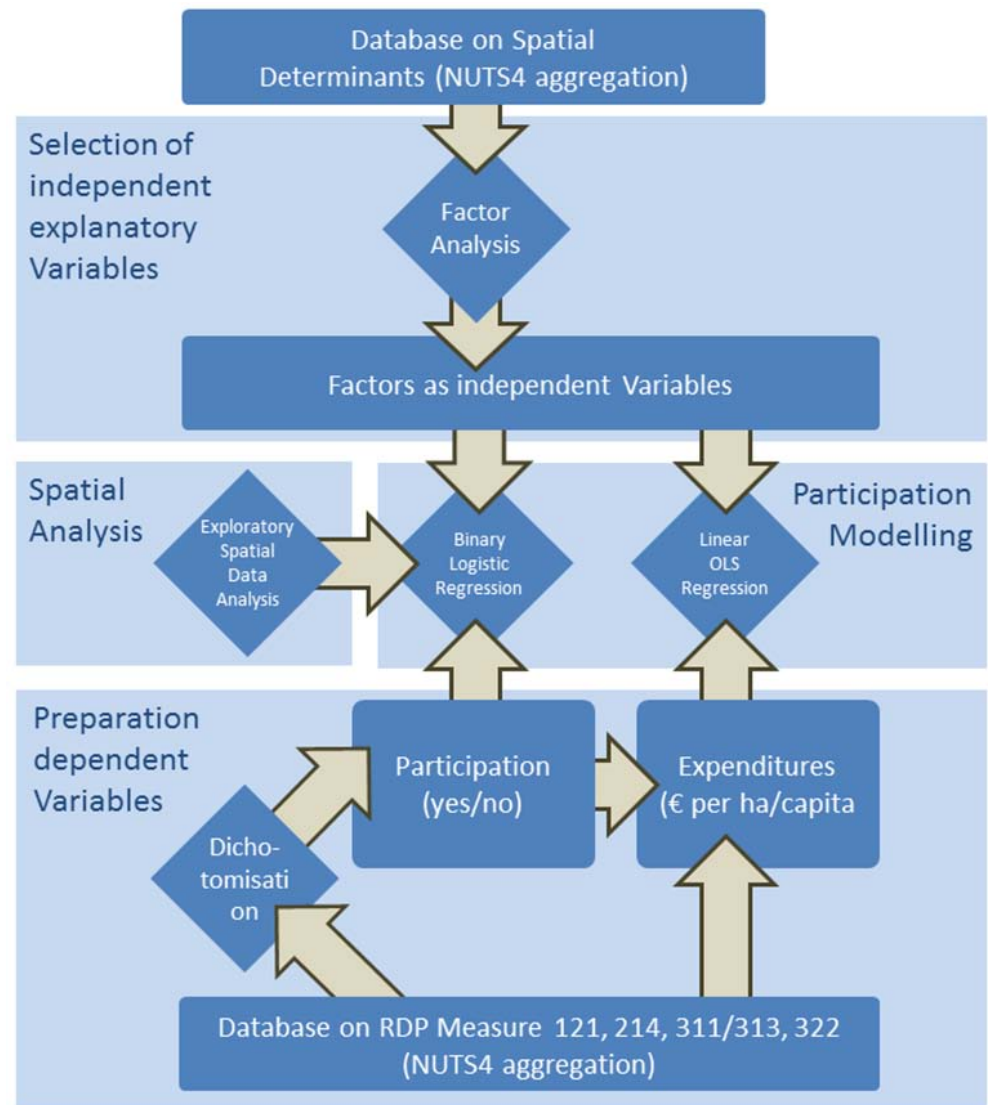
# Midi-pyrénées analytical approach

## Research objective

- Analysis of the spatial distribution of RDP implementation
- Identification of neighbourhood effects and dependence on local conditions

## Approach

- Method: spatial econometric analysis
- Data: individual data on participation and payments.
- Aggregated to Nuts 4
- Measures 121,214-A,214-D,214-I,311, 312, 321.
- Years 2007-2010



# Midi-pyrénées results

## Measure 121 farm modernization



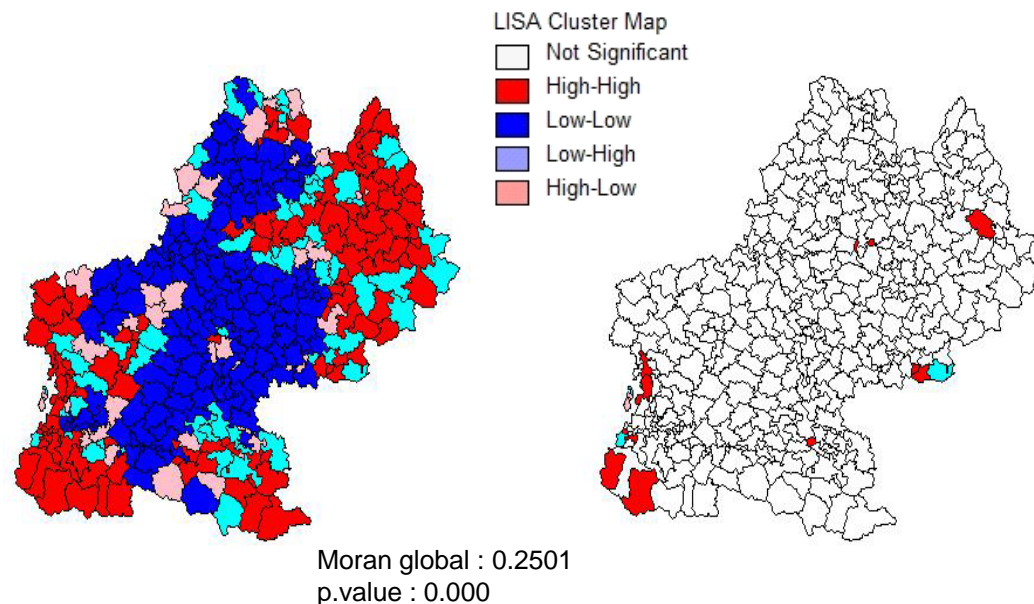
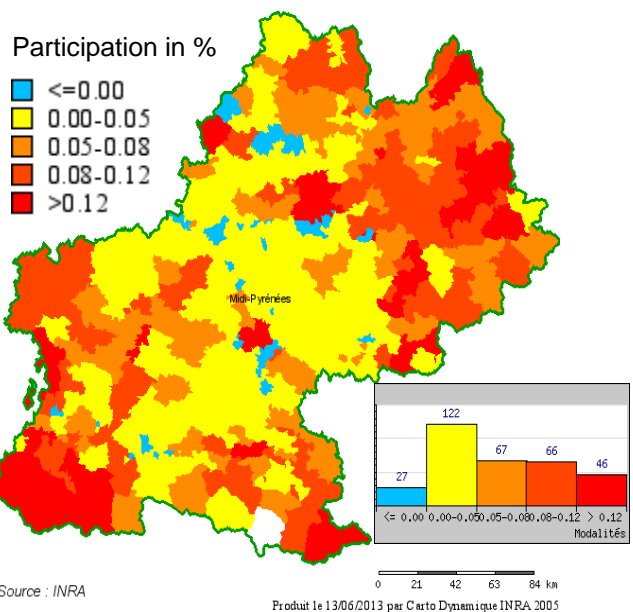
- In Midi-Pyrénées, like in France, 90% of the municipalities contains at least one farm receiving support for “farm modernization”.
- There is some significant spatial correlation (Moran = 0.25)
- Determining factors for participation “labour present on farm ” (1.16) and with the share of farms organised in cooperatives for the use of agricultural equipment (CUMA). That is a proxy of network developpement.





# Midi-pyrénées spatial analysis of neighborhood effects

## Measure 121 farm modernization





# Midi-pyrénées results

## Measure 214-A grassland premium



- Grassland premium is the more frequently used in the municipalities of Midi-Pyrénées (87%) than in France (69%)
- There is a strong concentration in mountain areas (Pyrénées) and in the “Lot” and “Aveyron” Nuts 3 departments
- Global Moran is very high (0.76) describing a huge spatial correlation, with clusters in mountains.
- Participation is mainly linked with the “share of grassland in the UAA” (10.38).

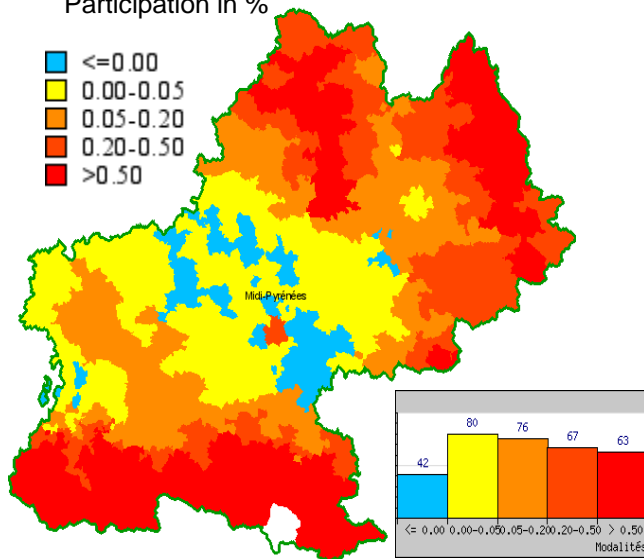


# Midi-pyrénées spatial analysis of neighborhood effects

## Measure 214-A grassland premium

Participation in %

- $\leq 0.00$
- 0.00-0.05
- 0.05-0.20
- 0.20-0.50
- $> 0.50$

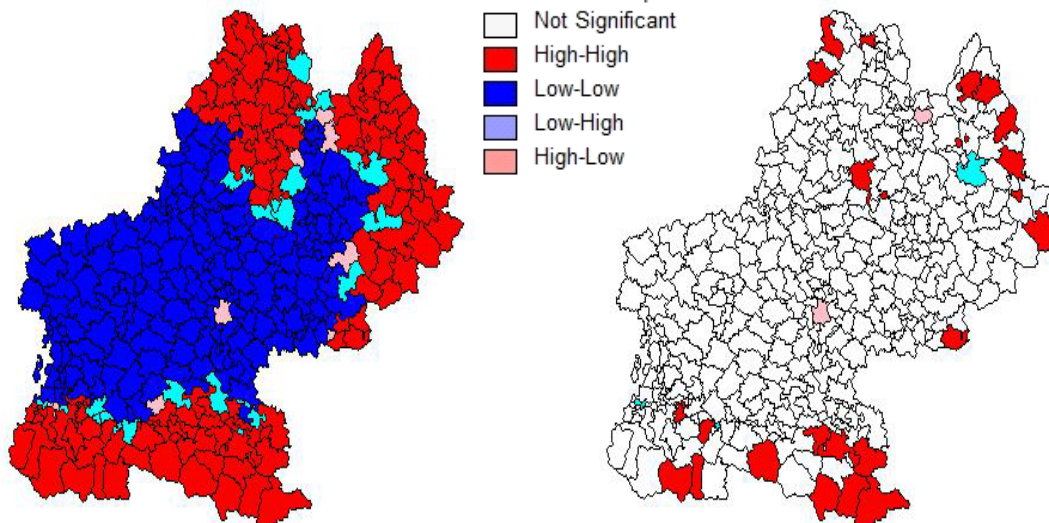


Source : INRA

Produit le 13/06/2013 par Carto Dynamique INRA 2005

LISA Cluster Map

- Not Significant
- High-High
- Low-Low
- Low-High
- High-Low



Moran global : 0.7614

p.value : 0.000





# Midi-pyrénées results

## Measure 214-D Organic farming



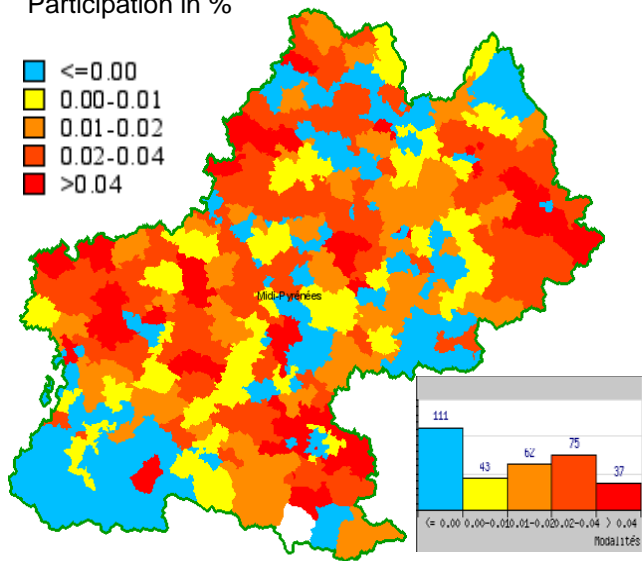
- Organic farming in Midi-Pyrénées is concerning 66% of the municipalities (58% in France)
- Irregular distribution with strong concentrations pattern in some municipalities
- Clusters are concentrated in specific territories
- Determining factors for participation “labour present on farm ” (0.57), “average UAA” (0.02), “number of hired labour per farm heads” (1.36), “the share of farm using direct-to-consumer sales” (2.69).



# Midi-pyrénées spatial analysis of neighborhood effects

## Measure 214-D, organic farming

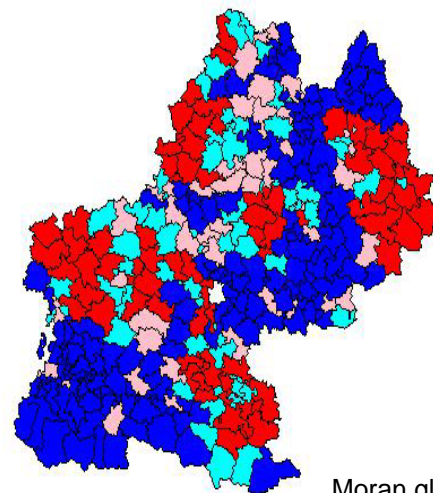
Participation in %



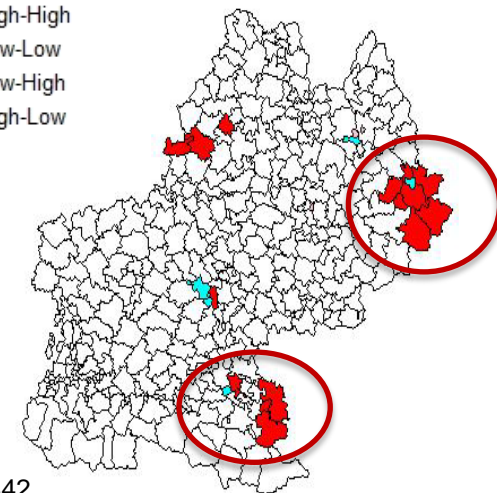
Source : INRA

Produit le 13/06/2013 par Carto Dynamique INRA 2005

LISA Cluster Map



Moran global : 0.1842  
p.value : 0.000





# Midi-pyrénées results

## Measure 214-I regional AES



- Large participation in this measure (50% of the municipalities) for a little bit less in the whole territory (43%)
- There is a strong spatial correlation (0.38) especially in mountain
- Determining factors for participation “labour present on farm ” (0.53), “share of grassland in the UAA” (2.1), “Share of area in natura 2000” (2.47)

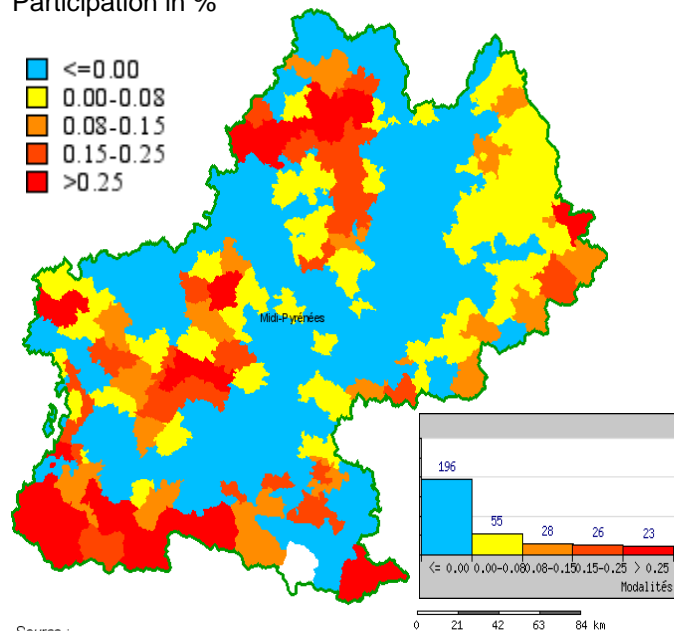
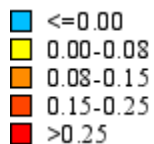




# Midi-pyrénées spatial analysis of neighborhood effects

## Measure 214-I, regional AES

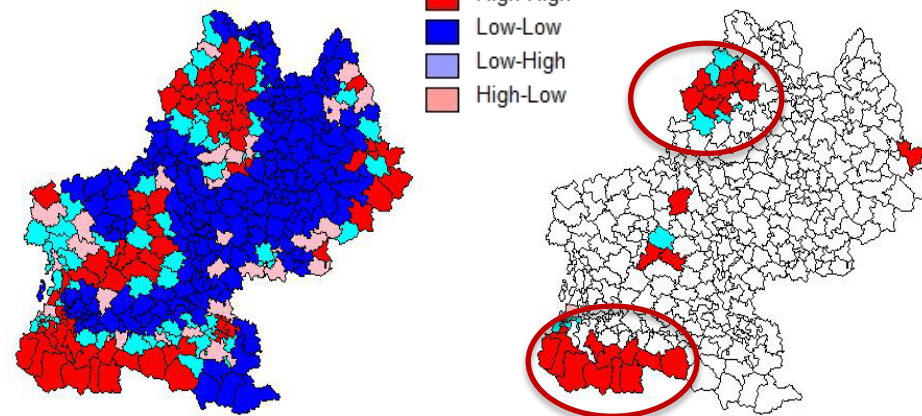
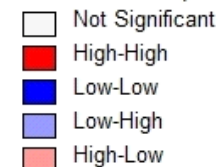
Participation in %



Source :

Produit le 13/06/2013 par Carto Dynamique INRA 2005

LISA Cluster Map



Moran global : 0.3797  
p.value : 0.000



- In Midi-Pyrénées, scarce participation in measures relative to the “quality of life in rural areas and diversification of the rural economy” (only 13% uptake, 23% in France)
- There is no spatial correlation, Moran is not significant.
- Determining factors for participation “labour present on farm ” (0.61), “the share of farm using direct-to-consumer sales” (2.41)

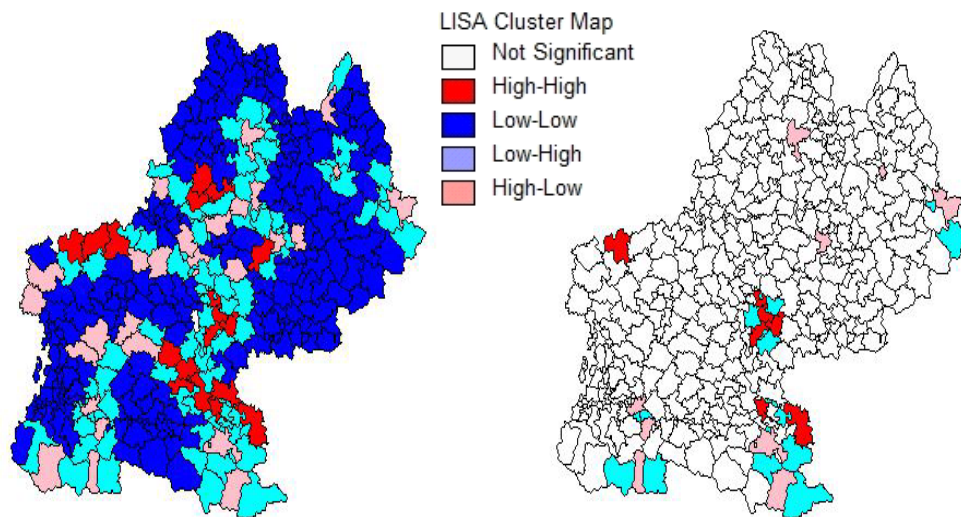
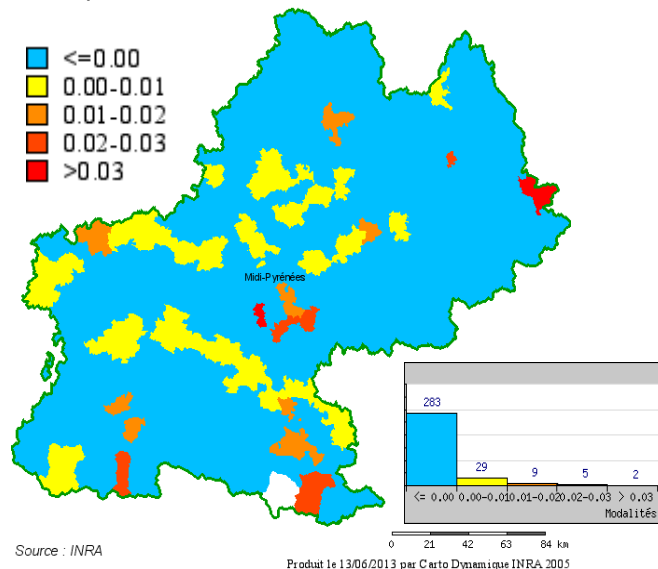




# Midi-pyrénées spatial analysis of neighborhood effects

## Axis 3 measures

Participation in %



Moran global : 0.0177  
p.value : 0.2634



# Midi-pyrénées uptake estimations



Probits	121_benef		214a_area		214d_area		214i_area		axis3_benef	
	Simple	Spatial	Simple	Spatial	Simple	Spatial	Simple	Spatial	Simple	Spatial
(Intercept)	4,975	4,560	18,227	7,180	-8,047*	-7,206.	5,280	6,754.	-7,012	-6,296
sth_sau_2000	-0,862	0,459	27,033**	10,379***	-1,016	-0,758	2,332**	2,091**	0,664	0,643
log_mo06	1,304***	1,155***	1,266*	0,712*	0,547**	0,575**	0,455**	0,529**	0,531*	0,607*
SUPMOYexpl06	-0,011	-0,002	-0,038	0,000	0,020**	0,016**	0,008	0,000	-0,002	-0,005
AGE_MOY06	-0,160	-0,139	-0,532.	-0,282	-0,026	-0,035	-0,135.	-0,143.	0,095	0,077
ASB06_RNET	-21,442.	-9,126	-25,371	-4,185	-0,167	-0,676	-0,816	-2,366	-5,489	-5,979
txchom06	-4,291	4,567	4,338	6,448	2,178	1,591	-8,707*	-8,273*	-6,453	-7,100
pct_indiv06	-0,436	-0,468	-0,719	0,301	3,552*	3,303*	-1,752	-2,618*	-1,632	-1,783
CSP6	-1,146*	-0,550.	1,209*	0,629	0,322.	0,277	0,187	0,193	0,082	0,090
EXOJA1	0,422	0,292	-1,293	-0,044	0,300	0,370	0,143	0,268	0,471	0,442
logpartetpsal	-0,377	-0,448	-4,653**	-1,615.	1,354**	1,362**	-0,653	-0,593	0,221	0,144
AOC	-0,411	-0,591	-0,410	-0,097	0,365.	0,182	0,050	-0,067	-0,623*	-0,674*
zauer456	-0,727	-0,798.	0,392	0,126	0,032	-0,059	-0,034	-0,114	0,055	0,145
ZVul	0,359	0,463	0,958	0,814	0,314	0,279	0,268	0,161	0,038	-0,010
pct_VenteDir	0,190	-0,630	5,969	-0,097	2,383*	2,696*	1,992.	1,681	2,127	2,413*
pct_TravCuma	9,654*	6,307*	2,409	3,877	1,142	0,900	-0,213	-0,231	1,838.	1,807.
IY_per_crops_2007	0,169	0,014	0,318	-0,003	-0,001	-0,002	0,014	0,011	-0,003	-0,006
part_natura2000	-2,670	-1,465	-5,465	-3,046	-0,054	0,101	2,745*	2,470*	1,038	1,050
OTEbov	0,508	0,604	2,041	0,616	0,489	0,514.	-0,081	-0,018	-0,792	-1,012.
indic_meca	6,693	1,100.	1,392	-2,409	0,281	0,288	-0,643*	-0,769*	0,414	0,660
indic_maerot	5,351	0,637	-0,066	-0,448	0,749*	0,816*	0,260	0,229	0,501.	0,608.
indic_phaepmsee	0,019	-0,248	0,524	0,671	0,301	0,331	0,065	-0,055	0,189	0,204
indic_foret	-0,727	-0,311	1,018	0,307	-0,065	-0,163	-0,003	-0,018	-0,216	-0,200
indic_forma	-0,425	-0,539	0,277	0,356	-0,675*	-0,727*	-0,219	-0,272	0,092	0,073
indic_natura	5,884	1,149	5,388	4,585*	-0,385	-0,494	0,987*	1,052*	0,379	0,444
indic_ichn	1,035	1,575*	1,036	0,364	0,841.	0,772.	-1,021*	-1,042*	-0,068	-0,144
indic_poa	-1,139.	-0,506	1,043	1,169*	0,090	0,073	0,139	-0,002	0,054	0,071
indic_preret	-0,713	-0,755	-0,074	-0,004	0,117	0,116	0,060	0,048	-0,441	-0,475
rho		-0,601**		0,217		0,391***		0,503***		-0,081
BPT	0,89	0,905	0,923	0,926	0,749	0,768	0,746	0,761	0,713	0,725
BP1	0,883	0,9	0,92	0,927	0,78	0,774	0,72	0,734	0,75	0,727
N	327	327	326	326	327	327	327	327	327	327
AUC	0,97	0,97	0,99	0,99	0,85	0,85	0,83	0,83	0,8	0,8



## General

- Significant spatial spillover effects are founded, excepted for Axes 3 measures
- No statistically sound statements about targeting possible
- Results show how much the Midi-Pyrénées territory is regionally specialized
- In contrast to the results found in France, it is difficult to say that Midi-Pyrénées municipalities that receive payments in the first programming are more likely to uptake.
- When contextual factors are included in the model, the spatial correlation become lower.

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**Spatial Analysis of Rural Development Measures Providing a tool for better policy targeting** Stronger accountability requirements and EU budget constraints will increase the pressure towards policies targeted on specific objectives such as the provision of public benefits (environmental, rural, social). For the EU's rural development programmes 2007-2013 Member States are requested to collect indicators on characteristics, needs, expenditures and results. Additionally, managing authorities in some Member States have created GIS-based databases with a huge amount of data related to area-based



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