# The National Rural Development Programme in France: How Does It Contribute to the Attractiveness of Regions?

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**Abstract** – Since the 2000s, the Common Agricultural Policy (CAP) has become one of the key components of rural development policy, which takes the form of a national programme in France; however, few studies have been dedicated to assessing its impact on the attractiveness of rural areas. This article presents the results of an evaluation of the specific impacts, during the period from 2007 to 2013, of the European rural development measures and measures relating to quality of life and diversification of the rural economy applied in France on the economic and residential attractiveness of the municipalities benefiting from the measures. The impacts of the projects are estimated using a difference-in-differences method with propensity score matching. The evaluation reveals little impact on residential attractiveness. However, it also allows for the identification of positive impacts on face-to-face jobs linked to local services, with around 80,000 jobs having been created during this period at a cost of EUR 18,000 per job, which is lower than has been seen with comparable policies.

JEL Classification: J11, J68, H11, H42, R12, R53, R58
Keywords: second pillar of the CAP, rural development, impact assessment, difference-in-differences, propensity score matching

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Established by the European Union during the 2000s as an intervention instrument in the face of expansion (Dwyer *et al.*, 2007), the rural development policy is primarily covered by the Common Agricultural Policy (CAP), and more specifically by its second pillar, since the first is dedicated to market and income support. This second pillar offers a broad range of agricultural, agri-environmental and tourism measures, etc., as defined in the Rural Development Regulation (RDR). It focuses on offering incentive schemes to farmers and other stakeholders (companies, municipalities, natural parks, associations, etc.). Aimed at reconciling socio-structural issues of agriculture, regional development, environmental protection and preservation and integrated rural development, it has steadily increased in both political and budgetary importance, using a quarter of the CAP budget between 2007 and 2013 (Camaioni *et al.*, 2016).

The evaluation of this policy therefore constitutes an important issue, both in terms of democracy, to estimate how effectively public resources are being used, and to identify ways of improving the relevance, consistency and effectiveness of the measures implemented. However, there are very few studies measuring the impact of the RDR itself. One of the reasons for this deficiency is the intertwining of its objectives, which makes it difficult to explain theories of action. Characterised by the extent of its coverage, the ambiguities of its aims and the complexity of its intervention instruments, the policy of the second pillar of the CAP therefore appears to be difficult to understand and assess (Berriet-Solliec, 2013). The vast majority of studies therefore focus on targeted measures, such as investment aid for agricultural holdings (Michalek *et al.*, 2016) and agri-environmental measures (Chabé-Ferret & Subervie, 2013), or question the impacts of the first pillar of the CAP on non-agricultural jobs in the regions (Blomquist & Nordin, 2017). However, few studies explore the impacts of the measures that aim to improve living conditions and diversify economic activities (Lépicier & Védrine, 2016).

This contribution therefore aims to enrich the studies assessing the territorial policies that enhance local resources (place-based policies, see Irwin *et al.*, 2010). The most studied policies concern the Enterprise zones (exemption from tax on labour and land costs in return for setting up in a targeted area), such as the Empowerment Zone Program in the United States (Busso *et al.*, 2013), the *Zones Franches Urbaines* (ZFU – urban tax-free zones) (Malgouyres & Py, 2016) or, in France, *zones de revitalisation rurale* (ZRR – rural revitalisation zones) (Behaghel *et al.*, 2015). Enterprise zones aim to create a labour demand shock by waiving a part of the labour cost of new companies. However, the effectiveness of such schemes remains controversial. In the United States, for example, studies generally show poor effectiveness of state-implemented programmes (Neumark & Kolko, 2010), unlike the federal programme (Busso *et al.*, 2013). As regards the policies implemented in France, and more specifically those introduced in rural areas, Behaghel *et al.* (2015) highlight the lack of impact of the ZRR, particularly when compared with the estimated impacts of the ZFU (Givord *et al.*, 2013; 2018). The majority of these studies explain these limited and contrasting economic findings as the result, on the one hand, of the effects of activity moving from non-beneficiary areas to beneficiary areas (Mayer *et al.*, 2017; Einiö & Overman, 2020), and, on the other hand, of the significant heterogeneity of the findings with local characteristics (Briant *et al.*, 2015).

A second instrument developed by these territorial policies relies on investments in major infrastructure, such as the Apalachian Regional Commission (Stephens & Partridge, 2011) and the Tennessee Valley Authority (Kline & Moretti, 2014) in the United States, and even the cohesion policy in Europe (Bouayad-Agha *et al.*, 2013). Finally, discretionary private investment subsidy policies are also implemented, such as the 'L488' programme in Italy. The findings of the literature assessing programmes of this type suggest that they have a positive impact on employment (Cerqua & Pellegrini, 2014), including over the long term (Kline & Moretti, 2014), yet they do not bring about any significant displacement effects (Cerqua & Pellegrini, 2022).

By assessing the specific impacts of measures relating to quality of life and the diversification of the rural economy (Axes 3 and 4) of the *programme de développement rural hexagonal* 2007-2013 (PDRH, the French rural development programme) on the economic and residential attractiveness of beneficiary municipalities, this study differs from the above-mentioned literature in the nature of the processes activated. Indeed, whereas the programmes studied previously aim to create a labour demand shock, the PDRH supports the local development process by stimulating both residential attractiveness (financing local facilities and services, as well as cultural and natural amenities) and labour demand (subsidies for the creation of companies and for the diversification of non-agricultural activities). As local development models suggest

interdependence between these two processes (Henry *et al.*, 2001), it is highly probable that these two levers have a simultaneous influence over residential and economic dynamics through multiplier effects (Abildtrup *et al.*, 2018).

By basing this study on a detailed analysis of the objectives, the levers activated and the anticipated outcomes of this policy, we evaluate its impacts on variations in the total population and the migratory balance (residential attractiveness) and variations in total, face-to-face and productive jobs (economic attractiveness). Face-to-face jobs are understood to refer to the jobs generated by the face-to-face economy, which groups together tertiary activities that are largely dependent on income spent locally by local residents and therefore spent by the inhabitants who frequent those areas (Dissart *et al.*, 2011). The impacts of funded projects are estimated using the difference-in-differences method with propensity score matching, which makes it possible to isolate the specific effect of selection bias. The evaluation concludes that the measures of Axes 3 and 4 make a positive contribution to overall employment and more specifically to employment in the public and private services sectors. This contribution, which is estimated at around 80,000 jobs at a cost of EUR 18,000 per job, is less costly than other policies of the same type, such as the ZRR, for example. The impacts on attracting population are much less clear-cut and are mainly observed in the municipalities that have conducted tourism and rural development projects.

The article is set out as follows. Having put the measures of Axes 3 and 4 of the PDRH into context (section 1), this article describes the evaluation method and data used (section 2), before presenting the main findings (section 3). A final section concludes with some lessons to improve the conditions under which public policies are implemented and their effectiveness and suggests ways for extending this study.

## 1. The Rural Development Programme 2007-2013

The PDRH 2007-2013 is the main programme[1] in France that transcribes the second generation of the EU Rural Development Regulation (Regulation No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development, EAFRD). Three broad categories of objectives are highlighted (PDRH, volume 1, p. 37):

- Improving the competitiveness of the agriculture, forestry and agri-food sectors (Axis 1);

- Preserving a varied and high-quality rural agricultural and forestry area with a respectful balance between human activities and the preservation of natural resources (Axis 2);

- Maintaining and developing the economic attractiveness of rural areas by drawing upon the diversity of resources, activities and stakeholders (Axis 3), in particular through the use of the LEADER approach (*Liaison entre les Actions de Développement de l'Économie Rurale* – link between actions for the development of the rural economy – referred to as Axis 4).

### 1.1. The Funding of 4 Axes for Various Purposes

From a budgetary point of view, the PDRH measures are therefore co-funded by the EAFRD, the French government (credits from the Ministry of Agriculture), the regional councils and, on a more incidental basis, the water supply agencies and other entities with the aim of boosting the capacity to intervene in the objectives of the programme. With EUR 5.7 billion in EAFRD funding granted for the PDRH for the period 2007-2013, EUR 13.7 billion of public funds were injected into the regions to implement the entirety of the rural development strategy, i.e. a quarter of the European and national funding allocated to the CAP as a whole in France. The distribution of financial resources across the four Axes reflects the order of priorities (Figure I).

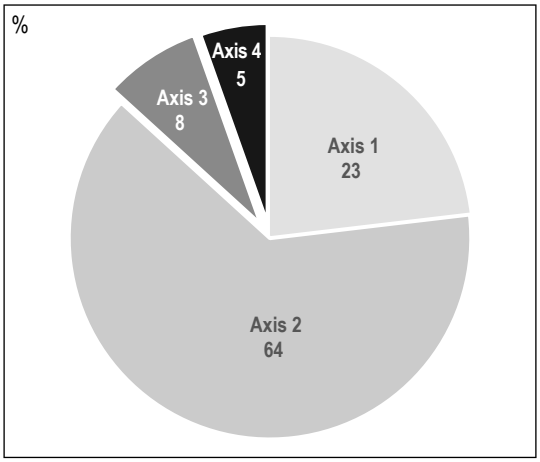
Close to two-thirds of the financial resources are assigned to Axis 2, which relates to the protection of the environment and countryside. Almost a quarter of the resources are earmarked for the competitiveness of agriculture and forestry, while Axes 3 and 4, which are more explicitly targeted at the rural development objectives covered by the evaluation presented in this article, receive almost 15% of the public funding under the PDRH, which equates to a little under EUR 1.7 billion during the period 2007-2013.[2]

Our evaluation, which focuses on the impacts of the PDRH on the economic and residential attractiveness of rural areas, therefore relates to Axes 3 and 4. The budgetary cost of the assessed measures (almost EUR 300 million per year) is therefore low when compared with sectoral policies such as the CAP (EUR 9.1 billion per year) or the *Contrat de plan État-Régions* (State-Region Planning Contract,

*1. The five other French programmes focus on Corsica and each of the overseas departments (Guadeloupe, Martinique, La Réunion and French Guiana).*

*2. As certain measures are not taken into account, we are ultimately looking at an allocation of EUR 1.5 billion.*

Figure I – **Budgetary distribution of EAFRD amounts paid (2007-2015) for the PDRH**




Sources: *Agence de services et de paiement* data made available by the *Observatoire du Développement Rural* (Observatory for Rural Development), hereinafter referred to as ASP-ODR; calculations by the authors.

CPER)[3] 2007-2013 (EUR 4.9 billion per year). However, its comparison with policies that are more specifically focused on attractiveness levers, such as the ZRR policy, estimated at EUR 400 million per year (Behaghel *et al.,* 2015) in 2009, or the territorial component of the CPER (EUR 480 million per year) indicates that this is a significant public policy for rural areas.

### 1.2. Three Main Levers Activated by Axes 3 and 4

In France, Axis 3 activates seven RDR measures[4] (Table 1).

Axis 4 (or LEADER) differs from the others in that it is not broken down into thematic measures, but instead aims to support the establishment of local development strategies broadly involving regional stakeholders and the implementation of an action plan that meets the expectations and needs of inhabitants and local stakeholders at the scale of organised regions ('*Pays*', regional natural parks).

LEADER is accompanied by governance that brings together private and public stakeholders in a local action group. Three levers are activated for its implementation. The first is territorial engineering (measure 431) through the financing of development facilitators for construction, followed by the implementation of the local strategy and action plan. The second lever is the financing of the action plan based on the measures associated with the other Axes (measures 411, 412, 413). Finally, the third is aimed at developing partnerships between LEADER regions (measure 421).

All of the rural development measures implemented in France between 2007 and 2013 have made use of variable funds (Figure II): more than half of the resources were dedicated to developing services for the population (321), the conservation and enhancement of heritage (323) and the creation of micro-enterprises (312).

Assessing the impacts of these measures presupposes an understanding of the objectives that the legislator has assigned to rural development policy, leading them to adopt the relevant measures proposed by the RDR and to adapt them to the local context. However, assessing the impact of the measures adopted also requires an understanding of the underlying mechanisms and how the intended effects are produced. Such an analysis implies two perspectives: on the one hand, the use of contributions from place-based policy theorists (Irwin *et al.*, 2000) and endogenous rural development theorists (Van der Ploeg *et al.*, 2000) to qualify the action levers of Axes 3 and 4; on the other hand, a detailed understanding of the empirical translations of these measures, starting with their specific achievements and then identifying the impacts that they produce, or that they are at least expected to produce, for the direct beneficiaries, with a view to gaining an understanding of the more global impacts on the attractiveness of the beneficiary regions.

It was therefore possible to identify three main levers. The first relates to the territorial economy and is based on the promotion and activation of local resources based on proximity

*3. The CPER is the main financial tool coordinated between the State and the regions for the development of structural projects for regional development, equipment and cohesion. It covers the fields of transport, higher education and research, employment and vocational training and agriculture and the environment.*

*4. Some measures provided for in the RDR were not included in the PDRH, such as measure 322 concerning the renovation and development of villages, which was used heavily in the previous programme.*

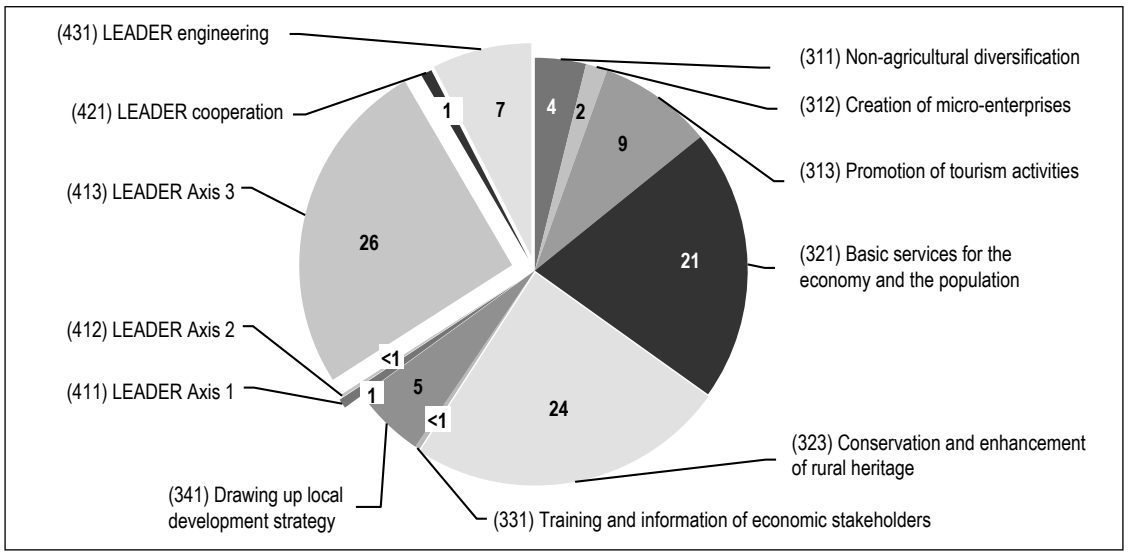
Table 1 – **Measures of Axis 3 of PDRH 2007-2013**

| Code for the measure | Wording of the measure | Beneficiaries | Details of the implementation of the measure (sources: Ex post assessment of PDRH 2007-2013) |
|---|---|---|---|
| 311 | Diversification towards non-agricultural activities (excluding agricultural production and processing, which is included under Axis 1) | Members of agricultural households | 2,350 beneficiaries (including around 450 via LEADER measure 413), spread throughout the territory, largely involves:<br>*i*) creation or development of marketing activity (40% of beneficiaries), *ii*) hospitality (17%), *iii*) equestrian centre (9%), agrotourism and leisure (8%) |
| 312 | Support for the creation and development of micro-enterprises | Private project leaders ≤ 10 jobs, turnover or annual balance sheet < EUR 2 million | 2,067 beneficiaries, including around 700 via LEADER (measure 413). Is more involved in business development than creation in terms of:<br>*i*) the acquisition of new equipment (42% of beneficiaries), *ii*) modernisation (25%), *iii*) studies, consulting, diagnostics (11%) |
| 313 | Promotion of tourism activities | Territorial municipalities and their groupings, associations, project regions or providers of tourist facilities (accommodation) | 3,924 beneficiaries, including around 2,160 via LEADER (measure 413). This measure mainly supports:<br>*i*) hospitality (small rural hotels, cottages) (36% of beneficiaries), *ii*) communication/promotion (14%), *iii*) leisure and nature facilities (12%), the creation of tourist routes (8%) |
| 321 | Basic services for the economy and rural populations | Public or private project leaders (involved in a public-interest project) | 4,335 beneficiaries, including around 3,000 via LEADER (measure 413). The main achievements are:<br>*i*) facilities for young people (17% of beneficiaries), *ii)* sporting and cultural facilities (12%), *iii*) convenience stores (5%), *iv*) medical and health centres (4%), *v*) others (broadband, energy, mobility, welcoming new residents) |
| 323 | Conservation and enhancement of rural heritage (natural and cultural) | Local authorities and their groupings, trade unions, public institutions, '*Pays*' and Regional natural parks, associations, etc. | Around 9,000 beneficiaries working on:<br>*i*) developing and running Natura 2000 projects, management contracts for non-agricultural and non-forest Natura 2000 sites, *ii*) supporting pastoral activities, *iii*) the enhancement of natural and cultural heritage (most often conducted within the scope of LEADER projects, measure 413) |
| 331 | Training and providing information to economic stakeholders | Local authorities and their groupings, organised regions ('*Pays*', parks, etc.), public institutions, associations, training funds, training organisations. | 411 beneficiaries of actions aimed at developing skills in support of innovative approaches, largely carried out within the scope of LEADER (measure 413) |
| 341 | Acquisition of skills and facilitation for the development and implementation of local development strategies, including for forestry | Local authorities and their groupings, organised regions ('*Pays*', parks, etc.), public institutions, associations, forestry unions | Two types of action financed:<br>*i*) establishment of forestry charters and a plan for the development of massifs (537 beneficiaries),<br>*ii*) financing of public engineering and diagnostics, land studies (812 beneficiaries, half of which via LEADER, measure 413) |

Sources: ODR based on the EAFRD Regulation No 1698/2005.

logic (Colletis & Pecqueur, 1993). It is based on the promotion of quality local products or the enhancement, in particular through tourism, of expertise and cultural and natural heritage. Its impacts in terms of economic attractiveness can be estimated on the basis of outcome variables relating to jobs. The second concerns the face-to-face economy and relates to the support for infrastructure and public and commercial facilities/services meeting the expectations of the resident population. Such a lever aims at both retaining the rural population and improving residential attractiveness, starting with the observation of a 'counter-urbanism' movement, which entails new needs of populations coming from urban environments (Murdoch & Marsden, 1995; Dissart *et al.*, 2011). These impacts can be estimated using demographic outcome variables. Finally, the third lever, which is more transversal in nature and acts as a catalyst for the effectiveness of the first two levers, involves the organisation and cooperation of stakeholders

Figure II – **Budgetary distribution (in %) of the amounts paid for the PDRH for each measure of Axes 3 and 4 during the period 2007-2013**




Sources: ASP-ODR; calculations by the authors.

(Shucksmith, 2000). The anticipated impacts of the LEADER projects are heavily reliant on this type of lever, which relies on supporting initiatives by local stakeholders that incorporate the specifics of expectations and territorial particularities, as well as on strengthening cohesion between stakeholders within the regions.

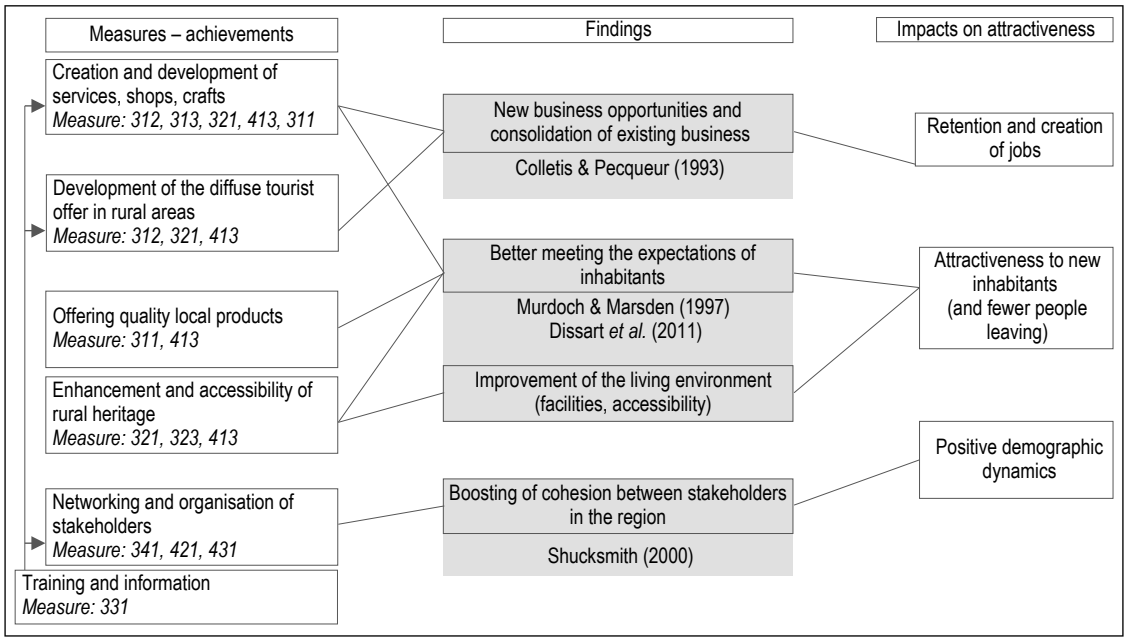
Figure III provides a schematic representation of these levers and a synthetic representation of the causal links between achievements financed by the measures of Axes 3 and 4 of the PDRH and their impacts on the attractiveness of the beneficiary regions. It adds a comprehensive dimension to the analysis of the findings by exploring the different ways in which the measures contribute to the measured impacts.

## 2. Data and Method

### 2.1. Data

The study uses municipal data. The data characterising the policy (amounts, public expenditure, involvement in the various measures) are primarily provided by the *Observatoire du développement rural* (ODR, Observatory for rural development) on the basis of the data made available by the body, the *Agence de services et de paiement* (ASP) responsible for paying CAP

Figure III – **Logic diagram of the impact of the measures of Axes 3 and 4 of the PDRH**



aid. The data used to construct the outcome variables are taken from INSEE (population census 2007 and 2015). Finally, the initial characteristics of the municipalities are, for the most part, provided by INSEE (Census 2006, *Base Permanente des Équipements*), but also from the Corine Land Cover database and from the Directorate-General for Public Finance.

Three types of variable are used: outcome variables, variables concerning participation in the measures of Axes 3 and 4 and control variables. Resulting from a preliminary analysis of the levers of Axes 3 and 4 (cf. Figure III), the outcome variables cover two main dimensions of the PDRH objectives. First, the impact on residential attractiveness is captured by the change in total population between 2007 and 2015 and the migration rate between 2010 and 2015. Next, we use the variation, between 2007 and 2015, in the logarithm of the number of jobs (total; productive, including agriculture and industry; population-based, including shops and services, administration, education and health) with a view to describing the impact of the programme on economic attractiveness.

In order to describe the characteristics of the municipalities before the launch of the programme with a view to controlling the bias that they may induce when estimating the impacts of the measures being assessed, 43 control variables were introduced (see Table A-1 in the Appendix). These variables, covering the period from 1990 to 2006, incorporate all of the municipal characteristics highlighted in the literature as being likely to influence attractiveness (Carlino & Mills, 1987; Abildtrup *et al.*, 2018; Bijker & Haartsenn, 2012; Schirmer *et al.*, 2014). They can be grouped into six categories:

- Accessibility (time to access, by road, the urban centre, the motorway junction, the nearest facilities);

- Land use (proportion of built-up, agricultural and forested areas);

- Demography (population variation and past migration balance, population distribution by socio-professional category, population density);

- Economy (sectoral structure of jobs, unemployment rate, distribution of the population by degree level);

- Average local taxable income per household;

- Local governance (regional national park, '*Pays*'; variable identifying whether the mayor is also a senator or deputy).

## 2.2. Estimation Method

In order to determine the extent to which the schemes under evaluation have improved the attractiveness of the municipalities benefiting from them, we want to compare the economic activity of the municipalities in question after the implementation of the measure (observed outcome) with the situation that they would have been in had these schemes not been implemented (i.e. the counterfactual, and by definition unobservable, situation). It is therefore a question of assessing the impact of a policy against a situation in which it does not exist[5] (Rubin, 2005).

This analysis can be complex, because it must be determined whether any improvements are actually attributable to the implementation of this measure. Indeed, individuals benefiting from the measure are generally not chosen randomly from the population. Most often, this assignment targets individuals according to their characteristics: the simple observation of growth rates of outcome variables that differ from the rest of the municipalities therefore does not allow us to draw any conclusions with regard to the impact of this programme.

In order to measure the contribution of Axes 3 and 4 of the PDRH, we use the difference-in-differences method with propensity score matching. The impacts of participation in Axes 3 and 4 are estimated at the municipal level (excluding all of the urban municipalities, according to the typology of French rural areas, Hilal *et al.*, 2011). The group of beneficiaries of measure *i* consists of municipalities in which a project associated with this measure is located (see a mapping in the Online Appendix – link at the end of the article). The control group is made up of the municipalities that are not covered by any projects of Axes 3 and 4, regardless of the measure being assessed.

This method consists of pairing each beneficiary municipality with one or more municipalities with similar observable characteristics that have not benefited from the measure in question. It is therefore a case of establishing something akin to a controlled experiment by ensuring that the control group is as similar as possible to the beneficiary group in terms of the distribution of variables that affect the probability of benefiting from the policy. The identification of the impact of the policy on the beneficiary municipalities is based on the assumption that

*5. The outcomes with and without the policy being defined as the potential outcomes for an individual.*

beneficiary municipalities are selected independently of the potential outcomes, subject to control variables (conditional independence assumption). Our construction of a counterfactual for each beneficiary municipality is based on the propensity score (Rosenbaum & Rubin, 1983). This is a two-step method in which the probability of benefiting from the policy is first estimated for the sample as a whole, before the municipalities are matched on the basis of this probability (propensity score). Matching is therefore reduced to the most relevant dimension to address selection bias, i.e. the dimension relating to participation in the measure that we are assessing. If the assumption of conditional independence is verified for the control variables, the potential outcomes are also independent of participation in the policy, subject to the propensity score (Rosenbaum & Rubin, 1983). In order to be credible, the estimated propensity score must capture observable differences in characteristics between beneficiary and non-beneficiary municipalities (balancing properties of the propensity score). In addition, matching will be considered to be of good quality if the majority of beneficiary municipalities share similar characteristics to those municipalities in the control group (common support assumption). In order to restrict our sample to common support, we use the min/max method, which involves excluding from the analysis beneficiary municipalities for which the propensity score is greater than the maximum score observed among non-beneficiary municipalities (Dehejia & Whaba, 1999).

We present these results estimated by kernel matching (Smith & Todd, 2005). This algorithm is a non-parametric estimator that uses a weighted average of all non-beneficiary municipalities. The main advantage of this matching technique is improved accuracy in estimating the average impact on the beneficiary municipalities (Caliendo & Kopeinig, 2008).

In order to characterise a finite number of potential outcomes, we assume the absence of any external impacts of the scheme (Stable Unit Value Assumption, SUTVA). The participation of municipality *c* only has an impact on its own dynamics and not on those of any other municipalities (regardless of whether they are benefiting from the policy or not). The literature on the effectiveness of Enterprise zones regularly highlights the spillover effects of schemes of this type (Mayer *et al.*, 2017; Hanson & Rohlin, 2013). Conversely, studies assessing investment subsidy policies do not appear to demonstrate this type of externality (Cerqua & Pellegrini, 2022; Turpin *et al.*, 2017). Although the policy that we are studying is closer to the latter, we nevertheless perform a robustness analysis to identify these impacts on the municipalities neighbouring the beneficiary municipalities (see below). This test consists of comparing a treatment group made up of all of the municipalities adjacent to the beneficiary municipalities with a control group made up of all of the other municipalities that have not benefited from the programme by means of a difference-in-differences method with matching.

### 2.3. Quality of Propensity Score Matching

The ability of a propensity score to balance out the distribution of the various characteristics used in its estimate is assessed by calculating a standardised bias (Stuart, 2010), which corresponds to the mean difference between the two groups under consideration, expressed as the square root of the total variance for the two groups (Rosenbaum & Rubin, 1983). Figure IV shows the distribution of standardised biases before and after matching for the estimates of the conditional probability of participating in an Axis 3 and Axis 4 measure. For both estimates, it can be observed that the distribution of standardised biases after matching is much more grouped around zero values than was estimated prior to matching. This finding confirms that our matching allows beneficiary and non-beneficiary municipalities, for which the observable differences in characteristics are most often negligible, to be compared. In almost all cases, the normalised differences after matching fall below the empirical rule of 0.25 standard error (Imbens & Wooldridge, 2009). The matching process implemented during this evaluation allows for a high degree of balancing of observable characteristics between matched beneficiary and non-beneficiary groups.

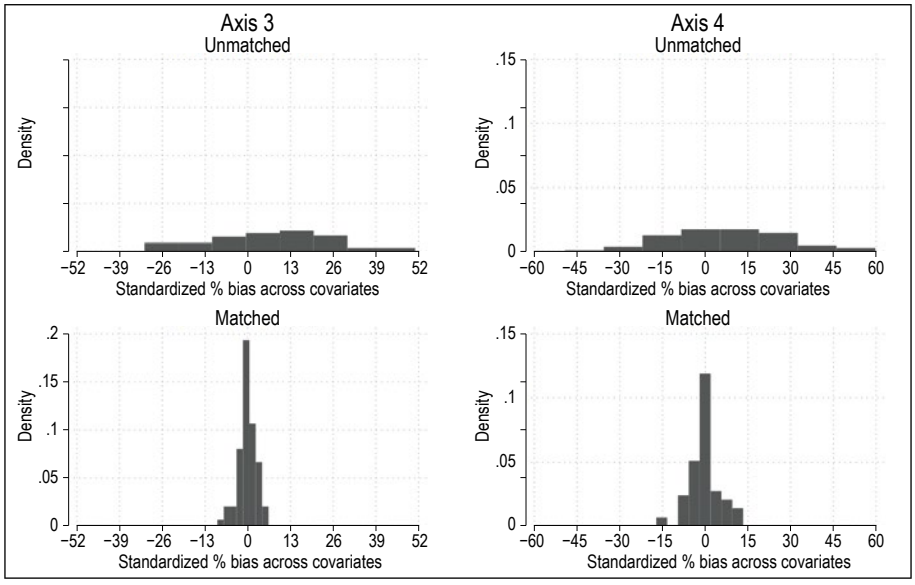
Moreover, the common support area is satisfactory for all of the schemes under evaluation. Figure V, which shows the distributions for each of the groups before and after matching, confirms that it allows the propensity score distribution of the beneficiary municipalities to be approximated with those of the matched non-beneficiary municipalities.

## 3. Results

### 3.1. Economic Attractiveness

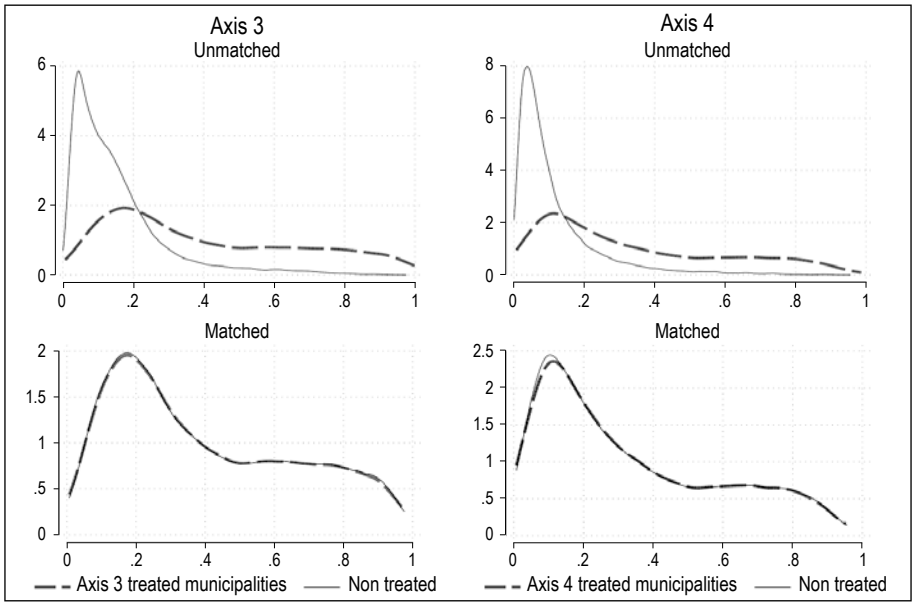
Although the measures of Axes 3 and 4 do not reflect the explicit objective of job creation (cf. Figure III), the territorial economic enhancement lever, which underlies certain

Figure IV – **Distribution of standardised biases (as a %) in the matching variables for the measures of Axes 3 and 4, before and after propensity score matching.**




Sources: ASP-ODR, INSEE; calculations by the authors.

Figure V – **Analysis of the common support for measures of Axes 3 and 4.**




Sources: ASP-ODR, INSEE; calculations by the authors.

measures, aims to contribute to creating jobs. This is particularly true of the measure offering support to micro-enterprises. The contribution to employment is more broadly sought via the consolidation of jobs through the modernisation, development and diversification (measure 311) of existing activities (tourism – measure 313, or basic services – measure 321), which will improve the competitiveness of activities in rural areas. Finally, by networking the stakeholders around a shared territory strategy, LEADER aims to develop new local partnerships that will open up new opportunities for activities with the potential to create jobs. Table 2 shows the results of estimates of the impacts specific to the measures of Axes 3 and 4 that aim to improve quality of life in rural areas and non-agricultural diversification (measure 413).

The first finding of note is a positive impact on total employment (Table 2, col. (1)). This result is significant and not inconsiderable (2.7 percentage points – p.p. below) given the relative weakness of the resources allocated to these measures and the number of beneficiaries (around 21,000). The combination of direct support for the development and creation of VSEs, the modernisation of their production tool, the development of skills and the organisation of

stakeholders, allows positive action to be taken on employment in rural areas.

Estimates of the specific impacts on employment for each measure show that all of the estimated measures, with the exception of those that concern conservation and enhancement of rural heritage (323), have a positive impact on the total creation of jobs, with an especially marked impact being seen for the measure aimed at promoting tourism activities (+4.3 p.p. for total employment within the municipalities that benefited from this measure).

When looking at employment sectors, with the exception of non-agricultural diversification measures for agricultural holdings (measure 311) and the provision of support to micro-enterprises (measure 312), the Axis 3 measures primarily concern the services sector, and more specifically the personal services sector. Estimates show that the face-to-face economy sector sees the most positive impact (+5 p.p.) from the measures implemented under both Axis 3 and Axis 4. It follows that it is the projects supported by the measures focusing on the development of tourism (313) and the development of basic services (321) that contribute to these positive impacts, regardless of whether or not these projects are implemented within the scope of the LEADER project. These findings serve to support the relevance of developing services in rural areas, not just for the populations living in the area, but also for new inhabitants (Murdoch & Marsden, 1995).

A more detailed analysis of the estimates shows that, in the job categories making up the population-based economy, it is the trade and market services sectors for which the outcomes are the most significant for all measures of Axis 3; however, the origins of those outcomes cannot be linked to a specific measure in any significant way. The specific impact on jobs in the administration, teaching and health sectors is also positively associated, quite logically, with the measure of Axis 3 that relates to basic services; this can be attributed to actions such as the establishment of medical and health centres. The projects funded by LEADER also have a positive impact on these jobs. Since the projects for youth, cultural and sporting facilities, of which there are significantly more, do not fall within these sectors, it can be assumed that the impact of LEADER on public and para-public jobs can be linked at least in part to the project manager jobs created in each of the LEADER regions (1.5 FTE per region).

The estimated impacts on productive employment do not reflect either the significant impacts of the Axis 3 measures when looked at as a whole or those of LEADER. Measures 311 and 312, which focus on the productive sectors, therefore do not appear to contribute to improving the employment situation when looked at in isolation. With a little under 4,500 beneficiaries, it can be assumed that the scale of the implementation of these measures is not sufficient to generate observable positive impacts. Another explanation lies in the fact that the nature of the projects supported by these measures corresponds more to trade and service activities, particularly when it comes to the measure aiming to diversify non-agricultural activities (311).

Table 2 – **Mean impact on the economic attractiveness of the municipalities benefiting from the measures of Axes 3 and 4**

| Logarithm difference in the number of jobs between 2007 and 2015 | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Measures of Axis 3 | | | | | | Axis 4 LEADER |
| | Total | Diversification of non-agricultural activities (311) | Creation/ development of micro-enterprises (312) | Promotion of tourism activities (313) | Basic services for the economy and the population (321) | Conservation and enhancement of rural heritage (323) | Axis 3 measures implemented via LEADER (413) |
| Total employment | 0.027*** (0.010) | 0.030*** (0.013) | 0.029*** (0.011) | 0.043*** (0.018) | 0.036*** (0.012) | −0.005 (0.025) | 0.034*** (0.009) |
| Population-based employment | 0.052*** (0.021) | 0.0430* (0.022) | 0.042 (0.024) | 0.062*** (0.021) | 0.062*** (0.013) | 0.020 (0.042) | 0.075*** (0.015) |
| Productive employment | 0.022 (0.023) | 0.050* (0.026) | 0.012 (0.060) | 0.041 (0.056) | 0.057* (0.029) | 0.005 (0.062) | 0.002 (0.029) |
| Agricultural employment | 0.060 (0.049) | 0.116*** (0.043) | 0.133*** (0.059) | 0.088 (0.097) | 0.073 (0.060) | −0.015 (0.073) | 0.024 (0.055) |
| Administration, teaching, health care jobs | 0.062*** (0.024) | 0.113*** (0.043) | 0.001 (0.059) | 0.038 (0.061) | 0.085*** (0.027) | 0.060 (0.047) | 0.093*** (0.025) |
| Jobs in sales and services | 0.064*** (0.022) | 0.059 (0.042) | 0.026 (0.056) | 0.083* (0.048) | 0.021 (0.023) | 0.030 (0.040) | 0.044* (0.023) |
| Industrial jobs | 0.052 (0.036) | 0.032 (0.068) | 0.037 (0.083) | 0.079 (0.068) | 0.089 (0.070) | 0.061 (0.059) | 0.035 (0.036) |
| Number of beneficiary municipalities | 4,181 | 904 | 502 | 771 | 621 | 1,945 | 2,099 |

Sources: authors' processing of ASP-ODR data

Estimates of the impacts on the specific sectors of agriculture and industry do not reveal any significant findings across all of the measures of Axes 3 and 4, which is unsurprising given the non-sectoral orientation of the financial support provided under these Axes. Nevertheless, one notable exception is observed: agricultural employment appears to be positively impacted by the projects implemented in the case of measures concerning the non-agricultural diversification of agricultural holdings (measure 311) and micro-enterprises (measure 312). This finding appears to confirm the relevance of the activity diversification strategy in terms of boosting agricultural employment and/or generating new jobs linked to associated activities, such as agrotourism or equestrian or hospitality activities. This finding is consistent with the estimates of the value added generated and the jobs created within the scope of the PDRH monitoring indicators.[6]

These findings show that the LEADER approach appears to generate a positive impact on employment, an assumption that has been put forward in qualitative work since the 2000s (Shucksmith, 2000). This impact is at odds with the reservations expressed, most notably by the European Court of Auditors, with regard to the effectiveness of the programme and the administrative cost of its management. Furthermore, this finding runs counter to the frequent recommendations to concentrate resources on larger-scale projects, with LEADER projects being an average of up to 3 to 5 times smaller in terms of the amount of aid provided under measure 321, for example (Allaire *et al.*, 2018). It appears that the smaller size of the projects is offset by the coordination of stakeholders and the territorial coherence of several projects promoting the development of resources and synergies between activities.

By applying the total employment growth rate attributable to the programme (mean impact on beneficiaries) to the number of jobs in 2007 in the municipalities that benefited from Axes 3 (1,701,355 jobs) and 4 (989,911 jobs), we arrive at a measure of the number of jobs created (or retained). We therefore estimate that the measures of Axes 3 and 4 allowed for the creation (or retention) of 46,000 and 33,000 jobs respectively during the period being studied (2007-2015). This estimate is relatively inaccurate, as can be seen from the standard errors of the estimates: for Axis 3 (and Axis 4, respectively), a variation +/− the standard error provides a range of between 29,000 (or 25,000) and 63,000 (or 42,000) jobs. In total, all of the measures of Axes 3 and 4 allowed for the creation (retention) of more jobs (79,000) than the ZFU, for which the number of jobs created is estimated to be between 35,000 and 53,000 (Givord *et al.*, 2018). This is also well above the outcomes attributable to the ZRR, which created no more than 6,000 jobs (authors' calculations based on the findings of Behaghel *et al.*, 2015).

However, it is difficult to compare schemes for which the budgetary amounts and territorial scopes are different solely on the basis of their outcomes with regard to the number of jobs created. In order to perform a more detailed comparison of the contribution of the measures of Axes 3 and 4 with those of other schemes, we will calculate a cost per job created. However, this cost should be taken with a pinch of salt due to the difficulty of tracing all of the public expenditure associated with the programme (e.g. the national financial monitoring system does not allow for tracing of 'top-up' financing). The total amounts spent within the municipalities included in our sample are EUR 890 million for Axis 3 and EUR 595 million for Axis 4, respectively (ASP-ODR data). According to our estimates, each job created by Axis 3 costs EUR 19,800, and each job created by Axis 4 costs EUR 18,000. Table A-5 in the Appendix details the estimated cost per job created for various schemes, regardless of whether or not they are geographically targeted. We observe that the estimated cost per job created for the measures of Axes 3 and 4 is generally lower than that of French policies based on tax exemptions: an example of this is the ZRR, for which the cost per job created is around EUR 70,000. It also appears to be lower than the cost per job created estimated by the majority of studies assessing the ZFU (~ EUR 30,000) or even the national reductions in social security contributions (~ EUR 35,000). In the specific case of the ZFU, the most recent studies suggest a relatively comparable cost (EUR 19,000 according to Charnoz, 2018; between EUR 18,000 and 26,000 according to Givord *et al.*, 2018). An international comparison confirms the low cost per job created, since the estimated value for the L488 in Italy (private investment aid) is around EUR 25,000 (~ EUR 45,000 according to Cerqua & Pellegrini, 2014) and this value is estimated at EUR 22,000 for the New Markets Tax Credits in the United States (Freedman, 2015).

*6. The outcome indicator (R7) concerning the increase in gross value added within the companies receiving support provides an estimate of the increase in value added of EUR 18.3 million and EUR 13.4 million respectively for measures 311 and 312. The outcome indicator (R8) concerning the gross number of jobs created is estimated at 408 and 268 jobs created respectively for those same two measures (Allaire* et al.*, 2018).*

### 3.2. Residential Attractiveness

Residential attractiveness is more complex to grasp since, unlike jobs, the PDRH measures do not directly affect the reception of new inhabitants. Residential attractiveness results from inbound and outbound mobility behaviours of inhabitants, which are dependent on a number of factors. Figure III highlights three types of contribution of the Axis 3 and 4 measures that may influence the migratory balance of the population and population change in general (which results from a combination of migratory and natural balances). The first is improved satisfaction among the inhabitants such that it reduces their desire to leave the region for a destination that better meets their expectations. The vast majority of the measures of Axis 3 and 4 (and in particular measure 321) contribute to this by broadening the range of services that inhabitants are able to access and improving the response to their expectations in terms of the quality and proximity of food, recreational, cultural and health facilities. The second concerns the living environment, which is a determining factor in attracting new inhabitants. Finally, several PDRH measures complement the thematic interventions by others promoting interknowledge, collective mobilisation and cooperation between local stakeholders. This third type of contribution aims to reinforce the internal social cohesion of the region and the ability to work together to improve the quality of life and well-being of the inhabitants. All of these factors can combine to create a positive contribution to demographic dynamics.

Table 3 shows the findings of the evaluation of the mean impacts of the measures of Axis 3 and 4 of the PDRH on the residential attractiveness of the beneficiary municipalities.

The first result is that all of the mechanisms underlying residential attractiveness that we have just mentioned appear to have little effect within the scope of the implementation of the measures being studied. Neither of the two attractiveness indicators selected is significantly impacted by the Axis 3 measures when looked at as a whole and only one of the two is impacted by the interventions carried out as part of a LEADER project (measure 413). The more detailed analysis of the findings per measure allows for the observation of certain impacts, but on a smaller scale overall than those observed for employment indicators (still below 2.8 p.p. for the very high estimates for the former compared with as much as 7.5 p.p. for one of the employment indicators).

A second finding is that the migration rate, which could be expected to be the first to demonstrate a positive impact as a result of the measures, was only positively impacted as a result of the promotion of tourism activities, while the more general indicator of the overall change in population responds positively to three measures: promotion of tourism activities (313), basic services (321) and LEADER actions (413). There could be a technical explanation for this, linked to the low average variation in this migration rate and the large standard errors observed at the municipal level, which reduces the accuracy of the estimate.

In addition, estimates of the mean impacts of rural development measures under the PDRH return some interesting findings. Firstly, with regard to the two most significant measures in terms of the financial resources committed, it is the measure focusing on the promotion of tourism activities (measure 313) that generates the most convincing impacts on residential attractiveness, demonstrating a positive impact

Table 3 – **Mean impact on the residential attractiveness of the municipalities benefiting from the measures of Axes 3 and 4**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Measures of Axis 3 | | | | | | Axis 4 LEADER |
| | Total | Diversification of non-agricultural activities (311) | Creation/ development of micro-enterprises (312) | Promotion of tourism activities (313) | Basic services for the economy and the population (321) | Conservation and enhancement of rural heritage (323) | Axis 3 measures implemented via LEADER (413) |
| Log difference in the total population 2007-2015 | 0.00516 (0.00347) | 0.011** (0.006) | 0.021** (0.010) | 0.028*** (0.005) | 0.016*** (0.006) | −0.002 (0.004) | 0.009*** (0.003) |
| Migration rate between 2010 and 2015 | 0.000287 (0.00173) | 0.005* (0.003) | 0.008 (0.005) | 0.019*** (0.003) | 0.001 (0.002) | 0.001 (0.003) | −0.003 (0.002) |
| Number of beneficiary municipalities | 4,181 | 904 | 502 | 771 | 621 | 1,945 | 2,099 |

Sources: Authors' processing of ASP-ODR data.

on the migratory balance, averaging +1.9 p.p., and on overall population change, averaging +2.8 p.p.. It can be assumed here that the residential impact is a consequence of the job consolidation and/or creation identified in the previous section.

Secondly, and more modestly, the improvements made to basic services (measure 321) have a significant impact on population change (+1.6 p.p. on average); however, the impacts on attractiveness to new inhabitants or the reduction of outgoing migration cannot be established. This finding is consistent with the analyses of the *ex-post* evaluation of the PDRH, which estimate that around 1 million inhabitants are benefiting from improvements to the quality and accessibility of services thanks to projects financed by this measure (Allaire *et al.*, 2018).

Thirdly, the implementation of the actions of Axis 3 within the scope of LEADER, in spite of their small scale, has a positive influence on population change, even if that impact is of a small magnitude (+0.9 p.p. on average).

Fourthly, estimates conclude that actions aimed at developing rural heritage (measure 323) have no impact on residential attractiveness. They therefore do not appear to have any confirmed impact on living environment, or at least not to a sufficient extent to attract new inhabitants.

Finally, estimates show that the impacts of measures that are focused more on the productive sectors (measures 311 and 312) did not have any proven impact on population attractivity.

### 3.3. Analysis of Robustness and the Spatial Heterogeneity of Impacts

In order to analyse the robustness of our main findings, we will first check whether Axes 3 and 4 bring about any displacement effects. Secondly, we will test the sensitivity of our findings to the presence of pre-processing outcome variables in all of our matching variables. Finally, we propose to explore the heterogeneity of the impacts of the programme among beneficiary municipalities located in mountain areas (Act no. 85-30 of 9 January 1985) when compared with other beneficiary municipalities.

As was highlighted by Hanson & Rohlin (2013) and Behaghel *et al.* (2015), geographically targeted policies can generate effects in which activity shifts to the beneficiary areas from the surrounding areas.[7] As before, we estimate the presence of a diversion effect for all of the measures of Axes 3 and 4 using a difference-in-differences method with propensity score matching. Our estimates do not show any significant impacts of the scheme on the municipalities surrounding the beneficiary municipalities (see Table A-2 in the Appendix). Similarly to the cohesion policy (Giua, 2017; Turpin *et al.*, 2017) or L488 in Italy (Cerqua & Pellegrini, 2022), the measures of Axes 3 and 4 do not appear to generate any attractiveness-related displacement effects in the areas surrounding the beneficiary municipalities. These converging findings suggest that regionalised public and/or private investment aid policies do not generate any displacement effect, unlike tax exemption policies.

Although beneficiary and matched municipalities are commonly adjusted by pretreatment population dynamics within the scope of a propensity score approach, this practice may lead to bias (Chabé-Ferret, 2015). Table A-3 in the Appendix shows the estimated impact of the measures of Axes 3 and 4 on residential attractiveness without any adjustment by these pretreatment dynamics. The findings are very similar to those of our main estimates (cf. Table 3).

Finally, we estimate the impacts of Axes 3 and 4 separately for beneficiary municipalities in mountain areas and beneficiary municipalities in non-mountain areas (see Appendix, Table A-4). We observe that the measures of Axis 3 have a more marked impact on employment in non-mountain areas (e.g. 4.5 p.p. for overall employment) than in mountain areas (2.5 p.p. for overall employment). Conversely, the measures of Axis 4 appear to have a greater impact on employment in municipalities in mountain areas (5.9 p.p.) than in municipalities in non-mountain areas (3.6 p.p.). This finding can be interpreted by the relative scale of the LEADER projects offered by the mountain communities and promoting innovation and local solidarity for the retention of jobs in these disadvantaged areas (Dax & Oedl-Wieser, 2016).

As was the case with our main findings (cf. Table 2), the impact on employment is largely concentrated on face-to-face employment. Finally, we observe that the measures of Axes 3 and 4 have a significant influence, albeit on a small scale, on changes in the population of municipalities, but only in non-mountain areas (see Table A-4 in the Appendix).

*7. We have defined the surrounding areas on the basis of geographical adjacency.*

* *
*

Based on a Difference-in-Differences propensity score approach, this article highlights the positive impacts of the measures aimed at improving living conditions and diversifying the rural economy on employment as a whole and, more specifically, on employment in the face-to-face economy (shops, public health services, education, administration). The expected impacts of the measures aimed at improving living conditions (access to employment and quality local products and services), the living environment (natural and cultural heritage) and social and territorial cohesion on residential attractiveness are not as marked, but are significant for tourism-oriented municipalities.

These findings are important in several respects. First of all, these are the first impact studies applied to Axes 3 and 4 of the rural development policy in France. They back up the conclusions of the institutional evaluations that are based mainly on contributory methods derived from qualitative analyses. Secondly, they provide tools for assessing the impacts of a development policy with a low budget (EUR 1.7 billion over six years, which equates to less than 3% of the total support provided by the common agricultural policy and represents public support amounting to around EUR 25 per inhabitant), the effectiveness of which is often questioned.

Moreover, these findings tend to confirm the relevance of public support for the diversification of the local economy and the improvement of living conditions in rural areas. They demonstrate that rural areas have sufficient natural, material and organisational resources to generate their own development capacities. The LEADER programme, which is so often criticised for the high administrative cost of managing the weak means of intervention assigned to it, appears to make a positive contribution to employment and population dynamics. Although this study did not aim to demonstrate the value added of the bottom-up approach of LEADER when compared to the top-down approach of the implementation of measures of Axis 3, it does confirm certain impacts produced by this scheme.

These findings must also give rise to questions concerning financial trade-offs between the various public policy instruments that affect rural areas. While the impacts of the first pillar of the CAP on jobs and the environment are regularly scrutinised, the resources allocated to rural development measures remain poor. The resources allocated to the second pillar of the CAP for 2014-2020 have certainly increased slightly, but largely to the benefit of farms in mountain areas. The prospects for the future CAP 2023-2027 do not indicate any major changes and the rural development measures under the future second pillar could be adversely affected by the increased priority afforded to agricultural insurance measures.

The evaluation of the PDRH has highlighted the significant regional adaptation of the implementation arrangements. In the run up to the next programming period, the regional councils – which are now responsible for managing a large proportion of rural development measures – have an important role to play in encouraging eligible populations to set up projects, as well as boosting complementarity with other regional policies.

Subsequently, against a backdrop of the implementation of the 'Green Deal', the contribution of rural development measures to the global challenges of climate change and the preservation of biodiversity must continue. In spite of the above, it is important to deepen the analysis and evaluation of the impacts of rural development measures on key components, namely climate change mitigation and the preservation and even the restoration of biodiversity from a perspective of economic and social sustainability. □

**Link to the Online Appendix:**
https://www.insee.fr/en/statistiques/fichier/6530617/ES534-35_Berriet-Solliec_Online-Appendix.pdf

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## APPENDIX

Table A-1 – **Presentation of matching variables**

| Matching variables | Years | Sources |
|---|---|---|
| Population migration balance | 1990-1999<br>1999-2006 | INSEE RP-2006 |
| Rate of change in population | 1990-1999<br>2000-2006 | INSEE RP-2006 |
| Mean altitude | | BD TOPO |
| Time to access mid-range facilities (and its square) | 2006 | Odomatrix, CESAER based on the *Base permanente des équipements* (permanent database of facilities) |
| Time to access local-range facilities (and its square) | 2006 | Odomatrix, CESAER based on the *Base permanente des équipements* |
| Time to access the nearest urban area with more than 100,000 inhabitants | 2006 | Odomatrix, CESAER |
| Time to access the nearest interchange | 2000 | Odomatrix, CESAER |
| Mid-range facilities score | 2006 | CESAER based on the *Base permanente des équipements* |
| Local-range facilities score | 2006 | CESAER based on the *Base permanente des équipements* |
| Location of the municipality within a regional national park | 2012 | *Observatoire des territoires* |
| Municipality eligible for the ZRR scheme | 1995; 2006 | *Observatoire des territoires* |
| Amount of public expenditure under Axis 1 of the PDRH | 2007-2013 | ASP-ODR |
| Population density | 2006 | INSEE RP-2006 |
| Share of jobs by sector in total employment | 2006 | INSEE |
| Share of Population-based jobs in total employment | 2006 | INSEE |
| Fine particle concentration (pm10) | 2006 | PREV'AIR |
| Presence of a railway station | 2003 | SNCF |
| Share of the population with a higher education diploma | 2006 | INSEE RP-2006 |
| Employment rate | 2006 | INSEE RP-2006 |
| Share of the population by socio-professional category (8 categories) | 2006 | INSEE RP-2006 |
| Taxable income per household | 2006 | DGF |
| Tax potential | 2006 | *Observatoire des territoires* |
| Location within a '*Pays*' | 2003 | *Observatoire des territoires* |
| Dummy variable=1 if the mayor of the municipality is also a parliamentarian (deputy or senator) | 2007 | CESAER |
| Classification according to Urban Area zoning | 2011 | INSEE |
| Share of built-up areas | 2006 | CLC |
| Share of agricultural areas | 2006 | CLC |
| Share of forested areas | 2006 | CLC |

Sources: Authors.

Table A-2 – **Mean impact on the economic attractiveness of municipalities adjacent to the beneficiary municipalities of the measures of Axes 3 and 4**

| Logarithm difference in the number of jobs between 2007 and 2015 | Measures of Axis 3 | | Axis 4 LEADER | |
|---|---|---|---|---|
| Total employment | −0.004 | (0.012) | 0.003 | (0.056) |
| Population-based employment | −0.004 | (0.028) | 0.004 | (0.006) |
| Productive employment | −0.024 | (0.032) | −0.045 | (0.037) |
| Agricultural employment | −0.005 | (0.039) | −0.007 | (0.046) |
| Administration, teaching, health care jobs | 0.001 | (0.046) | 0.181 | (0.074) |
| Jobs in sales and services | 0.004 | (0.049) | −0.001 | (0.001) |
| Industrial jobs | −0.0171 | (0.045) | 0.012 | (0.039) |
| Log difference in the total population 2007-2015 | 0.001 | (0.002) | −0.004 | (0.008) |
| Migration rate between 2010 and 2015 | −0.001 | (0.002) | −0.001 | (0.003) |

Sources: Authors' processing of ASP-ODR data.

Table A-3 – **Mean impact on the residential attractiveness of municipalities benefiting from the measures of Axes 3 and 4 (excluding the pretreatment outcome variables of all of the matching variables)**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Measures of Axis 3 | | | | | | Axis 4 LEADER |
| | All measures | Diversification of non-agricultural activities (311) | Creation/development of micro-enterprises (312) | Promotion of tourism activities (313) | Basic services for the economy and the population (321) | Conservation and enhancement of rural heritage (323) | Axis 3 measures implemented via LEADER (413) |
| Log difference in the total population 2007-2015 | 0.0054(0.0033) | 0.012** (0.005) | 0.027**(0.081) | 0.013***(0.005) | 0.023***(0.008) | −0.005(0.005) | 0.003(0.003) |
| Migration rate between 2010 and 2015 | 0.0027(0.0018) | 0.009***(0.003) | 0.007* (0.004) | 0.019 (0.003) | 0.001 (0.003) | 0.002(0.003) | −0.001(0.002) |
| Number of beneficiary municipalities | 4,181 | 904 | 502 | 771 | 621 | 1,945 | 2,099 |

Sources: Authors' processing of ASP-ODR data.

Table A-4 – **Mean impact on the economic attractiveness of the municipalities benefiting from the measures of Axes 3 and 4**

| Logarithm difference in the number of jobs between 2007 and 2015 | (1) | | (2) | | (3) | | (4) | |
|---|---|---|---|---|---|---|---|---|
| | Measures of Axis 3 | | | | Axis 4 LEADER | | | |
| | Mountain area | | Non-mountain area | | Mountain area | | Non-mountain area | |
| Total employment | 0.025* | (0.014) | 0.045*** | (0.001) | 0.059** | (0.026) | 0.036*** | (0.012) |
| Population-based employment | 0.054* | (0.029) | 0.079*** | (0.017) | 0.011*** | (0.048) | 0.065*** | (0.017) |
| Productive employment | 0.066 | (0.082) | 0.041* | (0.021) | 0.001 | (0.089) | 0.027 | (0.025) |
| Agricultural employment | 0.050 | (0.12) | 0.063** | (0.031) | 0.030 | (0.125) | 0.092 | (0.062) |
| Administration, teaching, health care jobs | 0.097 | (0.105) | 0.089*** | (0.034) | 0.181*** | (0.074) | 0.081*** | (0.032) |
| Jobs in sales and services | 0.194 | (0.140) | 0.070** | (0.28) | 0.114 | (0.106) | 0.050 | (0.041) |
| Industrial jobs | 0.118 | (0.132) | 0.066 | (0.045) | 0.203 | (0.128) | 0.056 | (0.049) |
| Log difference in the total population 2007-2015 | −0.004 | (0.007) | 0.008** | (0.004) | −0.002 | (0.007) | 0.010** | (0.005) |
| Migration rate between 2010 and 2015 | 0.003 | (0.004) | 0.002* | (0.001) | −0.005 | (0.006) | −0.001 | (0.001) |

Sources: Authors' processing of ASP-ODR data.

Table A-5 – **Comparison of costs per job created by different iconic programs**

| Study | Scheme under assessment | Geographical targeting | Cost per job created (EUR) |
|---|---|---|---|
| Freedman (2015) | New Markets Tax Credits (MNTC, USA) | yes | 22,000 |
| Givord *et al.* (2018) | ZFU | yes | Between 18,000 and 26,000 |
| Gobillon *et al.* (2012) | ZFU (Paris region) | yes | 95,000 |
| Rathelot & Sillard (2008) | ZFU | yes | 31,000 [11,000; 73,000 ] |
| Behaghel *et al.* (2015) | ZRR | yes | 70,000 |
| Charnoz (2018) | ZFU | yes | 19,000 |
| Bunel *et al.* (2012) | General exemptions for social security contributions | no | Between 34,000 and 42,000 |
| Crépon & Desplatz (2001) | Exemptions for social security contributions for low earners | no | Between 11,000 and 29,000 |
| Cerqua & Pellegrini (2022) | L488 (Italy) | yes | 25,500 |
| Cerqua & Pellegrini (2014) | L488 (Italy) | yes | Between 46,000 and 77,000 |
| Blomquist & Nordin (2017) | CAP, decoupling of support (Sweden) | no | 26,000 |

Sources: Summary created by the authors.