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LAGs and Cohesion Policy Expenditures in Rural Regions

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Abstract

The goal of this paper was to provide empirical evidence about how local action groups (LAGs) influenced structural fund expenditure under the Convergence objective of the 2007-2013 programming period in rural regions of the Czech Republic. An expectation was that LAGs developed skills in order to submit projects for financing under the external funding streams 'beyond LEADER'. Hence, the spatial distribution of structural funding expenditures was analysed in LAG territories under the Convergence objective. The empirical results of this study did not reveal a positive influence of LAGs on structural funding expenditure under the Convergence objective. The territories of experienced and also highly experienced LAGs did not receive more structural funding than the territories of inexperienced LAGs. Moreover, results showed that projects prepared and submitted in the territories of inexperienced LAGs were significantly larger than the projects prepared and submitted in the territories of experienced LAGs. It was claimed that experienced LAGs seemed to be affected in two ways: (1) by learning processes oriented to preparing and submitting relatively small-scale projects under the LEADER programme and (2) by 'squeezing' skilled human capital out of relatively large-scale projects under the Convergence objective. However, the results also indicate that long-term experience in LEADER – this is understood to be highly-experienced LAGs – improved the capacity of LAGs in preparing and submitting also large-scale projects funded under the Convergence objective. Hence, the adverse 'average size' effect was reduced over time.

Keywords: Leader; local action groups; structural funding; rural development; Czech Republic
JEL classification: R12, M13, R15

1. Introduction

Rural development is an important area of study (see e.g., Teilmann and Thuesen 2014). A number of development problems are encountered in vast rural territories. Arabatzis, Aggelopoulos and Tsiantikoudis (2010) and Storey (1999) point out among others that there are problems with ageing population, depopulation, and the decreasing importance of agriculture and unemployment. Petrick (2013) mentions the existence of negative feedback loops in many rural areas. Hence, low population density causes underdevelopment of infrastructure and services, resulting in little entrepreneurial activity and lack of jobs. Consequently, people emigrate from rural areas, which further

decreases population density. The question is how to break the feedback loops. New modes of rural development have been researched since at least the 1990s (see e.g., Storey 1999).

Crucial to the new way of thinking are bottom-up, endogenous approaches to rural development (see e.g., Navarro, Woods and Cejudo 2016; Pérez 2000; Volk and Bojnec 2014). It is assumed that rural regions are able to influence their own development paths, regardless of the impact of unfavourable external forces (see e.g., Petrick 2013; Pollermann, Raue and Schnaut 2013). The typical features of this kind of development are repeatedly given in literature:

- The policy emphasis is on territorially based and integrated multi-sector rural development (see e.g., Arabatzis, Aggelopoulos and Tsiantikoudis 2010; Pérez 2000; Petrick 2013; and Shucksmith 2000). Territorially integrated policies are perceived to meet development needs of rural regions better than multi-sector policies (see e.g., Pollermann, Raue and Schnaut 2013; Shortall 2004; and Volk and Bojnec 2014).
- Networking, participation and stakeholder involvement – local knowledge – are crucial strategies in the new rural development paradigm. It is believed that social capital, a source of socioeconomic development, is created in this way through interactions between individuals involved in social networking – the bottom-up approach (see e.g., Pollermann, Raue and Schnaut 2013; Ray 2000; Teilmann 2012; and Volk and Bojnec 2014). Moreover, the quality of governance is improved (see e.g., Arabatzis, Aggelopoulos and Tsiantikoudis 2010; and Volk and Bojnec 2014).

LEADER, adopted as a Community Initiative in 1991, is an influential instrument for supporting bottom-up, endogenous approaches to rural development. The objectives and principles of LEADER are fully in accordance with this kind of rural development (see e.g., Arabatzis, Aggelopoulos and Tsiantikoudis 2010; Esparcia, Escribano and Buciega 2015; and Marquardt, Möllers and Buchenrieder 2012). Hence, Pollermann, Raue and Schnaut (2013), Shortall (2004), Shucksmith (2000), and Teilmann (2012) point out the impact of LEADER on social capital creation – a source of socioeconomic development (see also e.g., Putnam 1995 for the theory of social capital). The mechanism of this impact is multifaceted. However, the assertions that LEADER motivates local actors to participate in development projects (see e.g., Teilmann 2012) and that LEADER strengthens absorption of external funding 'beyond LEADER' (see e.g., Esparcia, Escribano and Buciega 2015; Turek Rahoveanu and Turek Rahoveanu 2013), including structural funding (hereafter referred to as SF), are crucially important in this study. Indeed, the goal of this paper is to verify the hypothesis that the work of local action groups (referred to as LAGs), i.e. the institutional form of LEADER, positively influenced SF expenditures under the Convergence objective of the programming period 2007-2013 in rural regions of the Czech Republic. For this purpose, spatial distribution of SF was analysed for LAG territories.

The paper is structured as follows: the second section provides the theoretical framework. The third section presents data and research methods. The fourth section summarises results that are discussed in the following section. The last section presents conclusions.

2. Theoretical framework

LEADER is a policy initiative for realising the objectives of rural development across EU countries – economic diversification, increasing quality of life, environmental sustainability, capacity building and community empowerment (see e.g., Arabatzis, Aggelopoulos and Tsiantikoudis 2010; Esparcia, Escribano and Buciega 2015; Shucksmith 2000; Teilmann 2012; Teilmann and Thuesen 2014; and Turek Rahoveanu and Turek Rahoveanu 2013). Shucksmith (2000) substantiates the rationale of this initiative through market failures arising from the geographical disadvantage of rural areas. Marquardt, Möllers and Buchenrieder (2012), and Petrick (2013), moreover point out unequal development opportunities among rural regions, claiming that even small interventions may have large development effects. These effects may be triggered just by LEADER (see e.g., Petrick 2013).

LEADER is formally institutionalised in the work of LAGs (see e.g., Esparcia, Escribano and Buciega 2015; and Volk and Bojnec 2014). These are cross-sectional partnerships that involve a variety of local actors from public, private and non-profit organisations working together on local development strategies (see e.g., Marquardt, Möllers and Buchenrieder 2012; Navarro, Woods and Cejudo 2016; and Teilmann and Thuesen 2014). It is believed that LAGs contribute to social capital and capacity building, positively influencing also rural development (see e.g., Marquardt, Möllers and Buchenrieder 2012; Petrick 2013; Shucksmith 2000; Teilmann 2012; and Volk and Bojnec 2014).

Literature on this topic, however, indicates factors that may affect social capital building in LAGs. Power relations are highly important, as they influence social interactions between local actors (see e.g., Pérez 2000). Hence, social capital creation may be especially difficult within LAGs that are exclusive social networks of local elites (see e.g., Esparcia, Escribano and Buciega 2015; Marquardt, Möllers and Buchenrieder 2012; Navarro, Woods and Cejudo 2016; Shortall 2004; Shucksmith 2000; and Storey 1999 for this type of LAGs). Social capital creation may be especially difficult within LAGs that are dominated by municipalities and other public sector organisations (see e.g., Marquardt, Möllers and Buchenrieder 2012; Navarro, Woods and Cejudo 2016; Perez 2000; Pollermann, Raue and Schnaut 2013; Teilmann and Thuesen 2014; Volk and Bojnec 2014; and Zajda 2014 for this type of LAGs). In this case, there are few opportunities for LAGs to benefit, negatively impacting also rural development. Note that Marquardt, Möllers and Buchenrieder (2012), Perez (2000), and Volk and Bojnec (2014) emphasise difficulties in implementing the LEADER principles especially in post-communist EU countries.

Several mechanisms were proposed to explain the interactions between LAGs, social capital building and also rural development. Two of them are of crucial importance for this paper: (a) LAGs as a source of skills for project management (see e.g., Shortall 2004; and Teilmann 2012); (b) LAGs as a source of skills for submitting projects for financing under external funding streams 'beyond LEADER' (see e.g., Esparcia, Escribano and Buciega 2015; and Turek Rahoveanu and Turek Rahoveanu 2013). Hence, it is assumed that LAGs develop social capital for project activities by leveraging external funding 'beyond LEADER' into their territories. However, empirical evidence on positive influences of LAGs on allocating external funding 'beyond LEADER' is rare in literature (see e.g., Esparcia, Escribano and Buciega 2015 for a notable exception). This paper aims

to help fill this research gap by exploring how LAGs influenced the spatial distribution of SF expenditures under the Convergence objective of the programming period 2007-2013. Hence, there is an analysis of the spatial distribution of SF expenditures in LAG territories of the Czech Republic.

LEADER was launched in the Czech Republic after its EU accession in 2004. In this regard, the first LEADER+ programme was funded by the European Agricultural Guarantee and Guidance Fund in the shortened programming period 2004-2006. Moreover, the Czech Ministry of Agriculture developed and financed its own programme titled 'LEADER Czech Republic' in the period 2004-2008. These two programmes supported projects linked to local development strategies of a rather limited number of LAGs. In the programming period 2007-2013, the LEADER programme in the Czech Republic was funded by the European Agricultural Fund for Rural Development, directly supporting more LAGs in implementing their local development strategies under the measure 'Implementation of Local Development Strategies'. Hence, three groups of LAGs may be distinguished:

- the LAGs whose local development strategies were implemented using funds from the LEADER programmes in the both programming periods 2004-2006 and 2007-2013 – i.e. highly-experienced LAGs;
- the LAGs whose local development strategies were implemented using funds only from the LEADER programme in the programming period 2007-2013 – i.e. experienced LAGs;
- the LAGs whose local development strategies were not supported from the LEADER programme in the programming period 2007-2013 – i.e. inexperienced LAGs.

The main research question of this study is whether, and to what extent, these types of LAGs influenced SF allocation for their territories under the Convergence objective. It is expected that there will be a positive influence of the more experienced LAGs in accordance with the theoretical framework.

The theoretical framework of this study will be further extended by discussing factors that influence spatial distribution of SF. Firstly, there are a number of studies on identifying associations between SF allocation and spatial disparities, and these provide mixed results (see e.g., Crescenzi 2009; Crescenzi, De Fillipis and Pierangeli 2015; Dellmuth 2011; Novosák et al. 2015; and Schraff 2014). Therefore, the question whether SF allocation is channelled to 'poor' or to 'rich' territories (see e.g., Blažek and Macešková 2010) is not conclusively answered. Moreover, to answer this question, it is important to consider the thematic focus of SF intervention (see e.g., Crescenzi and Rodriguez-Pose 2011; Hájek et al. 2014; and Kaufmann and Wagner 2005).

Secondly, the absorption capacity of territories – the capacity of local actors to prepare, submit, administer and co-finance projects supported by SF – crucially influences spatial distribution of SF (see e.g., Dellmuth and Stoffel 2012; Jaliu and Radulescu 2013; Milio 2007; Novosák et al. 2015; Tosun 2014; and Zaman and Georgescu 2009). The high absorption capacity of territories is associated with high SF allocation. Thirdly, political interests influence spatial distribution of SF. The strategies 'to reward the loyalty' of territories with strong support for certain government parties or 'to improve the position of government parties' in territories with narrow election results may also be seen (see e.g., Dellmuth 2011; Dellmuth and Stoffel 2012; Kemmerling and Bodenstein 2006; and

Schraff 2014). Finally, SF allocation may be determined by spatial interactions – positive allocations through spatial cooperation and negative allocations through spatial competition and compensation (see e.g., Camaioni et al. 2013; Crescenzi 2009; Crescenzi, De Fillipis and Pierangeli 2015; and Schraff 2014).

3. Methodology

This section explains the methodology underlying the empirical research. First dependent, explanatory and control variables are introduced. The methods of data analysis are then subsequently described. All data refers to LAG territories of the Czech Republic in the 2007-2013 programming period (182 units in total). The 2014 territorial boundaries of LAGs are used in this study.

3.1 Data and variables

The dependent variable is SF allocation under the Convergence objectives of the 2007-2013 programming period (in CZK) for each LAG territory, divided by its population (annual mean for the period 2007-13) in order to check the size differences of LAGs (SF_ALLOC). The dependent variable is log-transformed in order to compensate for excessive skew. Note that large transportation projects, supported by the Operational Programme Transportation, are not included into the analysis due to their specific nature of project selection. The source of information is official data published by the Ministry of Regional Development of the Czech Republic (hereafter referred to as the MRDCR), also information from the Ministry of Labor and Social Affairs of the Czech Republic (hereafter referred to as the MLSACR), and also information from the Ministry of Industry and Trade of the Czech Republic (hereafter referred to as the MITCR). The data on SF allocation relates to October 2015.

The crucial explanatory variables are two dummy variables indicating whether local development strategies of a LAG territory was or was not implemented using funds from the LEADER programmes in the programming periods 2004-2006 and 2007-2013. The three groups of LAGs defined in the theoretical framework of this study are used. The first dummy variable assigns a value of '1' to the territories of highly-experienced LAGs. A value of '0' is otherwise used (HEX_LAG). The second dummy variable assigns a value of '1' to the territories of experienced LAGs and a value of '0' is otherwise used (EX_LAG). The territories of inexperienced LAGs are the reference category for the two dummies. The work and experience of LAGs is employed in this way and used for further analysis.

Control variables are closely related to the theoretical framework of this study – to the concepts of spatial disparities, absorption capacity of territories and also political interests. Note that spatial interactions are modelled on the approach suggested e.g., by Anselin and Rey (2014) and Anselin et al. (1996). Spatial disparities may be understood as the expression of development needs of LAG territories in various thematic areas. SF interventions under the Convergence objective are expected to reflect these needs. Therefore, several indicators were used to employ the concept of spatial disparities. Note that the variables are dated as close to the beginning of the programming period 2007-2013 as possible to prevent the problem of endogeneity. The variables are summarized as follows:

- Spatial concentration of socio-economic activities and agglomeration economies are proxied by population density (DENSITY). The data refers to the year 2007 and is log-transformed to reduce the influence of outliers. The Czech Statistical Office (hereafter referred to as CSO) is the source of information.
- Human capital is proxied by the share of tertiary educated people in the population above the age of 15 (TERTIARY). The data refers to the mean of two values from the 2001 and 2011 Censes and are log-transformed to reduce the influence of outliers. CSO is the source of information.
- Entrepreneurship and entrepreneurial climate are proxied by the share of employers and self-employed people in the economically active population (ENTREP). The data refers to the mean of two values from the 2001 and 2011 Censes and is log-transformed to reduce the influence of outliers. CSO is the source of information.
- Innovations and new technologies are proxied by the number of patent applications submitted to the Industrial Property Office of the Czech Republic (hereafter referred to as IPOCR) in the period 2002-2007 and normalised by population size (PATENT). The data is log-transformed to reduce the influence of outliers. IPOCR is the source of information.
- The share of unemployed people in the population aged 15-64 years (UNEMPLOY) is the first proxy of social disadvantage. The data refers to the mean value for the period 2002-2007 and is log-transformed to reduce the influence of outliers. CSO is the source of information.
- Net migration normalised by population size (MIGRA) is the second proxy of social disadvantage. The data refers to the mean value for the period 1996-2007 and is taken from CSO statistics.
- The coefficient of ecological stability (ECOSTAB), measured as the ratio between environmentally stable and environmentally unstable land-use categories, is the first indicator of environmental disadvantage. The data refer to the year 2007 and is log-transformed to reduce the influence of outliers. CSO is the source of information.
- The index of air quality (AIR), calculated from emission values of nineteen pollutants and normalised by area, is the second indicator of environmental disadvantage. The data refers to the year 2007 and is log-transformed to reduce the influence of outliers. The Czech Hydro-meteorological Institute (hereafter referred to as CHMI) is the source of information.
- The share of people linked to sewerage infrastructure (SEWERAGE) in the total population is the third indicator of environmental disadvantage. The data refers to the mean of two values from the 2001 and 2011 Censes and is log-transformed to reduce the influence of outliers. CSO is the source of information.

Principal component analysis (PCA) was subsequently employed to extract the most influential factors and to eliminate the problem of multi-collinearity. However, the indicator 'SEWERAGE' was dropped from the PCA due to low measures of sampling adequacy. PCA extracted three components from seven input indicators which accounted for almost three-fourths of the variability in the data set. The Kaiser criterion of an eigenvalue greater than one was used to determine the number of components. Table 1 shows the rotated component matrix and factor loadings for each component.

Table 1: Rotated component matrix (PCA; Varimax with Kaiser Normalisation)

Variable	Component 1	Component 2	Component 3
AIR	-0.056	0.865	0.077
DENSITY	0.006	0.673	0.528
ECOSTAB	-0.168	-0.699	0.164
ENTREP	0.831	-0.132	0.123
MIGRA	0.783	0.291	-0.065
PATENT	0.146	-0.089	0.854
TERTIARY	0.573	0.367	0.557
UNEMPLOY	-0.853	0.017	-0.237
Cumulative explained variance	*37.5 %*	*59.1 %*	*72.2 %*
Initial eigenvalues	*3.001*	*1.731*	*1.042*

Source: compiled by the authors; data from CHMI, CSO, and IPOCR

The first principal component (SOCIAL) may be interpreted as reflecting social needs of development through high factor loadings of the indicators 'UNEMPLOY', 'MIGRA', 'TERTIARY' and 'ENTREP'. A high negative value of the component is determined by high social needs of LAG territories. The second principal component (AGGLOM_ENVI) may be interpreted as relating to the environmental problems of densely populated areas through high factor loadings of the indicators 'AIR', 'ECOSTAB' and 'DENSITY'. A high positive value of the component indicates more severe environmental problems of densely populated LAG territories. The third principal component (INNOVATION) may be interpreted as reflecting the innovative quality of densely populated areas through high factor loadings of the indicators 'PATENT', 'TERTIARY' and 'DENSITY'. A high positive value of the component is associated with high innovative quality of densely populated LAG territories. Note that principal component scores for each component were computed from the original indicators and used for further analysis (see e.g., Crescenzi, 2009; Crescenzi, De Fillipis and Pierangeli, 2015 for this approach).

The theoretical framework defines absorption capacity as the capacity of local actors to prepare, submit, administer and co-finance projects supported by SF. Moreover, SF allocation ought to be positively associated with the rate of project approval and with the average size of projects. Three variables are used to employ this concept. The first variable refers to the number of all projects submitted for SF support in the programming period 2007-2013, normalised by population size (PROJECT_NUM). The second variable is the share of projects co-financed by SF in the total number of projects submitted for SF support in the programming period 2007-2013 (APPROV_RATE). The third variable is the

average size of all projects submitted for SF support in the programming period 2007-2013 (PROJECT_SIZE). Hence, the three important aspects for explaining and evaluating SF allocation are controlled by the three variables: (a) the capacity to prepare and submit a large number of projects by the variable 'PROJECT_NUM'; (b) the capacity to prepare, submit, administer and co-finance successful projects by the variable 'APPROV_RATE'; and (c) the capacity to prepare submit, administer and co-finance large projects by the variable 'PROJECT_SIZE'. Note that all three variables are log-transformed to reduce the influence of outliers. MRDCR, MLSACR, and MITCR are the sources of information.

Political interests are employed with respect to the 'reward loyalty' thesis by defining a dummy variable that takes a value of '1' if government parties won more than 35 % of votes in the Parliamentary elections in 2006 and 2010 and otherwise a value of '0' is given (POLIT_INT). 'Political bastions' of government parties are identified in this way. Note the great importance that Parliamentary elections have for forming the government in the Czech Republic. The data is log-transformed to reduce the influence of outliers. CSO is the source of information.

3.2 Methods

LAG influences on SF expenditures are evaluated using descriptive and inferential statistics. Firstly, arithmetic means and standard deviations are calculated for the variable 'SF_ALLOC' and for the three variables related to absorption capacity of territories for the groups of highly-experienced, experienced and inexperienced LAGs. These statistics provide an initial insight into the influence of LAGs on SF expenditures by examining the mean differences between the three groups of LAG territories. Note that the three variables related to absorption capacity of territories are evaluated due to their direct relationship to SF expenditures. A positive influence of LAGs on SF expenditures is expected when the territories of highly-experienced and experienced LAGs receive more SF than the territories of inexperienced LAGs.

Secondly, the significance of the mean differences between the groups of highly-experienced, experienced and inexperienced LAGs is determined, using one-way ANOVA followed by Bonferroni 'Post-Hoc' testing for multiple comparisons of pairs. The variable 'SF_ALLOC' and the three variables related to absorption capacity of territories are tested, emphasising statistically significant results. Note that a crucial influence of LAGs on SF expenditures is expected when the mean differences between the territories of highly-experienced, experienced and inexperienced LAGs are statistically significant.

Thirdly, multivariate regression modelling is used to examine the influence of LAGs on SF expenditures while checking the effect of the other control variables. In addition, spatial interactions are considered by the methodological approach suggested, among others, by Anselin and Rey (2014), and Anselin et al. (1996). Thus, linear regression models are first estimated by ordinary least squares (OLS). The traditional regression assumptions are checked by performing residual diagnostics on the regression models. Hence, the multi-collinearity assumption is tested by obtaining Variance Inflation Factor (VIF) and tolerance statistics. The normality assumption is verified by computing Kolmogorov-Smirnov and Shapiro-Wilk tests. No violation of the two assumptions is revealed. The violation of the homoscedasticity assumption is corrected by computing heteroscedasticity robust standard errors. Finally, Moran's I is calculated to check the

presence of spatial autocorrelation. Subsequently, the Lagrange multiplier statistics are used to decide how to correct for spatial autocorrelation in the models. In this study, spatial error models are calculated in the form:

$$y_i = \alpha_0 + \sum_{l=1}^{L} \alpha_l EXPL_{li} + \sum_{m=1}^{M} \beta_m CONTROL_{mi} + u_i \; ; u = \lambda \mathrm{W} \mathrm{v} + \mathrm{v};$$

where y_i is SF allocation in a LAG territory i; $EXPL_{li}$ is an explanatory variable l in a LAG territory i; $CONTROL_{mi}$ is a control variable m in a LAG territory i; α_l and β_m are regression coefficients; u_i is the spatially autocorrelated error term; λ is an autoregressive coefficient; W is a spatial weights matrix; and v is a vector of iid errors. Note that the k-nearest neighbour method is used to create the spatial weights matrix W and that the spatial error models are estimated by the Kelejian and Prucha Generalised Moments estimator (GMM) in conjunction with the KP-HET correction of heteroscedasticity (see e.g., Kelejian and Prucha 2010).

4. Empirical results

The empirical analysis is based on more than 124,000 projects funded by CZK 1,148 billion. Table 2 provides an initial insight into the associations between LAG types and SF expenditures. Interestingly, the mean SF allocation for the territories of inexperienced LAGs is higher than for the territories of highly-experienced and experienced LAGs. Moreover, the SF allocation for the territories of inexperienced LAGs is more dispersed, and one influential upper outlier is present. This is caused by the fact that very large projects, of more than 1 billion CZK, were carried out in this LAG territory. Therefore, an additional dummy variable is coded and a value of '1' is assigned to the LAG territories where a very large project of more than 1 billion CZK was realized and a value of '0' is otherwise assigned (LARGE_PROJ).

Table 2: SF allocation – descriptive statistics

LAG territory	N	Mean	Std. Dev.	Min	Max
Highly-experienced	47	10.64	0.27	9.93	11.22
Experienced	70	10.64	0.30	9.92	11.38
Inexperienced	65	10.74	0.45	9.48	13.09

Source: compiled by the authors; data from MRDCR, MITCT, and MLSACR

Table 3 extends our understanding by examining the associations between LAGs and the three variables of absorption capacity of various territories. The most striking findings of the table relate to the territories of inexperienced LAGs. A relatively low number of projects are prepared and submitted in the territories of inexperienced LAGs. However, these projects are on average larger in size, especially when compared to the territories of experienced LAGs. The question is whether the differences are statistically significant.

Table 3: Absorption capacity – descriptive statistics

LAG territory	PROJECT_NUM	APPROV_RATE	PROJECT_SIZE
Highly-experienced	4.85	4.12	15.81
Experienced	4.85	4.15	15.73
Inexperienced	4.78	4.13	15.91

Source: compiled by the authors; data from MRDCR, MITCT, and MLSACR

To verify the significance of the differences between LAG territories, a one-way ANOVA is performed on SF allocation with the three groups of LAG territories. Table 4 shows the results supporting the aforementioned reasoning. A statistically significant effect of LAGs on the average project size at the 0.01 significance level is indicated. Multiple pairs are compared using the Bonferroni 'Post Hoc' test, and they provide additional information when revealing a statistically significant difference in the means of project size between the territories of experienced and of inexperienced LAGs (see Table 5). This is the most significant effect of LAGs on SF expenditures because the other pair comparisons are statistically insignificant. Note that the results remain stable also after excluding the influential upper outlier.

Table 4: SF allocation and absorption capacity – one-way ANOVA results

Variable	F-statistics	ANOVA - significance
SF_ALLOC	1.835	0.163
PROJECT_NUM	2.190	0.115
PROJECT_SIZE	6.692	0.002
APPROV_RATE	1.608	0.203

Source: compiled by the authors; data from MRDCR, MITCT, and MLSACR

Table 5: Project size – Bonferroni 'Post Hoc' test results

LAG territory (a)	LAG territory (b)	Mean Difference (a-b)	Significance
Highly-experienced	Experienced	0.079	0.413
	Inexperienced	-0.098	0.211
Experienced	Highly-experienced	-0.079	0.413
	Inexperienced	-0.177	0.001
Inexperienced	Highly-experienced	0.098	0.211
	Experienced	0.177	0.001

Source: compiled by the authors; data from MRDCR, MITCT, and MLSACR

5. Discussion

The arguments of the preceding sections provide interesting insight into LAG influences on SF expenditures in LAG territories. The territories of both experienced and highly-experienced LAGs did not receive more SF than the territories of inexperienced LAGs. Therefore, the assumption that LAGs strengthen absorption of external funding 'beyond LEADER' was not confirmed. On the contrary, projects prepared and submitted in the territories of inexperienced LAGs were on average larger in size than in the territories of highly-experienced and especially experienced LAGs. The difference in means of project size between the territories of experienced and of inexperienced LAGs was the only statistically significant difference in the performed paired multiple comparisons. This may be caused by at least two interlinked reasons. Firstly, LEADER supports rather small projects because of budget constraints. Consequently, the learning process and social capital building may be influenced by the context of small-scale projects. Secondly, LEADER may reduce the stock of skilled human capital and anchor skilled people to small-scale LEADER projects. Consequently, human capital is lacking in large-scale projects supported by external funding 'beyond LEADER'. Moreover, the results related to highly-experienced LAGs indicate that the influence of these processes diminishes over time.

However, spatial distribution of SF may also be influenced by other factors such as spatial disparities, political interests and spatial interactions. In this regard, Table 6 summarises the characteristics related to spatial disparities of the three groups of LAG territories – of experienced, highly experienced and inexperienced LAGs. Some differences may be observed, however, only the mean differences relating to the variable 'AGGLOM_ENVI' are indicated as statistically significant by one-way ANOVA. Hence, regression analysis is performed to check all the factors simultaneously. In this regard, four regression models are computed, differing in the selection of the variables relating to the absorption capacities of the territories (see Table 7).

Table 6: Characteristics of LAG territories – mean values

LAG territory	SOCIAL	AGGLOM_ENVI	INNOVATION	SEWERAGE
Highly-experienced	-0.241	-0.389	-0.029	4.097
Experienced	0.020	-0.074	-0.115	4.040
Inexperienced	0.152	0.361	0.145	4.074

Source: compiled by the authors; data from CHMI, CSO, and IPOCR

Table 7: Regression model estimates (N = 182)

Variables	Model 1	Model 2	Model 3	Model 4
HEX_LAG	-0.08 (0.05)	-0.00 (0.04)	-0.05 (0.03)	-0.08 (0.05)
EX_LAG	-0.09* (0.05)	0.02 (0.04)	-0.01 (0.03)	-0.10* (0.05)
PROJECT_NUM	0.81** (0.12)	-	1.02** (0.09)	0.84** (0.12)
PROJECT_SIZE	-	0.75** (0.07)	0.83** (0.06)	-
APPROV_RATE	-	-	-	0.41 (0.25)
SOCIAL	0.05 (0.03)	0.05 (0.03)	-0.01 (0.02)	0.04 (0.03)
AGGLOM_ENVI	(0.02)	-0.04 (0.02)	0.02 (0.02)	0.02 (0.02)
INNOVATION	0.04 (0.02)	0.03 (0.02)	0.02 (0.01)	0.04 (0.02)
SEWERAGE	-0.00 (0.08)	-0.09 (0.06)	-0.12** (0.04)	0.05 (0.08)
POLIT_INT	-0.13 (0.09)	-0.11 (0.08)	-0.12 (0.07)	-0.09 (0.08)
LARGE_PROJ	1.30** (0.50)	0.78** (0.28)	0.53 (0.27)	1.30** (0.50)
Coefficient λ	0.33** (0.08)	0.63** (0.05)	0.39** (0.07)	0.30** (0.08)
Pseudo R^2	*0.43*	*0.35*	*0.73*	*0.45*
Moran's I (OLS)	*3.51***	*8.07***	*4.82***	*3,18***

** Statistically significant at the 0.01 significance level; * Statistically significant at the 0.05 significance level; the heteroscedasticity robust standard errors are in parentheses.

Source: own compilation; data from CHMI, CSO, IPOCR, MRDCR, MITCT, and MLSACR

Table 7 shows regression model estimates, which provides further evidence supporting the aforementioned results. Model 1 indicates a negative and statistically significant relationship between the variables 'SF_ALLOC' and 'EX_LAG', after checking the capacity of LAG territories to prepare and submit a large number of successful projects (see Model 1 and Model 4). However, the negative and statistically significant effect of the variable 'EX_LAG' is lost after considering the average size of projects (see Model 2 and Model 3), confirming that the difference in the capacity of the territories of experienced LAGs and of inexperienced LAGs to prepare and submit large projects is the most significant influence of LAGs on SF expenditures. The territories of highly-experienced LAGs are not affected in this way.

Regression model estimates further indicate a positive and statistically significant impact of the variables 'PROJECT_NUM' and 'PROJECT_SIZE' on SF allocation. Hence, the importance of the absorption capacity concept for explaining spatial distribution of SF expenditures is confirmed. On the contrary, the influence of the variables relating to the concept of spatial disparities is statistically insignificant. However, this result is not surprising given the compensatory effects of SF interventions focusing on the competitiveness and equity goals of rural development. A thematic decomposition of SF expenditures is necessary for providing further insight into the relationship between spatial disparities and SF allocation.

6. Conclusion

The goal of this paper was to verify the hypothesis that the work of LAGs, i.e. the institutional form of LEADER, positively influenced SF expenditures under the Convergence objective of the programming period 2007-2013 in rural regions of the Czech Republic. The hypothesis was based on the assumptions that LAGs are a source of skills for project management and for submitting projects for financing under external funding streams 'beyond LEADER'. Therefore, it was expected that the territories of highly-experienced and experienced LAGs receive significantly more SF than the territories of inexperienced LAGs.

The empirical results of this study did not provide evidence for the hypothesis. Hence, the territories of experienced and highly-experienced LAGs did not receive more SF than the territories of inexperienced LAGs (see also Esparcia, Escribano and Buciega 2015 for this conclusion regarding the associations between LAGs and absorption of external funding streams 'beyond LEADER'). The only statistically significant difference was in the average project size prepared and submitted in the territories of experienced and inexperienced LAGs. Thus, the projects prepared and submitted in the territories of inexperienced LAGs were significantly larger than the projects prepared and submitted in the territories of experienced LAGs, also after considering the effects of spatial disparities, political interests and spatial interactions. The empirical findings therefore provided a different story of LAGs from what had been expected by the initial hypothesis.

The leitmotif of the story is the focus of the territories of inexperienced LAGs on other funding streams than the LEADER programme, primarily on SF under the Convergence objective. This is because SF was the main source of funding for regional development in the Czech Republic in the programming period 2007-2013. Consequently, the projects prepared and submitted for SF funding under the Convergence objective are, not

surprisingly, larger than those prepared and submitted for less generous LEADER funding.

Experienced LAGs may be affected in two ways. Firstly, learning processes are oriented to preparing and submitting relatively small-scale projects under the LEADER programme. Secondly, skilled people are 'squeezed' out of relatively large-scale projects under the Convergence objective, as their skills are needed for the administration and the implementation of the LEADER programme. Moreover, the importance of these processes may be further strengthened in the LAGs dominated by municipalities and other public sector organisations or by local elites due to low absorption capacity of other actors. Note that a number of LAG territories face this problem (see e.g., Navarro, Woods and Cejudo 2016; Perez 2000; Pollermann, Raue and Schnaut 2013; and Teilmann and Thuesen 2014), including post-communist countries (see e.g., Marquardt, Möllers and Buchenrieder 2012; Volk and Bojnec 2014; and Zajda 2014). Finally, limited financial sources for co-financing of rural development projects may play a part (see e.g., Navarro, Wood and Cejudo 2016; and Pollermann, Raue and Schnaut 2013).

However, these factors need to be further extended by focusing on the territories of highly-experienced LAGs. A statistically significant difference between the territories of highly-experienced LAGs and of inexperienced LAGs was not noticed, unlike the territories of experienced LAGs. The idea of a long-term effect of LEADER on social capital building seems to therefore be substantiated by this finding. In other words, the long-term experiences in LEADER improved the capacity of the territories of highly-experienced LAGs to prepare and submit large projects funded under the Convergence objective. Overall, evaluating the influence of LAGs on SF expenditures ought to consider these complex associations.

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