SOCIO-ECONOMIC CHANGES UNDER PUBLIC INVESTMENT EFFORTS IN THE APUSENI MOUNTAINS

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Abstract

There is rising concern of peripherality, economic and population decline in mountain areas. A representative area facing similar issues is the Apuseni Mountains of the Romanian Carpathians. The area is appreciated for the picturesque quality of the landscape, with valuable touristic potential. However, the geographic specificity is also associated with the high dispersal of the human settlements, poor connectivity and infrastructure. Economic and political changes during the socialist period led to rural depopulation by favouring the mining industry, and to massive emigration after The closure of mines (favoured by the socialist politics), led to young population immigrating for other revenue sources. The last two decades present a similar trend, especially in the rural communities, where farming is limited to subsistence and the population faces declines up to 40%. The aim of the present study is to assess the economic progress of the communities within the Apuseni Mountains area, by correlating the social and economic situation with the public effort of investments and supporting policies. As the analyzed territory is mainly rural (140 out of 153 localities), we considered the European rural development policies, which are tailored at the national level, and their effects. By the use of the Principal Component analysis, we have analysed at the administrative unit level the impact of European financial subsidies in relation to demographical changes and entrepreneurial activity. Findings show the positive role of pluriactivity in the rural areas, while agriculture is weakly linked with population changes. Investments in renewing villages and the modernization of agricultural holdings are associated with the development of tourism (and agritourism predominantly) and local products certification. The results support the inherent potential of the area to become resilient through tourism, culture-infused food and traditions, and enhanced collective responsibility.

*Key words***:** *agricultural policy, mountain areas, rural development, economic diversity, biodiversity, Natura 2000*

INTRODUCTION

There is rising concern, at a global level, of peripherality, remoteness and population decline in rural, mountainous areas. A prominent issue in the Alps [16], a recent phenomenon in China [12], countries consider the potential of innovative activities based on local cooperation systems and sustainable measures [6].

A 2009 European Commission Report's [33] attempt to limit vague rural delimitations includes a peripherality/accessibility index and a land cover index, to improve the basic OECD 1994 classification (based on population density). The peripherality index describes remote communes (LAU2) of above "45 minutes travel time to reach an urban centre with at least 50,000 inhabitants", while an "open space" commune had at least 75% natural area (agricultural, forest), as opposed

to "closed space" communes (land cover index) [33]. It has been found difficult to assess one area's remoteness in its entirety of indicators (total length of motorways, number of railway stations, travel time or travel cost to economic centres, access to services etc.), however the supposition remains: physical presence of an urban centre is key for a commune, in respect to the opportunities that follow (access to markets, skilled personnel, public services, private enterprises). Therefore, remoteness represents the lack of opportunity in rural areas [24], which are seen to (have) become "structural failures" [3], with negative socio-economic changes or delayed development [35].

A representative mountain area (with the rural communities in particular) facing similar problems is the Apuseni Mountains area, the western subgroup of the Romanian Carpathians, in Southern Europe.

The Apuseni Mountains area is appreciated for the picturesque quality of the landscape, thus providing enormous touristic potential. On the other hand, a geographic-specific issue is that of the high dispersal of the human settlements, associated with poor connectivity and poor public services/infrastructure [39]. Not only a fragile physical environment, the Apuseni Mountains have known various geodemographic declines due to economic and political changes as well. The socialist period led to an increase in the population of the smaller towns where the mining industry was the main activity sector (Nucet, Ştei, Brad, Baia de Arieş), favouring the prosperity of the urban space of the Apuseni Mountains and, thus, depopulating the rural space. Closure of mines after post 1990's political and economic shifts was then followed by massive emigration, affecting mainly young and adult population, and a dramatic reduction in birth rate [39].

Constantin et al. [10] record that the problems of the local communities have been long documented, on various dimensions, from economic development (since 1936) to sustainable rural development [53]. More recent findings show the permanence of the social and economic issues, and the occurrence of new ones (such as loss of culture-infused traditions). School population decreased along time, with more than 100 LAU having negative migratory balance rate in 2017, or increased slightly in some cases due to ethnic causes (Ukrainian, Romani) [38]. What remains is the phenomena of demographic ageing, with elderly population in and subsistence agriculture [37, 54]. Subsistence and semi-subsistence farming are clearly represented at national level as well, with over 90% of all agricultural holdings under 2 ha of utilized agricultural area (UAA), or under €2000 of standard output (SO) [11].

The presence of rich natural resources, labour and craft traditions within the Apuseni Mountains contributed to the development of industrial activities such as mining and processing of ferrous and nonferrous ores, exploitation and processing of rocks and building materials, agricultural products processing, wood processing, textile industry and production of handicraft items [9], as well as culture infused events and festivals [7]. However, the whole area deals with poverty and high unemployment rates, whether we include ex-mining areas and thus mono-industrial structures located in the east of the Apuseni Mountains [37], or the eastern, agriculturally predominant areas, where farming is limited to subsistence and reluctant mentalities [48]. Employment has suffered alongside the economic restructuring, with a 50% fall in the number of employees at regional level from the '90s until 2010 (with communal or rural-urban differences) [15]. Botezan et al. [4] found in their study the respondents' confirmation of the lack of industry and employment opportunities, with two increasing trends: young people leaving their homes and others choosing traditional activities with low income levels (agriculture, tourism).

Other major issues include environmental issues. Although the area fosters the Apuseni Natural Park, with over 55 natural reservations and three Natura 2000 protected sites, while being officially administered by the National Forest Administration Romsilva, studies show continuous forest fragmentation, inside and outside the park. In the post-establishment period of the Park, forest loss increased considerably, mostly due to illegal logging (economic pressure) and corruption [58]. Petrişor et al. [52] or Kucsicsa & Dumitrica [34] report deforestation as the main dynamic in the area and a re-occurring issue over decades. Natural factors (meteorological, topographical) are also the cause of damage to the forest vegetation, through increased windthrows [27]. Mining activities, which do have an ancient, long-standing tradition [59], have environmental consequences even after their closure, such as mine tailings spills, surface and groundwater pollution or biodiversity loss [45, 54]. The most famous case of planned project, in Rosia Montana, Alba County, attracted serious debate and media coverage, as locals and environmentalists opposed mining exploitations, with reasons including expropriations, the relocation of the cemetery,

the interference with the cultural heritage or the threat of explosives and cyanide tailings [40, 41].

The opportunities of sustainable regional development and of interrupting the socio-economic and environmental decline of the area lie in economic pluriactivity development. Earlier studies present pessimistic conclusions, stating that rejuvenating actions for the area are tardy or that Rosia Montana should merely remain "an unequally alive museum" [2, 26]. A research trend is evident, and studies consider the inherent potential of the area to become resilient through tourism, better access infrastructure, and enhanced collective responsibility [1, 47, 55] solutions which are encouraged on a global scale [6, 12].

The aim of the present study is to assess the socio-economic progress of the communities within the Apuseni Mountains area, by investigating the existing possible correlations between the actual and progressive social and economic scenario with the public effort of investments and supporting policies. As the analyzed territory is mainly rural (140 out of 153 administrative-territorial units are rural), we considered the European rural development policies, which are tailored at the national level, and their effects. Thus, we used demographic indicators (population change, density growth, old dependency ratio, migratory absolute indicators), geographic (remoteness) and economic (NPDR accessed funds, active enterprises, unemployment change rate, tourism indicators) in order to assess the correlation of the public investments (and their effects, e.q., active enterprises) with the demographic changes. At that, the main hypothesis are:

(1)Economic activity and investments in tourism lead to population growth and village revitalization;

(2)Rural development funding has positive effects especially in communes situated in proximity of urban centers rather than in remote areas.

In the European context, rural development policies followed continuous adjustments, some radical in changing the EU budgets (Table 1). A new Rural Development (RD) policy, detached from the market interventions and price policies (today, first pillar of the CAP), has emerged under the "Agenda 2000" reform, and was known as the second pillar of the CAP. The RD policy is implemented through RD multiannual programmes, which are tailored and implemented by Member States, based on their own unique challenges (targeting specific focus areas), the 9 CAP objectives, and the European Agricultural Fund for Rural Development (EAFDR) priorities for each programmed period. EAFRD is the main funding instrument for the CAP policies that support rural sustainable development, but projects are selected and co-financed at national or regional levels [21].

The new dimensions of sustainable rural development were included in the objectives of the European RD support programmes (e.q. the multi-functionality of agriculture, sector-specific diversity, climate action–Table 1) or were integrated in new approaches, such as the LEADER method (a "bottom-up" approach, where local actors form local action groups—LAGs—and develop tailored strategies) or programmes supporting smart villages and fostering innovation [21].

Romania has highly benefitted from the European public support, due to the large agricultural area (58.7% out of total land area, according to the World Bank collection of development indicators, 2016), and the high number of agricultural holdings, of nearly 3.9 million (mainly very small subsistence and semi-subsistence farms). The total CAP support for the programmed periods of 2007–2013 and 2014–2020, at national level, accounted for over € 8 billion and nearly € 9.5 billion, respectively (Table 2).

More than one fifth of farmland is under high nature value farming systems [23] and research supports directing high amounts of investments towards these vulnerable areas, either economically or environmentally or both [30].

Table 1. Milestones in the Development of EU Regional and Rural Policies

Timeframe	Milestone	Focus
60s and 70s	Launch of the CAP	Focus on price support and productivity -> Overproduction, supply control
1992	MacSharry Reform	Introduction of direct payment mechanisms, phasing out price support; income and budget stabilization
2000	Agenda 2000	Direct aid; environmental cross-compliance; rural development policies (second pillar)
2003	The June 2003 reform	Decoupled payments; market orientation; environmental cross-compliance
2009	Health Check	Single farm payment scheme; dairy quota; flexibility in public intervention
2013	The 2013 reform	Targeting certain objectives; inter-pillar flexibility
2018	Post-2020 CAP reform	Simplifying; more flexibility for EU members; higher focus on environment; research and innovation
2021, 2022	Transitional period	

Source: [23].

Table 2. Public support for the Rural Development Programme in Romania

Programming Period	Priority Axis	Objectives	Public Budget (mil. euro)
NRDP 2007-2013	Axis 1 competitiveness	Human resources (vocational training, young farmers)	3,061.43
		Physical capital (farm investments, agricultural infrastructure)	
		Quality of agricultural production	
		Transitional measures (semi-subsistence)	
	Axis 2 land management	Mountain LFA	3,026.91
		Natura 2000	
		Agri-environment/animal welfare	
		Forest	
	Axis 3 wider rural development	Basic services	2,345.01
		Economic diversification	
		Training and information	
	LEADER axis	Within the scope of the 3 thematic axis	366.92
	Total		8,800.27
NRDP 2014-2020	Priority 1 knowledge and innovation	Advisory, cooperation	0.07
	Priority 2 farm competitiveness	Modernisation, generational renewal	1,107.17
	Priority 3 food chain organisation	Quality schemes, short supply circuits, producer groups	1,232
	Priority 4 ecosystems	Biodiversity, soil erosion	1,623.47
	Priority 5 resource efficiency	Water efficiency, renewable energy, carbon sequestration	304.47
	Priority 6 economic development	Economic diversification, local development	1,921.38
	Total		9,446.30

Source: [21, 42, 43].

MATERIALS AND METHODS

Case Study

The Apuseni Mountains (Munții Apuseni in Romanian) represent an expanded mountain unit on about 10.750 km² and a western subgroup of the Romanian Carpathians (Map 1). The boundaries are the Barcău Valley in the north, the Transylvanian Depression in the east, in the south the boundary is given by the Mureş Valley, and in the west the limit is the connection with the West Hills. The Apuseni Mountains are not high, with a maximum elevation of 1,849 m in the central part of the area (Bihor Massif). The mountains' rounded crests contrast with deep river valleys, and extensive limestone formations give rise to some spectacularly eroded landscapes. Pastureland and settlements are scattered among the mountains, and the Metaliferi (Metal) Mountains in the south, with volcanic conical crests, are rich in mineral ores [19].
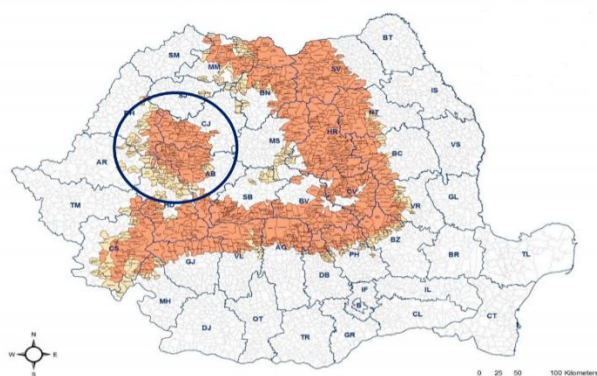
Map 1. Territorial-administrative map of Apuseni Mountains, Romania
Source: [22].

For the administrative delimitation of the Apuseni Mountains we consulted the existing literature ([38], from [13] and [56]). The administrative area of the Apuseni Mountains consists of 154 administrative-territorial units (LAU 2) from 6 counties (NUTS 3): Alba, Arad, Bihor, Cluj, Hunedoara and Sălaj. Of the 154, 141 are communes (rural area), with the mention that the Negreni municipality was established by referendum in 2002, and 13 are cities (urban space). The area (14,322.17 km^2) is inhabited by a little over 416,600 persons, and presents low population density: 29.1

inh./km^2 vs. 90 inh./km^2 national mean; high isolation degree is translated by the remoteness indicator mean of 33.01 km, with almost 50% of rural communes going above the mean [49]. 46.49% of the total area is forest covered, followed by 30.17% of grasslands and 14.71% with agricultural area. Almost 60% HNV and 28% Natura2000 protected area.

Methods

The Principal Component Analysis (PCA) was used to study the possible correlations between the investments made with NRDP grants and the socio-economic and natural variables in the Apuseni Mountains area, Romania. PCA is a multivariate methodology with the purpose of extracting information from a dataset by reducing its size to a smaller set of factors, allowing predictions and revealing specific trends [32, 36, 57]. However, as the factors cannot represent all the information inherent in the items, the focus is to extract a minimum number of factors that account for a maximum proportion of the variables' total variances, instead of absolute accuracy [44]. In this case the principal components were selected using the computed eigenvalues (>1), and the interpretation was performed using a varimax matrix. The KMO statistic and the correlation matrix with the associated significance level provided a first insight into the correlation structures and explained that data are appropriate for the PCA method. Data was assessed by the help of the software package IBM® SPSS® Statistics for Windows, Version 20.0 (Armonk, NY, USA). Several studies have used socio-economic dynamics in a quantitative approach in order to define contextual ruralities [5, 18] and the role of European rural development initiatives in certain European countries [50] with interesting insights, such as the idea that urban centres are being better supported by RDP [5], with no apparent redistributive effects towards rural areas. Studies conducted in Romania have previously used the method in correlating CAP subsidies with agricultural production types [17, 28], or recently, in correlating CAP subsidies with farm net

incomes and permanent emigration—at national level, which allowed to make use of FADN data sets [29] or other national statistical figures. Studies on the area of the Apuseni mountains record either demographical changes [39], the reorganization of economic activities [14], or the CAP funds spatial distribution [46]. Thus, this article aims at providing an inclusive perspective, by looking at spatial correlations of demographical changes, sectorial activity and NRDP funding.

Table 3. Descriptive statistics of the PCA factors

Variables	Explanation	Mean	Std. Deviation	Min	Max
Population change	Absolute differences between years 2018 and 2008 (number)	-219.19	253.1	-1,742.00	923
Population density	Density growth between years 2018 and 2008 (%)	-9.04	6.76	-27.43	12.05
Old-age dependency ratio	Population 65+ y. o./ population 15-64 y. o. (growth rate between years 2018 and 2008, %)	-1.41	9.12	-74.51	48.89
Unemployment rate	Growth rate between years 2018 and 2008 (%)	-3.75	5.31	-100.00	577.53
Emigrants	Emigrants 2008-2018 (number)	7.77	12.08	0.00	69
Imigrants	Imigrants 2008-2018 (number)	4.32	6.48	0.00	49
Certified products	Certified products/commune (number)	0.82	3.28	0.00	32
HNV area	HNV area (%)	0.87	0.33	0.00	1
Natura2000 Site	% of total area	24.6	27.63	0.00	100
Remoteness	Distance (km) until the closest urban centre (>10,000 inh.)	33.01	20.35	0.00	78
Primary sector	Differences of active enterprises in the primary sector between years 2018 and 2008 (number)	2.29	2.92	-7.00	13
Secondary sector	Differences of active enterprises in the secondary sector between years 2018 and 2008 (number)	1.41	8.12	-28.00	69
Tertiary sector	Differences of active enterprises in the tertiary sector between years 2018 and 2008 (number)	2.6	16.38	-74.00	110
Hospitality sector	Differences of active enterprises in the hospitality sector between years 2018 and 2008 (number)	0.5	2.17	-7.00	10
Touristic capacity	Differences in number of beds between years 2018 and 2008 (number)	15.9	79.46	-244.00	553
Touristic attractiveness	Differences in overnights between years 2018 and 2008 (number)	214.97	6,253.53	-43,012.00	23,172
Agric_measures (07-13)	Projects funding for measures 112, 121, 122, 125, 123, 141, 142 (2007-2013)	517,764.57	735,183.88	7,500.00	4,617,027.40
Agric_measures (14-20)	Projects funding for measures 4 and 6 (2014-2020)	762,943.01	974,480.02	15,000.00	4,273,141.00
Measure 312	Projects funding for measure 312 "Support for microenterprises creation" (2007-2013)	224,545.06	361,530.87	10,906.00	2,377,815.65
Measure 313	Projects funding for measure 313 "Support for touristic activities" (2007-2013)	149,588.16	214,288.58	64,470.29	1,128,406.96
Measure 322	Projects funding for measure 322 "Village renewal and development" (2007-2013)	1,290,180.88	2,382,648.55	649,919.00	13,854,703.72
Submeasures 6.2 + 6.4	Projects funding for "Support for microenterprises creation" (2014-2020)	106,559.94	168,062.93	50,000.00	956,350.00
Measures 7	Projects funding for "Basic services and village renewal" (2014-2020)	391,700.17	677,725.43	106,058.00	3,275,539.00

Source: Own calculation.

Data collection

The present study considers both programming periods of the two National Programmes Rural Development—NPRD (2007-2013 and 2014-2020), and the CAP context indicators were utilized in assessing the support impact upon the regional and local development of the Apuseni mountain area, of 141 rural LAU and 13 towns [20]. Socio-economic data was retrieved from the online database (TEMPO) of the National Statistics Institute [49]. Funded projects within the NPRD were selected from the online reports of the competent national authority AFIR – Agency for Financing Rural Investments [51]. All indicators refer to data at LAU level and are described below (Table 3).

RESULTS AND DISCUSSIONS

The results of the analysis are displayed in Table 4.

The PC1 – "Economic diversity and population changes" Describes the factors influencing the population, thus leading to village renewal. Growth in population and density rates along the chosen timeline (between 2008 and 2018 as reference years) are positively correlated with NRPD funds (accepted projects) from Measure 312 „Support for microenterprises creation", as well as with the growing number of enterprises activating in the secondary and tertiary sectors. Results confirm the first hypothesis of the study, namely that the Economic activity and investments in tourism are linked to population growth and village revitalization. Both urban and rural areas know decreasing trends in population, with highest negative figures in towns like Brad (-1,742 persons since 2008), Ștei, Câmpeni, Baia de Arieș, and notable numbers in Poieni, Hălmagiu, Roșia Montana and Iara (-511 persons). In this way, the need for economic diversification and focus on industry and services aligns with recent studies, especially for previous mining areas [4]. Policies should be designed to diversify the local economies and to provide more jobs and employment opportunities.

PC2-„Economic development and migration" Emmigration and immigration figures are positively correlated. Generally, these areas with strong migratory rates have recorded decreasing numbers of active tertiary enterprises. This suggests that the economic environment is negatively influenced by the demographic instabilities.

PC3-„Investments and hospitality infrastructure" shows that measures in tourism, village renewal and microenterprises creation are correlated with each other, as well as with hospitality figures (growth in number of active hotels and restaurants). The measures included in the component belong to both programming periods, which explains how locals continued to further apply for projects and invest. The results are, thus, visible, through the growing number of hotels and restaurants, and especially of agritouristic infrastructure (represented by 40% of the total, and by 37 communes out of total to be involved solely in agritourism). However, how areas without touristic potential (and thus zero touristic infrastructure) have known population increase, while also having positive changes in tertiary firms numbers (Cricău, Tetchea, Rapoltu Mare, Vetel).

PC4 – „Agricultural investments and population density" Presents a correlation among agricultural measures and the way they are accessed, in that there is a continuation of investments from the first through the second programming period. Moreover, they are positively linked with density growth, showing the benefit over depopulation. An important role could be played by submeasure 6.1 „Young Farmers Set-up Grant", having this exact objective, of encouraging youth to either remain or start up a life in rural areas. Buteni (AR) and Vetel (HD) score the highest amounts of continuous funding in agricultural measures, however only the latter enjoys population growth.

PC5 – „Natura2000 and tourism"

There is a positive correlation between Natura2000 sites and touristic indicators, such as an increase in overnights, which can contour tourists' preference. In addition, the positive link with the increase in

infrastructure capacity (number of beds) can suggest that entrepreneurs have taken note of the opportunity and invested accordingly.

PC6 – „Location and microenterprises"
Show the link between geographical characteristics and investments in setting-up microenterprises. Funding for this type of projects is positively correlated with Natura 2000 areas, a possible explanation being that other economic activities arise in complementarity to touristic ones. Conversely, highly isolated and HNV areas register lower levels of investments from this measure.

PC7- „Location and population aging"
Principal Component 7 deals with the link among geographic aspects and the change in time in the old-age dependency ratio. The ratio presents a general decrease in Natura 2000 sites, sites which are positively correlated with a high degree in remoteness. A general decrease in the ratio means more people of working age for each elderly person aged 65 and over. This can be explained by either growing senior depopulation due to natural causes, or a higher number of working population due to the touristic aspect of the Natura 2000 sites.

PC8 – „Agriculture and certified products"
The link between the agricultural activity and number of certified products. This suggests an increase in both the number of agricultural activities, as well as the quality of the products. However, there are only 126 certified products in the area, out of which 100 are mountain products, 23 of traditional recipe, 2 consacrated recipe (in the town of Vascau) and 1 certified wine in Ighiu (AB).

PC9 – „Sectorial activity and unemployment"
It is shown the overall relationship of unemployed population within the territory. The unemployment rate presents upward trends in both agricultural and touristic areas, as well as Natura 2000 sites. The issue seems to persevere in spite of the investments volume.

Table 4. Principal Component Analysis results

PC	Eigen Values	% variation explained	% variation accumulated	Indicators and correlation with the PCs (the most discriminant variables, above ± 0.3)
PC1	2.722	11.837	11.837	Population changes 0.855 Secondary sector 0.761 Tertiary sector 0.752 Population density 0.574 Measure 312 0.433
PC2	2.192	9.529	21.366	Tertiary sector -0.313 Population density 0.433 Emmigrants 0.928 Immigrants 0.888
PC3	2.092	9.097	30.464	Submeasures 6.2 + 6.4 0.783 Measure 313 0.681 Hospitality sector 0.560 Measure 322 0.505 Measures 7 0.439
PC4	1.762	7.663	38.126	Population density 0.352 Agric_measures (07-13) 0.792 Agric_measures (14-20) 0.791 Measures 7 0.475
PC5	1.686	7.332	45.458	Touristic attractiveness 0.781 Touristic capacity 0.710 Natura2000 Site 0.342
PC6	1.661	7.220	52.677	HNV area -0.797 Measure 312 0.594 Natura2000 Site 0.433 Remoteness -0.432
PC7	1.396	6.068	58.745	Natura2000 Site -0.403 Old-age dependency ratio 0.864 Remoteness -0.586
PC8	1.205	5.239	63.984	Certified products 0.849 Primary sector 0.407
PC9	1.201	5.223	69.207	Hospitality sector 0.375 Natura2000 Site 0.304 Unemployment rate 0.767 Primary sector 0.475

Source: Own Analysis. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Results confirm the overall importance of economic diversity (industry, services) with regard to positive population changes (PC1), however tourism does not have a direct impact in our findings. There are no correlations between touristic indicators and demographic data referring to population trends. Agritourism is considered a «smart chance» for mountain rural environments [8], if employed efficiently and policy-based [31]. The number of certified agricultural products, which should stand at the core of agritourism industry and touristic areas, are correlated with areas with agricultural firms (PC8). Analogously, Galluzzo [29] finds no unique effects of EU funding on agritourism development at national level, with weak and ambiguous correlations within regions.

Areas appreciated for high biodiversity (Natura 2000 sites) corresponded with areas in which touristic infrastructure has been developed (PC5). Unfortunately, the more remote the area is, the more it is put at an unfair disadvantage. High biodiversity areas present increasing unemployment rates (PC9) and a low old-age dependency rate (depopulation due to natural causes). The results are confirmed by national data [29], as agritouristic areas are strongly correlated with high rates of permanent emigration.

CONCLUSIONS

The present study focused on finding possible correlations among demographic changes and investments through the NPRD, in an area with potential and interest in revitalization. Previous research noted how certain types of farming are more prone to apply for grants, or how the direct payments are beneficial in maintaining farm income (not necessarily to improve farmers well-being). Investments in tourism were also found prolific, especially when correlated to agritouristic infrastructure. In this case, however, there is no correlation between overnights and tourism investments, and it shows arbitrary results when correlated to population changes or unemployment. In fact, the unemployment rate seems to be negatively linked to both agricultural and touristic areas. In agriculture, there is no correlation between agricultural firms and the investments in this type of measures. Small agricultural holdings do benefit from grants, but without the capacity to expand and flourish. As shown from the results, the Apuseni Mountains area is divided in touristic and agricultural zones, evident through resources, as well as the history of accessing the NRDP funding. Focus should be turned to education in preserving these resources and accessing finance, through steady, collaborative projects. Public financing for rural development (Pillar 2) seems, however, to be proposed for "inappropriate" reductions (up to 28%) for the following programming period (2021-2027), which if put in action, will demand higher attention to managing the funds (and perhaps higher national efforts) [25].

This study has potential limitations. Funding data are retrieved from the official reporting authority (AFIR), with the available option of "selected projects", which might omit retracted or unsuccessful projects. We encountered difficulty in finding larger data on economic indicators at commune level (such as farm income, average wages). PCA is an exploratory method, thus for accuracy in explaining the correlations, further research should employ statistical modelling, while involving more explanatory variables.

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