

Pastoral migrations and generational renewal in the Mediterranean

Michele Nori^a, Feliu López-i-Gelats^b

ABSTRACT: Important changes that have reconfigured the rural world in recent decades include the abandonment of inner and remote territories, and the growth of the immigrant workforce. Pastoralism provides an intriguing perspective on these processes, as it embodies the contradictions of an agricultural practice increasingly appreciated but decreasingly practiced. This work questions the contribution immigrant shepherds are making to the generational renewal of pastoralism in the Euro-Mediterranean context. The results point that their relevance in terms of generational renewal are limited, and mostly context specific.

Migraciones pastorales y relevo generacional en el Mediterráneo

RESUMEN: Entre los cambios más importantes que están reconfigurando el mundo rural destacan el abandono en los territorios más remotos, así como el aumento de la mano de obra inmigrante. El pastoralismo proporciona una perspectiva estimulante en estos procesos, pues convive con la contradicción de ser una práctica agrícola cada vez más apreciada pero que cada vez se practica menos. El presente trabajo examina cuál es la contribución de los pastores inmigrantes al relevo generacional en el contexto Euro-Mediterráneo. Los resultados indican que su relevancia en términos de relevo generacional es limitada y, en su mayor parte, depende largamente del contexto específico.

KEYWORDS / PALABRAS CLAVE: CAP, Euro-Mediterranean, Pastoralism, migration, Pyrenees / Euro-Mediterráneo, migración, PAC, Pastoralismo, Pirineos.

JEL classification / Clasificación JEL: J6, Q1.

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1. Introduction

Marginal lands make up about one-third of the Mediterranean region across its mountainous, inner and island areas, where pastoralism represents a major system of economic production, employment and livelihood, and landscape management. Through the extensive grazing of sheep, goats and cattle that make use of natural and semi-natural grasslands, pastoralism represents an effective way to produce high-quality food and to contribute to the sustainable management of rich and fragile territories through a range of socio-ecosystem services, including cultural identity, biodiversity conservation, wildfire prevention, security and others (Varela *et al.*, 2018). Today, societal demand for these products and services is growing, yet this does not seem to translate into any growth or improvement for the sector. In fact, current dynamics indicate that rural youth often seeks alternatives outside pastoralism, leading to depopulation of rural areas and abandonment of rangelands (Góngora *et al.*, 2019; López-i-Gelats *et al.*, 2016). In this context, harsh, remote, and mountainous areas of Southern Europe are witnessing the arrival of a growing number of immigrant shepherds, mostly originating from other pastoral areas in the Mediterranean.

The objective of the paper is to examine the role immigrant shepherds play in dealing with the challenge of generational renewal in Euro-Mediterranean pastoralism. In doing so, two sub-objectives are covered: first, to characterize the state-of-the-art of pastoralism in four main Euro-Mediterranean countries - Greece, Italy, Spain and Southern France (including PACA and Languedoc regions), Second, an in-depth investigation of the presence and contribution of immigrant shepherds in a particular region, namely the Catalan Pyrenees is addressed. This work has been conducted within the framework of the EU Marie Curie-funded TRAMed and the ERC-funded PASTRES projects, both implemented through the European University Institute

2. Agrarian transitions and the pastoral systems

The modernization of agriculture that followed the incorporation of rural economies into a globalized system has contributed to the intensification of social and territorial differentiations in the agrarian world (Ploeg, 2009; Ortiz-Miranda *et al.*, 2013). This polarization has in turn amplified the disparities and inequalities existing between areas with high potential for intensive agriculture (mostly plains, valley bottoms and coastal areas), and those whose agro-ecological features make them less suitable to production intensification (mainly inner and mountainous areas). This process entails dramatic implications for rural development, including the progressive desertification of relevant portions of the Euro-Mediterranean territory (Plan Bleu, 2004; Lazarev, 2008; Gertel & Breuer, 2010; Zdruli, 2011). The disappearance of the human component in these areas translates into the abandonment of landscape management, together with the loss of local knowledge and traditional practices, crucial components of local biodiversity and resilience.

A key driver that has helped to contain these processes in Europe has been the significant inflow of immigrants, who presently constitute an important part of its agricultural workforce. Through significant demographic and socio-economic contributions, immigration has made it possible to compensate the social and economic imbalance of the agricultural labour market, helping to replace the local population that has moved off (Schrover *et al.*, 2007; Kasimis, 2010; Sampedro, 2013; Collantes *et al.*, 2014; Nori & De Marchi, 2015; Colucci & Gallo, 2015).

The recognition of the growing importance of immigrants to the sustainable performance and resilience of many EU farms comes at a time when the Common Agricultural Policy (CAP) is undergoing strong criticism at different levels. A main complaint related to the high costs associated with its rural welfare, which shows limited capacity to face and compensate for the social and environmental trends affecting the European countryside. CAP is one of the founding policies of the EU and covers around 40 % of its total budget. Despite such political and financial engagement, the European rural world witnesses dramatic processes of depopulation, persistence of conditions of social exclusion, and degradation of natural resources (EU, 2011; 2013). Main problems faced by rural communities and agricultural farms today in Europe relate to demographic ageing, lack of workforce and generational renewal. Thus, reversing these trends becomes a major concern for European citizens, scientists, and politicians alike, since the human factor turns out to be a key bottleneck for sustainable development in rural Europe (EU, 2015).

While most of the existing literature focuses on the role of immigrant workers in intensive agriculture (Gertel & Sippel, 2014; Corrado *et al.*, 2016), little attention has been given to production systems in more marginal and remote locations, namely the mountain, inner and island territories that cover a large part of the Mediterranean region. In these settings, the active human presence does not hold a merely economic dimension, but the ‘multifunctional’ role of people is critical for the maintenance of landscapes, ecosystems and societies, with important socio-political and environmental implications (Requier-Desjardins *et al.*, 2016; Nori & Farinella, 2020).

A traditional practice that largely characterizes these territories is pastoralism, that is, the extensive husbandry of herds and flocks – typically, but not only, of sheep and goats – that feed basically on natural and semi-natural pastures, which partly tend to be communal or open-access. Pastoralism represents a key source of livelihood in many Euro-Mediterranean regions where agro-ecological characteristics do not allow for agricultural intensification, while also contributing to the sound management of the natural resource base. Pastoralism is typically associated with traditional wool, meat and milk products and the related value chains and services, which include organic production, the maintenance of traditional landscapes, rural and agro-tourism schemes, and conservation of cultural heritage and territorial identity. In addition, pastoralism is being increasingly appreciated for its role in the provision of different ecosystem services (Varela *et al.*, 2018). There is increasing evidence that the abandonment of agricultural practices tailored to these territories entails substantial risks and hazards, including flooding, erosion,

landslides, wildfires, as well as loss of cultural identity and biodiversity (Nori & De Marchi, 2015; Moreira *et al.*, 2016). Despite the acknowledgement of these attributes and the related appreciation of pastoralism have been growing recently, such recognitions do not seem to be properly reflected neither in market prices nor in policy frameworks. This eventually leads to the paradoxical situation whereby despite a growing societal appreciation, pastoralism is decreasingly practiced by local populations.

Pastoralism has in fact undergone important changes and transformations in recent decades, which are to an extent undermining its sustainability. Its extensive nature makes it less susceptible to the large productivity increases that characterise other agricultural systems, including intensive livestock production. Most pastoral practices continue to rely on physical labour and manual activity, and insist on lands that are less prone to intensification. Within recent policy and market frameworks, productivity gains in pastoral areas have often increased at a lower pace than production costs (Ragkos & Nori, 2017). This has contributed to increasingly squeeze the sector viability; many pastoralists have been either forced to close or to deeply restructure their farm, by expanding their herd and re-organising land and labour resources accordingly as a way to adjust cost-benefit ratios (Farinella *et al.*, 2017).

Although the data available on pastoral farms are not always consistent, medium-term trends indicate two main dynamics for the Euro-Mediterranean region. On the one hand, a decline in figures with a marked overall reduction of about 30 % of the regional flock in the last two decades. On the other hand, the average size of remaining flocks has grown dramatically (EuroStat, 2016). The classic refrain, everywhere, is that “20 years ago with a flock half size of the present one we had a decent life and we could even make savings and investments. Now with a double-sized flock, it is difficult to make ends meet by the end of the year”¹.

TABLE 1

**Variations in the size of national sheep and goat flocks (.000)
in different Euro-Mediterranean countries (1985-2016)**

Sheep heads	1985	1995	2003	2012	2016
Greece	9,606	9,269	8,745	9,213	8,735
Spain			23,500	16,339	15,963
Italy	11,293	10,668	7,945	7,182	7,285
Southern France				4,090	3,999

¹ Josetxu Larraz, Fustiñana (Navarra) 4/15; F.Ili Costa, Grotte di Castro (Lazio) 6/15 (personal communications of two pastoral farms during TRAMed fieldwork).

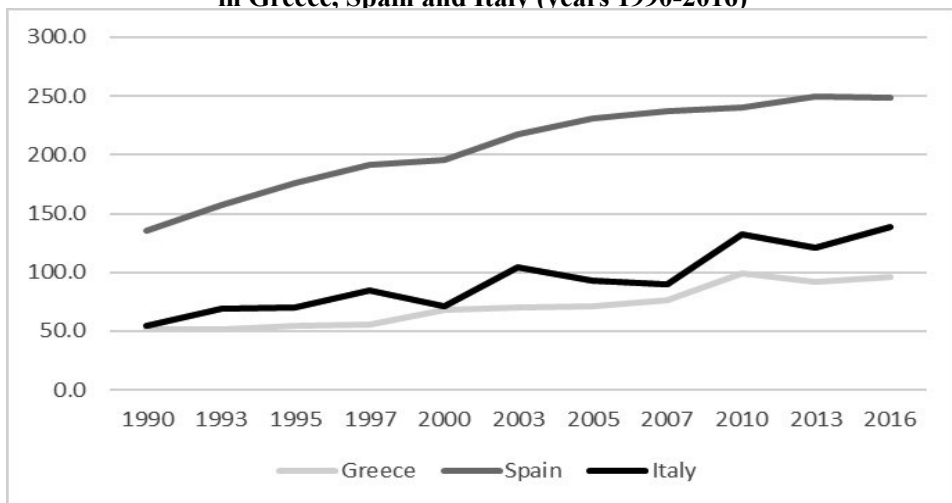
Goat heads	1985	2000	2003	2012	2016
Greece	5,874	5,180	4,926	4,293	3,990
Spain			3,200	2,637	3,088
Italy	1,189	1,373	945	976	1,026
Southern France				387	351

Source: EuroStat, 2016.

The recent restructuring of the sector has profoundly modified the size of the farms and of the flocks, thus redefining the nature of the work. A sharp separation exists today between the desk and the field levels. On the one hand, farm management deals with increasingly complex technical and administrative requirements, in order to be compliant with policy demands and financial support measures (Freve, 2015). On the other hand, the tending of the livestock has to account for herder working conditions, with significant increases in the shepherd’s tasks and responsibilities. Shepherding is intense and encompasses both physical labour as well as technical skills – ranging from climatology to botany, animal physiology and health, ethology of predators, etc. (Meuret, 2010; Nori, 2016). Most of the shepherd’s time is spent in harsh settings, with limited access to public services, scarce connectivity and few opportunities for socializing, leisure and alternative activities. Continuous mobility, daily milking and processing add further burdens to the daily tasks, while climatic vagaries and the growing presence of predators entail additional uncertainties.

FIGURE 1

Trends for average sheep farm size (average of sheep number for farm) in Greece, Spain and Italy (years 1990-2016)



Source: Nori & Farinella, 2020 – elaboration on EuroStat data.

In such framework, shepherding is therefore decreasingly attractive. As a result, pastoral systems in Mediterranean Europe are today severely affected by problems of workforce availability and generational renewal (Pastomed, 2007; Góngora *et al.*, 2019; Góngora *et al.*, 2020; Nori & Farinella, 2020). In order to deal with the scarce availability of human resources, an important reconfiguration of the shepherding workforce has been taking place, with a significant shift from family members to salaried ones, and eventually from local workers to foreign ones. As local youth seems decreasingly interested in working as shepherd, today large parts of the Euro-Mediterranean flocks and pasturelands are taken care of by foreign shepherds. Immigration has proved to be a strategic resource to contribute overcoming the current shortage of workforce in pastoralism; without immigrant workers, many pastoral farms today would not be in the capacity to operate.

3. Methodology

In order to examine the role immigrant shepherds play in enhancing the sustainability of Euro-Mediterranean pastoralism, two main tasks were accomplished within the framework of the TRAMed project: (i) investigation of the state-of-the-art in main Euro-Mediterranean settings, and (ii) in-depth analysis of the situation in a particular pastoral setting, the El Pallars region in the Catalan Pyrenees. The first task was undertaken through a comprehensive analysis of ongoing processes in seven pastoral regions in Italy (Triveneto, Piedmont, Abruzzi), Greece (Peloponnesus, Thessaly), Provence-Alpes-Côte d'Azur (PACA) region in France and Catalan Pyrenees in Spain. The methodology implied specialized literature review and fieldwork activities in each region, along the same lines applied for the Catalan case and described below.

The second task was accomplished through semi-structured interviews to stockbreeders and immigrant shepherds alike in the case study area in the Eastern Pyrenees (Figure 2). The region comprises approximately 191 sheep farms and 70,000 sheep heads (Idescat, 2018). Between November and December 2015, a total of 20 semi-structured interviews were conducted to stockbreeders, and 5 to immigrant shepherds. Sampled farms were chosen randomly, on the criterion that these somehow employed an immigrant shepherd. Overall, these represented about the 13 % of the total sheep farms in the region. The interviews to stockbreeders were designed to cover the following domains: number of animals raised, products and services commercialized, flock management pattern, profile of and relationship with the immigrant shepherds working in the farm, and finally future expectations. Concerning the interviews to immigrant shepherds, these were aimed to cover the following domains: background in their country of origin, description of the process and difficulties they encountered in working as salaried shepherds, analysis of working skills available and demanded, comparison between the hosting country and their country of origin, and finally future expectations. The data generated was processed through descriptive statistics.

4. Case Study

In order to shed more light on the contribution of immigrants to shepherding activities, and the potential implications in terms of generational renewal for pastoralism in the Euro-Mediterranean region, an in-depth analysis was undertaken in the El Pallars region. This region is located in the Eastern Pyrenees, in Catalonia, at the border between Spain, France and Andorra (Figure 2). This region covers 2,700 km², with a population of 20,000 inhabitants, distributed among more than 200 small villages. The great majority of these villages shelter less than 30 inhabitants. The overall population density is extremely low, with 7.4 people per km².

Although the character of the region is undoubtedly mountainous, it encompasses a wide diversity of landscapes, ranging from mountain peaks above 3,000 m.a.s.l., with an alpine climate, and forest and hay meadows of an Atlantic nature between 1,500 and 600 m.a.s.l., to cereal plains of a Mediterranean climate in the lower parts of the valleys. As a consequence of these geographical disparities, the region has been traditionally characterized by extensive animal rearing (sheep, cattle, horses and goats) in the Northern mountains and cereal agriculture in the larger fields of the Southern plains. These two portions were historically connected through transhumance, with animal grazing the communal alpine grasslands in summer and using the hay meadows of middle altitude lands for winter feeding; this practice has now been largely abandoned. While the pastoral activity is going through a process of increasingly extensive management (with lowering rates of labour per unit of land and livestock), the cereal plains are undergoing important forms of intensification.

Moreover, the abandonment of the pastoral activity is pervasive in the region, with a decrease of pastoral farms by 63 % between 1982 and 2018, from 1013 to 367 farms (Idescat, 2018). This process seems in line with overall regional trends (García-Ruiz *et al.*, 1996; Lasanta-Martínez *et al.*, 2005; Mottet *et al.*, 2006; López-i-Gelats *et al.*, 2011; López-i-Gelats *et al.*, 2015), and seems to indicate a pervasive shift from the primary to the service sector that concerns most European mountainous territories (ESPON, 2006; EuroStat, 2008). Since the 1990s the study area has in fact been affected by a tourism boom which has hinged on significant development of river recreational activities and the consolidation of ski resorts facilities. This seems as well in line with regional trends, as all over the Pyrenean regions the correlation between tourism development and agriculture abandonment is evident (Laguna Marín-Yaseli & Lasanta-Martínez, 2003).

However, the role of the pastoral activity in the maintenance of traditional landscapes and biodiversity as much as in the provision of high-quality products has recently been recognized and prized. This has materialised through agri-environmental subsidies for organic meat production – which involves more than half of the farms of the region (CCPAE, 2020) - and the establishment of vast Nature 2000 nature conservation areas, covering more than half the region surface (Idescat, 2018). In conjunction with the gradual environmentalization of the policy setting and the development of rural services provision, the emigration to cities that traditionally characterised these areas has been reversed, and new migratory flows in

the opposite direction are emerging – the so-called counter-urbanization (Paniagua, 2008; López-i-Gelats *et al.*, 2009). It seems that today both counter-urbanization and emigration coexist to the detriment of long-term residents. This entails that the local culture is more and more influenced by external elements (López-i-Gelats *et al.*, 2009). In view of all these trends, pastoralists are seeking to adapt to the emerging conditions by means of the adoption of different innovative practices, such as direct sale, specialization in raising only a single livestock species, substitution of sheep and cattle with horses, combining the pastoral activity with rural tourism, or different kinds of collective endeavours.

5. Results

Immigration and pastoral systems in the Euro-Mediterranean region: the cases of Greece, Italy, Spain and southern France

Existing literature in this domain is quite scanty, despite the relevant implications for sustainable development in inner and remote rural communities. The interest in immigrants' presence and relevance in countering rural depopulation is though growing (Sabater & García Álvarez-Coque, 2019). As reported by Nori (2016), the typical profile of the immigrant working as a salaried shepherd in Greece, Italy, Spain and Southern France, is that of a man, between 25 and 40 years old, and from a Mediterranean country (mostly Romania, Albania, Morocco, Macedonia, Bulgaria). Nonetheless the number of salaried shepherds coming from other regions is increasingly reported, particularly from Asia (Afghanistan, Pakistan, India), from sub-Saharan Africa (Ghana, Gambia, Senegal) or even from Latin America (particularly in Spain). History, language, and the networks of migrants have shaped the different migratory patterns. Romanians are mostly found in Italy and parts of Spain, Moroccans in parts of Spain and Southern France, Albanians and Bulgarians in Greece. Refugees from conflict areas are also at times employed as shepherds, with cases of Syrians in Lebanon and Turkey, and of Afghans in Turkey and Greece, and sub-Saharan migrants proceeding from Lybia in Italy and Spain.

Though not necessarily from pastoral areas, the large majority of immigrants comes from a rural setting and has direct experience in livestock breeding. Few come from urban areas, from where they have probably been expelled after the crisis in the construction sector. Socio-cultural differences aside (e.g. Orthodox or Muslim in predominantly Catholic societies), immigrant shepherds are generally appreciated for their technical skills, as well as for their endurance, flexibility and adaptability, in that they accept the working conditions and salary levels generally rejected by the local population. Younger shepherds are preferred as they are more likely to learn local languages and follow the indications.

Immigrant shepherds often arrive alone, but they are part of networks of neighbours or relatives. These networks represent strategic assets, as these enable shepherds working in distant and isolated locations to remain in touch with their mates, and to share information and opportunities, accordingly, including on job-related matters. Romanians workers are particularly known for their close and

effective networks, which can source workers and opportunities as needed. At times though these networks present problems of intermediation with exploitative mechanisms. Salary rates normally range between 600 and 1500 euros per month, for a full-time engagement, with extremely limited free time and little holiday. In addition to the salary, bed and board are mostly provided by the farm, though often associated to the sheepfolds. This arrangement enables farmers to underpay workers and to maintain forms of control on them (Farinella and Mannia, 2017; 2018). Immigrants' revenue is typically reinvested in their origin communities, such as to purchase family land and livestock, with the hope they would one day get back home. The contractual arrangements are often quite informal, partial, and precarious. Conditions of illegality, limited rights, scarce salary and poor living and working standards represent typical features of workers operating in this grey context, on the margins of a rural world that is already marginal on its own (Nori & Farinella, 2020).

The fact that a generational change is accompanied by a socio-cultural one is not new to the region (Table 2). Over the last century, Mediterranean pastoralism has witnessed Sardinians colonising abandoned pasturelands in central Italy, Southern Spanish shepherds moving to graze the Pyrenees, Northern Italian shepherds migrating to Provence and Switzerland, the moves of Vlachs and Arvanites flock and shepherds throughout Greece and Kurdish shepherds in several regions of western Turkey (Lebaudy, 2010; Meloni, 2011; Nori, 2016). These communities have substantially contributed to keeping pasturelands of destination countries populated, alive and productive.

TABLE 2

Recent migratory flows of shepherds through the Mediterranean

Destination	Origin of migrant shepherds				
	Late 1800	1950s	1980s	1990s	2000s
Provence	Italy and Spain		Morocco and Tunisia		Romania
Central Italy		Sardinia	Morocco, Tunisia	Albania, Macedonia	Romania
Pyrenees	Neighbouring valleys	Andalusia		Morocco	Romania, sub-Saharan Africa

Source: Nori and Farinella, 2020.

Greece

In Greece, the massive influx of immigrants from the 1990s following the opening of the borders with Albania has contributed significantly to the restructuring of the extensive livestock sector as much as to the social, economic and demographic life of mountain communities of the Epirus (Kasimis & Papadopoulos, 2005; 2010). Evidence attests that the entry of labour migrants into rural areas in Greece has been

a factor that has helped to ensure the reproduction of family farms (Papadopoulos & Roumpakis, 2009; Ragkos *et al.*, 2015). Due to the shortage of family labour, the hiring of immigrants has been strategic for the evolution of the large innovative and specialized dairy farms that have developed with the support of the CAP. The maintenance of the predominantly familiar character of the companies has been possible through the employment of foreign workers, which has allowed freeing domestic labour for other forms of employment and salary opportunities, often outside agriculture (Ragkos *et al.*, 2016).

Italy

In Italy, immigrants cover a large part of the salaried workforce in the pastoral sector. The increasing presence of predators has contributed to the reincorporation of pastoral work throughout the Apennines and the Alps (Nori & De Marchi, 2015). In Abruzzo, an area with an important pastoral tradition, official data recently indicated that 90 % of local salaried shepherds originate from Northern Macedonia or Romania (Coldiretti, 2010; Cicerchia, 2012). Immigrants play as well a strategic role in reproducing the dairy sector that characterizes traditional components of regional cultures (Lum, 2011). In Sardinia, the high involvement use of Romanian shepherds reflects the structural problems of the Sardinian sheep system, such as the low profitability of milk, the dependence on Pecorino Romano, as well as the difficulty of available local people to live and work in the field (Farinella & Mannia, 2017; 2018).

Southern France

In France, things are different. An important process of generational renewal took place in the 1970s, with the arrival of urban citizens who were looking for an alternative lifestyle in mountainous pastoralism. Politicians and local authorities saw in this phenomenon of counter-urbanization an opportunity to revitalize territories that ran the risk of abandonment. In 1972, a pastoral law was passed (Decree 72-12) to facilitate access to land, to provide incentives to organize businesses and shepherds and to distribute public investments; thus, setting the conditions for developing an enabling environment for pastoral farming (Charbonnier, 2012). Today in France those interested in the job of shepherding can find training opportunities in one of the five specialized schools in the country, and earn a salary up to two or three times higher than that of the colleagues from Italy, Spain or Greece. These conditions have allowed French citizens from all sides, levels, and social groups to engage as pastoralists over the years. However, today also in France, the sector is witnessing an increase in the presence of foreign shepherds, especially associated to the large meat flocks of the Provence region.

Spain

In Spain, immigration from a variety of countries has contributed to the labour reconfiguration of several pastoral systems (Table 3). In areas where predation is

encroaching, the presence of shepherds is becoming increasingly important to take care of the flocks. In the case of the North-eastern Pyrenees, immigrants constitute about half of the salaried shepherding workforce. Traditionally these immigrants originate from Morocco and Romania, but more recent trends indicate a growing presence of shepherds from Bulgaria, Ukraine, and increasingly Sub-Saharan and Latin-America. The ratio of immigrant shepherding workforce decreases to one in three workers in central Spain, in the Castillas, as well as in Galicia and Extremadura, where Portuguese workers are more likely to be found (Nori, 2017). Some of these workers have joined some form of training in one of the six pastoral regional schools established in the country.

TABLE 3

Presence of immigrant shepherds in different regions of Spain

Region	% immigrants on local salaried shepherds	Origin of most immigrant shepherds
Catalonia	55 %	Romania, Sub-Saharan Africa
Comunitat Valenciana	70 %	Morocco
Aragón	60 %	Morocco, Romania, Bulgaria
Andalusia	/	Romania, Sub-Saharan Africa
Castilla-León	35 %	Romania, Bulgaria, Portugal
Navarra	/	Romania, Bulgaria
Galicia	/	Portugal
Extremadura	/	Portugal

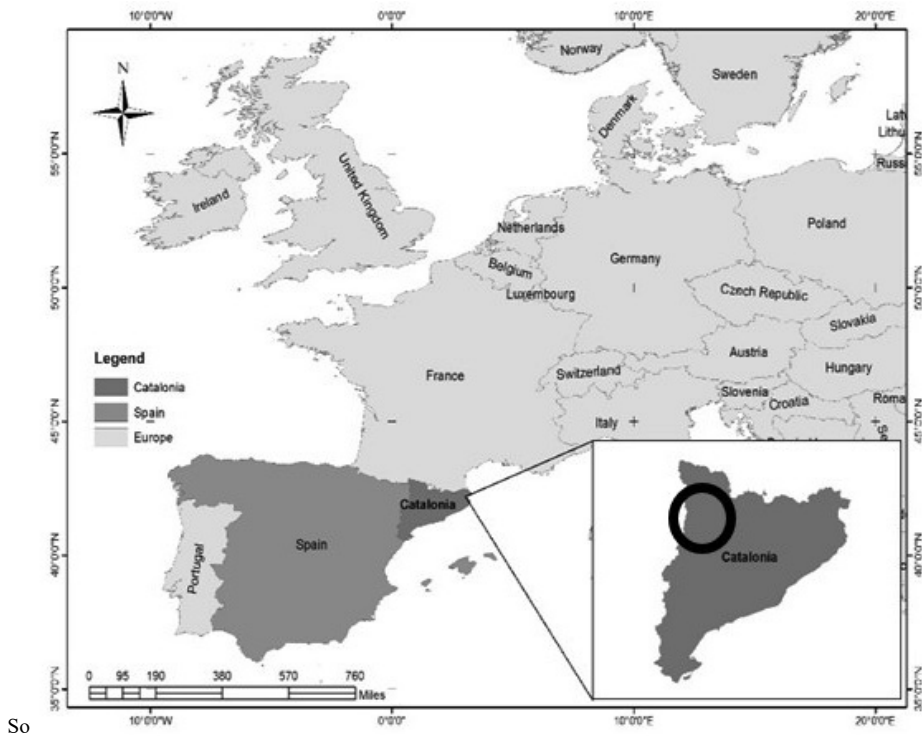
Source: Nori, 2017.

The case in the Eastern Pyrenees

The case study is located in the Eastern Pyrenees, in the El Pallars region. It fundamentally comprises the mountain counties of El Pallars Sobirà and El Pallars Jussà (Figure 2). Throughout 20 semi-structured interviews to stockbreeders and 5 semi-structured interviews to immigrant shepherds (see Table 4 and 5 for the main attributes of both), it was possible to identify the existence of two main types of pastoral holdings, taking into consideration the climate, the accessibility of lands and pastures, and the production of forage. The northern type, mainly located in the county of El Pallars Sobirà, and Northern Pallars Jussà, is characterized by: Access to communal pastures for 4-6 months in summertime; narrower valleys; occurrence of longer winters, and no production of cereals (making it more difficult to produce winter feed and thus to embark on fattening activities). The area enjoys a larger touristic potential, as it is closer to the highest mountain landscapes in the Pyrenees. This, in turn, opens the door for economic diversification, but it also widens the

opportunity cost of local labour and this might reduce the availability of workforce for pastoralism. The southern type, fundamentally located in the Southern part of the county of El Pallars Jussà, is characterized by: Lack of access to communal land and to its cheap summer feeding; and less harsh environmental conditions (larger Mediterranean influence), and consequentially larger yields. The Southern areas present with large availability of cereal production and thus more chances to be involved in fattening tasks and direct sale, while grazing areas are encroached by farming, infrastructure development and urbanization.

FIGURE 2
Case study region in the Catalan Pyrenees



So

However, for either types, a series of clear trends were identified that indicate the increasingly vulnerable situation pastoral systems are facing all over the Pyrenees. The decrease in the number of pastoral farms was widely reported by all interviewees; the consistency of the regional sheep flock has decreased steadily, while that of the regional cattle herd has though remained stable (i.e. less farms with more cattle). As a result of these decrease in livestock presence, grazing land has ceased to be a limiting factor, particularly in high-altitude areas. This points to the fact that the pastoral

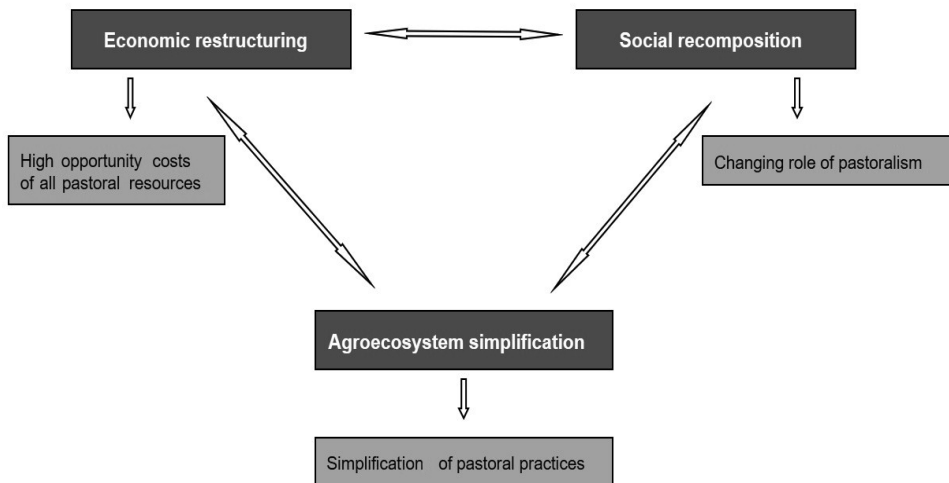
activity is becoming increasingly feasible with a less specialized workforce, as herds can be managed very extensively. This seems to have opened the doors to the arrival of immigrant shepherds, provided they are willing to accept the harsh conditions and the often-modest associated salary (Figure 4).

Another clear trend extensively reported by the interviewees is the near extinction of native shepherds willing to work on herds owned by other stockbreeders. This vacuum is being filled with the hiring of immigrant shepherds, with this trend reported as occurring in the region for the last 40 years at an increasing pace. Some local initiatives have addressed the scarcity of available local shepherds, as it is the case for the School of Shepherds of Catalonia, which has been operating in the region during the last decade to educate new shepherds and to provide adequate access to land for them.

The critical situation pastoralism is going through in the case study region is largely in line with what is going on in the rest of the Pyrenees (García-Ruiz *et al.*, 1996; Laguna Marín-Yaseli & Lasanta Martínez, 2003; Lasanta-Martínez *et al.*, 2005; Mottet *et al.*, 2006; López-i-Gelats, 2013), as well as in other European mountainous regions (MacDonald *et al.*, 2000; Strijker, 2005; Pastomed, 2007; Bernués *et al.*, 2011; Terres *et al.*, 2015; Suess-Reyes & Fuetsch, 2016). This seems to be the result of a series of complex trends that converge and that occur in the environmental, economic, and cultural spheres (Figure 3).

FIGURE 3

Main trends affecting Pastoralism in the Catalan Pyrenees



Source: López-i-Gelats (2013).

According to the specialized literature, the current context of a high risk of abandonment of pastoral activity is largely due to the combined effect of three main processes taking place conjointly. (i) An economic restructuring, illustrated by the high and increasing opportunity costs of the resources that pastoralists require to carry out their activity, be it labour, land, etc., mainly as a consequence of the cohabitation of pastoralism with other activities (López-i-Gelats *et al.*, 2011). (ii) A social and cultural recomposition on the role of pastoralism as a whole, which shifts its main focus from the provision of products (meat, milk and wool) to the supply of services. These in turn lead to (iii) the degradation of agro-ecosystems, illustrated by the abandonment and simplification of pastoral practices, specifically those with a greater need for labour and traditional ecological knowledge (López-i-Gelats *et al.*, 2015). This process is fundamentally led by the increasing presence of elements characterized by urban and non-agricultural values and interests in the local culture (López-i-Gelats *et al.*, 2009).

TABLE 4

Attributes of the stockbreeders interviewed in the Catalan Pyrenees

Variable	Results
Age of the stockbreeder	35-70 years, with an average of 54
Size of the herd	260-8,500 sheep; a third also had goats and a sixth also cows
Family tradition	In all cases except one, they come from a long family tradition
Pastoral continuity	Only in two cases it is guaranteed by the existence of children willing to continue
Nature of the income	In all cases, the main income derived from pastoral activity is generated by meat commercialization
Magnitude of the subsidies	The subsidies received average 33 % of the income
Organic production	55 % undertake organic production
Economic diversification	35 % have income sources other than livestock
Autonomy in forage production	On average, 87.5 % of the forage is produced by themselves
Number of immigrant shepherds working in the farm	It varies between 1 and 10.

Source: Own elaboration.

As reported by the immigrant shepherds interviewed in the region, the vast majority of them came in search of economic alternatives different from those available in their areas of origin. Although some of them had previous experience in extensive livestock rearing, the type of work they were looking for was not limited to this domain. Their mindset when deciding to emigrate was to earn a living and improve their livelihood, as

part of a short-term migratory project (Table 5). The majority do not think of remaining in the sector or in the country, as they all expressed their intention to return to their origin areas. The permanence in the area of destination is constrained by problems in accessing land, subsidies, credit and in enjoying basic rights. This determination of going back to their places of origin seems to be mitigated in those who came with their children or who were reached by their wife / family.

In the case study region, Romanian is currently the most abundant community amongst immigrant shepherds. In general, stockbreeders claimed that they prefer them because they tend to have larger herding experience than workers of other origins (Figure 4). However, it is also often noted that this experience tends to be in the management of flocks smaller than those typical in the study area and with more labour-intensive management than the one required in El Pallars, where open-air grazing is frequent, particularly in summer time in the alpine communal grasslands. At the same time, it is also stressed that the cultural distance between the locals and the Romanians is shorter than with shepherds originating from other areas (Figure 5). Regarding immigrants coming from Africa, the large cultural difference is a fact pointed by several stockbreeders as a notable challenge. However, stockbreeders also note that, despite the cultural distance, African immigrant shepherds are people who accept and follow rules more readily than others. It might be meaningful mentioning that most African immigrant shepherds interviewed reached Spain through small boats. Some immigrant shepherds from Latin America were also reported in the region, mostly without previous experience in pastoralism, and nonetheless with a good image among stockbreeders. In other parts of the Pyrenees, the presence of shepherds originating from Bulgaria and Ukraine has been also observed (Nori, 2017).

TABLE 5

Attributes of the immigrant shepherds interviewed in the Catalan Pyrenees

Feature	Results
Country of origin	70 % Romania, 10 % Brazil, 10 % Morocco, 5 % Gambia, Santo Domingo and Ecuador.
Contact	The contact with the stockbreeder was made by a colleague or acquaintance of another immigrant shepherd.
Salary	It varies between 600 and 1.500 €, with an average of 950 €.
Age	It ranges from 17 to 63 years, with an average of 37.5 years-old shepherds.
Return home project	The vast majority plans to return to the origin country.
Family	Those who came with children have a greater degree of integration and more willing to settle in the host region.

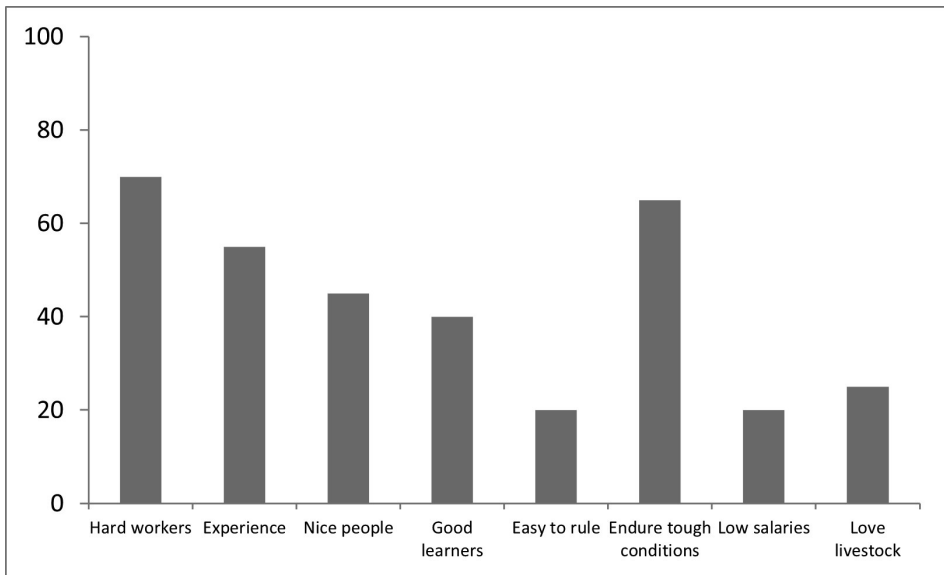
Source: Own elaboration.

Local stockbreeders argue that they prefer employing young immigrants, as they are more susceptible to learning Catalan and Spanish and more readily accept and

follow rules, which seem somehow more appreciated than the specific knowledge and previous experience in pastoral activity. Another quality that stockbreeders stressed they look for is rusticity, that is, the capacity of the worker to adapt to a hard lifestyle. “*They are like us 60 years ago*” is a widely repeated sentence.

FIGURE 4

Most appreciated skills of immigrant shepherds according to the stockbreeders of El Pallars (% of respondent. n=20)



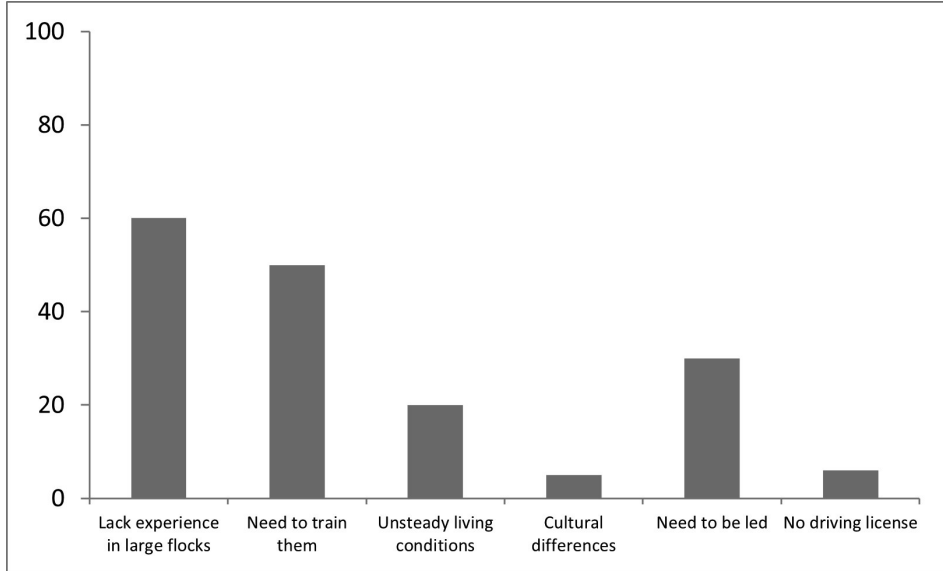
Source: Own elaboration.

Overall, despite some cultural differences and communication challenges, immigrant shepherds represent a crucial workforce for the pastoral sector in the region, being them technically skilled and at an accessible price for local stockbreeders.

Nevertheless, the impact of the presence of immigrant shepherds on the generational renewal of pastoralism in the region seems to be limited. The transition from hired labour to livestock ownership and entrepreneurial activity is scarcely reported and expected to occur in the coming years. Among the interviewees, only one reported that he was considering this option. This pattern weakens the overall capacity of immigrant shepherds to represent a strategic resource for the future of pastoralism in the region, other than representing a source of regular or sporadic labour force. Limited cases have been identified where immigrant shepherds engaged in establishing their own flocks and/or in cooperating with local stockbreeders, by sharing land, livestock, subsidies, and/or labour. This seems in line with similar dynamics observed in Sardinia by Farinella & Mannia (2017); Triveneto by Nori & De Marchi (2015).

FIGURE 5

Main challenges the immigrant shepherds pose according to the stockbreeders of El Pallars (% of respondents. n = 20)



Source: Own elaboration.

As also reported by Nori & Farinella (2020), the distinctive element that characterizes the current flows from those of the past - in the Catalan Pyrenees as much as in other Euro-Mediterranean regions - is the limited integration of immigrant shepherds into the pastoral sector. Differently from what has happened with previous migratory flows, today immigrant shepherds demonstrate a limited capacity and/or interest in graduating as stockbreeders and in stabilizing permanently in the host area. Over the course of time, most prefer to look for opportunities in other economic sectors, rather than becoming themselves livestock farmers. The limited formalization of contractual relationships, the low level of recognised rights and the limited prospects for socio-economic upgrading are interwoven drivers that characterize the conditions of immigrants in this sector, and their capacity to integrate and upscale. These add to a situation in which immigrant workers are already affected by difficulties in accessing land, credit, subsidy, and basic support services, and facing important cultural and administrative trouble. These rank amongst the most mentioned reasons for immigrant shepherds not to evolve in this profession.

6. Conclusions: immigrant shepherds between tradition, innovation, and change

Pastoralism is an activity with a long tradition in most of the mountains, inner and remote territories of the Mediterranean region, where other economic activities are less effective. However, pastoral systems have undergone substantial transformations over the years, particularly during the last decades, which have deeply modified the agro-ecological, institutional, economic, and human landscapes of these territories.

Paradoxically, while pastoralism is today increasingly appreciated by society for the high-quality products and services it provides, it is decreasingly practiced by Europeans. Intense demographic decline, land abandonment, lack of workforce and generational renewal, pose notable challenges to the sustainable future of pastoral territories.

Throughout the Euro-Mediterranean region these shortcomings are currently tackled through the growing presence of immigrant shepherds, who provide available and qualified labour, often at a low cost, to a sector that lacks human resources. Whichever the path pursued to cope with and adapt to sector restructuring – diversification, extensification, intensification - the contribution of immigrant shepherds is strategic for most pastoral farms, and critical for the resilience of extensive livestock production. Without them, many farms would present today even greater difficulties to continue in their activities, and many marginal and remote territories will suffer even higher rates of depopulation and desertification.

As illustrated above, the history of pastoralism is one of migration and change. The current arrival in Mediterranean Europe of immigrant shepherds from the East or from the South represents just another flow and step, in the scenario depicted by Braudel (1985) of mountains as “lands of migration” and the Mediterranean as a “mosaic of peoples”. However, under current conditions the generational renewal through immigrants that has characterised the recent past does not seem to be a viable option today. There are cases and practices of social innovation, in which young shepherds, immigrants or locals, invest, gather and share resources, risks and benefits; these cases are, however, limited, and only partially help to compensate for the loss of “territorial capital” that pastoral systems grant to society (Ostrom, 1990).

In order to maintain harsh territories and mountain communities alive and productive, an adequate policy frame needs to be elaborated and implemented accordingly. This should be aiming to improve the profitability of this sector, its attraction for new generations, as well as its ability to integrate workers from different levels, countries, cultures. Sustainable pastoralism cannot be just the result of a system of support and subsidies; it rather requires a setting that integrates agriculture and rural development with migration and labour market policies. More broadly, integrating the immigrant workforce in agricultural activities and in rural communities represents an unmissable opportunity to pursue the ‘smart, inclusive and sustainable development’ of rural areas, as promoted by the EU (2013).

References

- Bernués, A., Ruiz, R., Olaizola, A., Villalba, D. & Casasús, I. (2011). “Sustainability of pasture-based livestock farming systems in the European Mediterranean context: Synergies and trade-offs”. *Livestock Science*, 139 (1-2), 44-57. <https://dx.doi.org/10.1016/j.livsci.2011.03.018>.
- Braudel, F. (1985). *La Méditerranée: l'espace et l'histoire*. Paris: Arthaud-Flammarion.
- CCPAE. (2020). *Recull d'estadístiques del sector ecològic a Catalunya 2000-2019*. Consell Català de la Producció Agrària Ecològica. http://www.ccpae.org/docs/estadistiques/2019/00_2019_ccpae_recull-estadistiques.pdf.
- Charbonnier, Q. (2012). *1972 - La Loi pastorale française*. Avignon: Cardère Éditeur.
- Cicerchia, P. (Ed.). (2012). *Indagine sull'impiego degli immigrati in Agricoltura in Italia*. Rome: Istituto Nazionale Economia Agraria.
- Coldiretti, (2010). Complemento al *Dossier immigrazione Istat, 2010*. <https://www.coldiretti.it/archivio/istat-nelle-stalle-dove-si-ottiene-il-latte-per-il-parmigiano-reggiano-1-lavoratore-su-3-e-indiano-12-10-2010>.
- Collantes, F., Pinilla, V., Sáez, L.A. & Silvestre, J. (2014). “Reducing depopulation in rural Spain”. *Population, Space and Place*, 20(7), 606-621. <https://dx.doi.org/10.1002/psp.1797>.
- Colucci, M. & Gallo, S. (2015). *Tempo di cambiare. Rapporto 2015 sulle migrazioni interne in Italia*. Rome: Donzelli.
- Corrado, A., de Castro, C. & Perrotta, D. (Eds.). (2016). *Migration and Agriculture: Mobility and change in the Mediterranean area*. New York: Routledge.
- ESPO. (2006). *Territory matters for competitiveness and cohesion. Facets of regional diversity and potentials in Europe*. ESPON Synthesis Report III. Denmark: European Spatial Planning Observation Network. <https://www.globalurban.org/ESPO%20Synthesis%20Report.pdf>.
- EU. (2011). *EuroMed-2030: Long term challenges for the Mediterranean area*. Bruxelles: European Union, DG Research. <https://espas.secure.europarl.europa.eu/orbis/document/euomed-2030-long-term-challenges-mediterranean-area>.
- EU. (2010). *The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future*. Bruxelles: European Union, DG Agriculture. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52010DC0672>.
- EU. (2017). *Agricultural and Farm Economics Briefs. Report 15. Young farmers in the EU – structural and economic characteristics*. Bruxelles: European Union, DG Agriculture. https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agri-farm-economics-brief-15_en.pdf
- EuroStat. (2008). *Europe in figures*. Eurostat yearbook. Luxembourg: Eurostat.
- EuroStat. (2016). *Agriculture, rural development statistics*. Luxembourg: Eurostat.

- Farinella D., Nori M., Ragkos A., 2017. *Changes in Euro-Mediterranean pastoralism: which opportunities for rural development and generational renewal?* Key-note speech at the 19th European Grassland Federation symposium. “*Grassland resources for extensive farming systems in marginal lands: major drivers and future scenarios*”. Volume 22. Wageningen: Wageningen Academic Publishers.
- Farinella, D. & Mannia, S. (2017). “Migranti e pastoralismo. Il caso dei servi pastori romeni nelle campagne sarde”. *Meridiana*, 88, 175-196. <https://www.viella.it/rivista/9788867288601/3970>.
- Farinella, D. & Mannia, S. (2018). ““Mi chiamo Serban e non sono il romeno di nessuno, sono il romeno di me stesso”. Pratiche di assoggettamento e soggettivazione tra pastori sardi e servi pastori romeni”. *Etnografia e ricerca qualitativa*, 3, 405-426.
- Freve, E.R. (2015). “L'élevage ovin français: Entre finalité domestique et mission de service public, la transformation du métier de berger en Provence“. In Caraguel, B., Lebaudy, G. & Msika., B. (Eds.). *L'Alpage au pluriel – des éleveuses et éleveurs au présent des territoires alpins* (pp. 33-50). Avignon: Cardère Ed.
- García-Ruiz, J.M., Lasanta, T., Ruiz-Fanlo, P., Ortigosa, L., White, S., González, C. & Martí, C. (1996). “Land-use changes and sustainable development in mountain areas: a case study in the Spanish Pyrenees”. *Landscape Ecology*, 11, 267-277. <https://dx.doi.org/10.1007/BF02059854>.
- Gertel, J. & Breuer, I. (Eds). (2010). *Pastoral Morocco: Globalizing Scapes of Mobility and Insecurity*. Leipzig: University of Leipzig, Reichert Verlag.
- Gertel, J. & Sippel S.R. (Eds). (2014). *Seasonal Workers in Mediterranean Agriculture: The Social Costs of Eating Fresh*. United Kingdom: Routledge.
- Góngora, R., Milan, M.J. & López-i-Gelats, F. (2019). “Pathways of incorporation of young farmers into livestock farming”, *Land Use Policy*, 85, 183-194. <https://dx.doi.org/10.1016/j.landusepol.2019.03.052>.
- Góngora, R., Milan, M.J. & López-i-Gelats, F. (2020). “Strategies and drivers determining the incorporation of young farmers into the livestock sector”, *Journal of Rural Studies*, 78, 131-148. <https://dx.doi.org/10.1016/j.jrurstud.2020.06.028>.
- IDESCAT. (2018). *Anuari estadístic de Catalunya*. Barcelone: Generalitat de Catalunya. <https://www.idescat.cat/>.
- Kasimis, C. & Papadopoulos, A.G. (2005). “The multifunctional role of migrants in Greek countryside: Implications for rural development and society”. *Journal of Ethnic and Migration Studies*, 31(1), 99-127. <https://dx.doi.org/10.1080/1369183042000305708>.
- Kasimis, C., Papadopoulos, A.G. & Pappas, C. (2010). “Gaining from Rural Migrants: Migrant Employment Strategies and Socioeconomic Implications for Rural Labour Markets”. *Sociologia Ruralis*, 50(3), 258-276. <https://dx.doi.org/10.1111/j.1467-9523.2010.00515.x>.
- Kasimis, C. (2010). “Demographic trends in rural Europe and migration to rural areas”. *Agri Regioni Europa*, 6(21). <https://agriregionieuropa.univpm.it/it/content/>

- [article/31/21/demographic-trends-rural-europe-and-international-migration-rural-areas.](#)
- Laguna Marin-Yaseli, M. & Lasanta-Martínez, T. (2003). “Competing for meadows. A case study on tourism and livestock farming in the Spanish Pyrenees”. *Mountain Research and Development*, 23, 169-176.
- Lasanta-Martínez, T., Vicente-Serrano, S.M. & Cuadrat-Prats, J.M. (2005). “Mountain Mediterranean landscape evolution caused by the abandonment of traditional primary activities: A study of the Spanish Central Pyrenees”. *Applied Geography*, 25(1), 47-65. <https://dx.doi.org/10.1016/j.apgeog.2004.11.001>.
- Lazarev, G. (2008). *Territoires et Développement Rural en Méditerranée*. Montpellier: CIHEAM.
- Lebaudy, G. (2010). “Shepherds from Piedmont in Provence: career paths and mobility”. Proceedings of the XVI International Oral History Conference *Between Past and Future: Oral History, Memory and Meaning*. Prague.
- López-i-Gelats, F. (2013). “Is Mountain Farming No Longer Viable? The Complex Dynamics of Farming Abandonment in the Pyrenees”. In Mann, S. (Ed.). *The Future of Mountain Agriculture* (pp. 89-104). Berlin: Springer-Verlag Berlin Heidelberg.
- López-i-Gelats, F., Fraser, E.D.G., Morton, J.F. & Rivera-Ferre, M.G. (2016). “What drives the vulnerability of pastoralists to global environmental change? A qualitative meta-analysis”. *Global Environmental Change*, 39, 258-274. <https://dx.doi.org/10.1016/j.gloenvcha.2016.05.011>.
- López-i-Gelats, F., Milán, M.J. & Bartolomé, J. (2011). “Is farming enough in mountain areas? Farm diversification in the Pyrenees”. *Land Use Policy*, 28(4), 783-791. <https://dx.doi.org/10.1016/j.landusepol.2011.01.005>.
- López-i-Gelats, F., Rivera-Ferre, M.G. & Bartolomé, J. (2015). “Is multifunctionality the future of mountain pastoralism? Lessons from the management of semi-natural grasslands in the Pyrenees”, *Spanish Journal of Agricultural Research*, 13(4), e0307. <https://dx.doi.org/10.5424/sjar/2015134-6960>.
- López-i-Gelats, F., Tàbara, J. & Bartolomé, J. (2009). “The rural in dispute: Discourses of rurality in the Pyrenees”. *Geoforum*, 40(4), 602-612. <https://dx.doi.org/10.1016/j.geoforum.2009.04.008>.
- Lum, K. (2011). *The Quiet Indian Revolution in Italy's Dairy Industry*. Firenze: European University Institute.
- Macdonald, D., Grabtree, J.R., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Gutiérrez Lazpita, J. & Gibon, A. (2000). “Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response”. *Journal of Environmental Management*, 59(1), 47-69. <https://dx.doi.org/10.1006/jema.1999.0335>.
- Meloni, B. (2011). “Le nuove frontiere della transumanza e le trasformazioni del pastoralismo”. In Mattone, A., Simbula, P.F. (Eds.). *La Pastorizia Mediterránea* (pp. 1051-1076). Roma: Carocci.

- Meuret, M. (2010). *Un savoir-faire de bergers*. Versailles Editions Quæ «Beaux livres».
- Moreira, O., Carolino, N. & Beloet, C. (2016). “Climatic changes: Scenarios and strategies for the livestock sector in Portugal”. *Mediterranean Agriculture and Climate Change. Impacts, adaptations, solutions*. CIHEAM, Watch Letter 37. Montpellier. http://www.ipemed.coop/adminIpemed/media/fich_article/1475573427_wl37ciheamcomplet.pdf.
- Mottet, A., Ladet, S., Coqué, N. & Gibon, A. (2006). “Agricultural land-use change and its drivers in mountain landscape: A case study in the Pyrenees”. *Agriculture, Ecosystems and Environment*, 114(2-4), 296-310. <https://dx.doi.org/10.1016/j.agee.2005.11.017>.
- Nori, M. (2015). “Pastori a colori”. *Agri Regioni Europa*, 11(43). www.agriregionieuropa.univpm.it/content/article/31/43/pastori-colori.
- Nori, M. & De Marchi, V. (2015). “Pastorizia, biodiversità e la sfida dell’immigrazione: Il caso del Triveneto”. *Culture della sostenibilità*, VIII(15), 78-101. <https://dx.doi.org/10.7402/CdS.15.073>.
- Nori, M. (2016). “Shifting Transhumances: Migrations patterns in Mediterranean Pastoralism”. *Crise et résilience en la Méditerranée*. CIHEAM, Watch Letter 36. Montpellier http://wc3.iamb.it/share/integra_files_lib/files/WL36.pdf.
- Nori, M. (2017). “Bergers étrangers, une opportunité pour le pastoralisme Euroméditerranéen?” *Journal of Alpine Research | Revue de géographie alpine*, 105(4). <https://dx.doi.org/10.4000/rga.3544>.
- Nori, M. & Farinella, D. (2020). *Migrations, Agriculture and Rural Development. Mobility and migrations in European agro-pastoralism*. Migration Readers. International Migration, Integration and Social Cohesion (IMISCOE) Research Series. Cham, Switzerland: Springer. <https://dx.doi.org/10.1007/978-3-030-42863-1>.
- Ortiz-Miranda, D., Moragues-Faus, A. & Arnalta Alegre, E. (2013). “Research in Rural Sociology and Development”. In Ortiz-Miranda, D., Moragues-Faus, A. & Arnalta Alegre, E. (Eds.) *Agriculture in Mediterranean Europe. Between Old and New Paradigms* (Vol. 19). Bingley, United Kingdom: Emerald. [https://dx.doi.org/10.1108/S1057-1922\(2013\)0000019016](https://dx.doi.org/10.1108/S1057-1922(2013)0000019016).
- Ostrom, E. (1990). *Governing the Commons*, Cambridge: Cambridge University Press.
- Paniagua, A. (2008). “The environmental dimension in the constitution of new social groups in an extremely depopulated rural area of Spain (Soria)”. *Land Use Policy*, 25(1), 17-29. <https://dx.doi.org/10.1016/j.landusepol.2007.02.001>.
- PASTOMED. (2007). *Le pastoralisme méditerranéen, la situation et les perspectives. Modernité du pastoralisme méditerranéen*. Rapport final pour le programme Interreg III PastoMED. Montpellier.
- Papadopoulos, T. & Roumpakis, A. (2009). *Familistic welfare capitalism in crisis: the case of Greece*. ERI Working Paper Series. Bath: ERI, University of Bath.

- PLAN BLEU. (2001). *La démographie en Méditerranée. Situations and projections*. Paris: Economica. <http://hdl.handle.net/20.500.11822/1376>.
- Ploeg Van Der, J.D. (2009). *The New Peasantry. Struggles for Autonomy and Sustainability in an Era of Empire and Globalization*. London: Earthscan.
- Ragkos, A., Theodoridis, A., Fachouridis, A. & Batzios, C. (2015). "Dairy farmers' strategies against the crisis and the economic performance of farms". *Procedia Economics and Finance*, 33, 518-527. [https://dx.doi.org/10.1016/S2212-5671\(15\)01734-7](https://dx.doi.org/10.1016/S2212-5671(15)01734-7).
- Ragkos, A. (2016). "In search of strategies to face the economic crisis: Evidence from Greek farms". *South European Society and Politics*, 21(3), 319-337. <https://dx.doi.org/10.1080/13608746.2016.1164916>.
- Ragkos, A. & Nori, M. (2017). "The multifunctional pastoral systems in the Mediterranean EU and impact on the workforce". CIHEAM, *Options Méditerranéennes, Série A. Séminaires Méditerranéens*, 114, 325-328. Obtained from : <https://agris.fao.org/agris-search/search.do?recordID=QC2018600159>.
- Requier-Desjardins, M., Bessaoud, O., Issa, D., Berdagger, D., Ahmed, Z., Harbouz, R., Debrun, A., Dima, B. & Didier, A. (2016). "Une lecture de la crise migratoire: l'agriculture et le développement rural comme source de résilience dans les pays du Sud et de l'Est de la Méditerranée". CIHEAM, Watch Letter 36, *Crise et résilience en la Méditerranée*. Montpellier. <https://hal.archives-ouvertes.fr/hal-02155206>.
- Sabater, L.A. & García Álvarez-Coque, J.M. (Eds.). (2019). "Special issue: Facing of rural depopulation through interdisciplinarity". *Economía Agraria y Recursos Naturales*, 19 (1,2). <https://polipapers.upv.es/index.php/EARN/article/view/12020>.
- Sampedro, R. (2013). "Spatial distribution of foreign labor immigrants in rural areas: exploring the potential of towns and villages to retain them in the long run". *Proceedings of the XXV conference of the European Society for Rural Sociology*, Florence.
- Schrover, M., Leun Van Der, J. & Quispel, C. (2007). "Niches, labour market segregation, ethnicity and gender". *Journal of Ethnic and Migration Studies*, 33(4), 529-540. <https://dx.doi.org/10.1080/13691830701265404>.
- Strijker, D. (2005). "Marginal lands in Europe - causes of decline". *Basic and Applied Ecology*, 6(2), 99-106. <https://dx.doi.org/10.1016/j.baae.2005.01.001>.
- Suess-Reyes, J. & Fuetsch, E. (2016). "The future of family farming: A literature review on innovative, sustainable and succession-oriented strategies". *Journal of Rural Studies*, 47(A), 117-140. <https://dx.doi.org/10.1016/j.jrurstud.2016.07.008>.
- Terres, J.M., Nisini Scacchiafichi, L., Wania, A., Ambar, M., Anguiano, E., Buckwell, A., Coppola, A., Nordström, K., Pointerreau, P., Strijker, D., Visek, L., Vranken, L. & Zobena, A. (2015). "Farmland abandonment in Europe: Identification of drivers and indicators, and development of a composite indicator of risk". *Land Use Policy*, 49, 20-34. <https://dx.doi.org/10.1016/j.landusepol.2015.06.009>.

- Varela, E. Gorriz-Mifsud, E., Ruiz-Mirazo, J. & López-i-Gelats, F. (2018). “Payment for targeted grazing: Integrating local shepherds into wildfire prevention”. *Forests*, 9(8), 464. <https://dx.doi.org/10.3390/f9080464>.
- Zdruli, P. (2011). “Desertification in the Mediterranean”. *IEMed Mediterranean yearbook*. Barcelona: Instituto Europeo de la Mediterranea.