



Article

# Potential for Sustainable Development in the Southeastern Spanish Region of Guadix

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Abstract: The Southeastern Spanish Region of Guadix is a mainly agrarian territory located in the Granada province, which is in demographic decline and has low economic dynamism. Reversing such a difficult socioeconomic situation requires the implementation of policies capable of promoting demographic revitalization and fruitfully exploiting potential for sustainable development in the zone. Such policies must be based on an appropriate diagnosis of the existing problems. In order to provide elements to make said diagnosis, this research combines the use of quantitative and qualitative methods. Quantitatively, the evolution of demographic dynamics in the region have been analyzed, as well as its levels of occupation, education, its economic situation, or its environmental conditions. In this regard, correlation analysis, factorial analysis, and clustering have been completed with the aim of revealing internal territorial imbalances. A series of qualitative interviews with key actors has also been conducted. Finally, given the little success of development programs applied to date, among other things, it is concluded that a greater involvement of local actors in said programs is needed. Thus, these actors have to be involved in development policies, which in turn must take into account the socioeconomic, cultural, environmental, and geological resources available in the area.

**Keywords:** Southeastern Spain; demographic decline; peripheralization approach; low economic dynamism; potential for sustainable development; territorial imbalances; active social participation; rural development policies

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# 1. Introduction

The exodus of rural population to urban centers began to accelerate in Europe in the first decades of the second half of the 20th century. Many people, especially the younger ones, continue to migrate to the cities today in search of educational and job opportunities or higher wages that they cannot acquire in the countryside. Over the years, the exodus to the more dynamic and bustling urban centers, together with the negative natural population growth in the countryside, has led to a continuous and, it seems, unstoppable population decline in many European Union (EU) rural territories. This dynamic generates important disparities between regions of the same country. As a result, Europe today must tackle a situation in which many of its territories are in demographic decline and experiencing serious difficulties for their social and economic sustainability [1–5].

Particularly, in Spain, the phenomenon of rural depopulation has entailed demographic, economic, and territorial imbalances and worrying social problems in different rural areas, which as a whole are known as the 'emptied Spain' [6,7]. These areas, which undergo more or less pronounced processes of demographic decline and whose socio-economic dynamism is low, are quite widespread throughout the Spanish territory. Thus, in this region, 48% of the municipalities have a population density of less than 12.5 inhabitants per km², a threshold below which the EU considers to be low [8]. From 2011

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to 2017, almost 62% of the towns lost neighbors. However, people are leaving not only small towns, but regional head municipalities as well, such that 63% of cities with 20,000 to 50,000 residents have decreased in population in the last decade.

This demographic drop is usually accompanied by a constant falling-off in the weight of farming for the rural economy, which, in turn, usually entails a decrease in income from agriculture. This sort of deagrarianization of income sources occurs in a context in which we are witnessing highlighted trends towards the functional diversification of numerous rural environments [9–11], in such a way that the income of an appreciable number of their residents comes from other non-agricultural sectors such as tourism and services. This loss of weight in income from agriculture, while revenue from tourism increases, deepens the economic fragility of these areas. Thus, the situation in them is deteriorating even more in the current circumstances, in which the COVID-19 pandemic is strongly reducing returns from tourism.

Therefore, changes leading to a greater preponderance of tourism as a source of income to the detriment of agriculture do not always lead to an improvement in the living standards of the rural population, which, on many occasions, has seen such living and their working conditions worsen in the areas affected by said transformations [12,13]. Political institutions have repeatedly tried to face the problems of depopulation with measures for sustainable development from an economic, demographic, and environmental perspective. Regrettably, to date, these policies have often failed to solve these problems, nor have they managed to avoid their very negative consequences on the spaces where they occur, whose processes of demographic decline and low economic dynamism continue. All this occurs in a context in which the EU's development policies have not always been successful in adequately addressing the present challenges of its highly varied and increasingly economically diversified rural areas [14]. As a result of this, a very worrying situation arises, since the viability of many of these areas is threatened in terms of their potential to guarantee the safeguarding of the socioeconomic and environmental resources that make possible the present and future living conditions of people who reside in them.

Under these circumstances, we return to research on the Guadix Region, one of the Spanish rural areas affected by demographic and economic decline, which we already analyzed in 2014 [15]. The main motivation that has led us to re-study this region has been to find additional, more solid, and well-founded explanations of the reasons why it remains in demographic and economic decline. To this end, apart from updating the statistical information as much as possible, eliminating redundant parts of it, and adding new tables and figures, we have performed a cluster analysis. This analysis has enabled us to show that the municipalities making up the Region, far from being socio-economically and demographically homogeneous, show notable heterogeneities, inequalities, and internal particularities. Development policies must unavoidably take into account this situation if they aspire to act according to a realistic diagnosis of the different and varied local distinctiveness existing in the area [16]. Apart from this, we have better identified the historical, natural, geological, and cultural resources that constitute development potential for the area, which we have now re-analyzed using new bibliographic sources and theoretical frameworks. The authors hope that, as we approach this case study in the current article, it is not only helpful to know in depth the problems and potential for sustainable development in the studied zone, but also that it can serve as a possible theoreticalmethodological reference for the investigation of similar demographic and socioeconomic processes undergone in other Spanish or European settings.

Incessant demographic decline suffered for decades in the Guadix Region is strongly linked to its low level of economic dynamism and social welfare, which in turn cannot be explained without taking such decline into account [17]. The geographical location of this region within the Spanish Autonomous Community of Andalusia shows that it is within the zones classified as Objective 1 by the European Commission, that is, areas with a GDP lower than 75% of the European average, where the implementation of rural development

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policies is required to promote their progress, social cohesion, and balance with the rest of the areas.

The Guadix Region is a territory located in Southeastern Spain—specifically, in the central—eastern part of the province of Granada, bordered by Baza to the east, Los Montes to the north, La Vega de Granada to the west, and La Alpujarra Granadina to the south, as well as the Alpujarra Almeriense and the Filabres-Tarbernas in the southeast of Almería (see Figure 1). Due to its geographical location, and natural and geological resources, together with its unique landscapes, the Region constitutes a territory with its own characteristics that distinguish it from many others. This territory, whose environmental conditions are generally well preserved, is within areas declared as special conservation zones.

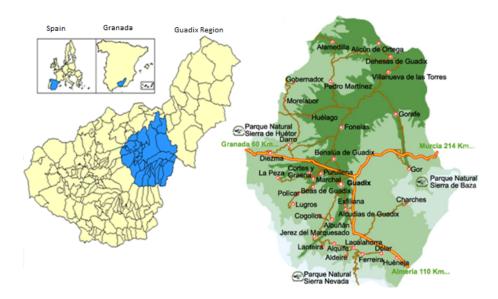
The Region is made up of 32 municipalities: Aldeire, Albuñán, Alicún de Ortega, Alquife, Beas de Guadix, Benalúa de Guadix, Calahorra (La), Cogollos de Guadix, Cortes and Graena, Darro, Dehesas de Guadix, Diezma, Dólar, Ferreira, Fonelas, Gobernador, Gor, Gorafe, Guadix, Huélago, Huéneja, Jerez del Marquesado, Lanteira, Lugros, Marchal, Morelábor, Pedro Martínez, Peza (La), Polícar, Purrullena, Vale del Zalabí, and Villanueva de las Torres. It is an area that has an average population density of 35.34 inhabitants/km<sup>2</sup>. Most of the municipalities that compose the Region (68.75%) do not reach 1000 inhabitants. Therefore, this is clearly a rural territory, in accordance with the criteria established by the Organization for Economic Cooperation and Development (OECD). In order to begin to reverse the difficult demographic and socioeconomic situation in which this territory has been for a number of years, the adoption of policies aimed at promoting its revitalization and sustainable development is necessary. These policies must be able to solve the problems in the Guadix Region; specifically, they must be appropriate to face the problems of each of the municipalities groupings obtained through the cluster analysis done for this research. In addition, political measures must be based on an appropriate diagnosis of the real situation that exists in the Region, characterized by its low demographic density, together with geographic isolation, reduced income levels, and the high significance of farming activity. In order to provide elements to make this diagnosis, the current article focuses on the analysis of the socioeconomic difficulties and the potential for sustainable development of this rural area in demographic decline.

#### 2. Materials and Methods

The core research objective on which this work is based was to analyze the evolution of demographic and socioeconomic dynamics in the area studied here, as an area subject to rural development policies. The territorial imbalances that exist among the municipalities within the Region were also studied, as well as the natural and geological resources that this zone has to ensure its socioeconomic and environmental sustainability and to enable its development from endogenous resources in line with said sustainability.

With these analytical purposes, we had previously collected a set of secondary data from various official statistical sources, such as the National Institute of Statistics (Instituto Nacional de Estadística, INE) in Madrid, the Institute of Statistics and Cartography of Andalusia (Instituto de Estadística y Cartográfica de Andalucía, IEA) in Sevilla, the Public Service of State Employment (Servicio Público de Empleo Estatal, SEPE) in Madrid, and the Andalusian Multiterritorial Information System (Sistema de Información Multiterritorial de Andalucía, SIMA) in Sevilla. From these sources, data referring to the physical environment, population, education, social, educational and health facilities, and occupation, economic (e.g., unemployment) and environmental information related to the Guadix Region were gathered.

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**Figure 1.** Location of the Guadix Region and details of its territory with its 32 municipalities and three natural parks ("Parque natural", in Spanish). Source: Association for Rural Development of the Guadix Region ("Associación para el Desarrollo Rural de la Comarca de Guadix", in Spanish).

The relevance of examining in detail the aforementioned data and/or information at the municipal level is that in this way internal territorial inequalities are revealed. Thus, although the municipalities studied here are all close, constituting part of the same territorial entity that comprises the Guadix Region where they are integrated, the fact is that their unequal levels of development show that the socioeconomic and demographic characteristics of this territory are not uniform [18].

As for the data analysis technique in this research, this is framed within those descriptive analyses that aim to specify the most important characteristics and profiles of those people, groups, communities, or any other phenomena that are subject to an investigation [19]. Specifically, in our case, we focused on the group of 32 municipalities that the Guadix Region contains, and on identifying, analyzing, and describing a series of variables referring to the demographic and economic reality of such municipalities.

Moreover, our research was based on the complementary use of quantitative and qualitative methods. Quantitatively, the evolution of the demographic dynamics in the Region was analyzed, along with its levels of occupation, education, its economic situation, and its environmental conditions. In this regard, correlation analysis, factorial analysis, and clustering were carried out with the aim of revealing territorial imbalances.

Moreover, we conducted qualitative interviews with key rural development agents, representatives of the Association for Rural Development of the Guadix Region, and different members of the main neighborhood and economic associations. These interviews were not conducted with the purpose of systematically analyzing the content of their answers, but with the objective of gathering information from the interviewees about the socioeconomic and demographic situations of the Region and about the problems and possibilities that arise from them. All this information was useful to us when deciding on which topics our research would be focused, and on the design and planning of the analytical strategy by which we would approach those topics.

#### 3. Results

3.1. Statistical and Theoretical Diagnosis of a Problematic Socioeconomic and Demographic Situation

When analyzing demographic dynamics in the Guadix Region, we observe how there has been a constant decline in its population over the last decades. This trend began long

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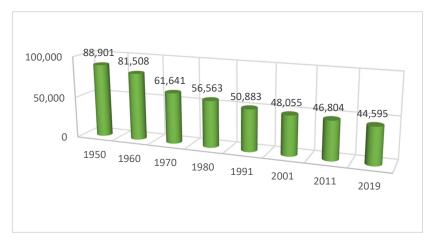
ago, going back to the sixties of the 20th century. Modernization processes, undergone since then in Spain, led to a growing rural exodus. Particularly with regard to the Guadix Region, in the period 1950–2011, the population of the area decreased by 48.31% [20]. As can be seen in Figure 2, the largest population decline took place between 1950 and 1970, but from then on until 2019, the population loss, although it has occurred with less intensity, has been constant.

The continuous loss of population is explained, to a great extent, by the outmigration movements that occur in the region. Such movements are carried out most of the time by the working-age population due to the great difficulty in finding jobs in the area.

Under these circumstances, there is an aging trend in the population structure, in which people aged 65 and over predominate. This is occurring while the Region's proportion of the young population is decreasing, with a youth rate of 9.55, according to the Quarterly Report on the Employment Situation of June 2020 [21]. As can be seen in Figure 3, this is a slightly lower youth rate than that of the province of Granada (10.78) and that of Andalusia (10.59). The youth rate is the number of young people between 15 and 29 years old per 100 inhabitants.

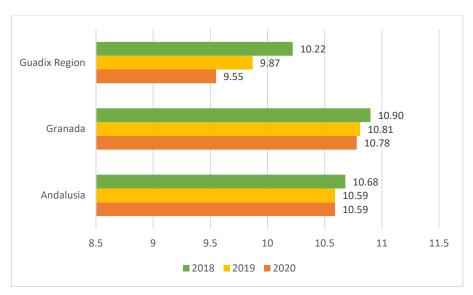
The progressive increase in the population over 65 years old and the gradual reduction in the number of young people is due, above all, to the fact that there are fewer and fewer women at childbearing age in the area—that is, between 15 and 49 years old.

As a consequence of both the progressive rise in the aging index of the Region and the persistent reduction of the youth population within it, there has been an increase in the crude mortality rate, and it is to be expected that this trend continues to be highlighted. The Aging Index refers to the number of elders (people aged 65 and over) per 100 persons younger than 14 years old. This index increases as the population ages. The said trend, together with the high dependency index that exists in the region, contributes to accentuate pessimism. Such index, which measures the dependent population in relation to the working-age population, reaches, in the Region, values of more than 10 points above the provincial and regional average (see Figure 4).



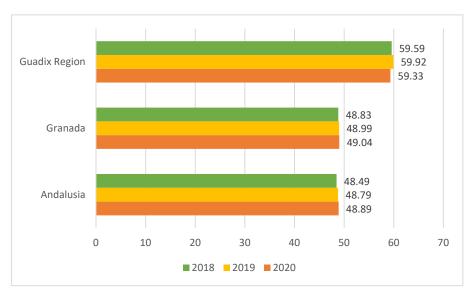
**Figure 2.** Evolution of the population in the Guadix Region (1950–2019). Source: Authors with data from the Statistics National Institute (Instituto Nacional de Estadística, INE, in Spanish). Population in 2019 is the sum of the population figures provided by the municipal registers of the 32 municipalities that the Region has.

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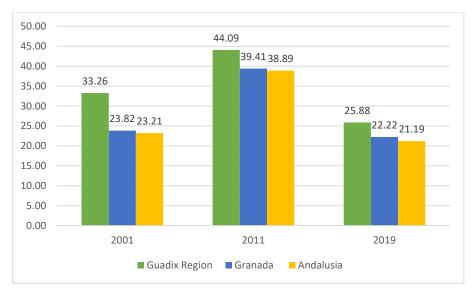
**Figure 3.** Comparison of the youth rate among the Guadix Region, Granada province, and Andalusia (2018–2020). Source: authors with data from the "Argos Observatory", belonging to the Andalusian Employment Service (Servicio Andaluz de Empleo, SAE, in Spanish).

To the high number of dependent persons, we must add the low socioeconomic dynamism of the area, in which there have been high joblessness rates over the last decades. In particular, unemployment, which has been especially high among the female population, has continued to increase since June 2019 (see, respectively, Figures 5 and 6).



**Figure 4.** Comparison of the dependency index among the Guadix Region, Granada province, and Andalusia (2018–2020). Source: authors with data from the "Argos Observatory", belonging to the SAE.

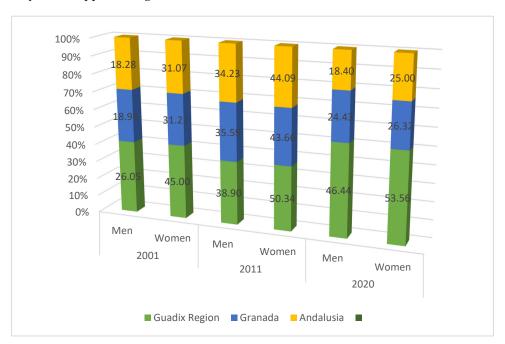
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**Figure 5.** Comparison of unemployment rates (in percent) among the Guadix Region, Granada province, and Andalusia. Source: authors with data from the Sistema de Información Multiterritorial de Andalucía (SIMA).

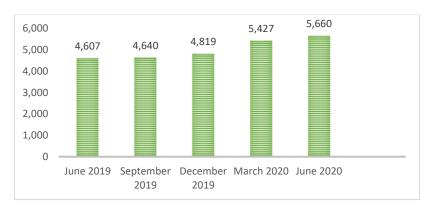
Thus, since June 2019, there has been a progressive increase in the number of unemployed jobseekers, whose growth rate has intensified especially from January to June 2020 as a consequence of the serious socioeconomic crisis that the COVID-19 pandemic has entailed.

The magnitude of the employment problem in June 2020 is evidenced by the fact that the number of jobseekers in the Region is only surpassed by those that occurred in September 2012, with a number of jobseekers of 9034. We mention these data here, because they do not appear in Figure 7.



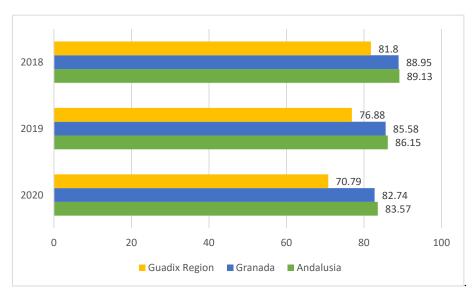
**Figure 6.** Unemployment rates (in percent) by sex in the Guadix Region, Granada province, and Andalusia. Source: authors with data from the SIMA and the "Argos Observatory", belonging to the SAE.

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**Figure 7.** Number of unemployed jobseekers in the Guadix Region. Source: authors with data from the "Argos Observatory", belonging to the SAE.

Unemployment constitutes one of the Region's most important problems, being a factor that negatively affects its development and the lives of people who inhabit it. Moreover, another indicator that shows the low degree of socioeconomic dynamism in this zone is the active population renewal index. The active population renewal index is calculated by dividing the population between 15 and 24 years old by the population between 55 and 64 years old and multiplying this ratio by 100. That is, this index is expressed in percentages. Particularly, in the Region this index is clearly below the threshold of renewal. In addition, the average of the index in the region was more than 10 points below the averages in June 2020 for the Granada province and the Andalusian autonomy (see Figure 8).



**Figure 8.** Comparison of active population renewal index (in percent) among the Guadix Region, Granada province, and Andalusia. Source: authors with data from the "Argos Observatory", belonging to the SAE.

All the aforesaid paints an unfavorable picture for the socioeconomic sustainability of the Guadix Region, in which there are deep territorial imbalances in several of its economic indicators, such as the income level, the number of business licenses per 100 inhabitants, and the number of social, health, and educational facilities. More similar evolutionary trends are shown by demographic indicators; however, in this respect, appreciable differences are observed between, on the one hand, municipalities with a younger population structure such as Purullena and Benalúa, with greater economic

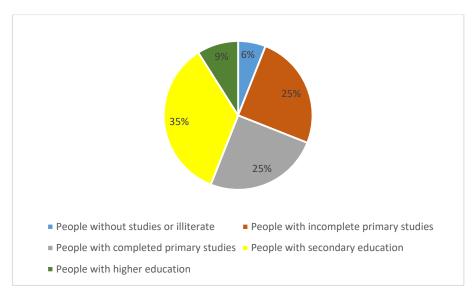
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dynamism, and, on the other hand, municipalities with deeply aging population structures such as Gor, which undergoes heavy population losses.

Furthermore, the population structure of the Guadix Region is masculinized, which occurs despite the fact that the proportion of people over 65 years old is significantly high and the fact that, in this population segment, there is a greater presence of women than men due to the difference in life expectancy between both genders (generally longer in women). Despite this structure of the population aged 65 or over, a marked process of demographic masculinization is observed in the Region, such that in 2013 there were 103 men for every 100 women. This masculinization persists in the current population structure. Thus, in 2019, according to data from the SIMA, the Guadix Region had a population of 22,282 men and 21,731 women, which is equivalent to a ratio of 102.5 men for every 100 women. However, on that same date, the municipality of Guadix itself had 9120 men and 9302 women; thus, there was a ratio of 102 women for every 100 men. This is most likely due to the fact that, as this municipality has many more inhabitants than the rest of the region, it offers greater opportunities to find non-agricultural jobs for women in other economic activities, such as the service sector. In any case, there is a clear gender gap in the Region with regard to job-finding opportunities, in such a way that, according to June 2020 data from the "Argos Observatory," female unemployment is 31.67% higher than the unemployment rate for men with the same education level. Therefore, we have in the Guadix Region the manifestation of a demographic behavior that has been and is quite widespread in many rural areas. This behavior was already shown by the theory of the rural-urban continuum elaborated by the sociologists Sorokin and Zimmerman [22], who in 1929 maintained the thesis that the population structures of rural areas are masculinized due to the selective migration of women.

The aforementioned trend towards demographic masculinization reflects inequalities produced in the labor market, in terms of occupation, in such a way that the most masculinized municipalities tend to be those with the highest percentage of their population employed in agriculture over the total jobs available. This has to do with the fact that many of the jobs traditionally related to agriculture have been linked to male roles, which is in line with the thesis held by the Danish economist Ester Boserup [23]. In the case studied here, the municipalities with the highest proportions of the male population in 2013 and 2019 are precisely the same ones that have very high percentages of their population working in agriculture. Among these municipalities, Cortes y Graena, Gor, Morelábor, Lanteira, Lugros, Villanueva de las Torres, Cogollos de Guadix, Aldeire, and Fonelas can be mentioned.

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**Figure 9.** Population distribution by educational level. Source: authors with data from the quarterly report of the "Argos Observatory" (belonging to the SAE) published in June 2020.

In the Guadix Region, 50% of the population has only primary studies (complete or incomplete). Schooling levels in this territory are relatively low, and it seems that, on many occasions, the distance from homes to educational centers, together with the pressure to join the family business and the lack of economic resources, make an early departure from the school system. This explains the worrying persistence in the region of that social scourge that is illiteracy, in such a way that 6% of the population in the area aged 16 and over has no education or is illiterate, while the proportion of people in this age group who have higher education (diploma or degree) does not reach 10% (See Figure 9). Consequently, it seems that, in this rural setting, as often happens in so many other similar rural contexts around the world, the functionality of pursuing higher education is not clearly perceived. The acquisition of these studies is seen as a means of leaving the town. For this reason, people who do not intend to do so most likely will not pursue higher education. Therefore, the population's education levels are closely linked to the demographic and occupational structure of rural communities [24].

Thus, a relationship between the income level from business activities per inhabitant and the population's education level can be seen in the studied area (see Table 1). In turn, the income level from business activities seems to be closely linked to the illiteracy rate in the Region. Therefore, there are higher incomes from business activities in those municipalities with the highest proportion of illiterate people. This can be explained mainly because the income from business activities is from companies engaged in construction or the transport of goods or is related to manual jobs, for which less academic training is needed and which, more frequently, are occupations that are the lowest paid, done by people with low or no educational level.

**Table 1.** Contingency table: Illiteracy rate in relation to income from business activities per inhabitant (chi-square: 0.035). Source: Authors with data from the 2001 and 2011 population and housing censuses and the "Argos Observatory". **Note:** Although the results of the coming 2021 census are still pending, the information available suggests that no significant changes will be experienced.

Recorded Illiteracy Rate		Income from Business Activities per Inhabitant Recoded					
		Up to EUR	147 EUR 148–231	EUR 232–305 EUR Mo than 30		- Total	
Less than 4%	%	50.0%	14.3%	22.2%	12.5%	25.0%	
4–6%	%	25.0%	57.1%	33.3%	25.0%	34.4%	
More than 6%	%	25.0%	28.6%	44.4%	62.5%	40.6%	
Total	%	100.0%	100.0%	100.0%	100.0%	100.0%	

The low education levels, together with a high unemployment rate (25.88% in 2019) and the preponderance of low-skill occupations, reveal the fragility of the labor market in the Region. In it, in line with the demographic disparities of its municipalities, socioeconomic dynamism manifests itself in an unbalanced way, showing the existence of centripetal forces in the territory, according to which everything seems to revolve fundamentally around the nerve center of Guadix and its surroundings, in contrast to those other territories more distant and/or isolated from that center, characterized by demographic decline, with serious repercussions for their socioeconomic and environmental sustainability [25].

Moreover, we have verified how the indicators related to the demographic and socioeconomic reality of the Region show parallel trends and are closely correlated with each other. In this way, it becomes clear that, in this rural area in decline, four aspects influence each other. The low socioeconomic dynamism corresponds to the marked tendencies towards depopulation, the isolation of certain municipalities, their low levels of education, and the low qualification of the work demand existing in the labor markets [26]. These depopulation processes in the Guadix Region are framed in the context of the rural exodus processes undergone in many European rural spaces over the last 50 or 60 years. Diverse Spanish rural areas have not been an exception in this exodus, although with differences in time and intensity [27].

What is worrying about said processes is that they are not mere manifestations of residential mobility, which is rising greatly in today's increasingly globalized rural and urban societies. There are many more people and even entire families leaving the rural areas affected by this population exodus than there are outsiders who decide to settle within them. One consequence of this is the deep demographic declines that this entails for such areas, which, without a doubt, is closely related to the lack of opportunities to live in these territories, along with the great socioeconomic and service deficiencies that make residing in them somewhat difficult and undesirable.

We hold here that the aforementioned socioeconomic and demographic aspects constitute an interrelated whole. Above all, because it is difficult to elucidate whether, for instance, the existing territorial imbalances in the Region are, to a greater extent, due to demographic or socioeconomic causes. Faced with this situation, we consider that this joint and interrelated view of such aspects, together with taking into consideration the crisis and rural decline that all this manifests, would correspond to what has been called the local devitalization circle [28], through which it is explained how a certain demographic imbalance leads to a parallel socioeconomic, cultural, labor, etc., imbalance, and vice versa. This creates in the areas affected by the said devitalization circle a situation of territorial imbalance with those areas where economic, social, and labor indicators reveal a more beneficial social reality.

To sum up, we have here a case of a rural area trapped in a kind of vicious circle of underdevelopment, whose processes of decline, problems, and expectations are a paradigm of what happens in many other rural areas around the world, which, despite the potential of its natural resources and economic possibilities, are being seriously impacted as a consequence of the dominant global trends towards deagrarianization and the increasing outmigration of their populations to urban centers.

The aforementioned vicious circle reveals the peripheral position that the Guadix region occupies. In other words, the situation of this region represents a typical manifestation of what has been called peripheralization — that is, a circumstance as a result of which those areas that have good economic and demographic indicators attract material and human resources that contribute to improve them even more. In contrast, areas in economic and demographic decline, such as the Guadix region, often find it difficult to overcome their lag. This is because their situation usually leads to them being viewed, in a pejorative way, as unattractive in terms of investment in them and, even more, unappealing to carry out satisfactory life projects within them. The position of these marginal peripheries is produced and reproduced through a series of processes that encompasses the following four dimensions: outmigration, disconnection, dependency, and stigmatization [29,30]. Such peripheralization is a widespread phenomenon involving many other regions from Europe and the rest of the world. These regions suffer a demographic decline as a consequence of selective outmigrations that cause them to lose the younger population—that is, those that they most need for their sustainable endogenous socioeconomic development. The shortfall of human capital caused by this brain drain of the youngest hits the small- and medium-sized enterprises (SMEs) hardest, as they depend more on the availability of local skilled workers. The loss of the youngest continues to be suffered with particular intensity in the case of the Guadix region, in which in 2019 the migratory balance was equal to -1247—that is, there were more people that outmigrated than there were that immigrated. This situation has serious repercussions on the rates of dependent population and on the renewal of the workforce.

Among the general causes of this outmigration phenomenon, some authors argue that the education system is 'designed for those who leave' [31], fostering an exodus of the rural world and 'sacralizing the values and forms of urban life' [26] (p. 51). In relation to this sacralization, others authors point out that rural outmigrations occur to escape social control and the lack of existing socioeconomic progress in rural areas, and they are simultaneously motivated by the search for enlarged personal freedom that urban lifestyles are supposed to provide [32]. Whatever the reasons, the truth is that the rising demographic decline in peripheral rural areas contributes greatly to hindering their possibilities for endogenous development, that is, development based on local initiatives. As shown in the case studied here, these selective outmigrations occur, above all, because a large number of young people feel that there is no future for them in their regions of birth. The wide generalization of this perception among young people is closely related to the processes of economic polarization and peripheralization experienced in such regions [30], in which there is a lack of attractive jobs. This is due to causes such as the industrialization of agriculture, deindustrialization, and the withdrawal of public and private sector services as the population decreases and their provision becomes unprofitable [33]. In this way, a combination of economic restructuring and outmigration takes place in these peripheral rural societies, as a result of which a downward spiral is set in motion. All this causes a demographic shrinkage, alongside a disintegration of such societies and a decline in their quality of life [34].

The relationships between, on the one hand, the phenomenon of polarization and peripheralization and, on the other, outmigrations are reciprocal. In other words, both phenomena inter-influence, and each one contributes to their mutual production and reproduction, thus giving rise to that sort of vicious circle referred to above, from which many see no way out and because of this they decide to outmigrate. In particular, the process of demographic decline and masculinization suffered by the Guadix Region,

which is a symptom and a cause of this fatal cycle, is not exclusive to this area, but rather a fairly widespread phenomenon. This phenomenon reveals how a series of economically remote and peripheral weak European regions are being impacted by age- and gender-selective outmigrations. As a consequence, uneven sex-ratio demographic structures are taking place, in which a decrease in the proportion of young women is observed [35].

Given the fact that it is a common feature of diverse rural regions in different advanced industrialized societies, the phenomenon of sex-selective outmigration has been addressed by studies from diverse world countries [26,33,36]. The aforementioned uneven sex-ratio demographic structures seem to be due to the fact that, while women and men with higher education are usually more mobile, women with lower education levels are much more likely to leave rural areas than men who are in the same educational situation [26].

As a result of peripheralization, there is a "gradual weakening and/or uncoupling of the socio-spatial development in a given region vis-à-vis the dominant process of centralization" [29] (p. 257). On the opposite side to peripheralization is centralization, which manifests itself as the tendency toward the concentration of people, wealth, economic power, and infrastructure in urban zones or in their metropolitan areas at the expense of predominantly rural regions. Hand in hand with this, the processes of demographic decline in rural areas occur, which is what happens when the population more often tends to choose to live in urban areas. This usually leads to a growing specialization of once multifunctional regions that end up focusing on a restricted number of uses and activities.

Let us now see what the four dimensions of peripheralization mentioned above mean and imply. In the first place, with regard to outmigration, this is shown as a kind of 'demographic peripheralization' that manifests itself as a tendency of certain population sectors (basically young people as indicated above) to leave these declining rural areas to go to live in cities. Secondly, disconnection has to be understood in the sense that rural societies in economic stagnation and demographic decline are peripheral societies that suffer from what can be conceptualized as an infrastructural peripheralization, and they are usually outside the influence of the information society. Third, the dependency dimension means that the peripheral area occupies a marginal and/or subordinate position within certain superordinate networks. Finally, stigmatization can be interpreted as a sort of 'discursive peripheralization'. In relation to this, Tim Leibert and Sophie Golinski believe the following:

"Stignatization is the root cause of the consolidation of peripheralization. The perception of a given region by its inhabitants and by external stakeholders (e.g., national politicians [and] potential investors) does influence location decisions of all sorts: Whether to leave or to stay, whether to (dis-) invest, [and] whether to establish, maintain or abandon services of general interest. In discourses on rural peripheries it is sometimes claimed that the negative consequences of peripheralization are results of a failure of local governments and civil societies. One example is the notion of 'lost regions'" [29] (p. 263).

These are regions where one cannot find 'innovators' who are working with the purpose of creating a future. However, the truth is that, in Spain, in particular in the case of the Guadix region, this stigmatization no longer exists in the way it has just been described, but quite the opposite, because, as we show in other part of this work, in this Region, we are seeing those tendencies toward the mythification of the rural world that are so characteristics of the so-called new ruralities. Such ruralities have been increasingly spreading in many advanced countries, including Spain, since the 1990s. Therefore, actually, stigmatization was more characteristic of traditional Spain during the 1960s and 1970s in the last century, when a massive rural exodus to the cities took place in this country, and many identified rurality with the rustic and the backward, compared to urban life, which they associated with socioeconomic and cultural progress and development. The fact that this rural exodus, which has also occurred and continues to

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take place in different parts of Europe and the world, has mainly been led by the young and highly qualified workers further hinders the economic performances of rural regions [37]. However, we reiterate that this phenomenon no longer entails in Spain that sort of stigmatization and/or negative image of rural life as it happened in the 1960s and 1970s. On the contrary, the authors of this work have been able to observe, both in the interviews carried out and in our own analysis of the situation (especially among people from the Guadix region who have outmigrated or are planning to do so), a feeling of doom, a sensation that, within said territory, there is no possibility of improving vitally and socioeconomically and that consequently it is necessary to outmigrate. Of course, neither this fatalism nor the spatially peripheral position of the Guadix region with respect to the capital of Granada or of the most backward municipalities of that region with respect to the municipality of Guadix, which is its regional head, is enough to explain the demographic decline and economic stagnation in the area, as well as the difficulties of escaping this situation. We believe that the problem of this region, as well as that of many other rural areas in our country in similar circumstances (i.e., 'emptied Spain'), is better understood if it is framed in the context of territorial imbalances and socioeconomic peripheralizations (which in the end entails a certain exclusion, dependency, and disconnection) that are caused or exacerbated by the capitalist market economy. For this reason, if demographic and socioeconomic processes are left exclusively to the market's discretion, not only are these imbalances and problems not usually solved, but they even worsen and intensify. To face such problems, public policies based on the most correct possible diagnosis of the situation are needed (we hope with this article to contribute to improving this diagnosis). Such policies have to be clear about how, in the specific case of the Guadix region, its socioeconomic peripheral situation is produced and reproduced and, based on this, must define their objectives realistically and pragmatically. In this regard, it must be recognized and emphasized that there are already strong policies on the part of local municipal governments, the Association for Rural Development of the Guadix Region, the Granada Provincial Council (Diputación de Granada, in Spanish), the government of the Andalusian Autonomous Community, and other local and provincial institutions (for example, the promoters of the Geopark, mentioned later) aimed at valuing the autochthonous resources and potential of the Region and at promoting development. The question of why such policies have so far not achieved significant success should be answered taking into account the fact that it is still early days. It is necessary to wait more before making evaluations, since policies on these shrinking rural regions require a more medium- or long-term vision. In other words, regarding processes such as demographic decline, policy responses have to be patient and accept that advancement will be slow. While politically challenging, this situation requires adopting models of political governance with a clear and realistic view of their operational objectives and long-term resources. Moreover, public policies for shrinking rural areas must be suitably led, clearly committed to the cause they propose, and, above all, they must incorporate the cooperation of local, regional, and inter-municipal actors and other stakeholders in their programs and projects. In turn, these programs and projects must be developed in line with the fact that shrinkage strategies need to be far-seeing, as well as coherent and holistic. All this is with the aim that such strategies are capable of addressing all of the economic, social, and environmental issues linked with depopulation, and not focused merely on economic development or growth [34]. These issues are addressed in a more successful and efficient way if they are implemented by and from local governments, since these are the actors that are best suited to decide what is appropriate in each local context. For this reason, the local governance level is of crucial importance [34]. It is at this scale of government where the integration of development strategies offers the greatest potential to tackle the problems associated with shrinkage [38]. Above all, because this shrinkage takes specific forms in each different territorial context, and each local situation is unique. In order to face that uniqueness, the local governments of each specific context are the

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ones that are best prepared, since they know in depth the situations and the problems they have to face in their particular case [39].

Nevertheless, the need for autochthonous and endogenous development led by local governments does not mean that responsibility for it should be left exclusively in the hands of local authorities. Above all, because the municipalities that have the greatest need to develop governance strategies to cope with depopulation are usually also those who have the least capacities to design and implement comprehensive, long-term policy responses to the problems that afflict them [37]. In particular, with regard to the case of the Guadix region, beyond municipal authorities, state and European policies, as well as those of the Andalusian Autonomous Community, institutions such as the Granada Provincial Council can and must play a key role in terms of proposing alternatives in the medium and long term. Such alternatives should be focused less on the search for immediate economic success and more on putting in value the advantages that, precisely because of its peripheral and marginal socioeconomic situation, the Region has, namely, the preserved environment, the possibilities of a green economy, the sustainable management of the tourism, the circular economy, agroecology, and so on.

In this regard, the potential for sustainable development of the Guadix Region resulting from its natural resources and socioeconomic possibilities is identified and discussed below. The purpose of this is to provide the politicians involved in promoting the development of this Region with useful elements for their decision-making processes. Before doing so, however, the heterogeneity and internal inequalities that exist in the Region are analyzed.

# 3.2. Heterogeneity and Internal Inequalities Present in the Region

The socioeconomic and demographic heterogeneity of the Region, as well as the existing territorial disparities within it, has been revealed by the statistical research techniques that we have used. The first of these techniques consisted in carrying out a multivariate factor analysis in order to identify the factors that can be considered most significant to describe the socioeconomic and demographic situation of the region's municipalities. Later, based on these factors, we performed a cluster analysis in order to identify the conglomerates or clusters of municipalities with common demographic and economic characteristics, and their social situations were found to be relatively homogeneous. Both techniques, factor analysis and cluster analysis, are complementary, and their combination is usually used in the analysis of disparities between territories, as we have done here [40,41].

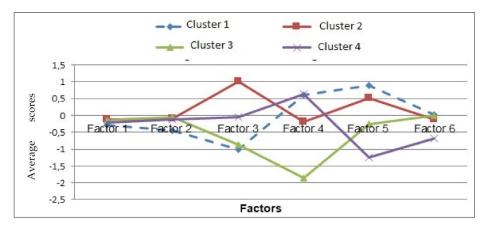
In the first place, with reference to factor analysis, the factors obtained are similar to those acquired at the Andalusian level in the study *Análisis estadístico de la realidad socioeconómica en Andalucía—Una aproximación a escala municipal (Statistical analysis of the socioeconomic reality in Andalusia—An approach at the municipal level)* [42]. Such factors are as follows:

- Factor 1. Municipal dimension. This factor refers to the total population, the socioeconomic reality, and the facilities of the municipality. High values correspond to municipalities with more inhabitants, with a greater number of unemployed or stable employment contracts, higher income levels, greater licenses for economic activities, and larger educational facilities.
- Factor 2. Economic–demographic dynamism. The variables to which this factor is related are population density, income from economic activities, and licenses for economic activities per inhabitant. Positive correlations are maintained between these three variables.
- Factor 3. Age structure and family nuclei. The municipalities that have higher scores are those with an older age structure and a higher percentage of foreign inhabitants. They also have a higher number of main family dwellings per 100 inhabitants and, in turn, have a lower percentage of inhabitants under 20 years of age.
- Factor 4. Population growth in relation to health centers and the proportion of

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- temporary workers. High values correspond to municipalities that have experienced high relative population growth, fewer health centers per 100 inhabitants, and fewer temporary agricultural workers.
- Factor 5. Marriage–natality. The municipalities with higher scores are those in which more marriages are formalized and there are more births per 100 inhabitants.

• Factor 6. Relative touristic offer. The municipalities that have higher scores have more hostels and pensions for every 100 inhabitants and consequently more accommodation establishments (See Figure 10).



**Figure 10.** Scores for each factor in Clusters 1, 2, 3, and 4. Source: Prepared by the authors in 2020 with data from the latest Spanish Population and Housing Census available.

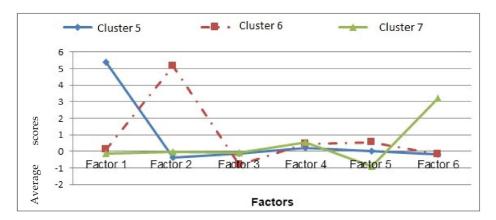
It should be noted that, in general, the municipalities of the Region show very low and even negative scores in almost all of the above factors. The majority of these municipalities have been suffering, for quite some time now, high population losses and hence are demanding more effective measures adapted to the needs of each municipality than those implemented so far to foster rural development and revitalize the socioeconomic dynamism in the area [43].

The results of the cluster analysis allowed us to form and/or identify the following conglomerates or clusters of municipalities:

- (1) The first cluster includes Darro, Diezma, Fonelas, Marchal, Peza (La), and Purullena. These six municipalities have negative scores in Factor 3—that is, with regard to their age structure and family nuclei. These scores are due to the fact that the percentages of the old population are lower in these municipalities; however, the proportion of young people under 20 years of age is higher. This means that, in relation to Factor 5, namely, regarding marriage and natality, these municipalities are characterized as having the highest birth rates in the Region (see Figures 10 and 11).
- (2) The second cluster gathers 11 municipalities: Aldeire, Dollar, Gor, Gorafe, Huéneja, Jerez del Marquesado, Lanteira, Lugros, Morelábor, Pedro Martínez, and Valle del Zalabí. This cluster, similar to the previous one, stands out as having a greater weight in Factor 3, but, in this case, in the opposite direction to the previous cluster, since its score is positive. This is due to the fact that these municipalities are the oldest in the Region and have the highest percentage of people over 65 years old.
- (3) In the third cluster of municipalities, Factor 4 has a strongly negative weight. Given that this factor establishes a relationship between population growth, the number of health centers, and the proportion of temporary workers, this negative value is due to the fact that the municipalities grouped in this cluster have the highest number of temporary workers. Such municipalities are Alicún de Ortega, Dehesas de Guadix, Huélago, and Villanueva de las Torres.
- (4) The fourth cluster includes seven municipalities: Albuñán, Alquife, Beas de Guadix,

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- Cogollos de Guadix, Ferreira, Gobernador, and Polícar. It is worth noting the negative weight of the marriage–birth rate factor (–1.27) in this cluster. This is due to the fact that, in such municipalities, the birth rate is low, and few marriages are formalized in them.
- (5) The fifth cluster includes only the municipality of Guadix. It is the head city of the region and has the top scores in the municipal dimension factor (highest average value = 5.41), being also the municipality with the largest number of inhabitants and the most development in terms of its facilities. As the administrative and political center of the Region, Guadix has historically enjoyed intense and profitable trade. However, nowadays, despite how well connected it is with Granada capital, Guadix's trade has ceased to be prosperous. Hence, its low score in the second factor and thus its scarce economic–demographic dynamism is even lower than other municipalities with fewer inhabitants.
- (6) The sixth cluster is made up of the municipality of Benalúa, which has a 5.13 score in the second factor, that is, with regard to its economic-demographic dynamism. This score is higher than that of the other municipalities in the Guadix Region. Benalúa stands out for having the highest population density in the Region, within which it also occupies the first position in the number of licenses for business activities per inhabitant and second place in income from business activities per inhabitant, the first position in this regard being the municipality of Guadix. For the aforesaid reasons, Benalúa is key to the socioeconomic revitalization of the whole Region.
- (7) Finally, the seventh cluster brings together the two municipalities of La Calahorra and Cortes y Graena, which stand out for their significant touristic capacities. They basically host rural tourism and remain in the lower category in terms of accommodations, such as hostels and pensions. The municipality of Cortes y Graena is one of the Andalusian municipalities with the highest scores in terms of its touristic capacity [42].



**Figure 11.** Scores for each factor in Clusters 5, 6, and 7. Source: prepared by the authors in 2020 with data from the latest Spanish Population and Housing Census available.

# 4. Potential for Sustainable Development in the Region

Apart from what has been said so far, in opposition to the more pessimistic approaches, tending to fall into attitudes more or less close to the stigmatization emphasized by the peripheralization approach, the problem of shrinkage can be viewed not as a burden or lack of success, but, on the contrary, as a chance or opportunity for a major socioeconomic rerouting that does not fail to take into account the preservation of natural environments and the other sociocultural and natural resources that can contribute to improving the quality and conditions of life in rural local settings [44]. To see the potentialities or opportunities for sustainable development offered by these

resources in the Guadix Region is the task of this section. We base the information on key interviewees and on our own analysis of the situation in that region.

The concept of sustainable development first appeared in 1987 with the publication of the Brundtland Report, which warned of the negative environmental consequences of economic development and globalization and tried to find possible solutions to the problems brought about by industrialization and excessive population growth. Since then, the concept has reached a very wide generalization and is applied to many and very diverse contexts. All this means that the word 'sustainable' is not always used with exactly the same meaning across all documents and texts. This entails that this word has reached a high degree of polysemy. For this reason, it is necessary that, in any work with the expression 'sustainable development,' it is first clarified what is understood by that term. The authors of this article argue that many of the challenges that human beings currently confront, such as climate change, water scarcity, social inequalities, and hunger, can only be faced from a global viewpoint and by promoting sustainable development. We understand this here, from a multidimensional and holistic perspective, as a commitment to the environmental balance of natural spaces and territories, economic growth, and the improvement of the quality of life and social progress in general for the people who use these spaces or inhabit such territories. From this viewpoint, the option for the pursuit of mere economic growth or the one that focuses only on environmental conservation would be two choices that would clearly fall outside of what is to be understood by sustainable development, since they leave out the social dimension. With respect to the case object of this study, it seems clear that, as long as demographic shrinkage has not stopped, it cannot be said that the development of the Guadix Region is sustainable, since the socio-economic dynamism existing so far in that region is not curbing the population exodus and, therefore, the outmigration of a series of human resources that could constitute great potential for the sustainable development of the area is not being prevented.

There would be possibilities for the sustainable development in this zone if public policies were successful in properly exploiting its development potential; that is, the socioeconomic, cultural, environmental, and geological resources available within it. We distinguish here between 'development possibilities' and 'development potential'. The former is very scarce (practically non-existent) as long as the peripheral condition of the Region is maintained and the consequent demographic decline does not stop. Yet, development potential, as is it understood here, depends on the existing resources in the Guadix Region. Regarding these resources, we hope that this article, in particular the identification and study of these resources we provide in this section, will guide the actors in charge of making the decisions aimed at putting in place the necessary local development policies.

The Guadix Region has a very rich archaeological, historical, and architectural legacy. In this regard, the governments of the municipalities that make up the Region have made an inventory of their respective architectural-cultural heritages and their resources, and have posted this information on the Internet to attract potential visitors. The Guadix region landscape shows great contrasts between the Sierra Nevada slopes and the arid lunar landscape of Los Montes Orientales and between the reddish hues of the Guadix basin and the green valleys of the rivers that bathe the Region. In this territory, we find dolmens and Iberian remains, and monuments such as the Cathedral of Guadix and the Castle of La Calahorra also stand out. The ease of excavation of the territory has given rise to a peculiar type of habitat: cave-houses. These are dug into the earth and achieve thermal insulation, which allows the temperature inside them to be kept constant throughout the year [45]. Tourists who occasionally stay in these types of houses can feel the sensation that they are living an experience comparable to the way in which the traditional inhabitants lived. Obviously, what tourists experience is a mere simulation, and tourists today can enjoy these traditional homes with more comfort and facilities, such as electricity, household appliances, and good furniture, compared with what inhabitants of these dwellings actually had in the past.

We have here an example of how social imaginaries regarding tourist destinations are often constructed, and we have also detected which actors usually define and build the quality standards for accommodations offered to those who visit such destinations. As can be seen, local stakeholders are not the ones who carry out these tasks based on their expectations and needs; rather, foreign business actors, in line with their interests and perceptions, decide what the quality of rural life is or should be. Is this another manifestation of peripheralization? In other words, is this a form of dependence on foreign actors to define and adapt the local reality of touristic accommodations, in accordance with standards that they establish and/or accept on a national or international scale? Whatever the answers to these questions are, what is important to highlight here is that, in this way, the visitors who stay in these rehabilitated and 'modernized' traditional houses can do so without having to give up the comforts of life that they have daily in their urban world. This is why we stated before that tourists only experience or live a sort of simulation of tradition, since they do not have to suffer the discomforts and deficiencies ordinarily suffered by the native inhabitants residing in such dwellings in the past.

The contact with 'natural' and 'authentic' life that this tourism entails for many can only be experienced sporadically, during extraordinary moments of leisure, and this helps to increase the admiration of tourists for the rural areas they visit and, therefore, to augment the level of idealization of that social construction that for years has come to be known as the 'new rurality' [46,47]. Manifestations of this new rurality are fundamentally constructed and/or mythologized by urban inhabitants who occasionally travel to towns and rural settings seeking to recover their physical and emotional energies. Hence, these towns and settings are usually linked to experiences of the 'good life', associated by urban tourists with their extraordinary and exceptional level of recreation [48].

In any case, this mythification of rural life has nothing or very little to do with what the current manifestations of the new rurality in the Guadix region often entail for its longtime inhabitants—that is, peasants and farmers. For them, the current rurality usually implies, most of the time, the need to adapt to new demands for the functional restructuring of their world. Such demands have evolved, for many of them, from being food producers to acting more as conservators of the landscape and the environment, or as employees in the new economic activities that have been expanding (to date, it must be recognized that these activities are incipient and occur to a scarce degree, hence the high levels of unemployment in the area), while traditional and family agriculture has been going into decline. In other words, the changes leading to the social construction of the new rurality, which are taking place in the Guadix region, unequally affect the very different social actors in the area (we will talk about the remarkable diversity of such actors later) due to the uneven social positions that they occupy and have occupied and their different expectations and views about how this rural zone is and should be developing.

From the viewpoint of the potential that the cultural heritage of the area has to attract tourism, the great revival that the commemoration of certain traditional festivities is acquiring in this region is worth noting. Such festivities are often disseminated through tourist brochures and even videos with the main purpose of attracting tourists. This is the case, for example, of 'El Cascamorras', a yearly festival that is celebrated every 6th of September, declared an international tourist interest in 2013 by the Spanish Ministry of Industry, Tourism and Commerce. The origin of this festival is religious and goes back to the middle of the 15th century, when, according to tradition, a man from Guadix who was working on the construction of a church found an image of the 'Virgen de la Piedad' that the inhabitants of Baza (a neighboring town) did not let him take to his village. In keeping with this tradition, the essence of the festival consists of the attempt by 'El Cascamorras' (sent by the inhabitants of Guadix city) to take the Saint Patron of Baza city, the 'Virgen de la Piedad', to his city. The inhabitants of Baza will only be able to prevent it if they cover 'El Cascamorras' with black paint and keep it covered until he manages to reach the temple where their Patron is kept. For this reason, a tide of people painted black chases

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'El Cascamorras' for a span of about 3 km. This is currently experienced as a massive, fun party that several thousands of people attend every year. That is to say, a traditionally religious festival has become a purely pagan tourist attraction. It is presented and disseminated by the media with a scenography, aesthetics, and spectacularism aimed to stir up emotions of enthusiasm among potential visitors and thus encourage interest to attend the celebration. Interested readers, for an artistic depiction of the event, can refer to the documentary "Cascamorras Fuerza y Estética—Fiesta de Interés Turístico Internacional," available at https://www.youtube.com/watch?v=Lw-SoUokGBk.

The geographical territory of the Guadix Region is made up of the Sierra de Baza, Sierra de Huétor, and Sierra Nevada national parks (see Table 2). These three parks are special conservation areas in the Andalusian Autonomous Community and are declared as places of community importance within the framework of the European Ecology Network Natura 2000 [49]. Such protected natural spaces constitute endogenous natural resources essential for the socioeconomic development and the improvement in the life quality of the Region's inhabitants; thus, they have been considered in different projects aimed at planning the management of the territory's natural resources [50].

Apart from what is specified in Table 2, another strategy aimed at the valorization of the resources of the Guadix Region environment has been the creation of the so-called 'Granada Geopark'. A geopark is a territory with a geological heritage of special value. A sustainable territorial development strategy based on education and tourism is configured and carried out under a methodology of cooperation and participation with the agents of the local population.



**Figure 12.** Location of the Geopark in the Granada province. Source: document "Geoparque de Granada". Available online: https://www.comarcadeguadix.com/ (accessed on 3 September 2020).

The geopark extends over a territory of the Granada province located in the eastern part of Andalusia, whose geological and landscape characteristics are remarkable (see Figure 12). The unique peculiarities of the geology in this territory have conditioned the life and culture of its inhabitants from prehistoric times to the present day (see Figure 13). Geology, geomorphology, archaeology, and cultural heritage are closely linked in this area, which is one of the zones where the oldest human remains and ancestral traditions of the European Continent are found. The project to create this geopark was sponsored by the Granada Provincial Council, the Guadix Rural Development Group, the Granada Altiplano Rural Development Group, the Association for the economic promotion of Los Montes Orientales, and the Geological and Mining Institute of Spain. The objective of the aforementioned five sponsors was to ask UNESCO to declare a Geopark through the International Program for Earth Sciences and Geoparks. Regarding the attainment of this

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objective, which was finally achieved on 10 July 2020, there is a broad social consensus in seeing it as a unique opportunity for attracting tourism and thus contributing to the sustainable development of a territory that is clearly in a process of depopulation and socioeconomic decline.

The Geopark territory has an area of 4722 square km and is made up of 47 municipalities belonging to the Guadix, Baza, and Huéscar regions. The zone includes the current river valleys generated during the Quaternary in the north of the Granada province, and includes a large part of the Guadix-Baza basin and part of the mountains that delimit it. This territory has traditionally been known, from a geographical viewpoint, as the depressions or "holes" of Guadix and Baza.

**Table 2.** Municipal extension of the special conservation areas and resources. Source: prepared by the authors with data from the 2001 and 2011 population and housing censuses and the "Argos Observatory".

Type of Protected Resource	Name of the Protected Natural Area (PNA)	Municipality	Extension in Hectares of the PNA	% of Municipal Area Occupied by the Protected Resource	% of the PNA
Natural monument	Cárcavas de Marchal	Marchal	5.22	0.67	100
National Park		Aldeire	2553	36.43	2.99
		Dólar	791	9.56	0.87
		Ferreira	922	19.43	0.98
	Sierra Nevada	Huéneja	1785	14.48	1.96
	Sierra Nevaua	Jerez del Marquesado	4941	62.59	6.01
		Lanteira	2767	51.24	3.14
		Lugros	2094	33.17	0.44
Natural Park	Sierra de Huétor	Diezma	412	9.87	3.4
		Dólar	2934	26.27	3.81
	Sierra de Baza	Gor	8498	46.98	15.84
		Valle del Zalabí	5896	54.88	10.99
		Aldeire	2072	59.68	2.42
		Cogollos de Guadix	711	47.36	0.83
		Dólar	2934	23.05	1.04
		Ferreira	882	40.97	1.03
	Sierra Nevada	Huéneja	1259	21.78	1.47
		Jerez del Marquesado	3408	82.83	3.98
		La Calahorra	77	4.27	0.09
		Lateira	1918	72.87	2.24
		Lugros	2731	86.78	3.19

We now continue focusing our analysis on the study object of this article—the Guadix Region, which contains a large part of the Granada Geopark territory. As a whole, this region is a plateau surrounded by mountains furrowed by numerous ravines and streams that only flow occasionally when it rains. In the Region, 75.59% is used agricultural land area. This farmed land represents 2.32% of the agricultural area of Andalusia. In some municipalities of the Region, such as Gobernador and Albuñán, agricultural land exceeds 90% of the total area. However, most of this agricultural area (71.58%) is rain-fed [51].

As the main use of the land is agricultural, the pressure on the environment increases, which constitutes one of the main anthropic threats to the regional geoheritage. Herbaceous cultivation, which accounts for 49.46% of agrarian production, is usually associated with diffuse pollution caused by the use of agrochemicals and very intense erosion processes due to land clearing. Moreover, fruit and olive groves are also affected by the use of pesticides and herbicides that negatively impact flora and fauna and cause pollution in water bodies. The continued use of these products causes the elimination of vegetal cover that reduces the capacity of the soils to retain water and stop erosion. This,

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along with other reasons, explains why the Andalusian Regional Government's Environment Department has implemented various programs to improve the habitat in the area and increase the protection of threatened animal and flora species [50].



**Figure 13.** One of the many exceptional landscapes of the Granada Geopark. Source: available online: https://www.bioingenieriadelpaisaje.com/geoparque-granada/ (accessed on 3 September 2020).

In this scenario of agricultural pollution, new forms of land exploitation, such as organic farming, are beginning to be promoted. Organic farming, now starting in Spain, is an activity in which Spain already ranks first in the EU and is among the five most important in the world. This boom is quantified by the growth of land dedicated to organic crops, which, in the last five years, has increased by 14.9%. In 2016, Spain surpassed 2 million hectares for the first time in history: specifically, 2,018,802 ha, 8.5% more than in 2015. This trend persisted in 2017 when, with 2,082,173 ha, Spain continued to be the country with the largest organic area in Europe (almost one-sixth of the European farmland), followed by Italy (1.9 million ha), and France (1.7 million ha). In fact, no other European state devotes so much surface area to organic crops, according to published data from Eurostat (European Statistical Office) and to reports from *The World of Organic Agriculture* [52].

The growing boom of this type of agriculture is a source of employment for rural populations in certain areas [53]. In the Guadix Region, the area devoted to organic production is still relatively small. Thus, the Regional Agrarian Office (in Spanish "Oficina Comarcal Agraria", OCA) has registered an area of ecological agriculture whose percentage is lower than that of the whole province of Granada and Andalusia. This area, with 13,592 ha, in which organic farming is carried out, constitutes 12.3% of the organic agriculture surface registered in Granada and 1.5% of the Andalusian area. The organic farming areas of the Guadix Region are mainly devoted to the cultivation of almond trees, pastures and fallows, cereals such as barley and oats, and olive groves.

Livestock activity is not very important within the regional territory, since it only accounts for 14.63% of the total livestock farms in the Granada province. The municipalities with the highest number of livestock farms are Guadix (79), Valle del Zalabí (46), Jerez del Marquesado (40), and Huéneja (38), while those with the lowest number of farms are Alquife (2), Beas de Guadix (2), Dehesas de Guadix (2), and Alicún de Ortega (1). Organic livestock does not stand out in terms of its volume either, as it only represents 3.95% of all farms. What stands out is organic goat and sheep farming. Especially

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important is the production of Segureño lamb, included in the European register of protected designations of origin.

Regarding erosion, which is the main cause of soil desertification and is included among the fundamental aspects for conservation, there are very positive data for the environmental sustainability of this territory, since the percentage of soil with very low erosion is very high (85.61%). Only in the municipality of Gor is there a certain loss of soil due to erosion. This fact constitutes an important development potential against a background in which soil erosion is included, together with global warming and climate changes, among the most worrying environmental problems in the world [54].

The nonexistence or very little weight of the industrial sector within the economic activities of the Region means that there is very small incidence of industrial waste. However, the role of the Region within renewable energies is highly relevant, since it has 52 renewable energy plants that account for 26.02% of all plants of this type in the Granada province. The most prominent plants are those of wind energy, which represent more than 70% of the total wind power plants in the Granada province, and Dólar is the municipality with the most plants dedicated to producing this type of energy. Regarding solar energy, which is second in importance at the Regional level, Guadix is the most important municipality, and the number of these plants continues to increase. For instance, a plant inauguration of this type took place in September 2020 while we were writing this article. One of the aspects that stands out at the provincial level in relation to renewable energies is the lack of trained personnel in this matter, so it is essential that academic pathways provide professional training in renewable energies for autochthonous populations [55].

In sum, the low soil erosion and reduced emission of harmful gases into the atmosphere, together with the high presence of clean energy production plants, makes the Region a national benchmark given its very low level of pollution [50]. Therefore, the data referring to environmental sustainability are much more favorable than those indicated by the demographic and economic evolution. All of this, together with the aforementioned monumental, cultural, natural, and geological resources of the Region, must be taken into account to promote a sustainable development that makes it possible to reverse current negative trends and favor greater socioeconomic and demographic dynamism.

# 5. Final Thoughts and Recommendations

The research on the Guadix Region, whose results we have presented in the previous sections, alerts us to the serious socioeconomic and demographic crisis that this territory is undergoing. This situation highlights the difficulty in the short and medium term of sustainable socioeconomic development in this area, despite its aforementioned potentialities and the historical, cultural, natural, and geological resources.

The persistent demographic decline in the Region, the gradual aging of its population structure, and the selective emigration of women and young people are, among others, problems that make it necessary to intervene with socioeconomic and demographic policies, more intensely than what has been done so far. It is necessary to question the rural development policies implemented to date—above all, due to the fact that the demographic decline in the area has not been slowed, despite the noteworthy effect of the measures implemented over recent decades.

In order to achieve more success in rural development actions, local actors should acquire a greater degree of involvement and decision-making [56]. To attain this, such actions must take into account the needs and specificities of said actors, ensuring that they are involved in the programs carried out and that they feel and experience that these programs are in part their vital projects. One way of involving social actors in the economic entrepreneurship needed to face the developmental challenges of the Region is their integration into cooperatives. In order to achieve this integration, it is necessary, apart from supporting existing cooperatives, to create new ones, not only in the agricultural sector but also in other sectors such as tourism and the provision of services. Cooperatives, in addition to creating economic activity and employment, will contribute

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to increasing the resilience of the society, since they are flexible and capable of providing protection to their members when difficult circumstances of the socio-economic crisis arise. This protection makes it possible for cooperatives to be a sort of guarantee for the local economy, since their operation is not designed to take risks, and this reduces the fatal consequences of high exposure in times of crisis [57].

However, what do we mean here by local actors, and what are we talking about when we refer to them? Clarifying this is of great relevance, since a widely spread idea, with which we fully agree, is that any rural development policy must take into account the local actors of the territory where it is intended to be implemented. In this regard, we cannot ignore the fact that, even in the most socioeconomically harmonious local territories, social actors do not constitute a homogeneous entity. On the contrary, they are heterogeneous and diverse to a greater or lesser degree, depending on each specific territory and/or society. This in turn implies that there may be contradictions and/or discrepancies among the respective interests of said actors. In line with this, in the particular case of the Guadix Region, the interviews carried out and the observations and analyses made by the authors of this article show that development policies, when designed and implemented, must distinguish between the divergent interests of different actors, such as hoteliers and the owners of small family accommodations for tourists (for these two social actors, the more tourists visit the area, the better it will be for them), ecofriendly groups in defense of the environment, for which excessive and poorly regulated tourism can be a threat to the settings and landscapes they intend to preserve, entrepreneurs devoted to intensive and mechanized agriculture, whose interests of course do not coincide with those of entrepreneurs involved in producing protected designations of origin or in organic farming, and even the many unemployed women and men in the Guadix Region, who in June 2020 represented, respectively, 53.56% and 46.44% of the population, according to the Argos Observatory. All these actors and others must be taken into account by public institutions and associations concerned with or involved in development policies, such as municipal governments, local development agents, the Association for Rural Development of the Guadix Region, the Granada Provincial Council, and the Government of the Andalusian Autonomous Community, among others.

To sum up, the aforementioned diversity of social actors reflects a heterogeneity of interests and expectations that public development policies unavoidably have to take into account in their actions if they are to be conceived and applied under pragmatic and realistic conditions. The purpose of this is to make it possible for public policies to obtain the desired objectives of success, or at least to approach them as closely as possible and work towards their achievement. In this regard, when articulating and implementing their goals, it is not enough for development policies to formally take into account the role of rural development agents and regional socioeconomic associations or organizations that are involved in development in one way or another. To strengthen this role, it is also necessary that they lucidly identify such agents and their diverse or contradictory interests in the way we have suggested in the previous paragraph.

Only if public development policies act in accordance with the aforementioned can they behave efficiently and realistically and thus achieve more participatory, democratic, and endogenous forms of development [58]—that is to say, a development that takes into account the autochthonous social agents involved in or affected by it and that, consequently, is based on a correct diagnosis about the circumstances and expectations of those agents. To be realistic and efficient, development policies must include among their basic aims that of being able to satisfactorily harmonize or reconcile the diverse interests of social agents and even the contradictions among them. In the case of the Guadix Region, these interests cannot and should not be ignored or relegated when encouraging forms of development that are truly autochthonous and autonomous—that is, capable of working to benefit local actors and taking into account the socioeconomic, cultural, environmental, and geological resources available in the area.

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Last but not least, we have to take into account that the desirable development of the Region has to be linked to the sustainable exploitation of its resources. To achieve this, it is necessary to strengthen the role of organic farming and promote the transformation and commercialization of local agri-food products. Moreover, it is key to improve the training of regional people in a series of activities, such as ecological farming or livestock production, renewable energies, rural tourism, and geotourism.

In any case, tourism is not a panacea, because, if it is not managed properly and the number of visitors is limited, it can contribute precisely to the deterioration of the resources that make the area attractive [12,13,59]. Moreover, if no attempt is made to exploit tourism resources by taking into account the heterogeneity of interests and the needs of diverse local actors, and if such exploitation is not primarily focused on improving the lives of such actors, it is highly likely that the tourism activity will benefit only a few foreign actors and that, as a result, social inequalities and unemployment levels may increase in circumstances where farming and traditional ways of life continue to decline.

To counteract the negative impacts of this decline, and to do so taking endogenous actors into account, the implementation of policies aimed at achieving a more indigenous development, based on the sustainable use of endogenous geological, natural, and human resources, is essential and unavoidable. However, these policies should not be homogeneous across the entire territory of the Region; rather, they should be implemented according to the diversity of the socioeconomic and demographic singularities revealed by the seven groups of municipalities identified above in the cluster analysis. This means that the region should in no way be considered as a common functional unit that groups together homogeneous municipalities, and the development measures applied to it should not be homogeneous either. As we have shown in this article, there are noticeable territorial imbalances among the 32 municipalities of the Region. Hence, sustainable development policies must acknowledge the specific contextual needs of each municipality. Such contextual targeting of policies, together with their intensification, could have decisive results in terms of reversing demographic and socioeconomic decline. Unfortunately, policies have not managed to achieve the required sustainable development, nor have they prevented demographic losses, which are still quite significant, especially among the youngest.

Among the various tasks of development policies, one should provide the assurance that all rural towns of the Guadix Region have adequate levels of care provision, education, and health services. In this way, the disadvantages of those who live in these rural settings with respect to urban inhabitants would be reduced in terms of the availability of such services. Moreover, development policies must have as one of their primary goals the social and economic enrichment of each municipality, as well as the region as a whole. This is because better socio-economic indicators would help to break the vicious cycle of development; thus, such policies would be working such that the region attracts investment and settlement of new companies. To increase that attractiveness, public policies should also have among their priority objectives the provision of internet connections or the strengthening of connections already available. Investments in information and communication technologies (ICT) and digitization are essential to improve living conditions in depopulated rural regions. Access to public databases, health, social and welfare services, education, and even the political process (online consultation, for example) can be substantially improved through a broader digitization of these shrinking territories. In relation to this, it must be recognized that there is already a project by the Granada Provincial Council to extend broadband internet throughout the Region. This project, together with the construction of new communication and transport routes or the continuous maintenance and repair of those that already exist, would contribute to improving the accessibility of the region's territories.

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