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Rural Districts and Business Agglomerations in Low-Density Business Environments. The Case of Extremadura (Spain)

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Abstract: The strategy of the institutionalization and development of business agglomerations, in any of its analytical aspects (industrial district, local production system, cluster, etc.), has not had great results in Spanish regions with low business-density, probably due to the difficulty of finding an adequate implementation framework in administrative, geographic, and institutional terms. Based on the limitations presented by the identification methodologies of business agglomerations in low business-density territories, in this work we propose some methodological corrections that allow for reconciling these economic realities with the institutional and geographical framework offered by the local action groups (LAGs). This reconciliation is a useful tool to take advantage of the economies of agglomeration and, consequently, to explore the possibilities of endogenous development in rural areas, so that it can be a factor to take into account when planning and executing the public strategy of local and rural development. Finally, the results obtained for the specific case of Extremadura, the only Spanish region listed as a less developed one in European rural development policies, are presented.

Keywords: local action group; rural development; industrial district; local productive system; rural district



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1. Introduction

The local action groups (hereinafter LAG) have become the main tool of the European Union for structuring the local and rural development strategy [1,2], this being the reason why industrial or rural development policies in areas with low business-density, or rural areas, must consider them. In a way, they exemplify the open participation of the main economic agents with a presence in each territory at the county level, bringing community decisions on rural development closer to the rural territories of the member states. Conceived as a strategic tool, LAGs emerged with a dual function: on the one hand, they should be in charge of planning and channeling funds for the European rural development strategy in the territories, and on the other, they must contribute to the dynamism of the socioeconomic fabric of rural regions, directly attacking structural problems that affect them, such as depopulation and inequalities in living standards with respect to the urban environment [3] (p. 596), [4]. One way to face such challenges is by enhancing and optimizing the region's endogenous resources [5] (p. 230), [6], wherein the correct definition of productive specialization seems crucial to us. In this sense, the tools offered by the theory of business agglomerations for shaping the LAG strategy cannot be ignored; as such, we consider its adaptation to the rural environment necessary.

“Business agglomerations” is a generic way of referring to the different terminologies that have been defined by the literature to define the grouping of firms around a certain

territory (industrial districts, cluster, local productive systems, rural districts, quality agri-food districts, . . .). Each of these concepts presents its nuances, although they all start from the same premise: the concentration of companies that are dedicated to the same product or productive chain in a given territory. Broadly speaking, the industrial districts (IDs) [7,8] and, more generically, the local productive systems (hereinafter LPSs) [9,10], are socioeconomic realities that are based on taking advantage of the endogenous industrial growth capacity that certain geographical enclaves have, which constitutes an attraction factor that favors the location of companies and, consequently, the formation of specialized business agglomerations in a certain product or branch of activity, in rural areas that have set up a so-called rural district [11]. These realities generate a series of competitive advantages, allowing small and medium-sized companies, which by themselves would not have the financial capacity to invest in technology or to execute an internationalization strategy [12–14], to do so, being able to balance, through cooperation and agglomeration, the scale economies associated with large companies, in Chandlerian terminology [15]. Undoubtedly, this favors the generation of employment and income, allowing local and rural development [16–26] and, even if it is only for an arithmetic effect, regional development too [27–32]. Thus, the aforementioned concepts of ID and LPS have evolved towards newer and more recent theoretical notions such as the rural district (RD) or the quality agri-food district (AFD), more appropriate to the nature and characteristics of the rural regions and environments [33] (Legislative Decree No. 228 (18 May 2001) relative to the Italian normative), or even as “bio” districts [34,35].

Given the above, the main objective of this work is to evaluate the theoretical and practical lessons of business agglomerations and to facilitate their incorporation into the rural development strategy by LAGs, particularly with regard to the detection and identification of the endogenous productive capacities of the territories to which they are circumscribed, so that they can enhance the comparative advantages associated with them, and may also prioritize investments, allowing a better use of resources to achieve the objectives of income and employment generation and fixation of the rural territories. In summary, we seek to find the tool that allows one to localize business agglomerations into the LAG regions without giving up the postulates of the economies of agglomeration; that is, to locate municipal or supramunicipal business agglomerations with a capacity for generating incomes and employment and with influence and significance throughout the LAG region, so that they can be used as an economic engine for it, as well as being a focus for the attraction of new investment. To meet this objective, the text has been structured into four sections, in addition to this introduction. In the first, the reasons that in our opinion explain the poor practical development of theories of the Italian school of industrial districts in Spain, or at least their lesser degree of consideration compared to the Italian case when articulating rural development, are analyzed. In the second section, we reflect on various ID or LPS identification methodologies, and in particular, on their advantages and limitations when used in the LAG development strategy. In the third section, we propose some methodological adaptations that would facilitate, in our opinion, such use. Finally, in the fourth section, we outline the main conclusions of the investigation.

2. From Theory to Practice, from the Industrial District to the Rural District

This article arises from the authors' conviction that in Spain, the enormous scientific and theoretical efforts that many regional researchers have made in the last two decades in the field of business agglomeration analysis are not translating into applied results in regions with low business-density (district effect [36–41], i-district effect [42,43], social capital [44–48]). As an example, and unlike what has happened in other nations, Italy is, without a doubt, a reference in this field, not only for the remarkable development of the existing research in this regard [49–53], but for the broad regulatory development that the industrial districts have had in this country, which are already a relevant element in industrial policy planning [54,55]. The creation of the National Observatory of Industrial Districts (<http://www.osservatoriodistretti.org/> (accessed on 1 May 2020)) is clear proof of

this, which denotes the institutional commitment decided by the promotion of this type of economic reality. There has not been a regulatory or institutional development in Spain that efficiently explores the potential of these agglomerations, and this has been the case even in the regions where the greater historical development of such industrial agglomerations has been evidenced, which have also been those on which scholars have focused most of the research efforts in this regard, namely, the Valencian region [39,56–58], Catalonia [59–62], and the Basque Country [59,63–66].

The previous reflection, which seems clear despite the fact that the elements that should serve as the basis for the inclusion of industrial agglomerations in the country's industrialization strategy are known with some precision, is even more true if we refer to the agrarian field, where the whole path, including the scientific one, has yet to be covered. In this sense, at least three aspects seem relevant to us, which, if given their full value, would contribute to the better planning of productive activities in rural areas. The first one is the adaptation of the concept of business agglomeration to the reality that we find in agricultural environments. This aspect has already been partially resolved by the Italian school of industrial districts, having coined the concept of the rural district, whose theoretical specifications are assimilable to the rural agglomerations that we find in Spain and other Mediterranean countries [67,68]. In our opinion, this is crucial, since it determines, for example, the methodology to be applied for the identification and detection of these rural agglomerations, as well as in defining the tools to be used in their empirical analysis and in developing other not-yet-studied concepts, such as the so-called quality agri-food districts, which are also linked to a greater extent to the agrarian environment.

The second aspect to take into account is the absence of specific legislation that protects and develops these realities in rural areas. It should be noted that Spain has been applying legislation for a number of years to promote industrial districts under the name of innovative business groups ((hereinafter IBGs, <http://www.minetad.gob.es/PortalAyudas/AgrupacionesEmpresariales/Paginas/Index.aspx> (accessed on 1 May 2020)). These realities, which have already been analyzed in the context of Spanish industrial policy by Trullén and Callejón [69], bring together different forms of agglomeration, namely, industrial districts, value chains, knowledge-intensive activities and ICT-intensive activities, and tourism [70] (p. 380). In our opinion, this legislation, in its current formulation, is not adequate to link economic activity to the territory, something that should be a priority in the rural development strategy [71,72]. In fact, the need to have a sufficient critical mass to access the financing lines included in the regulations has led to the association of companies from different provinces and regions, so that the IBGs have ended up being institutions without a clear link to a certain locality or region [73,74]. The correlation between the detected business agglomerations and the IBGs existing in the Extremadura region is presented in Table 1.

Table 1. Business agglomerations vs. innovative business groups (IBGs) listed in Extremadura, 2013.

| Agglomeration (Sector and County) | LPS and ID ¹ | IBG ² |
|---|-------------------------|------------------|
| Agri-food in Don Benito | Yes | No |
| Agri-food in Jaraíz de la Vera | Yes | No |
| Agri-food in Montijo | Yes | No |
| Agri-food in Valle del Jerte | Yes | No |
| Meat in Fregenal de la Siera | Yes | No |
| Meat in Higuera la Real | Yes | No |
| Cork in San Vicente de Alcántara ³ | Yes | No |
| Packaging in Mérida | No | Yes |
| Energy in Badajoz | No | Yes |
| Metal in Badajoz and Jerez de los Caballeros ⁴ | Yes | Yes |
| Health in Cáceres | No | Yes |
| ICT in Cáceres | No | Yes |
| Tourism in Cáceres | No | Yes |
| Various in Navalmoral de la Mata | Yes | No |

¹ Local Productive Systems (LPS) and Industrial Districts (ID). ² In the public funds program for IBGs in 2008, the Extremaduran Federation of Furniture and Wood Entrepreneurs (<http://www.fedexmadera.com/es/.html> (accessed on 1 May 2020); consultation May 2020), which is currently not recognized as an IBG, appeared among the beneficiary institutions. The same occurred with the Extremadura Construction Materials Cluster, which in 2008 also received funds due to its status as an IBG, which it no longer has. ³ The Extremadurian Cork Cluster, based in San Vicente de Alcántara, was a beneficiary of the IBG funds program in 2007. However, it has subsequently lost the status of IBG. It is important to mention that this IBG term contains companies from all over the country, which minimizes the agglomeration effect in competitive terms. ⁴ The metal IBG is based in Badajoz. It is, however, the industrial agglomeration of metal located by Boix and Galletto [75] in Jerez de los Caballeros. Source: Own elaboration.

Finally, the third aspect has a methodological nature, and refers to the fact that the ID or LPS identification, detection, and analysis methodologies usually take the so-called local workforce systems (LWS) [76] as spatial reference. This term fits, more or less, with the municipal term, and in no case adheres to the region or the LAG territory-of-influence. This factor must be corrected if what is intended is to incorporate the theory of business agglomerations into the strategic planning of LAGs. In addition, its correction is also desirable to assess the regional relevance of the agglomeration, its impact on the economic and social development of the region, and its supramunicipal area of influence; in short, to evaluate and measure the agglomeration effect of the region.

To sum up, when looking for a methodology for the detection of business agglomerations in the rural world, the most appropriate type of agglomeration is the so-called rural district. In this sense, Castillo and García [67] suggested that the basic territorial unit that best adheres to the theoretical definition of this type of agglomeration is the local action group.

3. Methodological Limitations for Regional Analysis of Rural Agglomerations

Starting from the existing methodologies for the identification and detection of business agglomerations, in Table 2 we have tried to synthesize the advantages and disadvantages that these present for their adaptation to the territorial analytical framework proposed here; that is, the areas of influence of the current LAGs. Broadly speaking, if we do an overall analysis, we find four major methodological limitations for the analysis of business agglomerations at the county level or within the geographic demarcation associated with LAGs. The first of these is the delimitation of the productive specialization of the territory. In this sense, the existing methodologies usually start from the search for a productive specialization in a smaller geographical area of the region, usually municipal or close to it, when taking the LWS as a functional administrative (and geographical) unit [77].

The second major limitation that these methodologies present as regards being useful in the LAG strategy is their industrial orientation. That is, these methodologies usually ignore the fact that productive specialization is not necessarily limited to the industrial

field, and may be found in activities in the agricultural or service sector. Furthermore, they do not contemplate the existence of branches or value chains that include agricultural, industrial, and tertiary activities (from the production of raw materials to the commercialization of manufactures), despite the fact that one of the main lessons of the theory of business agglomerations is the promotion of the vertical integration of processes, or the integration of the value chain of products. This aspect is key to the identification of the comparative advantages in rural areas, which are usually found in the availability of a certain raw material or natural resource, regardless of whether its industrial transformation has developed in the region.

Table 2. Industrial districts (IDs) and/or local productive systems (LPS) identification methodologies and their adaptation to the local action group (LAG) geographical area.

| Methodology ¹ | Strong Points for Its Application to LAG | Weaknesses for Its Application to LAG |
|--|--|--|
| Courlet and Pecqueur ² [21,78] | It uses the municipality. It only detects the industrial branch but is easily integrated into a value chain analysis | It uses variables for specialization and a minimum requirement of establishments, leaves variable outputs out of analysis Comparative based on the national total. LWS as territorial unit. |
| Sforzi-ISTAT ³ [75,76] | Institutional recognition. Academic recognition. Wide use and notoriety. | Only focused in industrial sector. Its prevalence index rules out polyspecialized districts. |
| Sforzi-ISTAT for big business systems ⁴ [79,80] | Same as in the previous case. | It rules out protodistricts. Based only in employment. Same as in the previous case. The predominant type of company in rural areas is the SME. |
| Laine [81] ⁵ [77,82] | Identifies LWS and ID. Greater flexibility than previous methodologies. Even starting from a criterion such as LWS, its noninclusion allows localized realities to maintain the characteristics of an LPS. Greater flexibility than previous methodologies. | It omits the economic importance of the dominant activity of the LPS. It does not include an international competence criterion of the LPS. Quite restrictive methodology, excluding other forms of agglomeration such as protodistricts. |
| Hernández, Fontrodona, and Pezzi [83] | It includes identification criteria based on internationalization and economic importance. It does not consider the LWS as a territorial unit. It detects all types of business agglomerations. | It does not take employment into account, giving too much importance to the variable number of companies. It does not clearly define a scale of the types of companies or specialities. It lacks criteria that distinguish between large companies and SMEs. |
| Integrative methodology Puig, Plá, and Linares [84] | Identifies LWS and ID. Greater flexibility than previous methodologies. | Uses variable occupation leaving out variables from other interesting studies. |
| Italian experimental methodology ⁶ | It uses quality variables normally associated with regions (protected designations of origin or protected geographical indications) | It is based on variables relative to the land factor. Almost exclusively linked to agriculture and livestock. Low weight of variables such as employment in industry. |

¹ We leave out of the analysis of the methodologies used [85–92] as they have already been improved, in our opinion, by more recent methodologies. ² Adapted by Climent for the study of La Rioja. ³ The Sforzi-ISTAT methodology, although it has undergone several updates, is considered here in its ISTAT version [93,94]. This is one of the most contrasted methodologies in the existing literature, whose results have served as the basis for other research. ⁴ Sforzi-ISTAT methodology, but changing the criterion related to the size of the dominant industry from SMEs to large companies. ⁵ Corrected by [77,81]. ⁶ We use the version provided by Legislative Decree No. 228 (18 May 2001). In Spain, and specifically in the case of Castilla-La Mancha [67,68], it has been used to analyze rural districts, but is very focused on population movements, and not on productive specialization and business concentration. We have ignored it in this analysis.

The third limitation is the use of the national context as a frame of comparison when determining the productive specialization of the territory in a given productive activity. In our opinion, this prevents the detection of business agglomerations that show some relevance in rural areas but appear less significant in the national context. As an example, an agglomeration of 20 companies that generate 200 jobs will be significant and should be considered in a hypothetical regional development strategy if it is located in a certain rural region, but it will probably be diluted if it is located in the metropolitan area of a large city. Failure to take this aspect into account supposes the exclusion of business agglomerations from rural development policies, which, although not very relevant at the national level, constitute or may constitute an economic engine for some rural areas.

The last limitation has to do with the restrictive nature of the businesses that make up the agglomerations being studied. Normally, the existing methodologies adopt criteria oriented towards the identification of agglomerations of small and medium-sized companies, without prejudice toward the existence of works that have been concerned with the locations of large company districts [66,67]. In our case, we understand that this “SME vs. large company” approach is unhelpful, since the existence of an agglomeration of SMEs is as relevant to the development of a rural environment as the location of an agglomeration led by one or more large companies. Thus, the methodology to be used should be flexible enough to include both realities.

Source: Expanded from [26] (p.129).

4. Methodological Adaptation to Regions with Low Manufacturing Density

The exercise carried out in the previous section leads us to conclude that the methodology most easily adaptable to the geographical area of the LAG is that designed by Lainé [81], with the improvements that have been introduced by other authors [33,77,82]. The resulting methodology can be applied to geographical areas wider than that delimited by the LWS, without the detected agglomerations losing the theoretical characteristics of LPSs—those that empower them to achieve competitive advantages. However, this methodology continues to be quite restrictive, since it does not identify realities such as protodistricts [95–98] nor does it allow the detection of extended value chains, since it focuses solely on industrial activity. Furthermore, it requires a high business-density for the location of the agglomeration, which makes it difficult to apply it to the regions with the highest rurality and depopulation index, as is the case of Extremadura [99–101]. It is difficult to identify LPSs based on this methodology in regions with little or no industrialization, such as Extremadura in Spain [102–105], not only for the reason of industrial arithmetic (scarcity of industries, low active population in the secondary sector, etc.), but also due to the scarcity of sources available on a regional scale. For this reason, we consider a methodological adjustment that emerges from Hernández, Fontrodona, and Pezzi [83] to be appropriate, which is useful when we work with regions with a low manufacturing density, such as Extremadura.

In this section, we make a methodological proposal that allows for a better adjustment to the reality of the least economically developed regions, allowing the identification of LPSs in more ruralized and not strictly industrialized environments. This proposal does not invalidate the aforementioned methodologies, but it is based on them, particularly the one used by Hernández, Fontrodona and Pezzi [83] for Catalonia. Furthermore, it seems to us a more flexible proposal, since it does not predetermine either the territorial unit of reference for the analysis or the codification of the activities with which to work. In this sense, it allows for by-county and regional analyses and exercises to identify LPSs of the value chain and polyspecialized ones, thus not adhering to the mere detection of manufacturing LPSs (it would, in fact, allow for the identification of rural LPSs specialized in the agriculture, livestock, or extractive industry).

In accordance with the above, a previous step to adapt the methodology is to choose the geographic level to which it will be applied. As we have seen, the way to integrate LPSs into the European regional development strategy is to use the LAG’s territory-of-influence

as a geographical unit. For the analysis of the productive specialization of the possible LPS identified, we understand that it is better to use an aggregated classification of the branches of activity, since, although it lacks specificity, it facilitates the identification of value chain LPSs, that is, agglomerations, that work in different parts of the production chain of a specific branch. In this sense, it seems appropriate to use the sectoral grouping of activities proposed by the CNAE 2009 (Table 3), which would distinguish 16 major productive branches with various activities, each representing the vertical integration that exists within them.

Table 3. Sectoral classification of the CNAE 2009 activities proposed.

| Classification | CNAE 2009 |
|---|--|
| Agri-food industry | 01. Agriculture, livestock, hunting, and related services (Except 0116. Plant cultivation for textile fibers and 0128. Cultivation of spices, aromatic, medicinal and pharmaceutical plants) 03. Fishing and aquaculture 10. Food industry 11. Manufacture of beverages 12. Tobacco industry 462. Wholesale trade of agricultural raw materials and live animals (4624. Wholesale trade of leather and skins) 463. Wholesale trade of food products, beverages and tobacco |
| Forestry and forest products | 02. Silviculture and forest exploitation 16. Wood and cork industry, except furniture; basketry and plaiting |
| Chemical, plastic, and petrochemical industries | 05. Extraction of anthracite, coal, and lignite 06. Extraction of crude oil and natural gas 091. Support activities for the extraction of oil and natural gas 19. Coke ovens and oil refining 20. Chemical industry 22. Manufacture of rubber and plastic products 4671. Wholesale trade of solid, liquid, and gaseous fuels, and similar products 4675. Wholesale trade of chemical products |
| Metallurgical industry | 07. Extraction of metallic minerals 24. Metallurgy; manufacture of iron, steel, and ferroalloy products 25. Manufacture of metal products, except machinery and equipment 4672. Wholesale trade of metals and metal ores 4677. Wholesale trade of scrap metal and waste products |
| Nonmetallic mineral product industries | 08. Other extractive industries 099. Support activities for other extractive industries 23. Manufacture of nonmetallic mineral products |
| Textile and clothing | 0116. Plant cultivation for textile fibers 13. Textile industry 14. Manufacture of clothing 4641. Wholesale trade of textiles 4642. Wholesale trade of clothing and footwear |
| Leather and footwear | 15. Leather and footwear industry 4624. Wholesale trade of leather and skins |
| Paper, publishing, and graphic arts | 17. Paper industry 18. Graphic arts and reproduction of screen-printed media |
| Pharmaceutical manufacturing | 0128. Cultivation of spices, aromatic, medicinal, and pharmaceutical plants 21. Manufacture of pharmaceutical products 4645. Wholesale trade of perfumery and cosmetic products 4646. Wholesale trade of pharmaceutical products |
| Manufacture of computer and communications products | 26. Manufacture of computer, electronic, and optical products 27. Manufacture of electrical material and equipment 465. Wholesale trade of equipment for information and communication technologies |

Table 3. Cont.

| Classification | CNAE 2009 |
|-------------------------------|---|
| Machinery manufacturing | 28. Manufacture of machinery and equipment. Not included elsewhere 33. Repair and installation of machinery and equipment 466. Wholesale trade of other machinery, equipment, and supplies |
| Automotive industry | 29. Manufacture of motor vehicles, trailers, and semitrailers 30. Manufacture of other transport material |
| Products for domestic use | 31. Manufacture of furniture 4643. Wholesale trade of household appliances 4644. Wholesale trade of porcelain, glassware, and cleaning articles 4647. Wholesale trade of furniture, rugs, and lighting appliances 4648. Wholesale trade of clocks and jewelry 4649. Wholesale trade of other articles for domestic use |
| Other types of industries | 32. Other manufacturing industries |
| Supplies and waste management | 35. Supply of electrical energy, gas, steam, and air conditioning 36. Collection, purification, and distribution of water 37. Collection and treatment of wastewater 38. Collection, treatment, and disposal of waste; valorization 39. Decontamination activities and other waste management services |

Source: Own elaboration from Galetto and Boix (2006: 8) and from the table of equivalences between CNAE 93 Rev. and CNAE 2009 Rev. of the Spanish National Institut os Statistics.

Once the statistical information has been compiled according to the regional territorial demarcation (LAG) and the proposed classification of activities (Table 4), our proposal suggests the following three steps: (1) look for the productive specialization of the LAG territories and verify the relative importance of this (that is, the LPS that is identified) in the economy at the regional or sectoral level; (2) once the previous one has been verified, look for formal (or informal) signs of collaboration or cooperation between the companies that make up the LPS; and (3) verify the international character of the LPS companies, that is, their exporting vocation (this has to happen at least for some of the companies that make up the agglomeration).

Table 4. Description of indicators.

| Indicator | Description | Period |
|----------------------|--|---|
| Number of employees | Extremadura companies included in SABI | Average data: 2012–2014 Lifecycle: 1993–2018 |
| Number of companies | Businesses and establishments (SABI) | Average data: 2012–2014 Lifecycle: 1993–2018 |
| Income | Operating income from SABI-listed Extremadura companies | Average data: 2012–2014 Lifecycle: 1993–2018 |
| Internationalization | International company SABI indicator | Indicator without temporary referece |
| Social Capital | Formal relations between companies (participated, shareholder, etc.) reflected in SABI | Indicator without temporary referece |

Source: Own elaboration.

The first of the steps suggests slightly modifying the specialization index set forth in the criteria used in other methodologies, so that it is sensitive to the size of the companies. This is achieved by calculating the index based on the number of companies and the number of employees, and not only using the number of firms that work in the productive activity considered; that is, converting the equation of criterion 6 into the following two equations.

Equation (1): Depending on the number of firms

$$L1_{ij} = \frac{\frac{E_{ij}}{E_j}}{\frac{E_i}{E}} \quad (1)$$

where:

$L1_{ij}$ is the specialization index in territory i and in sector j measured in terms of the number of companies (“territory i ” being understood as the LWS or LAG territory considered, and “sector j ” as the productive activity on which we apply the methodology);

E_{ij} is the number of firms of sector j in territory i ;

E_j is the total number of firms in sector j in the geographical area that we are going to take as a reference (we consider it convenient to take the region or autonomous community, and not the nation, as the top territorial reference unit, in order to make the agglomerations’ detection process more flexible);

E_i is the total number of firms in territory i (of all the productive sectors);

E is the total number of firms in the territory taken as a reference (that is, the number of firms in all sectors in the region, which serves as reference).

Equation (2): Depending on the number of employees

$$L2_{ij} = \frac{\frac{L_{ij}}{L_j}}{\frac{L_i}{L}} \quad (2)$$

where:

$L2_{ij}$ is the specialization index in territory i and in sector j measured in terms of number of employees (“territory i ” being understood as the LWS or LAG territory considered, and “sector j ” as the productive activity on which we apply the methodology);

L_{ij} is the number of employees of sector j in territory i ;

L_j is the total number of employees in sector j in the geographical area that we are going to take as a reference (we consider it convenient to take the region or autonomous community, and not the nation, as the top territorial reference unit, in order to make the agglomerations detection process more flexible);

L_i is the total number of employees in territory i (of all the productive sectors);

L is the total number of employees in the territory taken as a reference (that is, the number of employees in all sectors in the region, which serves as reference).

Specialization will be verified when the specialization index in both cases is greater than 1, as this would indicate that, in terms of both firms and employment, the LAG territory considered presents a degree of specialization higher than the upper reference territory (in this case, region). This step must also verify, as Hernández, Fontrodona, and Pezzi [83] maintain, that the LPS has an important influence at the regional and/or sectoral level. These authors propose that the relative weight of the productive branch in the LPS should be greater than 15% of the productive branch in the reference space (region), or what is the same, that the production of the main productive branch in the LAG territory represents more than 15% of the total of the same productive branch at the regional level. The relative importance of the LPS would also be verified if it represents more than 0.1% of the set of productive activities in the region under study. Both seem adequate to us, so we endorse them.

To correct the limitations presented by any methodology relative to the specialization index, two criteria enunciated by Laine are proposed [81].

Criterion Number of employees. This criterion is complementary to the previous one, since it serves to verify the productive specialization of the territory through the active population. In addition, following Giner, Santa María, and Fuster [65], and taking again their more restrictive criterion, we consider that a LAG contains an LPS if it has at least 200 employees directly dedicated to a specific branch of activity, in which the territory would be specialized.

Criterion Business density. This criterion tries to verify the presence of a high geographic concentration of businesses that are dedicated to the production of the same product or to the same branch of activity in the analyzed LAG territory. For this to be verified, the number of firms dedicated to the same productive activity per km² in the LAG territory under consideration must be higher than the average of the same indicator in the geographical area chosen to establish the comparison (the region or autonomous community, preferably, in this case).

Finally, following Hernandez, Fontrodona and Pezzi [83], the existence in the LPS of social capital is desirable for a better result, ensuring for it, for instance, business cooperation. Such a factor has a positive impact on competent performance of firms at the international level, and it can be verified with the following two criteria.

Criterion Internationalization. One of the main characteristics of LPSs is that they provide a competitive advantage that allows companies, even if they are small, to compete in the international market. That is why the acceptance of this criterion requires the verification of the existence of companies belonging to the agglomeration that compete in the international market, that is, that export all or part of their production.

Criterion Business cooperation. Another characteristic that the theory of industrial districts assumes is the existence of business cooperation between the companies that make up the agglomeration, in such a way that the existence of business cooperation must be a sine qua non condition to identify an LPS. The measurement of business cooperation can be verified formally and informally, although we understand that a simple way to do it is verifying the existence of agreements between companies or the participation of some of them in the capital of others.

In short, this methodology allows us to identify business agglomerations of a local or regional nature with contrasting importance in terms of employees, number of companies and income generated, and with a significant influence at the LAG level and a high level of business cooperation and presence in international markets.

As the intention is to enable the construction of local development strategies covered by the rural development strategy at the European level, it is necessary to understand at what stage of its life cycle the agglomeration is, that is, whether it is in an incipient development stage or in a mature or decline stage. This is important because the actions to be implemented in each case are different due to what the LPS and the companies inside it really need from an institutional point of view [106–113]. In this sense, to identify this we will use the methodology described by Branco and Lopes [106], and Rangel [113], which uses the indicators of employees, number of companies, and income generated to catalogue each of the agglomerations previously detected.

5. Result for the Extremadura Case

The local sources available for deriving the indicators that we have been describing are difficult to find. As such, we use the database built by Rangel [26], which is described in the following table.

The use of this methodology shows us up to 22 productive specializations in Extremadura with a root at the local or regional level, considering their relative importance in terms of number of companies, employment, and level of generated income. These 22 LPSs are located in 13 LAG territories, which implies that there is polyspecialization in some of them. Mostly, we find that the LPSs that start from an advantage in agriculture and livestock (rural districts) are very relevant, as reflected in Table 5.

Table 5. Rural districts (LPS) in Extremadura.

| Specialization—Location | Companies | Companies Specialization Index | Employment | Employment Specialization Index | Income Generated (EUR) | Sector Weight (%) ¹ | Extremadura Weight (%) ² |
|---|-------------|-----------------------------------|---------------|------------------------------------|---------------------------|--------------------------------|-------------------------------------|
| Campiña Sur—Meat | 139 | 1.80 | 454 | 1.64 | 125,466,662.82 | 3.90 | 0.92 |
| Campo Arañuelo—Agri-food | 136 | 1.24 | 1124 | 1.60 | 198,770,797.48 | 4.92 | 1.45 |
| Campo Arañuelo—Metallurgical | 20 | 1.21 | 293 | 2.18 | 59,028,949.83 | 4.57 | 0.43 |
| Jerte—Agri-food | 34 | 1.39 | 333 | 2.52 | 80,197,505.10 | 1.98 | 0.59 |
| La Serena—Meat | 146 | 1.33 | 473 | 1.07 | 145,678,973.43 | 3.60 | 1.06 |
| La Serena—Granite | 76 | 6.16 | 413 | 7.31 | 34,735,251.07 | 11.63 | 0.25 |
| La Siberia—Meat | 80 | 1.59 | 266 | 1.34 | 74,187,954.75 | 1.84 | 0.54 |
| La Vera—Agri-food | 111 | 1.40 | 434 | 1.59 | 98,016,876.79 | 2.43 | 0.72 |
| Lácara—Agri-food | 202 | 1.49 | 1174 | 1.64 | 153,603,726.12 | 3.80 | 1.12 |
| Miajadas-Trujillo—Agri-food | 109 | 1.18 | 657 | 1.49 | 157,331,112.82 | 3.89 | 1.15 |
| Sierra Grande-Tierra de Barros—Agri-Food | 305 | 1.16 | 1461 | 1.21 | 373,502,535.69 | 9.24 | 2.73 |
| Sierra San Pedro-Los Baldíos—Cork | 68 | 15.55 | 466 | 20.73 | 113,633,209.54 | 58.80 | 0.83 |
| Sierra Suroeste—Meat | 154 | 1.65 | 718 | 1.00 | 149,821,763.41 | 3.71 | 1.09 |
| Sierra Suroeste—Jewelry | 10 | 1.18 | 326 | 16.76 | 80,706,681.30 | 68.67 | 0.51 |
| Sierra Suroeste—Metallurgical | 28 | 2.01 | 892 | 6.48 | 948,623,622.58 | 73.41 | 6.93 |
| Tentudía—Meat | 119 | 2.01 | 354 | 1.86 | 55,735,863.99 | 1.38 | 0.41 |
| Tierra de Barros—Metallurgical | 80 | 2.01 | 421 | 1.83 | 86,487,143.35 | 6.69 | 0.63 |
| Vegas Altas—Agricultural Machinery | 50 | 1.48 | 203 | 1.63 | 25,288,543.43 | 15.04 | 0.18 |
| Vegas Altas—Agri-food | 357 | 1.32 | 3193 | 1.69 | 746,653,970.96 | 18.47 | 5.46 |
| Vegas Altas—Chemical products | 36 | 1.46 | 228 | 1.82 | 107,941,686.10 | 32.32 | 0.79 |
| Zafra-Río Bodiión—Agri-food | 80 | 1.24 | 266 | 1.49 | 74,187,954.75 | 8.14 | 2.40 |
| Zafra-Río Bodiión—Metallurgical | 31 | 1.35 | 363 | 2.12 | 47,373,551.59 | 3.67 | 0.35 |
| Total | 2371 | | 14,512 | | 3,936,974,336.90 | | |

¹ Percentage of the total revenue generated by LPS in the Extremadura sector to which the specialization belongs. ² Percentage of total revenue generated by LPS in the total Extremadura economy. Source: Own elaboration.

Finally, we present the life cycle status results for each of the LPSs, represented in Table 6. This analysis is based on the parent trend by income, employment and business indicators from 1993 to 2018.

Table 6. Life cycle of Extremaduran rural districts.

| Agri-food and meat districts | | |
|---|--|---|
| Growing | Maturity | Decline |
| Vegas Altas—Agri-food Zafra-Río Bodión—Agri-food | Campo Arañuelo—Agri-food | Lácaras—Agri-food Miajadas-Trujillo—Agri-food |
| Agri-food and meat quality district | | |
| Growing | Maturity | Decline |
| La Vera—Agri-food Tentudía—Meat Sierra Grande-Tierra de Barros—Agri-Food Jerte—Agri-food | Sierra Suroeste—Meat Campiña Sur—Meat La Serena—Meat | La Siberia—Meat |
| Other districts | | |
| Growing | Maturity | Decline |
| Campo Arañuelo—Metallurgical Vegas Altas—Agricultural Machinery Vegas Altas—Chemical products | Sierra Suroeste—Jewelry | Sierra San Pedro-Los Baldíos—Cork Zafra-Río Bodión—Metallurgical La Serena—Granite Sierra Suroeste—Metallurgical Tierra de Barros—Metallurgical |

Source: Own elaboration.

In our study, the intention is not to analyze the impact of the LEADER program through the LAG territories, because this fact is already perfectly well described in the research developed by Nieto and Cárdenas for the case of Extremadura [3–5,114–116]; nor is our intention to define the location of Extremadura’s industry [117], but it is instead to check whether the methodology described allows us to identify and detect productive specializations and business agglomerations at the local or regional level whose economic influence is significant at the LAG level, so that this specialization can be enhanced in the rural development strategy.

In the Extremadura case, unlike regions with high business-density, we find that the business agglomerations and productive specializations that have been detected have a moderate level of employment and generated income, as shown in Table 5. However, some cases, particularly those with a special link to agri-industry, have a clear growing trend. In them, taking into account economic theory, it can be understood that they have a certain competitive advantage that favors companies and projects linked to productive specialization. Following the Italian example described by Toccaceli [118], these territories considered to be rural districts fit into policies developed through LEADER projects (LAG) or in the Common Agricultural Policy.

6. Discussion and Conclusions

The local productive systems identified in Extremadura by the methodology proposed in this paper are characterized by their modest contribution to the regional level in terms of employment and number of firms, this being much lower than the contribution evidenced by the industrial districts identified in other studies at the national level [15,75,76,78]. In this sense, what is verified is that these agglomerations have a great impact in terms of income and employment when the analytical and comparative territorial framework is local, and even regional [33], as evidenced, for example, in the business agglomeration

dedicated to the cork manufacturing found in the Sierra de San Pedro-Los Baldíos, located in the west of the Extremadura region. Its importance has led to the fact that, facing the decline stage of the agglomeration, all the agents that comprise it (employers, workers, institutions, research units, etc.) have worked in unison to reverse the situation [119], in what can be classified as an effect of the social capital that the agglomeration possesses.

Among the productive specializations that have been identified for Extremadura, we find a common nexus, namely, they are all based on the possession and use of natural resources, which gives the territory a uniqueness in the form of a comparative advantage that can be used in international trade. We observe this fact in other similar studies carried out at the national and international levels, and in particular in studies carried out in regions such as Andalusia [21] or Castilla-La Mancha [120], where the same phenomenon happens. Even in Italy, a paradigm of the economic literature on agglomeration economies, we already refer to agri-food industrial districts or rural districts [118], and there is also a similar pattern that links business agglomeration with the exploitation of endogenous natural resources, especially in regions with a high incidence of rural areas, such as Sardinia [121].

Another aspect that should be highlighted from the results obtained is the verification of polyspecialization in several of the Extremadura territories. Indeed, the existence of more than one productive specialization has been found in several Extremadura regions, which has positive effects on their economic development, perfectly described by Ruíz [122], as observed in the greater dynamism that regions such as Vegas Altas del Guadiana (one of those in which polyspecialization has been more clearly evidenced) present [12].

In line with the foregoing, empirical evidence shows that the agglomeration industry when organized in the form of agglomeration obtains better results in competitive terms than when it is achieved in a dispersed (non-agglomerated) way [123]. In this sense, we find that the agglomeration of activity identified in Extremadura around a product or branch of activity permits a capacity for the integration of the value chain, ranging from primary activities to wholesale trade, and in some cases passing for the complete transformation of the products. This fact, which can be presented as a common behavior pattern in border regions [124], invites us to think that the clusters detected exhibit the behavior described by industrial ecosystems, in accordance with green and circular economy policies.

All of the above contributes to the design of a bottom-up development strategy for Extremadura, since the methodology allows for locating local productive systems in rural areas with a significant influence on employment, number of firms and income generated at the local and regional level (or in the territories of influence of the local action group), based on the unique production and resource endowment that some Extremadura territories have, and with the possibility of developing primary, secondary and even tertiary branch activities around these products or resources. In short, transforming natural resources into value-added products makes possible the development of services linked to these productive specializations, in particular of a touristic nature, a fact that would lead to a full use of LEADER development strategies, which have been put into practice in Extremadura as regards rural tourism as well [125].

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References

- Canete, A.J.; Navarro, F.; Cejudo, E. Territorially unequal rural development: The cases of the LEADER Initiative and the PRODER Programme in Andalusia (Spain). *Eur. Plan. Stud.* **2018**, *26*, 726–744. [[CrossRef](#)]
- Chmieliński, P.; Faccilongo, N.; Fiore, M.; La Sala, P. Design and implementation of the Local Development Strategy: A case study of Polish and Italian Local Action Groups in 2007–2013. *Stud. Agric. Econ.* **2018**, *120*, 25–31. [[CrossRef](#)]
- Nieto, A.; Cárdenas, G. Los Grupos de Acción Local en el programa de programación FEADER (2017–2013). *Rev. De Estud. Extrem.* **2015**, *LXXI*, 595–628.
- Cárdenas, G. La Política de Desarrollo Rural en Extremadura. Periodo de Programación 2007–2013. Ph.D. Thesis, Universidad de Extremadura, Cáceres, Spain, 2018.
- Nieto, A.; Gurría, J.L. Las políticas rurales europeas y su impacto en Extremadura. *BAGE Bol. Asoc. Geógr. Esp.* **2008**, *48*, 225–246.
- Brańka, P. Managing Development Based on Endogenous Potential in Rural Areas in Malopolska Region. In *Knowledge Economy Society. Challenges and Development Trends of Modern Economy, Finance and Information Technology*; Malina, A., Oczkowska, R., Kaczmarek, J., Eds.; Foundation of the Cracow University of Economics: Cracow, Poland, 2015; pp. 493–500.
- Marshall, A. *Principios de Economía. Un Tratado de Introducción*; Aguilar: Madrid, Spain, 1963; original edition, *Principles of Economics*; Londres, Macmillan and Co.: Londres, Spain, 1890.
- Becattini, G. *La Oruga y la Mariposa. Un Caso Ejemplar de Desarrollo en la Italia de Los Distritos Industriales: Prato (1954–1993)*; Carrión, J., Translator; Secretariado de Publicaciones e Intercambio Editorial de la Universidad de Valladolid: Valladolid, Spain, 2005.
- Garofoli, G. Áreas de especialización productiva y pequeñas empresas en Europa. *Doc. D'anàlisi Geogr.* **1986**, *8–9*, 143–172.
- Garofoli, G. Les systèmes de petites entreprises: Un cas paradigmatique de développement endogène. In *Les Régions Qui Gagnent. Districts et Réseaux: Les Nouveaux Paradigmes de la Géographie Économique*; Benko, G., Lipietz, A., Eds.; Presses Universitaires de France: Paris, France, 1992; pp. 57–80.
- Nugroho, P. Spatial Distribution on the search for economic externalities acquisition in rural industry clustering: A study of emerging batik industry clusters in lagging regions of Wonosobo Regency and Purworejo Regency, Indonesia. *IOP Conf. Ser. Earth Environ. Sci.* **2019**, *313*, 012032. [[CrossRef](#)]
- Rangel, J.F.; Parejo, F.M.; Cruz, E. Distrito rural y ciclo de vida. El caso de la comarca de Vegas Altas del Guadiana, Extremadura, España. *Espacios* **2019**, *40*, 13.
- Ruíz, M.J. Influencia de las economías externas de distrito sobre la productividad empresarial: Un enfoque multinivel. *Investig. Reg. J. Reg. Res.* **2009**, *18*, 61–82.
- Helmsing, A.H.J. Teorías de desarrollo industrial regional y políticas de segunda y tercera generación. *Eure—Rev. Latinoam. Estud. Urbano Reg.* **1999**, *25*, 5–39. [[CrossRef](#)]
- Boix, R.; Trullen, J. Industrial districts, innovation and I-district effect: Territory or industrial specialization? *Eur. Plan. Stud.* **2010**, *18*, 1707–1729. [[CrossRef](#)]
- Climent, E.A.; Ruíz, E. Sistema productivos locales de pequeña y mediana empresa en Aragón: Identificación y delimitación. In *Aportaciones Geográficas en Memoria del Profesor Miguel Yetano Ruiz*; Universidad de Zaragoza: Zaragoza, Spain, 2002; pp. 99–110.
- Méndez, R. Sistemas Productivos Locales y Políticas de Desarrollo Rural. *Rev. De Estud. Reg.* **1994**, *39*, 93–112.
- Chandler, A. *Escala y Diversificación. La Dinámica del Capitalismo Industrial*; Prensas Universitarias de Zaragoza: Zaragoza, Spain, 1996.
- Sforzi, F. La teoría marshalliana para explicar el Desarrollo Local. In *Manual de Desarrollo Local*; Rodríguez, F., Ed.; Ediciones Trea: Gijón, Spain, 1999; pp. 13–32.
- Pezzini, M. Sistemas productivos locales de pequeñas empresas como estrategias para el desarrollo local. Los casos de Dinamarca, Emilia-Romagna y la Comunidad Valenciana. *Econ. Ind.* **2006**, *359*, 185–202.
- Juste, J.J. Desarrollo Local y Mercado Global: Los Sistemas Productivos Locales y la Industria Agroalimentaria en Castilla y León. Ph.D. Thesis, Universidad de Valladolid, Valladolid, Spain, 2001.
- Ruíz, M.J. *Distritos Industriales y Desarrollo Local—Un Análisis Aplicado a Castilla-La Mancha*; Colección Economía-Estudios, Civitas: Cizur Menor, Spain, 2009.
- García, O. Sistemas Productivos Locales y Desarrollo Local en Andalucía (1998–2012). Estudio del Caso de la Aceituna de Mesa de Morón de la Frontera. Ph.D. Thesis, Universidad de Sevilla, Sevilla, Spain, 2006.
- Climent, E.A. *Los Sistemas Productivos Locales de La Rioja: Identificación, Dinámica Interna y Mercado*; Gobierno de la Rioja, Ediciones Instituto de Estudios Riojanos: Logroño, Spain, 2000.
- Larrea, M. *Sistemas Productivos Locales en la Comunidad Autónoma del País Vasco*; Gobierno Vasco, Servicio Central de Publicaciones: País Vasco, Spain, 2000.
- Larrea, M. Análisis de la Estructura Industrial en los Sistemas Productivos de la Comunidad Autónoma del País Vasco. Ph.D. Thesis, Universidad de Deusto, Bilbao, Spain, 1999.
- Juste, J.J. Industria agroalimentaria, desarrollo rural y sistemas productivos locales en Castilla y León. *Cuad. Estud. Agroaliment.* **2011**, *2*, 219–252.
- Storper, M.; Sabel, C.F.; Piore, M.J. Distritos industriales y desarrollo regional: Límites y posibilidades. *Sociol. Trab.* **1991**, *1*, 181–230.
- Pyke, F. Pequeñas empresas, distritos industriales y desarrollo regional. *Econ. Ind.* **1992**, *287*, 107–112.

30. De Luca, J.A.; Soto, G.M. *Los Distritos Industriales Como Estrategia de Desarrollo Regional*; CajaMurcia, Obra Social: Murcia, Spain, 1995.
31. Sforzi, F.; Boix, R. What about Industrial District(s) in Regional Science? *Investig. Reg. J. Reg. Res.* **2015**, *32*, 61–73.
32. Longás, J.C. Formas organizativas y espacio: Los distritos industriales, un caso particular en el desarrollo regional. *Rev. Estud. Reg.* **1997**, *48*, 167–188.
33. Rangel, J.F. *Los Sistemas Productivos Locales en Extremadura: Aportaciones a la Política de Desarrollo Industrial y Rural*. Ph.D. Thesis, Universidad de Extremadura, Badajoz, Spain, 2018.
34. Guareschi, M.; Maccari, M.; Sciurano, J.P.; Arfini, F.; Pronti, A. A Methodological Approach to Upscale Toward an Agroecology System in EU-LAFSs: The Case of the Parma Bio-District. *Sustainability* **2020**, *12*, 5398. [CrossRef]
35. Truant, E.; Broccardo, L.; Zicari, A. Organic companies' business models: Emerging profiles in Italian bio-districts. *Br. Food J.* **2019**, *121*, 9. [CrossRef]
36. Vila, J. Distritos industriales y renta económica: El efecto distrito—Renta. *Pap. De Eur.* **2019**, *32*, 67–80.
37. Dei Ottati, G. El efecto distrito: Algunos aspectos conceptuales de sus ventajas competitivas. *Econ. Ind.* **2006**, *359*, 73–79.
38. López, M. *Empresa Innovadora, Conocimiento y Distrito Industrial*. Ph.D. Thesis, Universitat Politècnica de València, Valencia, Spain, 2010.
39. López, M.; Tomás, J.V.; Expósito, M. Conocimiento y efecto distrito en las empresas innovadoras. Un estudio en la región valenciana. *Rev. Estud. Reg.* **2014**, *101*, 189–218.
40. Cuculelli, M.; Storai, D. Industrial districts, district effect and firm size: The Italian evidence. *Camb. J. Econ.* **2018**, *42*, 1543–1566. [CrossRef]
41. Lazeretti, L.; Capone, F. *Industrial District Effects and Innovation in the Tuscan Shipbuilding Industry*. IERMB Working Paper in Economics. 2009. Available online: <https://iermb.uab.cat/es/workinpapers/industrial-district-effects-and-innovation-in-the-tuscan-shipbuilding-industry-w-p-in-economics-09-03-2/> (accessed on 1 May 2020).
42. Galletto, V.; Boix, R. Distritos industriales, innovación tecnológica y efecto I-distrito ¿Una cuestión de volumen o de valor? *Investig. Reg.* **2014**, *30*, 27–51.
43. Boix, R.; Galletto, V. Innovation and Industrial Districts: A First Approach to the Measurement and Determinants of the I-District Effect. *Reg. Stud.* **2009**, *43*, 1117–1133. [CrossRef]
44. Ruíz, M.J.; Parra, G.; García, P.M. Do Territorial Agglomerations Still Provide Competitive Advantages? A Study of Social Capital, Innovation, and Knowledge. *Int. Reg. Sci. Rev.* **2016**, *39*, 259–290. [CrossRef]
45. Cainelli, G.; Mancinelli, S.; Mazzanti, M. Social capital and innovation dynamics in district-based local systems. *J. Socio-Econ.* **2007**, *36*, 932–948. [CrossRef]
46. Nicolau, J. *La Influencia del Capital Social y el Conocimiento en los Procesos de Explotación/Exploración e Innovación en las Empresas del Distrito Industrial. Una Aplicación al Textil Valenciano*; Universidad Politécnica de Valencia: Valencia, Spain, 2013.
47. Parra-Requena, G.; Ruiz-Ortega, M.J.; Garcia-Villaverde, P.M. Social Capital and Effective Innovation in Industrial Districts: Dual Effect of Absorptive Capacity. *Ind. Innov.* **2013**, *20*, 157–179. [CrossRef]
48. Molina-Morales, X.; Capó-Vicedo, J.; Martínez-Fernández, M.T.; Expósito-Langa, M. Social capital in industrial districts: Influence of the strength of ties and density of the network on the sense of belonging to the district. *Pap. Reg. Sci.* **2013**, *92*, 773–789. [CrossRef]
49. Becattini, G. Del distrito industrial marshalliano a la «teoría del distrito» contemporánea. Una breve reconstrucción crítica. *Investig. Reg. J. Reg. Res.* **2002**, *1*, 9–32.
50. Becattini, G. *Industrial Districts: A New Approach to Industrial Change*; Edward Elgar Publishing, Inc.: Northampton, MA, USA, 2004.
51. Becattini, G. From Marshall's to the Italian "Industrial Districts". A Brief Critical Reconstruction. In *Complexity and Industrial Clusters. Dynamics and Models in Theory and Practice*; Quadrio, A., Fortis, M., Eds.; Springer: New York, NY, USA, 2002; pp. 83–106.
52. Sforzi, F. The Industrial District and the 'New' Italian Economic Geography. *Eur. Plan. Stud.* **2002**, *10*, 439–447. [CrossRef]
53. Sforzi, F.; Mancini, M. The Reinterpretation of the Agri-Food System and Its Spatial Dynamics through the Industrial District. *Agric. Econ. Zemědělská Ekon.* **2012**, *58*, 510–519.
54. Zecca, F.; Al Am, A.; Capocchi, E. Dai distretti alle reti d'impresa: Soluzioni chiave per lo sviluppo territoriale. *Riv. Econ. Agrar.* **2014**, *69*, 227–243.
55. Carminati, M. *La Legislazione Italiana e Regionale Sui Distretti Industriale: Situazione ed Evoluzione*; Università Cattolica del Sacro Cuore, Centro di Ricerche in Analisi economica e sviluppo economico internazionale (CRANEC): Milano, Italy, 2006.
56. Fuster, A. *La Resiliencia de los Distritos Industriales Durante La Gran Recesión: Un Análisis del Caso Valenciano*. Ph.D. Thesis, Universidad de Alicante, Alicante, Spain, 2019.
57. Santa María, M.J. *Pequeñas Empresas y Distritos Industriales: El Textil-Confección en la Comunidad Valenciana*; Instituto de Cultura Juan Gil Albert: Alicante, Spain, 1999.
58. Soler, V. Verificación de las hipótesis del distrito industrial: Una aplicación al caso valenciano. *Econ. Ind.* **2000**, *334*, 13–23.
59. Ahedo, M. Business Systems and Cluster Policies in the Basque Country and Catalonia (1990–2004). *Eur. Urban Reg. Stud.* **2006**, *13*, 25–39.
60. Duch, N. La organización de la industria en Cataluña. El papel de los distritos industriales. *Bol. Econ. Ice* **2008**, *2952*, 73–82.

61. Blázquez, M.L. La Importancia de los Clusters en la Competitividad en España. El Caso Específico de la Región Catalana. Ph.D. Thesis, Universidad Pontificia Comillas, Madrid, Spain, 2010.
62. Hernández, M. Pasado, presente y futuro de la política de clústers el caso de Cataluña y su encuadramiento europeo. *Econ. Ind.* **2013**, *387*, 147–158.
63. Ahedo, M. Cluster policy in the Basque country (1991–2002): Constructing ‘industry–government’ collaboration through cluster-associations. *Eur. Plan. Stud.* **2004**, *12*, 1097–1113. [[CrossRef](#)]
64. Extabe, I.; Valdalisio, J.M. Measuring structural social capital in a cluster policy network: Insights from the Basque Country. *Eur. Plan. Stud.* **2016**, *24*, 884–903.
65. Aranguren, M.J.; De la Maza, X.; Davide, M.; Vendrell, F.; Wilson, J.R. Nested Methodological Approaches for Cluster Policy Evaluation: An Application to the Basque Country. *Reg. Stud.* **2014**, *48*, 1547–1562. [[CrossRef](#)]
66. Elola, A.; Valdalisio, J.M.; Franco, S.; López, S.M. Public policies and cluster life cycles: Insights from the Basque Country experience. *Eur. Plan. Stud.* **2017**, *25*, 539–556. [[CrossRef](#)]
67. Castillo, J.S.; García, M.C. Los distritos rurales. Un nuevo concepto de desarrollo territorial. Modelos Centro-Periferia en Castilla-La Mancha. *Estud. Econ. Apl.* **2011**, *29*, 165–188.
68. Castillo, J.S.; García, M.C. Del distrito industrial al distrito rural; implicaciones teóricas para el desarrollo territorial. *Econ. Agrar. Y Recur. Nat.* **2011**, *11*, 7–32.
69. Trullen, J.; Callejón, M. Las Agrupaciones de Empresas Innovadoras. In *Los Distritos Industriales*; Soler, V., Ed.; Caja Rural del Mar (Cajamar): Almería, Spain, 2008; pp. 459–478.
70. Ybarra, J.A.; Doménech Sánchez, R. Las Agrupaciones de Empresas Innovadoras y la política industrial española basada en el territorio. *Econ. Ind.* **2011**, *380*, 143–152.
71. García, A. Agrupaciones Empresariales Innovadoras Como Factor de Competitividad de las Empresas de Castilla y León. Diploma Thesis, Universidad de Valladolid, Valladolid, Spain, 2014.
72. Rivero, P. Redes Empresariales y Estrategia Empresarial Pyme. Análisis de la Oferta y Demanda de Servicios de las Agrupaciones de Empresas Innovadoras (AEI). Ph.D. Thesis, Universidad de Extremadura, Badajoz, Spain, 2013.
73. Ivars, J.A.; Rodríguez, I.; Vera, J.F.; Acebal, A. Nuevos enfoques en la gestión turística: El programa de agrupaciones empresariales innovadores en España. *Bol. Asoc. Geógr. Esp.* **2014**, *66*, 369–395.
74. Ivars, J.A.; Vera, J.F.; Acebal, A. Políticas de innovación en turismo y desarrollo de clusters: La percepción gerencial en el programa Agrupaciones Empresariales Innovadoras (AEIs). *Cuad. Tur.* **2014**, *33*, 97–120.
75. Boix, R.; Galletto, V. *Identificación de Sistemas Locales de Trabajo y Distritos Industriales en España*; MITYC: Madrid, Spain, 2005.
76. Boix, R.; Galletto, V. Sistemas locales de trabajo y distritos industriales marshallianos en España. *Econ. Ind.* **2006**, *359*, 165–184.
77. Giner, J.M.; Santa María, M.J.; Fuster, A. Los sistemas productivos locales en la Comunidad Valenciana: Análisis para su identificación y localización territorial. In *La Economía Regional Ante la Globalización*; Fuster, A., Giner, J.M., Santa María, M.J., Eds.; Publicaciones de la Universidad de Alicante: Alicante, Spain, 2006; pp. 109–126.
78. Courlet, C.; Pecqueur, B. Les systèmes industriels localisés en France: Un nouveau modèle de développement. In *Les Régions Quigangent. Districts et Réseaux: Les Nouveaux Paradigmes de la Géographie Économique*; Benko, G., Lipietz, A., Eds.; Presses Universitaires de France: Paris, France, 1992; pp. 81–102.
79. Boix, R.; Trullén, J. La relevancia empírica de los distritos industriales marshallianos y los sistemas productivos locales manufactureros de gran empresa en España. *Investig. Reg. J. Reg. Res.* **2011**, *19*, 75–96.
80. Trullén, J. Distritos industriales marshallianos y sistemas locales de gran empresa en el diseño de una nueva estrategia territorial para el crecimiento de la productividad en la economía española. *Econ. Ind.* **2006**, *359*, 95–112.
81. Lainé, F. Agglomérations Spécialisées d’Établissements et Systèmes Localisés de Production: Une Gricul Statistique. INSEE, Direction de la Diffusion et de l’Action Regionale, Département de l’Action Régionale, Division “Etudes Territoriales”. 2000. Available online: <https://www.epsilon.insee.fr/jspui/handle/1/51913> (accessed on 1 May 2020).
82. Parejo, F.M.; Rangel, J.F.; Branco, A. Aglomeración industrial y desarrollo regional. Los sistemas productivos locales en Portugal. *Eure—Rev. Latinoam. De Estud. Urbano Reg.* **2019**, *45*, 147–168. [[CrossRef](#)]
83. Hernández, M.; Fontrodona, J.; Pezzi, A. *Mapa de los Sistemas Productivos Locales en Cataluña*; Secretari d’Indústria, Departament de Treball i agricultu, Generalitat de Catalunya: Barcelona, Spain, 2005.
84. Puig, F.; Pla, J.; Linares, E. Los distritos industriales como unidad de análisis: Una propuesta metodológica para su identificación. *Icade Rev. Fac. Derecho Y Cienc. Econ. Y Empres.* **2008**, *73*, 321–345.
85. Santacana, F.; Guinjoan, M.; Pellicer, P.; Vázquez, A. *Áreas Rurales Con Capacidad de Desarrollo Endógeno*; Ministerio de Obras Públicas y Urbanismo: Madrid, Spain, 1987.
86. ITUR. *Industrialización en Áreas Rurales*; Ministerio de Obras Públicas y Urbanismo: Madrid, Spain, 1987.
87. AGE: Grupo de Geografía Industrial. *Actas de la II Reunión de Geografía Industrial*; AGE: Santiago de Compostela, Spain, 1988.
88. Celada, F. *Los Sistemas Productivos Locales de Carácter Industrial en España*; IMPI: Madrid, Spain, 1991.
89. Costa, M.T. Cambios en la organización industrial: Cooperación local y competitividad internacional. Panorama general. *Econ. Ind.* **1992**, *286*, 19–36.
90. Ybarra, J.A. Entre la cooperación y la competencia, los distritos industriales en el País Valenciano. *Econ. Ind.* **1992**, *286*, 72–74.
91. CEP Excel. *Cooperación Entre Empresas y Sistemas Productivos Locales*; Ministerio de Industria, Comercio y Turismo: Madrid, Spain, 1993.

92. Gil, J.M.; Mecha, R.; Melguizo, I.; Palacios, J.R.; De la Hoz, A.F. Los procesos de industrialización en las áreas rurales. La mesa de Ocaña (Toledo). *Estud. Territ.* **1994**, *102*, 609–616.
93. ISTAT. *Sistemi Locali del Lavoro. Censimento 2001. Dati Definitivi*; ISTAT: Roma, Italy, 2005.
94. ISTAT. *Distretti Industriali e Sistemi Locali del Lavoro 2001*; ISTAT: Roma, Italy, 2006.
95. De Propis, L. Los distritos industriales en el mundo anglosajón. El caso británico. In *Los Distritos Industriales*; Soler, V., Ed.; Fundación Cajamar: Almería, Spain, 2008; pp. 203–224.
96. Brusco, S.; Paba, S. Per una storia dei distretti italiani dal secondo dopoguerra agli anni novanta. In *Storia del Capitalismo Italiano*; Barca, F., Ed.; Doncelli: Roma, Italy, 1997; pp. 265–333.
97. Venacio, L. Globalización, Desarrollo Local y Sociedad Civil: El Partenariado Transnacional Como Base Para la Internacionalización del Desarrollo Local. Eumed.net. 2007. Available online: www.eumed.net/libros/2007a/221/ (accessed on 1 May 2020).
98. Levin, I. Los Distritos Industriales y los debates de la estrategia económica y política en Rusia. *Econ. Ind.* **2006**, *359*, 127–146.
99. Pérez, A.; Leco, F.; Barrientos, G. *Población y Despoblación en Extremadura*; Gederul: Cáceres, Spain, 2012.
100. Leco, F.; Pérez, A.; Mateos, A.B. Crisis demográfica en la Extremadura rural: Valoración a través de los Grupos de Acción Local (2007–2014). *Cuad. Geogr.* **2017**, *56*, 76–100.
101. Pérez, A.; Leco, F. La despoblación: Una amenaza para el medio rural extremeño. In *Informe. La Agricultura y la Ganadería Extremeña*; Coletto, J.M., González, R., Muslera, E., Pulido, F.C., Eds.; Fundación Caja de Badajoz: Badajoz, Spain, 2013; pp. 75–91.
102. Zapata, S. *La Industria de Una Región No Industrializada: Extremadura, 1750–1990*; Servicio de Publicaciones de la Universidad de Extremadura: Cáceres, Spain, 1996.
103. Parejo, F.M.; Rangel, J.F. La economía extremeña en perspectiva histórica: Crecimiento, convergencia y cambio estructural. In *Treinta Años de Economía y Sociedad Extremeña (1983–2013)*; De la Macorra, L.F., Ed.; Diputación de Badajoz: Badajoz, Spain, 2015; pp. 13–30.
104. Linares, A.M. Extremadura en democracia (1975–2017): Luz y contraluz de una historia económica regional. *Rev. Estud. Extrem.* **2017**, *73*, 955–966.
105. De la Calle, A. Situación del tejido empresarial de Extremadura. *Rev. Estud. Econ. Empres.* **2015**, *27*, 43–68.
106. Branco, A.; Lopes, J.C. Cluster and business performance: Historical evidence from the Portuguese cork industry. *Investig. Hist. Econ. Econ. Hist. Res.* **2018**, *14*, 43–53. [[CrossRef](#)]
107. Capó Vicedo, J. Análisis del ciclo de vida y las políticas de desarrollo de los clusters de empresas. *Rev. EURE Rev. Estud. Urbano Reg.* **2011**, *37*, 59–87. [[CrossRef](#)]
108. Belussi, F.; Sedita, S.R. Life Cycle vs. Multiple Path Dependency in Industrial Districts. *Eur. Plan. Stud.* **2009**, *17*, 505–528. [[CrossRef](#)]
109. Menzel, M.; Fornahl, D. Cluster life cycles- dimensions and rationales of cluster evolution. *Ind. Corp. Chang.* **2009**, *19*, 205–238. [[CrossRef](#)]
110. Popp, A.; Wilson, J. Life Cycles, Contingency, and Agency: Growth, Development, and Change in English Industrial Districts and Clusters. *Environ. Plan. A Econ. Space* **2007**, *39*, 2975–2992. [[CrossRef](#)]
111. Branco, A.; Lopes, J.C. The economic performance of clustered and non clustered firms along the different phases of the cluster life cycle: The Portuguese cork industry case. In *Working Papers Department of Economics del ISEG*; Universidade Técnica de Lisboa: Lisbon, Portugal, 2013; p. 26.
112. Elola, A.; Valdiso, J.M.; López, S.M.; Aranguren, M.J. Cluster Life Cycles, Path Dependency and Regional Economic Development: Insights from a Meta-Study on Basque Clusters. *Eur. Plan. Stud.* **2012**, *20*, 257–279. [[CrossRef](#)]
113. Rangel, J.F. El ciclo de vida del distrito industrial de San Vicente de Alcántara (Badajoz). El negocio del corcho. *Rev. Estud. Econ. Empres.* **2018**, *30*, 37–72.
114. Nieto, A.; Cardenas, G. The Rural Development Policy in Extremadura (SW Spain): Spatial Location Analysis of Leader Projects. *ISPRS Int. J. Geo-Inf.* **2018**, *7*, 1–16.
115. Cárdenas, G.; Y Nieto, A. Rural space governance in Extremadura (SW Spain). Analysis of the leader approach. *Eur. Countrys.* **2020**, *12*, 448–468.
116. Cárdenas, G.; Nieto, A. El Enfoque LEADER en el nuevo FEADER 2014–2020 en Extremadura. *Cuad. Geogr.* **2020**, *59*, 5–27.
117. Cortés, M.A. Análisis Económico de la Localización Industrial Agroalimentaria Extremeña. Una Perspectiva Comparada. Ph.D. Thesis, Universidad Rey Juan Carlos, Madrid, Spain, 2015.
118. Toccaceli, D. Agricultural districts in the Italian regions: Looking toward 2020. *Agric. Food Econ.* **2015**, *3*, 1. [[CrossRef](#)]
119. Rangel, J.F.; Tejada, A.; Parejo, F.M. *Plan Estratégico Para la Especialización en la Transformación de Productos Corcheros*; OCICEX: Badajoz, Spain, 2016.
120. Mecha, R. *Sistemas Productivos Locales e Industrialización Rural en Castilla-La Mancha*. Ph.D. Thesis, Universidad Complutense de Madrid, Madrid, Spain, 2002.
121. Gruppo di Lavoro Della Ricerca. *Sughero, Lattiero-Caseario, Graitto. I Distretti Industriali del Nord Sardegna. Protagonisti, Relazioni, Prospettive*; Associazione degli Industriali della Provincia di Sassari: Sassari, Italy, 1996.
122. Ruiz, M.J. La poliespecialización como fuente de dinamismo del distrito industrial. In *Los Distritos Industriales*; Soler, V., Ed.; Fundación Cajamar: Almería, Spain, 2008; pp. 139–157.

-
123. Seva, P. *Distritos Industriales y Competitividad Empresarial: Un Análisis Aplicado a los Distritos Industriales Alimentarios (DIA) en España*. Ph.D. Thesis, Universidad de Alicante, Alicante, Spain, 2019.
 124. Pizarro-Gómez, A.; García-Delgado, F.J.; Pérez-Mora, C. Cambios en la industria de transformación del cerdo ibérico en la Sierra de Huelva (2002–2020). *Cuad. Geogr.* **2021**, *60*, 203–224.
 125. Nieto, A.; Rios, N. Rural Tourism as a Development Strategy in Low-Density Areas: Case Study in Northern Extremadura (Spain). *Sustainability* **2020**, *13*, 239. [[CrossRef](#)]