INDUSTRIAL LOCATION AND URBAN SYSTEM: FOOD INDUSTRY IN INLAND SPAIN

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Agrofood industry has performed above the Spanish economy during the ongoing crisis released in 2008. Both competitive and comparative advantages have supported the success of these companies in domestic and foreign markets. Therefore, this economic sector is able to make a potentially significant contribution to local and rural development. Actually, territorial development policies have strongly supported investment in new food companies or in the upgrading of already existing ones. Nevertheless, internal diversity of the agrofood industry, in terms of locational factors, is apparent, because some branches are closely linked to raw materials whilst others are more dependent on end consumer markets. A typology of location patterns may, accordingly, enhance the design of local development policies because it identifies the locational preferences for each food branch and subsequently allows for the allocation of public resources to support the activities more suitable for each specific geographical and socioeconomic setting.

This article develops a typology of the location patterns of agrofood industries across the settlement system of inland Spanish regions: Aragón, La Rioja, Navarre, Castile and León, Madrid, Extremadura and Castile La Mancha. This multi-regional setting contributes with 30.8 per cent of Spanish population (2013), 29 per cent of Spanish industrial gross value added and 32.5 per cent of food industry value added. Extremadura, La Rioja and both Castiles are also highly specialized in agrofood industry.

The empirical support for this typology is based on a municipality-level dataset made up of 20,359 companies recorded in October 2011 in the Spanish Company Census marketed by CAMERDATA. Such a dataset was linked to data from the Population Census (2011) and to data supplied by the Social Security (2009) on the number of companies and employees in the food sector within each Spanish municipality.

In addition, 4,908 municipalities in the aforementioned regions were clustered in eight categories by merging two official sources for territorial planning: the *Digital Atlas of Urban Areas* and the Rural Areas Demarcation included in the *Sustainable Rural Development Plan* of Spain (PDRS 2000-2014). Therefore, it is possible to analyse the distribution of food processing companies (both on the aggregate and branch levels) across the different levels of the settlement system in Spain, according to the following categories:

1. Madrid Urban Area (AU_M), including Madrid and the municipalities which belong to its metropolitan region, according to the Atlas.
2. Zaragoza Urban Area AU_Z), including Zaragoza and the municipalities which belong to its metropolitan region, according to the Atlas.
3. Valladolid and Pamplona Areas (AU_3), including these two cities and the municipalities which belong to their metropolitan regions, according to the Atlas.
4. Urban areas of León, Salamanca, Burgos, Logroño, Albacete, Badajoz and Guadalajara (AU_4). It includes these provincial capitals and the municipalities which belong to their urban regions, according to the Atlas.
5. Urban areas of Toledo, Cáceres, Talavera de la Reina, Palencia, Ciudad Real, Ponferrada, Segovia, Mérida, Zamora, Ávila, Cuenca, Aranjuez, Huesca, Puertollano, Soria and Teruel, and the municipalities which belong to their respective urban areas, according to the Atlas. The towns of Plasencia, Miranda de Ebro, Tomelloso and Don Benito, whose population is larger than Teruel (35.660 population, according to the Population Census of 20111, have been included in this category, termed AU_5.
6. Rural towns or *cabeceras comarcales* (Cab_Com): this category includes every municipality populated between 10,000 and 35,026 (population of Tudela, which scores just behind Teruel in the population ranking) which does not belong to any urban area according to the Atlas.
7. Peri-urban rural areas (AR_Periurbana) include every municipality below 10,000 population listed in the PDRS in this category which does not belong to any urban area according to the Atlas.
8. Rest of rural areas (AR_Resto), a category that includes all municipalities below 10,000 population, not included in any urban area and listed by the PDRS as "intermediary" o "to revitalize". Additionally, 185 localities below 10,000 population not included in the PDRS were added to this group.

By using geographical statistics and an analysis of the distribution of companies across these eight settlement levels, four main conclusions were drawn.

First, there is a broad relationship between population distribution and food processing companies distribution. This industry is thus closely linked to the settlement pattern as a whole. In other words, there is a tension between closeness to raw materials from agriculture and cattle-raising, on one hand, and closeness or accessibility to final consumers. It is no surprise, then, that the metropolitan region of Madrid becomes a hot spot in the food industry map in inland Spain, accounting for 11.3 per cent of companies.

Second, food industry is more likely a rural than an urban activity. Concentration data for industries are slightly lower that for population. AR_Resto municipalities concentrate 55.01 per cent of companies. If the 67 rural towns are added, this figure climbs up to 65.46 per cent. All together, non-urban settlements account for 71.63 per cent of companies and 57.95 per cent of employees, but only for 30.72 per cent of population in the regional framework. These are small and medium-sized companies whose average size is 11.12 workers per unit, far below from urban companies' averages. Nevertheless, a huge number of very small rural municipalities are not attractive at all for the location and operation of food industries and hold not a single company.

Third, the branches of the food industry show very different location patterns in these regions. Rural-oriented activities hold 70 per cent of companies. But other producers are mostly located in urban environments. And there are also differences in rural activities because some of them are purely rural, whilst others also develop in urban settlements. At this point, more information is needed on the particular specialization of each company in order to identify and understand the specific location factors which underpin these spatial contrasts. For this reason, it must be acknowledged that the typology is based on non-conclusive data, so it is not easy to establish neat locational patterns for each branch in the food sector.

Fourth, rural towns emerge as strong places in the locational structure of the food processing industry in Spain. Despite their rural condition, they display some urban traits, as the higher size of companies (in terms of the number of employees), their low number (67 cases) and the population average. Their role is far more relevant than the simple supply of tertiary functions for wider rural surrounding areas. Their retail and tertiary endowment is closely related to the local demand threshold, which also supports the location of some industries for local consumers. On the reverse side, the location and diffusion of industries assumes that some minimum levels of population, infrastructure and equipment must be provided for companies. In rural areas, it is only these rural towns where those location factors are available. Spatial statistic analysis show that many agrofood clusters have grown around these rural towns, which operate as catalysts for economic growth in rural areas.

Finally, the whole approach in this article should be influential in the design of territorial development policies when they support new firm foundations in rural

areas. These data clearly show that some food processing activities need an urban environment to flourish and develop, others preferring rural locations. Simultaneously, the widespread standpoints which support equality as a guiding principle for the allocation of public and private resources are at odds with the fact that food companies are clustered both in urban and rural areas, with rural towns often being the heart of these food clusters. It is noteworthy that 45 per cent of municipalities in these regions have no food processors. And many more places only hold one or two small companies. A deeper reflection on the sustainability of these egalitarian approaches to rural development policies is imperative in the current context of budget restrictions. An alternative could consist of the establishment of preferential location districts with a strong endowment of the infrastructure, resources and institutional conditions demanded by industrial activities to locate and develop.