

**RURAL DEPOPULATION IN MEDITERRANEAN WESTERN  
EUROPE: A CASE STUDY OF ARAGON**

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## **Abstract**

We have selected Aragon in the northeast of Spain as a long-run case study for the problem of rural depopulation in Mediterranean Western Europe. The strength and persistence of the depopulation in the region has left numerous rural districts in extreme situations of low demographic density. The basic cause of this phenomenon is the intensity of rural-to-urban migratory processes in the Aragonese countryside. Rural depopulation in Aragon has not yet stopped. However, important changes have taken place since the 1990s.

In the first place, migration has been replaced by negative natural growth as the key factor in rural depopulation. Furthermore, the current situation features a reversal of the migratory balance, resulting in a sharp deceleration in depopulation since 2001 and positive growth in the larger country towns. This switch in migratory flows is partly due to the arrival of foreign-born immigrants, who are attracted by opportunities arising as a result of the difficulty of replacing the active population. At the same time, Aragon is close to the top of the ranking of Spanish regions in terms of *per capita* income, while an incipient process of restructuring and change has begun in the rural hinterland and the emergence of new residential and tourist functions has helped attract Spanish urban migrants.

*Key words:* *rural depopulation, rural exodus, counter-urbanization, migration*

## **1. Introduction**

### *1.1. Rural depopulation in Western Europe*

The distribution of the population in the European Union is extraordinarily uneven, resulting in enormous differences between average densities in different regions and between urban and rural areas (Mouqué, 2004). Perhaps the most disturbing feature of European demographics, however, is the startlingly low population density in some regions compared to the situation fifty or one hundred years ago. From this standpoint, our main concern is to examine the long term causes for depopulation and the current status of the problem. Depopulation has affected rural areas almost exclusively and it may unquestionably be regarded as the most severe threat to local economies, not only because it limits growth opportunities, causes important environmental problems and complicates the provision of public services, but because it may jeopardize the very existence of small towns and villages as inhabited settlements (Marini and Mooney, 2006, 94)<sup>1</sup>.

An analysis of the population of eight EU countries and Switzerland at the regional / provincial level from the mid-19<sup>th</sup> century to the present (NUTS III) reveals significant depopulation processes in all cases except the Netherlands, Belgium and Switzerland, three small states with a relatively uniform geography where industrialization began early.

Nevertheless, the intensity and timing of these processes varies considerably. In the large states of northern Europe (United Kingdom and France), depopulation has affected wide areas over the long term (1860-2000)<sup>2</sup>. This depopulation started early and became much less intense in the second half of the 20<sup>th</sup> century.

In the southern European countries (Italy, Spain and Portugal) in contrast, depopulation became a problem above all in the period following World War II, when the process gathered pace to reach dramatic proportions in some cases, although it also has long-term significance.

These differences in the timing of depopulation processes are key to understanding the predominant patterns, and they would appear to indicate a strong link between the transformations involved in modern economic growth and intense demographic imbalances.

From this perspective, depopulation may be viewed as a specific case of a more general phenomenon, which was the rural exodus caused by modern economic growth. During the period of industrialization and the subsequent economic growth, cities expanded enormously, concentrating the location of first industry and then services. This expansion required the recruitment of a large labor force drawn mainly from rural areas, where the increasing substitution of farm machinery for muscle power further encouraged significant rural-to-urban migration.

The case of the depopulated rural areas may, then, be understood as a process affecting regions where the rural exodus outstripped natural growth, reducing the total number of inhabitants to a critical level, particularly in terms of population density and ageing of demographic structures. The differences in the pace of depopulation in

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<sup>1</sup> The low densities to which rural populations have fallen has important implications for the future of the municipalities affected. See Smailes, Argent and Griffen (2002).

<sup>2</sup> For a discussion of England and Wales, see the classic study by Saville (1957).

northern and southern Europe reflected in Table 1 would appear, moreover, to replicate the processes of modern economic growth in the countries concerned.

The situation today is more complex, however. While the great rural exodus ended decades ago, depopulation remains significant in many rural areas and is still a serious threat in many districts. In others, also affected by depopulation until recent times, interesting signs of repopulation may be found, which are associated with a range of causes.

Our main objective in this light is to examine the depopulation processes described from a long-run standpoint linking the origins of the problem to the current situation and the future outlook.

Our main hypothesis is that depopulation phenomena are clearly associated with modern economic growth over the long term and may be understood as a by-product of this process. Thus, the outcomes of industrialization include not only highly diverse population densities, but also an overlap between the growth of cities and demographic decline in predominantly rural areas. These phenomena may be viewed as inextricably linked.

In southern Europe today, a range of phenomena are under way, changing the rural environment and generating new perspectives for depopulated areas. However, the scope of these changes varies considerably depending on the diverse conditions prevailing in regions affected. These new trends in the rural environment of southern Europe are also related with profound economic change, such as the decline of farming and the emergence of new economic and residential functions.

Finally, rural Europe has not remained untouched by the phenomena of international economic integration, which have also had an impact on the predominant demographic trends. In the first globalization, which began in the mid-19<sup>th</sup> century and continued until the inter-war period, Europe was the source of mass emigration to America, and rural areas were at the forefront of the movement. This, then, was an additional cause of depopulation. Matters have changed considerably since World War II. In the second globalization, still in full swing, Europe has become a destination for emigration. Thus, some rural areas in the more developed countries exert a considerable attraction on immigrants from other continents and less developed European nations.

We have adopted a case study approach to the present analysis. This involved selecting a region exhibiting representative features of the phenomenon of depopulation in southern Europe. These include the experience of intense depopulation in the second half of the 20<sup>th</sup> century resulting in population densities down to critically low densities over large parts of the territory, with a threshold level of under ten inhabitants per square kilometer defining what might be called veritable demographic deserts. Our objective is, then, to use this case to throw light on the past and present nature of depopulation in the rural regions of Mediterranean Europe in what might be termed late-developing countries, which have experienced certain changes and transformations that differ from the timing and patterns observed in northwestern Europe. As Hoggart and Paniagua (2001) have argued, the processes of rural restructuring do not follow the same spatial and temporal patterns in all regions, and these phenomena therefore need to be carefully contextualized<sup>3</sup>. These divergences do not, however, mean that there are no parallels or similarities between the dynamics of change in different places.

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<sup>3</sup> For a discussion of diversity in the evolution of European rural areas, see Hoggart, Buller and Black (1995).

### *1.2. A case study: extreme depopulation in rural Aragon*

In order to illustrate the long-run process, we have chosen to study the rural areas of the Autonomous Community of Aragon (one of the seventeen autonomous regions into which the Spanish State is divided).

Located in the northeast of Spain, the region has a total area of 47,720 square kilometers and its population in 2005 was 1,269,027 inhabitants. Aragon is divided into three provinces: Huesca, the northern-most province; Teruel, the southern-most province; and Zaragoza, which lies in the center.

In 2003 population density was the twelfth lowest out of the EU-25, while at the level of the NUTS-III study the provinces of Teruel and Huesca were the eighth and sixteenth least populated areas with just 9.3 and 13.4 inhabitants per km<sup>2</sup>.

The region is crossed by two mountain chains, the Pyrenees, lying in the north of Huesca and marking the frontier with France, and the Iberian Cordillera, lying mainly in the province of Teruel and extending into the south-east corner of Zaragoza. These two mountain chains are divided by the Ebro Valley, which runs across the region from the north-west to the south-east and occupies the central province of Zaragoza, as well as the southern part of Huesca and the north-eastern portion of Teruel (See Map 1).

Internally, Aragon is divided into 33 districts (equivalent to the former NUTS IV level) which are intended to bring policy-making close to the citizen and ensure the provision of services at a minimum level, given that many of the 730 Aragonese municipalities (NUTS V) do not have a sufficient population to undertake the functions that would normally be required of local government. The Autonomous Community's capital city is Zaragoza.

This case study was chosen because the depopulation of Aragon is both extensive and commenced early, acquiring a special virulence in the second half of the 20<sup>th</sup> century. Thus, the total population of Aragon has grown by only 37% since 1900 (compared to 234% for Spain as a whole), while two provinces today have a significantly lower population than they did in 1900 (15% less in Huesca and 44% in Teruel), and 25 out of its 33 districts have lost inhabitants over the course of the 20<sup>th</sup> century, with falls of over 70% in the most dramatic cases and over 50% in a third of them. Fifteen of these districts currently have less than 10 inhabitants per square kilometer<sup>4</sup>. Almost all of the rural districts have lost population and the few small gains are found where the development of irrigated farming has at least succeeded in stabilizing the population. In the remaining districts where the population has increased, this is due to the importance of industry and the service sector, or because they embrace the administrative centers of the provincial capitals.

These circumstances have resulted in an increasing demographic imbalance in Aragon, which translates into the concentration of the population in the city of Zaragoza. Thus, the regional capital accounted for just 16% of Aragon's population in 1857, but this had risen to 51% by 2005 (See Map 2).

In this paper, we shall concentrate exclusively on the rural areas that have experienced the process of depopulation. Rather than employing a spatial approach, we have preferred to analyze rural Aragon as a whole, based on the size of the municipalities concerned. The tables also provide figures for urban areas by way of contrast. We have defined the boundary separating rural from urban municipalities at a

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<sup>4</sup> For a spatial analysis of depopulation in Aragon, see Ayuda, Pinilla and Sáez (2000).

threshold population of five thousand. While this may appear rather small, we believe it is reasonable given the scant number of towns that actually exceed this threshold in Aragon and the economic and administrative functions they perform<sup>5</sup>.

## **2. Long-run depopulation: economic disparities and the rural exodus**

The intensity of the depopulation process suffered by large parts of rural Aragon is, above all, a consequence of the high negative migratory balances that existed from the end of the 19<sup>th</sup> until well into the 20<sup>th</sup> century. While industrialization went ahead at a considerably slower pace in Spain than in more advanced parts of Europe, by the mid-19<sup>th</sup> century some dynamic, core areas had begun to emerge, where modern industry and the associated economic activity tended to concentrate. The industrializing process was thus strongly polarized. This was by no means exceptional, of course, and similar trends are observable over much of Europe (Pollard, 1981).

Aragon found itself sandwiched between Barcelona and its environs and the Basque Country, the two fastest developing areas of Spain. Madrid and Valencia were also development hubs, forming an industrializing rectangle with Catalonia and the Basque provinces. Once again, Aragon found itself in the middle. In this context, the reaction of the rural areas of Aragon took shape in a wide range of strategies to profit from the incipient modern economic growth of Spain (Gallego, Germán and Pinilla, 1993). To explain this, let us begin defining two main areas. The first is the central part of Aragon, where a degree of development may be observed with specialization in farm produce and transformation to supply the expanding towns. This activity was particularly focused in and around the city of Zaragoza. The second comprises the mountainous areas of northern and southern Aragon, which underwent a severe economic crisis as a result of the breakdown of the traditional economy based on sheep, subsistence agriculture and the traditional textile industry (Collantes and Pinilla, 2004). Not all of the agrarian areas of the Ebro Valley, meanwhile, benefited equally from specialization in food production. Thus, the strong growth of irrigated farming contrasts with the sullen stagnation of unirrigated areas (Pinilla, 2006).

These differences in the pace of economic growth, and therefore of the opportunities available, were to activate a major migratory movement from the least prosperous areas to those where growth was strong, especially in the later decades of the 19<sup>th</sup> century<sup>6</sup>. In Aragon, the migratory flows that sprang from the rural areas headed above all for Barcelona. Other developing cities such as Zaragoza itself, Valencia and Madrid, and to a lesser extent fast growing American republics like Argentina and Cuba also attracted appreciable contingents of Aragonese emigrants (Pinilla, 2003). As the newcomers settled in the cities, they created strong migratory networks, strengthening and consolidating the position of Barcelona, Zaragoza and Valencia as the main destinations (Recaño, 2002)<sup>7</sup>.

The intensity and persistence of negative migration rates in the province of Huesca from 1878 through 2002 and in Teruel from 1878 through 2002 (see Table 2)

<sup>5</sup> Of the 730 municipalities currently existing in Aragon, only the three provincial capitals and 17 other towns fall outside this definition of rural municipalities.

<sup>6</sup> Studies of internal migration in Spain have identified the importance of industrial job opportunities and the urban-rural wage gap as the main causes of these flows (Silvestre, 2005).

<sup>7</sup> Some 276,380 people of Aragonese origin (equivalent to 23% of the population resident in the region) currently live in other Spanish regions. The largest emigrant contingents are to be found in the provinces of Barcelona, (102,874), Madrid (32,086) and Valencia (31,151).

provides a general idea of the outward population flow. The province of Zaragoza, meanwhile, alternates between positive and negative flows, basically as a consequence of the conflicting situations of the capital, which enjoyed significant population growth, and the mainly rural provincial hinterland, where negative migratory balances were persistent and significant. The high rates of natural growth that existed throughout the period of demographic transition were insufficient in the long run to prevent demographic collapse in both provinces as a result of decades of migration-driven population loss.

The impact of depopulation, meanwhile, was far from uniform. As in the rest of Western Europe, industrialization was accompanied by an intense process of urbanization in the 20<sup>th</sup> century, which only continued an already existing trend (Reher, 1995). In Aragon, the population was redistributed, tending to concentrate in the larger towns and cities, while the villages became ever smaller. Thus, analysis of the distribution of population by the size of municipalities reveals a stark contrast between 1900 and the present (see Table 3). In 1900, three quarters of the Aragonese population were concentrated in rural municipalities with less than five thousand inhabitants, while those living in the main towns and cities accounted for less than 25%. The situation today is the reverse, and the urban population now represents three quarters of the total.

This intense redistribution of Aragon's population is the logical outcome of the enormous disparity in growth rates between urban and rural areas, a phenomenon that is common to the whole of Europe. Thus, analysis of the Aragonese population over the last one hundred years based on the size of municipalities reveals that the population of the rural areas as a whole has fallen to less than half in absolute terms, while that of the towns has more than tripled (Table 4).

### **3. The end of the rural exodus and the persistence of depopulation**

The sharp slowdown in the outflow of inhabitants from rural areas in the years following the economic crisis of 1973 did nothing to alleviate the problem of depopulation. Thus, at the end of the 20<sup>th</sup> century, all of the small rural municipalities with less than one thousand inhabitants were still experiencing negative real growth. The intensity of the decline was, furthermore, inversely proportional to size, with the smallest villages losing population the fastest (Table 5).

#### *3.1. Ageing and depopulation*

One of the keys to the analysis of depopulation is to understand that the nature of the problem has changed substantially. In the later years of the 20<sup>th</sup> century, out-migration ceased to be the main cause of the demographic decline in the rural areas of Aragon, overtaken by the negative natural growth. This fact is related with the size of the municipalities affected. Thus, the smaller the village, the higher the rate of negative natural growth.

The sharp increase in this phenomenon is mainly due to the ageing of the population<sup>8</sup>. Like those of most developed regions, Aragonese population figures speak louder than words. Thus, the ageing rates found in rural areas, especially those that are most depopulated, are much higher. This problem is clearly apparent from an analysis of the data by municipality, which reflect extreme ageing in small municipalities. In

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<sup>8</sup> In comparison with rural Spain as a whole, the Aragonese countryside suffers from significant ageing, with the result that the region's rates are among the highest (García-Sanz, 1997).

general, all of the rural areas of Aragon reflect high rates of ageing with scores of over one hundred, indicating that the over-65s outnumber those aged under 16. However, the rate of ageing is manifestly higher the smaller the municipality. The recent evolution of the ageing rate is, moreover, extraordinarily negative. The rise in the index for small municipalities with less than one thousand inhabitants and the critical circumstances of villages with less than one hundred residents, show that the recent influx of in-migrants has not been sufficient substantially to improve the age structure of the rural population (Table 6). In the most extreme cases, affecting a significant number of municipalities (38), there were no residents in the village under sixteen years of age in 2001.

The high rates of ageing found in Aragon, particularly in the most heavily depopulated rural areas, compared to other Western European regions, are a consequence of intense migration from much of the region's territory, a process that lasted practically throughout the 20<sup>th</sup> century and was particularly severe in the 1950s and 60s. The presence of a high percentage of young people among these migrants was a prime cause of the relative ageing of the population in their areas of origin (Recaño, 2002)<sup>9</sup>. Moreover, the rate of female migration exceeded the outflow of males in Aragon, affecting reproduction in the region's rural areas (Monteagudo, 2003; Recaño, 2002)<sup>10</sup>.

It is not surprising, then, that a clear association is to be found between rural areas that were losing population due to migration until recent times, the most depopulated areas and those with the highest rates of ageing. This is a typical case of path dependence. Migration caused depopulation for decades, at the same time as a steady rise in ageing, which has now itself become the main cause of depopulation.

The rate of ageing means that the number of deaths relative to the total population is high, despite generally good levels of public health<sup>11</sup>. Consequently, the areas with the oldest populations also have the highest crude death rates (Table 6).

The problem is clearly apparent from a comparison of crude death rates by municipality grouped by size, which reflects relative high rates in municipalities with less than one thousand inhabitants (Table 7).

A further consequence of the high rate of ageing is the very low rate of births in relation to the total population in the majority of the rural areas of Aragon. Once again, a comparison of the crude birth rate by size of municipality is revealing: the smaller the village, the lower the birth rate.

The low crude birth rate is due both to a low rate of fertility (i.e. the number of babies per woman of child-bearing age) but also to the small numbers of potential mothers among the population as a whole.

On the first point, we may note that the Spanish birth rate is extremely low in international terms and compared with the European Union. For example, the average number of babies born to women of child-bearing age in Spain was 1.25 in 2001, while the EU average was 1.47. In Aragon, however, the figure is even lower at just 1.17 (Delgado, 2004). Aragon thus shares in the generally very low fertility trends affecting

<sup>9</sup> Between 1950 and 1981, the under-thirties made up over 60% of rural emigrants (Camarero, 1997).

<sup>10</sup> The gap in the number of males between the rural and urban areas of Spain is very high, while the evolution of the figure in the countryside between 1950 and 1991 shows that the rate of masculinization has tended to increase (Camarero, 1997).

<sup>11</sup> The calculation of standard mortality rates by age groups shows better results for the three provinces of Aragon than in the rest of Spain at the end of the 20<sup>th</sup> century (Escolano, 1999).

the whole of Spain, with figures that are lower than the minimum necessary to ensure generational replacement<sup>12</sup>.

Furthermore, the depopulation of rural areas means that the percentage of women of child-bearing age is considerably below that found elsewhere. In short, the higher the rate of depopulation, the lower the relative percentage of potential mothers, a phenomenon that decisively influences the low birth rate.

Meanwhile, the high rate of aging in rural areas also raises questions about the viability of current levels of economic activity, given the worrying indices for the replacement of the working-age population. Where this index, which is the ratio of inhabitants who will shortly leave the labor market (i.e. those aged between 60 and 64 years) to those who will soon join it (i.e. those aged between 15 and 19 years), is over 100, the local population will be unable on its own account to ensure the supply of labor required for its economic activities<sup>13</sup>. In all of the groups of rural municipalities considered except those with between one and five thousand inhabitants, the number of workers who are close to retirement is significantly greater than that of prospective labor market entrants. In contrast to the age structure of the population, however, the arrival of immigrants beginning in the last decade of the 20<sup>th</sup> century has resulted in an appreciable improvement in the values reflected by this indicator, at least in municipalities with between one hundred and five thousand inhabitants (Table 7). The decline in the index for villages with less than one hundred residents is, nonetheless, significant.

#### **4. A change in trend? Rural in-migration, depopulation and repopulation at the beginning of the 21<sup>st</sup> century**

A number of interesting changes in trend have emerged recently. If the pace of depopulation was high until the end of the 20<sup>th</sup> century, it has slowed substantially in all of the rural areas of Aragon since 2001. In recent years, then, decline in the population of municipalities with less than one thousand inhabitants has slowed sharply, while those with over one thousand have seen spectacular positive growth.

This change in the rural population trend is not exclusive to Aragon. This phenomenon is common to many rural parts of Spain, and the peculiarity of the Aragonese case is rather the lag with which the trend emerged in the region and the persistence of demographic decline in some parts of the territory.

If migration rates remained negative until the end of the last century and still contributed to population loss, although no longer as the primary cause, they are now positive and have risen to high levels for rural municipalities of all sizes, particularly the larger ones. In the areas where the population is growing, then, this is an outcome of in-migration, and the rate is also positive in other areas, although insufficient to offset negative natural growth. The change in the trend of migratory balances has thus become a key factor since the year 2000. Nevertheless, the flow of migrants is not yet strong enough to halt the depopulation of large parts of rural Aragon (Table 6).

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<sup>12</sup> For a general discussion of Spain, see Cabré (2003), Delgado (2004) and Mitet and Cabré (2005).

<sup>13</sup> This would only be possible if productivity were to rise.

#### *4.1. Immigration as a new phenomenon in depopulated rural areas*

In 2003 the contribution of immigration to demographic growth was more significant than natural growth throughout the EU-15. However, there are two important differences between Europe as a whole and rural Aragon. In the first place, natural growth was positive, even if low, in the EU-15, but it remained strongly negative in rural Aragon. In the second place, the net migration rate was markedly higher in the districts of Aragon (OECD, 2005)<sup>14</sup>.

This change cannot be understood without taking into account the extent of the shift in the direction and sign of migratory flows in Spain in the last quarter of the 20<sup>th</sup> century. The crisis of the 1970s halted the flow of emigrants abroad, and encouraged large numbers to return home. By the 1980s Spain had ceased to be a source of emigration, and a still relatively small number of foreign migrants had begun to enter the country. This situation changed gradually in the 1990s, as the country increasingly attracted immigrants to become one of the preferred destinations within the European Union by the early 21<sup>st</sup> century<sup>15</sup>.

Major changes have also occurred in internal migratory movements in the decades since 1973. If the wage gap and the opportunity of industrial employment, not to mention access to the welfare state, had driven intense migration from the least to the most developed areas (i.e. movement predominantly from the countryside to the towns) until the early 1970s, the ensuing decades have witnessed a certain inversion of population flows, involving urban-to-rural and urban-to-urban movements<sup>16</sup>. This has resulted in a decline in long-distance and an increase in short-distance movements, while migrants' motives are no longer solely economic, in particular as regards the search for a better quality of life (amenities) and flight from the cost of living in the major conurbations, in particular the high price of housing. Likewise, the former concentration of origins and destination has gradually shifted towards a wider dispersion due in part to the power of the service sector, which is more widely spread than industry, to attract population<sup>17</sup>.

Against the background of these profound changes in Spain's external and internal migratory movements, the depopulated rural areas have played a decisive role, ceasing to be the demographic reserve of the urban and industrial areas at home and abroad (first in the Latin American republics and then in northwestern Europe) and becoming destinations where arrivals far exceed departures<sup>18</sup>.

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<sup>14</sup> Puyol classifies the EU member States in four groups based on natural demographic growth and the migratory balance. Spain falls into a group that includes the half of the EU population characterized by positive natural growth and a positive migratory balance (Puyol, 2005, 3-4). The majority of the rural areas of Aragon, however would fit better in the solitary group formed by Hungary alone, in which the favorable migratory balance is insufficient to offset negative natural growth.

<sup>15</sup> In 2002, Spain ranked behind only Luxembourg out of all the EU countries in terms of immigrant arrivals per thousand inhabitants. In absolute terms, it was second only to Germany, and, within the OECD, only the German Federal Republic and the United States received more immigrants than Spain (OECD, 2005).

<sup>16</sup> In the period 1963-66, 63.1% of internal migrants in Spain were originally from the villages. The cities received 71.2% of these rural emigrants. In 1998-2001, in contrast, the provincial capitals were the main source of emigrants (32.3%), and rural municipalities had become the primary destination (Hierro, 2006).

<sup>17</sup> Recaño (2004b), Silvestre (2002), Fuente (1999), Bover (1999), Hierro (2003), García-Coll and Stillwell, (1999), Tirado et al. (2006).

<sup>18</sup> According to Camarero (1997), the rural areas of Spain began to reflect positive migration rates for the first time in decades in the early 1990s.

The current positive migratory balances in the rural areas of Aragon are due not only to the declining outflow of local people towards the cities in comparison to the years of the rural exodus, but also to the rising numbers of arrivals. The decline in out-migration is related with a certain convergence in urban and rural incomes in Spain, reducing the flow to the cities, and with the exhaustion of demographic reserves. After decades of migration to other parts of Spain and abroad, the most depopulated rural areas now suffer from significant ageing and, therefore, people of an age at which migration was traditional are few.

Population inflows, meanwhile, comprise both foreign immigrants following the classic migratory pattern between areas with significant income and opportunity gaps and the arrival of citizens resident in other parts of Spain. Such people are attracted by new determining factors such as the positive perception of the quality of life in rural districts (amenities). These considerations basically center on the opportunity to purchase more comfortable houses, a more agreeable and less crowded environment and, in general, a lifestyle allowing the enjoyment of higher levels of social and environmental capital.

It is no easy matter to quantify the relative importance of these phenomena, because the unreliability of data concerning foreign arrivals casts doubt on some of the results obtained<sup>19</sup>. However, examination of the registration and deregistration of residents in the rural municipalities of Aragon suggests that foreigners would represent between 19% and 64% of new inhabitants, depending on the size of the localities concerned (see Table 8). Meanwhile, these people are unlikely to leave, and their contribution to the positive migratory balance observed in numerous rural districts may therefore be as much as half.

#### *4.2. Foreign immigration to rural areas*

Spain only became a host country for immigration very recently<sup>20</sup>. In this context, the arrival of foreign-born immigrants has had an important impact on the positive migratory balance now exhibited by rural areas. The economic boom enjoyed by Spain in recent years, the entry of smaller new generations into the labor market as a result of the falling birth rate and the scant interest of Spanish workers in certain occupations all help to explain the massive influx of immigrants into the country, which has coincided with a sharp reduction in the employment rate to levels not seen since before the economic crisis that began in 1973<sup>21</sup>.

In Aragon, the very low number of foreign residents suddenly took off at the end of the 1990s and accelerated sharply from 2000 onwards (Table 9). If the percentage of foreigners resident in both rural and urban Aragon was less than 1% regardless of the size of the municipality in 1999, by 2004 it had risen to 8% over the region as a whole (Table 10). In rural areas, this percentage has risen in line with the size of the municipalities concerned, reflecting the greater opportunities available in the larger towns from the standpoint of both jobs and the search for housing and social insertion.

Whatever the general causes that may be advanced to interpret the recent migratory boom in Spain as a whole, there can be no doubt in the case of the rural

<sup>19</sup> Arango (2004) and Domingo (2004).

<sup>20</sup> For an overview, see Arango (2004), Izquierdo and Carrasco (2005), and Domingo (2004).

<sup>21</sup> In 2003 only Cyprus had a higher positive migration rate than Spain out of the EU-25. In absolute terms, meanwhile, Spain had the highest migratory balance with only Italy close and the remaining EU partners lagging behind at a considerable distance (Puyol, 2005; OECD, 2005).

districts of Aragon that the labor shortfall resulting from the earlier depopulation has played an important role. If the first arrivals in Aragon in the 1980s were attracted to intensive agriculture, especially to work in fruit picking, their conversion from temporary to permanent immigrants, the arrival of new permanent contingents and the expansion of the areas settled are all connected with the high rate of ageing of the rural population and, therefore, with the difficulty of finding the labor in demand (Pinos, 2004)<sup>22</sup>. Our data (Table 7) clearly reflect how difficult it would be to replace workers leaving the labor market without relying on foreign immigration. In any event, the attraction of Aragon for immigrants, and particularly of its rural districts, is in line with the findings of studies showing that such people tend to prefer destinations in which employment rates are high and the chances of finding a job even higher (De la Rica and Amuedo-Dorantes, 2005). The Aragonese unemployment rate has been very low in recent years (around half the national average) and is currently around 5%, which may be regarded as basically full employment.

#### *4.3. Urban-to--rural migration*

Analysis of the origins of Spanish residents settled in the rural districts of Aragon reveal a predominance of internal migrants from nearby locations, mainly from either the same province (between one half and two thirds of arrivals depending on the size of the municipalities concerned) and the other two provinces of the region (Table 11)<sup>23</sup>. The current flow of urban-rural migration is, furthermore, significant. Provincial capitals were the main source of Spanish internal migrants in 2003 and 2004 (31.2%), while people moving from large towns and cities taken as a whole represented 76.4%), and rural municipalities were their main destination (29.3%)<sup>24</sup>. Rural destinations were also the primary destination for Aragonese citizens participating in internal migrations in the aforementioned two years, while their relative importance was significantly higher than for Spain as a whole (42.5%).

The arrival of native, internal migrants in rural areas is due to a complex series of causes, the most significant of which is the change in the socio-economic functions performed by such districts and, in particular the rise of tourism and residential development (Perkins, 2006). Furthermore, we may note the phenomenon of return immigration<sup>25</sup>.

The new-found attractions of rural life appear to be related in large part with changes that have taken place in their economic structures and their function in the economy as a whole. The configuration of new patterns of settlement and spatial organization is a process that is in no wise peculiar to either Aragon or Spain, but is in fact common to almost all developed countries and has been going on since the 1960s

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<sup>22</sup> Hoggart and Mendoza (1999).

<sup>23</sup> This migratory pattern is by no means exclusive to rural Aragon and pertains, in fact, to the whole of Spain (García-Coll, 2005).

<sup>24</sup> Own estimates based on Residential Change Statistics published by the Spanish National Institute of Statistics. In this case, rural municipalities are defined as towns with under ten thousand inhabitants, in the absence of data for smaller-sized settlements. Only Spanish citizens were taken into account. If foreign citizens involved in internal migrations are also included, rural destinations fall to 19.3%.

<sup>25</sup> For a discussion of the return of retired people, see García-Sanz (1997), pp. 51-53. A general description of the “new rural residents” is given in García-Sanz (2003). In 2001-02, home-comers represented 21.5% of inter-provincial migrants in Spain (García-Coll, 2005, 84). This movement is at its most intense among people aged around 65-66 years, who represented 37% of inter-provincial migratory movements. In Teruel the contribution of this group of migrants is key to explaining the positive migratory balance exhibited by the province in these years.

(Marina and Mooney, 2005; García Pascual and Mateu, 2003, 39; García-Pascual, 2003).

In the case of rural Aragon, this change in economic functions is clearly apparent in light of the “deagrarianization” reflected in the sharp decline in farm assets in the last decade of the 20<sup>th</sup> century. If the figures in the larger rural towns were already relatively low in 1991 and the loss has been moderate, the contraction has been intense in small villages (under one thousand inhabitants) and farming, until recently the main rural activity, has ceased to be so (see Table 12).

Tourism is one of the fastest growing industries. Its impact, however, shows clear signs of polarization and the sector should not be seen as affecting the whole of the rural environment. Thus, it is the mountain areas that have done the best. Even here, however, there are significant differences between the Pyrenees, an area that was already highly specialized in tourism by 1999, and the Iberian Cordillera. Within each of these areas, moreover, there are divergences between different districts (García Pascual, 2003; Ayuda and Pinilla, 2002). In particular, those municipalities that are close to ski-stations tend to have benefited most (Báguena et al, 2005)<sup>26</sup>.

In the case of residential development, meanwhile, the most successful rural districts are those that are close to or well-communicated with the cities and have been affected by the phenomenon of counterurbanization.

The expansion of the metropolitan area of Zaragoza via the growth achieved by small and medium-sized municipalities on the back of rising city house prices is a relatively recent phenomenon, especially in comparison to the situation in other major Spanish cities such as Barcelona (García-Pascual, 2003) and Madrid. This highlights the increasing importance of mobility for residential reasons<sup>27</sup>. Though this is still a recent phenomenon, it has already had an impact on rural population growth in the municipalities lying within the metropolitan area of Zaragoza, and particularly on certain types of towns. In Table 13 we calculate the percentage of demographic growth in the Aragonese municipalities (ordered by size) which is explained by the growth of the metropolitan area of Zaragoza between 2001 and 2005. Towns with one to five thousand inhabitants in the metropolitan area accounted for almost half of growth in all municipalities of this size in Aragon as a whole, which was in turn the only segment to show real positive population growth in rural areas.

Finally, return immigration has been an important phenomenon in Spain in recent decades, driven by home-coming migrants who left their areas of origin above all in the 1960s for the growing cities, as well as young people who found their first jobs outside their home districts. In Aragon, return migration is a relevant component of the positive migratory balance in rural areas (Recaño and Cabré, 2003).

Recaño (2004a) estimates that return migration in the period 1988-1995 affected 30.4% of migration between the various regions of Spain. This value is very close to the Spanish average in Aragon, accounting for 20.5% of population inflows and 29% of outflows. For obvious reasons, the regions with a migratory tradition in the 1960s are those reflecting the highest numbers of home-comers. As a result, rural areas exhibit a

<sup>26</sup> An analysis of the 84 top-ranking Spanish districts reveals that the capacity to develop residential tourism is dependent on geographical features (relief, snow, proximity to cities) (Collantes, 2005).

<sup>27</sup> Recaño (2004b) argues that the increasing importance of residential mobility in Spain is due above all to the rise in city house prices and the improvement of public and private transport, which has allowed the delocalization of residences and work facilities within the metropolitan areas.

positive balance in this context. Meanwhile, the region's figures have not changed substantially in the period 1997-2001, when return migration represented 27.1% of outflows and 27.9% of inflows<sup>28</sup>.

## 5. Conclusions

The movement of people from rural to urban areas, as well as emigration abroad, had a major impact during the two centuries of industrialization and modern economic growth in the countries of Western European. In general terms, rural areas experienced intense outflows, as people were attracted away by job opportunities in new economic activities, which were preferentially located in the cities. This entailed either low demographic growth in country districts or, in many cases, significant depopulation resulting in a decline in demographic numbers in absolute terms. Almost all of the big Western European nations were affected by processes of rural depopulation, which had a major influence on the negative evolution of the population in numerous rural regions. In recent decades, however, the new phenomenon of urban-to-rural migration has emerged in many countries, affecting the rural environment together with other developments such as changes in the economic functionality of the territory.

We have focused on the Spanish Autonomous Community of Aragon, where rural depopulation has had a major impact, to study the phenomenon. This case does not, of course, explain the course of events in rural Europe as a whole, but it does throw light on similar processes in other regions of southern Europe where depopulation reached its peak in the second half of the 20<sup>th</sup> century.

Beginning towards the end of the 19<sup>th</sup> century, rural depopulation was basically caused by the intense participation of the country districts of Aragon in rural-urban migrations in Spain. The region's central position inside a rectangle with its vertices located in the main centers of Spanish industrialization explains the strong pull of new opportunities in the expanding cities, while the crisis of the traditional rural economy and the difficult adaptation of many country areas in adapting to changing times triggered a powerful migratory current, which is clearly reflected in high negative rates of migration.

In contrast to many other developed countries, the process of rural depopulation in Aragon has not yet stopped, and large areas continue to lose population in absolute terms. However, important changes have taken place since the 1990s.

In the first place, migration has been replaced by intense negative natural growth as the key factor in rural depopulation due to the ageing of the population, which is itself an outcome of the region's long history of migration. Ageing is a key factor in low crude birth rates and high crude death rates. The situation is so extreme in many of the rural districts of Aragon that numerous villages are now completely uninhabited, while the prevailing rates of ageing and population replacement in many others cast serious doubts on their future.

Secondly, the current situation features a reversal of the migratory balance in rural Aragon, resulting in a sharp deceleration in depopulation since 2001 and positive

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<sup>28</sup> For a discussion of the return of retired people, see García-Sanz (1997), pp. 51-53. In 2001-02 return migrations reached their peak among people aged around 65-66 years, who represented 37% of inter-provincial migratory movements. In Teruel the contribution of this group of migrants is key to explaining the positive migratory balance exhibited by the province in these years (García-Coll, 2005).

growth in the larger country towns. The transformation of many rural areas into net receivers of population is explained by a combination of factors. On the one hand, Spain has undergone a boom in immigration from overseas since the end of the 1990s. The high rates of ageing and the difficulty of replacing retiring workers in rural areas offer excellent opportunities to foreign-born immigrants seeking work. On the other, *per capita* income in Aragon is among the highest in Spain, and the region's rural areas are currently seeing an incipient process of restructuring and change. This is defined, above all, by the decline of agriculture and the emergence of a dynamic service sector (above all tourism), the activation of a significant process of counter-urbanization, despite a significant lag compared to other cases in Europe and Spain (e.g. Madrid and Barcelona), and increasing return immigration.

As a result, the phenomenon of migration, which for so long worked to empty rural Aragon, has switched its role, becoming the main driver of demographic regeneration in some areas. Nevertheless, the time horizon of this study is still too short to assess the extent of this process. In a territory where depopulation has been so intense as to create veritable demographic deserts, it is doubtful whether the budding restructuring of rural areas will be sufficient fully to change the trend. This brings us to the unequal intensity of the process<sup>29</sup>, which suggests that stark contrasts are likely to emerge in the coming years.

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<sup>29</sup> The study of the extent of rural restructuring in Spain published by Hoggart and Paniagua (2001) a few years ago may now be qualified on two points: the intensity of the changes occurring in the ensuing years and the enormous differences between the country's regions.

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TABLE 1. DEPOPULATION IN WESTERN EUROPE, 1860-2000

Depopulated provinces/districts (NUTS-III) between 1860-2000				
	% of total country		Annual rate	
	population		area	population growth (%)
	1860	2000		
Belgium	0.0	0.0	0.0	---
France	33.6	17.3	40.4	-0.2
Italy	8.9	6.7	9.3	-0.1
Netherlands	0.0	0.0	0.0	---
Portugal	14.7	5.9	15.9	-0.1
Spain	17.1	5.6	24.3	-0.1
Sweden	0.0	0.0	0.0	---
Switzerland	0.0	0.0	0.0	---
United Kingdom	7.0	2.3	28.5	-0.2

Depopulated provinces/districts (NUTS-III) between 1950-2000				
	% of total country		Annual rate	
	population		area	population growth (%)
	1950	2000		
Belgium	0.0	0.0	0.0	---
France	6.7	4.5	14.0	-0.2
Italy	23.1	17.4	28.9	-0.3
Netherlands	0.0	0.0	0.0	---
Portugal	48.5	33.4	74.7	-0.5
Spain	30.8	17.2	53.5	-0.4
Sweden	6.9	5.3	18.3	-0.7
Switzerland	0.0	0.0	0.0	---
United Kingdom	n.a.	n.a.	n.a.	n.a.

Source: Own work based on data provided by Mitchell ( 2003).

Depopulated provinces / districts are defined as  
those losing population between both dates in  
absolute terms.

TABLE 2. NATURAL AND MIGRATORY GROWTH RATES OF ARAGONESE PROVINCES, 1878-2004

	Natural Annual Growth Rate (o/oo)			Annual Migration Rate (o/oo)		
	Huesca	Teruel	Zaragoza	Huesca	Teruel	Zaragoza
1877-1887	4.65	3.53	0.21	-3.58	-3.65	3.08
1888-1900	4.07	5.17	3.63	-7.18	-3.87	-2.19
1901-1910	7.74	9.72	8.10	-6.37	-5.94	-1.86
1911-1920	4.92	5.73	6.96	-4.02	-7.07	2.70
1921-1930	6.67	9.81	10.01	-9.73	-9.54	-2.00
1931-1940	1.68	3.98	3.75	-6.44	-12.53	6.73
1941-1950	2.76	5.38	6.00	-0.80	-3.69	-1.62
1951-1960	4.76	7.26	8.06	-5.90	-16.49	-2.59
1961-1970	4.14	3.94	9.11	-9.10	-27.23	5.49
1971-1981	2.77	0.44	6.86	-3.76	-11.42	2.47
1982-1991	-0.95	-1.59	0.48	0.54	-4.96	1.74
1992-2001	-3.60	-4.70	-1.75	2.97	-0.90	4.64
2002-2004	-3.70	-5.03	-0.96	14.53	14.01	16.24

Source: 1888-1930: Mikelarena (1993); 1930-1970: Silvestre (2003a); 1971-2004 own work based on census data.

TABLE 3. DISTRIBUTION OF THE POPULATION OF ARAGON BASED ON SIZE OF MUNICIPALITY OF RESIDENCE, 1900-2005

MUNICIPALITIES	1900		2005	
	% population	number	% population	number
less than 100 inhabitants	0.0	1	0.7	146
100-499	8.8	230	6.9	381
500-999	18.6	234	4.8	89
1.000-4.999	48.9	248	14.8	94
5.000-19.999	12.9	15	13.8	16
20.000-100.000	0.0	0	8.0	3
over 100.000	10.8	1	51.0	1
Total	100.0	729	100.0	730

Source: Own work based on data published by the Aragonese Institute of Statistics and the Spanish National Institute of Statistics  
The figure for 1900 is at December 31, while that for 2005 is at January 1.

TABLE 4. EVOLUTION OF THE POPULATION OF ARAGON

	POPULATION		Variation (%)
	1900	2005	1900-2005
TOTAL ARAGON	928,117	1,269,027	36.7
<i>PROVINCES</i>			
HUESCA	255,100	215,864	-15.4
TERUEL	251,994	141,091	-44.0
ZARAGOZA	421,023	912,072	116.6
RURAL POPULATION	708,422	344,517	-51.4
URBAN POPULATION	219,695	924,510	320.8

Source: Own work based on data published by the Aragonese Institute of Statistics and the Spanish National Institute of Statistics

TABLE 5. POPULATION GROWTH, MIGRATION AND NATURAL GROWTH RATES, 1991-2004 ( ‰)

	POPULATION GROWTH RATE		MIGRATION RATE		NATURAL GROWTH RATE	
	1991-01	2001-04	1991-01	2001-04	1991-01	2001-04
TOTAL ARAGON	1.3	14.1	3.7	16.0	-2.4	-1.9
<i>MUNICIPALITIES (*)</i>						
LESS THAN 100	-16.7	-3.4	-3.0	7.7	-13.7	-11.1
100-499	-11.5	-3.9	-1.4	6.4	-10.1	-10.3
500-999	-9.0	-2.4	-1.1	6.2	-8.0	-8.6
1.000-4.999	0.3	18.1	5.0	22.3	-4.6	-4.2
5.000-19.999	4.6	23.1	6.0	24.3	-1.4	-1.1
20.000-100.000	6.4	16.2	6.6	16.7	-0.2	-0.4
OVER 100,000	3.4	14.6	3.7	14.3	-0.3	0.3

(\*) Municipalities ranked by size in 2001.

Source: Own work based on data published by the Aragonese Institute of Statistics and the Spanish National Institute of Statistics

1991-2001 prepared using population census data for 1991 and 2001 at December 31.

2001-2004: prepared using population register figures for 2001 and 2005 at January 1.

TABLE 6. AGEING AND REPLACEMENT RATES

	Ageing		Replacement	
	1991	2001	1991	2001
ARAGON	110	158	86	91
<i>MUNICIPALITIES (*)</i>				
LESS THAN 100	557	918	274	395
100-499	293	396	184	166
500-999	205	288	155	130
1.000-4.999	139	181	115	94
5.000-19.999	93	132	83	76
20.000-100.000	85	120	74	66
OVER 100.000	84	129	66	85

Ageing rate = POP(65+)/POP(0-15)

Working population replacement rate = POP(60-64)/POP(15-19)

(\*) Municipalities ranked by size in 1991 and 2001.

Source: Own work based data from the Aragonese Institute of Statistics Elaboración and the Spanish National Institute of Statistics

TABLE 7. CRUDE BIRTH AND MORTALITY RATES ( o/oo)

<i>MUNICIPALIITES (*)</i>	Crude birth rate		Crude mortality rate	
	1991-01	2001-04	1991-01	2001-04
LESS THAN 100	2.3	2.7	16.0	13.7
100-499	4.3	4.2	14.4	14.5
500-999	5.7	5.3	13.7	14.0
1.000-4.999	7.4	7.8	12.1	11.9
5.000-19.999	8.9	9.5	10.2	10.6
20.000-100.000	10.2	10.1	10.5	10.5
OVER 100.000	8.7	9.7	9.0	9.4

(\*) Municipalities ranked by size in 2001.

Source: Own work based on data from the Aragonese Institute of Statistics and the Spanish National Institute of Statistics

TABLE 8. PERCENTAGE OF FOREIGNERS IN  
CHANGES OF RESIDENCE IN ARAGON, 2001-2003

	inflows
Less than 100 inhabitants	18.6
100 to 499 inhabitants	26.2
500 to 1,999 inhabitants	40.5
2,000 to 4,999 inhabitants	63.6
5,000 to 19,999 inhabitants	83.6
20,000 to 100,000 inhabitants	46.3
Over 100,000 inhabitants	33.8

	outflows
Less than 100 inhabitants	13.6
100 to 499 inhabitants	16.5
500 to 1,999 inhabitants	22.7
2,000 to 4,999 inhabitants	27.8
5,000 to 19,999 inhabitants	26.9
20,000 to 100,000 inhabitants	13.8
Over 100,000 inhabitants	14.7

Source: own work using data provided by the  
Aragonese Institute of Statistics

TABLE 9. FOREIGN IMMIGRATION IN ARAGON  
EVOLUTION OF THE NUMBER OF RESIDENTS

	Registered foreign residents	% Foreigners/ Total Pop.	Legal foreign residents	% Legal F.R. in Aragon to Total Spain
1991	n.a.	n.a.	4,702	1.3
1992	n.a.	n.a.	5,210	1.3
1993	n.a.	n.a.	6,160	1.4
1994	n.a.	n.a.	6,305	1.4
1995	6,848	0.6	6,877	1.4
1996	n.a.	n.a.	6,290	1.2
1997	7,846	0.7	9,747	1.6
1998	8,938	0.8	11,877	1.7
1999	12,051	1.0	15,449	1.9
2000	25,132	2.1	17,590	2.0
2001	43,973	3.6	25,001	2.3
2002	61,896	5.0	25,994	2.0
2003	77,545	6.2	39,015	2.4
2004	96,848	7.6	53,478	2.7
2005	n.a.	n.a.	81,028	3.0

Source: Office of the Secretary of State for Immigration and Emigration, National Institute of Statistics and Aragonese Institute of Statistics.

Legal residents are those holding valid resident permits.

Data at December 31 of the years in question.

Registered foreign residents are those entered in the municipal population register at January 1 each year.

These residents have been assigned to the day prior to the population register for the purposes of comparison with data for legal residents (i.e. registered foreign residents are assigned to the prior year). It is not necessary for immigrants to have their papers for municipal registration, which is essential to access public services such as education and healthcare.

TABLE 10. % FOREIGN POPULATION  
TO TOTAL POPULATION OF ARAGON

Municipalities	1999	2004
< 100	0.6	3.7
100-499	0.7	4.1
500-999	1.0	5.6
1000-4999	1.0	7.4
5000-19999	1.0	9.5
20000-99999	0.6	6.3
>100000	1.1	8.0
Aragon	1.0	7.6

Municipal population register data for 2000 and 2005 at January 1

Source: own work based on data from the

Aragonese Institute of Statistics

TABLE 11. ORIGIN OF SPANISH INTERNAL MIGRATION INTO ARAGON 2001-2003

	Same province	Other Aragonese province	Other Spanish province	total
Less than 100 inhabitants	49.3	18.6	32.1	100
100 to 499 inhabitants	54.1	12.4	33.5	100
500 to 1,999 inhabitants	60.5	10.4	29.1	100
2,000 to 4,999 inhabitants	66.4	8.4	25.2	100
5,000 to 19,999 inhabitants	52.0	11.1	36.9	100
20,000 to 100,000 inhabitants	43.4	17.4	39.2	100
Over 100,000 inhabitants	32.1	16.3	51.5	100

Source: Own work based on data provided by the  
Aragonese Institute of Statistics

TABLE 12. ACTIVE POPULATION OF ARAGON BY SECTOR, 1991 AND 2001

	Agric.	Ind.	Cons	Serv.	Agric.	Ind.	Cons	Serv.
	1991				2001			
TOTAL ARAGON	12	29	9	50	7	23	10	60
<i>MUNICIPALITIES (*)</i>								
LESS THAN 100	60	9	8	23	36	16	11	37
100-499	45	17	10	28	28	18	13	42
500-999	37	23	11	29	25	21	13	41
1.000-4.999	23	30	13	34	14	28	13	45
5.000-19.999	11	26	12	51	9	25	13	53
20.000-100.000	4	17	9	70	3	13	10	75
OVER 100.000	1	32	8	59	1	23	8	68

(\*) Municipalities ranked by size in 1991 and 2001.

Source: Own work based on data from the Aragonese Institute of Statistics and the Spanish National Institute of Statistics

TABLE 13. CONTRIBUTION OF THE METROPOLITAN AREA OF ZARAGOZA  
TO DEMOGRAPHIC GROWTH IN ARAGON, 2001-2005

Metropolitan Area of Zaragoza (M.A.Z.)			% contribution of the M.A.Z. to growth in Aragon	
number of municipalities	% of Aragon municipalities	Annual population	grwoth (%)	
<i>MUNICIPALITIES (*)</i>				
LESS THAN 100	0	0.0	0.0--	--
100-499	5	1.3	2.0	0.7 -3.5
500-999	2	2.2	2.3	1.7 -15.3
1.000-4.999	10	10.6	14.4	6.6 47.0
5.000-19.999	2	12.5	10.4	4.6 19.6
20.000-100.000	0	0.0	0.0--	0.0
OVER 100,000	1	100.0	100.0	1.5 100.0

The sign is negative because growth in Aragon was negative in these municipalities.  
 This should be interpreted, therefore, as showing by how much more the population would have fallen had it not been from the positive contribution of the municipalities forming part of the metropolitan area of Zaragoza.  
 We have defined the municipalities of the metropolitan area of Zaragoza as those falling within the District Boundary of Zaragoza.  
 Source: own work based on data from the Spanish National Institute of Statistics and the Aragonese Institute of Statistics.

#### MAP 1. LOCATION OF ARAGON IN WESTERN EUROPE



MAP 2. POPULATION DENSITIES OF ARAGONESE MUNICIPALITIES IN 2005  
(HAB/KM<sup>2</sup>)

