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INTERNAL MIGRATION AND
REGIONAL POPULATION
DYNAMICS IN EUROPE:
Portugal case study

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FOREWORD

This study[1] is one among ten case studies made within the project entitled "Internal Migration and Regional Population Dynamics in Europe". This project was initiated by the European Population Committee (CDPO) of the Council of Europe. At its meeting in October 1995, the CDPO decided to commission an investigation into the feasibility of a comparative study of internal migration and regional population dynamics within European countries, for two reasons. Firstly, there had been little interest by researchers or international organisations working in the field of intra-country migration. Secondly, there has been a general improvement of population statistics across Europe, but this has not extended to statistics on internal migration.

Philip Rees and Marek Kupiszewski of the School of Geography at the University of Leeds (United Kingdom) carried out such a feasibility study and presented it to the CDPO in June 1995. The study covered the 28 member states (the number current in 1995) of the Council of Europe with more than 1 million inhabitants. Based on a questionnaire sent to all relevant countries, the conclusion was that, in spite of varying data systems, it would be possible to perform a comparative analysis of this kind (Rees and Kupiszewski 1996).

The CDPO decided to ask Drs Rees and Kupiszewski to undertake a comparative study of internal migration and regional population dynamics. To guide this work, the CDPO also appointed a Group of Specialists with nine members (representing the Czech Republic, Estonia, Germany, Italy, the Netherlands, Norway, Poland, Portugal and Romania), chaired by Mr Lars Østby, CDPO member for Norway. The terms of reference of the study were defined by the CDPO as follows; (1) to investigate the extent of rural depopulation, (2) to analyse the degree to which the processes of urbanisation, counterurbanisation and suburbanisation are in train and (3) to describe the patterns of and trends in internal migration. For each aim comparison of the situation in the early/mid-1980s with that in the early/mid-1990s was to be carried out.

The European Commission, represented in the CDPO by Ms Isabelle de Pourbaix at DG V, Unit E1, took a great interest in the project, and provided co-sponsorship of 30 000 ECU in the first year. Eurostat has followed the project throughout its existence and has supplied information on the digital boundaries of regions.

Due to limited finances and the time available, the study had to restrict itself to ten countries. These were the countries in which the Group of Specialists or consultants had expertise. Even with this limited coverage, the studies provided very interesting results, illustrating the usefulness of this kind of cross-national comparison. This country study is, like all the others, written by the consultants and co-authored by the national representative in the Group of Specialists and a colleague from the Instituto Nacional de Estatística.

Lars Østby
Chairman, Group of Specialists of the CDPO on Population Dynamics and Internal Migration

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[1] The views expressed in this study are those of the authors and do not necessarily reflect those of the Council of Europe.

SUMMARY

This paper reports on internal migration and regional population dynamics in Portugal. It examines internal migration patterns and trends in two years, 1981 and 1991, and compares them. Portugal is a country that has reached a population plateau and is currently experiencing very little overall population growth. In 1981 its population was 9.83 millions, only 9.87 millions in 1991 and 9.96 millions in 1997. During the 1980s natural increase steadily diminished and in the 1990s it has virtually ceased. International migration was predominantly negative in balance during the period between the mid 1980s and early 1990s, but has moved into small positive gains in the last few years. When population changes for the 1981-91 period are examined, the picture is broadly of gains in the major urban-centred regions of Norte and Lisboa Vale Tejo, and in the resort industry region of the Algarve. In the more peripheral regions, population decreases occurred, that is in the Centro, Alentejo and Açores regions with Madeira being roughly in balance. Natural increase was strong in the Norte and island regions and compensated for net out-migration, while elsewhere it was weak. All Portuguese NUTS 2 regions except the Algarve lost through migration, with emigration dominating any counter-flows due to internal migration.

However, the strong influence of internal migration is apparent when the components of population change at concelhos scale are analysed. The largest cities, Lisboa and Porto, lose population in the 1981-91 period, particularly the capital, and part of the population losses represent migration to surrounding concelhos in the Outer parts of the city regions. Most of the rest of Grande Porto outside of the main city gains population through migration. Around Lisboa these suburban migration gains were experienced by the margins of Lisboa itself, the northern suburbs along the north bank of the Tagus and in a majority of the concelhos of Península Setúbal across the Tagus estuary from Lisboa, namely the southern suburbs linked to the city by two major road bridges.

The Censuses of 1981 and 1991, which count migrants in the circa 15-month period before the census date (14½ and 15½ months in the two censuses), provide a picture of how internal migration affects people in different life stages. The all ages pattern of migration in 1979-81 is one of greatest losses from interior and eastern regions (NUTS 3 scale), lesser losses from remoter coastal regions and gains to the urban regions centred on Porto, Lisboa and the Algarve resorts. However, the centres of the Porto and Lisboa regions lose migrants, confirming the earlier interpretation of the components of population change. The situation in 1989-91 was similar but there were fewer regions with great migration losses, more regions with moderate losses and gains around the main urban nodes and the southern tourist coast. This general pattern of redistribution characterises the childhood and family ages (0-14, 25-44) and is intensified in terms of losses from the large cities and suburban gains in the 45-64 age group. Young persons, however, behave differently. In 1979-81 most of the regions of the country lost internal migrants in the 15-24 age group, while Lisboa, Porto and the Algarve experienced substantial migration gains. So, while the family ages showed a de-concentration pattern, the ages at which young adults start independent life careers showed centralising tendencies. The spatial pattern was broadly similar in 1989-91 but more interior regions posted migration gains. The retirement ages, 65 to 74, showed similar centralisation for the female population but not for the male. This age group was the only one that exhibited strong gender differences in the pattern of migration and considerable changes between 1979-81 and 1989-91. Whereas in the former period, the pattern was very much one of interior loss and coastal and urban region gain, in 1989-91, losses from the interior were relatively lower and moderate gains more widespread. At the oldest ages of 75 years or more the strong pattern of interior loss and coastal gain reasserted itself.

Portuguese population dynamics thus exhibit some rural depopulation (mainly of the young and the very old), some urbanisation (migration to more densely settled regions around the biggest cities), some suburbanisation (de-concentration within the largest urban regions) and some regional flows to resource exploiting regions (sun and sea in the resort coast of the Algarve). Population gains in the 1981-91 decade also occurred in several coastal and interior small towns and medium-sized urban centres outside of Lisboa and Porto. This reveals that urbanisation was not just a metropolitan phenomenon but was a widespread process. Note that when considering whether the Portuguese population is centralising or decentralising, attention must be paid to the scale of migration observed. So, for example, population may be moving into the metropolitan regions of Lisboa and Porto and therefore centralising, but within those regions the population may be shifting from city to suburbs and to outer parts of the city region, and therefore decentralising. This nested system of flows may be obscured if attention is focused exclusively on total net migration.

1. CONTEXT

This paper reports on migration patterns and population change in Portugal as part of a project on *Internal Migration and Regional Population Dynamics in Europe* sponsored by the Council of Europe and the European Commission. This project aims to build up a comparable picture of internal migration across the countries of Europe.

In the 1990s the countries of Europe are collectively engaged in what the German Chancellor, Helmut Kohl, has called "the European Project". This involves the closer integration of countries in international organisations (such as the Council of Europe) or in multi-country institutions (such as the European Union). Collective projects require an agreed and comparable database of information about countries and their constituent regions. The Directorate of Social and Economic Affairs of the Council of Europe has been active in collating national statistics for over 30 countries (Council of Europe 1997). The Statistical Office of the European Communities (EUROSTAT 1995a, 1995b) has been pursuing harmonisation of national and regional statistics for the member states of the European Union.

However, there is a major gap in these statistics with respect to internal migration and its role in regional population change. Considerable progress has been made by the European Commission and EUROSTAT in developing regional population projections for the European Union (see Rees 1996 and van der Gaag *et al.* 1997). The primary aim of this work has been to incorporate internal migration data into multi-country, multi-regional population projection (see Van Imhoff *et al.* 1997 for a methodological report). The EU regional projections are carried out for second level regions in the EUROSTAT statistical system, regions with average populations of 1.86 million people. Such regions are large spatial filters for understanding processes of population change within countries. Kupiszewski (1996) established for Poland that the surface of population change was virtually flat at *Voivodship* scale (49 units) while that at commune scale (4000 units) had lots of peaks and valleys. In a feasibility study for the Council of Europe, Rees and Kupiszewski (1996) concluded that reliable information was available from European National Statistical Offices to study population dynamics at fine spatial scales. Building on that knowledge this study describes population change and internal migration trends for Portugal at various regional scales focusing on *grupos de concelhos* (NUTS 3 regions) and *concelhos* (counties). Information was available on the populations of *freguesias* (parishes) from the censuses of 1981 and 1991 but is difficult to interpret without knowledge of the other components of change which were available at the *concelhos* scale.

The report is divided into the following sections. Section 2 reviews knowledge about regional population change and internal migration in Portugal. Section 3 describes the data available for analysing regional population dynamics in Portugal and the territorial units for which data are used. Section 4 discusses patterns of population change and net internal migration at regional (NUTS 3) scale, presenting the evidence in the form of a series of maps of population change, its components and internal net migration. Section 5 analyses net internal migration for regions using a series of

classifications of NUTS3 regions. NUTS 3 regions are level 3 zones in EUROSTAT's harmonised Nomenclature for Territorial Units for Statistics (NUTS). In Portugal the level 3 regions employed are the 30 *Grupos de concelhos*. The classifications used are urbanisation regions, density classes and unemployment bands and the basic method is to compute the balance of internal migration into or out of each set of region groupings. Finally, Section 6 pulls together the analysis of the report and provides a synthesis of findings.

2.   INTERNAL MIGRATION AND POPULATION CHANGE REVIEWED

In the first part of section 2 we review, in the first part, the way in which the national population of Portugal has changed in recent decades. This provides a context for discussion of recent trends, in later parts of the section, in regional population distribution and the demographic components that contribute to regional population shifts. For further details on the spatial development of Portugal's population see INE (1994).

2.1   The national population and migration context

2.1.1   Historical evolution of the population

From the first population census, in 1864, to the most recent census in 1991 the resident population of Portugal increased from 4 286 995 to 9 867 147 (Table 1). Over this century and a quarter year period, population growth was uneven. Several, clearly separate periods of growth occurred as follows.

- From 1864 to 1911 the population increased continuously as a result of strong natural increase; Portugal entered the 20th century with a high average annual growth rate (0.9%).

- The following period, from 1911 to 1920, was characterised by a low annual growth rate (0.15%) due to the effects of the First World War and a flu epidemic. In 1918 there was a strong natural decrease - the only time this has happened. Emigration, mainly to Brazil, was important in this period. Emigration from Portugal to Brazil had been occurring ever since colonisation in the 16th century and reached large numbers at the end of the 19th century, peaking in the 1911-20 period.

- This was followed by two periods of population change: 1920-1960 and 1960-1970. Between 1920 and 1960, there was renewed population growth: although this slowed after 1940. The slowdown culminated in a negative growth rate between 1960 and 1970, when there was great emigration to other European countries.

- The period from 1970 to 1981 shows high average annual rates of growth (1.3%). This was a period of multiple change. Until 1973 the migratory exodus continued. From 1974 to 1975 there was a demographic explosion, that was associated with the de-colonisation process and the return of Portuguese from the ex-colonies. In 1976 a stable demographic growth commenced in which the decline of the natural balance, a consequence of a fall in the birth rate, was compensated by the reverse of emigration to Europe. This involved a reduction in the number of emigrants and an increasing rate of return of emigrants to Portugal.

- At the end of the period between the censuses, 1981 - 1991, the population size stabilises as a result of a low natural growth rate and the resurgence of a negative migratory balance although less intense than before

Table 1: Total resident population and annual average growth rate, 1864-1997

Years (Census except 1997)	Resident Population	Index 1864=100	Period	Annual Average Growth Rate (%)
1864	4 286 995	100	1864-1878	0.66
1878	4 698 984	110	1878-1890	0.69
1890	5 102 891	119	1890-1900	0.65
1900	5 446 760	127	1900-1911	0.88
1911	5 999 146	140	1911-1920	0.15
1920	6 080 135	142	1920-1930	1.12
1930	6 802 429	159	1930-1940	1.31
1940	7 755 423	181	1940-1950	0.93
1950	8 510 240	199	1950-1960	0.44
1960	8 889 392	207	1960-1970	-0.32
1970	8 611 110	201	1970-1981	1.30
1981	9 833 014	229	1981-1991	0.03
1991	9 867 147	230	1991-1997	0.15
1997 (31.12)	9 957 270	232		

Sources: INE, Population Censuses and 1997 Population estimate.

The contribution of each of the components to population change, natural increase and net migration balance is shown clearly in Table 2.

Table 2: Population increase, natural increase and net migration, 1890-1991 (1000s)

Years	Population increase	Natural Increase	Net migration
1890-1900	343.9	488.1	-144.2
1900-1911	552.4	738.2	-185.8
1911-1920	81.0	425.6	-344.6
1920-1930	722.3	804.3	-82.0
1930-1940	953.0	828.7	124.3
1940-1950	754.8	847.8	-93.0
1950-1960	379.2	1088.4	-709.2
1960-1970	-278.3	1073.5	-1351.8
1970-1981	1221.9	828.7	393.2
1981-1991	34.1	354.3	-320.2

Sources: INE, Population Censuses and Demographic Statistics

The first impediment to continued population growth arose in 1911-1920 when the natural balance fell to almost half that obtained during the previous period, but was still sufficient to equal the almost tripled net emigration. The second check to population growth occurred in 1960-1970 when the high natural balance was not sufficient to compensate for the increased negative migration balance. Finally in the latest inter-census period, there was a new obstacle to the growth of the population, the demographic bust in fertility which followed the previous boom in natural increase (due to declining mortality) of the 1950s and 1960s. Nevertheless the low natural balance still exceeded the negative migration balance.

The net migration balances between censuses should be assessed with care as they are residuals, the difference between the actual increase in the population in the period between the censuses and the natural balance observed during the same period. This indirect assessment of the levels of migration includes the errors in coverage of each of the censuses. For the 1981-91 decade, it is not possible to distinguish precisely the numbers of entries from the numbers of exits, but the study of different sources of information on Portuguese emigration, by destination, appears to indicate a temporary worsening of the problem of external loss, from 1986.

2.1.2   Current demographic situation

Recent trends in the total population of Portugal are set out in Table 3. The population grew slowly until the mid-1980s, peaking in 1986, after which decreasing natural increase coupled with net emigration caused a period of population losses until the 1990s. Slow growth has resumed in the 1990s because external migration has a small inward surplus. However, natural increase has continued to shrink in the 1990s, although there was an increase in births between 1996 and 1997, due to a rise in fertility rates for women in their thirties. If this trend is only a temporary blip, natural increase may become negative in the near future pushing the Portuguese population back into decline.

Table 3: Population estimates and components of growth for Portugal, 1980-98

Time interval	Population 1 January, start year (1000s)	Population 1 January, end year (1000s)	Population Growth Rate (/1000)	Natural Increase Rate (/1000)	Net Migration Rate (/1000)
1980-86	9,736.0	10,014.3	10.8	6.5	4.3
1986-91	10,014.3	9,877.5	-0.7	3.1	-3.8
1991-92	9,877.5	9,864.9	-1.3	1.3	-2.5
1992-93	9,864.9	9,869.2	0.4	1.4	-1.0
1993-94	9,869.2	9,892.2	2.3	0.8	1.5
1994-95	9,892.2	9,912.1	2.0	1.0	1.0
1995-96	9,912.1	9,920.8	0.9	0.4	0.5
1996-97	9,920.8	9,934.1	1.3	0.3	1.0
1997-98	9,934.1	9,957.3	2.3	0.8	1.5

Sources: INE, Population Censuses and Population Estimates.

2.1.3   Fertility trends

The birth rate has oscillated around the same level - slightly more than 30‰ - until the middle of the 20's and thereafter it declined until it reached the 25‰ in 1940, and stabilised at this level until the mid sixties; since then the decrease has continued, until it reached the present level of 11‰. The Autonomous Regions and the Northern Coastal Regions show levels above the national average and the lowest are found in the Centre Interior Regions and the Alentejo; these levels vary between the extremes of 16‰ in Tâmega and the Azores and 7‰ in Pinhal Interior Norte.

Live births have declined continuously since 1981 (except for a small rise in 1996-97), to reach a level around 110 thousand in 1994-1996 or a crude birth rate of 11 per 1000. The decline in live births has been characterised by an increase in the frequency of first live births: in 1996 more than half of the live births represented the first child (52.9%). The second births have since 1980, maintained their relative importance. The continuous decline of third births began to be noticed particularly from 1986 reaching the relative levels of 8.9% in 1996. Fourth and higher order births in 1950 represented the most important group; presently (in 1996) they represent only 5.2% of total live births.

Another aspect which characterises Portuguese fertility in the last two decades has been the increasing age of mothers at childbirth, with the declining fertility of young people and a move to greater fertility from the 20-24 to the 25-29 age group. Mean age of childbearing reached 28.1 in 1997.

The total fertility rate (number of children per woman) has, since figures have been available, shown an irregular decline. Following the decline between 1930 and 1950 and the balance between 1950 and the seventies the Portuguese rate of fertility recommenced its decline. The total fertility rate declined from 3.8 children in 1930, to 3.1 in 1950 and 1970, thereafter reached the level of 2.2 in 1980 and has dipped below 1.5 since 1994, though 1996 and 1997 saw a small rise. There has been a decline of just over a half over the last 20 years.

The total fertility rate remains below the level necessary to replace the preceding generation (2.1 children per woman) and in 1997 the level is 1.46 children for every women, a level which is an estimated average for the European Community, i.e., 1.5 children per woman. Currently Germany (1.3), Spain (1.2), Italy (1.2) and Greece (1.3), are the countries which have lower rates than Portugal. Amongst the factors which explain the fall in the birth rate the most important are the progress made in the area of mortality, above all infant mortality; the increase of the average age of women giving birth to their first child; the spread of modern contraceptive measures; the difficulties experienced by young people in obtaining housing and their first job; the increase of compulsory schooling; the increased educational and professional activity of women; the social and professional affirmation of married couples; the difficulty couples encounter in conciliating professional and family life; the process of urbanisation and migratory movements - the increase in out-migration causes the departure of members of the population able to have children and a consequent transfer of births.

2.1.4   Mortality trends

The death rate has declined significantly since the beginning of the century. The crude mortality rate stabilised around 10‰ between 1981 and 1992, reaching 10.5‰ in 1997. The lowest levels are found in the coastal Norte and Lisboa e Vale do Tejo regions and those above the national average occur in interior Centro and the Alentejo regions. Infant mortality rates have shown a considerable decline over the past half century. The level was near to 150‰ in 1940, at 153.6‰ in 1911-20 and 148.7‰ in 1930-40; thereafter it fell to 55.5‰ in 1970, to reach the rate of 6.4‰ in 1997 which reflects a reduction of

88% in the last 27 years. Socio-economic and cultural conditions, eating habits, medical care for mother and child and vaccination are factors which explain the decline in infant mortality.

Between 1920 and 1997 life expectancy at birth increased from 35.8 to 71.4 years, for men, and from 40.0 to 78.7, for women: these are the benefits of progress in medicine and the increased quality of life. It is to be noted that male over-mortality increased between those dates: today women live 7.3 years more in average than men. Heart attacks, lung cancer and transport accidents are the main reasons for this excess mortality.

2.1.5 Trends in international migration

There are different phases with regard to Portuguese emigration, since the end of the 19th century. The first surge occurred from 1870 to 1920 with a massive movement to Brazil. Between 1920 and 1950 emigration almost ceased because of the world economic crisis and the barriers to the entry of immigrants into Brazil and other American countries. The second surge occurred from 1950 to 1973 with the destination now being post-war Europe with Portugal contributing to the supply of labour power. After 1973 the flow tailed off as a result, on the one hand, of the international economic crisis and the resulting restrictions on entries, and on the other, of the political and economic changes in Portugal.

In the 1980's there was a drop in permanent emigration. The absence of official statistics after 1988 makes it difficult to follow recent trends but the results of the 1991 Census confirm the lower net permanent emigration. However, temporary emigration has increased - mainly to Switzerland and France - as is shown by the number of exits in connection with employment contracts of up to 11 months. The number of temporary emigrants (of which some later converted into permanent emigrants) increased from 24.8 thousands in 1980 to 57.4 thousands in 1991. After the 1986 accession of Portugal to the European Community, family reunion in the other EC members became a right, although it had started in the 1970s. The year 1992 (1993 for Luxembourg) marked the end of the transitional periods to the entire application of Community law on the free movement of workers.

After 1974 immigration into Portugal increased considerably. As a result of decolonisation, in 1974 and 1975, the country received about half a million Portuguese who had lived in the former colonies. At the end of the decade the return of emigrants increased, though this had already been noted in the 60's, above all from Europe. The rate of return decreased, however, during the 80's when a massive return seemed to change into more integration in the destination country.

Portugal has recently witnessed increasing signs of immigration. From the 60's, migrants mainly came from the Cape Verde Islands, and were needed for the jobs left vacant by emigration from Portugal. Afterwards there was a gradual increase, undocumented immigration progressing to such an extent that it justified the implementation of special legalisation campaigns in 1992 and 1996. In 1993 the number

of immigrants was about 171 thousand or around 1.7% of the resident population. This included 132 thousand recorded legal foreigners and an estimate of an additional 39 thousand immigrants legalised in the amnesty of 1992-93. Many of them have always had ties to Portugal: they come from the former colonies or are Brazilian descendants of Portuguese emigrants. As of 31st December 1997, there are 175 thousand legal foreigners in Portugal constituting 1.8% of the resident population (not counting the contribution from the 1996 amnesty). The largest group is from the former African colonies, especially the Cape Verde Islands, and accounts for about 44% of all foreigners. The foreigners from the European Union are the second most important group accounting for around 26% of all foreigners, with a further 2% from other parts of Europe.

2.1.6 Population age structure

Portugal's population age structure began to change this century only after 1940. The period since then is characterised by an increase in the number of individuals of 65 years and over and the fall in the number of young people (under 15). The proportion of old people (65 and over) was near 6.4% until 1930, increased to 6.8% in 1940 and since then has continued increasing to a present level of 15.1% in 1997. Between 1940 and 1950 the population share of children (ages 0-14) fell from 32.0% to 29.6%, and has continued to fall, reaching 17.0% in 1997.

The relative increase in the elderly population, more obvious since the 50's, emerges as a consequence of the decrease in the young population but also of the decrease in the size of the working age population due to emigration. After 1981 the great increase in the elderly population is matched only by the decrease in the number of young people. The drop in fertility and the increase in life expectancy explain the ageing of the population. The evolution amongst the elderly is not uniform, with the "young elderly" (65-69 and 70-74 years) losing relative importance compared to the "older elderly" (75 and over).

The changes which have occurred in the age structure have led to a new distribution of the different age groups, which is clear from the current shape of the age pyramid and the ratios usually calculated to measure the ageing or the youth of population. While, in 1981, there were 45 people aged 65 and over for every 100 young people under 15 in age it is estimated that by 1997, this ratio had increased to 89. The present age structure has mainly resulted from the sharp drop in fertility, given the fact that improvements in mortality rates have been observed in every age group and especially in infant mortality rates.

2.2   Recent trends in regional demographic growth

Having reviewed the main demographic trends in Portugal at the national scale, we now assess the degree of variation around those trends at regional scale and the sources of that variation. For further details on this topic, see the account by Peixoto (1996).

Portugal is a relatively small country but still demonstrates marked regional heterogeneity. Three axes of spatial differentiation are important: a "vertical" coastal/interior axis, a "horizontal" north/south axis and a continental/islands (the Açores and Madeira) axis. The coastal regions house most of the population and economic activity and have experienced the strongest recent demographic growth, resulting from both the influx of migrants and positive natural increase. The interior of the country is characterised by population efflux, involving migration to the coast and abroad, and by low levels of natural increase.

The distribution of population in the coastal belt, is not, however, even. Population is highly concentrated in and around the two most important urban *pôles* of Lisboa and Porto. Lisboa is a large port and capital city, former hub of a far flung empire which is developing as an European metropolis of trade and services. The extent of modernisation of the urban economy is relatively higher than in the northern urban region. There, in the coastal region, centred on Porto but with extensions up the Douro valley, the economy is characterised by small and medium scale enterprises in the secondary, industrial sector, which co-exist with agricultural small holdings. The southern coastal area, the Algarve, has developed a strong tourist economy over the last decade, which has encouraged internal migration to the principal resorts

The interior economy is dominated by agriculture with the northern regions characterised by small scale farming and the southern regions by large land holdings and extensive farming (in the Alentejo). The interior regions also depend economically on remittances from emigrants and on transfer payments through pensions and savings. There exist also a series of small and medium-sized urban centres, based on services or manufacturing, that functions as small foci of development in the interior regions. For a further discussion of Portugal's regional variation see Figueiredo *et al.* (1985), Santos (1985), Ferrão (1985), Gaspar (1987), Amaro (1991) and Reis (1992).

The effect of these different regional economies on urban development is clear. Lisboa demonstrates the usual forms of urbanisation associated with other advanced countries. However, in the north and central coastal areas, industrialisation is not sufficient to produce high levels of urban concentration of the population. An important share of total production here takes place in the mixed "rurban" areas, giving rise to a notably diffuse (Gaspar 1987) or weak pattern of urbanisation (Ferrão 1985).

Tables 4 and 5 show the population dynamics in Portugal's main regions (the NUTS 2 regions - see section 3.3 for a description) over the 1970s and 1980s, distinguishing total change (in the 1980s), natural increase and net migration. Table 5 includes figures for the most important urban regions: Grande Porto (the metropolitan area of Porto) and Grande Lisboa and Península Setúbal (the metropolitan area of Lisboa). The north, with about 35 per cent of Portugal's population in 1970 and 1991, and Lisboa e Vale do Tejo, with 29 per cent in 1970 and 33 per cent in 1991, are the most populated regions in the country. The Lisboa metropolitan area itself contained 25 per cent of the national population in 1991 and the Porto metropolitan area 12 per cent. The coastal areas as a whole had, using data for *districtos*, about 78 per cent of the population of Portugal in 1991 compared with 72 per cent in 1970. There is an increasing concentration of population in the coastal areas and into the national capital, with the northern metropolitan region holding its population share.

Table 4: Population change, NUTS 2 regions, 1970-81

Regions NUTS 2	Total population[a] 1970	 1981	Change 1970-81 %	
PORTUGAL	8611110	9833014	1221904	*14.2*
Mainland				
Norte	3019960	3410099	390139	*12.9*
Centro	1667225	1763119	95894	*5.8*
Lisboa Vale Tejo	2532395	3261578	729183	*28.8*
Alentejo	587345	578430	-8915	*-1.5*
Algarve	268035	323534	55499	*20.7*
Autonomous Regions				
Açores	285015	243410	-41605	*-14.6*
Madeira	251135	252844	1709	*0.7*

Notes: a. Resident population

Sources: INE, Population Censuses (1970 - Estimated from a 20% sample - and 1981)

Table 5: Population change, components of change and urbanisation rates, NUTS 2 regions and metropolitan areas, 1981-91

Regions NUTS 2 NUTS 3[a]	Total population[b] 1981	1991	Population growth	%	1981-91 Natural increase	%	Migration Balance	%	Urbanisation[c] rate (%) 1981	1991
PORTUGAL	9 833 014	9 867 147	34 133	0.3	354 285	3.6	-320 152	-3.3	43.1	48.2
Mainland										
Norte	3 410 099	3 472 715	62 616	1.8	226 428	6.6	-163 812	-4.8	29.9	35.5
Grande Porto	*1 117 920*	*1 167 800*	*49 880*	*4.5*	*68 886*	*6.2*	*-19 006*	*-1.7*	*65.4*	*69.2*
Centro	1 763 119	1721 650	-41 469	-2.4	18 598	1.1	-60 067	-3.4	20.0	27.8
Lisboa Vale Tejo	3 261 578	3 296 715	35 137	1.1	85 141	2.6	-50 004	-1.5	71.8	73.7
Grande Lisboa	*1 853 729*	*1 836 484*	*-17 245*	*-0.9*	*53 358*	*2.9*	*-70 603*	*-3.8*	*88.2*	*88.3*
Peninsula Setúbal	*584 648*	*640 493*	*55 845*	*9.6*	*27 850*	*4.8*	*27 995*	*4.8*	*78.1*	*80.1*
Alentejo	578 430	543 442	-34 988	-6.0	-10 325	-1.8	-24 663	-4.3	40.5	45.5
Algarve	323 534	341 404	17 870	5.5	1358	0.4	16 512	5.1	40.0	46.8
Autonomous Regions										
Açores	243 410	237 795	-5 615	-2.3	17 859	7.3	-23 474	-9.6	43.4	45.8
Madeira	252 844	253 426	582	0.2	15 226	6.0	-14 644	-5.8	20.9	41.3

Notes: a. Only NUTS 3 corresponding approximately to the urban regions of Porto and Lisboa.
b. Resident population
c. Urban agglomerations of 2000 inhabitants or more. This new concept provides a better estimate of urbanisation.

Sources: Total population: INE, Population Censuses (1981 and 1991);
Population growth, natural increase and migration balance: INE Population Censuses and Population Estimates;
Urbanisation rate: calculations by the author, based on INE, Population Censuses (1981 and 1991)

If we examine population growth during the 1970s (Table 4), considerable increases can be identified in most regions, with a national average increase of 14.2 per cent. In fact, this period was an exceptional one in Portuguese demographic history: it included the return of about half a million people from former colonies in Africa, a large return flow of former emigrants to other European countries, particularly towards the end of the decade, and a marked reduction in emigration after 1973. In the 1980s these levels of return migration were reduced (Table 5) and net emigration resumed. Because this was coupled with low natural increase, the Portuguese population as a whole experienced only a 0.3 per cent increase between 1981 and 1991. Among Portuguese regions, it was the Algarve with 5.5% growth, Lisboa with 1% growth and the north with 2% growth which saw the main increases. At a finer regional scale (NUTS 3 - see section 3.3), the 1981-91 decade saw greater growth being recorded in coastal areas of the country, in Península Setúbal (+9.6%) and in Cávado (+7.4%), Ave and Entre Douro e Vouga (+6.5%) on the Northern Coast. The strongest population decreases occurred in the interior of the country, in Pinhal Interior Sul (-16.1%), Alto Trás-os-Montes (-13.7%), Baixo Alentejo (-10.0%), Beira Interior Norte (-8.9%) and Douro (-8.7%).

Regional net migration levels also show notable changes from the 1970s to the 1980s. In the 1970s, the positive net migration balance for the country as a whole benefited Lisboa and the Algarve. Immigration contributed most to the population in the capital region and the Algarve and was reinforced by large internal migration flows. Net external immigration also benefited other regions, notably the north and the centre, as a result of the turnaround in international migration flows. In the 1980s, the situation was quite different. The country once again lost population by migration and only one region saw an increase, the Algarve. Losses in the other regions varied from minus 1.5% (Lisboa) to minus 9.6% (the Açores).

In the 1980s natural growth was only 3.6 per cent compared with 9.6 per cent in the 1970s. Regional variations in natural increase were of some significance. The north, which together with the Islands had been the population "reservoir" of the country, saw its natural growth reduced by about a half. Lisboa in the 1970s experienced high rates of natural increase, a consequence of an age structure concentrated as a result of internal migration into the fertile ages, but this effect gradually diminished during the 1980s (Carrilho and Peixoto 1991).

It is important to note the relationship between the different components of population growth over recent decades. Peixoto (1990, 1991) indicates that it has been the net migration figures that have "controlled" total growth. The correlation between total growth and net migration for *distritos* over the 1970-81 decade is 0.60, while between total growth and natural increase it is only 0.21. Migration also has tended to contribute to higher natural increase in regions of in-migration and to reduce it in regions of out-migration. The weak growth in the interior regions is the product of the most negative natural balances combined with net out-migration. The coastal regions show positive migratory balances (particularly in Setúbal and the Algarve) or weak migratory balances combined with strong natural

balances. However, the Autonomous Region of the Azores registered a different demographic behaviour in the most recent census: natural growth was high but was more than wiped out by losses due to migration which produced a negative population growth of 2.3%. The situation in Madeira was similar with high natural increase being balanced by high net out-migration.

As a result of the variation between regions in demographic regimes, the proportion of the elderly in the population varies from region to region so that, in 1997, the areas with the highest proportions of people aged 65 and over were: the Alentejo with 21.4%, the Algarve with 18.4% and the Central regions with 18.0%. The youngest populations are to be found in the North (18.7%) and in the Autonomous Regions of Açores (23.2%) and Madeira (20.4%). The Lisboa and Vale do Tejo region has the greatest percentage of the population of working age (69.1%), while the Alentejo with 64.1% and the Açores (64.8%) have the lowest percentages of this group. At the same time the increase in the proportion of persons of 65 or over continues, standing at 15.1% in 1997 compared with 11.4% in 1981.

2.3 Internal migration and urbanisation

Analyses of internal migration flows in Portugal stress the attractions of the main urban centres. In a study which uses tables of current residence cross-classified by place of birth from the 1950s to 1981, Conim (1985) identified the Lisboa region, the Porto region and the Faro region in the Algarve as being the Portuguese regions with large proportions of the population born outside the region. In 1981 more than 50% of the population of the Lisboa zone (the *distritos* of Lisboa and Setúbal) were born outside the region. As we saw in Table 4, only Lisboa and the Algarve attracted net in-migration in the 1980s.

Peixoto (1996, pp.269-273) describes the main features of recent Portuguese urbanisation. The first is that current statistics probably underestimate the phenomenon. Table 5 provides the current measure of urbanisation. This defines urban agglomerations to be population settlements with 2000 inhabitants or more. Table 5 shows that, according to this definition, urbanisation levels were 43% in 1981 and 48% in 1991. The table shows that urbanisation increased in all regions of Portugal except the Açores over the decade 1981-91. The Lisboa region is the most urbanised at both census dates but saw a rather small change in level of urbanisation. Using the new definition (with a 2 000 inhabitants threshold rather than a 10 000 threshold) changes the picture of urbanisation most in the southern regions of the Alentejo and Algarve and in the Açores.

A new Portuguese official definition of "urban areas" will be launched by INE in the near future which will show a much higher level of urbanisation. The new definition takes into account not just size of settlement but also density and functional characteristics (namely type of employment structure and built form). Under this definition (INE/DGOTDU 1998) the urbanisation rate for Portugal is 68%,

which is double the level under the traditional definition (33%) and 20% higher than the definition counting all places with 2000 or more inhabitants as urban.

The internal development of the Lisboa urban region has been studied by several Portuguese researchers (Cruz and Santos 1990, Salgueiro 1992, Ferreira 1987). The urban region of Lisboa demonstrates the classic components of a large metropolis: an urban core, the administrative area of Lisboa; a large suburban ring and a more peripheral zone. It has followed a classic life-course: an urban expansion within its central core this century has led to an internal deconcentration of its population, from centre to periphery under the influence of the service sector growth and population pressure. A strong suburban expansion followed, at first along the main transport arteries and then between them. Since the late 1960s expansion has been particularly strong south of the Tejo consequent on major bridge developments which make it possible to live in suburbs south of the Tejo and commute to work in central Lisboa. The first Lisboa bridge over the Tejo was built in 1996 and a second one, the Vasco da Gama bridge, in 1998. In 1981 the urban core contained 810 thousand inhabitants out of a regional population of 2 440 thousand. In 1991 the census showed that the city centre population had fallen below 700 thousand, while the regional population had increased a little to 2 480 thousand.

Portugal's second city, Porto, has shown lower demographic increases than other urban areas. In 1981 it had 330 thousand inhabitants in its central city area and 1 120 thousand in the urban area as a whole. By 1991 these figures had changed to 300 thousand in the central core and 1170 thousand in the urban region as a whole, indicating some deconcentration of population. The reasons for this limited growth and spread in Porto are because the regional population is already quite diffuse reflecting the dispersion of industrial activity, the existence of many medium sized urban centres and weak city-centre/urban periphery linkages.

2.4 Conclusions about regional migration and urban dynamics in Portugal

The review of evidence about changes in the regional and urban populations of Portugal indicate that:

(1) rural depopulation from the interior regions is an important phenomenon;

(2) population is shifting towards coastal regions with the greatest economic opportunities, particularly to the capital and the Algarve;

(3) urbanisation is occurring with growth of the country's largest urban agglomerations and with urban concentration at a smaller scale in some coastal and interior areas, based on the attraction of small and medium-sized settlements;

(4) there are, however, signs of deceleration in the growth of the country's two largest urban settlements, Lisboa and Porto; and

(5) suburbanisation is occurring within these two large urban regions.

There is no evidence, to date, of counter-urbanisation (shifts to rural and peripheral regions) that is not explained by the development of the tourist industry (in the Algarve). However, the precise role of internal migration in contributing to these population shifts is a little unclear and the rest of the report will attempt to elucidate this role. Net total migration balances at regional and urban scales have been strongly influenced by the regional patterns of emigration, return migration and immigration, so that an examination, using census sources, of internal migration patterns at two recent censuses (1981 and 1991) is timely.

3.   DATA AND METHODS USED

This section of the report briefly describes the data used in the analyses of sections 4 and 5 and indicates what methods were used for handling the data.

3.1   The population census and other data sets

The principal source of data in Portugal for measuring population change and internal migration by region is the decennial census of population. In this report we use data, supplied by the Instituto Nacional de Estatistica (INE), derived from the Census of 1981, administered on March 16th of that year and the Census of 1991 taken on April 15th. The following data sets were made available in machine readable form by the *Gabinete de Estudos - Área Demografica e Social* of INE: (1) inter-regional migration data for *grupos de concelhos* (groups of counties designated as NUTS 3 units), (2) tables of population stocks in 1981 and 1991 and for the components of population change between 1981 and 1991 for *concelhos* (counties designated as NUTS 4 units in the Eurostat scheme), (3) files of population data by *freguesias* (parishes, the Portuguese areas designated as NUTS 5 units) together with (4) digital files of boundary information for the geographical areas of Portugal and information about the changes in the composition and boundaries of the areas. More detail on the nature of the variables used and the areas is given in section 3.2 and 3.3 below.

3.2   Variables

The Portuguese Census of 1991 asked each individual to provide the *concelho* and *freguesia* names; the enumerator recorded details of the *subsecção* (collection area), building number, dwelling number, family number and individual number. A question on date of birth yields information on the age of respondents.

3.2.1   The migration variables

There were two questions on migration. The first asked about residence on 31st December 1985 and the second about residence on 31st December 1989. If they had lived in the same *concelho,* Respondents were asked to check a box; if they had lived in a different *concelho* in Portugal, they were instructed to enter its name; if they had lived abroad, they were asked to check one of nine countries (Macau, Timor, Angola, Moçambique, C. Verde, Brasil, Espanha, França, RF Alemanha) or provide the country name. The equivalent questions were asked in the 1981 Census about residence on the 31st December 1979 and the 31st December 1973.

These questions yield fixed period, "transition" type information on migrants (see Rees 1985 for a discussion of the different migration measures). The 1991 Census asked about a person's residence on the 31st December 1989 and on the 31st December 1985. The time intervals for the migration

questions are respectively 5 years and 104 days (1985-91), 1 year and 104 days (1989-91). The 1981 Census asked about a person's residence on the 31st December 1979 and on the 31st December 1973. The reason for asking for residence at the end of 1973 was to capture details of the return migration from the ex-colonies in Africa (particularly Angola, Moçambique). The migration intervals were therefore 7 years and 74 days (1973-81) and 1 year and 74 days (1979-81). The dates chosen do make comparison of the levels of migration between the two censuses difficult because the time intervals differ. It is possible to factor the measures to annual equivalents but it is well known that the level of migration recorded by a fixed interval question is a non-linear function (other things being equal) of the time interval. So comparisons between migration recorded in the 1981 Census and in the 1991 need to be confined to comparisons of pattern and structure and not of exact level, though the shorter periods do yield data that is roughly comparable. A final consequence of the question design is that only migration between *concelhos* is recorded, not migration within *concelhos*. When migration was tabulated for larger NUTS 3 regions, entries within the intra-region cells in the tables had the interpretation "inter-*concelhos* migrants within a *grupo de concelhos* region".

3.2.2 Population variables

The populations used in the spatial analysis subsequently in the report derive from the 1981 and 1991 Censuses of Population in Portugal. The interval between censuses was slightly greater, by 30 days, than ten years. The total populations at risk of migration as a whole are slightly smaller than the all ages population recorded in the census. They exclude persons born within the migration measurement interval. So, in 1981 the population is aged 439 days or more (14.5 months old or more) and in 1991 the population is aged 469 days or more (15.5 months old or more). This exclusion of persons born within the measurement interval is a common census practice - it is also followed by the United Kingdom Census Offices, for example. The migration rates for age groups are not affected except for the first age group. In the life course analysis (e.g. in section 4.3) the first age group is labelled 0-14 years, but its precise age range is in fact 1.21 to 14 years of age at the time of the 1981 Census and 1.29 to 14 years of age at the time of the 1991 Census.

3.3 Geographic units

To analyse internal migration and population change data from a variety of spatial scales were used. The hierarchy of regions is set out in Table 6, which lists the name of the Portuguese territorial divisions, their correspondence with the NUTS system levels (1 to 5) and the number of units at each level of the hierarchy. Note that one national set of units, *Distritos* (Districts) is not used in the NUTS system. Most of the analyses in this report have been carried out at NUTS 3 scale, which is consistent between the 1981 and 1991 Censuses. NUTS 3 units consist of sets of local government units called *Concelhos*. The components of change analysis is reported in section 4 using these units. Population data are available for *Freguesias* (Parishes), the sub-municipal level of administration, but there is difficulty in matching areas between 1981 and 1991. In this report these data are not employed. For

many purposes it is useful to summarise population change and migration using the second level of the Eurostat scheme (NUTS 2). Figure 1 shows the boundaries of the NUTS 2 and NUTS 3 regions. We have also grouped the NUTS 3 data in different ways using classifications based on degree of urbanisation and on density of population.

Table 6: The NUTS statistical units and national administrative divisions of Portugal

NUTS Level	Name of territorial division	Number of units
1	*Continente (1) + Regiões Autónomas (2)*	3
2	*Commissões de Coordenação Regional (5) + Regiões Autónomas (2)*	7
	Distritos (Districts)	18
3	*Grupos de concelhos*	30
4	*Concelhos* (Counties)	305
5	*Freguesias* (Parishes)	4208/4045

Notes: NUTS = Nomenclature des Unités Territoires de Statistiques, which is the regionalisation scheme used by Eurostat to harmonise regional statistics across the European Union. It comprises 5 levels: NUTS 0 (member states), NUTS 1 to NUTS 5 (different regional levels).

3.4 Classifications

The 30 NUTS 3 regions are used in the report as a basic unit of analysis and mapping, containing on average about one third of a million people. This provides a good level of detail about the spatial variation of population change and its internal migration component. For many purposes, however, it is more convenient to summarise the map patterns by grouping the NUTS 3 regions into classes that reflect important influences on migration. Table 7 sets out the three classifications adopted: the first is the upper regional tier which shows how broad regional change is occurring; the second is a grouping of NUTS 3 regions into eight classes on the basis of their relationship to the two largest urban centres and level of urbanisation; while the third places NUTS 3 regions into one of five density classes.

The urbanisation classification places *Grande Lisboa* and *Grande Porto* in their own classes but associated them both with a ring of contiguous regions, *Lisboa Coast* and *Porto Coast*. The migrant flows between metropolitan cores and metropolitan rings will show whether Portugal is experiencing the urban deconcentration observed elsewhere in western Europe. The *Algarve* is assigned to its own region because of the unique nature of urban development based on marketing the southern coast to an international tourist market. The other regions outside the urban foci are divided into more densely settled *Central Coast*, the more sparsely settled *Interior* and the remote *Islands*.

Figure 1: The regions of Portugal

Comissões de Coordenação regional (5) + Regiões Autónomas (2)

NUTS 2 Regions
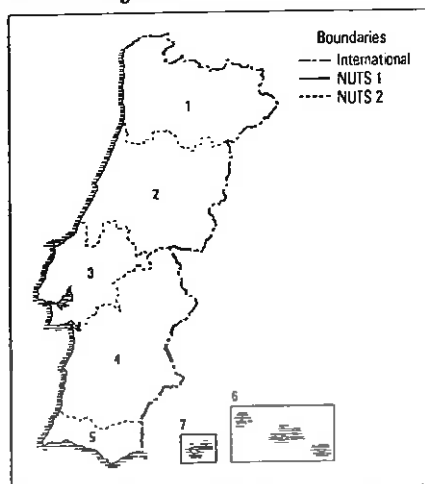
1	Norte
2	Centro
3	Lisboa e Vale do Tejo
4	Alentejo
5	Algarve
6	Açores
7	Madeira

Grupos de Concelhos

NUTS 3 Regions
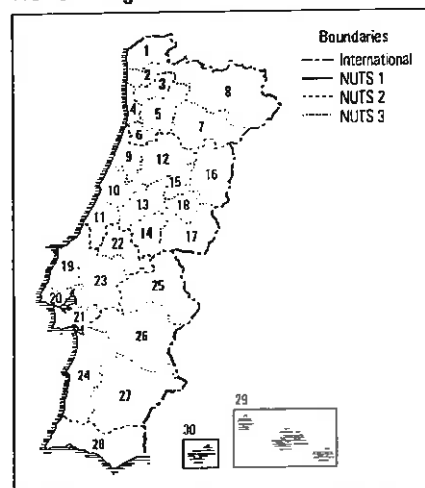
1	Minho-Lima	16	Beira Interior Norte
2	Cávado	17	Beira Interior Sul
3	Ave	18	Cova da Beira
4	Grande Porto	19	Oeste
5	Tâmega	20	Grande Lisboa
6	Entre Douro e Vouga	21	Peninsula de Setúbal
7	Douro	22	Médio Tejo
8	Alto Trás os Montes	23	Lezíria do Tejo
9	Baixo Vouga	24	Alentejo Litoral
10	Baixo Mondego	25	Alto Alentejo
11	Pinhal Litoral	26	Alentejo Central
12	Dão-Lafões	27	Baixo Alentejo
13	Pinhal Interior Norte	28	Algarve
14	Pinhal Interior Sul	29	Açores
15	Serra da Estrela	30	Madeira

The density classification repeats many of the groupings of the urbanisation classification, but it is very useful to employ such a classification for the purposes of comparing the relationship between population movements and population density in Portugal with that in the other case studies.

3.5   Mapping methods

The mapping methods used are straightforward: regions are shaded according to the intensity of the indicator being mapped. The maps all display rate variables computed as ratios. Figure 2 maps rates for the components of population change in the 1981-91 decade. Figures 3 to 10 map rates of net migration, the ratio of net migration to population. These maps include the Açores and Madeira as insets at a smaller geographical scale than continental Portugal for convenience in layout.

Table 7:   The classifications of NUTS 3 units by NUTS 2 region, by urbanisation region and by density class

No.	NUTS 3 Region name	NUTS 2 region	Urbanisation region	Density class
1	Minho-Lima	Norte	Northern Coast	100-<250 psk
2	Cávado	Norte	Northern Coast	250-<500 psk
3	Ave	Norte	Northern Coast	250-<500 psk
4	Grande Porto	Norte	Grande Porto	>=500 psk
5	Tâmega	Norte	Northern Coast	100-<250 psk
6	Entre Douro e Vouga	Norte	Northern Coast	250-<500 psk
7	Douro	Norte	Interior	50-<100 psk
8	Alto Trás-Os-Montes	Norte	Interior	<50 psk
9	Baixo Vouga	Centro	Central Coast	100-<250 psk
10	Baixo Mondego	Centro	Central Coast	100-<250 psk
11	Pinhal Litoral	Centro	Central Coast	100-<250 psk
12	Dão-Lafões	Centro	Interior	50-<100 psk
13	Pinhal Interior Norte	Centro	Interior	50-<100 psk
14	Pinhal Interior Sul	Centro	Interior	<50 psk
15	Serra Da Estrela	Centro	Interior	50-<100 psk
16	Beira Interior-Norte	Centro	Interior	<50 psk
17	Beira Interior-Sul	Centro	Interior	<50 psk
18	Cova Da Beira	Centro	Interior	50-<100 psk
19	Oeste	Lisboa e Vale Tejo	Lisboa Coast	100-<250 psk
20	Grande Lisboa	Lisboa e Vale Tejo	Grande Lisboa	>=500 psk
21	Península Setúbal	Lisboa e Vale Tejo	Grande Lisboa	250-<500 psk
22	Médio Tejo	Lisboa e Vale Tejo	Lisboa Coast	50-<100 psk
23	Lezíria do Tejo	Lisboa e Vale Tejo	Lisboa Coast	50-<100 psk
24	Alentejo Litoral	Alentejo	Interior	<50 psk
25	Alto Alentejo	Alentejo	Interior	<50 psk
26	Alentejo Central	Alentejo	Interior	<50 psk
27	Baixo Alentejo	Alentejo	Interior	<50 psk
28	Algarve	Algarve	Algarve	50-<100 psk
29	Açores	Açores	Islands	100-<250 psk
30	Madeira	Madeira	Islands	250-<500 psk

Note: psk = population per square kilometre

4. SPATIAL PATTERNS OF POPULATION CHANGE AND NET MIGRATION

4.1 Population shifts and components of change for regions and counties

In the review of section 2, we have seen that Portugal's population dynamics shifted quite dramatically between the 1970s and 1980s (Tables 4 and 5). This was a result of falling fertility and a shift from a wave of immigration resulting from loss of empire to resumption of a more traditional role as net exporter of labour to Western Europe. Table 5 sets out the main components of change in the NUTS 2 regional populations and shows that the national net migration loss is, by and large reflected in each NUTS 2 region with the exception of the Algarve with its internal inflow and its external immigration of European retirement migrants from Germany, the Netherlands and Britain. Within these broad regions the influence of internal migration on the total net migration balance could be seen in the Porto and Lisboa regions.

It is not possible to break down the migration component of change for the decade into external and internal parts as there is no emigration data at regional scale after 1988. However, we can obtain some idea of the influence of the internal streams by looking at a more spatially detailed picture of the components of change at county scale provided in Carrilho *et al.* (1993). Figures 2A, 2B and 2C map respectively total population change between the 1981 and 1991 Censuses, natural increase over the same period and total net migration for the counties of continental Portugal. Each component indicator is expressed as a percentage of the 1981 Census population.

Natural increase and net migration both contribute strongly to reinforce the population shift from the rural interior to the more densely settled urban regions on the coast. Natural increase is strongest in all the northern coastal regions, both within and around the Grande Porto region of northern Portugal with its dense pattern of settlement in small and medium size towns, and in the suburban counties around the capital Lisboa. Parts of the central interior of the country suffer quite severe natural decrease, both as a result of low fertility and because decades of emigration have left behind an elderly population with high mortality. Net migration streams are most strongly directed to the greater Lisbon area outside the central core and particularly in the growing suburban hinterland of the Península Setúbal. Net in-migration is experienced on the resort coast of the Algarve. The interior, particularly in the north, the centre and the Alentejo region, experiences rural exodus.

Figure 2: Population change and components in the counties of Portugal, 1981-91

A: Population change

Variation (%) 1981-1991	
10.01 or more	(20)
5.01 to <10.01	(36)
-5.01 to <5.01	(90)
-10.01 to <-5.01	(53)
Less than -10.01	(76)

B: Natural increase

Variation (%) 1981-1991	
10.01 or more	(12)
5.01 to <10.01	(38)
-5.01 to <5.01	(188)
-10.01 to <-5.01	(30)
Less than -10.01	(7)

C: Net migration

Variation (%) 1981-1991	
10.01 or more	(10)
5.01 to <10.01	(22)
-5.01 to <5.01	(116)
-10.01 to <-5.01	(70)
Less than -10.01	(57)
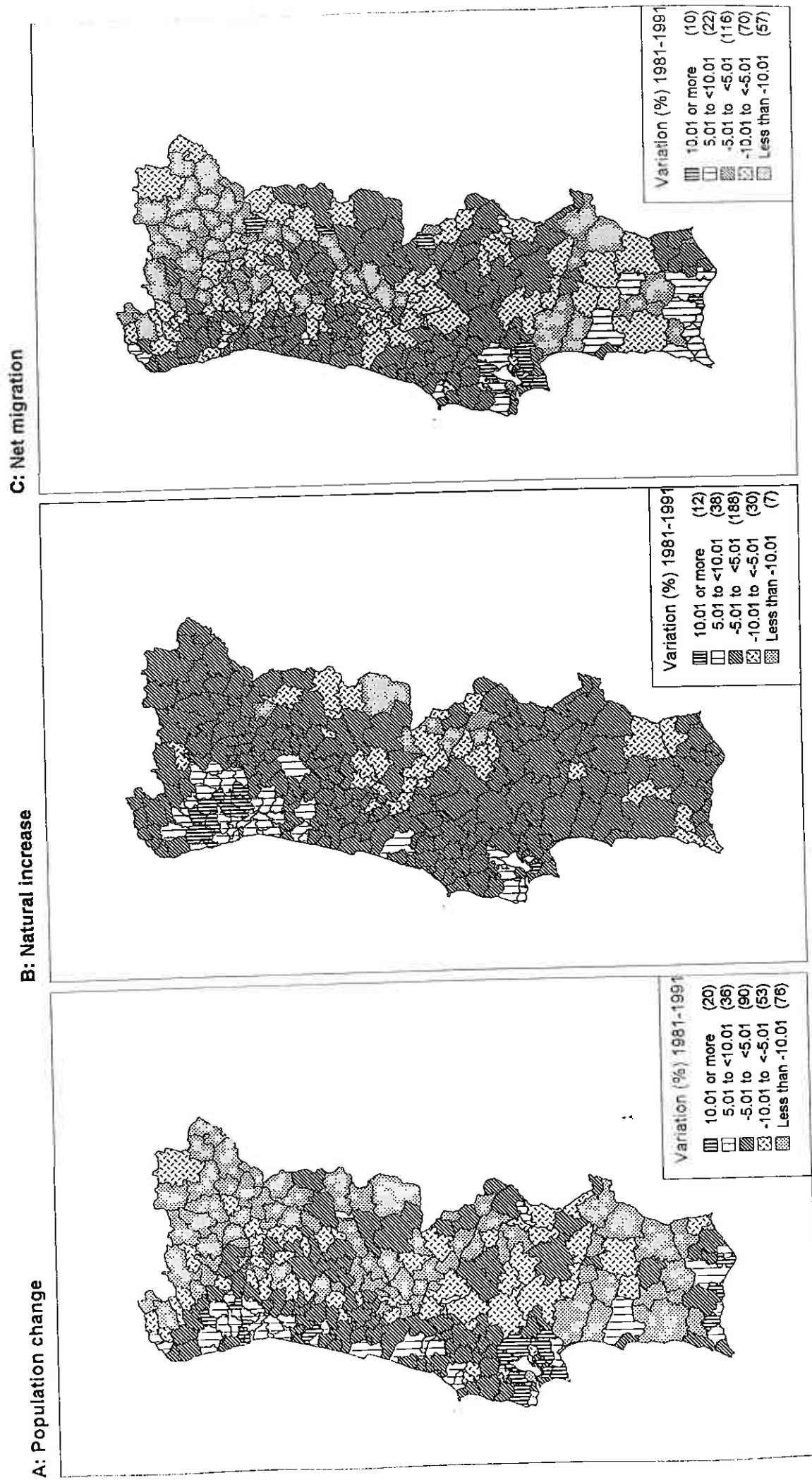
4.2   Net internal migration patterns for regions

Figures 3 provides evidence of the patterns of internal migration in the period before the 1981 Census and the 1991 Census respectively. These periods are labelled 1979-91 and 1989-91 on the maps, and refer to the time intervals 31.12.1979 to 16.3.1981 and 31.12.1989 to 15.4.1991 respectively. There are many common features in the two maps but also important differences.

A first common feature is the experience of migration loss in the remoter interior regions; the difference between 1979-81 and 1989-91 is that this feature is less intense in the latter period with only 2 regions losing more than 10 net migrants per 1000 people compared with 11 such regions in 1981.

A second common feature is that only one region in both years shows net migrant gain of 10 migrants per 1000 inhabitants. That region is Península Setúbal which serves as the setting for the development of overspill communities from Greater Lisbon. The strong internal migration to Península Setúbal is partly due to inter-regional migrants and partly due to intra-metropolitan migrants (people who lived in the northern part of the metropolitan region and moved to the southern margin). One of the factors explaining this attraction is the lower cost of housing in that area.

Regions of moderate gain in both 1979-81 and 1989-91 include Cávado, Ave, Grande Porto, Baixo Vouga in the larger Porto urban region, Lezíria do Tejo in the Lisboa region and the Algarve. Several regions move into this moderate gain class between the two periods: Entre Douro e Vouga in northern Portugal, Pinhal Litoral, Dão-Lafões and Beira Sul in central Portugal, and Oeste and Médio Tejo in the Lisboa region. This shift in regions of attraction can be interpreted in part as an expansion of the Grande Porto and Grande Lisboa regions into their immediate hinterland. We shall see later that these gains to the metropolitan ring regions are a result of both gains from the metropolitan cores and from interior regions.

Figure 3: Net internal migration rates, Portugal, NUTS 3 regions, all ages

1979-81

1989-91

Acores

Madeira
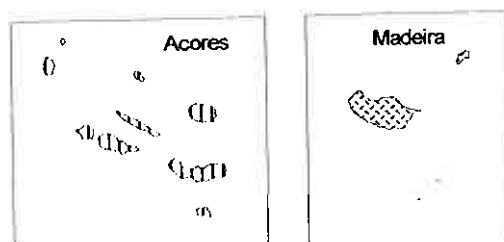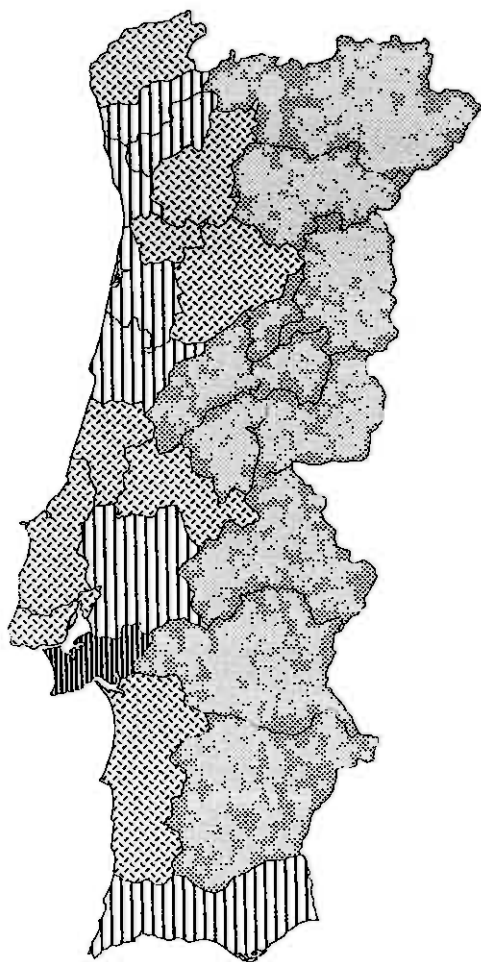
Net migration rate per
1000 inhabitants

IIII	5 or more	(1)
III	0 to <5	(8)
	-5 to <0	(10)
	Less than -5	(11)

Acores

Madeira
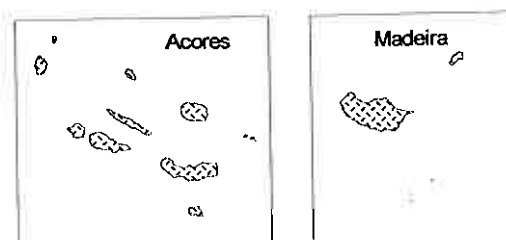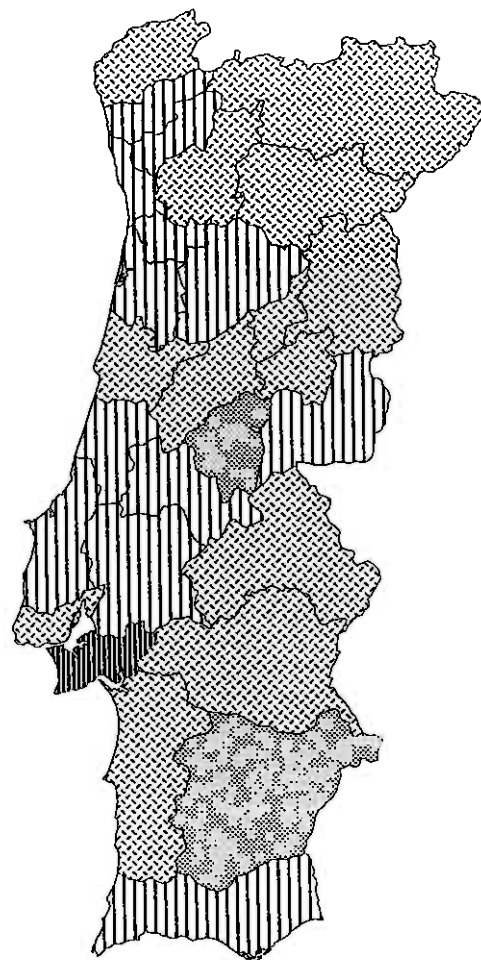
Net migration rate per
1000 inhabitants

IIII	5 or more	(1)
III	0 to <5	(12)
	-5 to <0	(15)
	Less than -5	(2)

4.3 Net internal migration for regions: life course patterns

To what extent are the patterns exhibited by the net migration maps of the whole population reflected in the patterns of different life course groups? Figures 4 to 9 plot net internal migration rates for 1979-81 and 1989-91 for six different life course groups, which are considered in turn. The age classification adopted differs a little from that adopted in other countries, confining the years of life course launch to 15-24 and extending the older working ages through to 64, compressing the retirement ages into the 65-74 decade. This was the best judgement of the authors of the way the separate five-year age group patterns were correlated.

4.3.1 The childhood ages, 0-14

The maps (Figure 4) for the first life course stage closely resemble both the maps for all ages (Figure 3) and those for the family ages (Figure 6). There are gains to the regions around Lisboa but the capital itself experiences net out-migration. Similarly there are gains to the Grande Porto regions and neighbouring areas. The heaviest gains are to the Algarve, probably resulting from the migration of families of workers taking up jobs on the resort coast. Losses occur from the interior regions particularly in 1979-81. These losses are reduced in relative terms in 1989-91.

Figure 4: Net internal migration rates, Portugal, NUTS 3 regions, ages 0-14

1979-81

1989-91

Acores

Madeira

Acores

Madeira

Net migration rate per
1000 inhabitants

▐▌	5 or more	(2)
▐▌	0 to <5	(11)
▒	-5 to <0	(8)
▒	Less than -5	(9)

Net migration rate per
1000 inhabitants

▐▌	5 or more	(1)
▐▌	0 to <5	(14)
▒	-5 to <0	(13)
▒	Less than -5	(2)
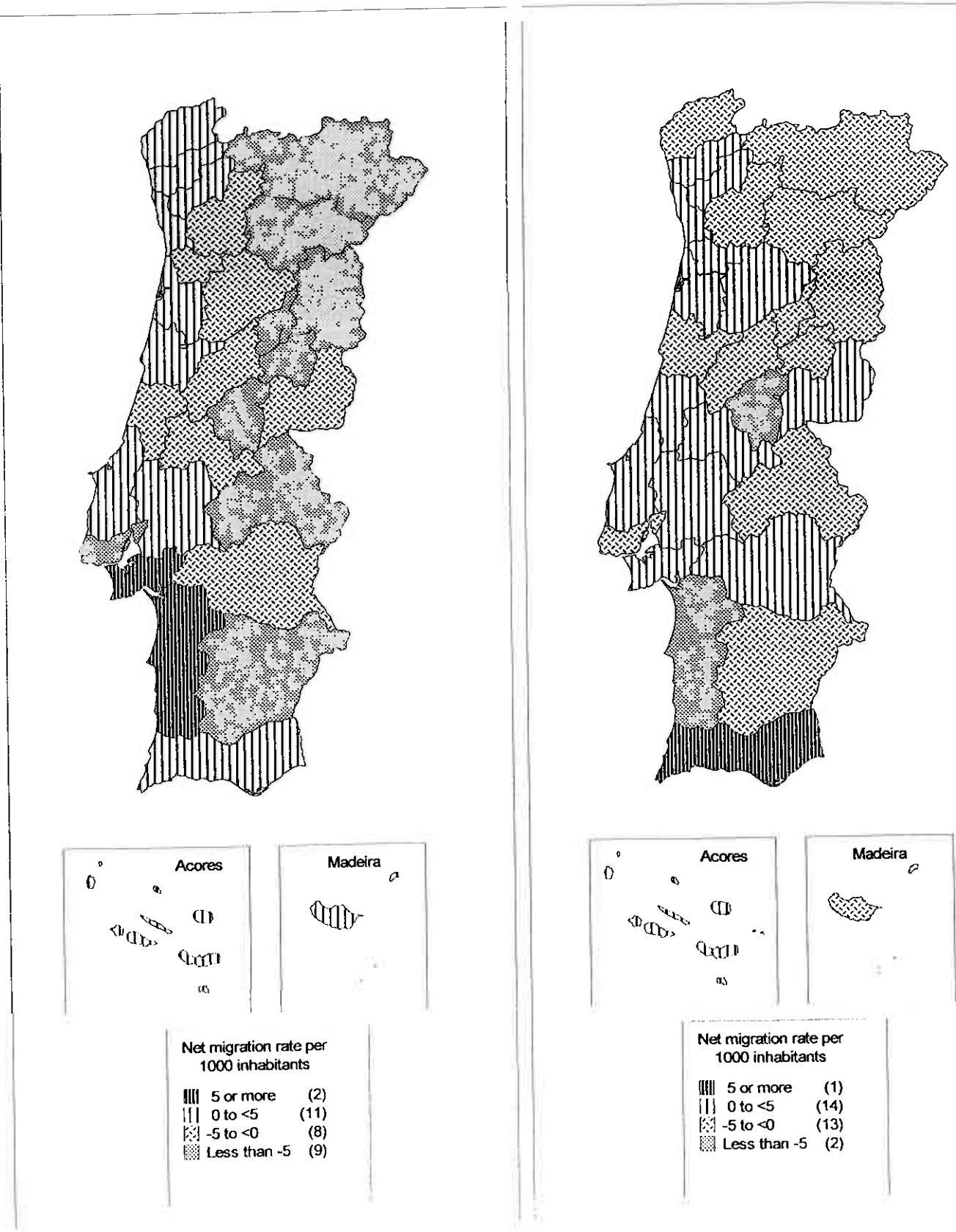
4.3.2   The late adolescent and young adult ages, 15-24

Young adults have the strongest pattern of interior to coast and rural to urban migration (Figure 5). The general pattern of interior to coast and rural area to metropolis net redistribution due to internal migration applies particularly for these ages.   There is heavy net in-migration to the two large metropolises, including Grande Lisboa and Grande Porto in contrast to the previous age group and family ages where there were losses. The pattern of interior loss and coastal gain is sharpest in 1979-81 but is still prominent in 1989-91. In the later period, however, Grande Lisboa and Grande Porto do not fall in the highest gain category. In both periods there were gains in this age group to the Algarve region.

We can interpret the Figure 5 maps as showing that young people in Portugal contribute significantly to interior to coast and rural region to urban area migration streams. Young adults seek the opportunities that cities and towns can offer which the rural hinterlands cannot: jobs in the expanding sectors of the economy (some branches of manufacturing, most types of services, including business services), places in educational and training institutions, and, for men, positions in the country's armed   forces. Comparing the 1979-81 period with 1989-91, we observe a slightly lower intensity in this coastal/metropolitan direction of migration (fewer regions fall in highest net inflow and net outflow classes).

Figure 5: Net internal migration rates, Portugal, NUTS 3 regions, ages 15-24

1979-81

1989-91

Acores

Madeira

Acores

Madeira
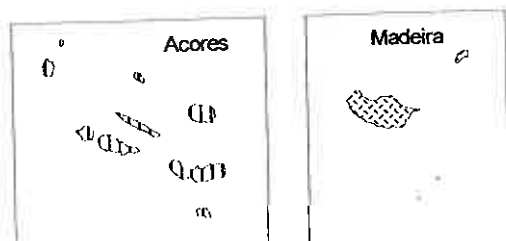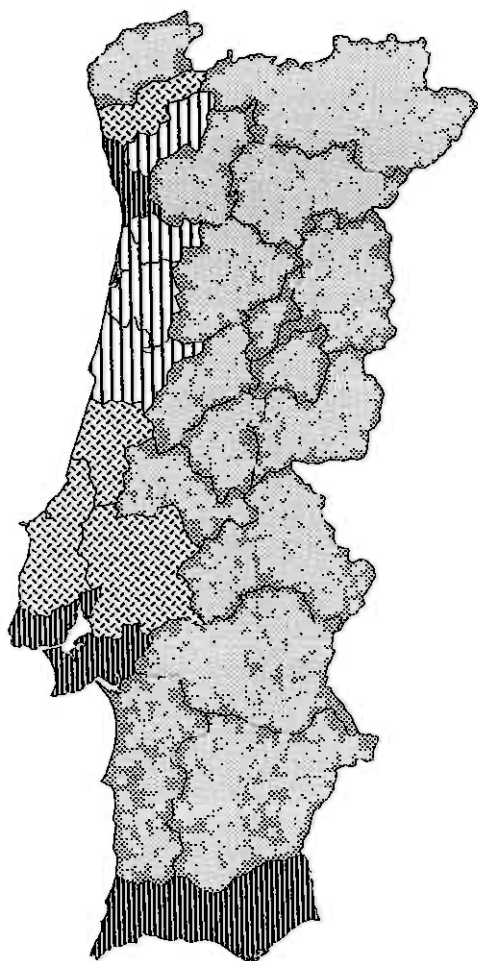
Net migration rate per
1000 inhabitants

‖‖ 5 or more	(4)
‖‖ 0 to <5	(5)
▨ -5 to <0	(5)
▦ Less than -5	(16)
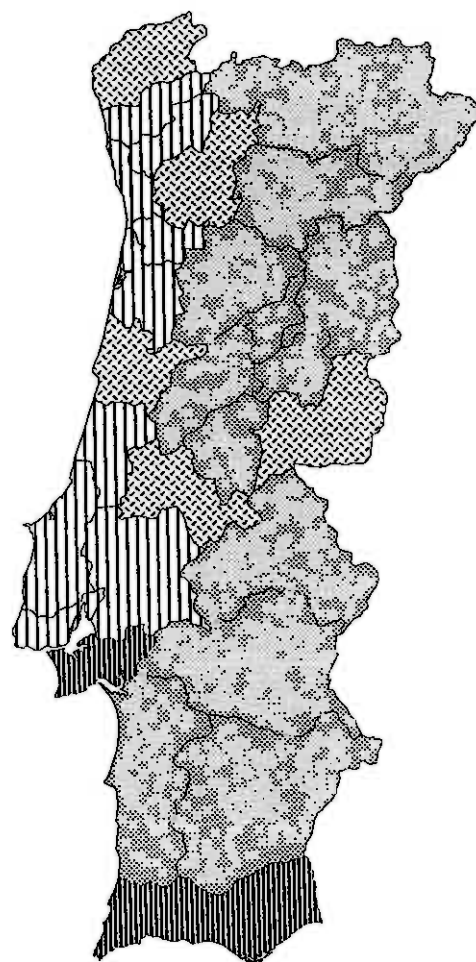
Net migration rate per
1000 inhabitants

‖‖ 5 or more	(2)
‖‖ 0 to <5	(9)
▨ -5 to <0	(6)
▦ Less than -5	(13)

4.3.4   The family ages, 25-44

Figure 6 shows the patterns of net migration in the family ages in the 1979-81 and 1989-91 periods. This age group's migration pattern closely resembles that of their children (Figure 4): a shift through migration from the interior to the coast and to the wider Lisboa region, in particular. The Grande Lisboa region itself (north of the Tagus) records net outflows for this age group in both 1979-81 and 1989-91, with gains to each of the surrounding regions. This we can interpret as a process of decentralisation with the metropolitan region itself.

Between the two periods of observation the degree of redistribution of the population as a result of migration reduces with seven fewer regions in the highest net out-migration class and one fewer in the highest net in-migration class in 1989-91.

Figure 6: Net internal migration rates, Portugal, NUTS 3 regions, ages 25-44

1979-81

1989-91
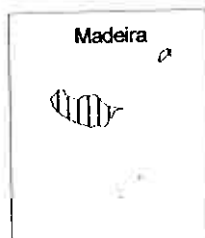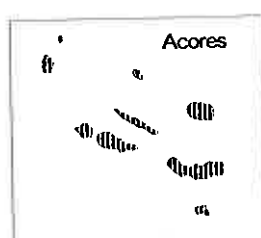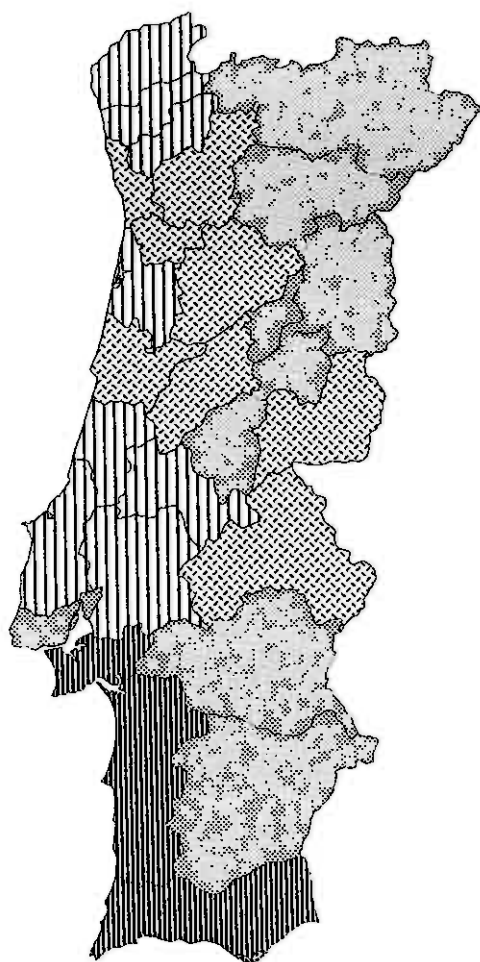
Net migration rate per
1000 inhabitants

‖‖‖	5 or more	(4)
‖ ‖	0 to <5	(9)
▨	-5 to <0	(8)
▨	Less than -5	(9)
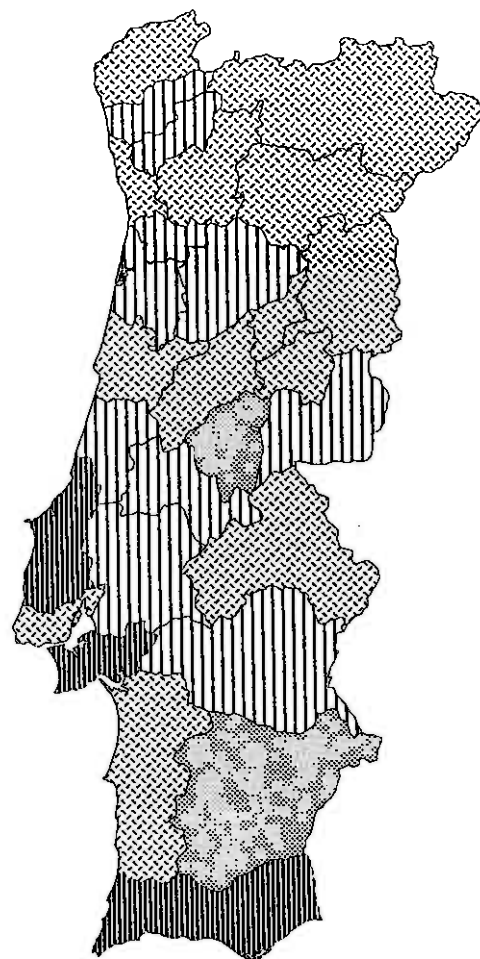
Net migration rate per
1000 inhabitants

‖‖‖	5 or more	(3)
‖ ‖	0 to <5	(10)
▨	-5 to <0	(15)
▨	Less than -5	(2)

4.3.5   The older working ages, 45-64

The patterns of net migration in the later working ages (45-64) are displayed in Figure 7. Migration rates at these ages are rather low, and most of the regions fall in the classes just above and just below migration balance. The pattern does show some contrasts with those of the younger age groups. Many of the interior regions, particularly in 1989-91, experienced migration gain. Only three interior regions, Alentejo Litoral, Baixo Alentejo and Beira Interior Norte persist in net migration losses in both 1979-81 and 1989-91. In the latter period most regions in the country are moderate gainers of net migrants in this age group. The metropolitan regions of Grande Lisboa and Grande Porto lost net migrants in both intervals, indicating decentralisation from the urban centres.

Figure 7: Net internal migration rates, Portugal, NUTS 3 regions, ages 45-64

1989-91

1979-81

Acores

Madeira
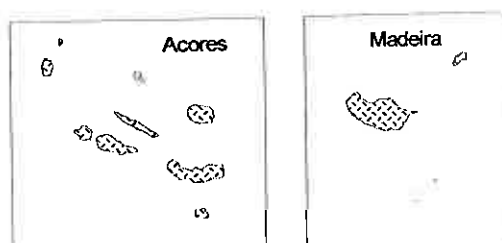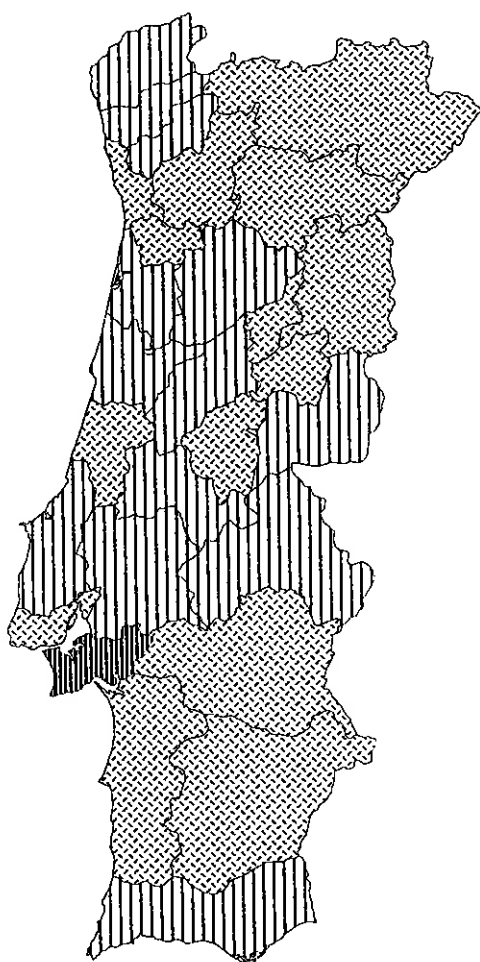
Net migration rate per
1000 inhabitants

▥ 5 or more	(1)
▥ 0 to <5	(13)
▥ -5 to <0	(16)
▦ Less than -5	(0)

Acores

Madeira
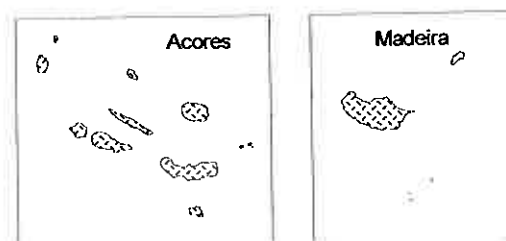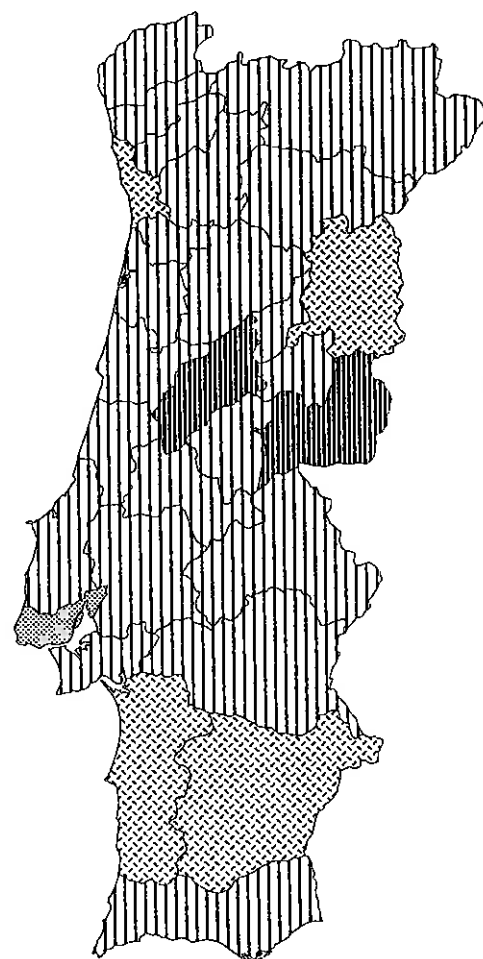
Net migration rate per
1000 inhabitants

▥ 5 or more	(2)
▥ 0 to <5	(21)
▥ -5 to <0	(6)
▦ Less than -5	(1)

4.3.6   The retirement ages, 65-74

Figure 8 maps the regional patterns of gains and losses in the retirement ages. Interior losses and coastal gains resume in the retirement ages though there is still a shift between 1979-81 and 1989-91 to more dispersed gains and net outflows from Grande Lisboa. There are also many fewer regions in the top gain and bottom loss categories, suggesting that population redistribution is slowing down. So far in this section of the report we have examined the migration of persons irrespective of gender, because, in the main, there were few differences between the migration patterns of men and women. Gender differences are thus relatively subdued in Portuguese population redistribution. Male and female internal migration streams are very similar at all life course stages. However, the retirement ages, 65-74, are a notable exception. Figure 8 maps male and female net migration patterns in 1979-81 and 1989-91. Females show a stronger exodus from remoter, rural, interior areas, particularly in the 1979-81 period. This is the age of widowhood at which women lose their spouses and have the opportunity or necessity to migrate independently, whereas more men at these ages are still living with their spouses in a more settled state.

As with the younger age groups the pattern of net migration in 1989-91 is less differentiated with compression of the distribution into the two central classes. We can interpret the shifts between 1979-81 and 1989-91 as showing evidence of the emergence of a retirement migration pattern in Portugal: one that disfavours both the most urbanised metropolitan regions and the most remote interior regions and favours intermediate and less remote rural regions.

Figure 8: Net internal migration rates, Portugal, NUTS 3 regions, ages 65-74

Males

1979-81

Net migration rate per
1000 inhabitants

	5 or more	(1)
	0 to <5	(13)
	-5 to <0	(14)
	Less than -5	(2)

1989-91

Net migration rate per
1000 inhabitants

	5 or more	(2)
	0 to <5	(22)
	-5 to <0	(5)
	Less than -5	(1)

Females

1979-81

Net migration rate per
1000 inhabitants

	5 or more	(1)
	0 to <5	(11)
	-5 to <0	(7)
	Less than -5	(11)

1989-91

Net migration rate per
1000 inhabitants

	5 or more	(1)
	0 to <5	(15)
	-5 to <0	(14)
	Less than -5	(0)
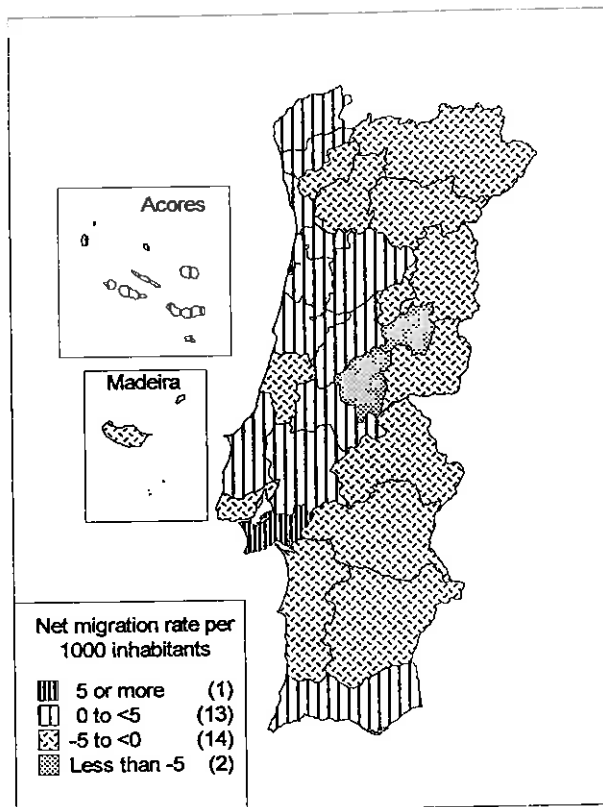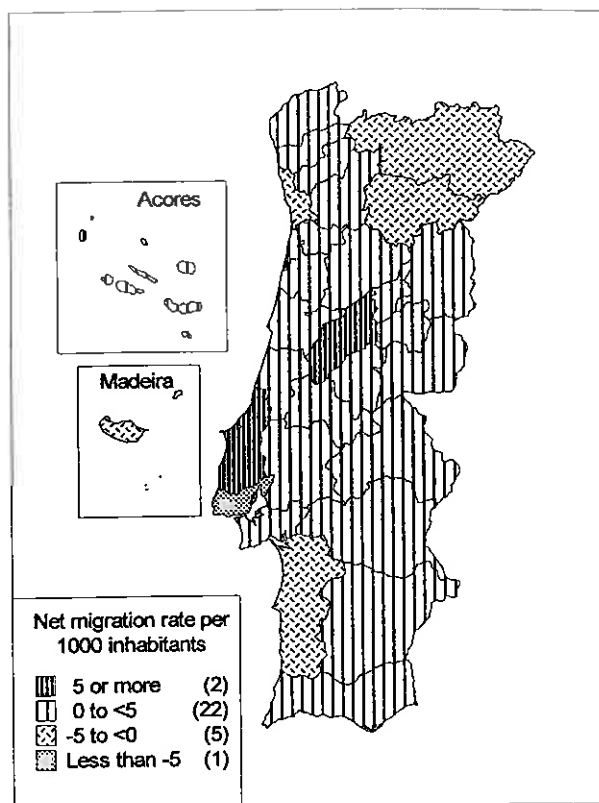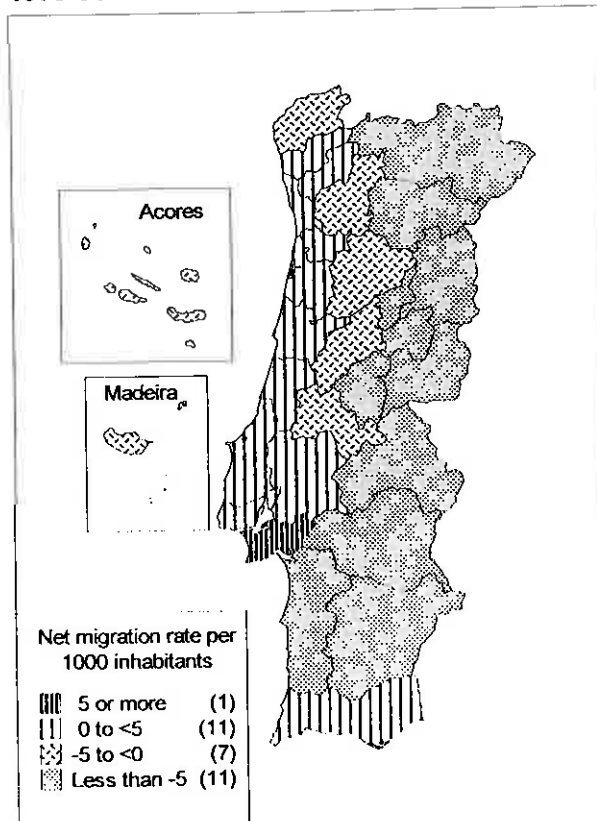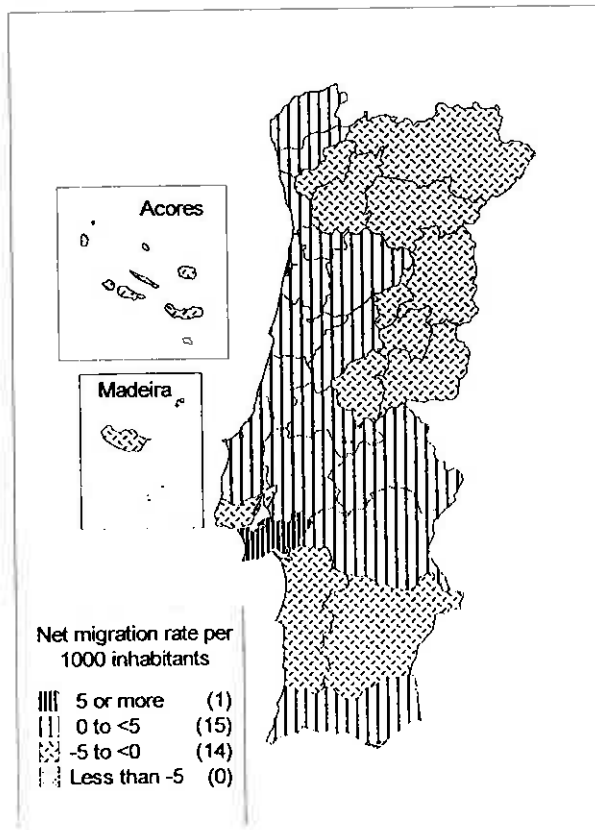
4.3.6   The elderly ages, 75 and over

Figure 9 maps the net migration patterns of the older elderly age group. For the very old (aged 75 and over) the strong gradient of young adults is seen again, with strong losses from the interior rural regions and strong gains in the coastal and metropolitan regions. We would interpret this pattern as one of migration by elderly parents to the regions of their offspring and to areas with the best medical services and provision for the elderly.

In this section of the report we have described how the spatial distribution of Portugal's population changed over the decade between 1979-81 and 1989-91 and, in particular, what contribution internal migration played. The analysis has distinguished the rather different patterns of migration that occur in the successive life course stages. The dominant themes displayed on the maps have been interior to coast and rural urban shifts of population, together with decentralisation within Portugal's two large metropolitan regions (the Lisboa and Porto regions). These dominant themes have, however, varied in intensity according to life course stage. They have been most intense (showing an above average concentration) for young adults and the very old; they have been characteristic of the family ages. However, the shifts in late working ages and at retirement have de-emphasised the dominant trends and seen net gains to many more rural, interior regions, though not the most remote.

Figure 9: Net internal migration rates, Portugal, NUTS 3 regions, ages 75+

1979-81

1989-91

Acores

Madeira

Acores

Madeira
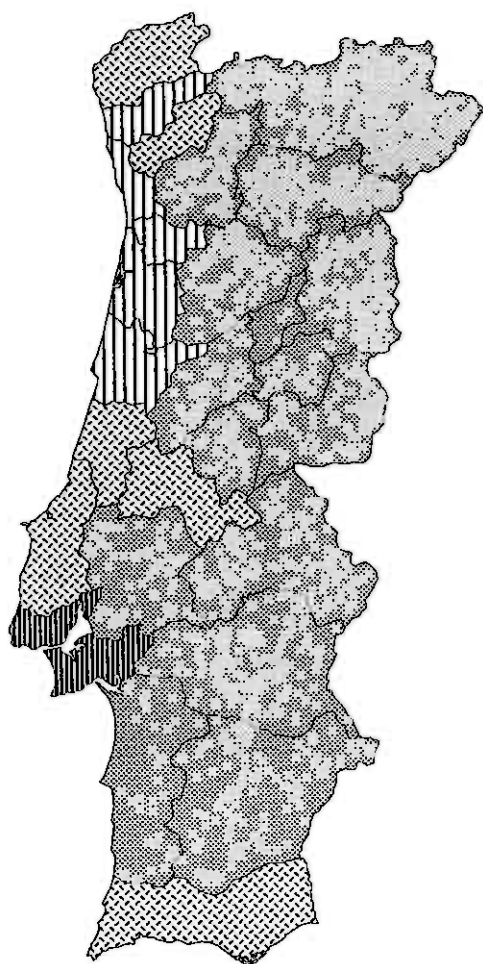
Net migration rate per
1000 inhabitants

‖‖	5 or more	(2)
‖ ‖	0 to <5	(5)
▨	-5 to <0	(8)
▦	Less than -5	(15)
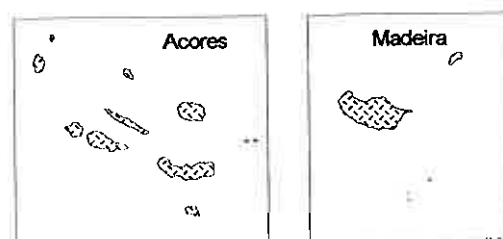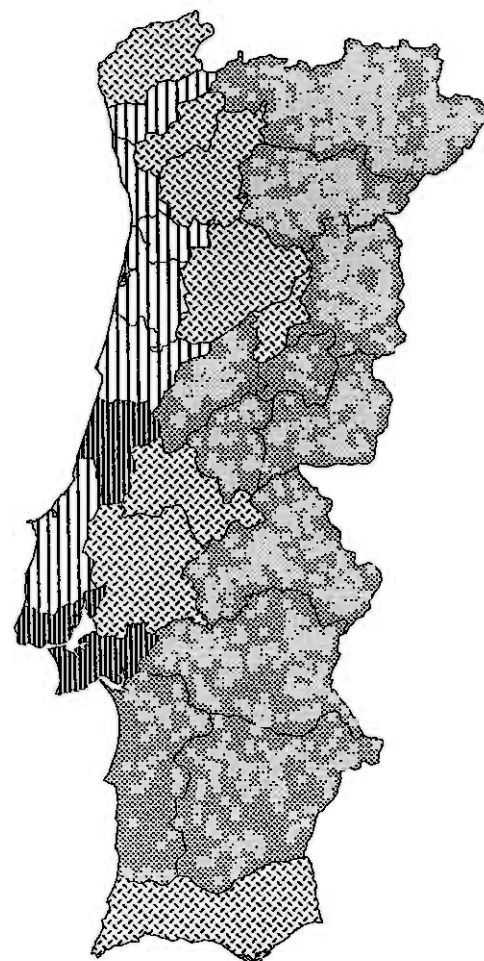
Net migration rate per
1000 inhabitants

‖‖	5 or more	(3)
‖ ‖	0 to <5	(6)
▨	-5 to <0	(10)
▦	Less than -5	(11)

5. RELATIONSHIPS BETWEEN MIGRATION, URBANISATION, POPULATION DENSITY AND UNEMPLOYMENT

5.1 Relationship between migration and urbanisation

In section 4 we examined the structure of internal migration in Portugal by mapping net migration indicators. In section 5 we try to understand the sometimes complex spatial patterns through classifying the regions into groups which have some theoretical relevance. The first dimension we use is that of degree of urbanisation. The NUTS 3 regions were assigned into urbanisation classes in Table 7. In terms of degree of urbanisation the regional groups are ranked as follows: Grande Lisboa, Grande Porto, Lisboa Coast regions, Northern Coast regions, the Algarve, the Central Coast regions, the Islands and the Interior. Here we look at the gross flows of migrants into and out of regions as well as the migration balances paying particular attention to the different life course stages. Table 8 reports on flows into and out of regions grouped on the basis of urbanisation.

If a simple process of urbanward migration were taking place we would expect the greatest gains in the most urbanised regions, Grande Lisboa and Grande Porto and the greatest losses in the least urbanised regions, the Islands and the Interior. The intermediate groups of coastal regions should lie in between.

This is not an unreasonable summary of the all age pattern of migration in 1979-81. The Grande Lisboa and Grande Porto regions gain migrants, with the coastal regions around Lisboa and Porto experiencing losses with the Algarve and Central Coastal regions showing migration gains. Substantial losses occur in the Interior. But by 1989-91 the picture has changed somewhat. Grande Lisboa now is a net loser of migrants, the gain to Grande Porto is much lower. The losses in the Lisboa Coastal and Northern Coastal regions have turned into gains. The loss in the Interior low urbanisation class has reduced considerably, while the Islands have moved into loss. Geyer (1996) has proposed a model of the migration-settlement size relationship which sees countries moving from urbanisation through polarisation reversal to counterurbanisation. In terms of this model Portugal is beginning a process of polarisation reversal in which places at both ends of the urbanisation spectrum are disfavoured by migrants while intermediate regions are favoured.

Table 8 provides migration data for each life course stage. However, rather than review migration patterns by this concept as we did in section 4, we here briefly summarise the migration experience of the urbanisation classes.

Table 8: Inflows, outflows, net migration and efficiencies, urbanisation regions, by age, 1979-81 and 1989-91

Regions	In-Migrants 1979-81	Out-migrants 1979-81	Net migrants 1979-81	Effectiveness 1979-81	In-migrants 1989-91	Out-migrants 1989-91	Net migrants 1989-91	Effectiveness 1989-91
All ages								
Grande Lisboa	105682	94289	11393	6	68822	69714	-892	-1
Grande Porto	27443	25282	2161	4	23392	23054	338	1
Lisboa Coast	18070	18218	-148	-0	14917	12284	2633	10
Northern Coast	22436	23943	-1507	-3	18638	17787	851	2
Algarve	8947	7591	1356	8	8348	6845	1503	10
Central Coast	16679	15629	1050	3	13224	12111	1113	4
Islands	8549	8219	330	2	6290	6936	-646	-5
Interior	39423	54058	-14635	-16	28294	33194	-4900	-8
Childhood ages: 0-14								
Grande Lisboa	6409	5331	1078	9	2816	3253	-437	-7
Grande Porto	2347	1944	403	9	1266	1260	6	0
Lisboa Coast	2333	2193	140	3	1656	1068	588	22
Northern Coast	2162	2424	-262	-6	1442	1295	147	5
Algarve	1025	736	89	16	938	635	303	19
Central Coast	2049	1705	344	9	1236	985	251	11
Islands	627	559	68	6	432	535	-103	-11
Interior	3864	5924	-2060	-21	2251	3006	-755	-14
Late adolescent and young adult ages: 15-24								
Grande Lisboa	13413	5722	7691	40	6477	4500	1977	18
Grande Porto	4234	2668	1566	23	2832	2230	602	12
Lisboa Coast	2541	3378	-837	-14	2018	1925	93	2
Northern Coast	2910	4430	-1520	-21	2346	2589	-243	-5
Algarve	1244	902	342	16	1361	989	372	16
Central Coast	2796	2541	255	5	2043	1977	66	2
Islands	815	763	52	3	713	979	-266	-16
Interior	4418	11967	-7549	-46	3556	6157	-2601	-27
Family ages: 25-44								
Grande Lisboa	9493	8505	988	5	6515	7306	-791	-6
Grande Porto	3390	3447	-57	-1	3085	3371	-286	-4
Lisboa Coast	3125	3010	115	2	3381	2390	991	17
Northern Coast	3482	3296	186	3	3359	2808	551	9
Algarve	1630	1090	540	20	1830	1328	502	16
Central Coast	2900	2745	155	3	2772	2501	271	5
Islands	1230	905	325	15	1076	1254	-178	-8
Interior	5903	8155	-2252	-16	4969	6029	-1060	-10
Working ages: 45-64								
Grande Lisboa	6896	1712	5184	60	1896	3971	-2075	-35
Grande Porto	1093	1288	-195	-8	623	833	-210	-14
Lisboa Coast	1891	793	1098	41	1452	728	724	33
Northern Coast	1213	3293	-2080	-46	931	548	383	26
Algarve	579	2867	-2288	-66	628	317	311	33
Central Coast	1103	1228	-125	-5	791	533	258	19
Islands	1624	2451	-827	-20	216	278	-62	-13
Interior	3349	4116	-767	-10	2329	1658	671	17
Retirement ages: 65-74								
Grande Lisboa	2320	594	1726	59	1190	1716	-526	-18
Grande Porto	497	502	-5	-1	336	296	40	6
Lisboa Coast	840	201	639	61	571	344	227	25
Northern Coast	387	1328	-941	-55	383	302	81	12
Algarve	224	667	-443	-50	189	141	48	15
Central Coast	367	446	-79	-10	339	215 ..	124	22
Islands	558	694	-136	-11	32	51	-19	-23
Interior	1073	1834	-761	-26	1091	1066	25	1
Elderly ages: 75+								
Grande Lisboa	1790	301	1489	71	1910	950	960	34
Grande Porto	351	312	39	6	384	198	186	32
Lisboa Coast	582	315	267	30	527	517	10	1
Northern Coast	196	928	-732	-65	249	317	-68	-12
Algarve	137	264	-127	-32	147	180	-33	-10
Central Coast	274	376	-102	-16	377	234	143	23
Islands	394	417	-23	-3	26	44	-18	-26
Interior	723	1534	-811	-36	602	1782	-1180	-49

Sources: computed from INE, 1981 and 1991 Censuses of Portugal

The Interior. This class has the lowest level of urbanisation. The class experiences large migrant losses to most other regions. In 1979-81 the class lost migrants at every life course stage. In 1989-91 overall losses were reduced and reduced losses also occurred at ages 0-14, 15-24 and 25-44. This trend tipped the class into migration surplus at ages 45-64 and 65-74. The only exception to this trend for diminished losses was the oldest age group where more migrants left on balance than in the period before the 1981 Census.

The Islands. This class had an intermediate level of urbanisation on the settlement size definitions discussed in section 2. However, the regions are isolated from continental Portugal and if local economic activities are declining (e.g. fishing in the Açores) then out-migration may result. Overall the Islands experienced net in-migration in 1979-81 and this became net out-migration in 1989-91. In 1989-91 all age groups experienced net outflows from the Islands, whereas in 1979-81 there were net inflows at ages up to 45.

The Central Coast. This class of regions had small migration surpluses in both periods, though the profile across the age groups differed. In 1979-81 ages up to 45 experienced net inflows while later ages had net outflows. In the 1989-91 period the later ages had net inflows.

The Algarve. This tourist region had migration surpluses in both 1979-81 and 1989-91. The main change during the decade was the switch from net loss to net gain among migrants aged 45 and over. Portugal's older workers and retired population joined the migration to the booming tourist coast.

The Northern Coast. This class of region saw a modest net outflow move to net inflow in the second period, benefiting in part from some decentralisation from the Grande Porto region.

The Lisboa Coast. The same switch occurred in the regions around Lisboa, particularly in the younger age groups. Migrants at ages 45 and over were already in surplus in the 1979-81 period.

Grande Porto. The decade saw reduction in the inflows to Portugal's second metropolis.

Grande Lisboa. Portugal's capital switched from net gain to loss between 1979-81 and 1989-91 both overall and at the family ages, the later working ages and retirement ages. For young adults and the very old, however, there were still migration surpluses into the capital region in the latest period. Thus there is evidence that selective metropolitan deconcentration has begun. In Greater Lisbon a process of suburb-ward out-migration is occurring in which the metropolitan core is losing migrants and the commuting field peripheries gaining migrants. Grande Lisboa experiences losses in exchanges with almost all other regions at family, childhood, older working and retirement ages in 1989-91. However, at late adolescent and young adult ages and at the elderly ages Grande Lisboa gains strongly from all regions except the ring of provinces around the capital, where suburbanisation prevails. Gains from

Grande Lisboa extend into the Interior in the family, older working and retirement ages, so here we are perhaps observing the beginnings of counterurbanisation.

5.2   Relationship to population density

Table 9 shows the total inflows, outflows and net migration flows between regions arranged in density classes. There is a mixture of processes at work. The 15-24 and 75+ ages show a strong gradient of net migrant losses from lower density to higher density regions. For these ages the picture is one of population concentration. For the other ages there is net movement from lower density to higher density regions but this stops short of the highest density category which loses migrants. So concentration is occurring from less dense areas but deconcentration from the highest density areas.

There is significant change between 1979-81 and 1989-91 in all age groups as well as in the overall balance of migration. A transition has occurred between a pattern of population concentration in regions with higher population densities from regions of sparser populations to a pattern of migration losses from both ends of the density spectrum towards regions of intermediate density. This transition has gone furthest in the late working ages and retirement ages. In the late working ages in the second period a clear deconcentration relationship has been established with net losses to regions in the highest density categories and gains at lower densities. On the other hand young adults are still characterised by a strong concentration pattern though there has been some reduction in the gradient of urbanisation over the decade. The very old are, however, a partial exception with great losses in the two lowest density classes and a switch to gains in the next two density classes.

Table 9: Inflows, outflows, net migration and efficiencies, density classes, by age, 1979-81 and 1989-91

Density	In-migrants 1979-81	Out-migrants 1979-81	Net Migrants 1979-81	Effect-iveness 1979-81	In-migrants 1989-91	Out-migrants 1989-91	Net migrants 1989-91	Effect-iveness 1989-91
All ages: 0+								
<50 psk	24706	33276	-8570	-15	16851	20399	-3548	-10
50-<100 psk	34758	39614	-4856	-7	28354	27196	1158	2
100-<250 psk	38537	39103	-566	-1	30948	29057	1891	3
250-<500 psk	45335	31599	13736	18	30534	25292	5242	9
>=500 psk	103893	103637	256	0	75238	79981	-4743	-3
Childhood ages: 0-14								
<50 psk	2765	3891	-1126	-17	1565	2077	-512	-14
50-<100 psk	4191	4705	-514	-6	2761	2427	334	6
100-<250 psk	4215	4164	51	1	2760	2278	482	10
250-<500 psk	6458	3198	3260	34	2854	2207	647	13
>=500 psk	6932	8603	-1671	-11	3526	4477	-951	-12
Late adolescent and young adult ages: 15-24								
<50 psk	3075	7220	-4145	-40	2296	3851	-1555	-25
50-<100 psk	4818	8560	-3742	-28	4053	4828	-775	-9
100-<250 psk	5417	6662	-1245	-10	4163	4549	-386	-4
250-<500 psk	7218	4036	3182	28	4284	3104	1180	16
>=500 psk	14955	9005	5950	25	8252	6716	1536	10
Family ages: 25-44								
<50 psk	4179	5615	-1436	-15	3289	4150	-861	-12
50-<100 psk	6082	6246	-164	-1	5701	4958	743	7
100-<250 psk	6293	5940	353	3	5984	5372	612	5
250-<500 psk	9746	4784	4962	34	6787	4650	2137	19
>=500 psk	10398	14113	-3715	-15	8474	11105	-2631	-13
Older working ages: 45-64								
<50 psk	2561	3089	-528	-9	1364	1160	204	8
50-<100 psk	2676	4568	-1892	-26	2554	1394	1160	29
100-<250 psk	3344	3589	-245	-4	1956	1184	772	25
250-<500 psk	2497	2924	-427	-8	1877	1384	493	15
>=500 psk	5414	2322	3092	40	2200	4829	-2629	-37
Retirement ages: 65-74								
<50 psk	786	1337	-551	-26	631	678	-47	-4
50-<100 psk	1093	1297	-204	-9	1002	802	200	11
100-<250 psk	1147	1233	-86	-4	817	532	285	21
250-<500 psk	864	1017	-153	-8	806	486	320	25
>=500 psk	1853	859	994	37	1226	1984	-758	-24
Elderly ages: 75+								
<50 psk	574	1076	-502	-30	376	1153	-777	-51
50-<100 psk	794	920	-126	-7	726	1230	-504	-26
100-<250 psk	721	1023	-302	-17	723	597	126	10
250-<500 psk	650	708	-58	-4	847	382	465	38
>=500 psk	1453	465	988	52	1816	1126	690	23

Sources: INE, 1981 and 1991 Censuses of Portugal

Notes: psk = per square kilometre

5.3   Migration flows between regions

Table 10 shows the net flows between NUTS 2 regions in 1981 and 1991. These are, of course, an aggregation of the NUTS 3 data used in the spatial analysis of sections 4, and so do not add meaning to that analysis. However, they provide useful summaries of the situation for regions with which readers will be more familiar.

In both 1979-81 and 1989-91, the Lisboa e Vale Tejo region was the focus of Portugal's migration system. In the family and childhood ages the capital region gains from the Norte, Alentejo, Açores and Madeira regions, while losing to the Centro and Algarve. For the young adult ages all streams into the capital region show gains. Losses become more important in the older working and retirement ages, but the elderly show strong gains to the capital region.

The Norte, Centro, Alentejo and Madeira regions experienced out-migration in both periods, while the Açores moved from a gaining to a losing region. The Algarve was a region of net in-migration in 1979-81 and 1989-91. Previously, in this section of the report we have related this pattern of migration to the degree of urbanisation/the level of population density in the regions studied. However, it is also necessary to consider the health of each regional economy rather than assume that this correlates with the degree of urbanisation, assuming that all rural regions lag in development, have low incomes and surplus labour compared higher income, developed urban centres. The Algarve, for example, stands apart from other regions in the existence of a growing tourist economy catering for foreign visitors from northern Europe. As a result it has become the second most urbanised NUTS 2 region in mainland Portugal. It includes a highly urbanised coastline and a more rural interior, which together give the region a relatively low density.

Table 10: Inflows, outflows, net migration and efficiencies, NUTS2 regions, by age, 1979-81 and 1989-91

NUTS 2 region	In-migrants 1979-81	Out-migrants 1979-81	Net Migrants 1979-81	Effect-iveness 1979-81	In-migrants 1989-91	Out-migrants 1989-91	Net migrants 1989-91	Effect-iveness 1989-91
All ages								
Norte	59127	63453	-4326	-4	48976	49491	-515	-1
Centro	32214	37334	-5120	-7	25004	25438	-434	-1
Lisboa e Vale Tejo	123752	112507	11245	5	83739	81998	1741	1
Alentejo	14640	18125	-3485	-11	9568	11217	-1649	-8
Algarve	8947	7591	1356	8	8348	6845	1503	10
Açores	5156	4702	454	5	3630	3681	-51	-1
Madeira	3393	3517	-124	-2	2660	3255	-595	-10
Childhood ages: 0-14								
Norte	2322	3045	-723	-13	1530	1693	-163	-5
Centro	2918	3405	-487	-8	1780	1757	23	1
Lisboa e Vale Tejo	6254	5036	1218	11	3104	2953	151	2
Alentejo	1684	2049	-365	-10	891	1102	-211	-11
Algarve	1025	736	289	16	938	635	303	19
Açores	410	354	56	7	311	307	4	1
Madeira	258	246	12	2	153	260	-107	-26
Late adolescent and young adult ages: 15-24								
Norte	3207	5759	-2552	-28	2684	3080	-396	-7
Centro	3590	6720	-3130	-30	2762	3799	-1037	-16
Lisboa e Vale Tejo	12528	5674	6854	38	6347	4277	2070	19
Alentejo	1574	3140	-1566	-33	1008	1751	-743	-27
Algarve	1244	902	342	16	1361	989	372	16
Açores	513	361	152	17	446	453	-7	-1
Madeira	336	436	-100	-13	287	546	-259	-31
Family ages: 25-44								
Norte	3877	4468	-591	-7	3559	3634	-75	-1
Centro	4343	5060	-717	-8	3999	4027	-28	0
Lisboa e Vale Tejo	9197	8094	1103	6	6768	6568	200	1
Alentejo	2393	3053	-660	-12	1732	2153	-421	-11
Algarve	1630	1090	540	20	1830	1328	502	16
Açores	813	510	303	23	703	730	-27	-2
Madeira	467	445	22	2	411	562	-151	-16
Working ages: 45-64								
Norte	1344	4376	-3032	-53	1036	807	229	12
Centro	2036	2963	-927	-19	1795	958	837	30
Lisboa e Vale Tejo	8515	2233	6282	58	1912	3263	-1351	-26
Alentejo	2258	1466	792	21	744	708	36	2
Algarve	579	2867	-2288	-66	628	317	311	33
Açores	1120	1082	38	2	133	143	-10	-4
Madeira	504	1369	-865	-46	90	142	-52	-22
Retirement ages: 65-74								
Norte	464	1708	-1244	-57	451	421	30	3
Centro	665	1315	-650	-33	786	572	214	16
Lisboa e Vale Tejo	3122	757	2365	61	1123	1422	-299	-12
Alentejo	717	609	108	8	388	362	26	3
Algarve	224	667	-443	-50	189	141	48	15
Açores	401	267	134	20	24	27	-3	-6
Madeira	157	427	-270	-46	12	28	-16	-40
Elderly ages: 75+								
Norte	217	1174	-957	-69	328	468	-140	-18
Centro	476	1268	-792	-45	537	980	-443	-29
Lisboa e Vale Tejo	2214	458	1756	66	1781	811	970	37
Alentejo	417	274	143	21	213	549	-336	-44
Algarve	137	264	-127	-32	147	180	-33	-10
Açores	266	160	106	25	21	29	-8	-16
Madeira	128	257	-129	-34	8	18	-10	-38

Sources: INE, 1981 and 1991 Censuses of Portugal

5.4 Relationship between migration and unemployment

Table 11 provides summary statistics on net migration and unemployment for NUTS 3 regions. By West European standards, Portuguese unemployment rates are low, much lower than in Spain, France or Germany. However, they do vary considerably between regions, being highest in Baixo Alentejo (14.3% in 1981 and 14.9% in 1991) and lowest in central and northern Portugal (2.7% in Entre Douro e Vouga in 1981). In general unemployment rates are highest in the Alentejo regions, lowest in the central regions and island regions.

Table 11: Development indicators for NUTS 2 regions of Portugal

Nuts 3 Region	Net migration rate (per 1000 population)		Unemployment rate %	
	1981	1991	1981	1991
Minho-Lima	-0.12	-0.18	5.0	5.4
Cávado	0.66	2.71	3.9	8.0
Ave	0.98	0.43	3.9	8.3
Grande Porto	1.97	0.29	6.0	7.6
Tâmega	-4.15	-1.49	4.1	7.8
Entre Douro E Vouga	-0.27	2.07	2.7	4.9
Douro	-11.08	-3.15	7.0	7.2
Alto Trás-Os-Montes	-8.01	-4.14	6.2	8.8
Baixo Vouga	2.55	2.12	4.5	4.7
Baixo Mondego	1.04	-0.98	5.9	4.9
Pinhal Litoral	-0.60	3.18	3.5	5.2
Dão-Lafões	-4.62	0.36	5.3	5.6
Pinhal Interior Norte	-5.33	-1.60	4.6	6.0
Pinhal Interior Sul	-18.95	-9.79	4.5	5.4
Serra Da Estrela	-8.76	-1.85	6.4	8.0
Beira Interior-Norte	-10.51	-4.72	4.0	5.2
Beira Interior-Sul	-5.47	1.36	5.4	5.6
Cova Da Beira	-6.16	-4.27	6.4	7.8
Oeste	0.00	4.58	4.8	6.0
Grande Lisboa	-1.04	-2.81	7.0	6.0
Península Setúbal	23.16	6.63	10.3	7.8
Médio Tejo	-2.40	1.97	6.4	5.7
Lezíria Tejo	1.76	2.45	7.1	8.4
Alentejo Litoral	-0.04	-4.37	9.0	7.5
Alto Alentejo	-6.46	-3.03	8.1	10.5
Alentejo Central	-6.17	-0.69	9.2	9.7
Baixo Alentejo	-9.72	-5.09	14.3	14.9
Algarve	4.26	4.46	5.1	7.8
Açores	1.91	-0.22	4.2	3.2
Madeira	-0.50	-2.39	6.6	6.1

Sources: INE, 1981 and 1991 Censuses of Portugal

Rates in Lisboa and Península Setúbal are above average in 1981, and this position persists for Península Setúbal in 1991. The above average unemployment rate for this region coupled with its high net in-migration is likely to result in a weak relationship between net migration and unemployment.

Table 12 sets out the correlation between the unemployment rates and net migration rates for all ages given in Table 11. In both periods the correlation is low and insignificant. It shifts from very low positive to a slightly negative relationship. The regional patterns of both net migration and unemployment are moderately correlated between the two periods. When the net internal migration rate for 1981 is correlated against unemployment rate in 1991, the correlation increases, indicating perhaps that the link between unemployment and the forces driving migration are strengthening a little.

Table 12: Correlation coefficients between migration and unemployment for NUTS 3 regions

Variables	Net Internal Migration Rate 1979-81	Unemployment rate 1981	Unemployment rate 1991
Net Internal Migration Rate 1979-81	0.78	0.06	-0.14
Net Internal Migration Rate 1989-91		-0.20	-0.20
Unemployment rate 1981			0.75

Sources: INE, 1981 and 1991 Censuses of Portugal

Table 13 arranges the net migration statistics using four unemployment bands. This technique can be used to reveal the existence of a systematic direction of a relationship even if that relationship is weak. However, this does not happen. There appears to be no systematic relationship between unemployment and the balance of migration for NUTS3 regions revealed in Table 13, either for all ages or for individual age bands. We can only speculate here on the reasons for the lack of relationship. This suggests that the official unemployment rate in the Portuguese context does not capture labour market conditions in a country characterised by large internal and external migration from poorer agricultural regions. Social support systems may provide little incentive to register or report unemployment. In rural farming economies lack of labour demand is often expressed as under-employment. Finally, a large proportion of those who, in the absence of a well developed emigration system, would "sign on" as unemployed, are in fact employed abroad. A strong negative relationship between net migration and unemployment does reflect friction and inefficiency in the migration/employment system. Where the correlation is low, this may mean that the migration is reducing unemployment differentials and playing the equilibrating role assigned by neo-classical free market economics.

Table 13: Inflows, outflows, net migration and efficiencies, unemployment bands, 1979-81 and 1989-91

Unemp- loyment	In- migrants 1979-81	Out- migrants 1979-81	Net migrants 1979-81	Effect- iveness 1979-81	In- migrants 1989-91	Out- migrants 1989-91	Net migrants 1989-91	Effect- iveness 1989-91
All ages 0+								
<4%	5156	4702	454	5	13970	11624	2346	9
4-<6%	38567	42442	-3875	-5	46227	44586	1641	2
6-<8%	162680	155532	7148	2	95184	101711	-6527	-3
8%+	40826	44553	-3727	-4	26544	24004	2540	5
Childhood ages: 0-14								
<4%	410	354	56	7	1431	1039	392	16
4-<6%	3833	4139	-306	-4	3774	3278	496	7
6-<8%	7133	6534	599	4	3810	5007	-1197	-14
8%+	4239	4588	-349	-4	2223	1914	309	7
Late adolescent and young adult ages: 15-24								
<4%	513	361	152	17	2368	1883	485	11
4-<6%	4778	7898	-3120	-25	5547	6527	-980	-8
6-<8%	13199	7713	5486	26	7360	7165	195	1
8%+	4913	7431	-2518	-20	2769	2469	300	6
Family ages: 25-44								
<4%	813	510	303	23	3311	2309	1002	18
4-<6%	5810	6124	-314	-3	7943	7291	652	4
6-<8%	10384	10191	193	1	8679	11466	-2787	-14
8%+	6366	6548	-182	-1	5066	3933	1133	13
Older working ages: 45-64								
<4%	1120	1082	38	2	751	471	280	23
4-<6%	2641	3837	-1196	-18	3242	1678	1564	32
6-<8%	7662	3559	4103	37	2217	4441	-2224	-33
8%+	2530	5475	-2945	-37	1717	1337	380	12
Retirement ages: 65-74								
<4%	401	267	134	20	306	213	93	18
4-<6%	969	1438	-469	-19	1311	907	404	18
6-<8%	2513	1293	1220	32	1071	1866	-795	-27
8%+	860	1745	-885	-34	759	461	298	24
Elderly ages: 75+								
<4%	266	160	106	25	302	208	94	18
4-<6%	747	1290	-543	-27	917	1412	-495	-21
6-<8%	1851	875	976	36	1542	1261	281	10
8%+	563	1102	-539	-32	640	520	120	10

Notes:
1. Migration in 1979-81 and 1989-91 has been converted pro-rata into annual equivalents.
2. The unemployment bands for 1979-81 migration are computed from the 1981 Census.
3. The unemployment bands for 1989-91 migration are computed from the 1991 Census.

6. SYNTHESIS AND CONCLUSIONS

Portugal is a country that has reached a population plateau and is currently experiencing very little overall population growth. In 1981 its population was 9.83 millions, only 9.87 millions in 1991 and 9.96 millions in 1997. During the 1980s natural increase steadily diminished and in the 1990s it has virtually ceased. International migration was predominantly negative in balance during the period between the mid 1980s and early 1990s, but has moved into small positive gains in the last few years. When population changes for the 1981-91 period are examined, the picture is broadly of gains in the major urban-centred regions of Norte and Lisboa Vale Tejo, and in the resort industry region of the Algarve. In the more peripheral regions, population decreases occurred, that is in the Centro, Alentejo and Açores regions with Madeira being roughly in balance. Natural increase was strong in the Norte and island regions and compensated for net out-migration, while elsewhere it was weak. All Portuguese NUTS 2 regions except the Algarve lost through migration, with emigration dominating any counter-flows due to internal migration.

However, the strong influence of internal migration is apparent when the components of population change at *concelhos* scale are analysed. The largest cities, Lisboa and Porto, lose population in the 1981-91 period, particularly the capital, and part of the population losses represent migration to surrounding *concelhos* in the Outer parts of the city regions. Most of the rest of Grande Porto outside of the main city gains population through migration. Around Lisboa these suburban migration gains were experienced by the margins of Lisboa itself, the northern suburbs along the north bank of the Tagus and in a majority of the *concelhos* of Península Setúbal across the Tagus estuary from Lisboa, namely the southern suburbs linked to the city by two major road bridges.

The Censuses of 1981 and 1991, which count migrants in the circa 15-month period before the census date, provide a picture of how internal migration affects people in different life stages. The all ages pattern of migration in 1979-81 is one of greatest losses from interior and eastern regions (NUTS 3 scale), lesser losses from remoter coastal regions and gains to the urban regions centred on Porto, Lisboa and the Algarve resorts. However, the centres of the Porto and Lisboa regions lose migrants, confirming the earlier interpretation of the components of population change. The situation in 1989-91 was similar but there were fewer regions with great migration losses, more regions with moderate losses and gains around the main urban nodes and the southern tourist coast. This general pattern of redistribution characterises the childhood and family ages (0-14, 25-44) and is intensified in terms of losses from the large cities and suburban gains in the 45-64 age group. Young persons, however, behave differently. In 1979-81 most of the regions of the country lost internal migrants in the 15-24 age group, while Lisboa, Porto and the Algarve experienced substantial migration gains. So, while the family ages showed a de-concentration pattern, the ages at which young adults start independent life careers showed centralising tendencies. The spatial pattern was broadly similar in 1989-91 but more interior regions posted migration gains. The retirement ages, 65 to 74, showed similar centralisation for

the female population but not for the male. This age group was the only one that exhibited strong gender differences in the pattern of migration and considerable changes between 1979-81 and 1989-91. Whereas in the former period, the pattern was very much one of interior loss and coastal and urban region gain, in 1989-91, losses from the interior were relatively lower and moderate gains more widespread. At the oldest ages of 75 years or more the strong pattern of interior loss and coastal gain reasserted itself.

Three classifications (urbanisation regions, density classes and unemployment bands) have been used in an attempt to understand the processes driving internal migration in Portugal. A summary of the variation of net migration rates for all age groups for these three classifications is given in Table 14. The table shows a country in a state of transition from a traditional state of heavy rural to urban transfers, from low density to high density regions, the 1979-81 situation, to an intermediate state in 1989-91 in which both most urbanised and most rural regions are losing migrants to medium density regions, some adjacent to large cities. The relationship between migration and unemployment is inconsistent in both periods.

Table 14: Summary relationships between net migration and regional classifications

Classification	Net internal migration rates (per 1000 population) 1979-81	1989-91
Urbanisation regions		
Grande Lisboa	4.1	-1.0
Grande Porto	1.8	0.1
Lisboa Coast	-0.5	2.9
Northern Coast	-0.9	0.4
Algarve	3.9	4.0
Central Coast	1.0	0.9
Islands	-10.7	-9.2
Interior	-7.6	-2.9
Density classes		
<50 psk	-7.7	-3.5
50-<100 psk	-3.5	0.9
100-<250 psk	-0.3	0.8
250-<500 psk	7.6	2.7
>=500 psk	0.1	-1.6
Unemployment bands		
<4%	1.9	1.9
4-<6%	-1.7	0.5
6-<8%	1.4	-1.5
>=8%	-1.8	2.2

Portuguese population dynamics thus exhibit some rural depopulation (mainly of the young and the very old), some urbanisation (migration to more densely settled regions around the biggest cities), some suburbanisation (de-concentration within the largest urban regions) and some regional flows to resource exploiting regions (sun and sea in the resort coast of the Algarve). Population gains in the 1981-91 decade also occurred in several coastal and interior small towns and medium-sized urban centres

outside of Lisboa and Porto. This reveals that urbanisation was not just a metropolitan phenomenon but was a widespread process. Note that when considering whether the Portuguese population is centralizing or decentralising, attention must be paid to the scale of migration observed. So, for example, population may be moving into the metropolitan regions of Lisboa and Porto and therefore centralising, but within those regions the population may be shifting from city to suburbs and to outer parts of the city region, and therefore decentralising. This nested system of flows may be obscured if attention is focused exclusively on total net migration.

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