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INTERNAL MIGRATION AND REGIONAL POPULATION DYNAMICS IN EUROPE: NETHERLANDS CASE STUDY

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CONTENTS

ABSTRACT

This paper reports on internal migration and regional population dynamics in the Netherlands. It examines internal migration patterns and trends in two years, 1984 and 1994, and compares them. By 1984 the Netherlands had reached a mature phase in the urban deconcentration process. The main centres of population were losing migrants to ring towns and peripheral municipalities outside of the short distance spheres of influence of major centres. This pattern, established in the 1950-1980 period, marginally intensified between 1984 and 1994 with secondary core cities also experiencing net migrant losses. While rural depopulation was characteristic of a few remote municipalities in the Northern Netherlands, this phenomenon was swamped by the attractiveness of rural municipalities with slightly better accessibility. However, the most striking feature of regional population dynamics in the Netherlands, initially identified by Gordijn and Eichperger (1996) and echoed in the United Kingdom, was the dramatically different migration behaviour of young adults (aged 15-29). In most of the Netherlands smaller and lower density municipalities were places the young leave in large numbers for the advantages of the large urban centres with their institutions of higher education, their entertainment facilities and the excitement of being with their peer group at the start of adult lives. The retreat to the suburbs and exurbs follows when family and work responsibilities loom larger. Although the influence of life course stage is important it is, of course, played out against a backcloth of more and less successful urban region economies, with examples of both clearly being expressed in the overall direction of migration out of peripheral industrial areas (e.g. Limburg, Twente) and into cities where new sectors of information processing and trading are concentrated (e.g. Utrecht, Delft, Amsterdam).

FOREWORD

This study 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. In its meeting in October 1994, the CDPO decided to commission an investigation the feasibility of a comparative study of internal migration and regional population dynamics within European countries. The back ground to the project was twofold. Firstly, there had been for some time rather little interest on the part of both researchers and international organisations working in the field. Secondly, during recent decades, there has been a general improvement of population statistics across Europe, but this has not extended to statistics on internal migration, despite the introduction by Eurostat of their NUTS system of comparable regions.

Professor Phil Rees and Dr. Marek Kupiszewski of the School of Geography at the University of Leeds carried out such a feasibility study and presented it to the CDPO at its meeting in June 1995. Their study covered all (at that time 28) member states 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, by and large, 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 is to be carried out. For each aim, comparison of the situation in the early/mid-1980s with that in the early/mid-1990s is 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 projects throughout its existence and has supplied some information on the digital boundaries of regions.

Due to limited finances and the time available, the study had to restrict itself to the nine countries represented in the Group of Specialists, in addition to the consultants' country, the United Kingdom. Even with this limited coverage, the Group of Specialists finds the studies very interesting, 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.

TERMS OF REFERENCE

This study was prepared for the Demographic Committee (CDPO) of the Council of Europe and co-sponsored by the European Commission, which both provided invaluable funding support. The aims of the study were (1) to investigate the extent of rural depopulation, (2) to analyse the degree to which the processes of urbanization, counterurbanization and suburbanization 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 is to be carried out.

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LIST OF TABLES

LIST OF FIGURES

1. CONTEXT

This paper reports on migration patterns and population change in the Netherlands 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 Vander 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 (NUTS 2) 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 the Netherlands at municipality, municipality type, and various regional scales.

The report is divided into the following sections. Section 2 reviews knowledge about regional population change and internal migration in Netherlands. Section 3 describes the data available for analysing regional population dynamics in the Netherlands and the classifications of municipalities, the territorial units used and the mapping methods employed. Section 4 discusses patterns of population change and net internal migration at municipal scale, while section 5 analyses net internal migration at a variety of regional scales and using different urbanization classifications. Two themes run through these analyses: the importance of life course stage in determining migration directions and the changes in these directions that are taking place over the 1984-94 decade. Section 6 examines flow patterns between regions and between different settlement types. Section 7 provides a synthesis of findings.

2. INTERNAL MIGRATION AND POPULATION CHANGE REVIEWED

There is a long history of interest in the geographical development of the Dutch population. Much of the country has been wrested from the sea. The Netherlands is one of the most densely settled large countries in Europe: average density was 456 inhabitants per km^2 land area in 1995 (Statistics Netherlands 1995, p.24). Land is regarded as a precious resource, the development of which is carefully planned by public and private agencies with a clear mandate to preserve the public good. The patterns of migration and population redistribution are profoundly affected by the land use and housing planning system in the Netherlands. The main proximate determinant of migration is the construction of new dwellings, which because land is scarce in the Netherlands, is under heavy public control. Typically, locations for new housing are centrally selected. In such locations hundreds and sometimes thousands of new dwellings may appear within a relatively small time span, leading to a very large in-migration flow in that period only. Housing is still scarce in the Netherlands, particularly in the Randstad area so these migration flows to new housing developments are substantial.

However, even in such a planned system, the market is not without some influence. If the planned housing developments constructed do not meet the needs of households, then they will not apply to go there. Although the degree of control of urban and rural development is high in the Netherlands, strong forces have acted in recent decades to spread the extent of human settlement. The most obvious of these is the automobile traffic intensity increased from a base of 100 in 1985 to 140 ten years later (Statistics Netherlands 1995, p.17). Excellent public transport provision also facilitates living in one part of the country and working in another. Rail passenger trips increased by 53% in the 1985-95 decade and bus, tram and metro journeys grew by 27% in the same period (Statistics Netherlands 1995, p.17), although these figures are somewhat distorted by the introduction during the period of 'free' train travel for students. The commuting ranges of big Dutch cities cover a large part of the country: it is feasible to commute daily to the Randstad cities from all but the most Northern and Southern parts of the Netherlands. The Randstad (ring city) is the name given to the concentration of urban areas in the west of the Netherlands, which stretches from The Hague on the North Sea coast through Rotterdam round to Utrecht, Amsterdam and Haarlem to the coast again.

Another factor contributing to spread the extent of human settlement has been the take-up of jobs by women. Female labour participation has traditionally been low in the Netherlands but is rapidly increasing. With more and more two-earner households, the number of households with two commuters is increasing. Therefore, within the constraints of income and housing availability the Dutch population has a wide choice of residential environments, from dense inner city apartment districts in the Randstad to single person homes in the sandy woodlands of Gelderland.

With this unique geographical environment in mind, we now review the way in which the population of the Netherlands has developed spatially over recent decades. This account draws on a selection of a very extensive stream of research, exemplified by monographs by Drewe (1980) and Sleegers (1987), and by book chapters by Van der Erf (1984) and Gordijn and Eichperger (1996). We review first the national picture of population change, and then examine the regional situation, the provincial situation and the findings on population shifts between settlement types.

2.1 The national population and migration context

Among large countries in Europe, the Netherlands has experienced higher than average population growth in the period since the Second World War. In 1950 the population of the Netherlands was 10.2 millions; by 1997 it had grown to 15.6 millions, an increase of 53%, an average of 9 per 1000 per year. This growth was driven in the period from 1947 to 1970 by high fertility rates, well above replacement level. Total period fertility rates (TFRs) were above 3 children per woman throughout the 1950s and above 2.5 during the 1960s. These and other Dutch demographic figures are conveniently assembled and accessible in the PopTrain computer program (NIDI 1995). The 1970s saw decline below replacement level in 1972 (when TFR was 2.15) and thereafter; between 1975 and 1996 the TFR fluctuated in the range 1.5 to and 1.6, except for a dip to 1.47 in 1983. This fertility boom followed by fertility bust has long run implications for the Dutch population. Although this boom-bust sequence did occur in many other countries as well, the Dutch experience is relatively extreme, both because of the high boom-level and because of the steepness of the fertility decline. As a result the Dutch population is currently still one of the youngest in western Europe, but will be one of the most quickly ageing within one or two decades. The baby boom bulge maintains the level of births above deaths currently despite low fertility, but ultimately this demographic momentum will run out steam in the twenty first century. According to the latest population forecast of Statistics Netherlands, the Dutch population will peak in 2034 at 17.2 millions and decline thereafter (CBS 1997). Natural increase has remained positive since 1950 and in the 1990s the Netherlands is still recording a surplus of births over deaths of 3 to 4 per 1000.

Although internal migration will be a powerful determinant of the variation in population growth rates across municipalities, its effect will be muted by the continuing positive level of natural increase. In Italy, by contrast, large parts of the north and centre experienced natural decrease while in the United Kingdom areas with high elderly concentrations do so as well. Only a tenth of Dutch municipalities suffered natural decreases (see Figures 5 and 6 later) in 1984 and 1994 compared with a half of Italian communes (Rees *et al*. 1997).

Net external migration is also important as a compensator in areas that experience heavy net losses of internal migrants. External immigration is quite large in the big cities of the Netherlands, compensating for the internal migration loss. Net migration from foreign countries has had an inward surplus since the early 1960s, achieving high levels in the late 1960s and early 1970s (the years of labour shortage before the oil shock of 1974). Net inward migration increased again in the late 1980s and early 1990s to 3 or 4 net external migrants per thousand population consequent on events in central and eastern Europe but has fallen back in the mid-1990s to levels of around 2 per thousand. These net external migrants are concentrated in the largest cities, particularly Amsterdam, Rotterdam and The Hague (Den Haag).

Before we examine the way in which internal migration has effected redistribution of the population, some comments are made on the level of movement. Internal migration responds sensitively to the number of vacancies in job and housing markets. Van der Erf (1984, Figure 3.2) charts the fluctuations in internal migration (all changes of municipality of residence) in the Netherlands in the 1950 to 1981 period. The 1950-74 period saw little change in the rate of migration, though the volume increased in line with population growth. From 1963 to 1973 both migration rates and flows rose continuously with the long boom. This ended in 1974 for a variety of reasons. The massive increase in oil prices imposed by the Organization of Petroleum

Exporting Countries affected the Netherlands in its role as petroleum entrepot for Western Europe. As well, the availability of natural gas revenues had encouraged excessive expenditure on public works and income transfers which led to manufacturing and service inefficiency. With the reduction in these revenues and the increased cost of energy came an economic downturn, which led to reductions in job vacancies and higher unemployment, that, in turn, produced a decline in migration activity. Intermunicipal moves decreased more sharply than intra-municipal migration, and there was a downturn in migration out of large cities to surrounding suburban regions. Gordijn and Eichperger (1996, Figure 14.2) provide a graph which updates the migration rate series to 1992. This reveals that the decline from 1974 ends in 1979, leaving migration activity at a level lower than at any time since 1950. From 1979 to 1992 the migration rate (inter-municipality migration) fluctuates around the 40 per 1000 population per year, is a little higher in the later 1980s but lower again in the early 1990s. This is despite recovery from the 1980s recession and the successful restructuring of the Dutch economy, which enjoyed lower official unemployment rates in 1996-97 than all other European Union countries (bar Luxembourg), though activity rates remain low and some unemployment is hidden by the quasi-disability and early retirement arrangements used to "downsize" many employment sectors.

The picture provided by these two sources is not ideal, however, because of two biases in the statistical series, to which future work might be addressed. The statistics refer to crude (i.e. all age) rates and so are subject to age-sex bias. It would be very useful to compute age standardised measures because the passage of baby boom generations through the years of peak mobility (18-32) will affect the crude time series. The other standardization needed is spatial: inter-municipal migration is a moving concept and the falling number of municipalities (see section 3.3 for details) puts downward pressure on the measured migration rate. To overcome such spatial biases necessitates the inclusion of intra-municipal migration in the statistical series or the use of more sophisticated techniques (Courgeau 1973; Courgeau 1980, Chapter 11). Data on intra-municipal migrations are available in the Netherlands in machine readable form from 1989 onwards and on paper form from 1985. These data are not used in this report which focuses on the redistributive effects of internal migration at the municipal scale and above, but will be utilised in the comparative analysis of migration levels in a synthetic study.

2.2 Regional shifts

Van der Erf (1984) presents an analysis of the way in which the balances of migration between the *Landsdelen* (NUTS 1), four major divisions of the country, change over the 1950-1981 period, while Drewe (1980) uses a multiregional population projection model to compute the long run population shifts implied by regional migration and natural increase patterns of 1974.

In the 1950s, the West Netherlands gained migrants from the other three regions, but in greatest numbers from the North. The North lost to each of the other regions. The East gained from the North but lost to the West and South. The South gained from the North and East but lost to the West. The 1950-59 period was thus one of population shifts into the most urbanized region, the West.

In the 1960s the pattern turned around for the West. It still made a small gain from the North but lost to the East and South. The North continued to lose to the other regions but the East now gained from all its neighbours. The South gained from the West and marginally from the North but lost migrants to the East.

The 1970s saw the West established as the main losing region, and it lost significant numbers of internal migrants (in net terms) to the North as well as to the East (biggest transfer) and to the South, which was only partly compensated by gains due to external migration. The South experienced large net gains of migrants from the West and small numbers from the East and North. The start of the 1980s saw the same pattern persisting but dominated by the net loss from the West to the East. When the 1974 pattern of migration and other components is allowed to work on the populations of the four regions through running a multiregional projection model (without external migration) through to stability, Drewe (1980, p.22) found loss in share of the Netherlands population to the West and gains to the other regions. Under a constant fertility scenario the West lost 6% of its share of the national population by 1999 and 12% by the time stability was achieved. If a closed multiregional projection model is run using a constant set of input intensities, eventually regional population shares will become stationary and growth rates equal. The North gained 1% in share by 1999 and 4% by stability, while the East gained 2% by 1999 and 5% by stability, while the South increased its share by 2% to 1999 and 3% to stability. These results, of course, are not just the effect of inter-regional migration but also reflect the differences in fertility and mortality levels in the regions. Net reproduction rates were around 0.95 in 1974 in the North, East and South but only 0.79 in the West and this contributes to the loss in population share as well. Moreover, with hindsight, the assumption of zero external migration was not very realistic.

What the 1970s signified was the end of the strong dominance of the West Netherlands as the industrial and trading dynamo of the Dutch economy, and the emergence of new growth nodes in the East and South. They also signal a change in preference from one of dense urban living in the Randstad cities to one of more spacious cities, towns and countryside in other parts of the Netherlands. We examine in section 5 whether this turnaround has persisted into the 1980s and 1990s.

2.3 Provincial changes

The *Landsdelen* are pretty large regions, so Van der Erf (1984, pp.57-60) investigates net internal migration flows over the 1950-81 period at province level (NUTS 2). The net internal migration series for the three provinces of the *North Netherlands*, Drenthe, Friesland and Groningen, move approximately in tandem over the period. Before 1960 all three provinces lost internal migrants. After 1974 they all gained. In between Drenthe moved into positive balance by 1962, followedby Groningen in 1963 but it fell back into loss in the later 1960s. The change from loss to gain was postponed for Friesland until 1971.

The two large provinces making up *East Netherlands* had contrasting fortunes. Overijssel's net internal migration fluctuates around zero throughout the thirty-one years. Gelderland moves into strong internal migration gain in the 1960s and 1970s though at the end of the period the net gain shrinks back to low levels.

In the *South Netherlands* the fortunes of its two provinces show similar contrasts to those of East Netherlands. North Brabant increases its net internal gain (mainly from the West Netherlands) over the 1950s and 1960s and puts on a considerable spurt in the early 1970s, which is halted by the recession consequent on the oil shock and net gains fall drastically to the end of the 1970s. The province of Limburg, with its former concentration of coal mines experienced a very different trajectory: before 1965 its net internal migration balance hovers around the zero line while thereafter the balance is more often below zero than above it. The coal mines were closed in 1965 and the regional economy has still not completely recovered, despite the establishment with heavy public subsidies of several new industries.

The two most populous provinces of West Netherlands, North Holland and South Holland (which together constitute Holland proper), experience heavy net out (internal) migration balances from 1960 onwards, having received migrants on balance in the 1950s. The heaviest losses are incurred in the early 1970s at the end of the long boom. From 1974 losses gradually reduce although both provinces still end the period in loss. This pattern resembles closely the path which migration out of Greater London followed, expanding during the boom years but then declining in numbers when the lean years set in. Utrecht, at the centre of the Netherlands, maintained a positive internal migration balance for most of the 1950-81 period but with many ups and downs. To some extent, Utrecht has a transit function for the migration flow from North and South Holland to the East. The small province of Zeeland has a fairly simple pattern of losses up to 1965 and gains thereafter, narrowing towards the end of the period. These gains can be explained by the "opening up" of Zeeland through the construction of the Delta Works. After the disastrous flooding in 1953, many sea-arms in Zeeland were closed with dams (that combined roadways) during the 1960s and 1970s, converting the formerly rather isolated area of islands into an easily accessible region with many tourist attractions.

Van der Erf (1984) also reports the net internal migration trajectory for the Southern IJsselmeer Polders, land reclaimed from the sea after 1960 and building up population through net in-migration strongly from 1970. From 1 January 1987, these polders were joined with the slightly older Noordoostpolder as the newly established province of Flevoland. Because of its peculiar nature, it should not come as a surprise that of all NUTS 2 regions in the European region, Flevoland has by far the highest population growth, both via internal migration (to new settlements) and through natural growth (resulting from its young age structure).

2.4 Redistribution between settlement types

To examine migration flows at finer spatial scales Dutch researchers have developed classifications of municipalities in the Netherlands. Sleegers (1987, Chapter 5) adapts a method proposed by Brown and Holmes (1971) to define sixteen city regions, 40 sub-systems and municipality types based on the functional systems. He divides municipalities into three types: type A: urban core municipalities (dominant and non-dominant); type B: urbanized municipalities; type C: other municipalities in a city region; and type D: "other" municipalities outside city regions. Trends in population development, natural increase and net migration for each of these types over the period 1950 to 1978 are then examined by Sleegers.

At the start of the 1950s population change rates in all four types were close together in the range 15 to 20 per 1000 per year. By the early 1960s growth rates in urban core municipalities (type A) had fallen to the

range 6 to 8 per 1000. From 1965 growth rates in urban core municipalities dropped, becoming negative in 1967 and reaching below -10 per 1000 in 1973. Growth rates in urbanized municipalities (type B) had risen above 20 per 1000 by 1960 and stayed there until 1973. Other municipalities in city regions (type C) had lower growth rates over the same period but had converged with type B municipalities by 1973. Thus the 1950 to 1973 period saw the emergence of a pattern of heavy population loss from the urban core municipalities and gains to suburban, commuter and peripheral districts. After 1973 with the diminution of economic growth which fuelled this trend, growth rates converge again though in 1978 type A municipalities were still experiencing a loss rate of -5, type B and C municipalities growth rates around 10 per 1000 and type D rates just above 15.

Sleegers (1987, p.116) decomposes this population change picture into its natural growth and net migration components. Net migration includes external movement. The municipality types are very similar in their natural growth trends with levels declining from 14 to 16 in 1950 to 2 to 7 by 1980. Type A (urban core) municipalities have lower rates than the other types and the gap widens in the 1970s. This gap does contribute to the lower rate of population change for urban core areas. The driver of growth differentials is thus predominantly net migration. This becomes negative for type A municipalities in the 1950s and increases in depth to 1973, when loss rates lessen. This loss picture is balanced by increasing net migration gains to type B (urbanized municipalities) from 1952 to 1973, with the type C and D municipalities catching up by 1973. By 1978 the ordering of municipalities by gain and loss through migration is: (1) highest gains for type D, municipalities not in urban regions (around 10/1000); (2) moderate gains for types B and C (around 5/1000); and (3) moderate losses for type A, urban core municipalities (around -5/1000).

This picture of municipality population dynamics is further refined by a cross-classification of type against region. Sleegers (1987, Figs. 6.4, 6.5 and 6.6) shows that there are important differences within each municipality type according to location in “central”, “intermediate”, “periphery north” and “periphery south” regions. The central municipalities lead trends in each of the categories and the periphery municipalities follow last. The trends are diffused outwards from the Randstad centre of the country to its margins.

Developments since 1978 can be traced in the analysis of Gordijn and Eichperger (1996, Table 14.1). They use a three way classification of municipalities into “centre” (those with populations more than 100 000), “ring” (commuter municipalities and small towns) and “periphery” (small villages with a relatively agrarian population) and record flows between the classes for successive three year periods. The Centre municipalities lose consistently to ring and periphery municipalities throughout the period. However. the losses for core to ring movement diminish from 19 thousands in 1978-80 to 8 thousands in 1990-92 for core to ring movements, while those for core to periphery fluctuate at 4, 3, 5, 4 and 2 thousands in successive three year periods. Ring and periphery municipalities are in rough balance between 1978 and 1992. The net shifts post 1978 are considerably lower than those in the 1972-74 and 1975-77 periods, when core to ring losses were 32 and 23 thousands respectively.

2.5 Age group patterns

So far in our review of regional population dynamics in the Netherlands attention has been focused on the population as a whole. Gordijn and Eichperger (1996) identify, however, the emergence of distinctively different patterns of population movement dependent on stage in life career as indexed by age. For example, they plot arrival/departure ratios for the 15-24 and 65+ age groups for forty COROP regions (see section 3.3 for a discussion of the regional systems used in the Netherlands). Ratios are above 1 (indicating net in-migration) in the largest cities where higher education is provided : Rotterdam, Den Haag, Amsterdam, Utrecht, Arnhem/Nijmegen, Groningen (and the new polderlands), and below 1 (indicating net out-migration) elsewhere with lowest ratios in the most remote regions. For the retired age group, ratios are highest in regions adjacent to but outside the main urban centres, areas of scenic beauty and rurality. When the threefold grouping of municipalities into centre, ring and periphery is used (Gordijn and Eichperger 1996, Fig.14.10), the contrast in pattern of migration between the young adult (15-24) and other ages becomes steadily more pronounced over time from the early 1970s to the early 1990s In 1970-72 the centre is still losing young people and the ring gaining. By 1990-92 there is a very large outflow for the 15-29 age group from the periphery and ring municipalities towards the centre.

This review has shown how the main features of population shifts across regions in the Netherlands have been established. The 1950s saw the beginnings of a reversal of urbanization with net out-migration from the large cities to other areas. This movement reached a climax in the early 1970s in volume terms, and was ended by the structural changes in the economy occurring from the mid-1970s. The pattern of out-migration from large cities to surrounding areas persists, however, in more muted form. The rural periphery of the country, a loser of population in earlier decades, has benefited in part from urban outflows but nothing like as much as smaller towns and villages accessible to the major population centres. A divergence in the direction of flows according to life career stage has emerged as more important in the 1980s and 1990s. This latter theme will be explored in more detail in the analyses of sections 4, 5 and 6.

3. DATA AND METHODS USED

The Netherlands is a country which has one of the most advanced demographic data collection systems in Europe. The first part of this section describes the key features of the population registration system from which the data used in this study are drawn. The second part then describes the nature of population and migration information available for municipalities and the particular variables selected for use in this study. The third part discusses the geographies used in the study and methods employed to construct a geographically consistent data series for municipalities for two years, 1984 and 1994, separated by ten years of considerable geographical reorganization. Because there are so many spatial units involved it is necessary to develop and use various classification schemes which group municipalities into classes. The fourth part of this report section reviews the classifications adopted. The final part briefly describes the source for the cartography employed in the study and the mapping strategies used.

3.1 The population registration system

Migration statistics in the Netherlands are produced from the municipal population registers by Statistics Netherlands (*Centraal Bureau voor de Statistiek* or CBS, located in Voorburg in Zuid-Holland and Heerlen in Limburg). Van der Erf (1984) and Sleegers (1987) provide comprehensive accounts of the population registration system which we summarize here. The account describes the registration system as it operated until 1 October 1994.

The Netherlands system of continuous population registration has been in operation since 1850, based on regulations set out in a Royal Decree in 1849. A population register assigns every person in the country with a registration identity (initially a household card, since the late 1930s a personal card). Onto the registration document is recorded information about changes in status of the persons registered and about events that happen to that person. These include births, deaths, adoptions, legitimization, naturalization, marriage, divorce, change of occupation, change of name and change of residence.

The Population Register is maintained by each municipality (local government unit) in the Netherlands and is made up of a set of personal cards, one for each inhabitant. During each year additional personal cards are created for each new birth and for each documented immigrant moving to the Netherlands from outside for the first time. The personal card is used to keep track of changes in the individual's characteristics, such as change in marital status or change of address. When a person becomes head of a family or household, the head's personal card also records information about the members of the family. The information on the register is updated by linkage of the central file of personal cards to other notification forms and files that record events which individuals have a legal obligation to register. Examples are birth, death and marriage certificates.

Changes in residence are linked to the personal card when the individual completes and returns a removal card. When an individual moves between municipalities, there is an obligation to report the migration at the local population registration office within a time span of five days (from the date of leaving). The "old" or "exporting" municipality of origin residence then asks the migrant to fill in a removal card or *verhuiskaart*,

on which must be recorded the following information: name, municipality of origin, address in the municipality of origin, municipality of destination, address in the municipality of destination, marital status, year of marriage, birth year and nationality of all persons who are migrating with the household head. The removal form as reproduced by Van der Erf (1984) and Sleegers (1987) assumes a traditional nuclear family structure, containing the terms "wife" and "children", which in more recent years need to be reinterpreted as "partner" or "cohabitee" for unconventional households. A copy of this form is provided to the migrant who is obliged to hand over the document to the local population registrar in the "new" or "importing" municipality of destination residence within five days after issue date. The removal card is then used to trigger a request for the transfer of the personal card from origin to destination municipality. In this way the registers of both municipalities are kept up to date. The information on the *verhuiskaart* is forwarded to Statistics Netherlands for processing and for preparation of the annual population and migration statistics.

The removal cards make possible, in theory, the generation of migration data not only about individuals but also about the group of persons (usually a family) that migrate together (the migrating group). However, this unit is not necessarily the same as the household unit from which the migrating unit has departed nor the household unit to which the migrating group moves. Household fissions and fusions frequently take place simultaneously with migration. This is a problem faced in other migration recording systems such as the population census. Work is needed on the design of reporting systems that identify the nature of migrating groups and the household changes occurring (Flowerdew 1997). As a result in this study, as in most others, we use migration statistics that refer to the individual.

The *external* migration statistics relate to all individuals either arriving in or departing from the Netherlands, whose arrivals and departures result in entries in or removals from the Netherlands population registers. Up to and including September 1994 any person who intended to stay in the Netherlands for more than 30 days (for non-Dutch nationals the period was 180 days) had to be recorded in the population register of the municipality of residence. Removal from the population register followed when a person, irrespective of his/her nationality, intended to leave the Netherlands permanently or for an intended indefinite period exceeding 360 days. As from October 1994 these criteria are one third a year in case of immigration and two thirds of a year in case of emigration.

Since 1 October 1994, an improved system, the Automatized Municipal Population Administration or *Geautomatiseerde Gemeentelijke Bevolkingsadministratie* (GBA) has been in operation. Essentially, under the GBA the removal cards which underlie the internal migration statistics and the personal cards are available in electronic form, and directly accessible by CBS. This ensures much more complete consistency between migrations and changes in population stocks, much reducing the need for so-called "administrative corrections". Moreover, since the personal cards contain address information, CBS now has direct access to intra-municipal moves as well in electronic form. This makes it possible to generate sub-municipal migration statistics. Potentially the GBA could generate migration and population data for very small spatial units from 1995 onwards. However, in the current project this opportunity was not pursued for several reasons. (1) The time series would start in 1995, and comparisons could not be made with 1984. (2) There is no "natural" scale below the municipality. Some large cities have "sub-municipalities", but their administrative authority is quite limited. There exist data for "neighbourhood" areas, but each municipality defines this concept in its own way.

(3) The most effective spatial scale would be "4-digit postal code" (about 3,900 areas), but there are too many areas, they do not aggregate exactly to the municipality level and the data are subject to significant data entry errors. They are also costly, time-consuming to produce and involve too many data disclosure limitations.

The larger cities (like Amsterdam, Rotterdam, The Hague, Utrecht) have their own municipal statistical agencies which do have time series on migration between different sub-municipalities or "neighbourhoods" within the city. However, this would have involved an approach to each agency separately, which was not feasible in the context of this project.

3.2 Variables used

In this study we use two types of data for municipalities in the Netherlands for the years 1984 and 1994 population counts at the start and end of the two years and migration counts during the two years. These data were supplied, at cost, to the project by Statistics Netherlands. In principle, similar data were available for intermediate years and for 1995 and 1996, but project resources stretched to neither their purchase nor their analysis. This was unfortunate as previous work by Dutch researchers reviewed in section 2 of the report always presented full time series of changes so that the problems of studying change between two individual years were avoided. So there is plenty of scope for deepening the current analysis in a future study.

3.2.1 Population data

Statistics Netherlands provided the relevant data in the form of ASCII text files (1984 and 1985) or embedded in an interactive data system known as CBSVIEW, the 1994 version of which was relatively easy to use while the 1995 "improved" version posed considerable difficulties before the data were extracted. The data consisted of the population per 1 January for 1984, 1985, 1994 and 1995, by sex and age infive year age groups (0-4 to 85-89 and 90+ for 1984 and 1985 and 0-4 to 90-94 and 95+ for 1994 and 1995) for the municipalities current at those dates. Age group information was available on a single year of age basis but for international comparisons we only needed coarser ages. The five year age groups were amalgamated into a set of six broad, life course stages: 0-14, 15-29, 30-44, 45-59, 60-74 and 75+, which were similar to the age groups used in the United Kingdom case study (Rees, Durham and Kupiszewski 1996) and Italy case study (Rees, Todisco, Terra Abrami, Durham and Kupiszewski 1997).

It would have been possible to have acquired population counts for 31 December of each year for the same municipalities as were used at the start of the year. The population accounting system in the Netherlands consists of two accounting equations. The first runs from January 1 to December 31 and computes the final population of a municipality by adding the starting population, births and inmigration and subtracting deaths and out-migration. The second accounting equation runs from December 31 to January 1: the starting population of year t+1 is computed as the final population of year t plus the corrections for year t, which include the transfers of population as a result of municipality merger, splitting or renaming, as well as "administrative corrections" (a change in the population count not explained by a registered demographic event

such as an unregistered emigration). However, a general solution had to be found to the problem of these changes in administrative area boundaries between years. The general solution involved the definition of a look up table that linked the municipality in year *t* to the municipality in a standard year for which we had digital polygon information that could be used for mapping. The techniques used are described in section 3.3.

One small population unit was excluded from the analysis. This was the small population recorded in the *Centraal Persoonsregister* of individuals without a fixed address. The summary of statistics for municipalities used in the current analysis falls short, therefore, of the national totals by a small number of people (1047 men and 337 women on 1.1.94).

3.2.2 Migration data

Migration available from the population registration system come in three forms: *intramunicipal migration*, which is a change of residence within a municipality; *internal migration*, which is change of residence across a municipal boundary; and *external migration*, which is between a municipality and a foreign country. The focus in this report is on *internal migration*.

Internal migration data were available in two forms: (1) as total arrivals and departures by age and sex, and (2) as flows of persons between origin municipality and destination municipality. Data on arrivals and departures of internal migrants for all municipalities in the Netherlands were supplied for 1984 and 1994 by Statistics Netherlands in the form of ASCII files. Arrivals and departures were classified by sex and by five year ages (0-4 to 85-89, 90+). Because of confidentiality concerns the migration data were supplied as counts rounded to the nearest five for arrivals and departures, and therefore depart from the true counts. The counts could have been supplied as single year of age counts randomly perturbed but we preferred five year data. Fortunately, we only required totals for six fifteen year age groups (0-14 to 60-74 and 75+) which reduced the error caused by this rounding. No age breakdown was available, for reasons of confidentiality, for origin-destination flows at the level of municipality. Age for migrants is reported as for 31 December at municipality of destination and is computed as calendar year less year of birth.

There are several features of these migration data for municipalities which must be borne in mind since they affect and restrict analysis. These features are (1) the meaning of aggregations of municipality arrival and departure totals, (2) the meaning of aggregations of origin-destination flows, (3) the treatment of age when using populations at risk to compute migration rates and (4) the effect of changes in municipal boundaries on derived migration indicators. These features are discussed in turn.

Aggregations of municipality arrival and departure totals. When there are a large number of spatial units for which data are available, we need to aggregate the units into a variety of spatial (contiguous) and aspatial (non-contiguous) classes to interpret and understand the patterns. For population stocks births, deaths and external migrations we can happily sum municipality values to yield counts for aggregate classes. For internal migration totals this is not possible directly because what constitutes an in- or out-migration changes with the aggregation. Flows between municipalities that are placed in the same aggregate class are no longer inter-unit migrations: they become intra-unit migrations. Fortunately, for the purposes of the current analysis we wish to

focus on the *net* migration between municipality classes. When we compute net migration by subtracting aggregated out-migration from in-migration, the surplus inter-municipal migrations which are intra-unit migrations after aggregation appear in both new out- and in-migration totals and therefore cancel. Therefore we can use net migration figures for municipality aggregations computed in this way with confidence, but we cannot use gross flows.

It is useful to demonstrate what occurs using a simple, hypothetical but general example. Table 1 records inter-municipal migration between four municipalities (A, B, C and D), for a given age group, which we wish to aggregate to two classes, municipalities A and B into an urban class (U) and municipalities C and D into a rural class (R).

Table 1: An example of inter-municipal migration

Origin municipality	Destination municipality A	B	C	D	Totals	Aggregation
A	0	10	50	10	70	140
B	20	0	40	10	70	
C	20	30	0	30	80	120
D	20	10	10	0	40	
Totals	60	50	100	50	260	260
Net migration	-10	-20	+20	+10		
Aggregation	110		150			
Aggregated net migration	-30		+30			

Table 2 shows the result of the aggregation with the diagonal cells set to zero. The total of out-migrations from municipalities A and B is 140, whereas the total of out-migrations from the urban class is 110. Similarly the total of in-migrations to municipalities A and B is 110 but the total of in-migrations to the urban class is 80. However, if we compute the net migration totals into A and B (-10 and -20 respectively), they sum correctly to the net migration total for the urban class (-30). So we can use aggregated net migration totals by age produced by summing origin-age-sex and destination-age-sex arrays for municipalities but not the gross migration totals, because we do not know the contents of the full origin-destination-age-sex array, the interior elements in Table 1.

Table 2: An example of aggregated inter-municipality migration

Origin municipality	Destination municipality Urban (U)	Rural (R)	Totals
Urban (U)	0	110	110
Rural (R)	80	0	80
Totals	80	110	190
Net migration	-30	+30	0

Aggregations of origin-destination flows. The aggregation difficulty does not apply to origin-destination flows, as long as the analysis does not focus on total mobility (i.e. all migrations between residences including those

within municipalities). We aggregate the inter-municipal flows to the various larger regions and aggregate municipality classes for further analysis, although this analysis does not distinguish flows by age.

Age definitions in the computation of migration rates. Age is measured at the end of the year in which migration is recorded and so refers to the period-cohort age-time plan suitable for cohort-component analysis. To compute migration rates we need to adopt a computation method for the population at risk. In the analysis of this report we use an average of the year start and year end populations because the migration data derived from population registers refer to move events rather than person transitions. The population at risk should be defined as half of the population aged x-1 to x+14 at the start of the year plus half of the population aged x to x+15 at the end of the year. The population data for municipalities was available only in five year age groups, so the population at risk was computed as half of the population aged x to x+15 at the start of the year plus half of the population aged x to x+15 at the end of the year. The resulting distortion is minor, however.

The effect of changes in municipal boundaries on migration indicators. As explained in section 3.3 below it is necessary to aggregate migration data for 1984 and 1994 to a common set of boundaries for mapping and temporal comparison. The difficulties explained above in relation to aggregation of municipalities to summary classes apply here also, so that attention is focused on net migration indicators, when the age group analysis of arrivals and departures is carried out. Fortunately, these are the most interpretable migration indicators for the purposes of this case study.

3.3 Geographic units adopted

To identify the processes of spatial redistribution, it was necessary to study population change and internal migration on as fine a spatial scale as possible. The only practical candidate for geographic unit was the *Gemeente* or municipality, which is the smallest unit of local government in the Netherlands. This unit varies considerably in population size ranging from a maximum of 725084 residents in 1994 in the municipality of Amsterdam to a minimum of 998 in the municipality of Schiermonnikoog (the most easterly of the inhabited Wadden Islands in the far north). Some information exists at sub-municipality level but it is neither comprehensive in space nor consistent over time. The last Dutch census was taken in 1971, since when Statistics Nethelands has relied for its demographic statistics on a combination of the population register and sample household surveys.

Because of the ongoing process of municipal restructuring, the total number of municipalities and/or the municipal borders change from year to year. On the whole, there is a trend towards reducing the number of municipalities, especially in rural areas: several small municipalities are merged into one large municipality. All such changes take place on 1 January. Between 1984 and 1994, the total number of municipalities fell from 749 to 636. Changes of municipality, because of these border changes, are not included in internal migration or intramunicipal moves; together with "administrative corrections" and "other corrections", they are implemented in the population accounting system between December 31 and January 1.

In order to compare population redistribution processes in one year with another, it is necessary to adopt common spatial units. Because the digital boundaries available (see section 3.5) referred to the 647 municipalities in existence in 1991, it was decided to standardize on this geography and to convert the municipality statistics for 1984 and 1994 to 1991 boundaries. To effect this conversion two look up tables were constructed: a 1984 to 1991 table and a 1994 to 1991 table, using an electronic Statistics Netherlands publication entitled *Gemeenten in Nederland - Historisch overzicht* (Municipalities in the Netherlands - Historical overview). This publication contains dates of birth and death of municipalities and of boundary changes. In the case of boundary changes where the municipality was "split up", information on the land area, population and dwellings contained in the split sections is provided. This information was used to assign an old municipality that had "died" to the new municipality that had been "born" which gained the largest share of the old municipality's population. The resulting assignments in the look up table are therefore "best fit" matches.

The 1984 to 1991 table lists the 749 municipalities and provides codes and names for the corresponding 1991 municipality. A majority of municipalities did not change. A larger set of municipalities was amalgamated to form larger units. A few municipalities changed their name. Table 3 provides selections of municipalities in the provinces of Groningen and Friesland from the look up table showing the different kind of changes that occurred. The municipality of Appingedam, code number 3, is an example of a municipality which does not change. Its neighbouring municipality of Delfzijl, code 10, is in 1991 an amalgamation of Bierum and the old 1984 Delfzijl. The munic ipality named Gaasterland in 1984 was renamed Gaasterlân-Sleat in the 1991 list, exemplifying the third type of change. A small FORTRAN program was written that reads in the look up tables codes and then the 1984 population and migration variables for 1984 municipalities and uses the former to aggregate the latter.

Table 3: A portion of a look up table for converting 1984 municipality information to 1991 boundaries

1984 code number	1984 name	1991 code number	1991 name
1	Adorp	53	Winsum
2	Aduard	56	Zuidhorn
3	Appingedam	3	Appingedam
4	Baflo	53	Winsum
5	Bedum	5	Bedum
6	Beerta	6	Beerta
7	Bellingwedde	7	Bellingwedde
8	Bierum	10	Delfzijl
9	Ten Boer	9	Ten Boer
10	Delfzijl	10	Delfzijl
:	:	:	:
70	Franekeradeel	70	Franekeradeel
71	Gaasterland	653	Gaasterlân-Sleat
72	Harlingen	72	Harlingen

The 1991 to 1994 look up tables lists the 647 municipalities in 1991 and provides codes and names for the corresponding 1994 municipality. However, in this case a weight is added to the file to indicate the fraction of the 1994 municipality population which corresponds to the 1991 when several units have been joined together. Table 4 shows a selection of entries from this look up table. The weights, based on 1991 populations

of the municipalities, are used to disaggregate 1994 populations into their 1991 municipality components. For example, 59.18% of the 1994 population of St. Anthonis, a rural municipality in Noord-Brabant, is decomposed into the Oploo municipality while the other 40.82% is assigned to Wanroij municipality. Another FORTRAN program was used to carry out the disaggregation. Where fractional weights are used they apply to all age groups, which adds a minor amount of noise to the estimate.

Table 4: A portion of a look up table for converting 1994 municipality information to 1991 boundaries

1994 code	1994 name	Weight	1991 code	1991 name	1991 population
0126	Rolde	1.0000	0126	Rolde	6332
0127	Ruinen	1.0000	0127	Ruinen	7116
0278	Ruurlo	1.0000	0278	Ruurlo	7709
0607	Schipluiden	1.0000	0607	Schipluiden	8663
1691	St. Anthonis	0.5918	0827	Oploo c.a.	6509
1691	St. Anthonis	0.4082	0868	Wanroij	4490
0280	Steenderen	1.0000	0280	Steenderen	4575
0184	Urk	1.0000	0184	Urk	14122
0454	Venhuizen	1.0000	0454	Venhuizen	7293
0459	Wervershoof	1.0000	0459	Wervershoof	7641

3.4 Classifications

Section 4 of the report presents the municipality patterns of population change and migration in detail. However, to interpret these patterns we make sense of the information by classifying municipalities in various ways. The regional hierarchies employed in the Netherlands to analyse population dynamics are discussed first. Then a variety of official classifications of the degree of urbanity/rurality are described. The section concludes with a discussion of simple adjustment of one of the official classifications to reflect the position of a municipality in the settlement system of the Netherlands.

3.4.1 The regional hierarchy

Figure 1 and Table 5 show the organization of Dutch regions as used both by Statistics Netherlands and by EUROSTAT in their *Nomenclature des Unités Territoires Statistiques* or NUTS system. The Netherlands has been divided since the 1980s into four main divisions or *Landsdelen* (Country Divisions): Noord (North), Oost (East), West (West) and Zuid (South), although formerly a Zuid-West division was recognized (Drewe 1980). These are statistical rather than administrative divisions and form EUROSTAT's NUTS 1 regional level.

The Country Divisions are made up of the *Provincies* (provinces) of the Netherlands, which are upper tier administrative units. The number of provinces in 1984 was eleven while in 1994 there were twelve, the new province of Flevoland having been created on 1st January 1987 through the consolidation of the new polderland of Zuidelijk Flevoland and Oostelijk Flevoland with the old polderland of Noordoostpolder. To handle comparison between 1984 and 1994 in later analysis, municipalities in 1984 are linked to their 1991 provinces, so that "Flevoland" appears in the statistics before its "birth". The twelve provinces are grouped in

Table 1 in sets of two, three or four to show how they fit into the *Landsdelen*. Provinces form the second level of the NUTS regional classification.

The third level of the NUTS hierarchy is occupied by forty *COROP-gebieden*, more or less functional regions, which are groupings of municipalities *within the same province* which show strong interdependence in terms of commuting flows and residential migration (Drewe 1980). So, for example, the municipality of Amsterdam and its surrounding commuter settlements within the Noord-Holland province form the COROP region of Groot (Great) Amsterdam. They are widely used for analysis purposes both in official statistics and in academic research.

The principal units of local government in the Netherlands are the *Gemeenten* or municipalities (also referred to as communes). The municipalities form level 5 (level 4 is not defined for the Netherlands) in the EUROSTAT NUTS system. As mentioned previously, these units vary enormously in size and have been undergoing a continuous process of consolidation, driven by the need to make local government more efficient. Drewe (1980, p.5), for example, refers to 980 communes being in existence in the early 1970s. This number was reduced to 636 by 1994. The average population of a municipality has increased from about 13 thousand inhabitants in 1971 to 24 thousand residents in 1994.

By way of comparison, we note that the average population of the smallest units (wards/postal sectors) used in the United Kingdom case study were around 5 thousand people in 1991 and the equivalent average for Italian communes in 1994 was around 7 thousand. Dutch municipalities resemble Italian communes in function and range of sizes while UK wards/postal sectors were subdivisions of larger local government units with a narrower range of populations.

Other regionalizations based on the municipality have been used by Dutch researchers, including *economisch-geografische gebieden* (economic/geographic divisions), of which there were 129 in 1984, and *nodale gebieden* (nodal regions), of which there were 80 in 1984.

Figure 1: The division of the Netherlands into NUTS territorial units

Table 5: Regional definitions, Netherlands, 1994

N	Landsdelen (Country Division) NUTS 1	N	Provincie (Province) NUTS 2	N	COROP region NUTS 3	NUTS code 1994	NUTS code 1995
1	Noord-Nederland	1	Groningen	1	Oost-Groningen	R4111	NL111
				2	Delfzijl en omgeving	R4112	NL112
				3	Overig Groningen	R4113	NL113
		2	Friesland	4	Noord-Friesland	R4121	NL121
				5	Zuidwest-Friesland	R4122	NL122
				6	Zuidoost-Friesland	R4123	NL123
		3	Drenthe	7	Noord-Drenthe	R4131	NL131
				8	Zuidoost-Drenthe	R4132	NL132
				9	Zuidwest-Drenthe	R4133	NL13
2	Oost-Nederland	4	Overijssel	10	Noord-Overijssel	R4231	NL211
				11	Zuidwest-Overijssel	R4232	NL212
				12	Twente	R4233	NL213
		5	Gelderland	13	Veluwe	R4241	NL221
				14	Achterhoek	R4242	NL222
				15	Arnhem/Nijmegen	R4243	NL223
				16	Zuidwest-Gelderland	R4244	NL224
		6	Flevoland	40	Flevoland	R425	NL23
3	West-Nederland	7	Utrecht	17	Utrecht	R471	NL31
		8	Noord-Holland	18	Kop van Noord-Holland	R4721	NL321
				19	Alkmaar en omgeving	R4722	NL322
				20	IJmond	R4723	NL323
				21	Agglomeratie Haarlem	R4724	NL324
				22	Zaanstreek	R4725	NL325
				23	Groot-Amsterdam	R4726	NL326
				24	Het Gooi en Vechtstreek	R4727	NL327
		9	Zuid-Holland	25	Agglomeratie Leiden en Bollenstreek	R4731	NL331
				26	Agglomeratie ‘s-Gravenhage	R4732	NL332
				27	Delft en Westland	R4733	NL333
				28	Oost-Zuid-Holland	R4734	NL334
				29	Groot-Rijnmond	R4735	NL335
				30	Zuidoost-Zuid-Holland	R4736	NL336
		10	Zeeland	31	Zeeuwsch-Vlaanderen	R4741	NL341
				32	Overig Zeeland	R4742	NL342
4	Zuid-Nederland	11	Noord-Brabant	33	West-Noord-Brabant	R4511	NL441
				34	Midden-Noord-Brabant	R4512	NL412
				35	Noordoost-Noord-Brabant	R4513	NL413
				36	Zuidoost-Noord-Brabant	R4514	NL414
		12	Limburg	37	Noord-Limburg	R4521	NL421
				38	Midden-Limburg	R4522	NL422
				39	Zuid-Limburg	R4523	NL423

Notes:
1. The province of Flevoland was created on 1st January 1987.
2. N = sequence number used in data files.

3.4.2 Urbanization definitions

We use 647 municipalities as the basic study unit in this report. However, it is difficult to absorb information, even when plotted on maps (as in section 4), for so many units. To make sense of the population redistribution and internal migration occurring it is necessary to group municipalities into significant classes. One of the most significant processes affecting population distribution over the century has been urbanization, the concentration of people into towns and cities particularly the largest, followed in some countries by significant deconcentration both locally (suburbanization) and down the urban hierarchy (counterurbanization).

The Netherlands is fortunate in having available several classifications of the urbanization status of its municipalities. The country is blessed with a variety of official classifications as well as many alternatives developed by researchers (e.g. Sleegers 1987, Chapter 5). The classifications we use in this report are as follows. Each provides a slightly different view of the settlement system.

(1) The *COROP regions* divide the country, exhaustively, into a set of forty urban centred zones (cf functional regions used in the United Kingdom case study) (see Table 5 and Figure 1).

(2) Statistics Netherlands maintains a system of *urbanization intensity* classes based on density of residential addresses on a five point graded scale (Table 6 lists the intensity classes while Figure 2 maps them).

(3) Statistics Netherlands developed, using information originally available in the last Dutch census in 1971, *urbanization categories* based on a combination of sectoral mix of employment and size of largest residential nucleus (Table 7 lists the categories and their definition). Categories A1 through A4 contain rural municipalities, categories B1 through B3 distinguish municipalities with both urban and rural characteristics, while categories C1 through C5 identify urban municipalities on an ascending scale of size of the urban nucleus. Figure 3 shows this classification.

(4) Statistics Netherlands groups municipalities into the largest *urban agglomerations* which together housed 46% of the population of the Netherlands in 1984 and 1994. The twenty-one agglomerations are listed together with their populations in Table 8.

Table 6: CBS urbanization categories (1)

Urbanization code	Description (Dutch)	Description (English)
1	Zeer sterk stedelijk	Very strongly urbanized
2	Sterk stedelijk	Strongly urbanized
3	Matig stedelijk	Moderately urbanized
4	Weinig stedilijk	Little urbanized
5	Niet stedelijk	Not urbanized

Notes: CBS = Centraal Bureau voor de Statistiek / Statistics Netherlands

Table 7: CBS urbanization categories (2), based on 1971 Census information

Urbanization Category		Definition
A		*Rural municipalities:*
	A1	50% or more labour force in agriculture
	A2	40%-<50% in agriculture
	A3	30%-<40% in agriculture
	A4	20%-<30% in agriculture
B		*Urbanized rural municipalities:*
	B1	less than 20% male labour force in agriculture, largest residential nucleus less than 5,000 inhabitants
	B2	less than 20% male labour force in agriculture, largest residential nucleus between 5,000 and 30,000 inhabitants
	B3	Specific commuter municipalities
C		*Urban municipalities:*
	C1	2,000 - <10,000 inhabitants in urbanized nucleus
	C2	10,000 -<30,000 inhabitants in urbanized nucleus
	C3	30,000 -<50,000 inhabitants in urbanized nucleus
	C4	50,000 -<100,000 inhabitants in urbanized nucleus
	C5	100,000 or more inhabitants in urbanized nucleus

Notes: CBS = Centraal Bureau voor de Statistiek / Statistics Netherlands

Table 8: Agglomerations, Netherlands

N	Agglomeration	Population (1000s)		
		1.1.1984	1.1.1994	% change
0	Not member of an urban agglomeration	7723	8290	7.3
1	Rotterdam/Schiedam/Vlaardingen	1010	1067	5.6
2	Amsterdam	996	1100	10.4
3	's-Gravenhage (Den Haag)	682	695	3.4
4	Utrecht	505	546	8.1
5	Eindhoven	374	393	5.1
6	Arnhem	291	312	7.2
7	Enschede/Hengelo	248	254	2.4
8	Heerlen/Kerkrade	267	271	1.5
9	Haarlem	217	214	-1.4
10	Tilburg	222	237	6.8
11	Nijmegen	234	248	4.2
12	Groningen	207	210	1.4
13	Dordrecht/Zwijndrecht	199	213	7.0
14	Geleen/Sittard	177	185	4.5
15	's-Hertogenbosch	183	198	8.2
16	Leiden	176	194	10.2
17	Breda	154	166	7.8
18	Maastricht	157	164	4.5
19	Zaanstad	142	147	3.5
20	Velsen/Beverwijk	125	134	1.1
21	Hilversum	106	102	-3.8

Figure 2: CBS Urbanisation classes based on address density

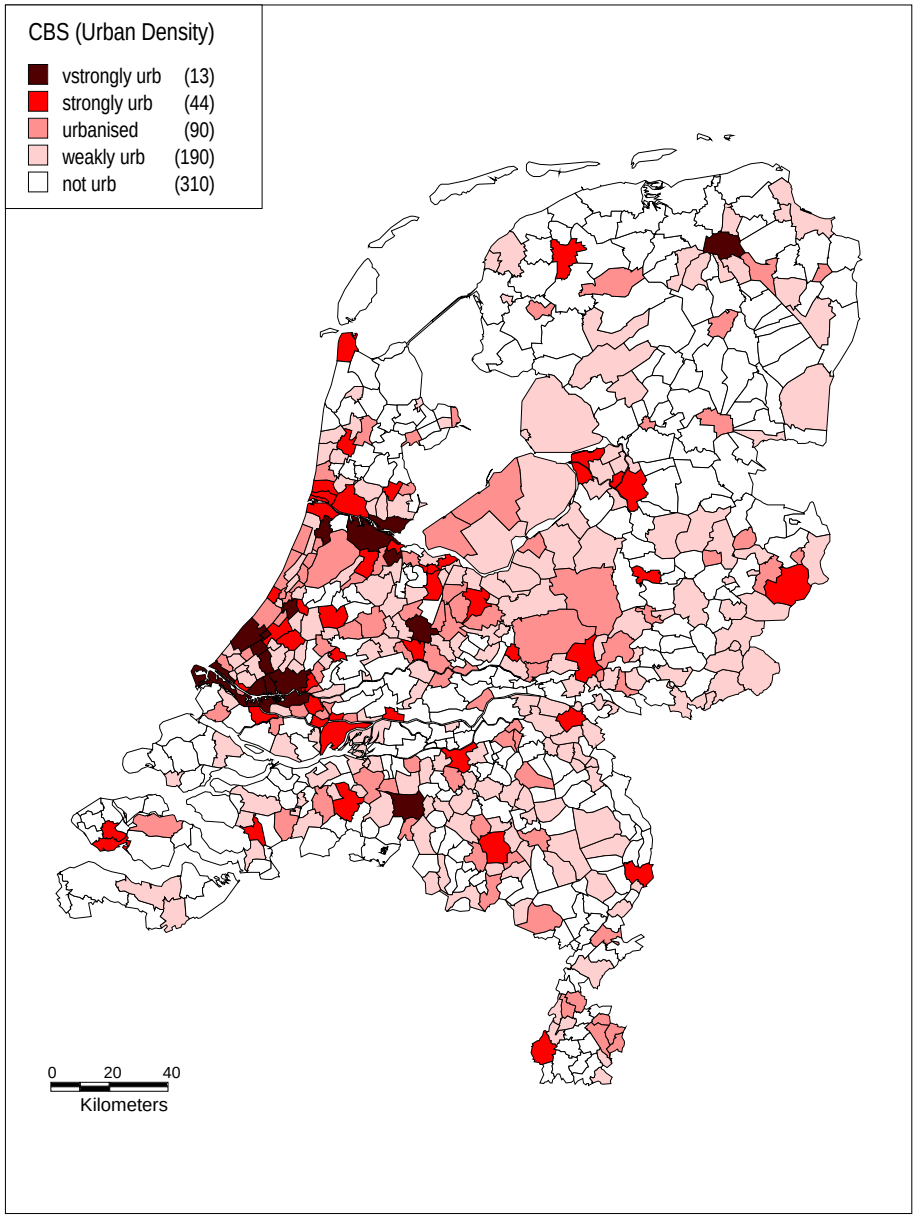
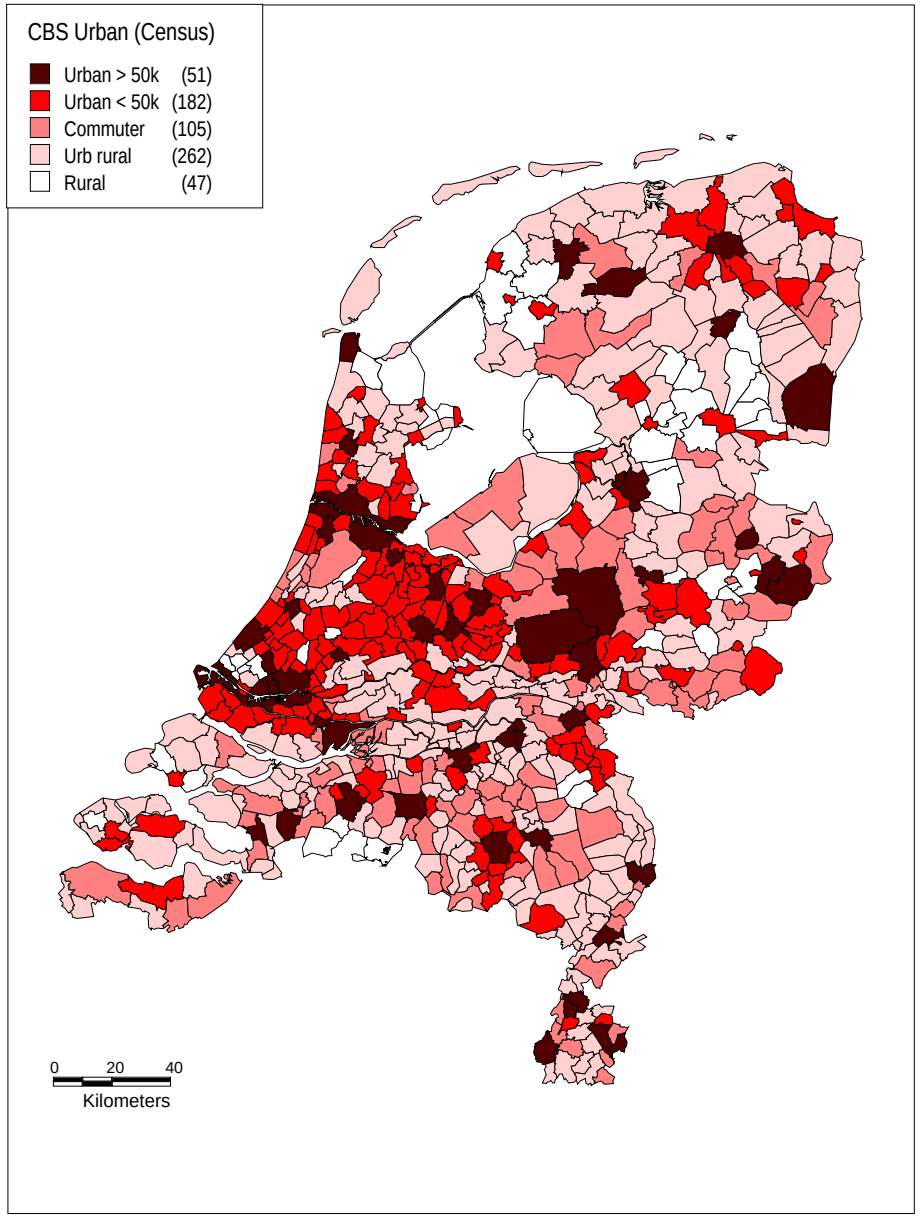


Figure 3: CBS Urbanisation categories based on 1971 Census data



(5) A further set of *settlement types* was developed for this study based on the Statistics Netherlands urbanization categories and agglomeration groupings and geographical knowledge of the organization of urbanized settlement around the main urban centres. Table 9 lists the matching of the municipalities in the two CBS classifications with the settlement types adopted. Figure 4 maps these settlement types. The Core municipalities are the main centres of the twenty-one urban agglomerations defined by CBS; many of these are located in the Randstad. Secondary core municipalities are smaller, freestanding urban centres. The Ring contains satellite towns associated through commuting to the core or secondary core municipalities. The Periphery type encompasses smaller towns elsewhere and rural municipalities.

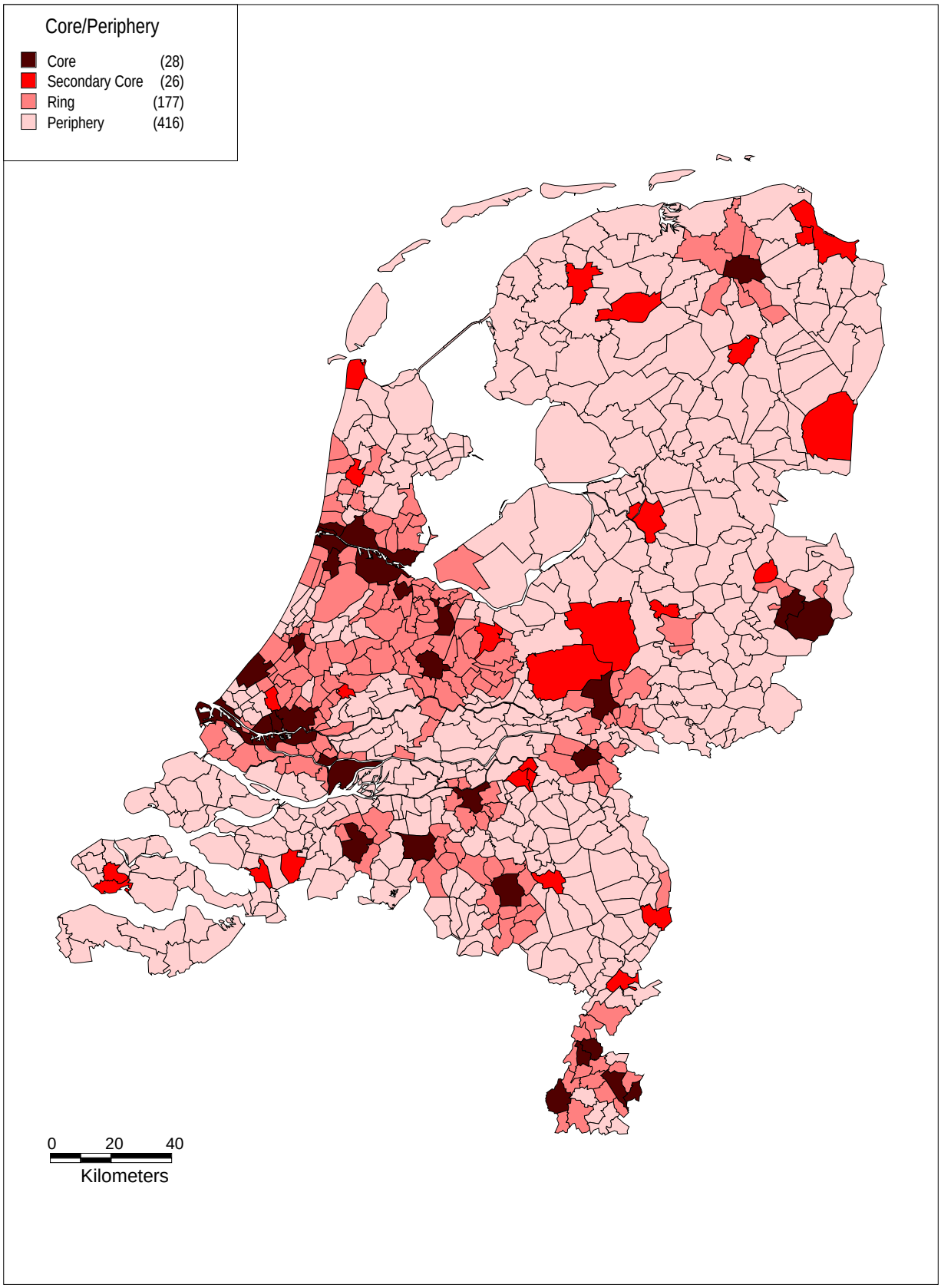
(6) A very simple typology that is related to degree of urbanization is that of *density classes*. Population density (using 1994 populations and 1991 areas) is divided into 8 classes (see Table 19 for the definitions), which have been used in the other case studies. Whereas it is difficult to produce a comparable functional classification across countries, a harmonized definition of residential population density is possible and useful.

Table 9: Settlement type

N	Description	Composition
1	Core: main centres of urban agglomerations	Municipalities which form the main centres of one of the 21 CBS urban agglomerations: i.e. most of the *C4 and C5 municipalities* with a few *C3 municipalities*
2	Secondary core: large freestanding towns	The remaining *C3, C4 and C5 municipalities* which do not belong to an urban agglomeration except Zeist (in the Utrecht agglomeration) which is placed in the Ring type
3	Ring: commuter towns	Other municipalities in the 21 CBS urban agglomerations which are not core *B1 municipalities*
4	Periphery: rest of country	*C2 municipalities* except for: Alphen aan de Rijn (ring Randstad) Bodegraven (ring Randstad) Gorinchem (ring Randstad) Oosterhout (ring Tilburg) Oud-Beijerland (ring Randstad) Sliedrecht (ring Randstad) Woerden (ring Randstad) Appingedam (secondary core) Delfzijl (secondary core) Middelburg (secondary core) Vlissingen (secondary core) *C1 municipalities* *B1 and B2 municipalities* *A municipalities* except for Almere (ring Randstad)

Source: classification developed by the authors.

Figure 4: A classification of municipalities into settlement types



3.5 Mapping methods

The key indicators of population change and net internal migration for municipalities are considered and compared using thematic maps. The digital boundaries for municipalities were available at cost from Statistics Netherlands on CD-ROM, from the Dutch national mapping agency and from MEGRIN, the European Consortium of national mapping agencies. The digital boundaries were purchased from MEGRIN because they offered a boundary data set consisting of a generalised and topologically correct set of polygons suitable for thematic mapping at a reasonable discount. It was unnecessary to repeat the painful process of polygon repair that had to be undertaken in the United Kingdom case study (Rees, Durham and Kupiszewski 1996) or to resort to less than ideal mapping methods using the geographic co-ordinates of commune centres used in the Italy case study (Rees, Todisco, Terra Abrami, Durham and Kupiszewski 1997).

4. SPATIAL PATTERNS OF POPULATION CHANGE

This section of the report begins our analysis of internal migration and regional population dynamics in the Netherlands by looking at population shifts and its components by age for 1984 and 1994 for the simplest division of the country into four parts, the *Landsdelen*. It is important to gain an understanding of age and cohort shifts. In the subsequent analysis we concentrate on net internal migration, the key component for effecting redistribution (though not necessarily absolute change) at successively smaller scales.

4.1 Population shifts and components of change for Landsdelen

Table 10 sets out population numbers and percentage shares of the national population for the four country divisions. The Netherlands population experienced substantial growth (nearly one million more people) and sustained ageing over the 1984-94 decade. Collectively ages below 30 decreased by 341 thousand people, the 30-59 working ages increased by 968 thousand while the 60+ population grew by 328 thousand. Such changes will have raised national product through the labour force increases and seen a balance between reduced needs of the young age groups (for educational expenditure) and increased needs of the elderly for health and other care.

The same age group changes were experienced in all regions but the bottom panel of Table 10 reveals some important shifts between the regions. Over the decade the West and the East gained share while the North and South lost. Changes in regional shares have not been as pronounced as forecast by Drewe (1980), based on the 1974 situation. The West has not lost as much share as predicted: it still has 46.9% of the Netherlands population compared with a forecast 42.5%, while the East and South divisions have failed to gain as much as predicted, while the North has lost share contrary to Drewe's expectations. Two reasons probably underpin these differences: firstly, the Drewe analysis neglects gains from international migration which favour the West Netherlands and secondly, as the Gordijn and Eichperger suggests, a counter flow of young adults has been attracted to the education and entertainment centres of the West.

Another difference between the regions is the gains and losses in the retirement and elderly ages, where the East and particularly the South show gains in share while the West and North post losses. Although the West and North house more than their proportional share of the population aged 60 and over, they are losing this share to the East and South. The inference is that these regions are attractive when retirees make migration choices, unconstrained by ties to workplace locations.

Table 10: Populations and percentage shares by age, Netherlands, Landsdelen, 1 January 1984 and 1994

Landsdelen	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
		POPULATIONS (1000s)						
Noord-Nederland	1984	338	399	332	236	193	88	1586
	1994	294	365	364	288	204	100	1615
	Change	-44	-34	32	52	11	12	29
Oost-Nederland	1984	633	742	622	437	320	133	2887
	1994	612	717	732	548	377	163	3150
	Change	-21	-25	110	111	57	30	263
West-Nederland	1984	1304	1700	1494	1043	820	365	6726
	1994	1298	1623	1727	1260	855	428	7190
	Change	-6	-77	233	217	35	63	464
Zuid-Nederland	1984	652	836	725	520	334	120	3187
	1994	611	743	820	638	416	156	3385
	Change	-41	-93	95	118	82	36	198
NEDERLAND	1984	2928	3677	3173	2236	1667	705	14385
	1994	2816	3448	3644	2733	1852	848	15340
	Change	-112	-229	471	497	185	143	955
		PERCENTAGE SHARES						
Noord-Nederland	1984	11.5	10.9	10.5	10.6	11.6	12.5	11.0
	1994	10.4	10.6	10.0	10.5	11.0	11.8	10.5
	Change	-1.1	-0.3	-0.5	-0.1	-0.6	-0.7	-0.5
Oost-Nederland	1984	21.6	20.2	19.6	19.5	19.2	18.9	20.1
	1994	21.7	20.8	20.1	20.1	20.4	19.2	20.5
	Change	0.1	0.6	0.5	0.6	1.2	0.3	0.4
West-Nederland	1984	44.5	46.2	47.1	46.6	49.2	51.8	46.8
	1994	46.1	47.1	47.4	46.1	46.2	50.5	46.9
	Change	1.6	0.9	0.3	-0.5	-3.0	-1.3	0.1
Zuid-Nederland	1984	22.3	22.7	22.8	23.3	20.0	17.0	22.2
	1994	21.7	21.5	22.5	23.3	22.5	18.4	22.1
	Change	-0.6	-1.2	-0.3	0.0	2.5	1.4	-0.1
NEDERLAND	1984	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	1994	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from population statistics supplied by Statistics Netherlands.

Table 11 (absolute numbers) and Table 12 (rates) provide a decomposition of population change into that part due to internal migration and that due to other changes. Other changes were computed by subtracting net internal migration from population change. Other changes combine contributions from net external migration with those from "natural increase". Natural increase probably makes up about three quarters of the other changes term in total. Natural change has to be interpreted carefully. For the all age population, it is the balance of births less deaths but for the individual age groups shown in Table 11 it is the balance of transfers of population into the age group through ageing minus the transfers out through ageing and deaths. Within an annual period (e.g. 1984, 1994) one single birth cohort moves to the next age group and is replaced by another fifteen years younger. For groups aged 30 or over, these changes are positive for all four regions in both 1984 and 1994, indicating continued expansion of these older age groups as baby boomers age together with a contribution in the 30-59 ages from external migration. Below age 30, the balance of losses and gains is more complex because at least some of the cohorts involved are post-baby boom and can vary from year to year in size.

Several important points can be made based on the evidence in Table 11. Firstly, "other changes" are more significant in absolute terms than the changes due to net internal migration, being about four times the size, ignoring sign. Secondly, the pattern of "other changes" is relatively uniform across regions within each separate year leaving net internal migration as the more important component for effecting population redistribution. These conclusions are valid only at the NUTS 1 level. As spatial scale is lowered, the relative importance of internal migration increases. Attention is therefore focused on the patterns of net internal migration by age in the report.

4.2 Net internal migration patterns for regions

4.2.1 Patterns for Landsdelen

Table 12's top panel provides information on net internal migration for the major country divisions expressed as rates per 1000 resident population (averaging the start and end of year populations). The West and South Netherlands are net losers of internal migrants overall in both 1984 and 1994, as is the North Netherlands in 1984. The gaining region is the East. However, these all age figures hide rather different patterns for two age groupings: the young adult ages (15-29) versus the 0-14 and 30+ ages. In the young adult ages the West is the only gaining region; at the other ages it is a consistent loser in 1984 and 1994. The South experiences heavy losses in the young adult ages, but these are balanced by gains at other ages. The North also suffers heavy net losses in the young adult ages; in 1994 it experiences gains in the other age groups, improving from a loss position in the family ages (0-14 and 30-44) in 1984. The East gains strongly in the family and later working ages, loses in the young adult ages in 1994 and in the retirement ages. This confirms for *Landsdelen* the findings of Gordijn and Eichperger for centre, ring and periphery (discussed in section 2.5).

Table 11: Components of population change by age, Netherlands, Landsdelen, 1984 and 1994

Landsdelen (NUTS 1 regions)	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
		POPULATION CHANGE						
Noord-Nederland	1984	-11093	2841	6218	1130	1260	1770	2126
	1994	1035	-7368	3224	7432	1946	1137	7406
Oost-Nederland	1984	-15093	8972	14434	4540	5377	4056	22286
	1994	6079	-12456	10682	16323	4809	2260	27697
West-Nederland	1984	-32680	9383	27866	3684	5070	9453	22776
	1994	9306	-42790	12853	31919	1121	1896	14305
Zuid-Nederland	1984	-20883	3118	11515	6244	7587	4492	12073
	1994	2356	-20878	4195	14864	6952	2668	10157
NEDERLAND	1984	-79749	24314	60033	15598	19294	19771	59261
	1994	18776	-83492	30954	70538	14828	7961	59565
		NET INTERNAL MIGRATION						
Noord-Nederland	1984	-500	-2000	-480	245	105	-180	-2810
	1994	755	-2030	545	990	545	30	835
Oost-Nederland	1984	2380	110	2310	1535	1595	365	8295
	1994	2490	-1810	2840	1320	900	-150	5590
West-Nederland	1984	-2365	5705	2260	-2000	-2110	-285	-3315
	1994	-4045	6515	-4845	-2490	-1495	-140	-6500
Zuid-Nederland	1984	685	-4000	525	310	305	320	-1855
	1994	751	-2804	1194	386	225	71	-177
NEDERLAND	1984	200	-185	95	90	-105	220	315
	1994	-49	-129	-266	206	175	-189	-252
		OTHER CHANGES						
Noord-Nederland	1984	-10953	4841	6698	885	1155	1950	4936
	1994	280	-5338	2679	6442	1401	1107	6571
Oost-Nederland	1984	-17473	8862	12124	3005	3782	3691	13991
	1994	3589	-10646	7842	15003	3909	2410	22107
West-Nederland	1984	-30315	3678	30126	5684	7180	9738	26091
	1994	13351	-49305	17698	34409	2616	2036	20805
Zuid-Nederland	1984	-21568	7118	10990	5934	7282	4172	13928
	1994	1605	-18074	3001	14478	6727	2597	10334
NEDERLAND	1984	-79949	24499	59938	15508	19399	19551	58946
	1994	18825	-83363	31220	70332	14653	8150	59817

Source: Computed from population and migration statistics supplied by Statistics Netherlands.
Notes:
1. Other changes = Population Change - Net internal Migration = "Natural Change" + CPR Balance (see text) + Net External Migration
2. Net internal migration for NEDERLAND differs from 0 because the Centraal Persoonsregister has not been included.

Table 12: Net internal migration rates and rates of population change by age, Netherlands, Landsdelen, 1984 and 1994

Landsdelen (NUTS 1 regions)	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
		NET INTERNAL MIGRATION RATES (PER 1000 POPULATION)						
Noord-Nederland	1984	-1.5	-5.0	-1.4	1.0	0.5	-2.0	-1.8
	1994	2.6	-5.6	1.5	3.4	2.7	0.3	0.5
Oost-Nederland	1984	3.8	0.1	3.7	3.5	4.9	2.7	2.9
	1994	4.0	-2.5	3.8	2.4	2.4	-0.9	1.8
West-Nederland	1984	-1.8	3.3	-1.5	-1.9	-2.6	-0.8	-0.5
	1994	-3.1	4.1	-2.8	-2.0	-1.7	-0.3	-0.9
Zuid-Nederland	1984	1.1	-4.8	0.7	0.6	0.9	2.6	-0.6
	1994	1.2	-3.8	1.5	0.6	0.5	0.5	-0.1
NEDERLAND	1984	0.1	-0.1	0.0	0.0	-0.1	0.3	0.0
	1994	-0.0	-0.0	-0.1	0.1	0.1	-0.2	-0.0
		POPULATION CHANGE RATES (PER 1000 POPULATION)						
Noord-Nederland	1984	-33.4	7.1	18.6	4.8	6.5	19.9	1.3
	1994	3.5	-20.4	8.8	25.5	9.5	11.3	4.6
Oost-Nederland	1984	-24.1	12.0	22.9	10.3	16.6	30.1	7.7
	1994	9.9	-17.5	14.4	29.4	12.7	13.8	8.8
West-Nederland	1984	-25.4	5.5	18.5	3.5	6.2	25.6	3.4
	1994	7.1	-26.7	7.4	25.0	1.3	4.4	2.0
Zuid-Nederland	1984	-32.5	3.7	15.8	11.9	22.5	36.9	3.8
	1994	3.8	-28.5	5.1	23.0	16.6	16.9	3.0
NEDERLAND	1984	-27.6	6.6	18.7	7.0	11.5	27.7	4.1
	1994	6.6	-24.5	8.5	25.5	8.0	9.3	3.9

Source: computed from population and migration statistics supplied by Statistics Netherlands.
Notes: Net internal migrations for NEDERLAND differs from 0 because the Centraal Persoonregister has not been included.

4.2.2 Patterns for Provinces

The broad country division picture is refined when we examine the net migration pattern for provinces in Table 13. Within each *Landsdeel* we find provinces that gain and provinces that lose through internal migration. In the North, Groningen and Friesland lose internal migrants while Drenthe gains (see Figure 1 for the location of provinces). In the East, Overijssel is a net loser while Gelderland and Flevoland are net gainers. The very high rates for Flevoland reflect that it is still being "settled", mainly by commuting settlements linked to Groot Amsterdam. This settlement process is still going on, but because the total population of Flevoland is steadily growing, the rates decline between 1984 and 1994. In the West, Utrecht province gains through net migration while Noord-Holland, Zuid-Holland and Zeeland experience net out-migration of internal migrants. In the South Noord-Brabant is a gaining province in 1994 (with very minor losses in 1984) while Limburg experiences net out-migration.

However, again this overall average situation can be a misleading guide to behaviour at the different life stages. At ages 15-29, the gaining provinces are a different set: Groningen in the North, Utrecht, Noord-Holland and Zuid-Holland in the West. These are the provinces containing the principal universities and technical colleges of the Netherlands. These core provinces all lose net migrants in the other age groups. The opposite pattern is characteristic of non-core provinces such as Friesland or Noord-Brabant which lose migrants in the young adult ages but gain them in the other age groups in 1994. This pattern of contrasting migration behaviour between the young adult ages and the others becomes a little more pronounced in 1994. Provincial migration patterns thus reflect the growing importance of higher education in the lives of young Dutch people and this is reflected in a propensity to leave their province of origin. When they marry or live together with a partner another set of aspirations - for environments suitable for family living or new career jobs- become important and they leave the province of higher education.

Table 13: Net internal migration rates by age, Netherlands, Provinces (NUTS 2 regions), 1984 and 1994

Province (NUTS-2 regions) (% of 1994 pop.)	Year	Age Groups 0-14	15-29	30-34	45-59	60-74	75+	Total
		NET INTERNAL MIGRATION RATE (PER 1000 POPULATION)						
NOORD-NEDERLAND								
Groningen	1984	-4.4	1.6	-7.1	-2.6	-1.9	-5.8	-2.9
(3.6%)	1994	-1.0	3.7	-4.9	-0.5	-0.7	-1.7	-0.7
Friesland	1984	-2.7	-10.2	-1.0	1.9	0.1	-1.0	-3.1
(4.0%)	1994	1.1	-10.3	1.6	4.1	2.1	0.8	-0.6
Drenthe	1984	3.7	-7.0	5.2	4.4	4.3	2.1	1.5
(2.9%)	1994	8.6	-12.7	9.0	6.9	7.1	2.3	3.5
OOST-NEDERLAND								
Overijssel	1984	0.3	-4.9	-0.3	1.4	0.9	-2.8	-1.1
(6.8%)	1994	1.5	-6.1	0.3	0.5	1.7	-1.0	-0.8
Gelderland	1984	2.3	-1.8	1.4	1.5	3.5	3.9	1.1
(12.1%)	1994	3.2	-4.9	2.6	1.4	0.9	-0.7	0.4
Flevoland	1984	33.0	50.4	44.8	49.1	55.7	67.0	44.8
(1.7%)	1994	16.7	31.2	23.3	20.4	19.5	-2.6	21.8
WEST-NEDERLAND								
Utrecht	1984	0.8	7.4	1.2	0.1	2.5	4.4	2.9
(6.9%)	1994	-2.7	9.0	-1.7	-2.7	-0.7	6.0	0.9
Noord-Holland	1984	-3.2	5.0	-3.1	-4.0	-5.4	-1.9	-1.4
(16.0%)	1994	-4.2	6.3	-3.1	-2.3	-2.9	-2.6	-1.0
Zuid-Holland	1984	-1.4	2.0	-1.0	-1.5	-2.1	-1.2	-0.6
(21.6%)	1994	-3.1	2.5	-3.4	-2.4	-1.7	-0.5	-1.5
Zeeland	1984	-4.2	-8.3	-2.5	2.9	-0.2	-1.5	-3.0
(2.4%)	1994	1.8	-13.0	2.4	6.1	2.5	0.2	-0.4
ZUID-NEDERLAND								
Noord-Brabant	1984	1.3	-3.5	0.9	0.8	1.2	3.0	-0.1
(14.7%)	1994	1.5	-2.3	2.1	0.4	1.1	1.3	0.5
Limburg	1984	0.5	-7.2	0.3	0.2	0.4	1.9	-1.5
(7.3%)	1994	0.6	-7.2	0.1	1.1	-0.4	-1.1	-1.2

Source: Computed from population and migration statistics supplied by Statistics Netherlands.
Note: The 1984 rates for the province of Flevoland are for the municipalities which subsequently became the new province on 1.1.1987.

4.2.3 Patterns for COROP regions

Table 14 drops down a scale to that of official functional region, the *COROP regio,* where the performance of individual urban and rural economies and even individual enterprises and plants can have an important influence on migration. For example, the net migration position of region 36, Zuidoost-Noord-Brabant, with the city of Eindhoven at its centre, is critically dependent on the fortunes of the Philips Electrical Company. The moderate levels of in-migration, except at ages 15-29, reflect the moderate performance of Philips in the world market for electrical goods.

Negative net migration figures in both 1984 and 1994 pick out the poor performing regions: all three parts of Groningen, except the university sector of its principal city; the two remoter parts of Friesland; the Twente region of Overijssel; the Agglomeratie Haarlem and Het Gooi en Vechtstreek in Noord-Holland; Agglomeratie 's-Gravenhage (could government have become a downsizing industry?); the Zuidoost-Zuid-Holland region centred on Dordrecht; Midden-Noord-Brabant containing Tilburg; and all parts of Limburg where the legacy of the former coal mining industry is still to be grown out of.

Positive net migration figures in both 1984 and 1994 select the more dynamic regions of the Netherlands: all three parts of Drenthe; the Arnhem/Nijmegen region in Gelderland; Utrecht; Alkmaar in Noord-Holland; Delft en Westland with its famous technical university (Delft) and greenhouse horticulture (Westland); West-Noord-Brabant centred on Breda; Zuidoost-Noord-Brabant centred on Eindhoven; and growth star of all COROP regions, Flevoland. Flevoland achieved the remarkable distinction of being designated an Objective 1 (less developed region) in the 1994-1996/1999 round and thus eligibility for structural funds from the European Union (European Commission 1994, p.127). That such a region of high in-migration and low unemployment could be placed in the same category as Eastern Germany, the Mezzogiorno, Merseyside, Galicia and such problem regions is surely a testimony to the political skills of Dutch government ministers in persuading the European Commission to use regional GDP per capita as the key indicator on which a decision was made, in the knowledge that the indicator bore scant relationship to the per capita *incomes* of residents in Flevoland (most of which is earned in neighbouring provinces).

Table 14: Net internal migration rates, Netherlands, COROP regions, 1984 and 1994

N	COROP Region	0-14		15-29		30-44		45-59		60-74		75+		Total	
	(NUTS 3 region)	1984	1994	1984	1994	1984	1994	1984	1994	1984	1994	1984	1994	1984	1994
	GRONINGEN														
1	Oost-Groningen	2.4	4.9	-11.7	-15.3	-2.3	4.3	1.2	3.9	0.0	2.3	-4.7	2.3	-2.8	-0.0
2	Delfzijl en omgeving	-8.2	-0.5	-23.3	-19.7	-4.5	-3.7	-10.6	-5.2	-0.7	-0.7	3.1	4.2	-10.0	-5.8
3	Overig Groningen	-6.8	-3.7	10.0	12.5	-9.7	-9.0	-3.1	-1.9	-3.0	-2.2	-7.7	-4.6	-1.7	-0.1
	FRIESLAND														
4	Noord-Friesland	-2.6	-1.7	-8.3	-8.5	-2.7	-1.3	-0.8	2.9	-1.3	0.9	-4.7	-1.5	-3.8	-2.0
5	Zuidwest-Friesland	-2.3	2.0	-11.9	-13.9	-1.0	3.8	5.1	3.4	-4.0	0.4	5.5	1.6	-3.1	-1.0
6	Zuidoost-Friesland	-2.9	5.2	-12.8	-11.6	1.8	5.3	4.5	6.5	4.7	4.6	1.8	4.1	-2.0	1.8
	DRENTHE														
7	Noord-Drenthe	5.6	9.5	-5.7	-19.1	8.4	12.9	5.2	5.1	5.4	2.3	4.3	1.5	3.4	2.6
8	Zuidoost-Drenthe	3.8	9.9	-6.2	-9.1	3.5	4.0	3.5	6.8	-0.8	7.2	-5.3	-4.3	0.2	2.9
9	Zuidwest-Drenthe	1.5	6.2	-9.4	-9.9	3.4	9.9	4.4	9.2	8.6	12.2	6.5	9.3	0.9	5.3
	OVERIJSSEL														
10	Noord-Overijssel	1.4	2.9	-5.5	-1.0	1.3	0.4	2.4	1.9	1.3	1.5	-3.3	-1.7	-0.5	0.9
11	Zuidwest-Overijssel	0.2	-3.3	3.4	-12.4	-1.4	-3.5	1.3	-2.0	1.7	2.7	-3.6	3.7	0.9	-4.0
12	Twente	-0.4	1.7	-6.5	-7.6	-1.0	1.2	1.0	0.2	0.5	1.6	-2.3	-1.8	-1.8	-1.0
	GELDERLAND														
13	Veluwe	3.1	0.2	-5.4	-12.2	2.6	0.7	3.2	1.3	6.5	1.4	2.6	-0.3	1.2	-2.2
14	Achterhoek	1.6	9.1	-10.6	-10.4	1.3	7.4	1.2	3.2	3.4	1.3	5.7	-1.6	-1.1	1.9
15	Arnhem/Nijmegen	2.2	0.5	6.6	3.6	0.4	-1.5	0.8	-0.2	1.4	0.7	4.4	-0.8	2.8	0.6
16	Zuidwest-Gelderland	1.2	9.9	-4.3	-2.4	1.9	13.2	-0.9	3.4	1.5	-0.4	2.4	0.0	-0.2	5.2
	UTRECHT														
17	Utrecht	0.8	-2.7	7.4	9.0	1.2	-1.7	0.1	-2.7	2.5	-0.7	4.4	6.0	2.9	0.9
	NOORD-HOLLAND														
18	Kop van Noord-Holland	-1.9	5.9	-8.5	-12.3	-3.4	6.9	1.8	1.8	4.1	3.6	6.1	6.6	-2.6	1.1
19	Alkmaar en omgeving	1.4	3.5	0.9	-6.4	3.1	4.2	3.7	-1.2	9.1	1.6	10.3	6.5	3.1	0.5
20	IJmond	0.7	5.8	-18.2	-2.3	0.5	5.0	-3.3	1.6	-4.5	1.4	0.7	1.1	-5.5	2.3
21	Agglomeratie Haarlem	-6.2	-11.8	-10.3	-6.3	-5.4	-7.0	-4.5	-4.3	-4.5	-7.0	2.4	-6.2	-5.8	-7.0
22	Zaanstreek	-5.2	-0.8	-6.1	0.2	-5.6	2.5	-3.6	-1.1	0.0	-1.4	7.5	8.5	-4.1	0.6
23	Groot-Amsterdam	-7.0	-9.9	21.7	22.3	-6.6	-8.7	-7.2	-3.2	-11.5	-5.2	-9.5	-6.8	-0.1	-0.3
24	Het Gooi en Vechtstreek	4.9	-5.9	-13.5	-17.7	9.2	-0.2	-3.8	-6.6	-2.6	-4.3	5.2	-4.9	-1.0	-6.7
	ZUID-HOLLAND														
25	Agglomeratie Leiden en Bollenstreek	3.6	-3.2	8.1	-2.0	3.8	-3.3	0.6	-1.8	1.6	-0.7	4.7	6.3	4.3	-1.9
26	Agglomeratie 's-Gravenhage	-4.7	-7.2	-3.3	5.9	-3.2	-8.4	-3.0	-3.2	-6.6	-3.9	-7.6	-4.4	-4.3	-3.4
27	Delft en Westland	-2.1	-0.4	6.2	10.7	-5.9	-1.8	-2.8	-3.0	2.6	-3.9	24.5	3.7	1.0	1.4
28	Oost-Zuid-Holland	1.0	-2.3	1.2	-6.3	2.4	0.8	-0.5	-2.2	1.6	-0.3	2.3	4.4	1.3	-1.9
29	Groot-Rijnmond	-1.4	-2.1	4.7	3.8	-0.6	-3.1	-1.2	-2.2	-2.3	-1.5	-2.4	-1.4	0.1	-0.9
30	Zuidoost-Zuid-Holland	-2.9	-1.5	-6.1	-1.6	-3.0	0.2	-1.2	-2.1	2.1	1.1	0.9	1.6	-2.7	-0.8
	ZEELAND														
31	Zeeuwsch-Vlaanderen	-1.2	2.3	-11.0	-16.1	-1.5	-1.3	-0.3	2.8	-0.7	0.3	-1.4	1.9	3.3	-2.4
32	Overig Zeeland	-5.4	1.6	-7.1	-11.8	-3.0	3.9	4.4	7.6	0.0	3.4	-1.6	-0.6	-2.9	0.5
	NOORD-BRABANT														
33	West-Noord-Brabant	3.3	2.3	-2.3	-0.3	2.1	3.3	1.1	2.6	0.8	2.4	4.4	1.7	1.0	2.0
34	Midden-Noord-Brabant	0.6	0.4	-4.6	-5.7	-0.7	0.3	-0.5	-0.6	-0.4	0.2	0.9	-0.7	-1.3	-1.3
35	Noordoost-Noord-Brabant	0.0	1.6	-5.6	-3.5	0.8	2.9	1.2	-1.2	2.5	0.0	5.7	3.8	-0.7	0.2
36	Zuidoost-Noord-Brabant	1.3	1.5	-2.1	-0.6	1.1	1.7	1.0	0.3	1.5	1.3	1.1	0.2	0.3	0.8
	LIMBURG														
37	Noord-Limburg	1.5	2.0	-7.1	-10.6	1.2	1.0	1.6	2.3	4.1	-0.6	7.9	-2.6	-0.4	-1.4
38	Midden-Limburg	0.1	-0.4	-12.1	-6.9	-1.6	0.9	-1.3	0.7	-3.0	-0.6	-4.0	-1.5	-4.2	-1.2
39	Zuid-Limburg	0.2	0.4	-5.7	-5.8	0.6	-0.5	0.2	0.7	0.1	-0.3	1.5	-0.4	-1.2	-1.2
	FLEVOLAND														
40	Flevoland	33.0	16.7	50.4	31.2	44.8	23.2	49.1	20.4	55.7	19.5	67.0	-2.6	44.8	21.8

4.3 Population change by municipality: the overall picture

We now turn to the patterns of population change at the smallest spatial scale for which data are easily available in the Netherlands. To present statistics for a set of 647 municipalities necessitates use of maps. Figure 5 reports population change rates for all ages in 1984, while Figure 6 shows population change rates in 1994. The population change rates are computed by dividing the difference between the January 1st population in one year and that in the next (1985, 1995) by the average population in the year. Figure 7 provides the municipality population change pattern between the selected years by subtracting the 1 January 1985 population from the 1 January 1994 population.

It is important to note that, as with most chloropleth (shaded) thematic maps, the figures give more prominence to rural areas with lower population densities. The map legends give information about the distribution of municipalities by shading class. All rates are expressed per thousand population. Some extreme values can be created because of use of the average rather than the initial population and possibly because of difficulties in matching municipalities in 1984 with their 1991 equivalents. Four classes are used on each map for the sake of clarity: (1) from the minimum value up to -5/1000, (2) from -5 up to 0/1000, (3) from 0 up to 5/1000, (4) from 5 up to the maximum value. In Figure 7 the class interval boundaries are multiplied by ten to reflect the longer time interval.

In each of the population change maps (Figures 5, 6 and 7), gaining municipalities are in the large majority. More extreme distributions occur in the single year maps than in the map for the nine year period 1985-94. The maps show a variegated pattern of population change in any region (as we saw when considering the COROP patterns) which sees large city municipalities showing loss, the commuter rings around them showing gains while remoter and peripheral municipalities exhibit both losses and gains. Some systematic change in population growth over time can be identified in particular localities. For example, the Flevoland municipalities show declines in relative (although not absolute) growth over time. The municipalities of Kop van Noord-Holland show systematic increases over time.

Figures 8 and 9 plot the rates due to natural increase and net external migration combined computed by subtracting net internal migration from population change. The pattern is a generally uniform positive one with only a few areas of natural decrease (Zandvoort on the North Sea, some municipalities in central Drenthe and municipalities in Zeeuwsch-Vlaanderen in the South West). Amsterdam moves from weak growth to weak decline, comparing 1984 and 1994, whereas Rotterdam moves from strong decline to weak growth. However, these changes (particularly the strong decline for Rotterdam 1984) are somewhat distorted by boundary changes which may not have been fully accounted for in our conversion of all data to a 1991 geographic base. In addition, the component “administrative corrections” distorts the picture profoundly. In 1994, no doubt as a result of the introduction of the GBA (see section 3.1) which forced a clean-up of the municipal registers, Amsterdam lost a record of 9080 inhabitants via administrative corrections, almost as much as the total number of international immigrants in that year. In both Amsterdam and Rotterdam net immigration from abroad compensates for net internal migration losses. In 1994 Amsterdam loses 1389 internal migrants while gaining 6576 external migrants; in the same year Rotterdam loses 3147 internal migrants and gains 2764 external migrants. Both municipalities experienced natural gains in 1994 of 2027 and 747 respectively.

Figure 5: Population change rates, Netherlands municipalities, 1984, all ages

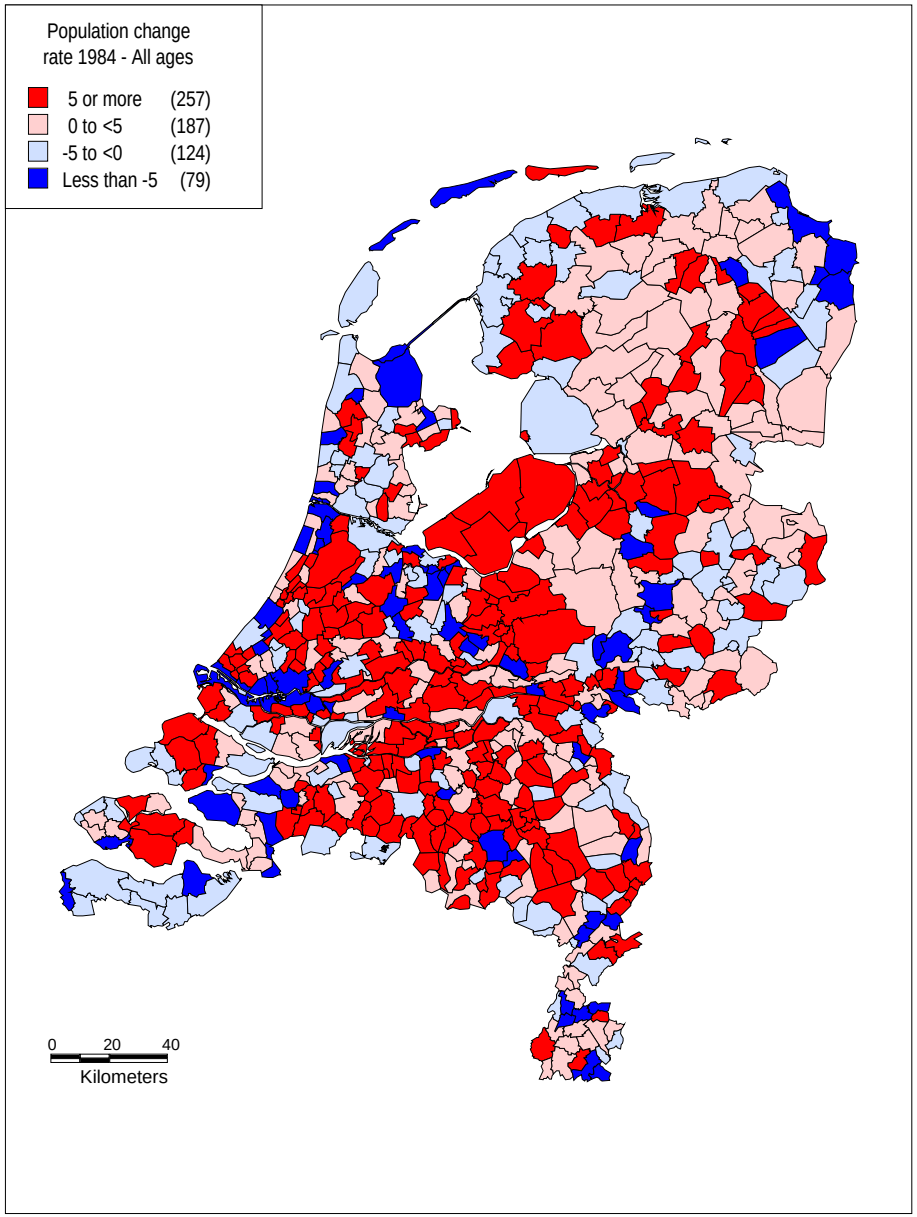


Figure 6: Population change rates, Netherlands municipalities, 1994, all ages

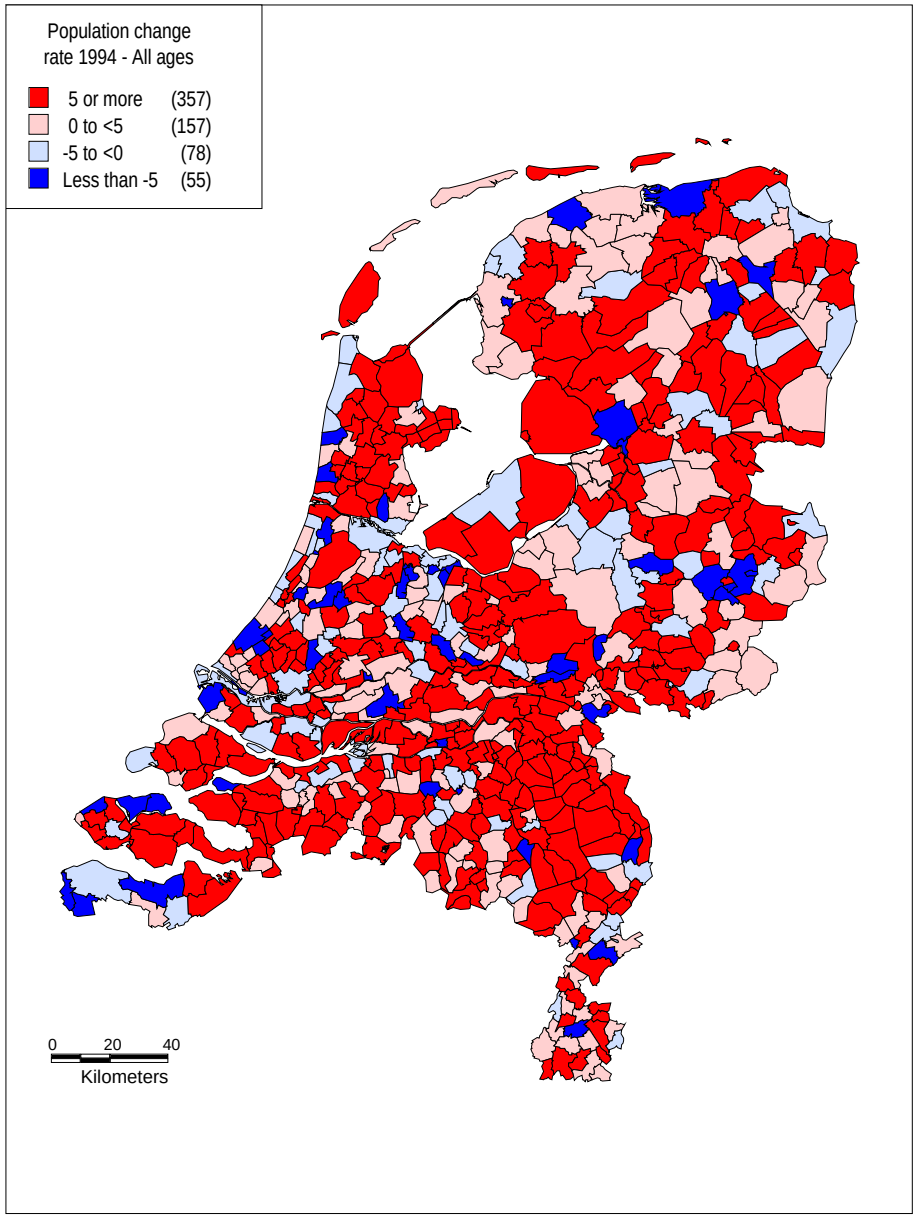


Figure 7: Population change rates, Netherlands municipalities, 1985-94, all ages

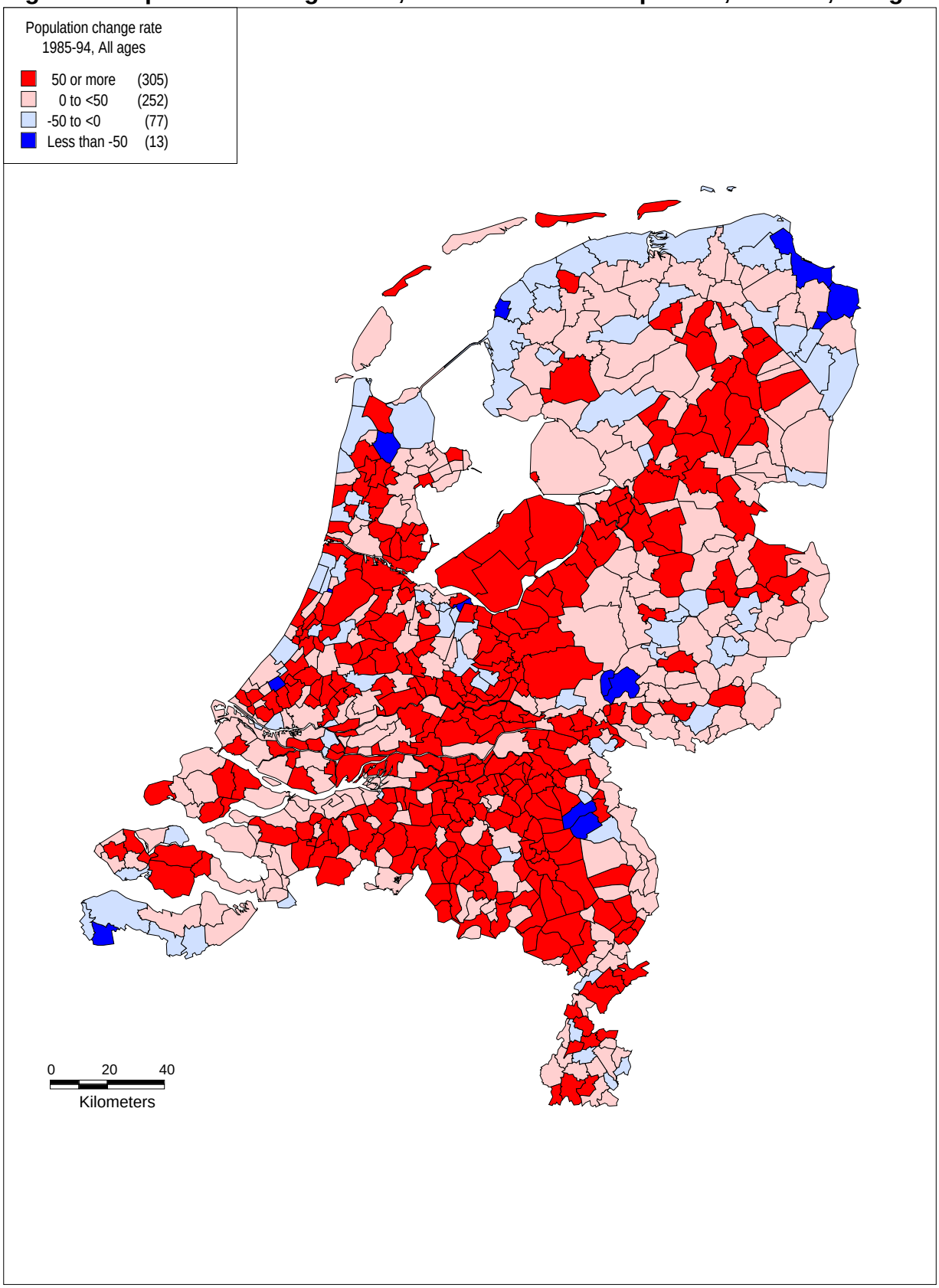


Figure 8: Naural change and net external migration rates, Netherlands municipalities, 1984, all ages

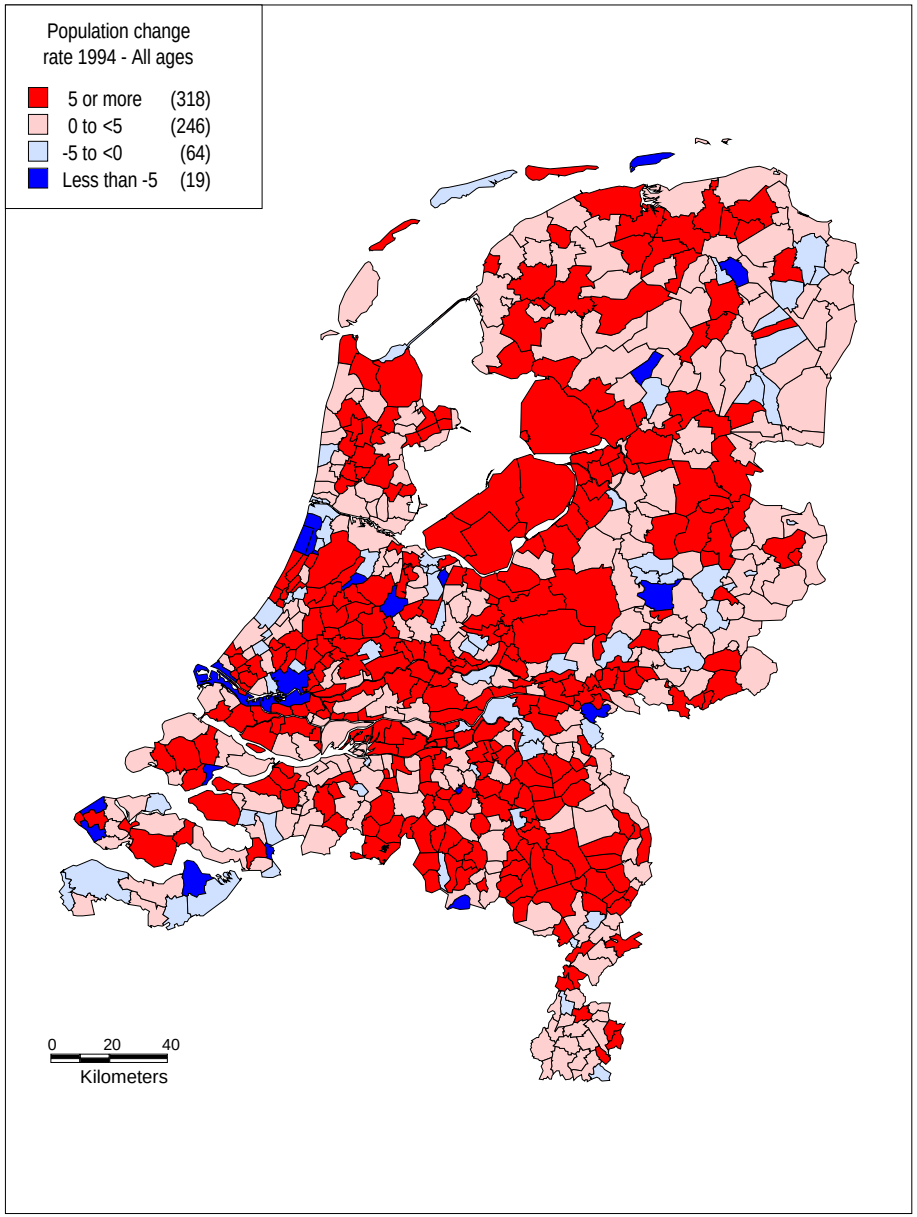
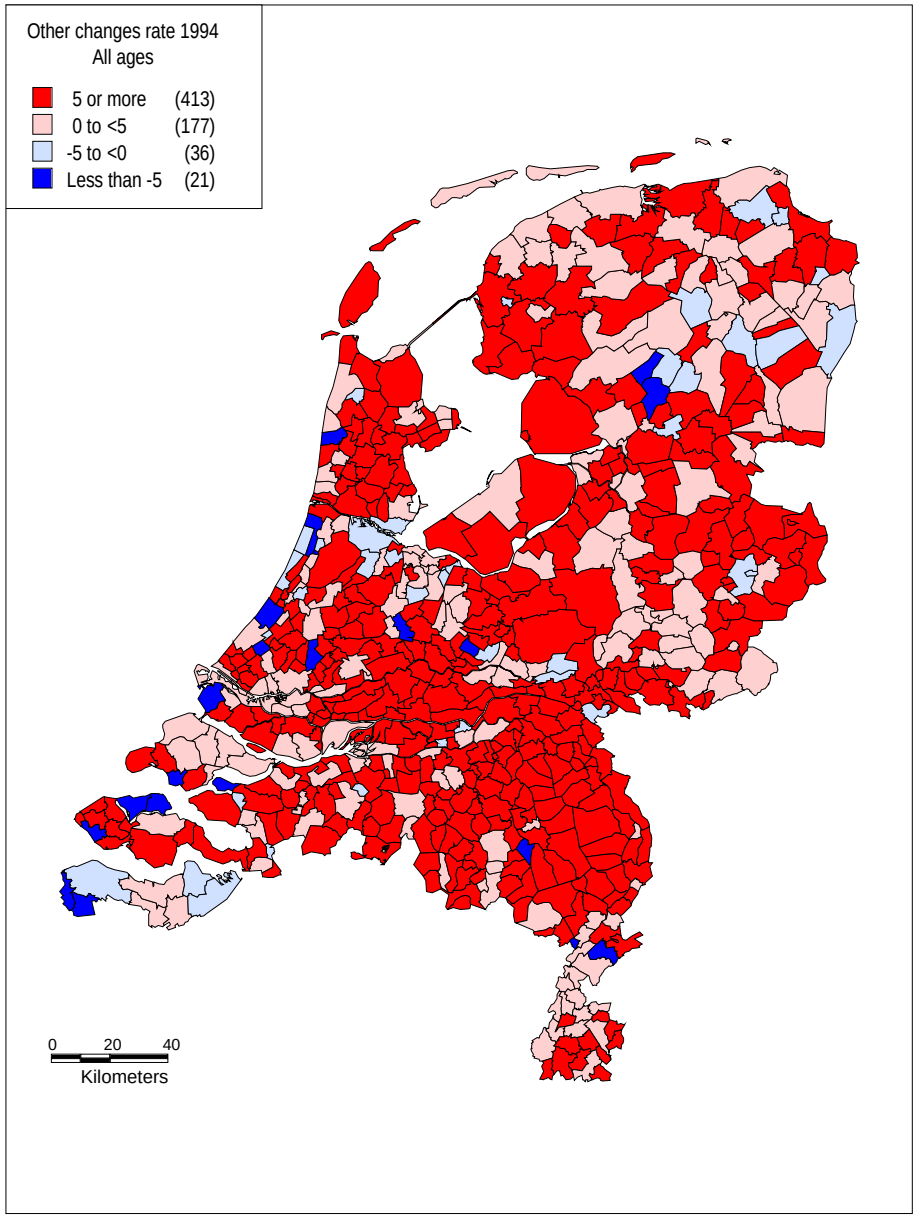


Figure 9: Natural change and net external migration rates, Netherlands municipalities, 1994, all ages



4.4 Net internal migration for municipalities: general patterns

The maps of overall net migration rates are displayed in Figures 10 and 11 for 1984 and 1994 respectively. Because the variable being plotted is net *internal* migration, there is an even distribution of municipalities around a mean of zero, because an internal out-migrant from one area is an internal in-migrant to another area. Internal migration is a zero sum game (except where there is a residual "area" not accounted for such as the *Centraal Persoonsregister*). The patterns of gain and loss are varied and intricate; in some cases we have stability between the two years and in others much change. Consider, for example, the municipality of Amsterdam in North Holland and the neighbouring municipalities to the west and south. Amsterdam itself experiences small net migration losses in both 1984 and 1994 (its rate fell in the -5-<0/1000 class), though the volume represented was considerable (3-4000). Haarlem to the west experienced higher net losses in the two years. The municipalities in between these two cities, Haarlemmerliede experiences strong in-migration in 1984 and weak in-migration in 1994. Haarlemmermeer, just to the south, experiences high in-migration associated with many new developments on reclaimed polderland in 1984 but has slipped into net out-migration by 1994 (with growth perhaps affected by the growing noise pollution of Schiphol airport located in the north-east section of the municipality). Amstelveen, to the immediate south of Amsterdam, experiences net loss in 1984 and moderate net gain in 1994. These local factors are very important in explaining such patterns of development. Later in section 5 of the report we attempt to bring some order to the analysis of the intricate patterns of Figures 10 and 11 using different classifications of municipalities that attempt to capture the general dimensions of such local factors. However, before we do this work, the patterns of net migration characteristic of the different life course stages are examined. As was pointed out in the provincial analysis, the all age pattern often mixes very different patterns at the different stages to produce a melange that is sometimes difficult to interpret.

Figure 10: Net internal migration rates, Netherlands municipalities, 1984, all ages

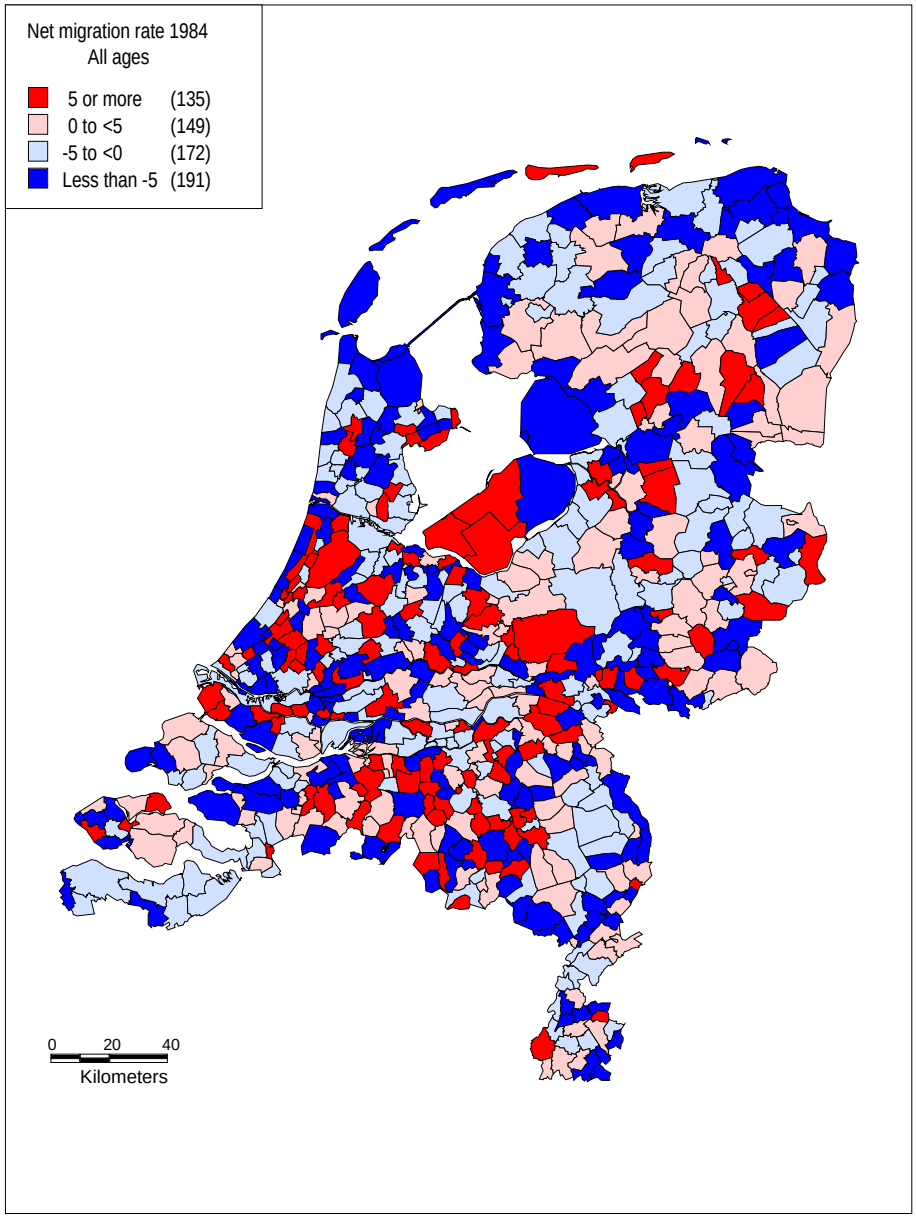
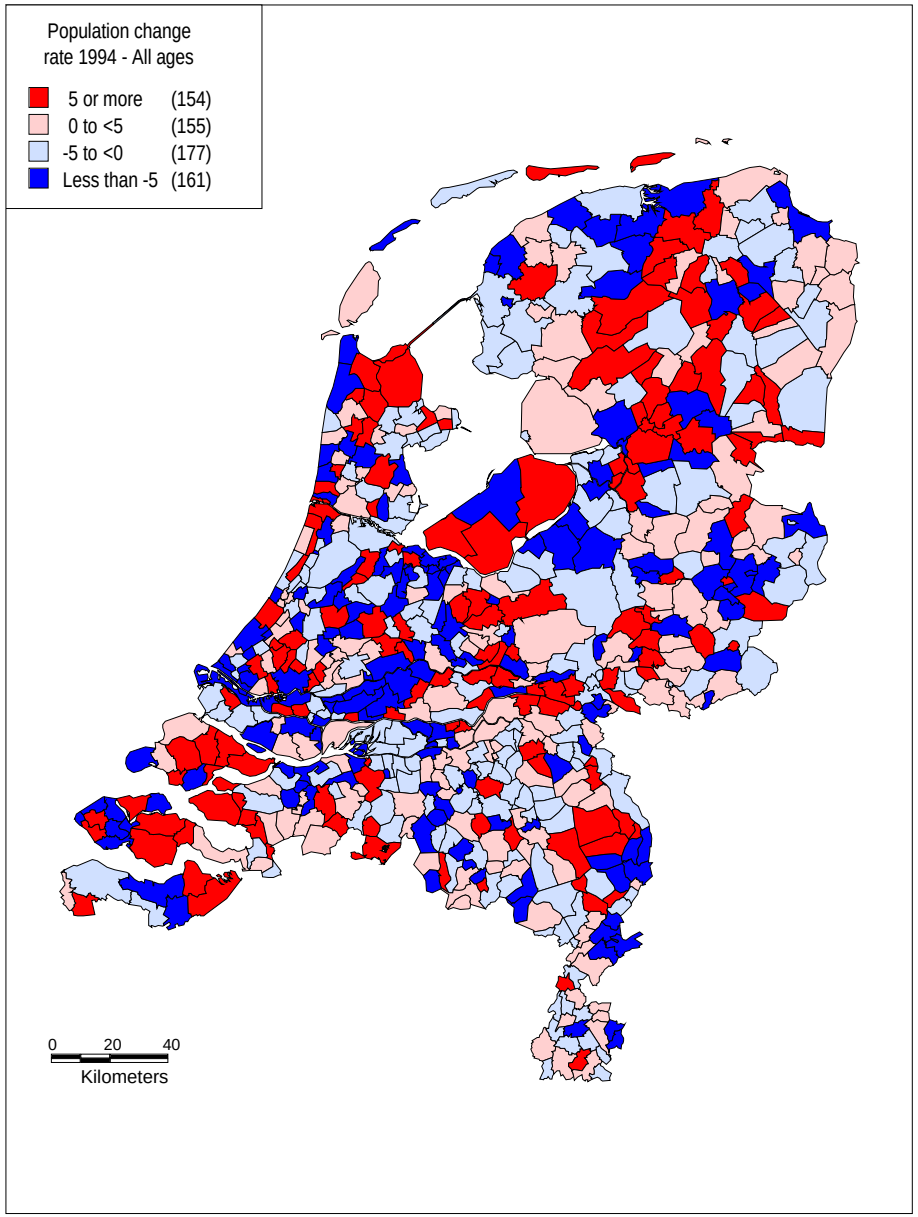


Figure 11: Net internal migration rates, Netherlands municipalities, 1994, all ages



4.5 Net internal migration for municipalities: life course patterns

The life course consists of a succession of stages in which a person's social, economic, family and household characteristics change as he/she ages. Transition between stages often triggers a migration event. Within each life course stage the principal migration motivations change and hence the spatial patterns of migration. People do not necessarily go through particular stages at the same time of life but there is a general association between age since birth and life course stage. Therefore, if we examine migration patterns for age groups that roughly correspond with life course stages, this will provide an insight into the forces affecting migration.

Six broad age groups are used in this study:
(1) the *childhood ages*, 0-14
(2) the *adolescent and young adult ages*, 15-29
(3) the *family ages*, 30-44
(4) the *older working ages*, 45-59
(5) the *retirement ages*, 60-74
(6) the *elderly ages*, 75 and over.

During childhood, migration activity is controlled by parental decisions and therefore we would expect patterns of childhood and family ages to be very similar and influenced by the desire for a safe and pleasant environment in which to bring up children. In the adolescent and young adult ages, many events trigger departure from the parental residence - entry into higher education, marriage or cohabitation, entry into first job. The older working ages are a stage of lessening migration activity because job careers are usually settled and the household is shrinking as children leave home. Around retirement couples may re-assess the desirability of their residential location once the necessity of a daily journey to work disappears. In the elderly ages migration is affected by the problems of ageing - declining health, loss of partners and shrinking incomes. The matching of stages in the life course with age is, of course, not exact and many people may not travel through the sequence in the standard fashion. Nevertheless an age classification is the most useful and operational means for examining the influence of the life course on internal migration.

4.5.1 The childhood ages

Figures 12 and 13 show the percentages of municipality populations aged 0 to 14 years in 1984 and 1994 respectively, using classes which contain roughly equal numbers of areas. As might be expected as a result of continued low fertility in the 1984-94 decade, the childhood ages decrease in importance. The spatial pattern remains stable with low values in the large Randstad municipalities and high values in the intervening, commuter municipalities. High percentages of children are found in more rural municipalities in Kop van Noord-Holland, western Friesland, Flevoland, Overijssel and in selected municipalities in Noord-Brabant. The percentages in the childhood ages are low in Drenthe, eastern Gelderland, Limburg and western Noord-Brabant.

The patterns of net internal migration at ages 0-14 are mapped in Figures 14 and 15. As might be reasonably expected, the maps for these ages are closely correlated with the family ages. The number of losing municipalities is much smaller than the numbers of gainers. This immediately implies, because losses overall must equate with gains, that these family migrants are leaving the larger (and more urban) municipalities for smaller (and more rural) ones. Losing municipalities are found throughout the Netherlands but figure prominently in the West. There are some differences in the 1994 maps compared with 1984. Gains in selected municipalities remote from the Randstad have risen and the numbers of gaining areas has risen. The process of population deconcentration over the national space has proceeded further by 1994.

4.5.2 The family ages

The percentages of municipality populations in the family ages are mapped in Figures 16 and 17. There was a slight upward shift between 1984 and 1994, reflecting the movement into and through these ages of baby boom parents. Municipalities in the western and south western Netherlands contain the majority of the upper quartile of the distribution in these age ranges. However, the family ages' map do not precisely parallel those of the childhood ages, particularly in the Northern Netherlands where lower than average shares of population in the family ages are matched with higher than average shares in the childhood ages.

The net migration maps for ages 30-44 shown in Figures 18 and 19 do resemble those of the 0-14 age group quite closely. A pattern of loss from the largest municipalities (Amsterdam, Rotterdam, the Hague, Groningen) stands out coupled with patterns of gains in urban hinterland municipalities throughout the Netherlands. Comparing the years 1984 and 1994 we see more municipalities in the gaining categories and fewer in the losing. This suggests that the urban deconcentration process has intensified and extended more widely over the decade.

Figure 12: Per cent population aged 0-14, 1984

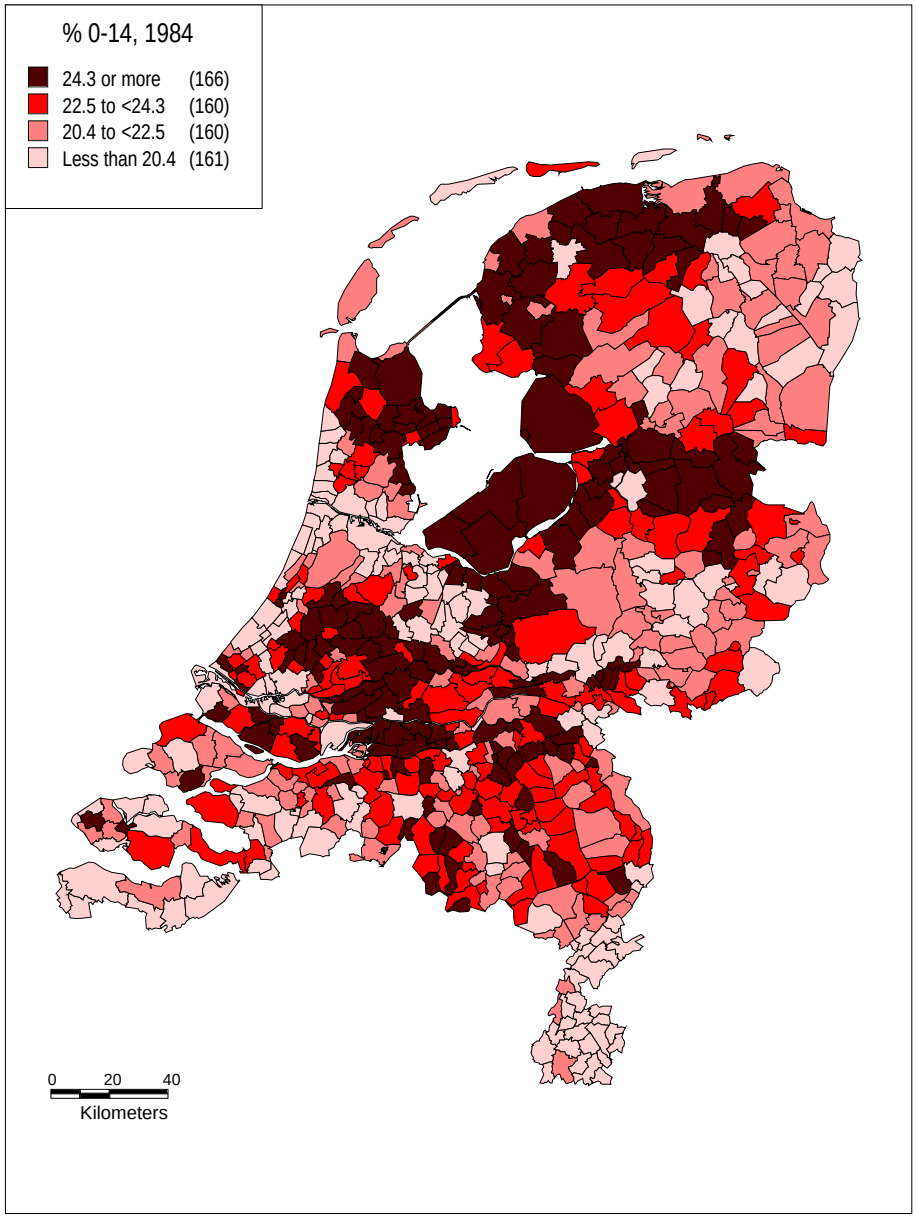


Figure 13: Per cent population aged 0-14, 1994

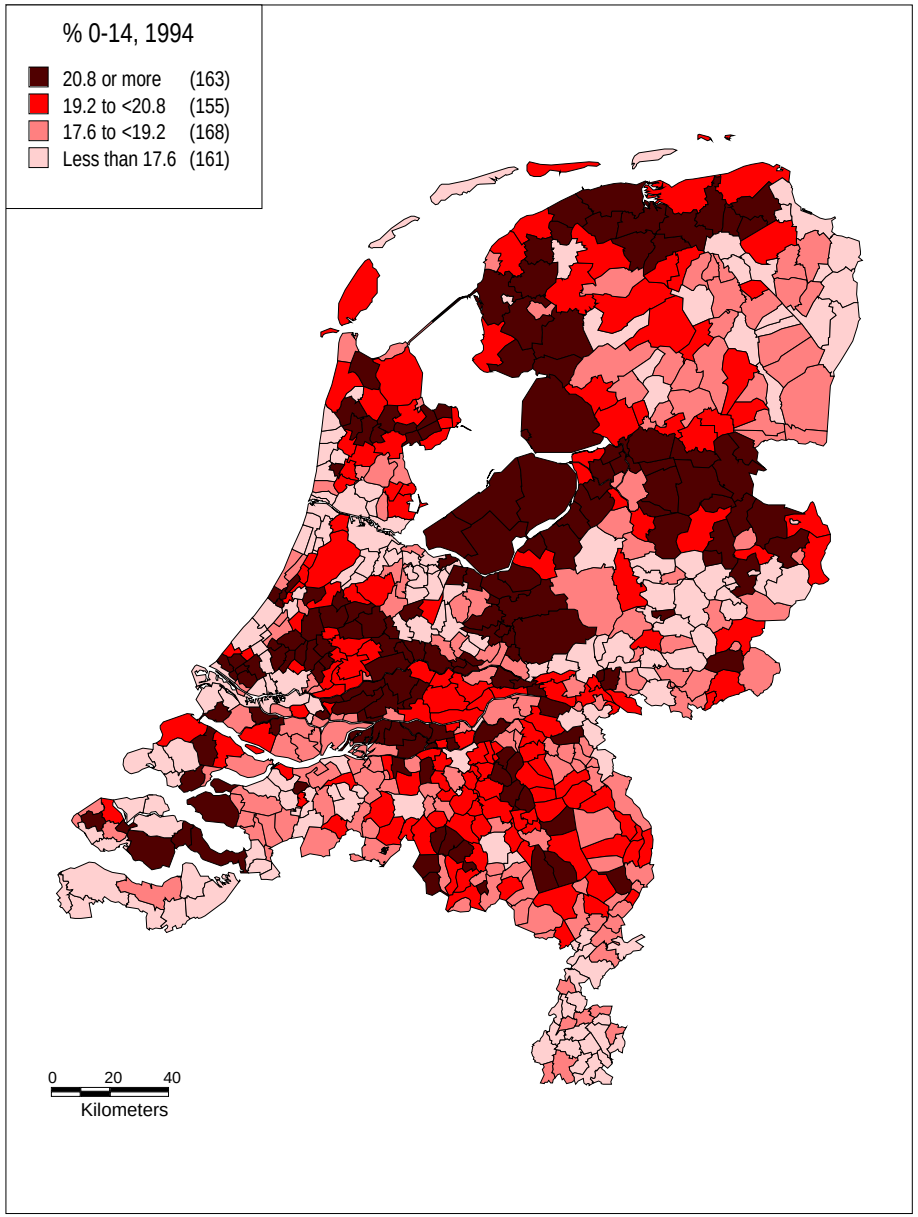


Figure 14: Net migration rates, Netherlands municipalities, 1984, ages 0-14

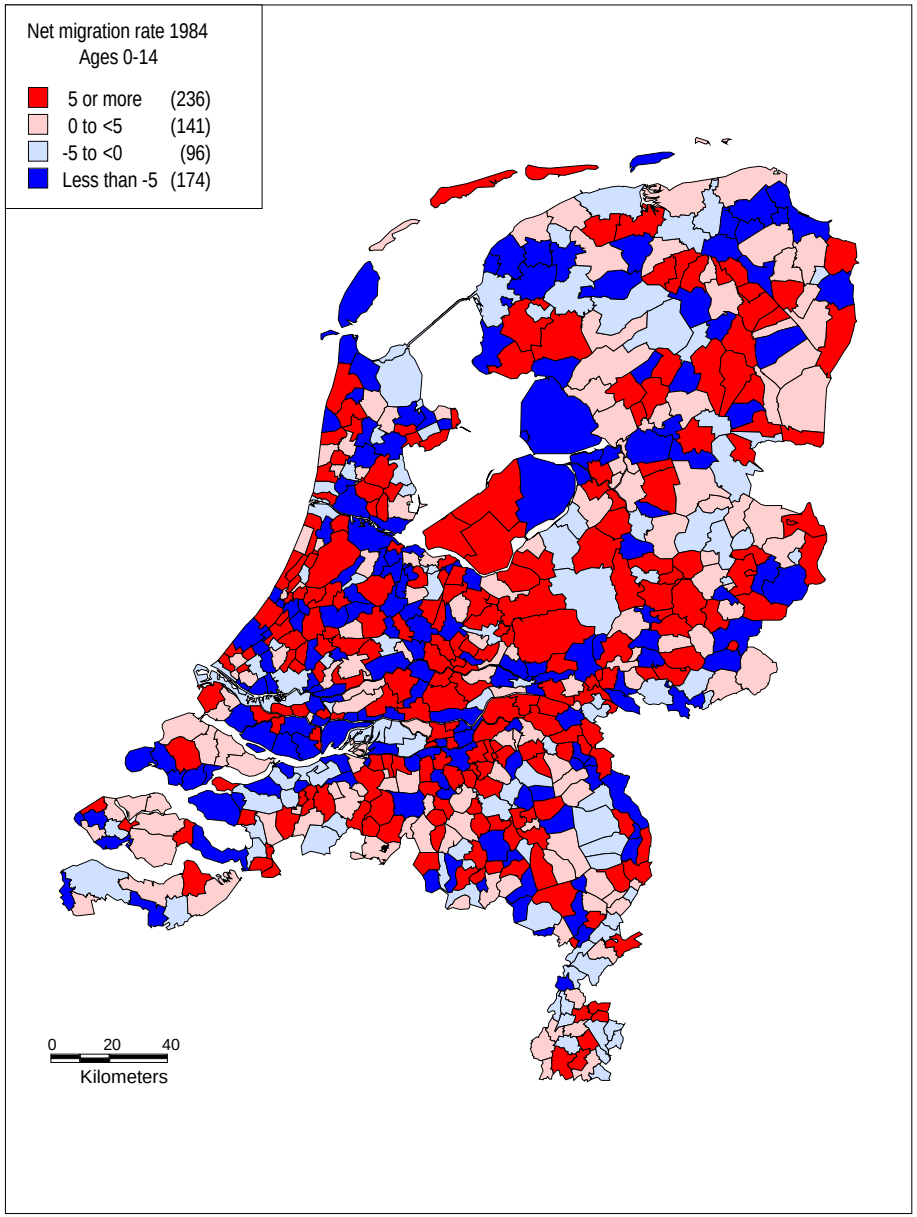


Figure 15: Net migration rates, Netherlands municipalities, 1994, ages 0-14

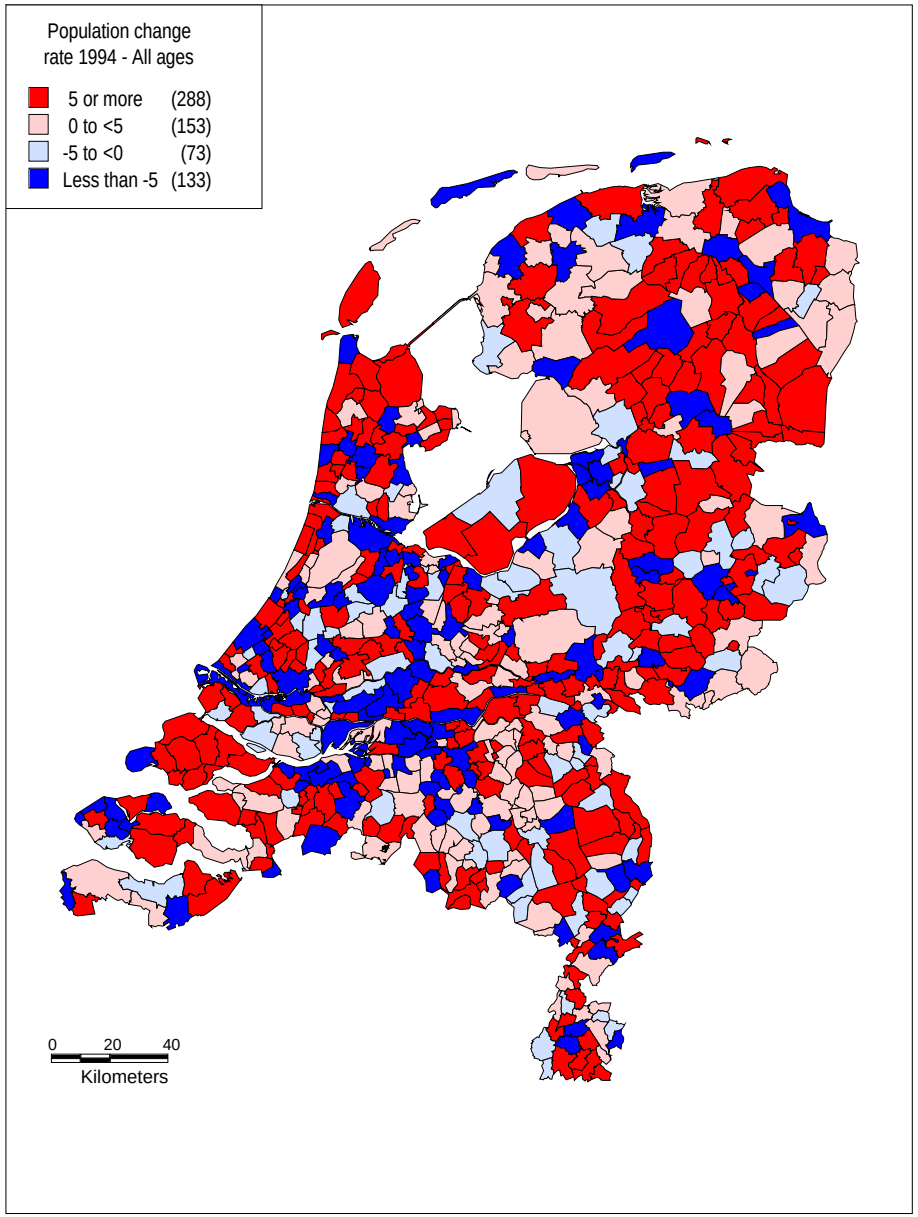


Figure 16: Per cent population aged 30-44, 1984

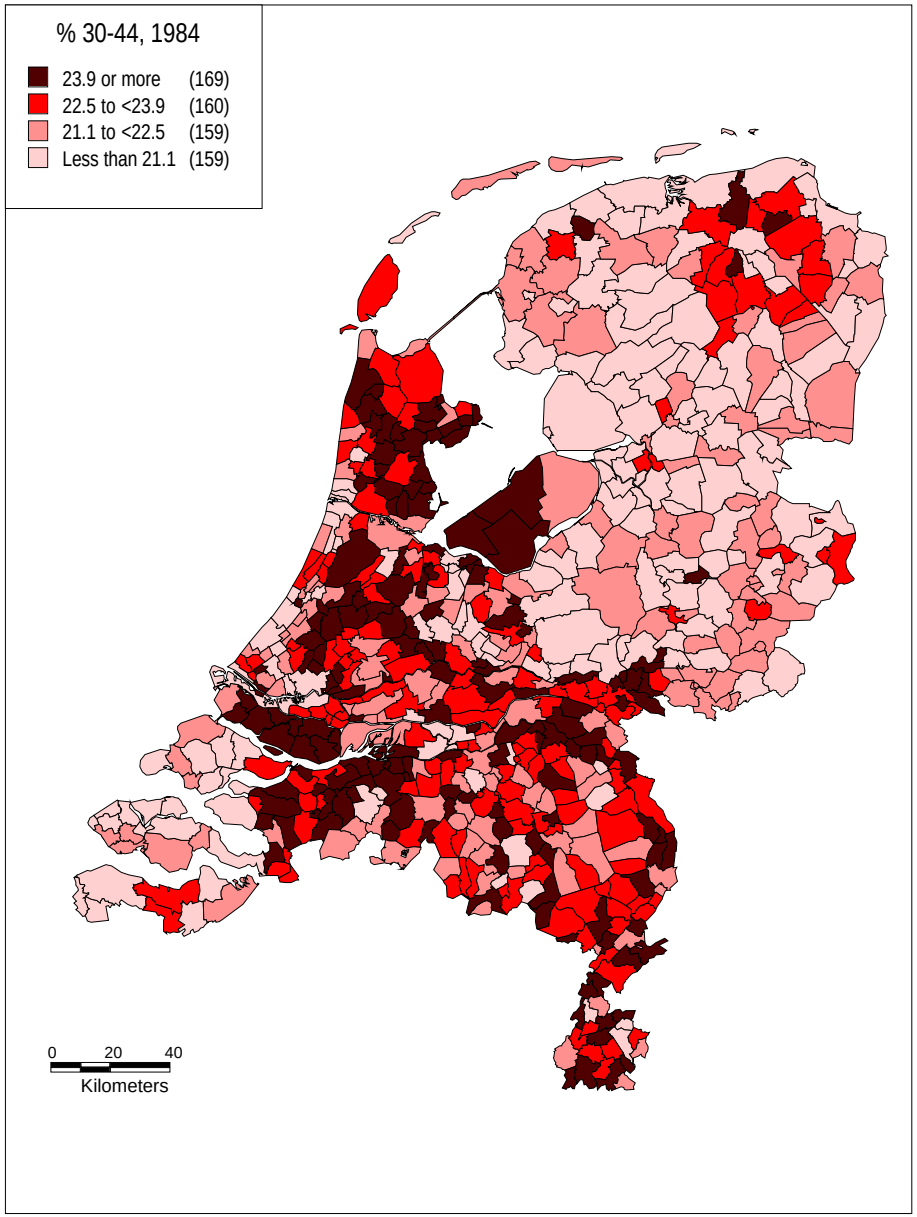


Figure 17: Per cent population aged 30-44, 1994

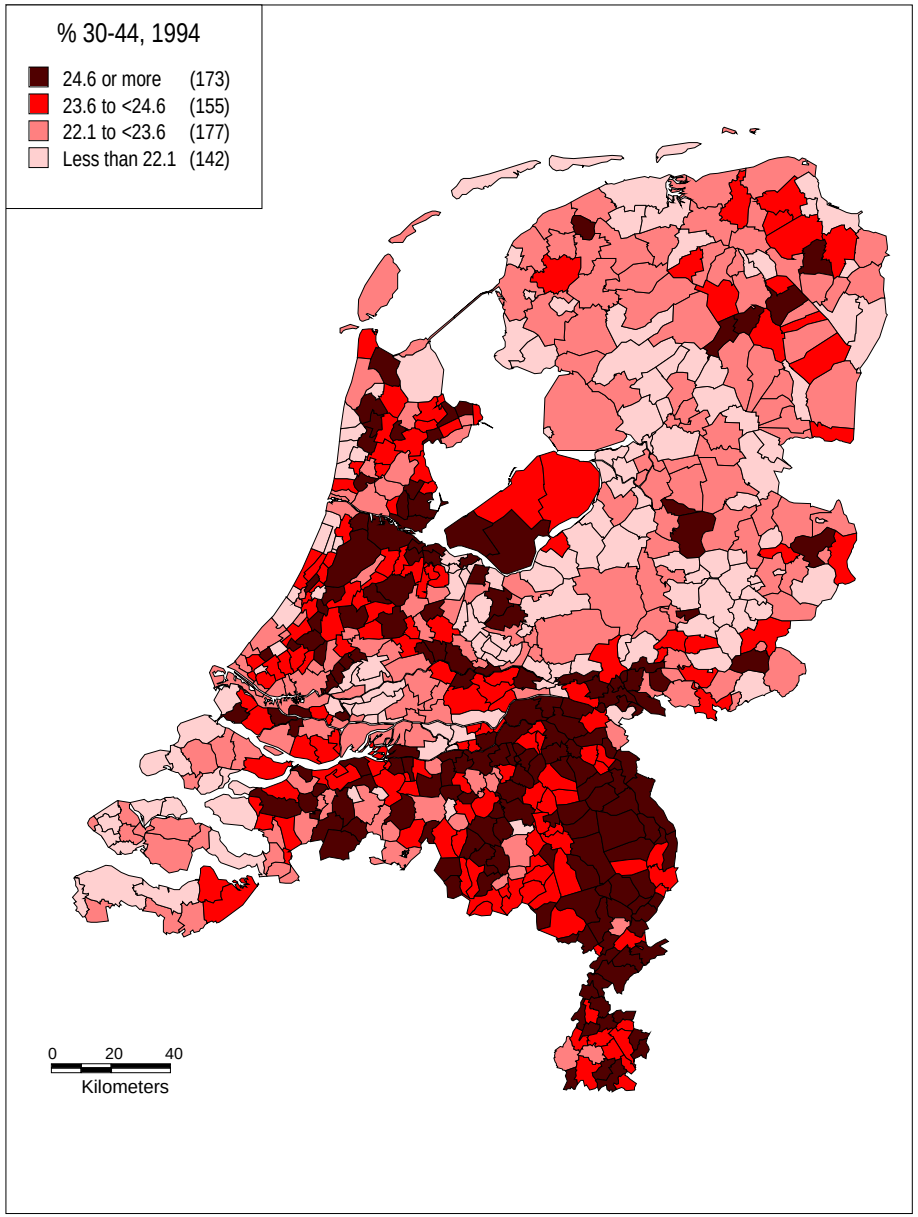


Figure 18: Net internal migration rates, Netherlands municipalities, 1984, ages 30-44

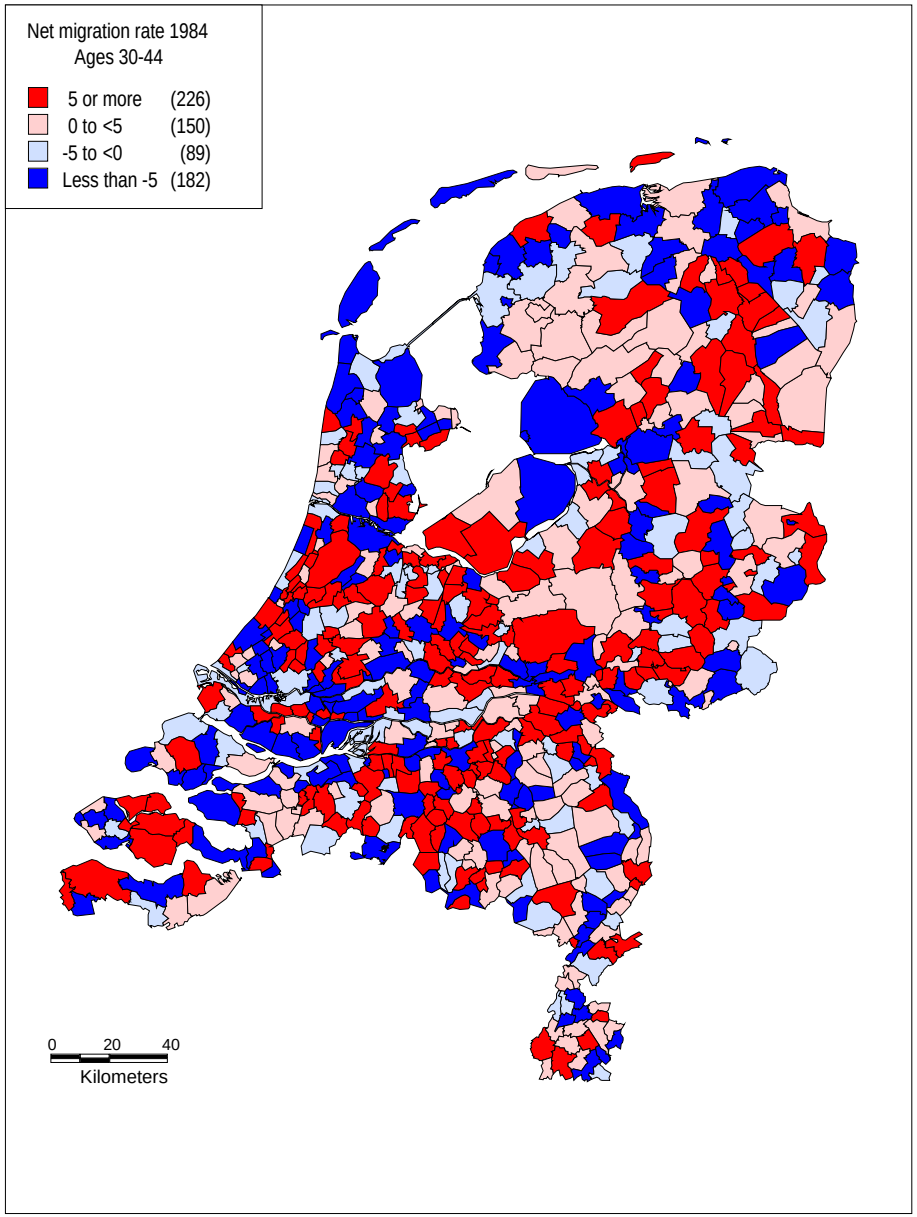
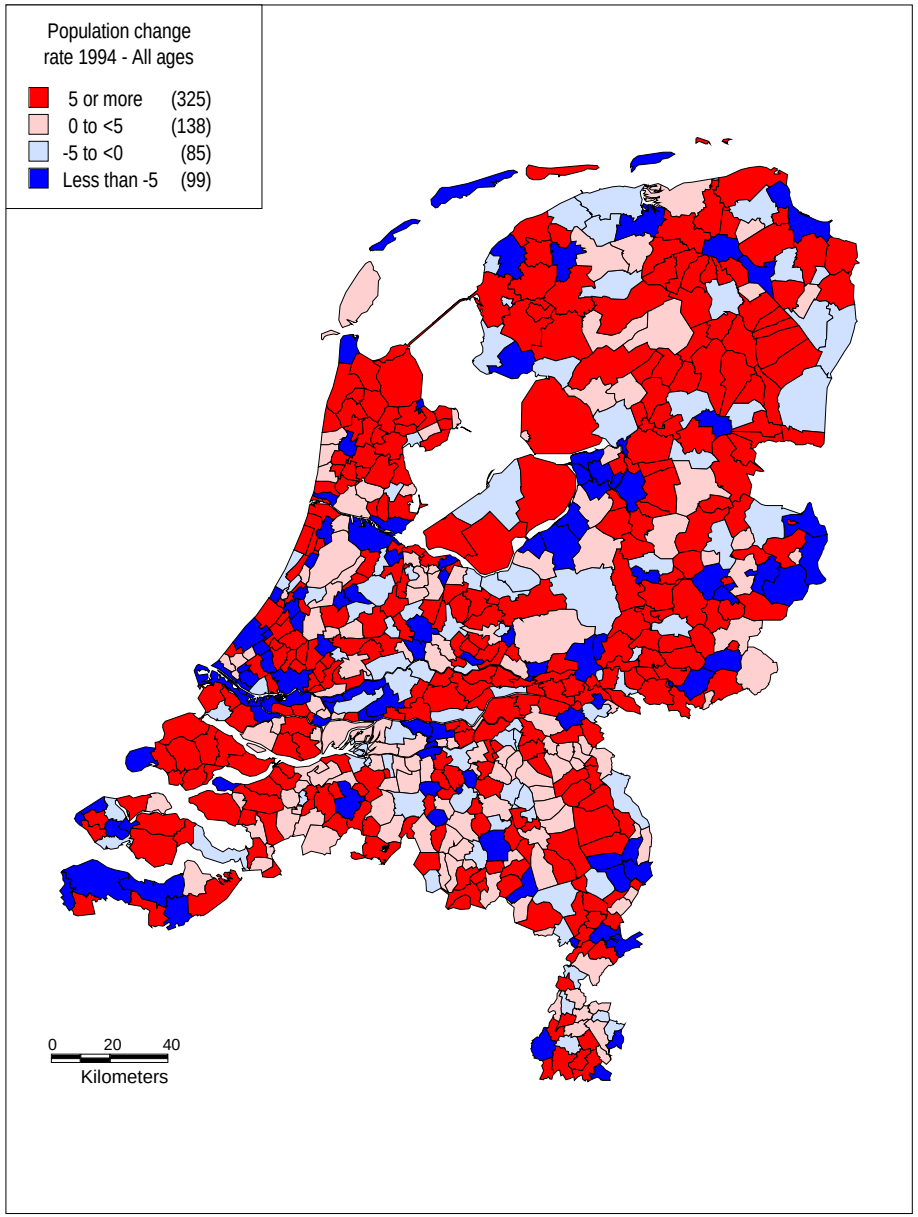


Figure 19: Net internal migration rates, Netherlands municipalities, 1994, ages 30-44



4.5.3 The older working ages

Figures 20 and 21 show the quartiles of the concentration of municipal populations in the later working ages. The 1984-94 decade shows a growing share of these ages. The areas of highest concentration lie in belts outside the major urban areas, particularly on the margins of the Netherlands.

Figures 22 and 23 show that the pattern of movement from a smaller number of larger places to a larger number of smaller places is characteristic of this age group but regional preferences seem to be stronger, particularly in 1994. The 1994 map (Figure 23) shows most municipalities in the West Netherlands core to be losing older working age migrants and that gains are widespread in the northern, eastern and south western parts of the country.

4.5.4 The retirement ages

Figures 24 and 25 show where the retirement age group is over- and under-represented. North Sea coast municipalities, inland municipalities in Northern and Eastern Netherlands and in the province of Limburg feature concentrations. The inland West Netherlands, Noord-Brabant and Overijssel have lower than average proportions in these ages.

Figures 26 and 27 show a more balanced picture of numbers of gaining and losing municipalities, with municipalities in the interstices between cities being favoured in the central part of the country. On the whole, retirement migration seems to be directed towards pleasant countryside regions (Drenthe, Gelderland and parts of Zeeland).

4.5.5 The elderly ages

The proportions of the population aged 75 or more, shown in Figures 28 and 29, are, of course, smaller than the proportions in the younger age groups, as a result of mortality. Northern Netherlands, Gelderland, Zeeland and the urban municipalities of Western Netherlands have more than 6 per cent in these ages. Other municipalities in the Western Netherlands, Noord-Brabant and Limburg have lower than average concentrations of the elderly.

The pattern of net internal migration of the elderly, mapped in Figures 30 and 31, is one of extremes (much more than for the retirement ages) with concentrations of municipalities in both the highest gaining and highest losing categories. Earlier research (Fokkema and Van Wissen 1994) has shown that elderly migration in the Netherlands is highly correlated with the availability of care facilities, particularly nursing homes. These facilities can be found all over the country, but concentrated in some municipalities but absent in others. This goes some way to explaining the variegated patterns of extreme highs and lows in these maps.

Figure 20: per cent population aged 45-59, 1984

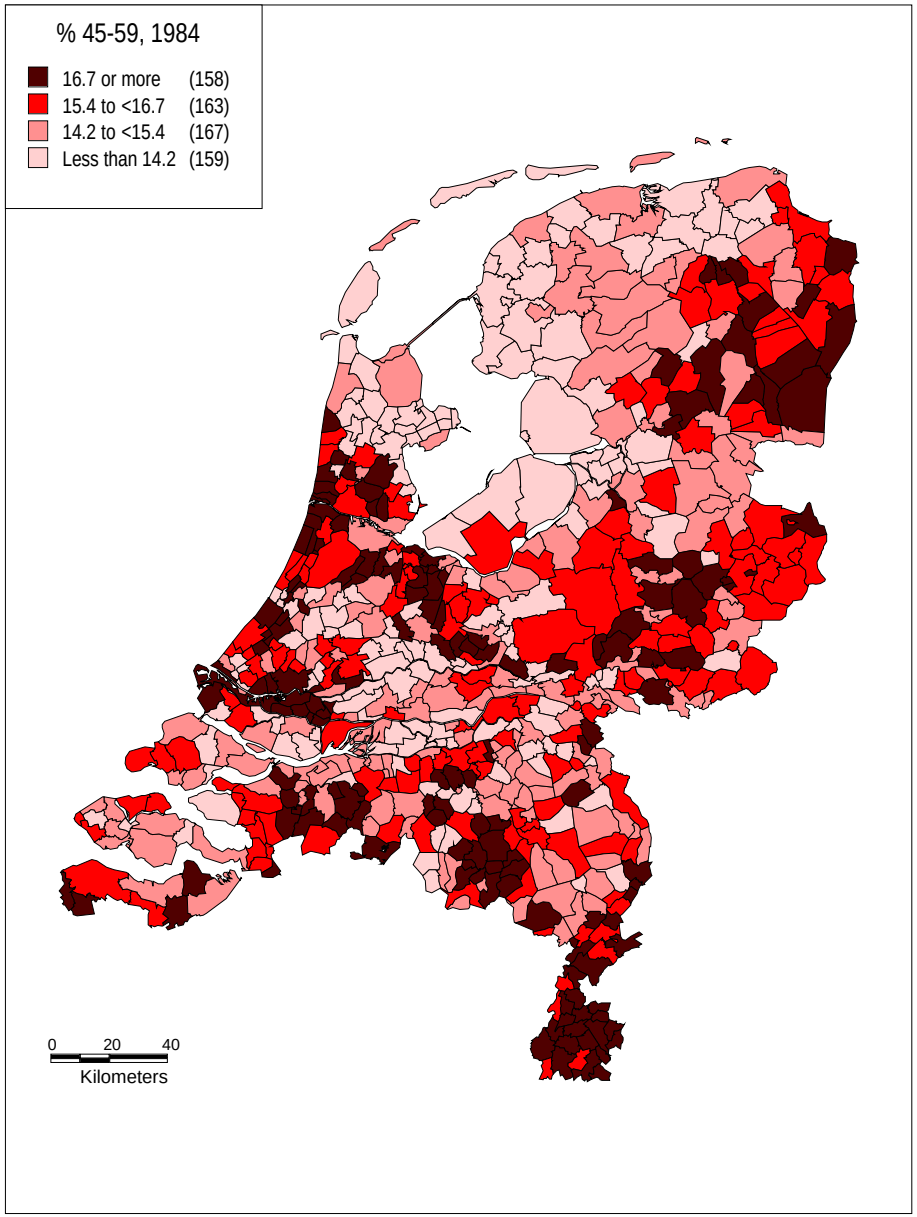


Figure 21: Per cent population aged 45-59, 1994

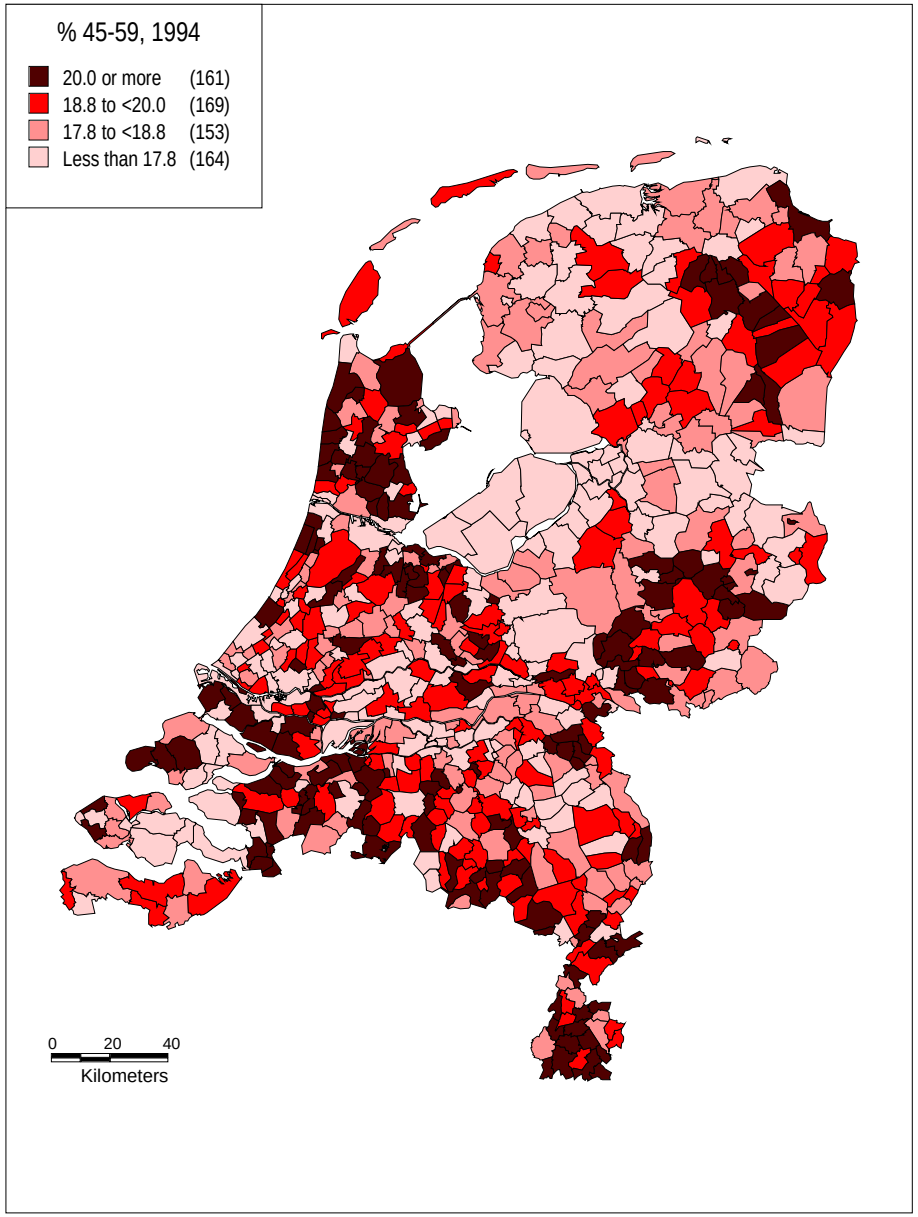


Figure 22: Net internal migration rates, Netherlands municipalities, 1984, ages 45-59

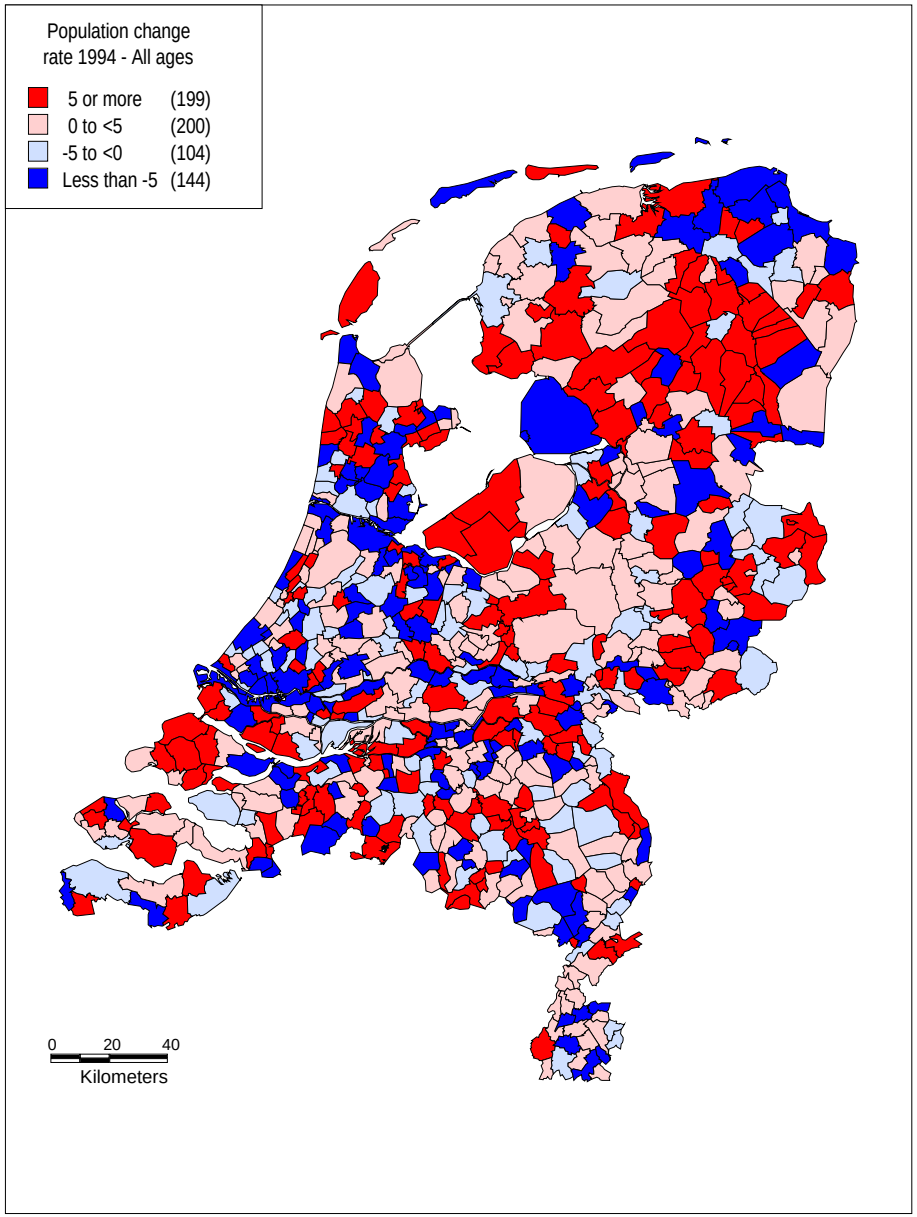


Figure 23: Net internal migration rates, Netherlands municipalities, 1994, ages 45-59

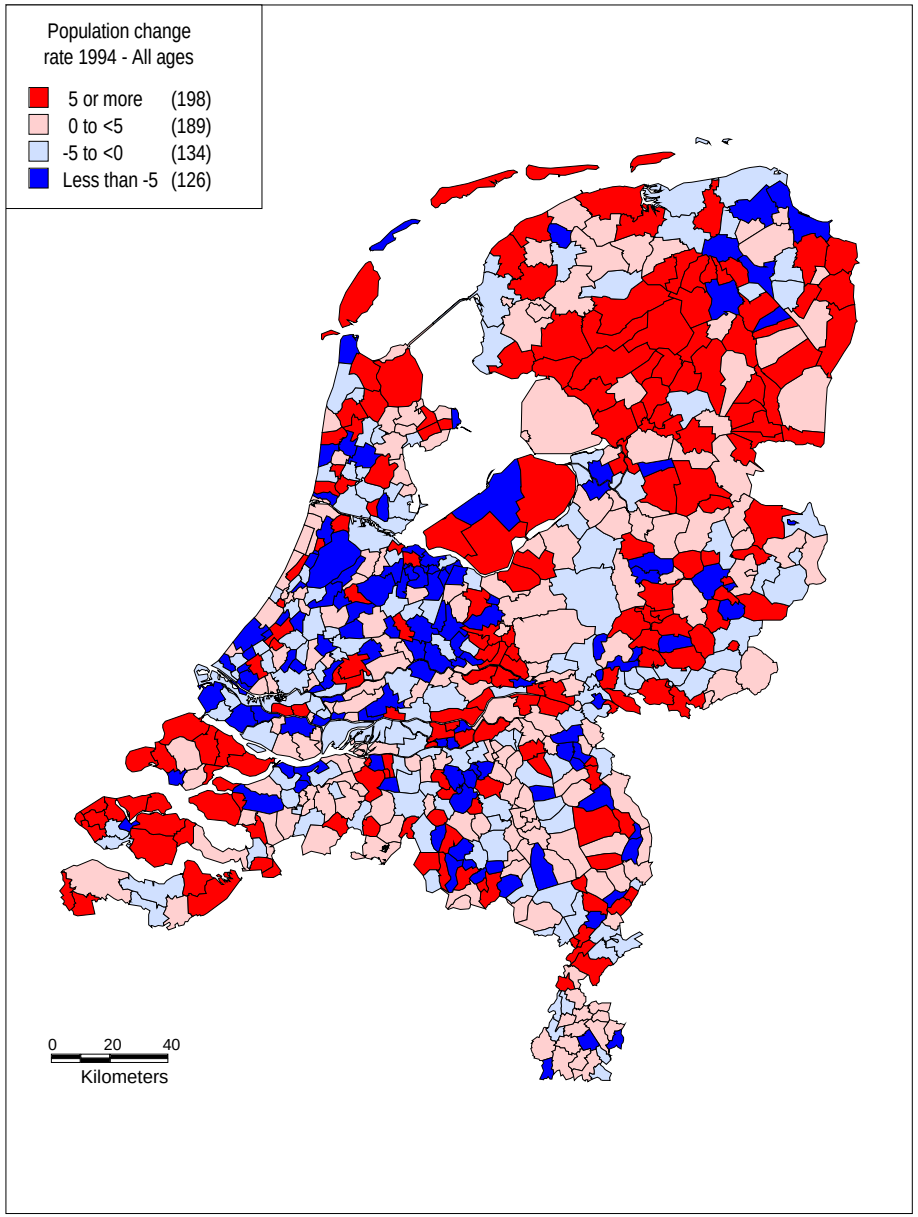


Figure 24: Per cent population aged 60-74, 1984

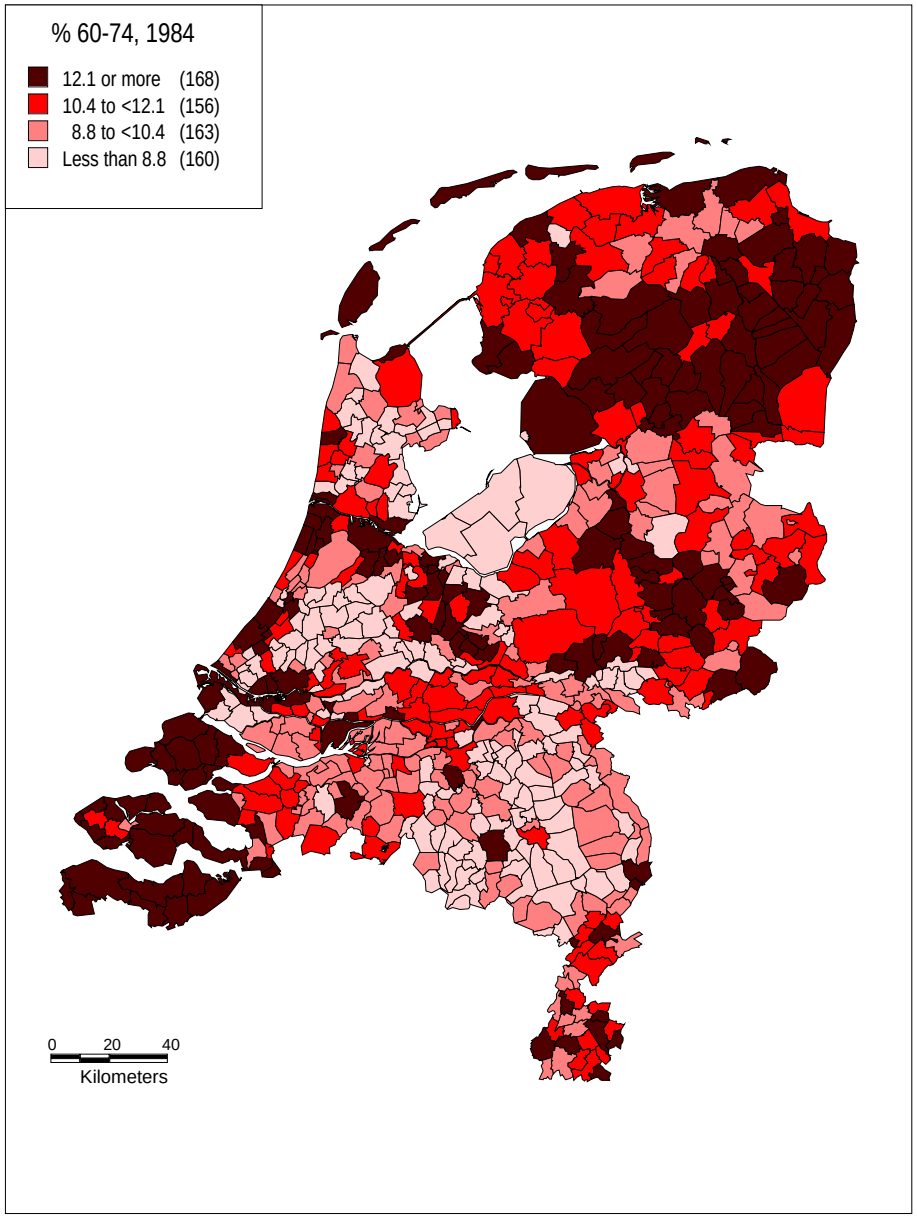


Figure 25: Per cent population aged 60-74, 1994

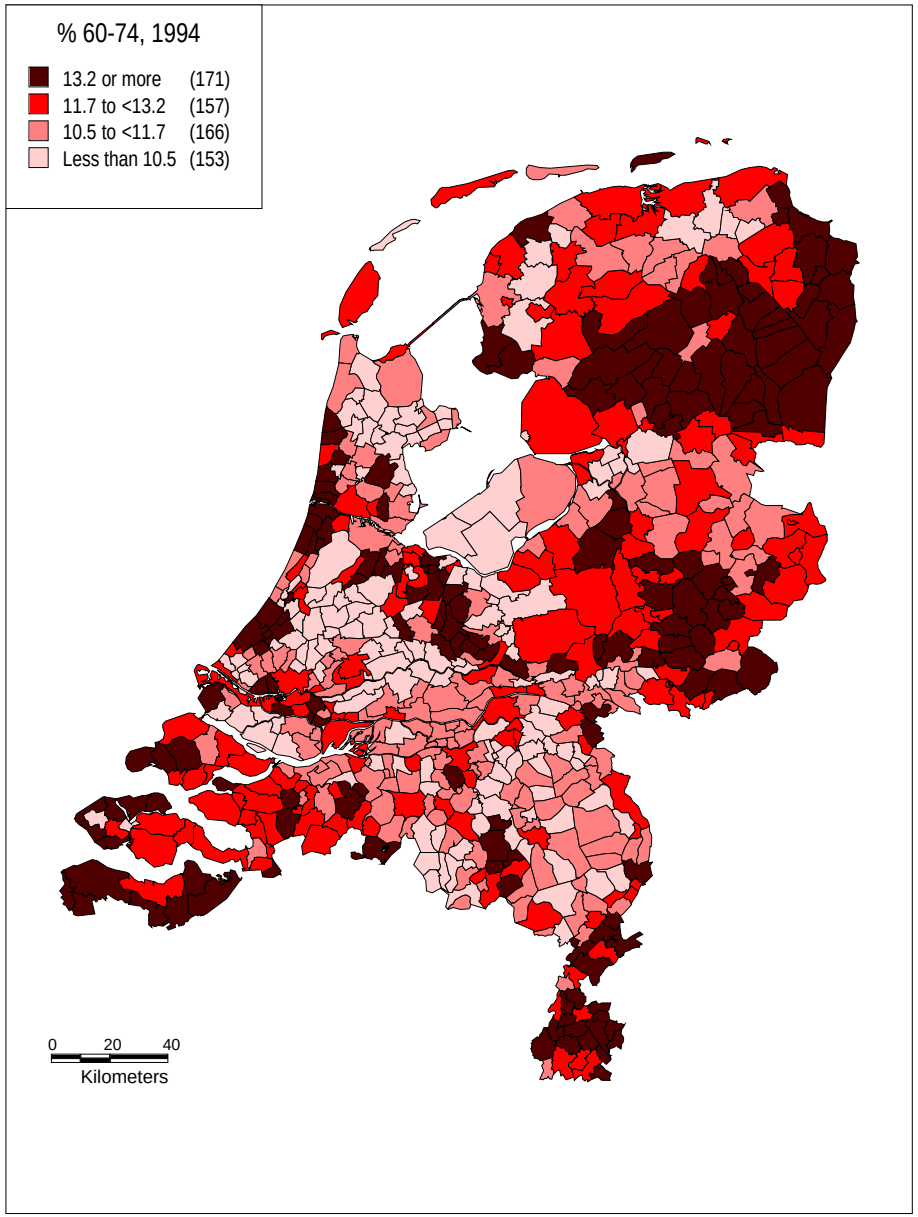


Figure 26: Net internal migration rates, Netherlands municipalities, 1984, ages 60-74

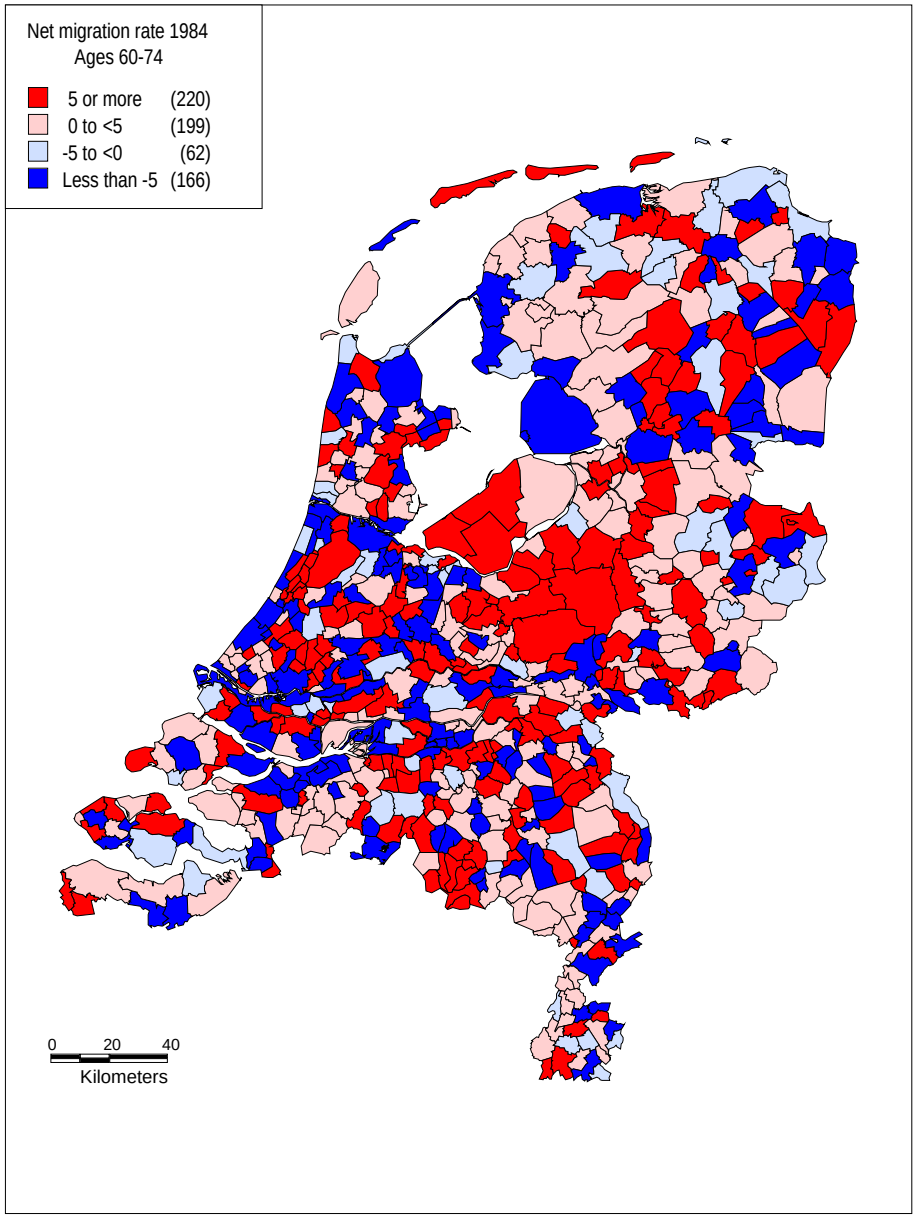


Figure 27: Net internal migration rates, Netherlands municipalities, 1994, ages 60-74

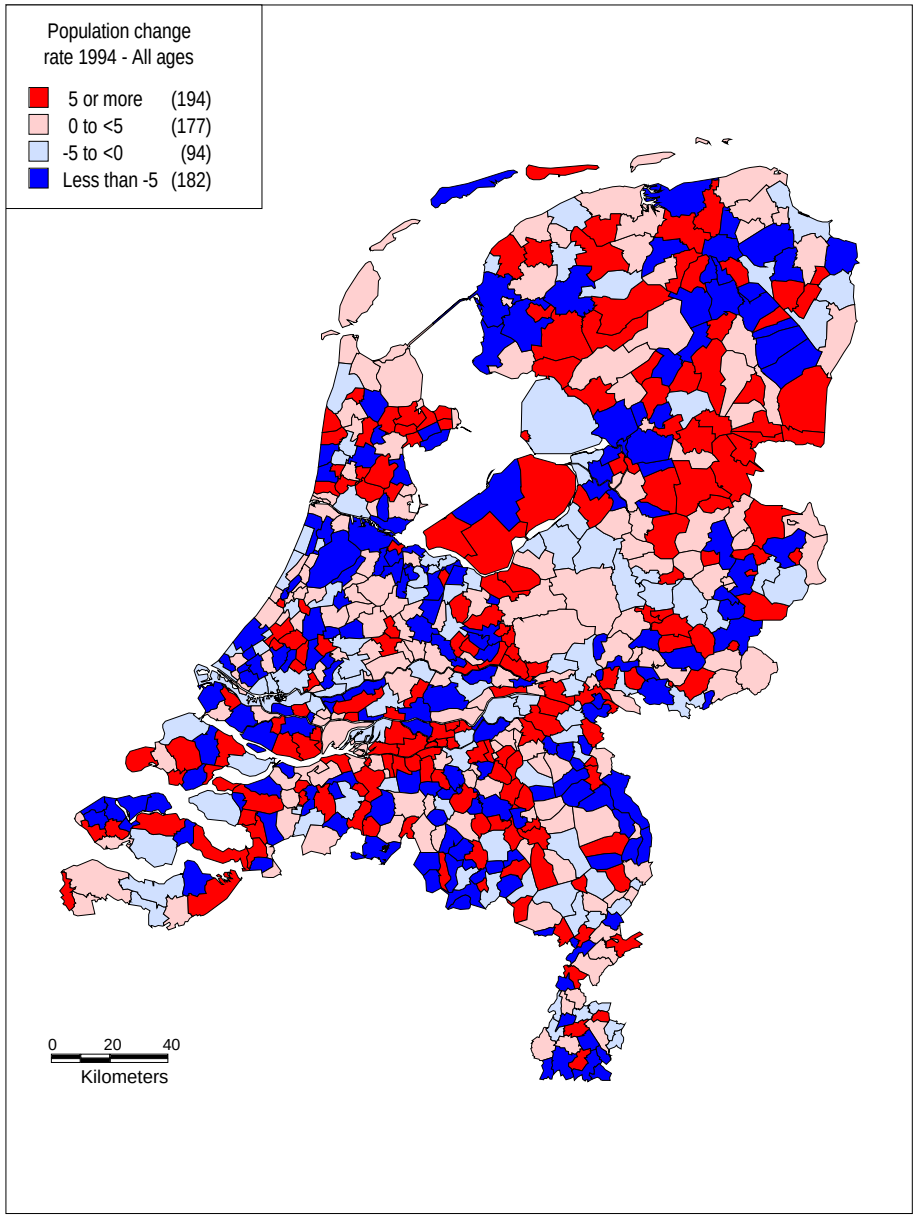


Figure 28: Per cent population aged 75+, 1984

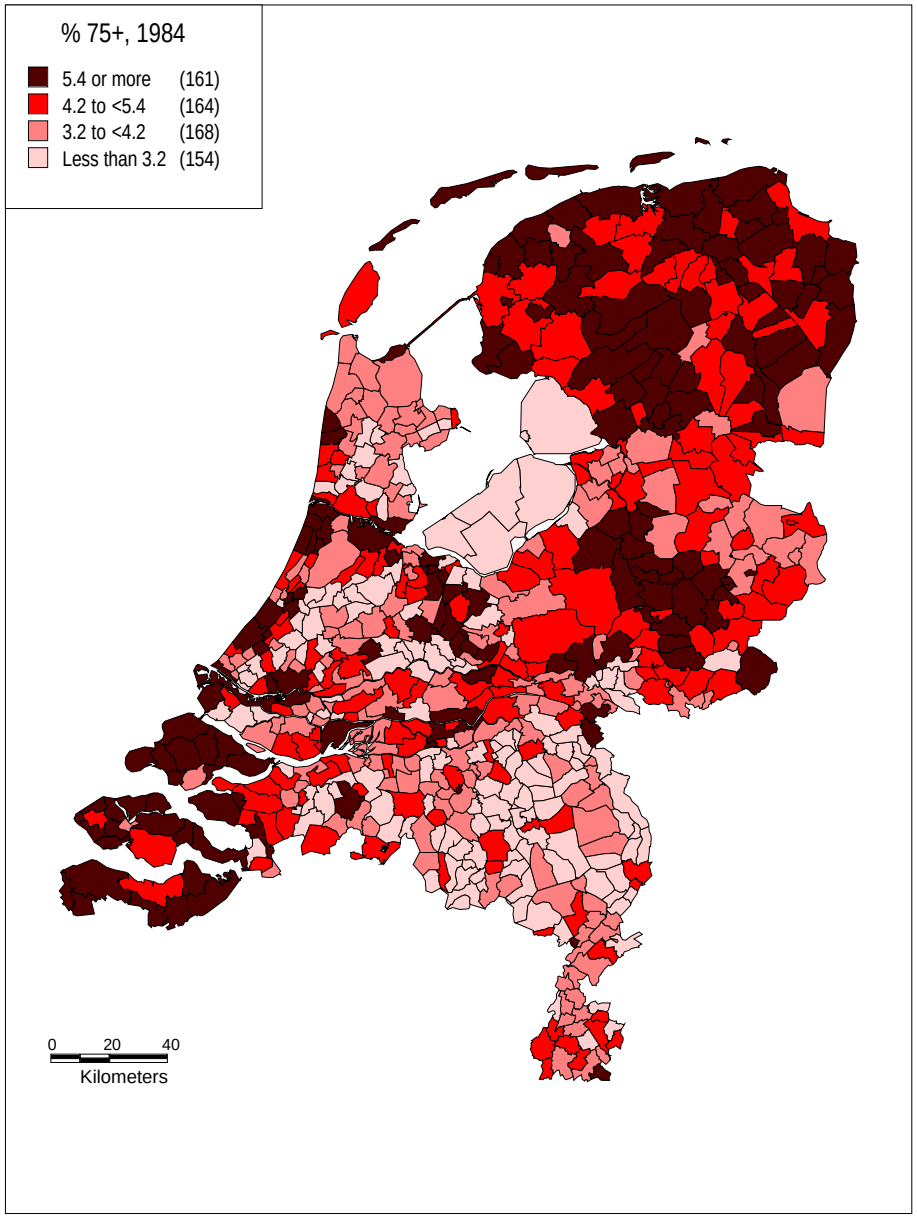


Figure 29: Per cent population aged 75+, 1994

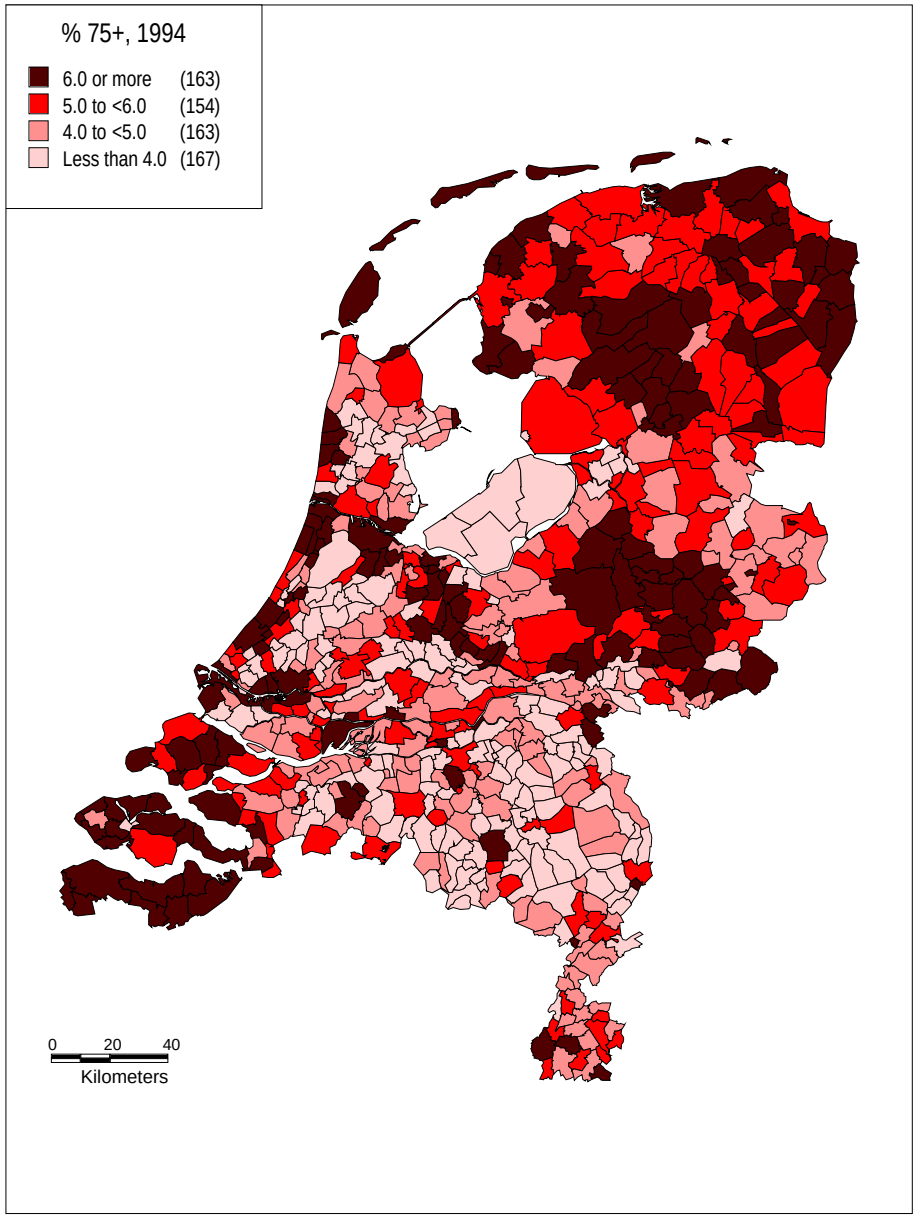


Figure 30: Net internal migration rates, Netherlands municipalities, 1984, ages 75+

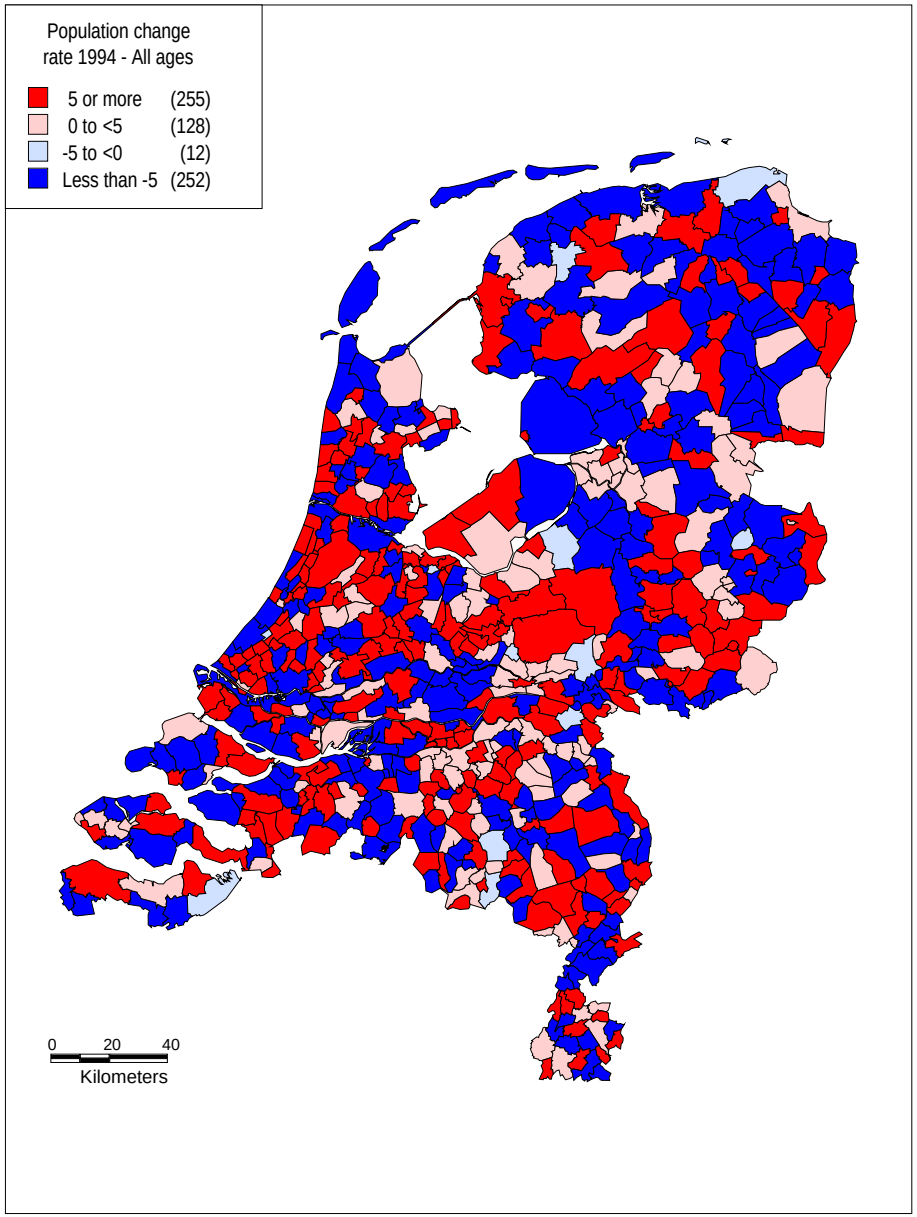
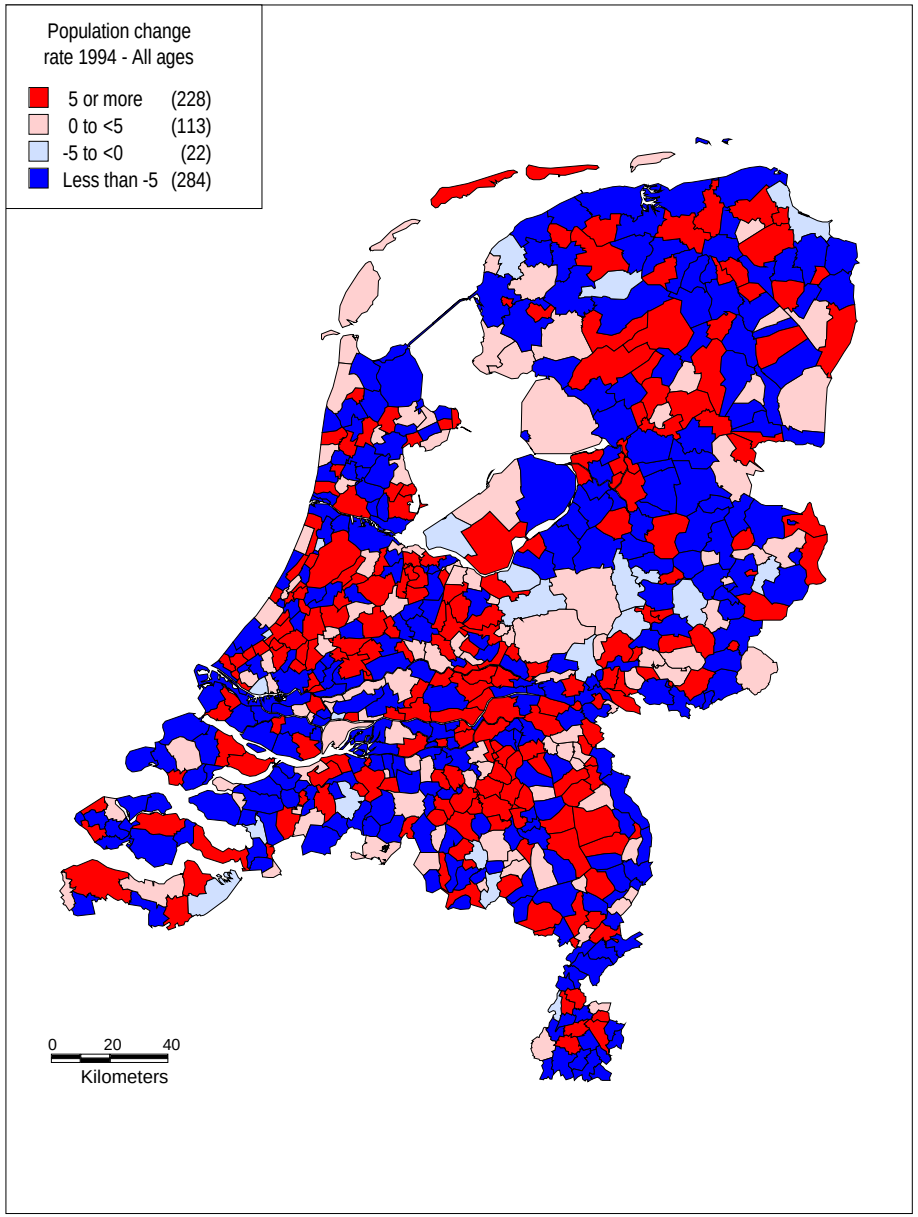


Figure 31: Net internal migration rates, Netherlands municipalities, 1994, ages 75+



4.5.6 The adolescent and young adult ages

The concentrations of late adolescent and young adult populations are shown in Figures 32 and 33. There are higher than average concentrations in the large cities and in a band of municipalities across Noord-Brabant, Gelderland, Flevoland and Overijssel. These concentrations reflect two forces - the current patterns of migration and the carry over of fertility patterns from earlier decades of the baby boom.

We have deliberately left the description of the maps of net internal migration for these ages to last as they contrast dramatically with those of the other ages (Figures 34 and 35). Most of the country is a sea of unshaded or lightly stippled areas, indicating losses from small municipalities of rural or small town character. The gaining municipalities are the large cities, particularly those with universities. The young leave small places in large numbers for the advantages of the large urban centres with their institutions of higher education, their entertainment facilities and the excitement of being with their peer group at the start of adult lives.

To make more systematic sense of the municipality patterns presented in this sections of the report, we turn in the next section to the use of the municipality classifications described earlier in section 3.4.

Figure 32: Per cent population aged 15-29, 1984

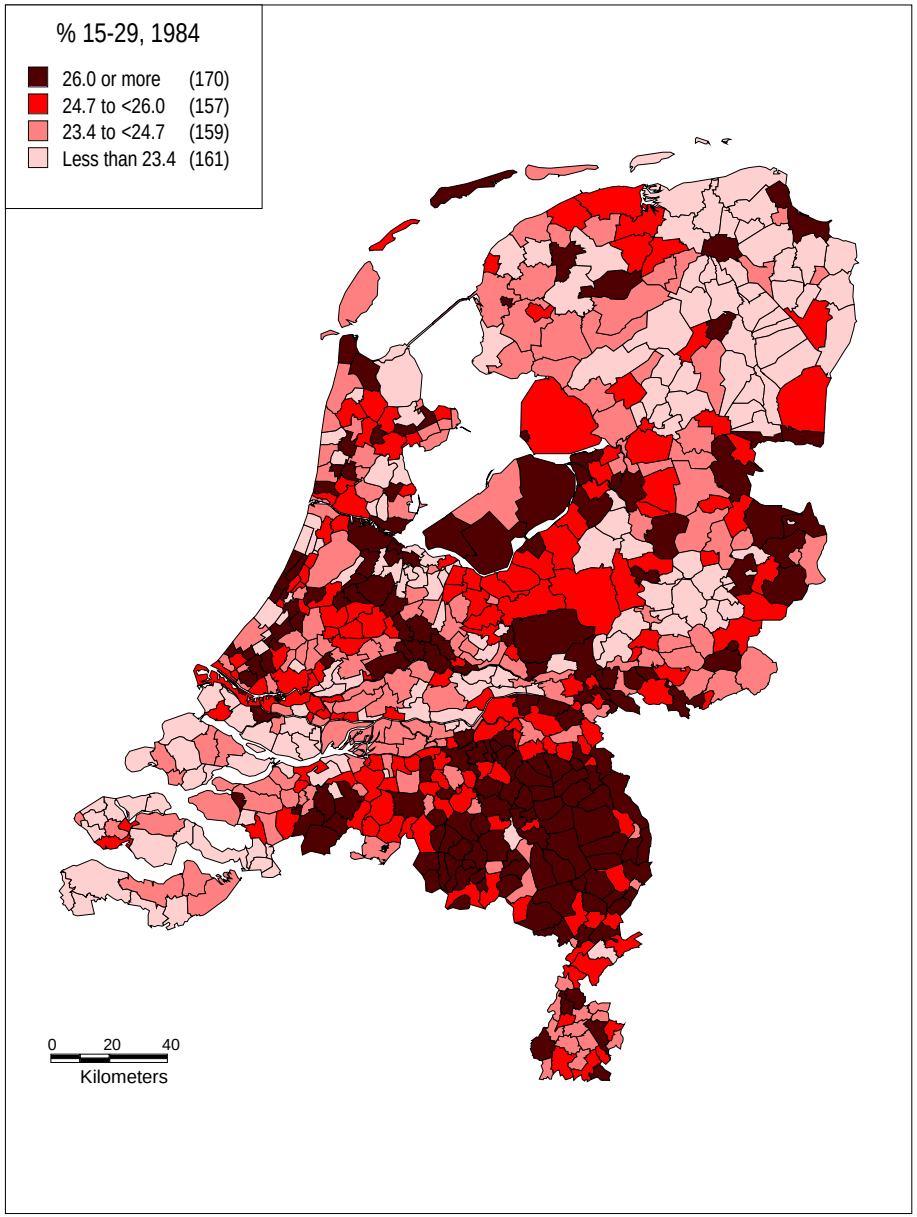


Figure 33: Per cent population aged 15-29, 1994

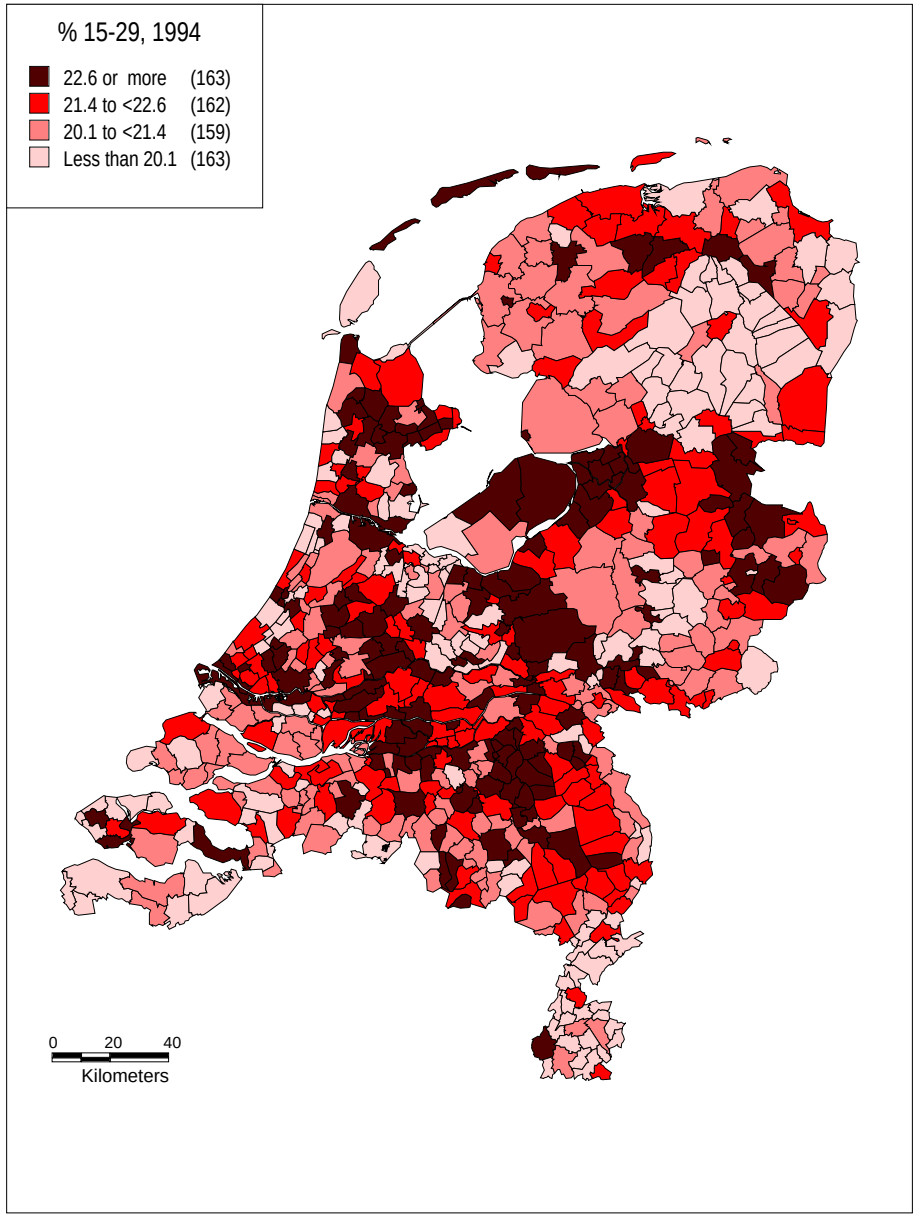


Figure 34: Net internal migration rates, Netherlands municipalities, 1984, ages 15-29

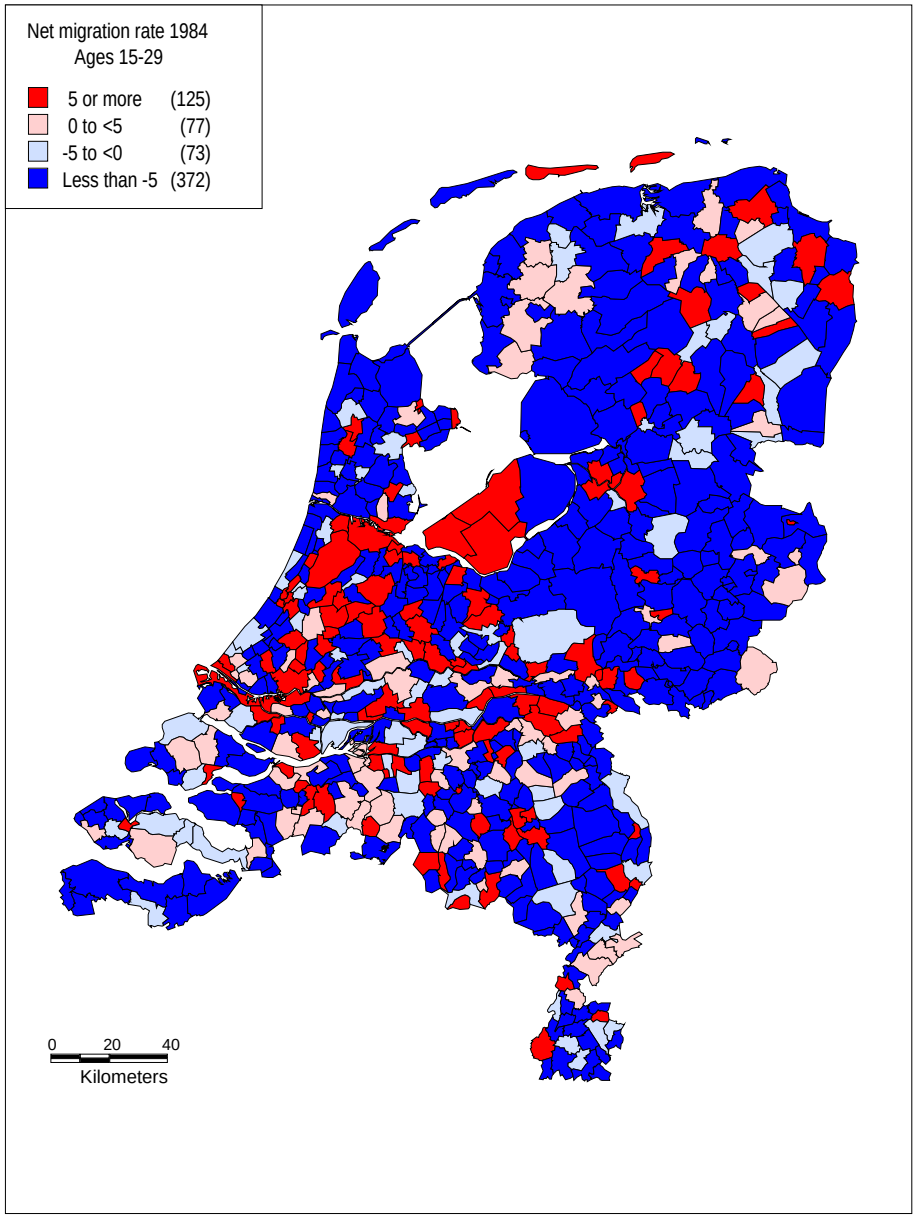
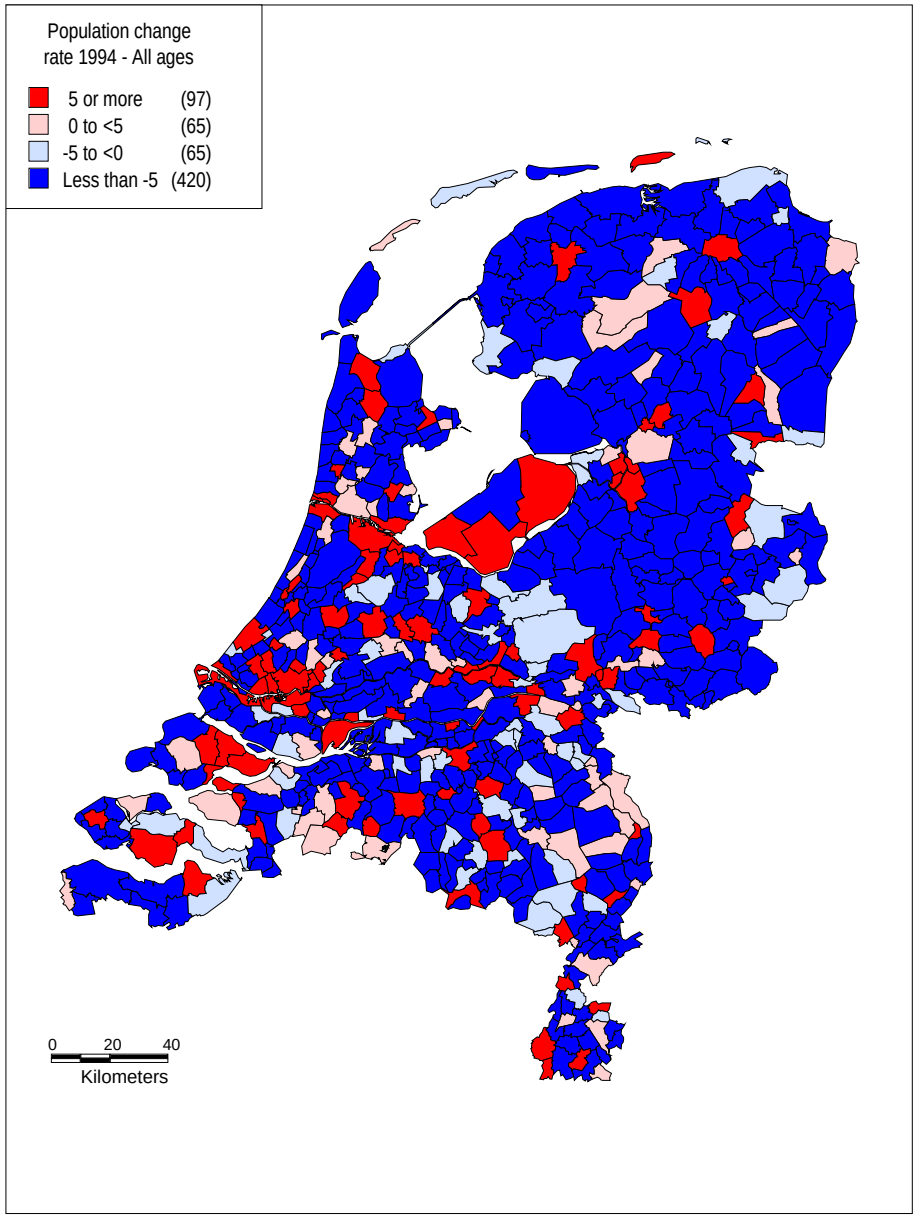


Figure 35: Net internal migration rates, Netherlands municipalities, 1994, ages 15-29



5. RELATIONSHIPS BETWEEN POPULATION DYNAMICS AND THE SETTLEMENT SYSTEM

5.1 Relationship to the urban system

Population shifts within the Netherlands are clearly organized with respect to the main urban agglomerations: these are the main importers and exporters of people. Table 15 lists the net internal migration rates by age for the 21 urban agglomerations defined by Statistics Netherlands in 1984 and 1994. We also include statistics for all the rest of the municipalities. This category of settlement clearly gains overall from the urban agglomerations and at all ages except 15-29. By now this contrast between young adolescents and adults and the rest of the population should be a familiar theme. Urban agglomerations as a whole have the opposite pattern, one of loss for all ages except the 15-29 age group. Typical of this pattern of life stage gain and loss are the four largest agglomerations of Greater Rotterdam, Greater Amsterdam, The Hague and Utrecht, with the contrast becoming sharper by 1994 and the overall losses through net migration greater. Some other urban agglomerations follow this top four pattern: Groningen, Leiden in both 1984 and 1994 and Breda in 1994, for example. Others experience loss in all or nearly all age groups: Haarlem, Enschede/Hengelo, Hilversum, where the urban economies are depressed.

Table 15: Net internal migration rates by age, Netherlands, by agglomeration, 1984 and 1994

Agglomeration Code		% pop 94	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
0	Not in agglomeration		1984	1.9	-4.1	2.1	2.1	3.5	3.5	0.7
			1994	3.5	-7.4	4.8	1.9	2.2	2.0	0.9
1	Rotterdam/ Schiedam/ Vlaardingen	7.0	1984	-2.5	5.8	-1.2	-2.0	-4.0	-4.3	-0.4
			1994	-4.0	7.6	-5.6	-2.3	-1.7	-2.5	-1.1
2	Amsterdam	7.2	1984	-7.2	23.1	-6.2	-7.0	-11.6	-9.9	0.3
			1994	-10.7	23.2	-9.4	-3.1	-5.5	-5.9	-0.3
3	's-Gravenhage	4.5	1984	-4.8	-3.0	-3.3	-3.0	-6.5	-7.8	-4.2
			1994	-7.7	5.8	-9.2	-3.4	-4.1	-4.6	-3.8
4	Utrecht	3.6	1984	-3.9	11.1	-4.6	-1.3	-0.2	0.8	1.2
			1994	-10.4	17.2	-12.2	-6.8	-5.8	0.8	-2.4
5	Eindhoven	2.6	1984	-1.8	-3.3	-1.4	-0.3	1.3	-0.3	-1.5
			1994	0.7	4.5	-0.3	0.0	1.3	0.8	1.3
6	Arnhem	2.0	1984	2.1	3.2	1.9	0.7	2.2	5.5	2.3
			1994	0.8	6.0	0.3	-0.4	-0.9	-0.8	1.3
7	Enschede/ Hengelo	1.7	1984	-3.5	-1.9	-3.3	-2.4	-1.8	-3.2	-2.6
			1994	-1.6	-6.9	-3.4	-1.9	-0.6	-1.0	-3.2
8	Heerlen Kerkrade	1.8	1984	-0.1	-7.8	1.1	0.0	0.6	2.3	-1.6
			1994	-2.9	-13.1	-2.9	0.4	-0.4	-07	-3.7
9	Haarlem	1.4	1984	-7.2	-10.9	-5.8	-4.6	-4.9	1.8	-6.3
			1994	-12.0	-6.3	-7.2	-4.9	-7.2	-6.0	-7.2
10	Tilburg	1.5	1984	-0.2	-3.2	-0.5	-1.2	-1.3	4.5	-1.2
			1994	0.7	-1.3	-1.7	-0.8	0.0	5.3	-0.5
11	Nijmegen	1.6	1984	1.6	13.5	-1.7	0.7	1.8	7.7	4.5
			1994	-2.7	6.3	-8.3	-0.2	1.4	3.6	-0.7
12	Groningen	1.4	1984	-7.6	18.0	-10.9	-2.9	-3.5	-3.2	1.3
			1994	-13.8	26.3	-19.6	-3.0	-3.7	-6.2	0.5
13	Dordrecht/ Zwijndrecht	1.4	1984	-1.1	-4.9	-0.9	0.6	4.0	2.6	-1.0
			1994	-2.2	2.4	-0.6	-3.1	1.3	-2.5	-0.6
14	Geleen/Sittard	1.2	1984	-2.0	-8.9	-4.2	-1.7	-2.5	1.6	-4.2
			1994	4.3	-5.9	2.3	1.5	0.2	1.7	0.6
15	's-Hertogenbosch	1.3	1984	-2.7	-5.3	3.2	0.3	2.5	9.1	0.5
			1994	-1.4	2.8	0.6	-3.1	-0.2	-5.3	-0.3
16	Leiden	1.3	1984	0.6	16.6	-1.1	-0.4	-2.0	-1.6	4.1
			1994	-3.5	4.5	-3.8	-2.4	-0.9	3.1	-0.7
17	Breda	1.1	1984	3.2	-0.7	1.8	1.3	2.0	3.2	1.4
			1994	-2.8	10.6	-2.4	1.2	-0.9	-4.6	1.1
18	Maastricht	1.1	1984	2.8	3.4	5.8	4.0	2.6	4.4	3.9
			1994	1.0	5.1	-1.0	1.1	0.2	-3.1	1.0
19	Zaanstad	1.0	1984	-5.2	-6.1	-5.6	-3.6	0.0	7.5	-4.1
			1994	-0.8	0.2	2.5	-1.1	-1.4	8.5	0.6
20	Velsen/ Beverwijk	0.9	1984	-0.5	-16.4	-0.8	-2.8	-6.0	-4.2	-5.9
			1994	5.9	3.8	4.9	2.5	2.5	3.8	4.0
21	Hilversum	0.7	1984	0.3	-29.1	1.6	-9.1	-7.7	-15.6	-10.3
			1994	-3.2	-6.7	0.7	-5.1	-6.4	-14.5	-9.8

5.2 Relationship to the degree of urbanization

Table 16 and Figure 36 move the analysis on from particular circumstances to general effects. Using the density of residential addresses as the main criterion, Statistics Netherlands provides a five grade classification of Dutch municipalities by degree of urbanization from very strongly urbanized to not urbanized (see Figure 2). Here we see a double gradient in net internal migration: the very strongly urbanized municipalities have the highest negative rates in 1984 and 1994. The next three categories have positive net internal migration balance but it is the middle category which has the strongest net-inmigration. Net inmigration rates decline in the weakly urbanized category. Finally, in the not urbanized category the direction of migration becomes negative again.

These general remarks, as usual, apply directly to the family ages (0-14, 30-44), the older working ages (45-59) and the retirement ages (60-74), except that in the family ages the net internal migration balance remains positive. The adolescent and young adult ages are different. The gradient is from high gains to the very strongly urbanized municipalities to high losses to the not urbanized municipalities. The contrasts increased between 1984 and 1994. The elderly ages also depart from the general pattern in that net out-migration occurs from the not urbanized places, probably because of the lack of care facilities.

Table 16: Net internal migration rates by age, Netherlands, by CBS urbanization categories, 1984 and 1994

Urbanization categories (% 1994 population)	Year	Net internal migration rates (per 1000 population) Age groups 0-14	15-29	30-44	45-59	60-74	75+	Total
Very strongly urbanized (19.1%)	1984	-12.5	13.0	-12.4	-7.1	-11.1	-11.5	-4.5
	1994	-14.8	21.3	-16.5	-4.8	-6.5	-8.6	-3.1
Strongly urbanized (20.7%)	1984	-2.2	1.2	-1.1	0.5	3.4	3.3	0.3
	1994	-2.4	6.9	-2.8	-1.2	1.3	0.4	0.5
Urbanized (20.8%)	1984	5.7	1.8	6.3	3.6	8.1	13.0	5.1
	1994	2.9	-5.1	4.3	0.8	3.3	8.8	1.5
Weakly urbanized (20.7%)	1984	3.8	-7.5	4.3	1.7	2.9	7.7	0.8
	1994	6.0	-13.0	7.3	1.1	2.2	6.7	1.0
Not urbanized (18.7%)	1984	1.3	-10.2	1.6	1.3	-0.7	-4.4	-1.9
	1994	4.5	-14.4	7.2	3.5	-0.4	-6.7	-0.2

Source: computed from migration population statistics supplied by Statistics Netherlands.

Note: Urbanization categories are based on address densities.

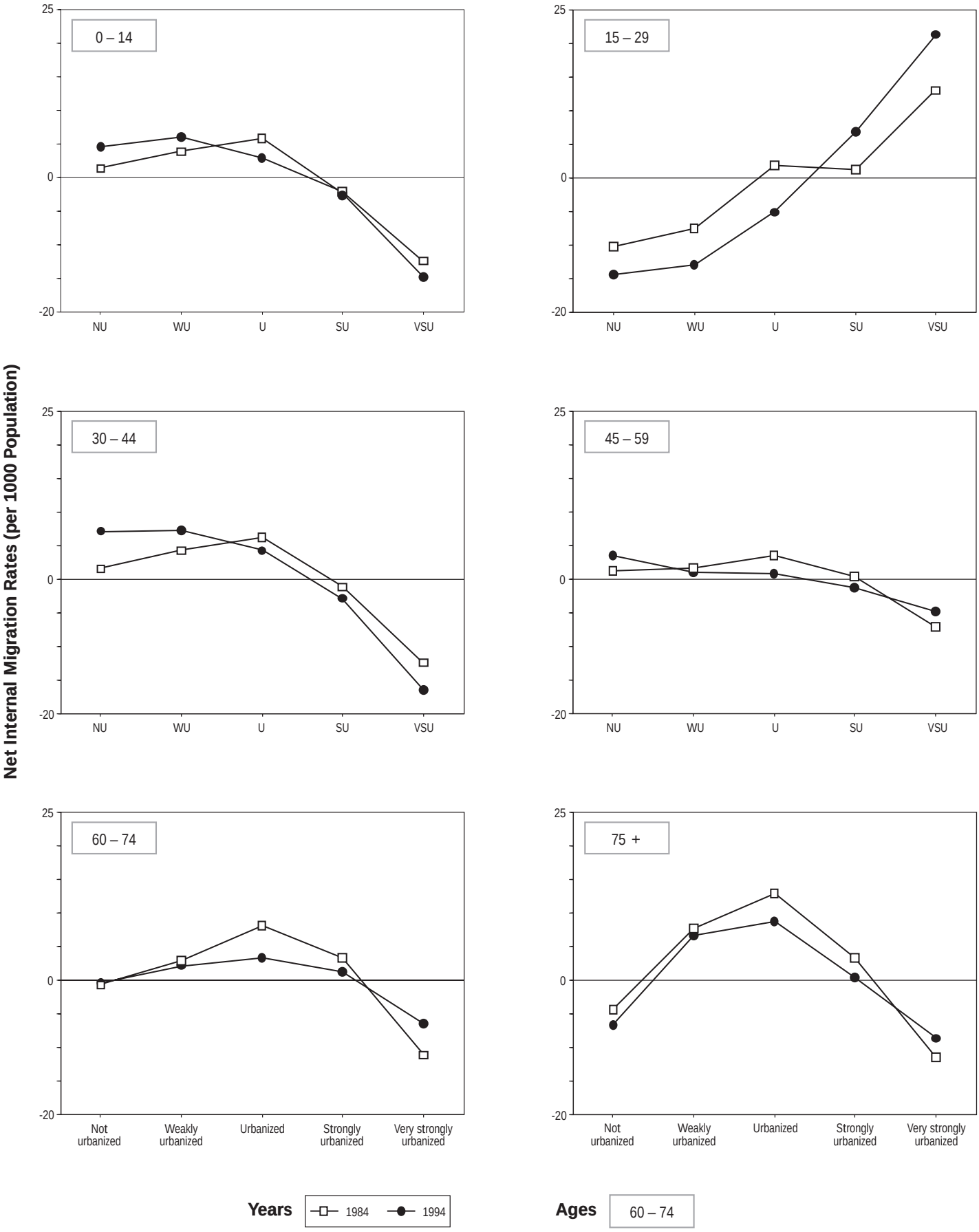


Figure 36: Net internal migration rates by age, Netherlands, by CBS urbanization intensity categories, 1984 & 1994

Table 17 provides a more detailed classification of municipalities by urbanization level, using Census 1971 information on employment by sector. Figure 37 places these data on graphs. The table and figure reveal that it is the middle group of urbanized rural municipalities which are experiencing the highest net internal migration rates, taking 1984 and 1994 together but that rural municipalities in categories A4 and A3 improved their position over the decade. The most agricultural municipalities in 1984 had the highest out-migration rates but by 1994 they were experiencing net inmigration. The urbanized municipalities had varied fortunes. The largest (C5) were heavy losers while the small town category (C2) were gainers. Once again ages 0-14, 30-44, 45-59 and 60-74 followed this general pattern but the 15-29 age group followed its reverse, while the elderly tended to migrate out of both the largest urban places and the smallest rural places to town and cities in between.

Table 17: Net internal migration rates by age, Netherlands, by CBS urbanization categories (2), 1984 and 1994

CBS Urbanization Category	% pop 1994	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
A2 Rural municipalities:		1984	-2.4	-15.3	-1.6	0.9	-3.3	-9.4	-5.2
40-50% in Agriculture	0.5%	1994	7.0	-10.5	9.2	3.0	-4.6	-9.0	0.8
A3 Rural municipalities:		1984	0.2	-8.3	1.4	1.3	-0.9	-10.2	-2.0
30-40% in agriculture	2.4%	1994	8.2	-14.6	11.7	5.1	-0.1	-7.5	1.9
A4 Rural municipalities:		1984	2.2	-6.6	2.5	3.6	2.8	-0.6	0.2
20-30% in agriculture		1994	4.8	-11.8	7.0	5.4	0.5	-4.9	1.0
B1 Urbanized rural municipalities:		1984	4.3	-1.5	3.9	1.0	-0.6	-1.9	1.5
<20% in agriculture	8.5%	1994	4.3	-10.2	6.8	2.6	-0.1	-8.1	0.5
LRN <5000									
B2 Urbanized rural municipalities:		1984	5.6	-2.1	5.9	4.6	6.1	6.0	3.6
<20% in agriculture	14.8%	1994	4.7	-8.0	5.4	2.3	3.1	3.0	1.4
LRN 5000-30000									
B3 Urbanized municipalities:		1984	6.2	-7.6	8.2	2.2	6.3	16.2	3.1
<20% in agriculture	14.9%	1994	5.4	-13.4	8.5	-1.3	2.0	10.2	0.9
comuter municipalities									
C1 Urbanized municipalities:		1984	-0.3	-7.9	-0.7	-0.4	3.7	10.2	-1.5
2-10000 urbanized nucleus	2.4%	1994	3.9	-12.3	6.5	-1.9	1.6	18.4	0.3
C2 Urbanized municipalities:		1984	0.5	0.3	1.3	2.2	7.7	10.9	2.1
10-30000 urbanized nucleus	8.9%	1994	3.0	-4.2	2.8	1.2	5.3	10.6	1.7
C3 Urbanized municipalities:		1984	0.8	-5.9	0.0	1.2	3.2	5.1	-0.5
30000-50000 urbanized nucleus	6.0%	1994	-1.3	-5.5	-2.5	-0.3	2.4	2.1	-1.6
C4 Urbanized municipalities:		1984	-4.5	1.6	-4.0	-2.4	-0.2	-3.9	-1.9
50000-100000 urbanized nucleus	10.0%	1994	-4.1	10.8	-3.3	-1.3	-0.4	-1.9	0.6
C5 Urbanized municipalities:		1984	-10.5	10.0	-10.4	-5.5	-9.1	-9.5	-3.9
100000+ urbanized nucleus	23.7%	1994	-12.6	10.3	-14.7	-3.7	-5.3	-7.6	-2.8

Source: Computed from migration and population statistics supplied by Statistics Netherlands.
Notes: LRN = largest residential nucleus.

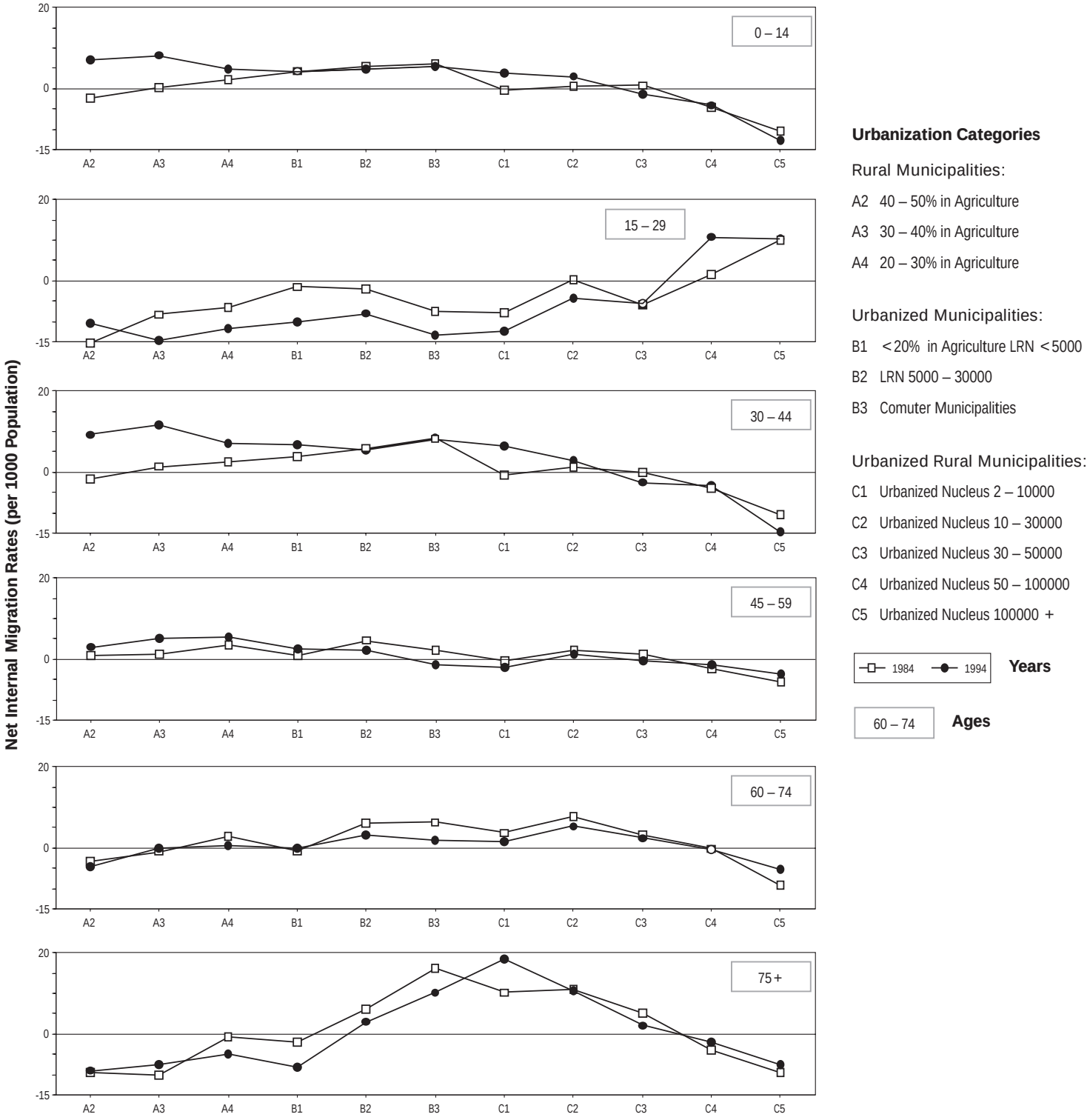


Figure 37: Net internal migration rates by age, Netherlands, by CBS urbanization categories based on 1971 census data, 1984 & 1994

The final piece of evidence on the relationship between internal migration and settlement system is assembled in Table 18 and in Figure 38. The main centres of the core of the country experience net out-migration but it was diminishing over the decade. Secondary cores in 1984 had a positive in-migration balance but by 1994 this had become negative. The ring municipalities, serving as commuter settlements to core and secondary core cities, had positive in-migration but the extent diminished between 1984 and 1994. The peripheral municipalities moved from a position of loss in 1984 to one of gain in 1994. The combination of economic growth, rising housing prices especially in the west, more dual earner households, and increased mobility (by automobile) has resulted in people moving to peripheral areas and commuting to their work in core areas. The double gradient pattern of rising net inmigration as we move from peripheral to ring municipalities and of net inmigration falling to small gains in secondary core municipalities and loss in cores is repeated in all ages except for 15-29. The net migration rates (either positive or negative) are close to zero for the 45-59 age group: this is an age of residential stability, of settled workplace and mature families with little incentive for mobility. Mobility then rises for the retirement ages as workplace ties are broken and residential preferences can be expressed and rates become highest in the elderly ages where loss of spouse and infirmity precipitate migration but overwhelmingly to ring municipalities. The 15-29 age group exhibits completely different behaviour, as in earlier analyses, with a gradient from migration loss to migration gain as the picture moves from periphery to ring to secondary core to core municipalities, with the gradient becoming sharper in 1994. In general, we conclude that the age-selectivity in internal migration has become even more pronounced than it used to be.

Table 18 : Net internal migration rates by age, Netherlands, by municipality type, 1984 and 1994

Municipality type (% population 1994)	Year	Age Groups 0-14	15-29	30-44	45-59	60-75	75+	Total
Core: main centres	1984	-9.8	7.3	-9.8	-5.1	-8.0	-9.2	-4.2
(29.3%)	1994	-10.6	16.6	-12.3	-3.2	-4.4	-7.2	-2.2
Secondary core: large free	1984	-1.0	0.1	0.3	0.2	3.2	1.4	0.4
Standing towns (10.9%)	1994	-3.3	1.6	-3.9	-0.6	2.1	0.7	-1.0
Ring: commuter	1984	8.6	-0.2	10.6	3.6	8.6	16.1	6.4
Towns (24.4%)	1994	5.2	-8.6	7.8	-0.1	2.8	9.3	2.0
Periphery: rest of	1984	1.0	-6.7	0.5	2.1	2.1	1.4	-0.8
the country (35.4%)	1994	4.5	-10.6	5.7	2.8	1.6	0.5	0.7

Source: Computed from population and migration statistics supplied by Statistics Netherlands.
Notes: Classification developed by the authors, cf Table 9.

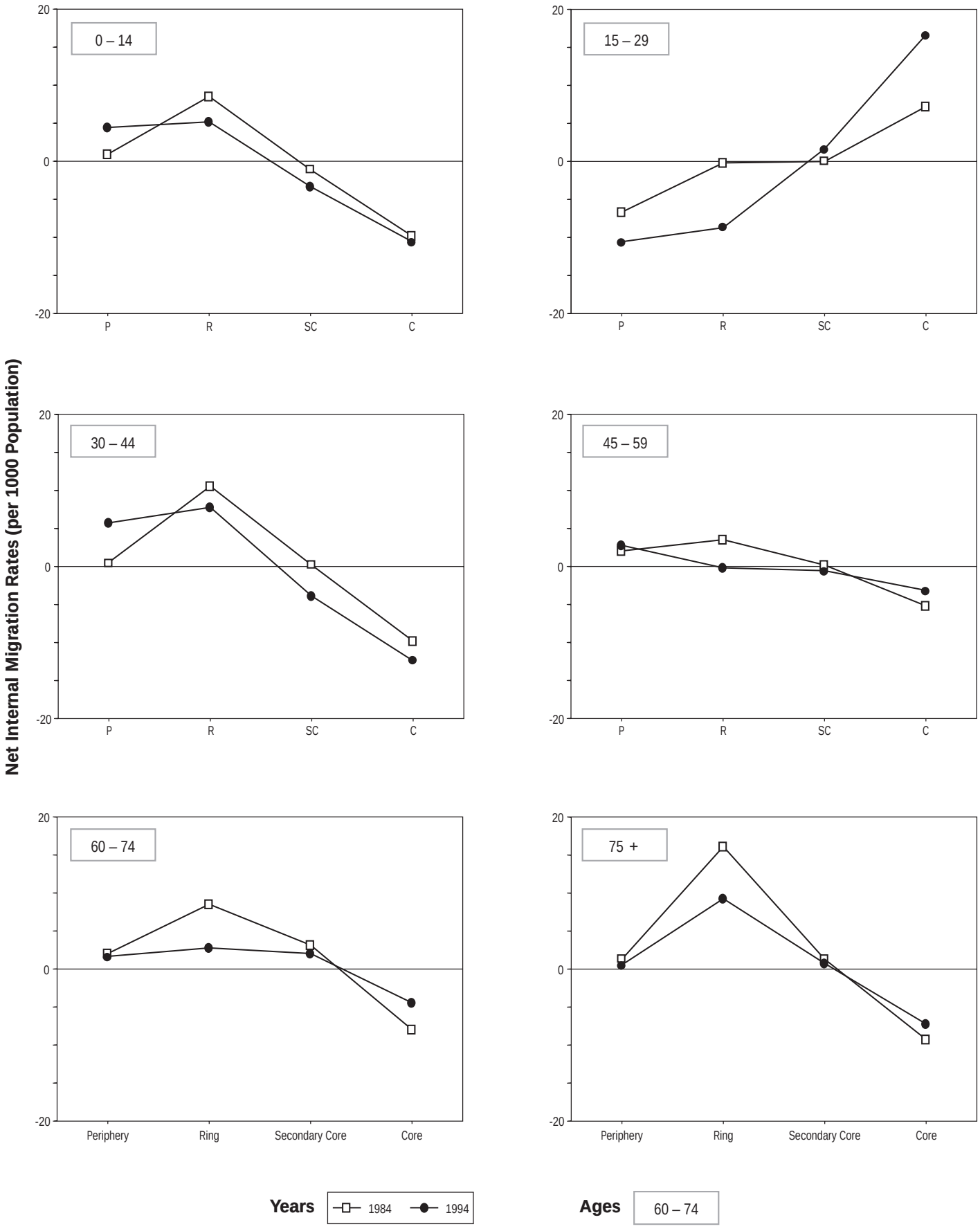


Figure 38: Net internal migration rates by age, Netherlands, by settlement type, 1984 & 1994

5.3 Relationship to population density

Table 19 and Figure 39 report a final classification analysis of variation in net internal migration by the population density band that a municipality falls in. This classification has been used in other national cases studies of internal migration and regional population dynamics. The first point to note is that the two extremes of the distribution have few representative municipalities in the Netherlands, so that we should really consider them together with the neighbouring density band. The municipalities in the lowest density band include the four municipalities of Oostelijk and Zuidelijk Flevoland, which were undergoing rapid new development from the late 1970s. For all age groups except adolescents and young adults, municipalities with densities above 1000 persons per square kilometre (psk) experienced net loss due to internal migration. Municipalities in the density band 500 up to 1000 persons psk showed the highest rates of in-migration. Net in-migration rates to density bands 100 up to 500 psk had lower in-migration rates and for some age groups (60-74 and 75+ in particular) the rates were negative. The elderly clearly do not want to be stranded in low density municipalities without good access to urban services that they need in old age (health care in particular). The relationship between density and net migration for the 15-29 age group was very different. Ignoring the two extreme categories, there was a systematic gradient from heavy loss in municipalities with densities lower than 1000 psk in 1984 and 2000 psk in 1994 to heavy gains to the most densely settled town and cities with densities above 2000 psk.

Table 19: Net internal migration rates by age, Netherlands, by density band, 1984 and 1994

Density band 1994	N	% pop. 1994	Year	Age Groups 0-14	15-29	30-44	45-59	60-74	75+	Total
<50	6		1984	135.3	159.6	106.8	45.1	16.5	-26.5	94.8
		0.1	1994	25.6	50.0	31.3	43.5	9.4	-13.1	31.3
50-<100	47		1984	-1.0	-14.2	0.8	3.3	-1.9	-14.0	-3.9
		2.7	1994	9.2	-14.5	12.0	8.5	0.6	-9.7	2.7
100-<500	367		1984	1.9	-9.4	2.2	1.6	1.4	1.6	-0.9
		31.2	1994	4.0	-13.7	5.9	2.0	0.9	-0.2	-0.2
500<1000	107		1984	8.8	0.2	11.0	3.7	8.5	12.9	6.5
		14.8	1994	6.4	-7.3	8.2	1.6	4.2	9.9	3.0
1000-<2000	77		1984	-2.1	-1.6	-2.1	-0.5	1.5	4.2	-1.0
		21.6	1994	-0.2	2.5	0.6	-0.5	1.0	3.0	0.9
2000-<4000	34		1984	-0.8	8.1	-1.0	-0.1	1.1	2.0	2.0
		17.4	1994	-5.2	8.7	-8.6	-2.6	-0.7	-0.8	-1.5
4000-<6000	7		1984	-16.6	21.3	-16.1	-9.3	-13.7	-13.6	-4.3
		9.0	1994	-18.1	27.6	-16.4	-5.7	-7.1	-9.7	-2.3
6000+	2		1984	-12.6	-4.7	-10.2	-5.2	-10.5	-14.9	-8.8
		3.2	1994	-15.0	10.1	-17.0	-5.3	-9.5	-12.5	-7.4

Source: Computed from migration and population statistics supplied by statistics Netherlands.
Notes: N = number of municipalities.

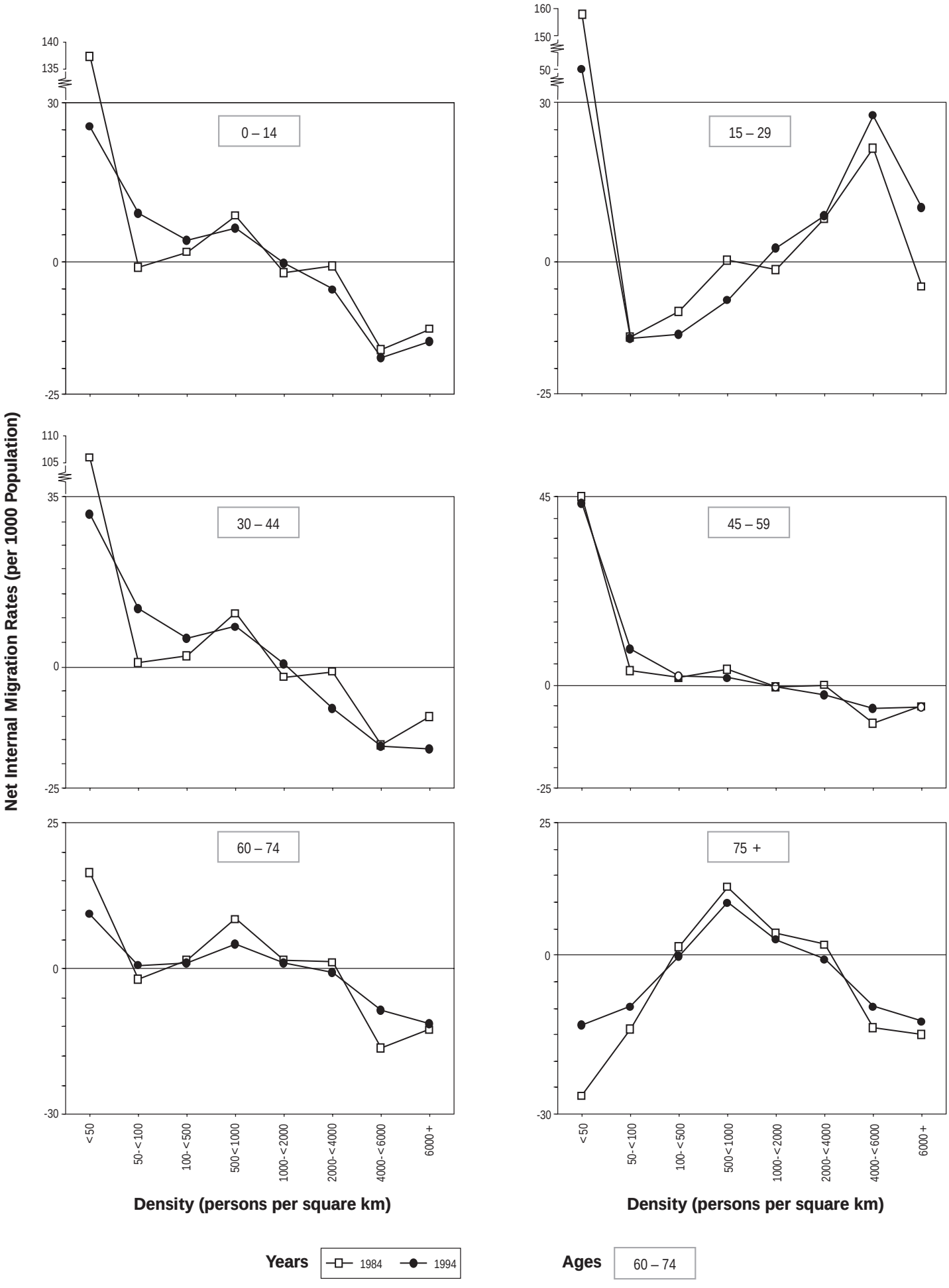


Figure 39: Net internal migration rates by age, Netherlands, by density band, 1984 & 1994

5.4 Relationship between migration and unemployment

Comments have already been made in section 4.2 about the relationship between the economic fortunes of urban agglomerations and their net migration experience using qualitative and anecdotal information. In this section we report some quantitative analysis at NUTS 2 scale.

Table 20 reports the correlations between net internal migration rates for provinces in 1994 and three unemployment indicators, for the immediately preceding years. The relationships are very weak (much weaker than for provinces in Italy, for example, or for wards/postcode sectors in the United Kingdom) and probably insignificant. The only exception is the 15-29 age group which has correlations just above 0.4 with the two unemployment level indicators and the "correct" sign for the relationship with unemployment change (see also Van Wissen 1997; Van Solinge *et al.* 1998, chapter 5). This age group is the one seeking work for the first time and we would expect some sensitivity to economic conditions. For the other ages this does not appear to be the case. The labour markets of Dutch regions are very open because of the low distances between settlements. Faced with unemployment workers can switch labour markets easily without needing to change residence. Additional factors limiting the linkage of unemployment and migration are (1) the tightness of the housing market, which keeps migration low and (2) the high levels of unemployment benefit and generous treatment of unemployed persons. Although unemployment benefit holders are required to look for a job, they cannot be forced to accept a job offer that would require a long commuting time.

Table 20: Correlation of net internal migration rates by age 1994 with unemployment indicators for provinces

Age group	Unemployment indicators		
	Unemployment rate % of labour force 1993	Average level EUR12=100 1991-92-93	Change % 1988-93
0-14	-0.00	0.01	0.16
15-29	-0.41	-0.44	-0.21
30-44	-0.16	-0.12	0.27
45-59	0.04	0.05	0.35
60-74	-0.08	-0.08	0.22
75+	-0.22	-0.20	0.11
Total	-0.23	-0.09	0.11

Source: Unemployment indicators extracted from European Commission (1994). Net internal migration rates computed by the authors from data suppliedby Statistics Netherlands.

Note: The overall unemployment rate (unemployed as a per cent of the economically active) is correlated against age-specific net migration rates.

6. CHANGING MIGRATION PATTERNS

Migration involves not just migrants leaving places or other migrants joining places, but the movement from one specific origin to one specific destination. We can gain new insights into migration processes by looking at the flows between places. This section of the report analyses the flow patterns between the six municipality groupings used in the arrivals and departures analysis of the previous section. The data used are not ideal because at municipality level we had available only origin-destination flows (OD data) and not origin-destination-age (ODA data) flows, though these are available for model analysis (Van Imhoff *et al.* 1997) and for projection using migration scenarios (Van der Gaag *et al.* 1997) at NUTS 2 regional scale. The model analysis for the Netherlands suggests that a 50 per cent reduction in deviance of model results from observations is achieved by moving from an SA + OA + DA + OD effects model to a model where the OD term (independent of age) is replaced by an A_5OD term where the dependence of origin-destination pattern on age (using 5 year groups) is recognized.

6.1 Migration flows between regions

Table 21 sets out the flows for 1984 and 1994 between NUTS 1 regions (*Landsdelen*), while Table 22 provides equivalent statistics for NUTS 2 regions, the provinces. The tables are made up of three parts: a top panel showing gross flows, a middle panel showing net flows and a bottom panel showing migration effectiveness (net migration divided by the sum of the two flows between places, expressed as a percentage). The volume of migration increases between 1984 and 1994 by just under 5% but this could be due merely to the growth of the population. The overall inter-municipality migration rate decreases by 2% over the decade. Most flows increase with the biggest increase involving outflows from the East and West to the North and South. Decreases occur in flows to the East from West and South. There are some changes in the regional balances. The North shifts from just over 3 thousand loss to a small gain; the East still gains but these have fallen by 3 thousand; the losses from the West region have increased substantially; the South moves from loss in 1984 to gain in 1994. Decentralization from the Dutch West core has intensified and the gainers have been the North and South rather than the East. However, the last panel in Table 21 shows that, overall, the efficiencies of inter-regional migration are rather low with only a few streams having efficiencies of 10 per cent or more.

In the province table (Table 22), there are some evolutionary changes in the direction of migration balance for selected provinces. The flow between North Holland and Flevoland reduces in size though there is still a strong net migration in favour of the new province. In 1984 there was a net loss of 6360 from North Holland to Flevoland but in 1994 North Holland lost only 3805 to (middle panel of Table 22). This diminution is to be expected as the development of the new settlements of Flevoland is completed and the space assigned for town and village building is used up. The other evolution in the flow table that is of some magnitude is the increase in flows out of South Holland. The net loss triples in size and reflects both the filling up of the region, tight control on further development and some ageing of the region's population.

Table 21: Migration flows between *Landsdelen* (NUTS 1 regions), Netherlands, 1984 and 1994

MIGRATION FLOWS

Origins		Destinations				
	Year	Noord	Oost	West	Zuid	Totals
Noord	1984	47710	8290	9310	2150	67460
	1994	51050	8515	9745	2061	71371
Oost	1984	7005	67895	24155	7740	106795
	1994	8870	73770	25745	8741	117126
West	1984	7955	30420	213795	16075	268245
	1994	10130	31670	216555	18739	277094
Zuid	1984	1700	9140	17330	83060	111230
	1994	1762	8907	18800	84527	113996
Total	1984	64370	115745	264590	109025	553730
	1994	71812	122862	270845	114068	579587

NET MIGRATION

Origins		Destinations				
	Year	Noord	Oost	West	Zuid	Totals
Noord	1984	0	1285	1355	450	3090
	1994	0	-355	-385	299	-441
Oost	1984	-1285	0	-6265	-1400	-8950
	1994	355	0	-5925	-166	-5736
West	1984	-1355	6265	0	-1255	3655
	1994	385	5925	0	-61	6249
Zuid	1984	-450	1400	1255	0	2205
	1994	-299	166	61	0	-72
Total	1984	-3090	8950	-3655	-2205	0
	1994	441	5736	-6249	72	0

MIGRATION EFFECTIVENESS

Origins		Destinations				
	Year	Noord	Oost	West	Zuid	Totals
Noord	1984	0	8	8	12	2
	1994	0	-2	-2	8	-0
Oost	1984	-8	0	-11	-8	-4
	1994	2	0	-10	-1	-2
West	1984	-8	11	0	-4	1
	1994	2	10	0	-0	1
Zuid	1984	-12	8	4	0	1
	1994	-8	1	0	0	-0
Totals	1984	-2	4	-1	-1	0
	1994	0	2	-1	0	0

Notes: Migration effectiveness is the ratio of net migration to gross migration between an origin and destination, expressed as a percentage.

Table 22: Migration flows between provinces (NUTS 2 regions), Netherlands, 1984 and 1994

MIGRATION FLOWS

		Destination												
Orig.	Year	GRO	FRI	DRE	OVE	FLV	GLD	UTR	NHO	ZHO	ZLD	NBR	LIM	TOT
GRO	1984	14175	1665	3960	1230	315	1070	645	1430	1290	95	580	210	26665
	1994	12135	1950	4230	1405	270	1070	860	1475	1565	95	535	250	25840
FRI	1984	2210	13655	1120	1110	420	1090	595	1655	1185	80	465	190	23775
	1994	2615	15145	1070	1215	515	1015	680	1515	1150	95	516	200	25731
DRE	1984	3300	880	6745	1870	145	1005	525	860	865	65	315	155	16730
	1994	4220	1070	8615	1935	295	795	520	775	955	60	424	135	19799
OVE	1984	1395	875	1615	16405	800	5045	1435	2060	2070	175	955	380	33210
	1994	1425	1035	2120	18070	990	5390	1690	2230	2295	210	1137	470	37062
FLV	1984	235	330	195	775	1385	890	475	2870	560	60	205	95	8075
	1994	270	470	265	885	1805	1225	770	2970	730	80	328	165	9963
GLD	1984	960	710	690	4660	1255	36660	5110	4300	4580	390	4225	1875	65415
	1994	1195	1140	950	5440	1445	38520	5680	3810	4870	410	4820	1820	70100
UTR	1984	475	525	395	1230	760	5060	20595	5860	4265	270	1845	685	41965
	1994	575	745	710	1510	1370	6225	21010	6105	5155	250	2439	700	46794
NHO	1984	885	1445	750	1665	9230	3930	6135	57785	8150	555	2620	1140	94290
	1994	1045	1765	1015	1835	6775	3810	6480	56620	8325	505	2745	1290	92210
ZHO	1984	1060	990	1185	1725	690	5310	5455	8375	83510	1890	6445	1425	118060
	1994	1225	1285	1460	2010	1360	5950	6265	9145	82440	2445	7951	1585	123121
ZLD	1984	100	70	75	160	100	535	380	805	2235	7480	1650	205	13795
	1994	65	120	120	285	85	455	325	595	2010	8880	1814	215	14969
NBR	1984	405	325	420	825	305	4810	2340	3130	6145	1325	47800	3630	71460
	1994	441	416	286	980	516	4832	2759	3230	6572	1729	48777	3498	74036
LIM	1984	215	130	130	415	230	2200	1045	1700	1655	290	4010	27605	39625
	1994	290	160	170	465	130	1985	1045	1490	1765	210	4242	28010	39962
TOT	1984	25415	21600	17280	32070	15635	67605	44735	90830	116510	12675	71115	37595	553065
	1994	25501	25301	21011	36035	15556	71272	48084	89960	117832	14969	75728	38338	579587

NET MIGRATION FLOWS

		Destination												
Orig.	Year	GRO	FRI	DRE	OVE	FLV	GLD	UTR	NHO	ZHO	ZLD	NBR	LIM	TOT
GRO	1984	0	-545	660	-165	80	110	170	545	230	-5	175	-5	1250
	1994	0	-665	10	-20	0	-125	285	430	340	30	94	-40	339
FRI	1984	545	0	240	235	90	380	70	210	195	10	140	60	2175
	1994	665	0	0	180	45	-125	-65	-250	-135	-25	100	40	430
DRE	1984	-660	-240	0	255	-50	315	130	110	-320	-10	-105	25	-550
	1994	-10	0	0	-185	30	-155	-190	-240	-505	-60	138	-35	-1212
OVE	1984	165	-235	-255	0	25	385	205	395	345	15	130	-35	1140
	1994	20	-180	185	0	105	-50	180	395	285	-75	157	5	1027
FLV	1984	-80	-90	50	-25	0	-365	-285	-6360	-130	-40	-100	-135	-7560
	1994	0	-45	-30	-105	0	-220	-600	-3805	-630	-5	-188	35	-5593
GLD	1984	-110	-380	-315	-385	365	0	50	370	-730	-145	-585	-325	-2190
	1994	125	125	155	50	220	0	-545	0	-1080	-45	-12	-165	-1172
UTR	1984	-170	-70	-130	-205	285	-50	0	-275	-1190	-110	-495	-360	-2770
	1994	-285	65	190	-180	600	545	0	-375	-1110	-75	-320	-345	-1290
NHO	1984	-545	-210	-110	-395	6360	-370	275	0	-225	-250	-510	-560	3460
	1994	-430	250	240	-395	3805	0	375	0	-820	-90	-485	-200	2250
ZHO	1984	-230	-195	320	-345	130	730	1190	225	0	-345	300	-230	1550
	1994	-340	135	505	-285	630	1080	1110	820	0	435	1379	-180	5289
ZLD	1984	5	-10	10	-15	40	145	110	250	345	0	325	-85	1120
	1994	-30	25	60	75	5	45	75	90	-435	0	85	5	0
NBR	1984	-175	-140	105	-130	100	585	495	510	-300	-325	0	-380	345
	1994	-94	-100	-138	-157	188	12	320	485	-1379	-85	0	-744	-1692
LIM	1984	5	-60	-25	35	135	325	360	560	230	85	380	0	2030
	1994	40	-40	35	-5	-35	165	345	200	180	-5	744	0	1624
TOT	1984	-1250	-2175	550	-1140	7560	2190	2770	-3460	-1550	-1120	-345	-2030	0
	1994	-339	-430	1212	-1027	5593	1172	1290	-2250	-5289	0	1692	-1624	0

MIGRATION EFFECTIVENESS

		Destination												
Orig.	Year	GRO	FRI	DRE	OVE	FLV	GLD	UTR	NHO	ZHO	ZLD	NBR	LIM	TOT
GRO	1984	0	-14	9	-6	15	5	15	24	10	-3	18	-1	2
	1994	0	-15	0	-1	0	-6	20	17	12	19	10	-7	1
FRI	1984	14	0	12	12	12	21	6	7	9	7	18	19	5
	1994	15	0	0	8	5	-6	-5	-8	-6	-12	11	11	1
DRE	1984	-9	-12	0	7	-15	19	14	7	-16	-7	-14	9	-2
	1994	0	0	0	-5	5	-9	-15	-13	-21	-33	19	-11	-3
OVE	1984	6	-12	-7	0	2	4	8	11	9	4	7	-4	2
	1994	1	-8	5	0	6	0	6	10	7	-15	7	1	1
FLV	1984	-15	-12	15	-2	0	-17	-23	-53	-10	-25	-20	-42	-32
	1994	0	-5	-5	-6	0	-8	-28	-39	-30	-3	-22	12	-22
GLD	1984	-5	-21	-19	-4	17	0	0	4	-7	-16	-6	-8	-2
	1994	6	6	9	0	8	0	-5	0	-10	-5	0	-4	-1
UTR	1984	-15	-6	-14	-8	23	0	0	-2	-12	-17	-12	-21	-3
	1994	-20	5	15	-6	28	5	0	-3	-10	-13	-6	-20	-1
NHO	1984	-24	-7	-7	-11	53	-4	2	0	-1	-18	-9	-20	2
	1994	-17	8	13	-10	39	0	3	0	-5	-8	-8	-7	1
ZHO	1984	-10	-9	16	-9	10	7	12	1	0	-8	2	-7	1
	1994	-12	6	21	-7	30	10	10	5	0	10	9	-5	2
ZLD	1984	3	-7	7	-4	25	16	17	18	8	0	11	-17	4
	1994	-19	12	33	15	3	5	13	8	-10	0	2	1	0
NBR	1984	-18	-18	14	-7	20	6	12	9	-2	-11	0	-5	0
	1994	-10	-11	-19	-7	22	0	6	8	-9	-2	0	-10	-1
LIM	1984	1	-19	-9	4	42	8	21	20	7	17	5	0	3
	1994	7	-11	11	-1	-12	4	20	7	5	-1	10	0	2
TOT	1984	-2	-5	2	-2	32	2	3	-2	-1	-4	0	-3	0
	1994	-1	-1	3	-1	22	1	1	-1	-2	0	1	-2	0

Notes: GRO = Groningen, FRI = Friesland, DRE = Drenthe, OVE = Overijssel, GLD = Gelderland, FLE = Flevoland, UTR = Utrecht, NHO = Noord-Holland, ZHO = Zuid-Holland, ZLD = Zeeland, NBR = Noord-Brabant, LIM = Limburg.

6.2 Migration flows between urbanization classes

Flows between municipalities grouped into urbanization classes are presented in Table 23 (the degree of urbanization classification) and in Table 24 (the functional and size classification). In 1984 there was a strong net flow from very strongly urbanized municipalities and from not urbanized municipalities into the middle three categories (middle panel of Table 23). Table 24 shows a continuation of this pattern in the C5 category (biggest cities) but a spread of net in-migration to three least urbanized categories. The net out-migration balance of the C4 category switches from loss to gain as well.

6.3 Migration flows between settlement types and density classes

Tables 25 and 26 present flows between our four settlement types and between the general density classes. We find again continuity of the direction of migration between 1984 and 1994. In 1984 cores lost over 18 thousand migrants; in 1994 they lost nine and a half thousand. The Secondary Core municipalities move from small gain into large loss. Ring municipalities moved from strong gain into moderate gain. The periphery transfers from loss in 1984 to gain in 1994.

The shift between 1984 and 1994 revealed by these flow tables is one of outward shift in population redistribution: population migrates (1) out from the core Western region to more peripheral regions, (2) out from the core provinces to more peripheral ones, (3) out from the largest cities not only to medium-urbanization municipalities but also to more rural areas, and (4) out from the cores of secondary agglomerations as well as the main ones, reaching the country's periphery.

The 64,000 dollar question, which the data to hand could not address, was whether these aggregate flow patterns constituted an average which masked very different flow patterns for young adults and the very elderly which our totals analysis revealed. It would be very interesting to obtain directly from Statistics Netherlands the ODAS arrays for the aggregations used in this report and to explore the extent to which the shifts between 1984 and 1994 were due to changes in the weighting of the different life course groups (compositional change) or due to changes in the propensity to migrate between particular places. Previous analysis at NUTS 2 scale (Van Imhoff *et al.* 1997) suggests that the interaction between origin-destination-age is fairly weak and that most of the variation in migration intensities is captured by origin-age and destination-age and origin-destination effects that we have described in this report.

Table 23: Migration flows between urbanization categories (1), Netherlands, 1984 and 1994

MIGRATION FLOWS

Origins		Destination urbanization categories					
	Year	Very strongly urbanized	Strongly urbanized	Urbanized	Weakly urbanized	Not urbanized	Totals
Very strongly	1984	25915	32995	30850	15530	9635	114925
Urbanized	1994	30455	34020	27405	17303	10551	119734
Strongly	1984	28055	22680	27280	24685	16890	119590
Urbanized	1994	28585	24455	28407	26723	19650	127820
Urbanized	1984	22220	23400	24715	22800	19120	112255
	1994	23617	26321	26494	23598	20698	120728
Weakly	1984	15775	23055	23010	23155	21180	106175
Urbanized	1994	17095	25192	23260	23096	22415	11058
Not	1984	10265	18020	21285	22915	28170	100655
Urbanized	1994	10958	18785	20625	23111	26767	100246
Total	1984	102230	120150	127140	109085	94995	553600
	1994	110710	128773	126191	113831	100081	579586

NET MIGRATION AND MIGRATION EFFECTIVENESS

Origins		Destinations					
	Year	Very strongly urbanized	Strongly urbanized	Urbanized	Weakly urbanized	Not urbanized	Totals
Very strongly	1984	0	4940	8630	-245	-630	12695
urbanized	1994	0	5435	3788	208	-407	9024
Strongly	1984	-4940	0	3880	1630	-1130	-560
urbanized	1994	-5435	0	2086	1531	865	-953
Urbanized	1984	-8630	-3880	0	-210	-2165	-14885
	1994	-3788	-2086	0	338	73	-5463
Weakly	1984	245	-1630	210	0	-1735	-2910
urbanized	1994	-208	-1531	-338	0	-696	-2773
Not	1984	630	1130	2165	1735	0	5660
urbanized	1994	407	-865	-73	696	0	165
Total	1984	-12695	560	14885	2910	-5660	0
	1994	-9024	953	5463	2773	-165	0

MIGRATION EFFECTIVENESS

Origins		Destinations					
	Year	Very strongly urbanized	Strongly urbanized	Urbanized	Weakly urbanized	Not urbanized	Totals
Very strongly	1984	0	8	16	-1	-3	6
urbanized	1994	0	9	7	1	-2	4
Strongly	1984	-8	0	8	3	-3	0
urbanized	1994	-9	0	4	3	2	0
Urbanized	1984	-16	-8	0	0	-5	-6
	1994	-7	-4	0	1	0	-2
Weakly	1984	1	-3	0	0	-4	-1
urbanized	1994	-1	-3	-1	0	-2	-1
Not	1984	3	3	5	4	0	3
urbanized	1994	2	-2	0	2	0	0
Total	1984	-6	0	6	1	-3	0
	1994	-4	0	2	1	-8	-2

Table 24: Migration flows between, urbanization categories (2), Netherlands, 1984 and 1994

MIGRATION FLOWS : 1984

		Destination Urbanization Category (2)											
Origin	Year	A2	A3	A4	B1	B2	B3	C1	C2	C3	C4	C5	Total
A2	1984	10	120	200	85	255	655	60	295	100	280	350	2410
	1994	20	175	270	100	365	505	75	290	144	315	410	2669
A3	1984	140	1265	1930	760	1200	825	515	2000	525	1335	1875	12370
	1994	175	1540	1950	757	1285	795	510	2090	450	1520	1935	13007
A4	1984	155	1990	6085	3730	5975	3850	1070	5490	2685	4315	5835	41180
	1994	245	2150	5695	3832	6085	3390	1286	5865	2631	4510	6110	41799
B1	1984	120	690	3735	6565	7010	4215	1115	4940	3560	3765	7340	43055
	1994	145	577	3792	5989	7480	4170	1179	5166	3806	4121	8439	44864
B2	1984	245	1100	5560	7025	11765	7330	1165	7000	4325	7190	15690	68395
	1994	305	1210	6283	7345	12663	7257	1231	7096	4871	8184	17841	74286
B3	1984	400	900	4155	5115	8055	22695	2120	6090	4485	10315	32110	96440
	1994	500	1010	4105	5358	8745	21280	2166	6665	5312	11265	31800	98206
C1	1984	50	565	1045	1250	1265	2145	935	1530	455	1175	2670	13085
	1994	79	539	1137	1139	1403	1856	522	1399	487	1368	2636	12565
C2	1984	245	1815	5110	4800	6550	6110	1205	5895	2695	4690	10940	50055
	1994	370	2290	5355	4957	6894	5025	992	5925	2516	5135	11090	50549
C3	1984	115	560	2635	3545	4085	4355	490	2615	2105	3535	6550	30590
	1994	140	573	2991	3826	5030	4817	467	2736	2008	4116	7258	33962
C4	1984	305	1305	4100	3775	7450	12280	1100	4700	3310	4850	14860	58035
	1994	455	1755	4765	4623	8045	11795	1112	5055	3368	5660	16060	62693
C5	1984	250	1520	6560	8465	22370	38970	2690	12230	5805	13345	26195	138400
	1994	290	1880	6510	8388	19488	39305	2723	10800	6998	17340	31265	144987
Total	1984	2035	11830	41115	45115	75980	103430	12465	52785	30050	54795	124415	554015
	1994	2724	13699	42853	46314	77483	100195	12263	53087	32591	63534	134844	579587

NET MIGRATION

		Destination Urbanization Category (2)											
Origin	Year	A2	A3	A4	B1	B2	B3	C1	C2	C3	C4	C5	Total
A2	1984	0	-20	45	-35	10	255	10	50	-15	-25	100	375
	1994	0	0	25	-45	60	5	-4	-80	4	-140	120	-55
A3	1984	20	0	-60	70	100	-75	-50	185	-35	30	355	540
	1994	0	0	-200	180	75	-215	-29	-200	-123	-235	55	-692
A4	1984	-45	60	0	-5	415	-305	25	380	50	215	-725	65
	1994	-25	200	0	40	-198	-715	149	510	-360	-255	-400	-1054
B1	1984	35	-70	5	0	-15	-900	-135	140	15	-10	-1125	-2060
	1994	45	-180	-40	0	135	-1188	40	209	-20	-502	51	-1450
B2	1984	-10	-100	-415	15	0	-725	-100	450	240	-260	-6680	-7585
	1994	-60	-75	198	-135	0	-1488	-172	202	-159	139	-1647	-3197
B3	1984	-255	75	305	900	725	0	-25	-20	130	-1965	-6860	-6990
	1994	-5	215	715	1188	1488	0	310	1640	495	-530	-7505	-1989
C1	1984	-10	50	-25	135	100	25	0	325	-35	75	-20	620
	1994	4	29	-149	-40	172	-310	0	407	20	256	-87	302
C2	1984	-50	-185	-380	-140	-450	20	-325	0	80	-10	-1290	-2730
	1994	80	200	-510	-209	-202	-1640	-407	0	-220	80	290	-2538
C3	1984	15	35	-50	-15	-240	-130	35	-80	0	225	745	540
	1994	-4	123	360	20	159	-495	-20	220	0	748	260	1371
C4	1984	25	-30	-215	10	260	1965	-75	10	-225	0	1515	3240
	1994	140	235	255	502	-139	530	-256	-80	-748	0	-1280	-841
C5	1984	-100	-355	725	1125	6680	6860	20	1290	-745	-1515	0	13985
	1994	-120	-55	400	-51	1647	7505	87	-290	-260	1280	0	10143
Total	1984	-375	-540	-65	2060	7585	6990	-620	2730	-540	-3240	-13985	0
	1994	55	692	1054	1450	3197	1989	-302	2538	-1371	841	-10143	0

MIGRATION EFFECTIVENESS : 1994

		Destination Urbanization Category (2)											
Origin	Year	A2	A3	A4	B1	B2	B3	C1	C2	C3	C4	C5	Total
A2	1984	0	-8	13	-17	2	24	9	9	-7	-4	17	8
	1994	0	0	5	-18	9	0	-3	-12	1	-18	17	-1
A3	1984	8	0	-2	5	4	-4	-5	5	-3	1	10	2
	1994	0	0	-5	13	3	-12	-3	-5	-12	-7	1	-3
A4	1984	-13	2	0	-7	4	-4	1	4	1	3	-6	0
	1994	-5	5	0	1	-2	-10	6	5	-6	-3	-3	-1
B1	1984	17	-5	7	2	0	0	-10	-6	1	0	0	-9
	1994	18	-13	-1	0	1	-12	2	2	0	-6	0	-2
B2	1984	-2	-4	-4	0	0	-5	-4	3	3	-2	-18	-5
	1994	-9	-3	2	-1	0	-9	-7	1	-2	1	-4	-2
B3	1984	-24	4	4	10	5	0	-1	0	1	-9	-10	-3
	1994	0	12	10	12	9	0	8	14	5	-2	-11	-1
C1	1984	-9	5	-1	6	4	1	0	12	-4	3	0	2
	1994	3	3	-6	-2	7	-8	0	17	2	10	-2	1
C2	1984	-9	-5	-4	-1	-3	0	-12	0	2	0	-6	-3
	1994	12	5	-5	-2	-1	-14	-17	0	-4	1	1	-2
C3	1984	7	3	-1	0	-3	-1	4	-2	0	3	6	1
	1994	-1	12	6	0	2	-5	-2	4	0	10	2	2
C4	1984	4	-1	-3	0	2	9	-3	0	-3	0	5	3
	1994	18	7	3	6	-1	2	-10	-1	-10	0	-4	-1
C5	1984	-17	-10	6	7	18	10	0	6	-6	-5	0	5
	1994	-17	-1	3	0	4	11	2	-1	-2	4	0	4
Total	1984	-8	-2	0	2	5	3	-2	3	-1	-3	-5	0
	1994	1	3	1	2	2	1	-1	2	-2	1	-4	0

Table 25: Migration flows between settlement type, Netherlands, 1984 and 1994

MIGRATION FLOWS

Origins		Destinations				
	Year	Core	Secondary Core	Ring	Periphery	Totals
Core	1984	44985	13960	77415	34005	170365
	1994	54560	16059	73140	35470	179229
Secondary	1984	15080	7660	11050	24830	58620
Core	1994	17004	8140	11767	28467	65378
Ring	1984	56340	10885	44525	29785	141535
	1994	60290	12347	45225	33063	150925
Periphery	1984	35600	26575	30870	89920	182965
	1994	37846	27100	28165	90945	184056
Total	1984	152005	59080	163860	178540	553485
	1994	169700	63646	158297	187945	579588

NET MIGRATION

Origins		Destinations				
	Year	Core	Secondary Core	Ring	Periphery	Totals
Core	1984	0	-1120	21075	-1595	18360
	1994	0	-945	-12850	-2376	9529
Secondary	1984	1120	0	165	-1745	-460
Core	1994	945	0	-580	1367	1732
Ring	1984	-21075	-165	0	-1085	-22325
	1994	-12850	580	0	4898	-7372
Periphery	1984	1595	1745	1085	0	4425
	1994	2376	-1367	-4898	0	-3889
Total	1984	-18360	460	22325	-4425	0
	1994	-9529	-1732	7372	3889	0

MIGRATION EFFECTIVENESS

Origins		Destinations				
	Year	Core	Secondary Core	Ring	Periphery	Totals
Core	1984	0	-4	16	-2	6
	1994	0	-3	10	-3	3
Secondary	1984	4	0	1	-3	0
Core	1994	3	0	-2	2	1
Ring	1984	-16	-1	0	-2	-7
	1994	-10	2	0	8	-2
Periphery	1984	2	3	2	0	1
	1994	3	-2	-8	0	-1
Total	1984	-6	0	7	-1	0
	1994	-3	-1	2	1	0

Table 26: Migration flows between density bands, Netherlands, 1984 and 1994

MIGRATION FLOWS

		Destination Density Band (psk)								
Origin	Year	<50	50-	100-	500-	1000-	2000-	4000-	6000+	TOTAL
<50	1984	5	55	140	110	90	65	25	20	510
	1994	5	170	395	205	220	95	50	10	1150
50-	1984	290	2040	6900	2305	2630	1880	610	130	16785
	1994	185	1470	6617	2195	2664	1670	565	215	15581
100-	1984	620	6650	61980	22555	34240	22425	10840	1675	160985
	1994	610	6932	61244	22466	36808	23125	10131	1834	163150
500-	1984	320	2085	21080	12775	17570	14770	7210	1855	77665
	1994	325	2417	22175	13782	19899	16140	7889	2138	84765
1000-	1984	200	2095	33915	19815	25695	22315	14725	2505	121265
	1994	405	2838	35929	21914	30062	21911	14463	2946	130468
2000-	1984	65	1620	20295	17505	20325	22480	12070	4890	99250
	1994	220	1880	23118	18054	23809	21630	13130	5720	107561
4000-	1984	10	515	10525	13310	14050	13120	3795	1685	57010
	1994	110	635	10310	10629	16706	11265	4630	2255	56531
6000-	1984	20	370	1990	3075	2950	7430	2065	1710	19610
	1994	25	225	1962	3058	3236	7600	2500	1775	20381
TOTAL	1984	1530	15430	156825	91450	117550	104485	51340	14470	553080
	1994	1885	16567	161741	92303	133404	103436	53358	16893	579587

NET MIGRATION

		Destination Density Band (psk)								
Origin	Year	<50	50-	100-	500-	1000-	2000-	4000-	6000+	TOTAL
<50	1984	0	-235	-480	-210	-110	0	15	0	-1020
	1994	0	-15	-215	-120	-185	-125	-60	-15	-735
50-	1984	235	0	250	220	535	260	95	-240	1355
	1994	15	0	-315	-222	-174	-210	-70	-10	-986
100-	1984	480	-250	0	1475	325	2130	315	-315	4160
	1994	215	-315	0	291	879	7	-170	-128	1409
500-	1984	210	-220	-1475	0	-2245	-2735	-6100	-1220	-13785
	1994	120	222	-291	0	-2015	-1914	-2740	-920	-7538
1000-	1984	110	-535	-325	2245	0	1990	675	-445	3715
	1994	185	174	-879	2015	0	-1898	-2243	-290	-2936
2000-	1984	0	-260	-2130	2735	-1990	0	-1050	-2540	-5235
	1994	125	210	-7	1914	1898	0	1865	-1880	4125
4000-	1984	-15	-95	-315	6100	-675	1050	0	-380	5670
	1994	60	70	170	2740	2243	-1865	0	-245	3173
6000-	1984	0	240	315	1220	445	2540	380	0	5140
	1994	15	10	128	920	290	1880	245	0	3488
TOTAL	1984	1020	-1355	-4160	13785	-3715	5235	-5670	-5140	0
	1994	735	986	-1409	7538	2936	-4125	-3173	-3488	0

MIGRATION EFFECTIVENESS

		Destination Density Band (psk)								
Origin	Year	<50	50-	100-	500-	1000-	2000-	4000-	6000+	TOTAL
<50	1984	0	-68	-63	-49	-38	0	43	0	-50
	1994	0	-4	-21	-23	-30	-40	-38	-43	-24
50-	1984	68	0	2	5	11	7	8	-48	4
	1994	4	0	-2	-5	-3	-6	-6	-2	-3
100-	1984	63	-2	0	3	0	5	1	-9	1
	1994	21	2	0	1	1	0	-1	-3	0
500-	1984	49	-5	-3	0	-6	-8	-30	-25	-8
	1994	23	5	-1	0	-5	-6	-15	-18	-4
1000-	1984	38	-11	0	6	0	5	2	-8	2
	1994	30	3	-1	5	0	-4	-7	-5	-1
2000-	1984	0	-7	-5	8	-5	0	-4	-21	-3
	1994	40	6	0	6	4	0	8	-14	2
4000-	1984	-43	-8	-1	30	-2	4	0	-10	5
	1994	38	6	1	15	7	-8	0	-5	3
6000-	1984	0	48	9	25	8	21	10	0	15
	1994	43	2	3	18	5	14	5	0	9
TOTAL	1984	50	-4	-1	8	-2	3	-5	-15	0
	1994	24	3	0	4	1	-2	-3	-9	0

7. SYNTHESIS AND CONCLUSIONS

7.1 General change

Population redistribution in the Netherlands has been revealed to be a complexphenomenon which this report has attempted to unravel. Use of broad regional divisions of the country revealed that the dominance of the West Netherlands had been eroded in past decades and that this continued in the 1980s and 1990s, to the benefit principally of the East. However, within each broad division there were gaining and losing provinces; within each province there were gaining and losing urban regions; and within each urban region there were gaining and losing municipalities. The most important dimension along which population shifts were occurring was that of urbanization, with a continuing trend of urban deconcentration.

7.2 Rural depopulation

In this series of country studies we are asked to look at evidence for rural depopulation. In the Netherlands, this process is virtually absent in a general form. There are a handful of rural and remote municipalities in the North of the country experiencing some loss, but, in most places which have net internal migration losses, natural gains continue to compensate and will continue to do so until the 2020s. There are age composition effects, however, on peripheral areas: young adults leave the quiet of the countryside for the bright lights of the city but are replaced by families with children seeking the green spaces and freedom from urban worries.

7.3 Urban deconcentration

Urban population deconcentration through a combination of low or negative natural increase and heavy net out-movement of internal migrants affects the largest urban agglomerations in the West Netherlands in particular. However, the deconcentration is partially offset by net in-migration of young people and of foreigners. The extent of deconcentration was very similar in 1994 to its level ten years earlier though the “gradients” (decreasing net in-migration with increasing urbanization intensity and population density) were slightly steeper.

7.4 Suburbanization or counter-urbanization

To what extent did this deconcentration process reflect suburbanization, in which out-migrants moved to places still closely connected with urban cores, orcounterurbanization, in which out-migrants moved to new centres of activity separate from the older metropolises? On balance we would suggest that the deconcentration process is still “suburbanization writ large”, reflecting expansion of commuting fields. This conclusion is supported by

several studies into commuting behaviour in the Netherlands. Even for the most casual observer, the tremendous daily traffic jams clearly point in this direction. The smallest and least dense and remotest places, beyond urban commuting fields, were not the places with the highest in-migration rates. It was the municipalities defined as the "ring" around urban centres that were the most preferred destinations.

7.5 The importance of the life course

All of these trends apply most strongly to the family ages and to those recently retired. The older working ages have low levels of migration activity; the very old have migration patterns attuned, we believe, to their needs for care and convenience which cause them to shun both big cities and the remoter countryside. Adolescents and young adults vote with their feet for urban core locations which provide them with the services (education, entertainment and new jobs) that they need. During people's life careers their group memberships (families or households they belong to) change and so do their needs and aspirations in ways which direct their migrations in very different directions at various life stages.

7.6 The role of economic factors

The role of economic factors has not been fully explored but evidence suggests that its role in organizing population redistribution is secondary and that changes in job locations and commuting journeys can, in the compact geography of the Netherlands, provide the mechanism to adjust labour market demand and supply. There are, of course, exceptions, such as the older industrial towns of eastern and south-eastern Netherlands where such adjustment must be effected by out-migration or planned inward investment.

7.7 Future evolution

Recent projections incorporating internal migration scenarios by Van der Gaag *et al.* 1997 suggest that current redistribution processes will continue but that they will not result in dramatic shifts in population, at least at provincial scale. In their baseline scenario they predict rather little change in the provincial shares of the national population "cake" over the 1995-2025 period, with the notable exception of Flevoland. However, the results of this study suggest that the provincial scale masks the urban deconcentration occurring and which we have no reason to suppose will not continue further. However, regional and urban policy have in the past been important in directing urban deconcentration in the Netherlands through the planning of new settlements and housing. The influence of policy will continue in the future and could effect a switch in direction towards redevelopment of existing urban settlements rather than allowing further extensification.

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