

Population redistribution in times of population decline and ageing.

Do urbanisation patterns in the Netherlands change due to ageing and population decline?

Leo van Wissen, Netherlands Interdisciplinary Demographic Institute NIDI, The Hague, and Faculty of Spatial Sciences, University Groningen

Kenneth Gopal, ABF Research Delft

Michael Stuart Fox, ABF Research Delft

Tialda Haartsen, Faculty of Spatial Sciences, University Groningen

Abstract

Many countries in the developed world have reached the final stage of the demographic transition, which is characterized by low mortality and fertility rates, as well as almost zero or even negative natural growth. Ageing is also an important feature of a population making the transition from fast growth to low growth. Urbanisation, the other almost universal long-term demographic process, is linked to the demographic transition. The migration flows to the cities, mainly of young people looking for jobs, were fed by the growth of the population in the rural regions. What happens to urbanisation when population growth comes to an end, in combination with ageing? This paper studies the consequences of low natural growth and ageing for urbanisation patterns in the Netherlands in the 30-year period 1986-2015. We use a unique database of stocks and flows of population at the municipal level, which has been redefined to the administrative units of 2016. This solves a major issue in longitudinal analysis of spatial units when the definition of the administrative units, due to mergers, boundary changes etc. changes over time.

Seven regions are defined, based on the dimensions core/periphery, and an urban/non-urban distinction within each zone. This definition allows us to look at concentration/deconcentration patterns in combination with urbanisation/suburbanisation/counterurbanisation. We study changes in population distribution over these zones over time, with special emphasis on changing patterns of internal migration flows between the zones. The results indicate that urbanisation and suburbanisation have been dominant throughout the whole period for all age groups, but with a much stronger emphasis on urbanisation for the younger age groups over time. Deconcentration and counterurbanisation flows are small and not increasing over time. These internal migration effects are reinforced by the differentiating effect of natural increase. Natural increase is positive and has increased in the largest cities whereas it is approaching zero or negative growth in the non-urban periphery and intermediary zone. Moreover, the outmigration propensity of the young from the non-urban periphery has increased by 50 per cent in the study period. This more than offsets the reducing effect on outmigration of a smaller population of young people in these areas.

1. Introduction

In many developed countries population growth has come to an end, and decline has set in. This phenomenon is particularly present in European countries and in Japan. 20 out of 48 European countries have already reached the phase of population decline (UN, 2017), most of which are in Eastern and Southern Europe. By 2040 this number will have risen to 30, and the list includes then also Russia and Germany. For Europe, population decline will be the rule in the remainder of the 21st century, not the exception. After 2050 most European countries will have negative population growth. But in the longer run, population decline is not restricted to Europe. Japan is currently the main country outside of Europe facing population decline, but by 2030 also China will see negative population growth figures, and by the end of the century, most countries in the world will experience negative population growth.

Population decline is the final phase of the so-called demographic transition, a long term process through which all regions of the world have progressed from a situation of slow growth as a result of high mortality and high fertility, through fast growth due to low mortality and high fertility, then finally zero or negative growth caused by low mortality and low fertility. In the 21st century most countries of the world will reach this final stage. The second stage of the demographic transition occurred in the western world around the end of the 19th century, and lasted until well in the 20th century. The demographic transition is also linked to two dominant demographic processes of today: urbanisation and ageing. Population growth is essentially urban growth, since the population increase in the rural regions cannot be accommodated with a similar growth of rural jobs and economic activity, leading to a migration flow from rural to urban regions. Moreover, low fertility and low mortality implies population ageing almost by definition. Internal migration plays an important role in regional population dynamics. Together with international migration it is mainly responsible for the unequal regional variation in population growth and decline, both directly, and indirectly, through its effect on regional natural increase. Internal migration is also the main driver of urbanisation and suburbanisation. How do urbanisation and suburbanisation develop in the context of an ageing population at the end of the demographic transition?

What are the consequences of these trends for regional population redistribution within a country? Zelinsky (1971) devised his theory of the mobility transition in relation to the demographic transition, and others have revised and adjusted his theory (Long, 1985). Section 2 gives a short overview of these theories. If the pool of rural population decreases, along with dejuvenation and ageing, does this lead to a reduction of the urbanisation flows? Does ageing imply an increased boost for suburbanisation and counterurbanisation, especially of the elderly? Although the relatively new stage of population decline has led to a renewed interest in regional demographic variation, we feel that an integrated overview of the key trends of regional population change is missing in view of negative natural growth at the national level. The current paper tries to fill this gap to some extent for the case of the Netherlands, using unique data for the period 1986-2015. Will look at regional population trends and component of change at the regional level. We focus on the processes of urbanisation, suburbanisation, counterurbanisation, as well as concentration and deconcentration, which are partly overlapping but not identical concepts. In order to present a concise picture of the main trends in these processes, we define a regional decomposition in 7 categories, to be explained in more detail in section 3.

A very difficult problem of using regional time series data and interregional flow data is that regional definitions change over time. For instance, in 1986 there were 714 municipalities in the Netherlands, against currently 388. The database used for this study is based on the municipal boundaries of 2016 (N=390), and all previous years are re-estimated based on the boundaries of these 390 areal units. The database and underlying estimation methods is described in more detail in section 4. Section 5 and 6 describe the main findings. In section 5 we focus on the basic regional population trends, in section 6 attention is devoted to structural changes in internal migration flows. Section 7 concludes.

2. Stages in regional population distribution

Urbanisation is closely linked to development (Zelinsky, 1971, Champion and Hugo, 2004, UN, 2016), and the Netherlands, similar to other Western-European regions is one of the most urbanized areas of the world (UN, Florida et al., 2008), and the internal migration patterns show a high degree of urbanisation as well as suburbanisation (PBL, 2015), which is characteristic of this advanced stage of development. Zelinsky identifies this as stage five, the “super-advanced society”, in which most moves are inter- and intraurban, within large metropolitan regions. Likewise, Long (1985) defines six stages in population redistribution, of which the later stages are urbanisation, over-urbanisation, suburbanisation, and metropolitan-to-non-metropolitan migration, which could also be labeled as counter-urbanisation (Mitchell, 2004). According to his framework the Netherlands has arrived in the last stage. This is in line with the conclusions of Rees and Kupiszewski (1999). They studied internal migration patterns in ten European countries and found that some countries (Poland, Romania, Norway, Estonia) showed a tendency to urbanisation, some countries (Germany, Italy, Portugal and the Czech Republic) were in the intermediary stage between urbanisation and counterurbanisation, whereas the UK and the Netherlands showed clear signs of counter-urbanisation, except for the young, where increased urbanisation occurs. Similarly, Geyer (1996) distinguishes between emergent and full counter-urbanisation, and includes a final stage of counter-urbanisation with city centre revival. Rees and Kupiszewski underline the notion of the life course to explain differential urbanisation and counter-urbanisation tendencies, with the attraction of the big city for the young, the suburbs for families with children, and the lure of the countryside for households in their later stages of life. Ageing and dejuvenation in a population would therefore result in increased counter-urbanisation and reduced urbanisation.

Current trends in regional population growth in the Netherlands do not point at such an effect of ageing. The largest cities are growing, and the rural countryside is declining. However, these trends are the combined effect of all population components, including natural increase and international migration. In order to present a more definite conclusion about the effect of ageing and low natural growth on urbanisation a more precise analysis is required. In this paper we attempt to provide such an analysis.

What exactly is meant with urbanisation, suburbanisation and counterurbanisation needs clarification, as well what is meant by the category of urban area. Urbanisation can be defined as the process whereby an increasing share of the population lives in urban areas (Rees and Kupiszewski, 1999, p. 15). What constitutes an urban area varies according to the definitions used in various countries, which can be based on physical characteristics (built-up area), functional criteria (economic activity), absolute size of a settlement, or population density. In the UK a mix of economic

activity and settlement size is used. In the Netherlands, degree of urbanisation is based on address density (Statistics Netherlands definition). We use the Statistics Netherlands classification of municipalities in urban and non-urban. Suburbanisation is the process of population movement from the central urban area to the outer areas within a city region. The size of the city region is defined based on commuting distance, although with the suburbanisation of jobs this criterion becomes less meaningful, and city regions may develop into larger metropolitan regions. Counter-urbanisation could be viewed as the inverse of urbanisation, but is generally viewed as a process of redistribution of population from city regions to rural areas (Rees and Kupiszewski, 1999). The difference between suburbanisation and counter-urbanisation is therefore based on the definition of the city region. Both can be viewed as expressions of the more general and neutral process of deconcentration: the dispersion of population from high density to lower density regions. Similarly, population concentration is the more general term of clustering of population in areas of higher density, and includes urbanisation.

These partially overlapping definitions hide a difference in the spatial scale of the processes. We define population concentration and deconcentration at the national level, where we make a distinction between core, intermediary and periphery zones. Concentration is the redistribution of population towards a higher level zone: from periphery to intermediary or core, and from intermediary to core zone. Within each zone a distinction may be made between urban and non-urban areas. This classification allows us to define urbanisation, suburbanisation, counterurbanisation, concentration and deconcentration more precisely, as will be shown in detail in section 6.

3. Data on regional population dynamics

The Netherlands has a long tradition in collecting regional demographic data. As a register country, there is detailed population information up to the municipal level – and more recently even on a smaller spatial scale- on all components of population change.

The data that have been used for this study are based on the STATISTICS NETHERLANDS population statistics by municipality for the period 1986-2015, including, population by age category, births, deaths, internal in- and outmigration, as well as external immi- and emigration.

The unique feature of this database is that it takes account of the changes in municipal boundaries as well as mergers over time. In 1986 the Netherlands counted 714 municipalities, in 2015 only 393. Larger municipalities are necessary to increase the management power at the municipal level which is required in order to deal with their increased responsibilities and tasks. These changes in the definition of the municipal units poses large problems for longitudinal analysis of population trends at the local or regional level. Sudden changes in trends are most often the result of these administrative adjustments.

Since for this analysis a consistent database over time is needed, we have transformed all previous years to the municipal definition of 2016. In the transformation, we took care of all mergers and fusions of municipalities, as well as changes in municipal borders, since 1986. In case of a merger, the transformation is simple: just adding up. More often, a specific postcode or neighborhood of a

municipality becomes part of another municipality, or a municipality is disbanded and partitioned over neighboring municipalities. In these cases it is necessary to know how many persons were involved in each of the partitions. Based on this information, which is obtained from Statistics Netherlands, so-called transformation keys are determined and used to allocate persons over the municipalities. Births, deaths and migration numbers are adjusted accordingly so that a consistent database is created. As a result of these transformation, some inter-municipal migration flows become intra-municipal flows. However, in this study we do not deal with intra-municipal flows.

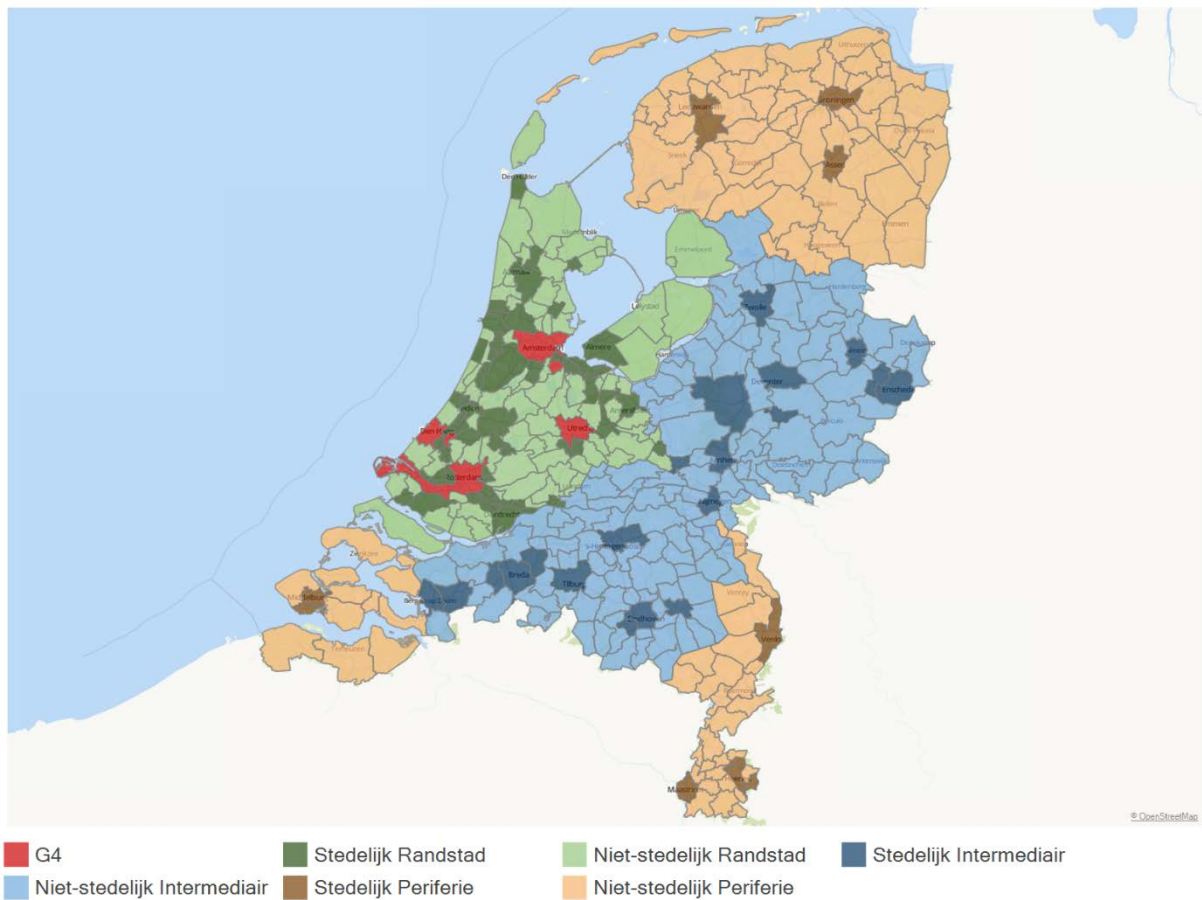
4. A new regional classification

The regional definition chosen for this study reflects two dimensions: a core-periphery dimension, in which three categories are distinguished: (1) the **Randstad area**, which is the western region of the Netherlands, or core region in terms of economic activities, consisting of the most densely populated provinces North- and South-Holland and Utrecht, as well as Flevoland, (2) an **intermediary zone**, bordering the Randstad area, with travel times roughly up to one hour from the Randstad, and (3) the **periphery**, i.e. the provinces in the north, the southernmost province Limburg and the southwest province Zeeland. Within each zone a distinction is made between urban and non-urban municipalities, based on the SN definition of urbanity, based on address density. In the core area the four largest municipalities of the Netherlands (Amsterdam, Rotterdam, The Hague and Utrecht) are defined as a separate category G4, next to the other urban municipalities. The two dimensions cover two different spatial scales. The core-periphery dimension shows concentration processes at the national level, the urban-nonurban dimension shows concentration at the regional level. We will need these different dimensions to describe the nature of internal migration flows. Note that migration flows between categories are not defined on the basis of distance as such, but denote moves between types of areas. For example, a move from a village in the northern periphery to a city in the southern periphery is an intrazonal move.

Figure 1 gives a map of the 7 categories thus defined. We will describe the population dynamics of these seven regions over the period 1986-2015.

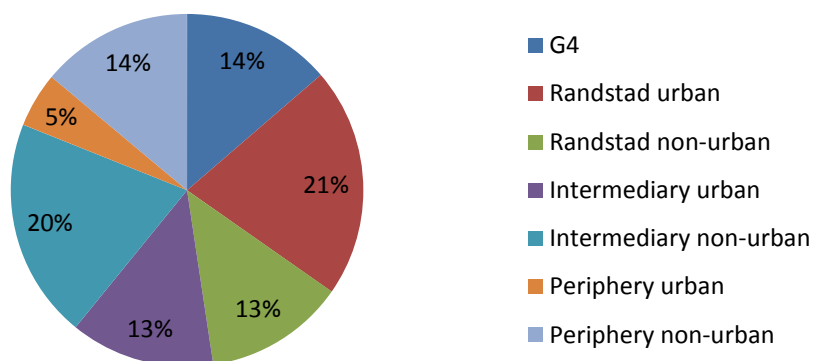
In order to present a picture as simple as possible without sacrificing the essentials, we divided the time dimension in a number of time periods: 1986-1993, 1997-2006, 2007-2015. Unfortunately for the years 1994-1996 the age of internal migrants is not preserved so we have left these three years out of the analysis. Overall, however, we are able to cover a period of 30 years in population dynamics within the Netherlands.

Figure 1 *Classification of the Netherlands in seven regions*



To get an idea of the relative weight of each of the regions, *figure 2* shows the distribution of the population in 2016. Almost half of the population lives in the Randstad area (G4, urban, non-urban), one third in the intermediary region (urban, non-urban), and almost one fifth in the periphery (urban, non-urban).

Figure 2 *Population shares of 7 regions on 1-1-2016*



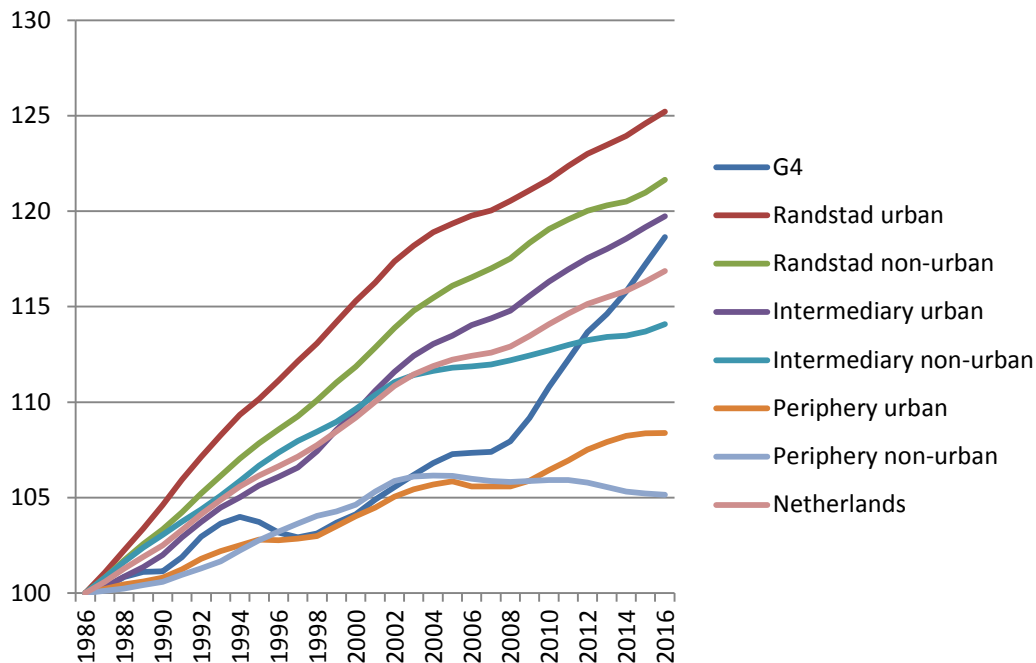
5. Regional demographic trends of the last 30 years: the 'return to the city': urbanisation and concentration

Natural population growth, internal migration and international migration have all influenced the development of the overall population in each of the various regions. In general, natural growth has declined and consequently its importance to the overall population trajectory of regions has also declined. The importance of internal and international migration has become greater.

In the Netherlands as a whole, the population has increased from 14,5 million in 1986 to almost 17 million 30 years later (+17%). However, this growth has been unevenly distributed throughout the country. In relative terms, growth has been the strongest in the Randstad and weakest in the periphery (figure 3). Within the Randstad, intermediary zone and periphery the population has increased more strongly in the urban municipalities than in less urban or rural municipalities. The last three decades of demographic developments in the Netherlands can be characterized as the 'return to the city', defined by an increasing attractiveness of urban regions and, consequently, a higher rate of net migration and population growth for those regions. This trend follows the process of suburbanisation and the decline of the city – especially its population – in the 1960's and 1970's and can also be observed in other Western European countries.

Although all regions are more populated in 2016 compared to 1986 the closer to the Randstad the higher the growth. The Randstad regions (G4, urban, non-urban) have grown relatively faster, and the periphery regions the slowest. The periphery lags far behind. So, clearly, at the national spatial scale population concentration is the rule. But also at a lower spatial scale urbanisation is dominating. In all zones the urban regions are growing faster than the non-urban region, although some remarks have to be made here. The G4, four largest cities in the core, lagged far behind the other urban and non-urban regions of the core Randstad area until 2008, but made a very remarkable growth spurt since then. This is the more remarkable, since the growth at the national level reduced to a slower pace since 2003. Their growth curve has been volatile in the nineties, with net growth in the early nineties, and net decline in the second half of the nineties. This growth spurt coincided with the economic crisis, which obviously benefitted primarily the largest cities in terms of population growth. Similarly, the urban region in the periphery, which did not differentiate very much in its slow growth path from the non-urban peripheral regions until 2008, started to grow faster as well since then. Interestingly as well, we see that the urban region of the intermediary zone keeps a growth path very comparable to that of the core region, indicating that population growth extends beyond the core into the urban centres around the Randstad region. However, this does not lead to a slowdown of the growth of the Randstad. The Randstad has a tendency to grow outwards, and targets primarily the urban municipalities around it.

Figure 3 *Population growth in seven regions 1986-2016*



The Dutch population has aged in the last three decades. The young population – younger than 25 years old – has declined by 8% since 1986. In the G4 largest cities, however, the young population has increased. The number of 25- to 34-year-olds has also only increased significantly in the G4 and stagnated or declined elsewhere. The number of 35- to 44-year olds has stagnated in the country as a whole but grown significantly in the four largest cities. For the middle-age population (45 to 64 years) the reverse holds true: that age group has grown less strong in the G4 cities than elsewhere. For the senior population (65+) the difference between the largest cities and the rest of the country has been even bigger, as is shown in Figure 4. In other urban municipalities in the Randstad the development of various age-groups looks more like other regions. There is thus a clear difference between the largest cities and smaller cities in the same western part of the country.

As mentioned earlier, **natural growth** has declined overall. In the periods 1996-2005 and 2006-2015 the average yearly natural growth was lower than in 1986-1995. In contrast to the general trend, natural growth has increased in the G4 (figure 5). In all other clusters natural growth has decreased. In the periphery natural growth in the last 10 years has been slightly negative. The increase in natural growth in the G4 is partly the result of the development of new residential areas with housing suitable for families. These neighbourhoods have drawn many couples, resulting in an increase in the number of births in the G4 and thus an increase in natural growth.

Figure 4: Relative change in population in 2016 compared to 1986, by age categories

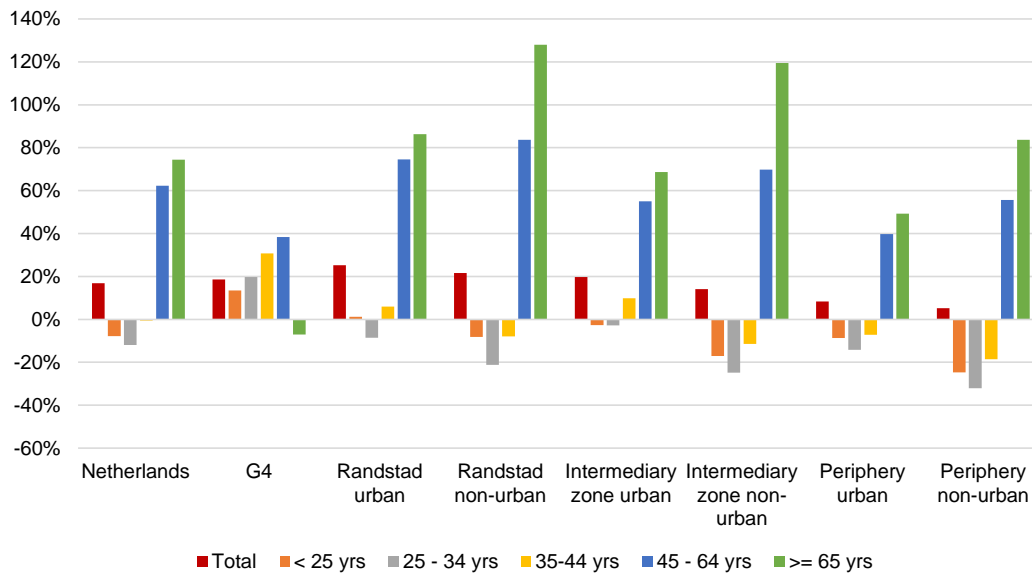
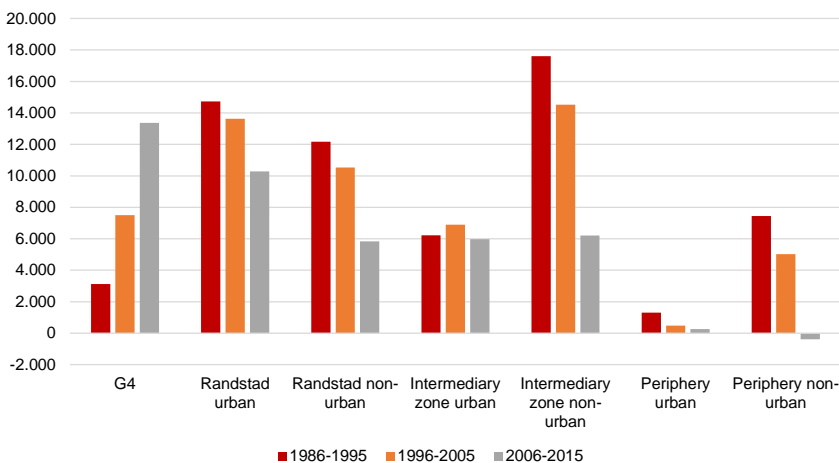


Figure 5: Average yearly natural growth per 10-year period



International migration fluctuates more than internal migration. International migration can change strongly from year to year, partly the result of legislative changes and geopolitical events elsewhere which have resulted in flows of migrant workers and refugees respectively. For international migration it is therefore less meaningful to look at average yearly rates over 10-year periods but some significant trends can still be discerned that way (figure 6). International migration has shown a remarkable similar pattern across all regions over time, and contributed to all regions in all years, with the exception of the period around 2004-6, where it was negative everywhere. The average yearly rate of net international migration has been lower in recent periods than in 1986-1995. In the G4 and smaller cities in the Randstad the decline has been, proportionally speaking, larger than in the country as a whole. Relatively speaking, however, the G4 still have a significantly higher net rate than all other parts of the country. In the non-urban parts of the Randstad, the net amount has increased. In the intermediary and peripheral zones the differences between urban and non-urban municipalities in terms of changes in net international migration are less clear. Moreover, population

decline would have been more negative in the periphery without the positive impact of international migration. In the non-urban intermediary zone population growth would have been about zero.

The Development over time of **net internal migration** has differed between the various clusters. The G4 collectively has long had a negative net internal migration rate with the rest of the country (non-G4). For a long time, more people left the G4 for other municipalities than moved to the G4. But in the most recent 10-year period, the G4 as a whole has had a positive net internal migration rate, as is shown in figure 7. In other but smaller cities in the Randstad net internal migration, though still positive, has declined substantially. Within both the intermediary zone and the periphery, net migration has increased in the urban municipalities and decreased in non-urban municipalities. In the non-urban regions of the intermediary and peripheral zones, the net rate is negative whereas in all other clusters the rate either hovers around zero (periphery urban) or is solidly positive. In the intermediary and peripheral zones – but not in the Randstad – a clear difference exists between urban and non-urban municipalities in the development of net internal migration. In the Randstad there is no clear difference in that regard although the decline in net migration has been stronger in urban than non-urban municipalities.

Figure 6: Average yearly net international migration, per 10-year period

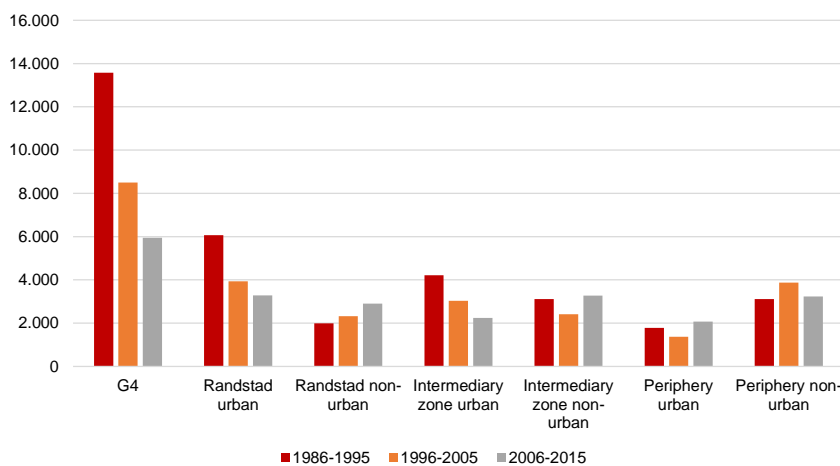
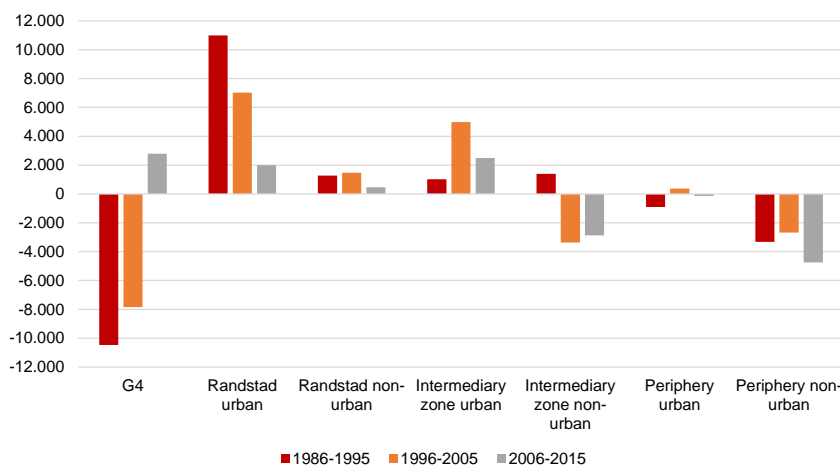


Figure 7: Average yearly net internal migration, per 10-year period

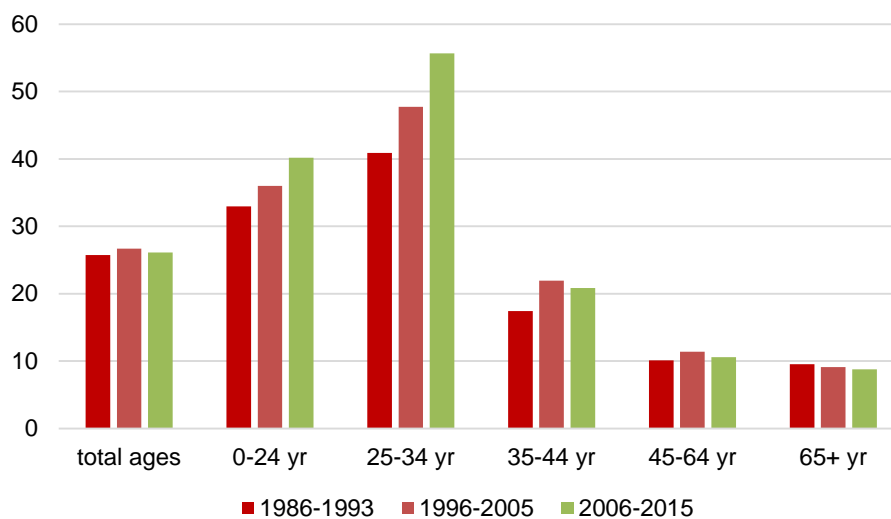


Although regional differences in fertility and mortality exist in the Netherlands (Planbureau voor de Leefomgeving, 2015; Janssen et al., 2016), the regional differences in growth rates are mainly due, both directly and indirectly to migration. Directly, through a change in the number of residents following a move, and indirectly, since age-selective migration affects the size of the young population in regions. In the next section we will analyze the internal migration component in more detail, taking into account interregional flows between regions, age and time.

6. Structural changes in internal migration patterns

How do urbanisation and suburbanisation develop in the context of an ageing population at the end of the demographic transition? In order to answer this question we must focus on internal migration as the key demographic component behind these processes. We take into account migration flows between the seven regions used as well as age (in five categories), and analyze the changes that occurred between 1986 and 2015. Overall, internal migration, as defined as cross-regional moves within the seven-region classification defined here, has been constant at about 26 per 1000 (figure 8). Since the moving rate (i.e. the rate at which persons change address) has decreased between 1986 and 2015 from 114 to 99 per 1000 of the population (Statistics Netherlands, statline), the share of moves that are crossing a regional boundary as defined in our seven region categorization has increased slightly, from 23 to 26 per cent.

Figure 8 Age-group specific internal migration rates 1986-2015



The overall interregional migration rate obscured important age-group specific differences and trends. Internal migration rates for 0-24 has increased from 33 to 40 per 1000, and for the 25-34 even from 41 to 56 per 1000, which is in contrast to the stable (45-64) or decreasing (65+) trends in the ages beyond 45 years (figure 8). Since our regional classification was devised to reveal concentration/deconcentration processes at the national and regional scale this implies that the shrinking group of younger population is much more involved in these types of moves and over time this is becoming even stronger, whereas the expanding group of the older persons is gradually becoming less involved in concentration/deconcentration processes.

Taking the level of detail even one step further, there are also strong and widening regional differences in internal migration rates by age. The increase in outmigration rates of the youngest age category 0-24 happens primarily in the non-urban regions, particularly in the intermediary (from 22 to 34 per cent) and in the periphery (from 23 to 36 per cent). Thus, in the rural regions in the periphery and intermediary zone not only natural increase has come to an end, but also the outmigration rate of the young has increased with about 50 per cent. The outmigration rate of this age category is highest in the urban periphery. A number of these cities have universities the (Groningen, Maastricht), which is largely be responsible for this. This is also true for the age group 25-34 years, and for the same reason. Finally, what is particularly striking for the higher age categories (35+) is that outmigration rates for the G4 are increasing over time.

In order to analyze the direction of the internal migration flows, the 7*6 =42 origin-destination pairs between all 7 regions were further classified in terms of concentration / deconcentration and urbanisation/suburbanisation/de-urbanisation. We have previously loosely defined concentration/deconcentration and urbanisation/suburbanisation/de-urbanisation similarly as flows between urban and non-urban regions. Both classifications are interrelated. There is ambiguity between concentration and urbanisation, and between deconcentration and suburbanisation and counterurbanisation. However, using the two different spatial scales the following classification of flows can be made (table 1):

Table 1 *Categorization of internal migration flows based on change in zone level and urbanity level*

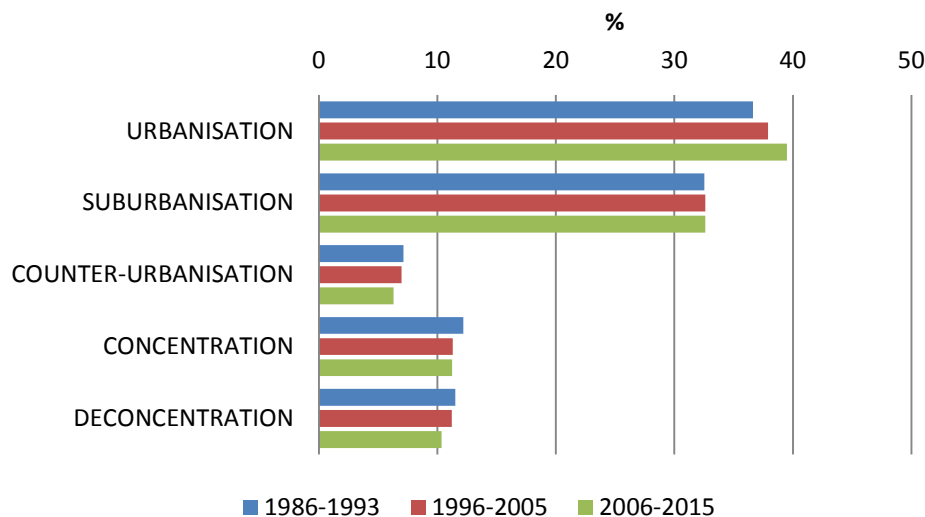
		Zone level (periphery=1,intermediary = 2, Randstad = 3)		
		higher	Equal	lower
Urbanity level (Non-urban=1, Urban=2, G4=3)	higher	urbanisation	urbanisation	deconcentration
	equal	concentration	X	deconcentration
	lower	concentration	suburbanisation	counterurbanisation

The categorization as given in Table 1 implies that all moves up the zonal ladder are concentration flows, except when the move is also up on the urbanity ladder, e.g. when moving from a city in the intermediary zone to one of the G4 cities, in which case the move adds to urbanisation flows. Urbanisation is a more specific type of spatial concentration. Similarly, all moves down the zonal ladder are deconcentration flows, except when the move is also down on the urbanity ladder, e.g. when moving from a city in the intermediary zone to a non-urban region in the periphery. The move in these cases is of the counterurbanisation type. Suburbanisation only occurs within zones, when moving from a higher to a lower urban level. This is a useful scheme to describe the structural changes in internal migration flows over time and by age. Both counterurbanisation and suburbanisation are specific types of deconcentration.

Figure 9 depicts the distribution of all interregional flows in the five designated categories. By far the most important flow types are urbanisation and suburbanisation. Urbanisation is the largest category, and slightly increasing in weight over time: from 37 to 39 per cent of all interregional moves. Suburbanization is second in size, with 33 per cent of all interregional moves. Concentration and deconcentration more or less balance each other, with 11-12 per cent, and slightly decreasing over time. Counterurbanisation is the smallest category, with about 6-7 per cent of all moves, and also decreasing over time. Although for all ages together, most of the change over time is in the

growing importance of urbanisation, overall the picture is relatively stable. The figure also reveals that population concentration other than urbanisation is of little importance, and certainly not on the rise. The same is true for deconcentration other than suburbanisation.

Figure 9 Trends in internal migration flows by category 1986-2015

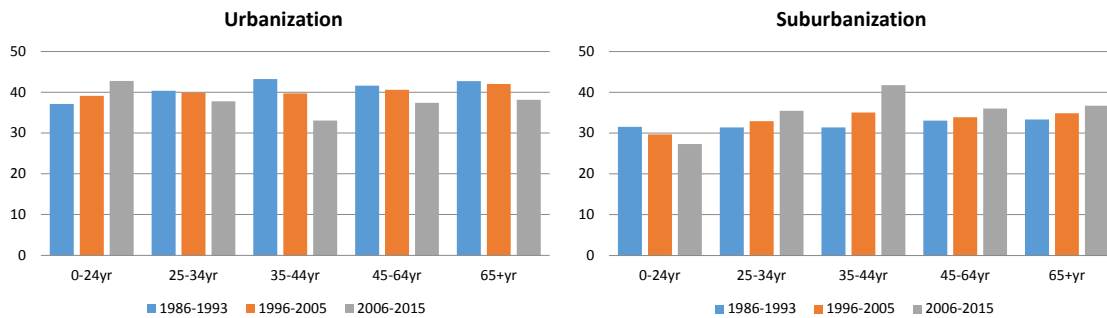


When focusing on urbanisation and suburbanisation, there are a number of age-related differences in the trends over time. Figure 10 (left panel) reveals that only in the youngest age group urbanisation is becoming more prominent. In all other age groups the reverse is true, with the strongest decrease, from 42 to 33 per cent of all interregional moves, to be seen in the age group 35-44. The trends for suburbanisation are complementary to those of urbanisation (figure 10, right panel). It is increasing in all age groups except for the youngest age group 0-24. Nevertheless, these figures also show that urbanisation and suburbanisation in terms of their share in the total number of interregional moves is in the same order of magnitude for all age groups, around 30-40 per cent, although differences are increasing. This also means that also for the 65+ age group urbanisation is the most dominant interregional migration flow, and counterurbanisation and deconcentration are also of little importance for the elderly. Ageing will therefore not lead to a structural change in the population redistribution pattern.

The analyses clearly show that the expectation of Rees et al. (1999) that internal migration would move into the phase of counterurbanisation is not confirmed for the Netherlands, and that ageing will not give this process a further boost. This results do confirm another conclusion of Rees et al. (1999) that the youngest migrant group exerts a deviant spatial behavior, with increasing emphasis on urbanisation.

We may conclude from this age-differentiated analysis of urbanisation processes that urbanisation and suburbanisation are the dominant trends in spatial redistribution in the Netherlands in the last 30 years, with a small and diminishing role of counterurbanisation or concentration/deconcentration. Ageing will not lead to a structurally different pattern of urbanisation.

Figure 10 Trends 1986-2015 in urbanisation and suburbanisation by age group



7. Conclusions

What are the consequences of the end of population growth and ageing on spatial redistribution within the Netherlands? Urbanisation and suburbanisation have often been linked to phases of rapid national population growth and at the global level population growth is essentially urban growth (UN, 2014). So what happens if this growth condition is no longer satisfied? This paper studies changes in population redistribution patterns in the last 30 years, in which the country evolved from moderate population growth to low growth, and at the regional level in some cases even zero growth. In some of the literature of the nineties and early 2000 period, one could hypothesize a change from urbanisation to counterurbanisation, as is done in some of the older literature, although with a sustained attractiveness of the main city centres for the young (e.g. Rees and Kupiszewski, 1999; Geyer, 1996). Our findings only partially confirm these trends. Although the population structure is changing towards higher ages, there is no sign of a reduced tendency of urbanisation. On the contrary, not only do the largest cities stand out in terms of gains because of migration but also as a result of positive natural increase. The largest cities are the only category where natural increase has steadily gone up over the last 30 years, whereas it is negative in the rural periphery. The spatial inequality in age structure and growth has therefore become more pronounced. In the periphery the propensity for outmigration of the young has substantially increased by about 50 per cent over the course of the 30 years. The effect on the size of the outmigration flow of smaller cohorts of the young in these regions is therefore more than offset by a larger inclination to leave the region

Urbanisation and suburbanisation are the dominant patterns in internal migration throughout the whole period, and for all age groups, although with some variations, and with gradual changes over time. The dominant category for the youngest age group is urbanisation, and increasingly so over time, but next comes suburbanization, although decreasing over time. For all other age groups urbanisation was the dominant category in the first period 1986-2003, but suburbanisation has become more important over time, and is about equal in size or even larger than urbanisation. Nevertheless, the changes over time are not so abrupt and the differences among the age groups not so large that a population dominated by higher ages will lead to an end to urbanisation.

Counterurbanization, as well as concentration and deconcentration are small categories, for all age groups, and this has not changes much over time. Remark that urbanisation and suburbanisation are specific forms of concentration and deconcentration, as defined here, so in the more general meaning of these terms there is substantial concentration and deconcentration, but we prefer to use

the more specific categories of urbanisation and suburbanisation. However defined, we see little evidence of increased deconcentration, either in the form of counterurbanisation or deconcentration, which both involve a migration from a higher order zone to lower order zone. The expectations as expressed by various authors that counterurbanisation is the final stage of population redistribution, cannot be confirmed therefore.

Finally, the position of the urban intermediary category is interesting. It is growing, mainly due to migration. This can be interpreted as the spread of the growth of the Randstad beyond its boundaries, and directed specifically to the urban centres around it.

References

- Champion, T. and G. Hugo (2004). *New Forms of Urbanisation, Beyond the Urban-Rural Dichotomy*. London: Ashgate Publishing.
- Florida, R., T. Gulden and Ch. Mellander (2009) The Rise of the Mega-Region. *Cambridge Journal of Regions, Economy and Society*, 1(3): 459-476.
- Geyer, H.S. (1996) Expanding the Theoretical Foundation of the Concept of Differential Urbanisation. In: *Tijdschrift voor Economische en Sociale Geografie TESSG*, vol. 87(1):44-59
- Janssen, F., Hende, A. van den, Beer, J.A.A. de & Wissen, L.J.G. van (2016), Sigma and Beta Convergence in Regional Mortality; a Case Study for the Netherlands. *Demographic Research*, 35(4): 81-116
- Long, J.F. (1985) Migration and the phases of Population Redistribution. *Journal of Development Economics*, 17(1-2): 29-42
- Mitchell, C.J.A. (2004) Making Sense of Counter-Urbanisation. *Journal of Rural Studies*, 20(1): 15-34
- Mulder, C. H. and P. Hooimeijer (1999). Residential Relocations in the Life Course. In: *Population Issues: An Interdisciplinary Focus*. L. J. G. van Wissen and P. A. Dykstra (eds.). Dordrecht, Springer Netherlands: 159-186.
- Planbureau voor de Leefomgeving (2015) *De Stad als Magneet, Roltrap en Spons* (The City as magnet, escalator and sponge) . The Hague, PBL.
- Planbureau voor de Leefomgeving (2015) *PBL/STATISTICS NETHERLANDS Regionale Bevolkings- en Huishoudensprognose 2016-2040: Analyse van Regionale Verschillen in Vruchtbaarheid* (Regional population- and household projections 2016-2040: analysis of regional differences in fertility). The Hague, PBL.
- Rees, Ph. And A.G. Wilson (1977) *Spatial Population Analysis*. London, Arnold.
- Rees, Ph. And M. Kupiszewski (1999) *Internal Migration and Regional Population Dynamics in Europe: a Synthesis*. Population Studies, no. 32, Council of Europe Publishing, Strasbourg.

Rogers, A. (1968) *Matrix Analysis of Interregional Population Growth and Distribution*. Berkely, University of California Press.

Rogers, A. (1975) *Introduction to Multiregional Mathematical Demography*. New York, Wiley.

United Nations (2014) *World Urbanisation Prospects, the 2014 Revision*. UN website <https://esa.un.org/Unpd/Wup/>, visited on 24/8/2017

United Nations (2016) *Urbanisation and Development. Emerging Futures*. World Cities Report 2016, UN Habitat.

Zelinsky, W. (1971) The Hypothesis of the Mobility Transition, *The Geographical Review*: 61(2): 219-49.