

Chapter 2

Demographic Changes

Demographic developments are solely dependent on three variables: birth, mortality, and migration (Poston and Bouvier 2010). How does population decline fit into this picture? On the one hand, the population can shrink due to more people dying than being born—mortality surplus. On the other hand, the population can shrink due to more people migrating from one area than to another area. In terms of the latter, we notice a negative net migration, a mortality surplus. For every two deaths, 2.1 births must occur in order to keep the population in balance. If there are deviations to this calculation, then we observe a decrease of young people in an area and ageing. The former refers to fewer births (<2.1) and migration from young people from an area. The latter refers to the number of elderly in relation to the number of young people in an area. Ageing doesn't necessarily have to lead to a population decrease: an area can compensate its natural population decrease by drawing people from elsewhere. If this doesn't work, the population will decrease. In some areas, both processes can occur: relatively few children are born and relatively many people leave. A decrease of young people in an area and ageing are, therefore, related to demographic decline, but are not identical to it. As a rule of thumb, depopulation areas age, but ageing areas do not necessarily decline.

2.1 Population Decline and Low Fertility

If Italy refrains from taking action, then by the end of this century, the country will have lost 86 % of its population—only 8 million Italians will remain. The number of Germans will also decline: without the arrival of immigrants, in 2100 there will be 83 % fewer Germans than there are now. This is the expectation of demographers who are worried about the low fertility rates in Europe (Kösters 2011). Sixty years ago the European population grew slowly. The euphoria of the end of World War II caused the baby boom. However, in the swinging 1960s, fertility rates decreased:

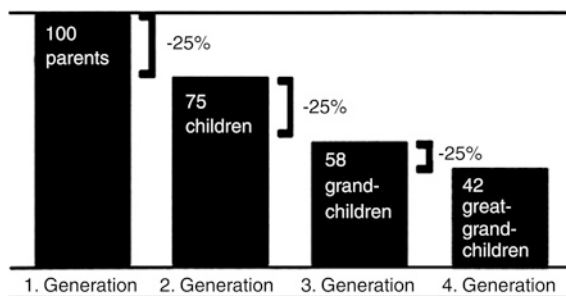
although sex was aplenty, it did not result in procreation. Since the middle of the 1970s, women produce too few to even guarantee a stable population. The average birth rate in the EU-27 (2010) is 1.6 children per woman (Eurostat 2011). The birth rates are particularly low in Southern and Eastern Europe. Italy doesn't rate above 1.3, and Bulgaria is stuck at 1.2. Germany has a birth rate that fluctuates around 1.4. With an average birth rate of 1.75, the Netherlands has, on European level, obtained a relatively high fertility rate. This average, however, is far below the so-called 'replacement level' of 2.1 children per woman. This results in a decrease of young people in an area: the number of babies, children, and youths in the population decreases.

What is the cause of the decreasing birth rates since the European baby boom? First: the invention of the contraceptive pill. At the start of the 1960s, a contraceptive pill was brought on the market, and it allowed women to influence the time of pregnancy. Birthing children became a somewhat conscious decision (Knook 2009). This pill contributed to a decrease of teen pregnancies and the age of women at the birth of their first born increased. Many years ago, children were a guarantee for old age, but now society plays that part. By consequence, socio-economic developments also contributed to a decrease of the fertility rates. In the past decennia, the European woman has become more emancipated. They go to school longer and follow-up with a career before settling for a family. Furthermore, modern women set high standards for a partner, which allows them to keep searching for 'the one'. Since the hit song from Madonna, we can speak of the 'material girl' effect—the modern woman who decides her own fate and thinks carefree dating is more important than an early pregnancy (Pearce 2010). An increasing number of women postpone maternity. Dutch women belong to the oldest mothers of Europe: the average age of pregnancy is 29.

The German demographer Birg (2001) perceives a pattern in the decreasing birth rates. According to him, there is talk of a 'demographic-economic paradox'—the higher the economic development of a country, the lower the fertility rate. Looking at this pattern, a decrease of young people in an area is the price which we will have to pay for more prosperity and emancipation. However, it is debatable whether this theory is correct. Statistically, the demographic-economic paradox for Western Europe cannot be observed (Klingholz 2009a). Up until the 1980s, a higher participation of women on the labour market and a decrease of the birth rate went hand in hand. However, in the following decennia, we see a positive correlation between the labour participation of women and the fertility level in Western Europe. In countries with a relatively high child average such as Sweden, Denmark, and the Netherlands, more women work than in countries with lower birth rates such as Italy, Spain, and Germany. This is not only a matter of cultural differences. Family politics also plays a part. In Italy and Spain, affordable childcare is hardly mentioned on the political agenda. Scandinavian countries carry out active family politics to facilitate working parents. For instance, Sweden's generous maternity and paternity leave, flexible working hours, and nurseries at the office are common. Cheap childcare and other measures that enable work and family to be combined are thus good for the birth rates.

In theory, a decrease of young people in an area has large consequences for a country. Indeed: in a society with fewer children, the number of potential mothers

Fig. 2.1 The consequences of a decrease of young adults for generations to come
(Source Kösters 2011)



also recedes—children who are not born cannot produce their own children. This effect strengthens from generation to generation (Kösters 2011). Suppose in a country that 100 parents produce 75 children, with an unchanged birth rate (that amounts to 1.5 per woman), these 75 children will produce 56 offspring, and they in turn will produce 42. Of these 100 parents, just over half of them will become grandparents (Fig. 2.1). Some expect this domino effect of a decrease of young people in an area to lead to large shortages on the labour market. Shortages on the labour market and the growth of the number of people over 65 are severe threats for the financing of collective goods and the system of social security. Others comment differently; because the population of a country is not a closed system, immigration can largely compensate the shortages (Horx 2009).

Due to a decrease of young people in an area, the need for schools and teaching staff in depopulated areas strongly declines. For example, take the Achterhoek: a Dutch rural area, the number of pupils in primary education structurally decreases and employment for teachers is limited. Be aware that a quarter of primary schools in the area will have to close at some point. In other depopulation areas in the Netherlands, a decrease of young people in an area also leads to emptier classrooms. Up until 2015, the pupil population will decrease by 10 % (150,000 children). This means that in this period with an unchanged policy 900 village schools in the Netherlands must close (Aboutaleb and Mat 2011). In most villages, closing the primary school is a tough pill to swallow. The primary school is considered as a symbol of the existence of a village. van der Wouw et al. (2012) downplay the importance of a primary school for the future of a village. On the basis of foreign studies and research in Zeeland, a province in the Netherlands, they conclude that the areas without a school are by no means destined for abandonment.

2.2 Population Decline and Ageing

Since 2009, larger amounts of incontinence products than diapers are being sold in Germany (Kösters 2011). This is a trivial expression of a phenomenon that all of Europe has to deal with: ageing. The number of elderly in the population increases. In the EU-27 (2011), 17 % of the population is over 65, while in

1960 only 9 % was over 65. Germany and Italy are two countries with the largest percentage of ageing: 20 % of the population is 65 or older (Eurostat 2011). This is hardly exceptional because ageing goes hand in hand with a decrease of young people in an area. Fewer children ultimately ensure an increase of the average age—the measurement of seniors in the population naturally increases. Aside from a decrease of young people in an area, ageing has another, non-demographic cause: we are all getting older. In most European countries, the life expectancy keeps growing by 2 or 3 months a year; this is mainly due to medical developments, like diagnostic improvements, surgical treatment and medication. In 2008, the life expectancy at birth for European women was almost 82 years and for European men 76 years (van Nimwegen 2008). An end to the average age increase has not yet been spotted. The age of the Biblical figure Methuselah—he reportedly became 969 years old—is probably far beyond our reach. But according to some doctors, the life expectancy can easily reach 150. Knook (2009) calls this the ‘Methuselah mystery’: we are all growing older, but we have no idea what this will mean for the organisation of our society.

However, we can already observe that ageing has radical consequences for society. Think of new issues that can occur in health care or in housing. Because ageing comes with bodily defects, the need for health care and senior facilities increases. Where do we find care staff in a shrinking society? What about the supply of ground level housing? Or will medical technology and automation soften the problems of age? Ageing also raises new questions outside of the health care and housing sectors. Are there enough resting areas and toilets in public spaces? And is the safety of the elderly in traffic guaranteed? New York City made sure in 2010 that traffic lights in four hundred places in the city remained green for four seconds longer; this allows the elderly more time to cross the road. Some municipalities take extra space needed for mobility scooters into account when constructing cycle paths. The Dutch province of Limburg shows that ageing even has an influence on tap water consumption (Reverda 2011). WML, the regional water company in Limburg, the Netherlands, implemented a rate increase some years ago. This measure is not only due to a decrease of the number of households in Limburg affected by population decline but the water company has also had to incur costs to purify surface water. The reason for this? Due to ageing, the use of medication in Limburg has increased and, therefore, more pollutants have contaminated the surface water.

2.3 Global and European Trends

The global population is growing, but the number of Europeans stagnates and will decrease in 2040. All countries in the European Union are ageing and several member states, such as Italy and Germany, are already shrinking; this will also remove the era of the ‘population pyramid’. All EU member states, except Ireland, Luxembourg, Sweden, Cyprus, and Malta will lose citizens in the next forty years.

The Netherlands is also going to have to accept the consequences: in line with the European average, the change from growth to decline is expected in 2040. Without the arrival of immigrants, the European Union could lose fifty million people in 2050—one tenth of the current population (Berlin-Institut für Bevölkerung und Entwicklung 2008).

Due to all the discussions about population decline we seem to forget that the world is becoming overcrowded. In 1950, the world population totalled 2.5 billion people; in 2000 it grew to 6 billion people and is expected to total nearly 9.2 billion people in 2050—a growth in half a century of more than 50 % (United Nations 2009). However, if we zoom in on the period between 2000 and 2050 in Europe, then we note both a gradual decline of the number of people and a strong ageing of the rest of the population. Two interesting developments take place. First, all the continents keep growing with Europe being the exception. As the only continent, Europe is preparing for a population decline. All continents are ageing, but of all the continents in the world, Europe is ageing the most. Demographic shrinkage and ageing take place simultaneously with growth. On a global scale, Europe is a demographic outsider.

The population prognoses and the distribution across the continents are shown in Table 2.1. The total world population will rise from 6.1 billion people in 2000 to 9.1 billion in 2050: an increase of over 50 %. In this period, the population of Africa and Asia will undergo the strongest growth. Latin America, North America, and the Pacific will also show growth. The African population will rise with a factor 2.5 in 50 years since 2000 and the Asian population with 40 %. Europe is the exception in this development. Between 2000 and 2050, the number of Europeans will decrease by as many as 36 million people: from 727 million down to 691 million.

Table 2.1 shows that the population share of the two richest continents—North America and Europe—in the total global population decreases from 17.1 % in 2000 to 12.5 % in 2050. Poverty and welfare are concentrated on a shrinking part of the global population. The migratory pressure, potentially occurring in the next few years, is hard to predict, which is also due to countries such as Brazil, India, and China experiencing strong economic growth. International migration

Table 2.1 Global population prognoses

Year	World	Asia	Africa	Europe	Latin America	Northern America	Oceania
2000	6,115	3,698 (60.5 %)	819 (13.4 %)	727 (11.9 %)	521 (8.5 %)	319 (5.2 %)	31 (0.5 %)
2010	6,909	4,167 (60.3 %)	1,033 (15.0 %)	733 (10.6 %)	589 (8.5 %)	352 (5.1 %)	36 (0.5 %)
2030	8,309	4,917 (59.2 %)	1,524 (18.3 %)	723 (8.7 %)	690 (8.3 %)	410 (4.9 %)	45 (0.5 %)
2050	9,150	5,231 (57.2 %)	1,998 (21.8 %)	691 (7.6 %)	729 (8.0 %)	448 (4.9 %)	51 (0.6 %)

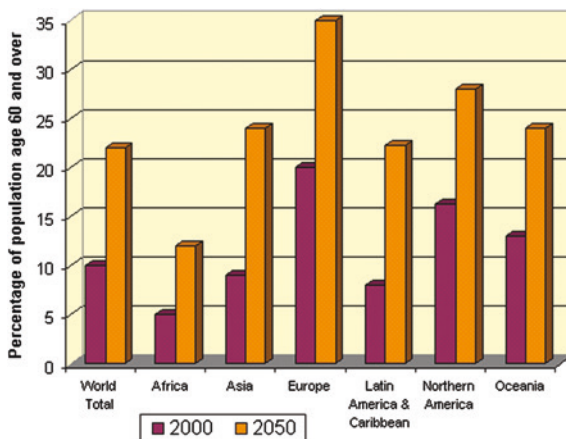
Source United Nations 2009

is often named as one of the solutions of population decline and keeping poverty and welfare in balance in Europe. Critically viewed, the demographic changes on a global level are arguments to develop an active European migration policy like the policies countries such as Canada, the US, and Australia have. These countries have been carrying out a selective immigration policy since their existence. Immigration is encouraged whereby education and gaps in the labour market are the main criteria for admission.

Figure 2.2 in turn shows that the world is clearly ageing. Europe is without a doubt the leader. The median age in the world will increase from 26 to 36 in the next four decennia: there will be just as many people aged 36 and younger in 2050 as people aged 36 and older. The numbers for the European Union are considerably higher: in 2005, the median age was 38.5 and in 2050 will most likely be 48 years (Muenz 2007). Where global ageing is concerned, the group aged 60 years and older will triple between 2000 and 2050 and will have grown from six hundred million to two billion people (United Nations 2002). Thus, the people aged 60 and older form 22 % of the global population in 2050. We can determine a large difference between the more prosperous and less prosperous areas in the world. In the poorer continents, 20 % of the population will be older than 60 in 2050; this percentage in the richer Europe will be 33 %. Furthermore, compared to all other continents, Europe is the largest aged continent of all.

One of the consequences of ageing is that the ratio of young people, potential workers, and elderly changes. Insight into this shift is needed to estimate how many people are going to need education in the future, how many people are in principle able to work, and how many could appeal to social support and health care facilities. This 'potential support rate' (PSR) is an interesting measure. This ratio shows the relationship between the potential working population of the ages 15–64 and the number of non-employed who are 65 and older. The PSR decreased globally between 1950 and 2000 from twelve to nine persons and will have dropped to four in 2050. In other words: in 2050, only four

Fig. 2.2 Prognoses of the ageing global population 2000 and 2050 (*Source* United Nations 2002)



people of the working population between the ages of 15 and 64 will be available for every pensioner globally (United Nations 2002). The decrease of the PSR naturally has large consequences for the economy and society: the labour market becomes tighter and a shrinking group of workers becomes responsible for the upkeep of the social security for an enlarging group of elderly. The potential working population will be challenged to work more and longer, and this means working full time instead of part time and working longer after the age of 65. Moreover, a large contribution is expected from them in terms of volunteering and informal care. Due to a declining PSR, the potential worker is going to be busy in the next decennia.

Table 2.2 is also interesting. This table shows that the population of the member states of the European Union (we are talking about the EU-25, without Bulgaria and Romania) will shrink: of 459 million in 2005 to 449 million in 2050. The number of young people decreases and the number of elderly (65+) increases considerably. We can also see that population decline and ageing are not processes that take place evenly across Europe. On the contrary, if we compare the EU-25 to the EU-15, we notice that the population decline mostly occurs in the ten member states that acceded to the EU in 2004; the EU-15 as a whole is still growing slightly. This is due to the presence of selected countries with relatively high birth rates such as France and Sweden. The average life expectancy in the EU-15 is also higher than in the ten ‘new’ member states of the European Union. This does not mean that there is no population decline in the EU-15—we already saw that Italy and Germany are depopulation countries. Moreover, even if countries as a whole are still growing, it does not mean that regionally there is no demographic shrinkage. Over a quarter of the European regions are struggling with depopulation, of which several Dutch regions are included (Demos 2011).

In the European Union, the ‘potential support rate’ will be dropped to 2 potential workers for every person aged 65 and over in 2050: there will be 51 people of 65 years and older in relation to 100 potential workers (Muenz 2007). This low score arises due to the low fertility rates in the EU: in 1995, it was 1.5 children per woman and in 2030 this will be 1.6. The strongly increased life expectancy is also important: in 2050 men will reach an average age of 79 and women will reach an average age of 85. At the same time, the working population (15–64 years) will have decreased from 2000 to 2050 with 56 million people.

Table 2.2 Population prognoses for the EU-25

2005		0–14	15–64	65+
EU-25	459.3	73.4 (16 %)	308.9 (67 %)	77 (17 %)
EU-15	384.8	61.5 (16 %)	256.5 (68 %)	66.8 (16 %)
2050		0–14	15–64	65+
EU-25	449	66.5 (16 %)	253.4 (56 %)	129.1 (28 %)
EU-15	387.2	58.2 (15 %)	218.3 (54 %)	110.7 (31 %)

Source European Commission 2008

In terms of demographic trends on a global and European level we can make a few assertions. Firstly: growth and decline both occur on a global scale. The world population grows from 2000 to 2050, while the European population in the same period decreases and thus shrinks. Secondly: the world population is ageing, but ageing in Europe is the strongest. Thirdly: it is unclear as to how migration to Europe will look like in the future. We can assume that due to developments, a European immigration policy will be needed. Finally: fewer (young) adults will have to take care of an enlarged group of elderly.

The Demographic Challenge of Europe

The European Commission considers the relatively strong ageing in Europe compared to the rest of the world as a success in its policy. Ageing is seen as a result of progress on the economic, social, and medical levels. However, ageing creates a ‘demographic challenge’, as the European Commission (2008) euphemistically refers to: the group of potential workers shrinks and the number of elderly grows larger. This creates issues. Therefore, the Commission proposes several measures:

1. Stimulating the demographic revival by making it easier for men and women to combine work, a private life, and a family (parental leave, a more flexible work division, sufficient child care and others);
2. Creating more jobs and increasing the pension ages by improving the education systems (life-long learning) and the emphasis on systems of ‘flexible security’ (higher mobility and more flexible contracts on the labour market);
3. Creating a European immigration policy and attracting qualified labourers to accommodate the needs of the labour market;
4. Organising government funding by implementing a strict budget discipline and reforming the pension system.

Without a doubt, the last measure is going to be a huge challenge due to the recent Euro crisis. Aside from a demographic challenge, the European Union will also have to face an economic challenge.

2.4 Case Study: The Dutch Situation

In the densely populated Netherlands, growth and decline occur simultaneously, just like a decrease of young people and ageing. However, within the country, large differences are discernable. The conurbation of Western Holland (Randstad) is still growing and the periphery of the country is shrinking. This is an example of a phenomenon that the sociologist Merton (1968) calls the ‘Matthew effect’, after the Biblical principle of Mathew’s gospel: ‘for unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken even that which he hath’ (Matthew, 13:12).

That the conurbation of Western Holland is slowly sucking the periphery dry is not necessarily a rule. On the contrary, there was talk of a reverse process during the Batavian Republic in the 1800s: the conurbation shrunk and the periphery grew (van der Woud 2010a). In 1700, 33 % of the Dutch population lived in cities, mostly in Holland. This percentage receded to 28 % in 1800—a result of the decreasing influence of Holland in the world economy. Enkhuizen went from 22,000 citizens to 7,000 in 1800; Leiden faced a large decline of 67,000 to 27,000 citizens. Haarlem and Delft saw half of their population leave and Amsterdam shrank in 1815 from 217,000 citizens to 180,000 partly due to the influence of the trade embargo during the French revolution. Vacancy and demolition were the order of the day: Enkhuizen removed 1,600 homes, Leiden 1,240, and Haarlem over 1,200. The conurbation of Western Holland shrank in 1800 while the periphery slowly grew: Maastricht, Zwolle, Leeuwarden, and Arnhem, for example, grew quicker than the average growth of the Dutch population.

After the 1800s, a long period of growth began. In those days the Netherlands totalled 3.1 million citizens. Since then, the size of the population increased five-fold. This is in line with the average population growth of around 1 % per year. Not a single year in the period of 1850–2000 was met by a negative growth percentage. The signs of population decline have only emerged in the last couple of years, especially since the media is paying attention to demographic decline mainly in the periphery of the country. In the future, growth and decline will be strongly related. The Dutch population will grow with approximately one million people in the next generation: from 16.5 to 17.5 million in 2040. The growth is mostly concentrated in urban regions and agglomerations: the conurbation of Western Holland, the city of Utrecht, Arnhem-Nijmegen, the city ring of Brabant, Zwolle, and the city of Groningen. In other regions, the number of citizens is already decreasing. There are at least three known ‘depopulation areas’ in the Netherlands: East Groningen, Dutch Flanders, and South Limburg (Parkstad Limburg).

If we can believe the demographers, then population decline is only going to continue. The expectancy is that the population of East Groningen, Dutch Flanders, and Parkstad Limburg will shrink by 6, 11, and 26 %, respectively, between 2009 and 2040. Population decline, a decrease of young people in an area and ageing will strengthen each other in these regions. In fact, for every person aged 65 and over in Parkstad Limburg there are 1.6 potential workers. For every hundred potential workers in this area there will be 63 people aged 65 and over in 2040 (Table 2.3), which is a considerably high number! However, demographic shrinkage is not limited to the above mentioned regions in Groningen, Zeeland, and Limburg. Other regions in the Netherlands will or already do face a population decline at some point. Examples for such ‘anticipation areas’ are Drenthe, the Achterhoek, the Kop van Noord Holland, and the South Holland islands. Demographic decline is already visible in these areas.

Up until 2040, more than a third of the Dutch municipalities will have to deal with a decrease in their population. This totals 145 municipalities (Netherlands environmental Assessment Agency (PBL) 2010b). Most of these municipalities are in the above mentioned depopulation and anticipation areas in the Netherlands. However, municipalities in the future growth areas such as South East Brabant and

Table 2.3 A prognoses of the population development in the Netherlands and three well-known depopulation areas (numbers \times 1,000)

		0–20	20–64	65 and older	Total
The Netherlands	2009	3.924	10.080	2.471	16.486
		23 %	61 %	25 %	100 %
	2040	3.797	9.194	4.482	17.473
		22 %	53 %	26 %	100 % (+6 %)
East Groningen	2009	34	91	28	142
		22 %	60 %	18 %	100 %
	2040	29	72	41	142
		20 %	51 %	29 %	100 % (–6 %)
Dutch-Flanders	2009	23	63	21	107
		21 %	59 %	20 %	100 %
	2040	20	46	28	95
		21 %	49 %	30 %	100 % (–11 %)
Parkstad Limburg	2009	36	171	47	254
		14 %	67 %	19 %	100 %
	2040	23	101	65	190
		12 %	54 %	34 %	100 %

Source Netherlands Environmental Assessment Agency (PBL) (2010b), adapted by CESRT/Etil

the metropolitan area of Arnhem-Nijmegen will also lose inhabitants. This often takes place in rural areas where the young people move to the main city in the region. As it is, the Dutch demographic decline is largely related to the classic migration from the country to the city: 80 % of municipalities that shrink or deal with decline are situated in the country (Verwest et al. 2010). Furthermore, aside from a population decline, the Netherlands will face a decrease of the number of households in the coming decennia, even though the growth will last longer. This is due to the increasing number of singles and elderly who are left behind when their partner passes away. The growing number of divorces also plays a part. The consequence of this development is that fewer people live at just one address, a phenomenon that is called ‘household fragmentation’. Fewer inhabitants, therefore, do not necessarily mean fewer households or a lower need for housing. The Netherlands Environmental Assessment Agency (2010b) expects population decline to be associated with fewer numbers of households in 45 municipalities. It is remarkable that in the next decennia in almost all Dutch municipalities the potential working population will drop in number, whereas the group of elderly (65+) will rise.

If we consider the demographic developments in the Netherlands, the following image emerges (Netherlands Environmental assessment Agency 2010b). Just like in the rest of the world, growth and decline go hand in hand. The total population is still growing, mainly in the conurbation of Western Holland. However, population decline has already started in the periphery. Furthermore, the Netherlands, in

line with the European position is becoming a nation of elderly. The decrease of young people in an area and ageing are clearest in the depopulation areas Dutch Flanders, East Groningen, and Parkstad Limburg. That fewer (young) adults are needed to take care of the elderly is also applied to the Netherlands. The labour market will become cramped. The main question is where the Netherlands will find the people to even out this imbalance. Labour saving technology is not going to be enough; an active immigration policy seems to be inevitable.

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