



PBL Netherlands Environmental  
Assessment Agency

# Cities in the Netherlands

Facts and figures on cities and urban areas



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# Introduction

In the Netherlands, about three quarters of the population live in urban areas and most people work there. The largest metropolitan areas also show the strongest population growth. In 2015, the Dutch Government launched its *Agenda Stad*, a national urban agenda. Agenda Stad aims to promote economic growth, improve liveability and stimulate innovation in urban areas. The Dutch urban agenda affirms that cities play a key role in the future development of the country.

What is going on in Dutch cities? This book strives to provide insight into the most important facts and factors affecting our cities in an accessible way. How have cities developed in the recent past? How many people live and work in cities and their environs? And how does the structure

of Dutch cities compare to those in other European countries?

This book covers three topics that are vital for the city: economy, liveability, and innovation. How strong is the gravitational pull of Dutch cities in comparison to competing urban regions? What factors determine liveability and health in cities? And how do cities fare when it comes to innovation? These urban issues, challenges and opportunities are clarified using 12 infographics.

This publication consists of two parts. This part, *Cities in the Netherlands*, examines cities in the context of the Dutch Agenda Stad. The other part, *Cities in Europe*, looks at urban developments across Europe within the context of the Europe 2020 strategy and the Urban Agenda for the EU.

# Dutch Agenda Stad

Europe faces increasing urbanisation which brings both opportunities and challenges. Major urban challenges manifest themselves within a variety of societal domains, such as climate adaptation, inclusion of low-income groups, and new economic drivers. Business, local governments, civil society and universities in urban areas are anticipating on these opportunities and challenges. The Dutch national Agenda Stad focuses on the overlapping areas of economy, liveability and innovation.

Opportunities and challenges in urban areas that require collaboration between the national government, cities and other stakeholders lie at the heart of the Dutch Agenda Stad. These are often complex, radical and transitional challenges that do not fit in existing policy frames. This collaboration takes shape in City Deals. City Deals contain concrete cooperation arrangements between different levels of government, business, civil society and other stakeholders. Coalition building in

City Deals is a means to achieve the goals of the Dutch national Agenda Stad, which is to strengthen economic growth, innovation and liveability in Dutch cities. The Dutch national Agenda Stad and the Urban Agenda for the EU are in line with each other. The national agenda can be an example of an innovative way of collaboration for other European countries and cities, while at the same time Dutch cities can learn from the way other European cities deal with major urban challenges.



## Economy

Urban economies are more productive, grow faster and have a greater innovative potential. Dutch cities lag behind in growth of labour productivity however. Their economic position can be strengthened by improving connections between urban regions, coordinating investment projects and increasing the complementarity between cities.



## Liveability

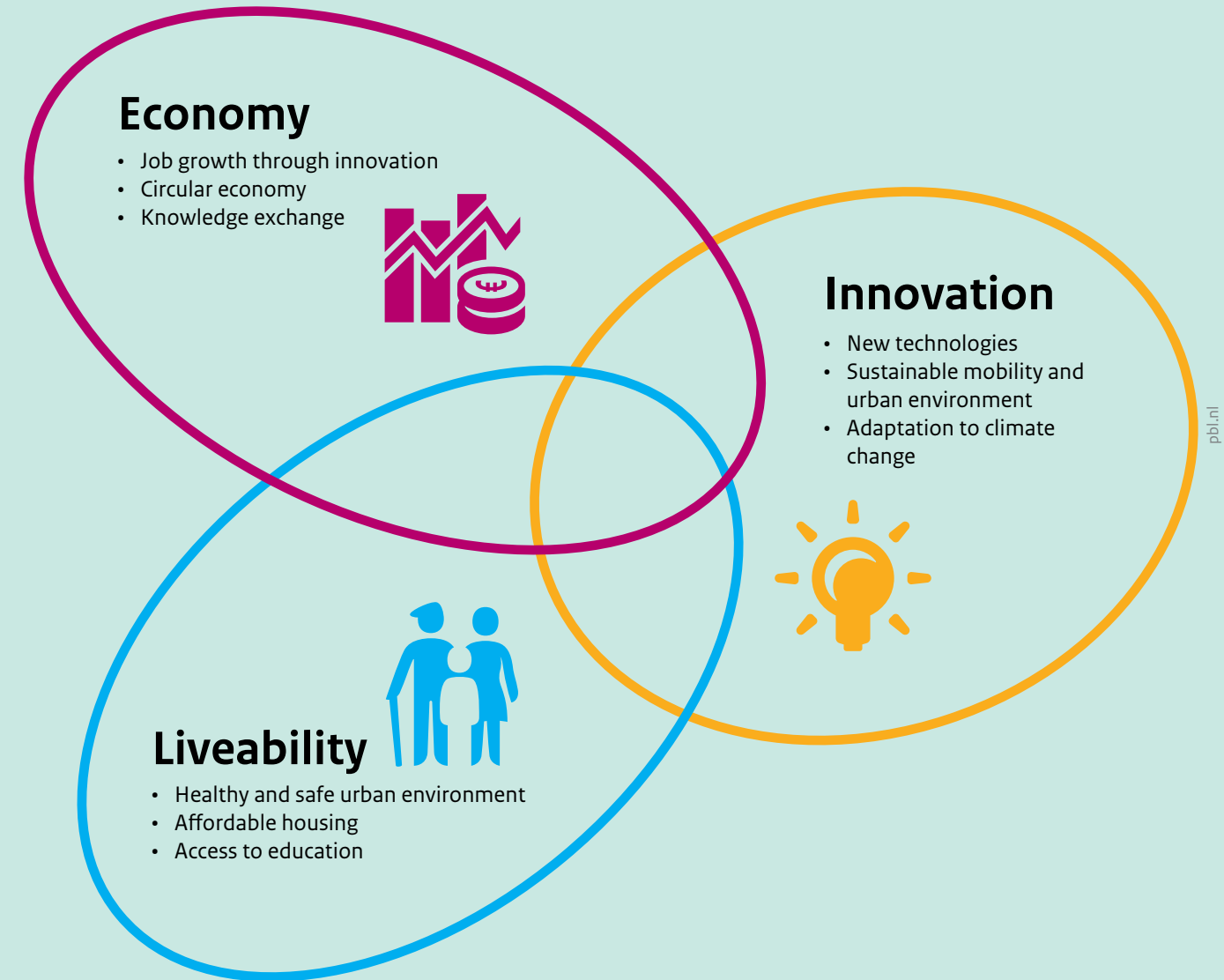
The liveability of Dutch cities has improved dramatically over the past few decades. Local problems regarding air pollution, traffic congestion, income disparities and safety still remain however. Cities can contribute to improving the liveability by investing in sustainable mobility schemes, affordable housing and quality of the public space.



## Innovation

Urban regions are incubators of innovation and entrepreneurship. It is here where individuals, businesses, institutes and governments meet and profit from each others' knowledge and creativity. Smart and clean technologies are vital for sustaining economic growth over the long term. Using up resources and energy at current rates is no longer an option.

## Three priority areas of the Agenda Stad



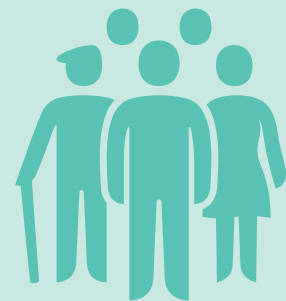
# Cities are popular

The Netherlands is a highly urbanised country. At the same time, the share of the population that lives in large metropolitan areas (over 500,000 people) is remarkably small. The majority of Dutch 'urbanites' live in small and medium-sized towns. This is the result of the polycentric urban structure of the Netherlands; most urban regions are made up of multiple urban cores at relatively short distances from each another.

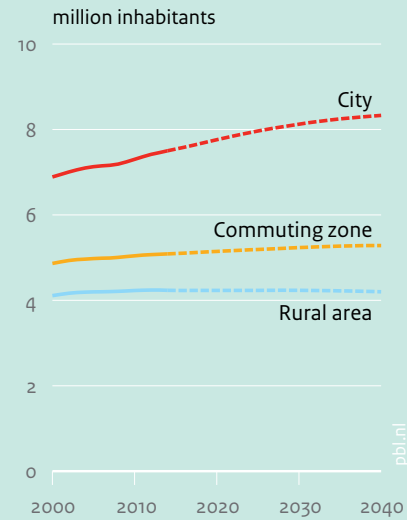
The roots of our modern polycentric urban structure can be traced back to medieval times. Twenty of the 35 largest Dutch cities originate from the 11th to 15th century, mainly as towns with important ports. While, in the 14th century, large parts of Europe struggled with epidemics and an economic recession, parts of what is now the Netherlands experienced an economic peak and urban boom. After this period up to the mid 19th century, some cities, especially in the west of the country expanded greatly

(e.g. Amsterdam and Rotterdam), while others contracted. In the second half of the 19th century, after a period of stagnation and contraction, a new era dawned; growth resumed in existing towns and, for the first time since the Middle Ages and in the wake of industrialisation and railroad construction, new towns were being formed (e.g. Eindhoven and Tilburg) (Rutte and Abrahamse, 2016).

Currently, after an extended period of suburbanisation and urban decline in the 1960–1990 period, cities are regaining their former status. City centres in particular have enjoyed a resurgence of population growth, especially regarding families with children (Evers et al., 2015). The outlook for the future is also favourable. CBS/PBL (2013) predict a strong concentration of population growth in urban municipalities, particularly in and around big cities.



## Population



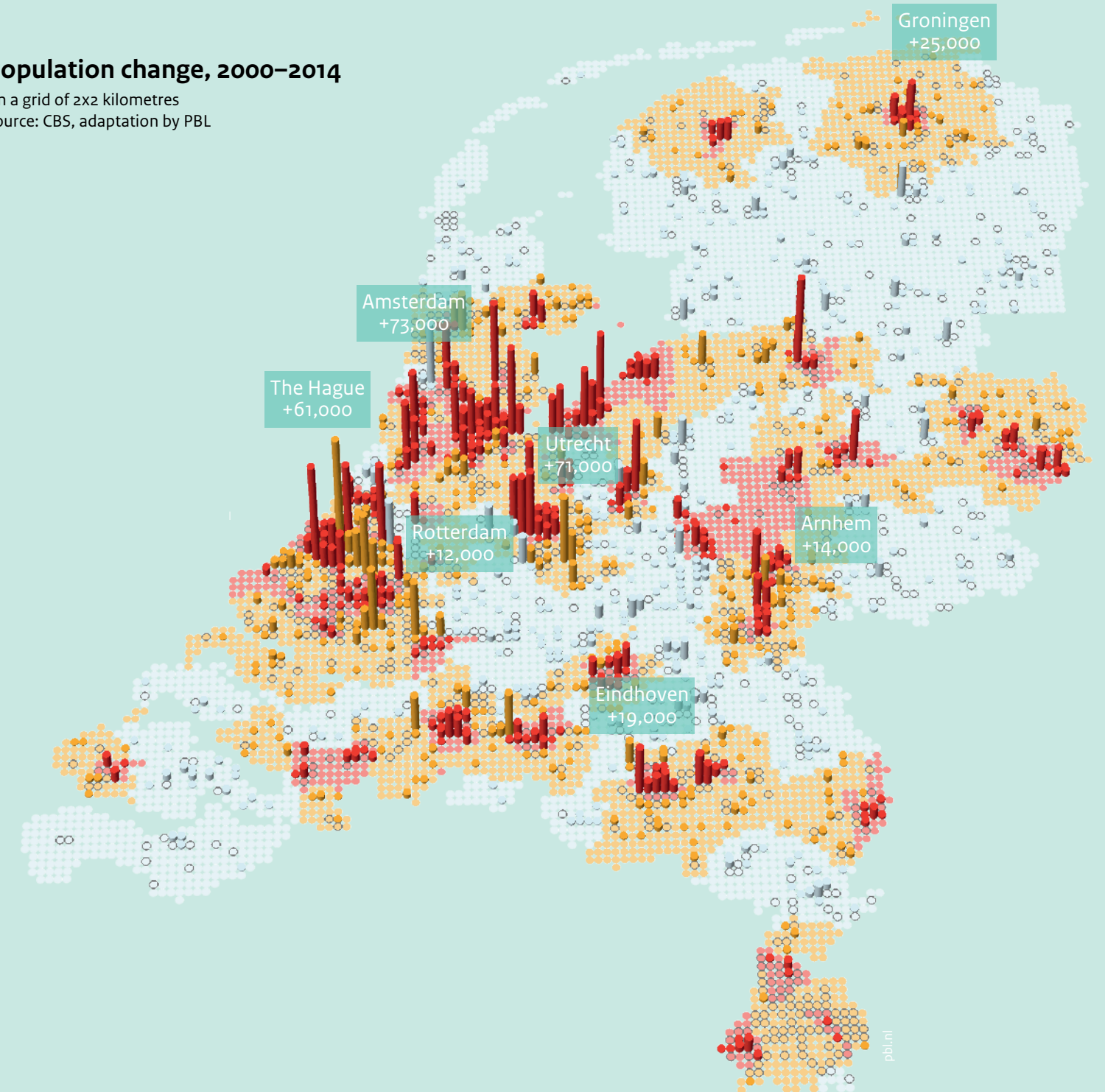
--- Projection (CBS/PBL)

- City
- Commuting zone
- Rural area
- Population growth in the city
- Population growth in the commuting zone
- Population growth in the rural area
- Population decline

Growth and decline smaller than 100 persons per grid cell are not shown on the map

## Population change, 2000–2014

On a grid of 2x2 kilometres  
Source: CBS, adaptation by PBL



# An urban nation



In the past, it was easy to tell where the city ended and countryside began. In the course of the 20th century, the difference between urban and rural became increasingly blurred. Cities have transformed into urban regions with a wide variety of spaces and functions. People have also become much more mobile and have adopted much more complex lifestyles in their work and leisure time.

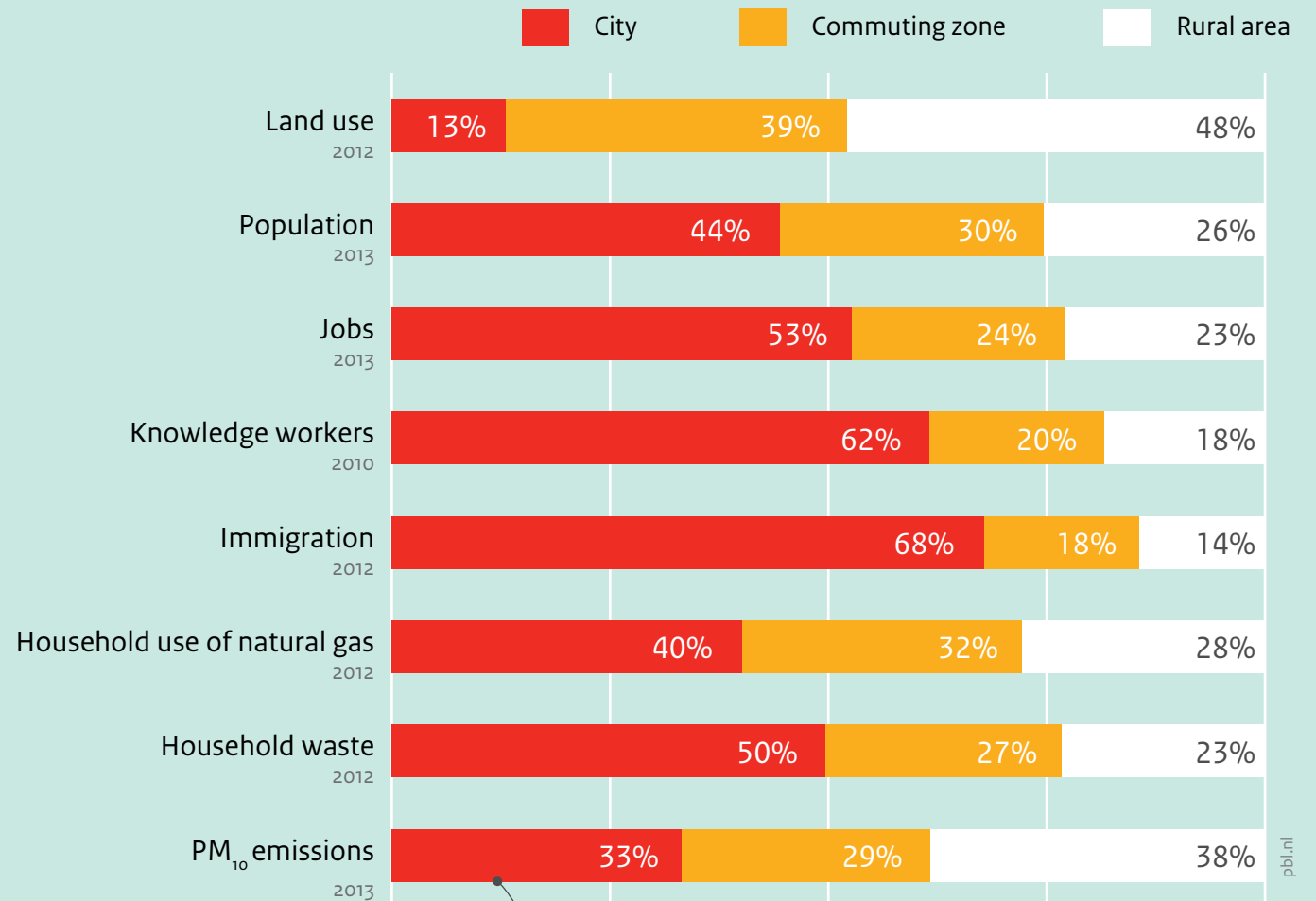
In order to define and delineate urban areas, Eurostat and the OECD use a harmonised definition that makes a distinction between 'cities' (municipalities of more than 50,000 residents) and 'commuting zones' (municipalities with a significant commuting relationship to the urban cores). Almost three quarters of the Dutch population live in urban areas, making the Netherlands one of the most urbanised countries in Europe.

Most of the jobs in the Netherlands can be found in the urban areas. These also have the highest share of knowledge workers and attract the most foreign immigrants. The high population density and concentration of human activity in cities has disadvantages as well, for example, in terms of air pollution and waste.



## Important characteristics of the city

Source: CBS, LISA and RIVM, adaptation by PBL



In relationship to the land area, PM<sub>10</sub> emission levels in cities are four times higher than in rural areas



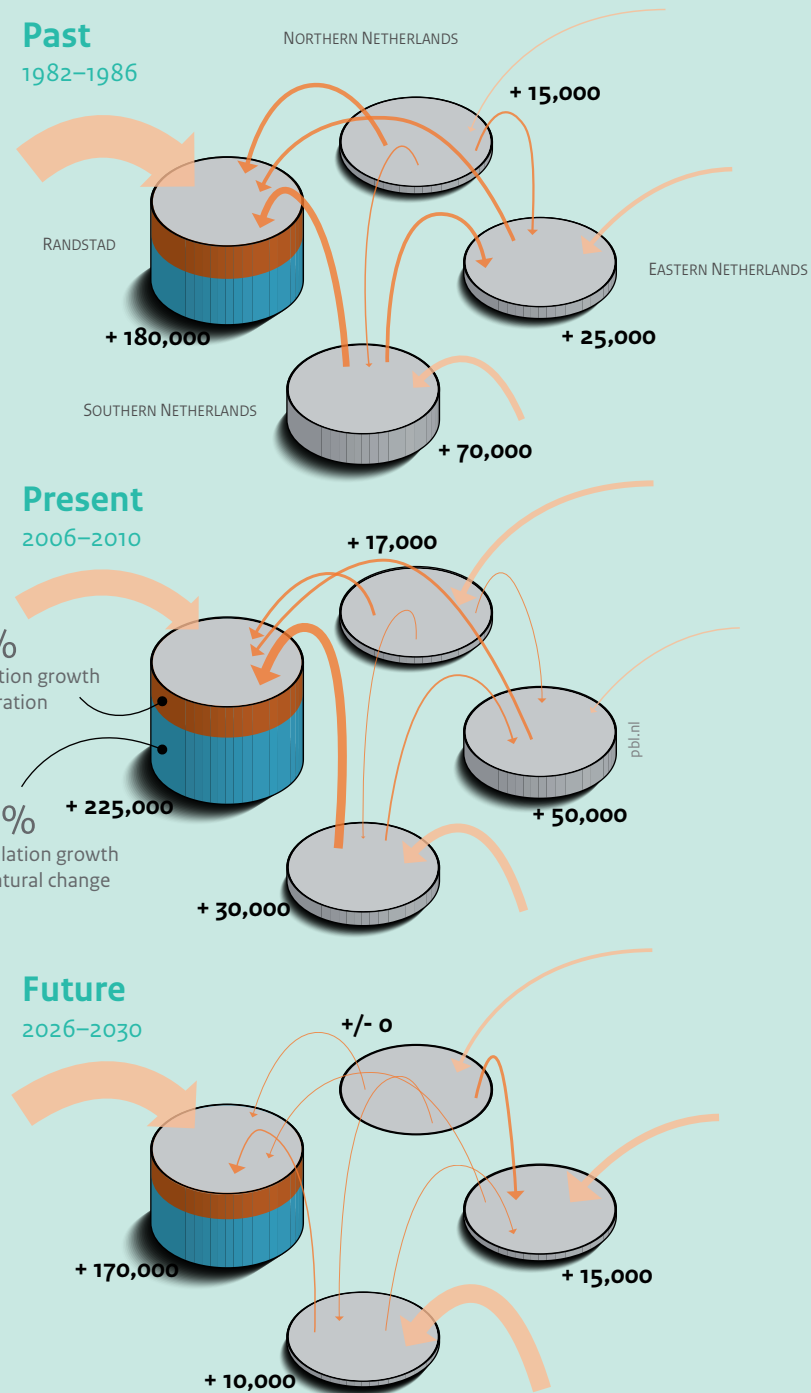


# The gravitational pull of the Randstad

The Netherlands is a densely populated country, and the Randstad is the most densely populated part of it. Almost half of the entire population lives in North Holland, South Holland, Utrecht and Flevoland, even though these provinces only comprise one quarter of the country's surface area. The Randstad's population is currently growing faster than elsewhere in the country, as it has in the past and most likely will do in the future.

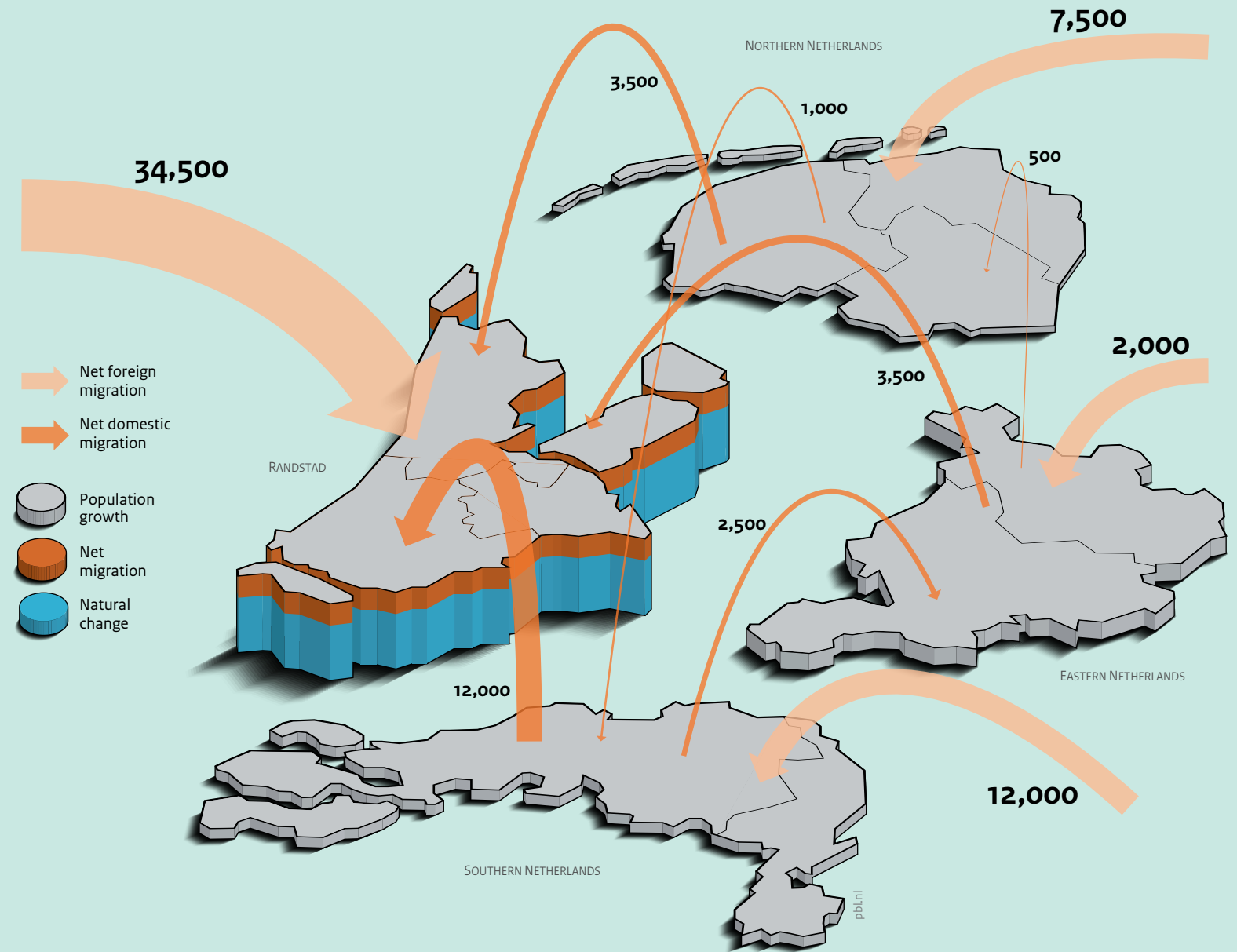
The current growth of the Randstad is even greater than in the past. Immigrants exceed emigrants in number (positive foreign migration balance) and more Dutch people move to rather than away from the Randstad (positive domestic migration balance). In addition, more people are being born in the Randstad than are dying (positive natural growth).

The Randstad is booming. In just five years (2006–2010) it grew by 225,000 people, 70% of which can be attributed to natural growth. Immigration also plays an important role; approximately 15% of the population increase came from abroad and 10% from other areas in the Netherlands. The share of foreign immigrants is smaller than it has been in the past, and domestic migration has become more pronounced. Many of these domestic newcomers originate from the southern part of the country.



## Population growth and migration flows per region, 2006–2010

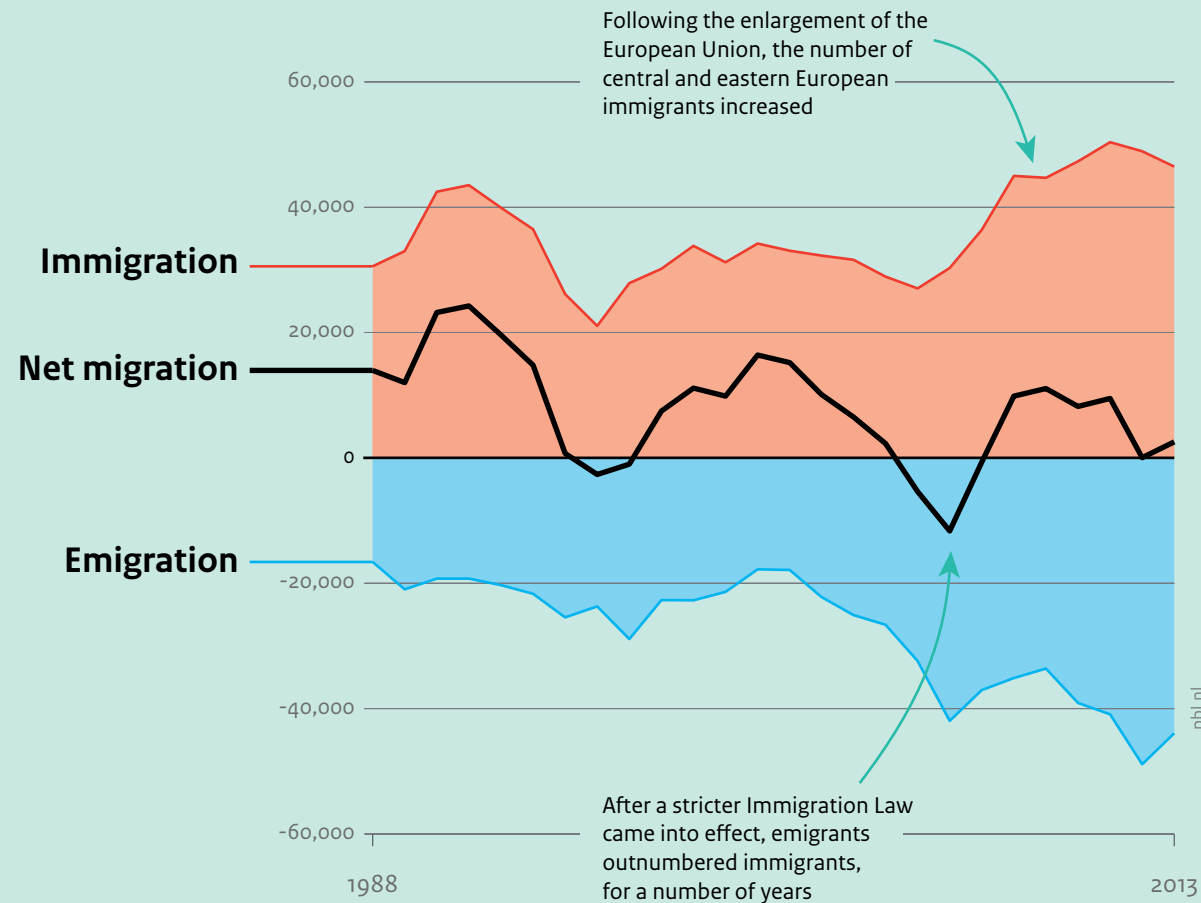
Source: CBS, adaptation by PBL



# Large cities attract migrants

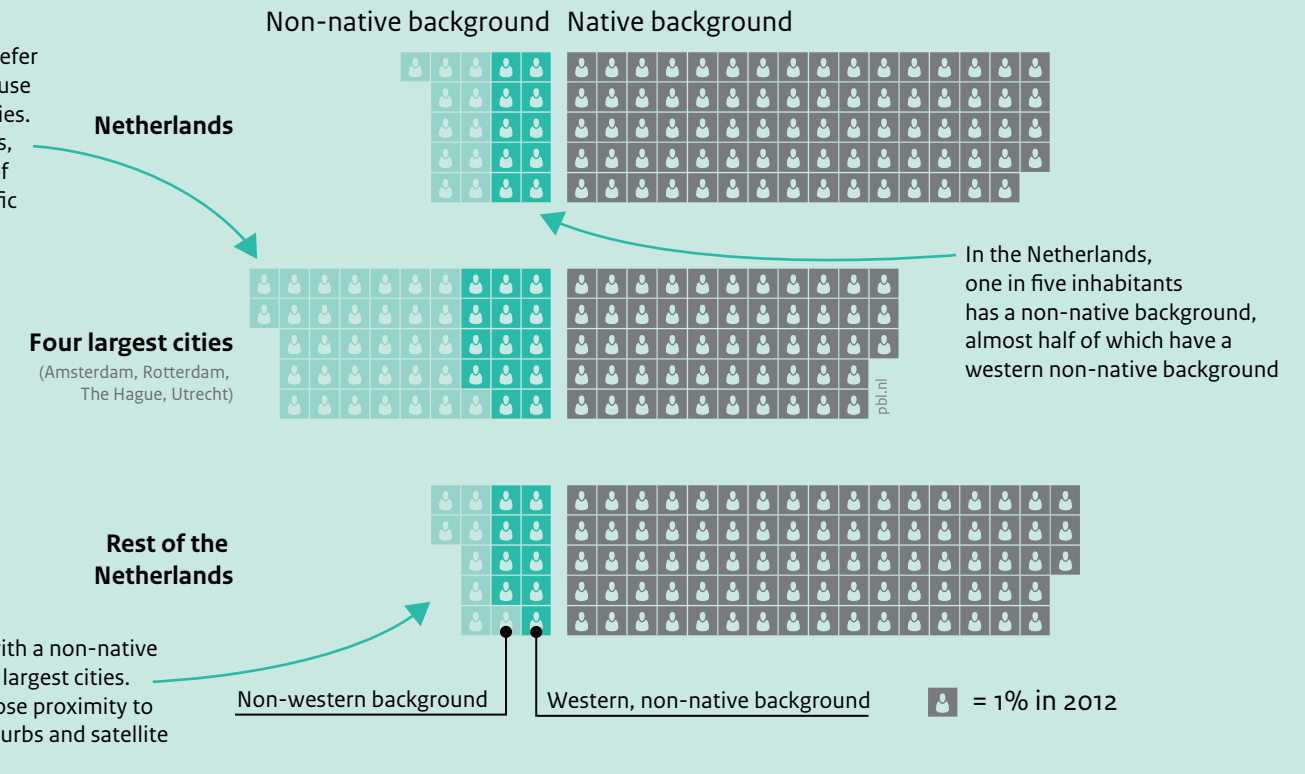
## Immigration and emigration for the four largest cities

(Amsterdam, Rotterdam, The Hague, Utrecht)  
Source: CBS, adaptation by PBL



## Dutch inhabitants with a non-native background predominantly live in large cities

Immigrants and migrants prefer to settle in larger cities because of the ample job opportunities. Furthermore, for immigrants, these cities have networks of compatriots and offer specific facilities, such as mosques, public baths and schools



The urban population is a sundry mix of people from all kinds of places. At present, the share of residents with a non-native background in the four largest cities (Amsterdam, Rotterdam, The Hague and Utrecht) is roughly equal to that of native residents. In other parts of the country, this share is smaller. The Netherlands has a history of attracting immigrants, most of whom arrive in the Randstad and mostly

in the four large cities. Already in the 1960s and 1970s, so-called guest workers came to the Randstad from southern Europe, Turkey and Morocco. Many people from Suriname arrived in the late 1970s, following this former colony's independence. The 1980s and 1990s saw many family reunions of guest workers; their wives and children moved to the Netherlands to join them and any subsequent children were born here.

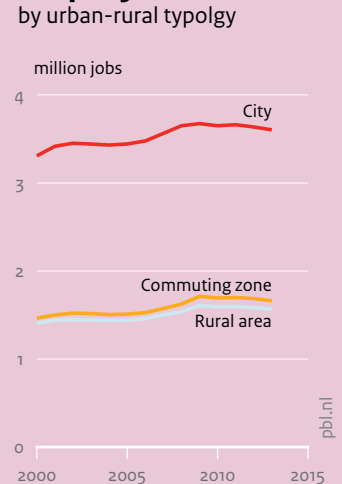
Many of their children would later seek a partner from their parents' homeland. In the 1990s, a growing number of refugees from former Yugoslavia arrived in the Randstad, as well as from other areas; all fleeing war, famine or natural disasters. In the 2000s, many immigrants originated from central and eastern Europe, as a result of European Union enlargement.

# Cities are where the jobs are

Cities play an important role as meeting places in knowledge-based economies such as that of the Netherlands. Personal encounters, whether planned or accidental, provide opportunities for the exchange of ideas and for learning from one another. The density of cities makes people more productive and enables the provision of higher quality and more varied services and amenities. Companies primarily locate

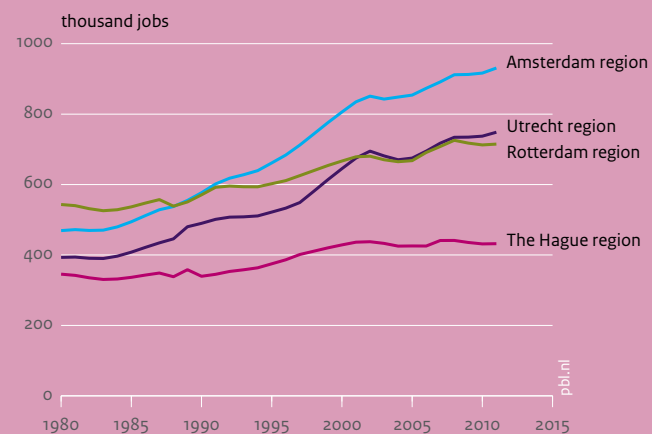
in cities to be in close proximity to their customers and specialised suppliers, and because of the large and well-educated labour market and the many opportunities for cooperation. Business clusters create new job markets and opportunities for suppliers, which may create additional agglomeration benefits. In short, cities are where the jobs are.

## Employment by urban-rural typology



## Job growth in the four largest urban regions

There are significant differences between cities. Amsterdam and Utrecht had the strongest job growth over the 1980–2012 period, whereas in Rotterdam and The Hague growth was more modest. In 1980, most jobs were in the Rotterdam region. Now, most are in Amsterdam and Utrecht.

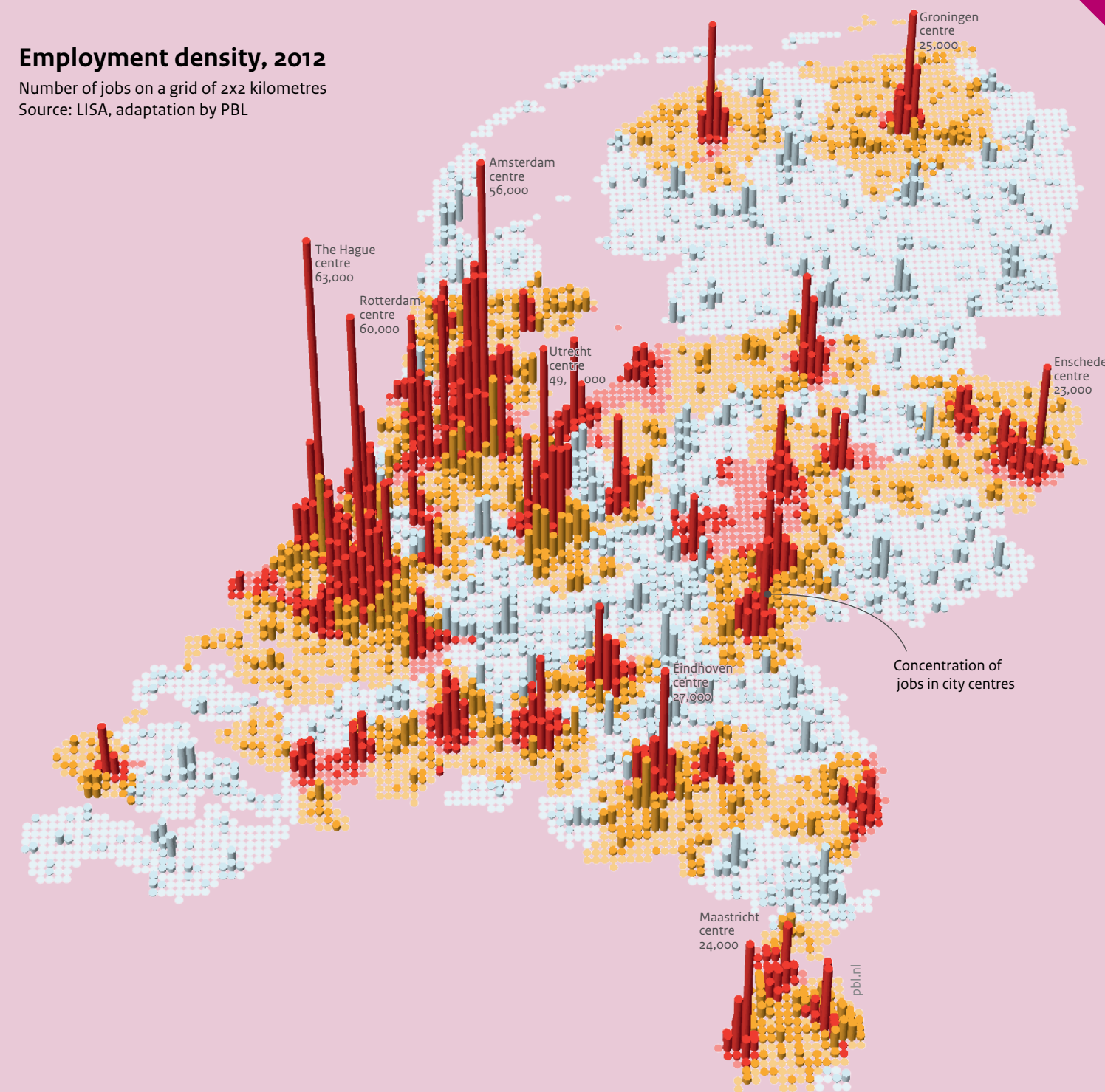


Source: Cambridge Econometrics; adaptation by PBL

## Employment density, 2012

Number of jobs on a grid of 2x2 kilometres

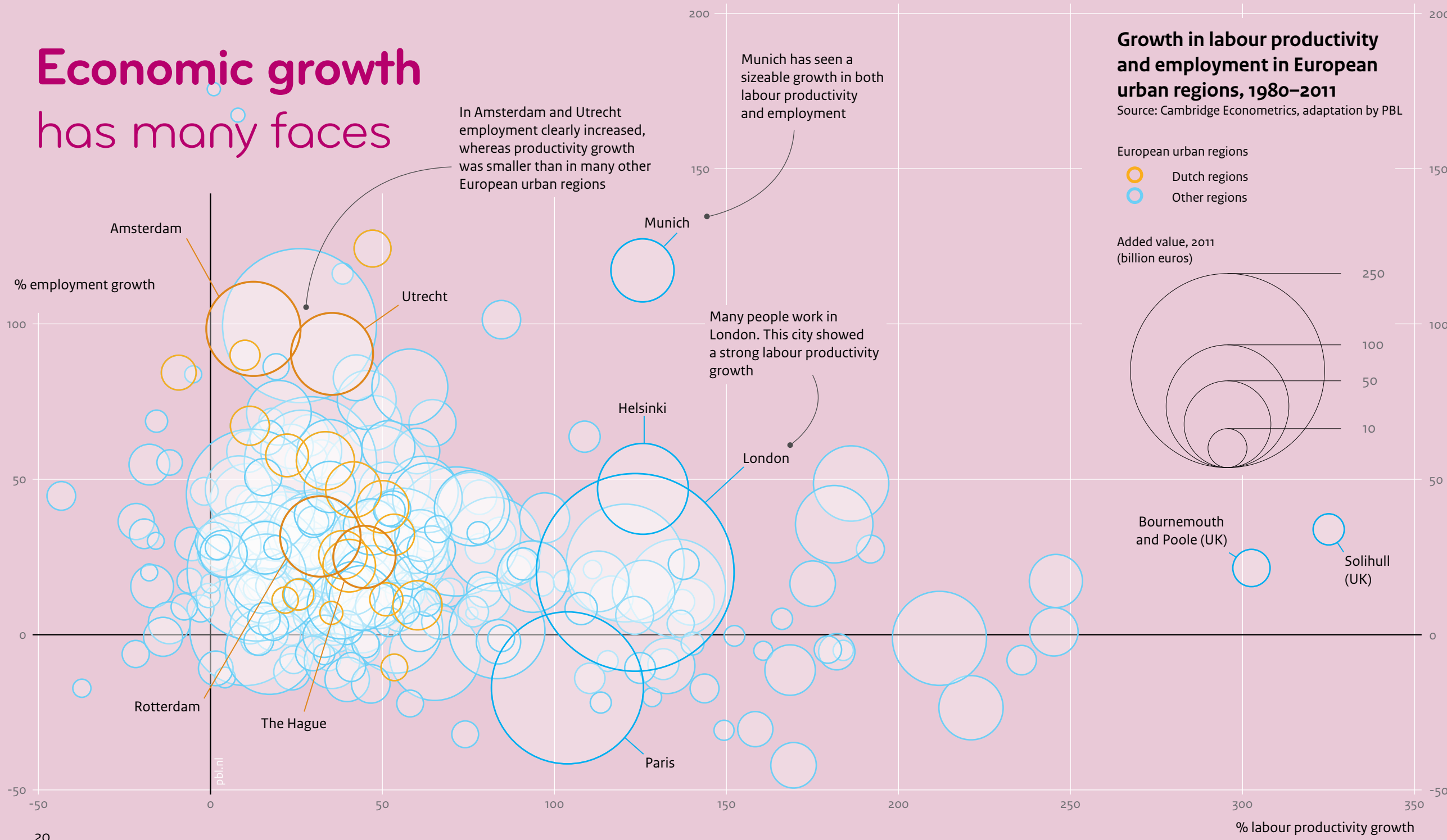
Source: LISA, adaptation by PBL



- City
- Commuting zone
- Rural area
- Many jobs in the city
- Many jobs in the commuting zone
- Many jobs in the rural area

Growth and decline smaller than 100 persons per grid cell are not shown on the map

# Economic growth has many faces



## Growth in labour productivity and employment in European urban regions, 1980–2011

Source: Cambridge Econometrics, adaptation by PBL

Employment growth and labour productivity growth are important indicators of economic development. In European cities and cities in OECD countries, productivity and wages generally increase with city size (European Commission, 2014). Recent OECD estimates suggest that productivity increases by 2% to 5% for every doubling of the population (Ahrend et al., 2015). In Europe, the two largest urban agglomerations, London and Paris, showed large labour productivity growth between 1980 and 2011.

Dutch urban regions, in contrast, are smaller and less dense in terms of residents and jobs. While employment in Dutch urban areas clearly grew between 1980 and 2011, productivity growth was smaller than in many other European urban regions. Recent research has shown that size and density can be partly compensated by a good position within international, national and regional networks (Van Oort et al., 2015). This position can be strengthened by improving connections between urban regions, coordinating large investment projects and increasing the complementarity between cities.



# Income disparities in the city

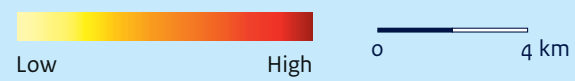
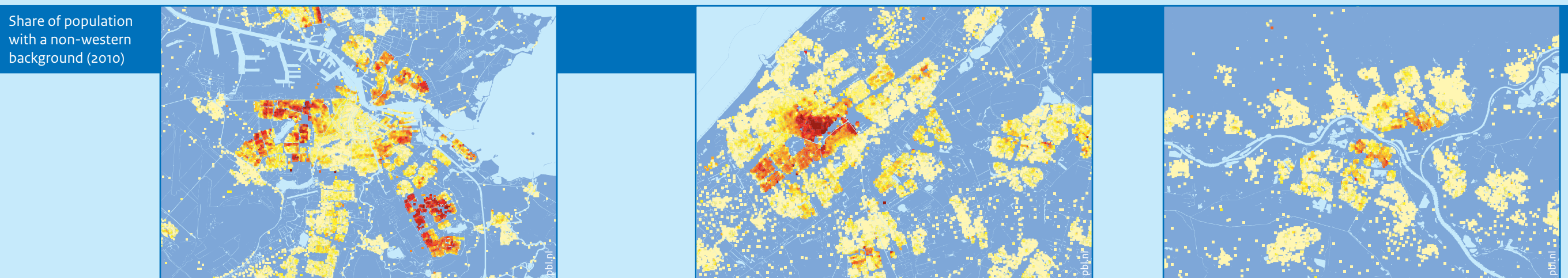
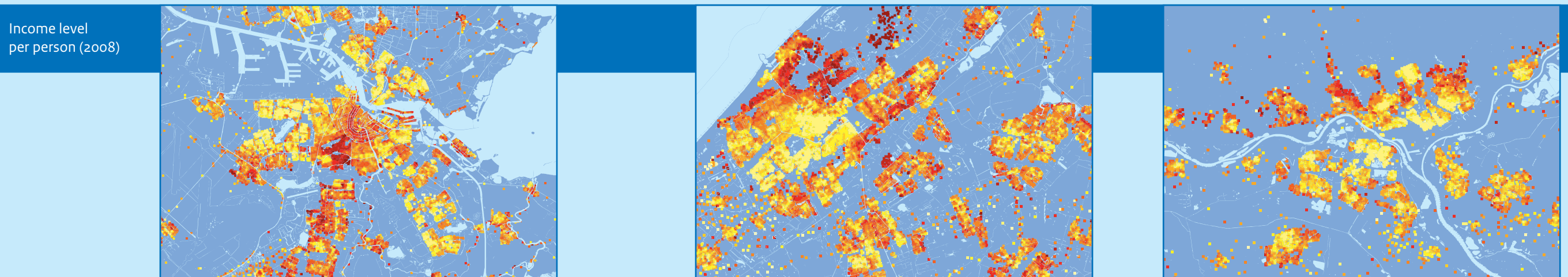
Household incomes vary not only between cities, but within them as well. The maps of Amsterdam, The Hague and Arnhem display different distributions of wealth. In Amsterdam, high-income households occupy the historic centre and the regal 'old-south' neighbourhood, while The Hague still displays the traditional 'sand and peat divide' where affluent neighbourhoods, such as Duinoord, Statenkwartier and Archipelbuurt, occupy the high sandy ground near the coast. Wealth in Arnhem is mainly concentrated at the northern edge of the city, near the Veluwe national park.

For inhabitants with a non-western background, the maps show this pattern more-or-less in reverse. In Amsterdam, inhabitants with a non-western background mainly live in the south-eastern quarter and on the western fringe. In The Hague, in contrast, these inhabitants mainly live near the city centre, in neighbourhoods such as the Stationsbuurt, Schilderswijk and Transvaal. Arnhem has fewer inhabitants with a non-western background, but these tend to reside on the eastern side of the city centre and on the south bank of the river. Of course, there are also low-income neighbourhoods with primarily native Dutch residents, such as Morgenstond in The Hague and parts of Amsterdam Noord.

### Amsterdam

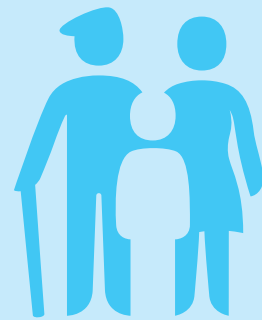
### The Hague

### Arnhem



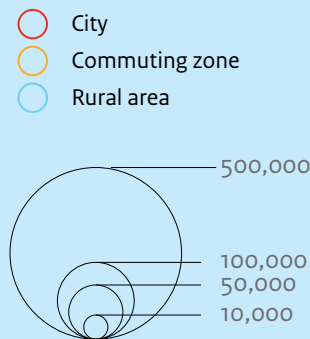
Source: CBS, adaptation by PBL

# Wealthier = Healthier



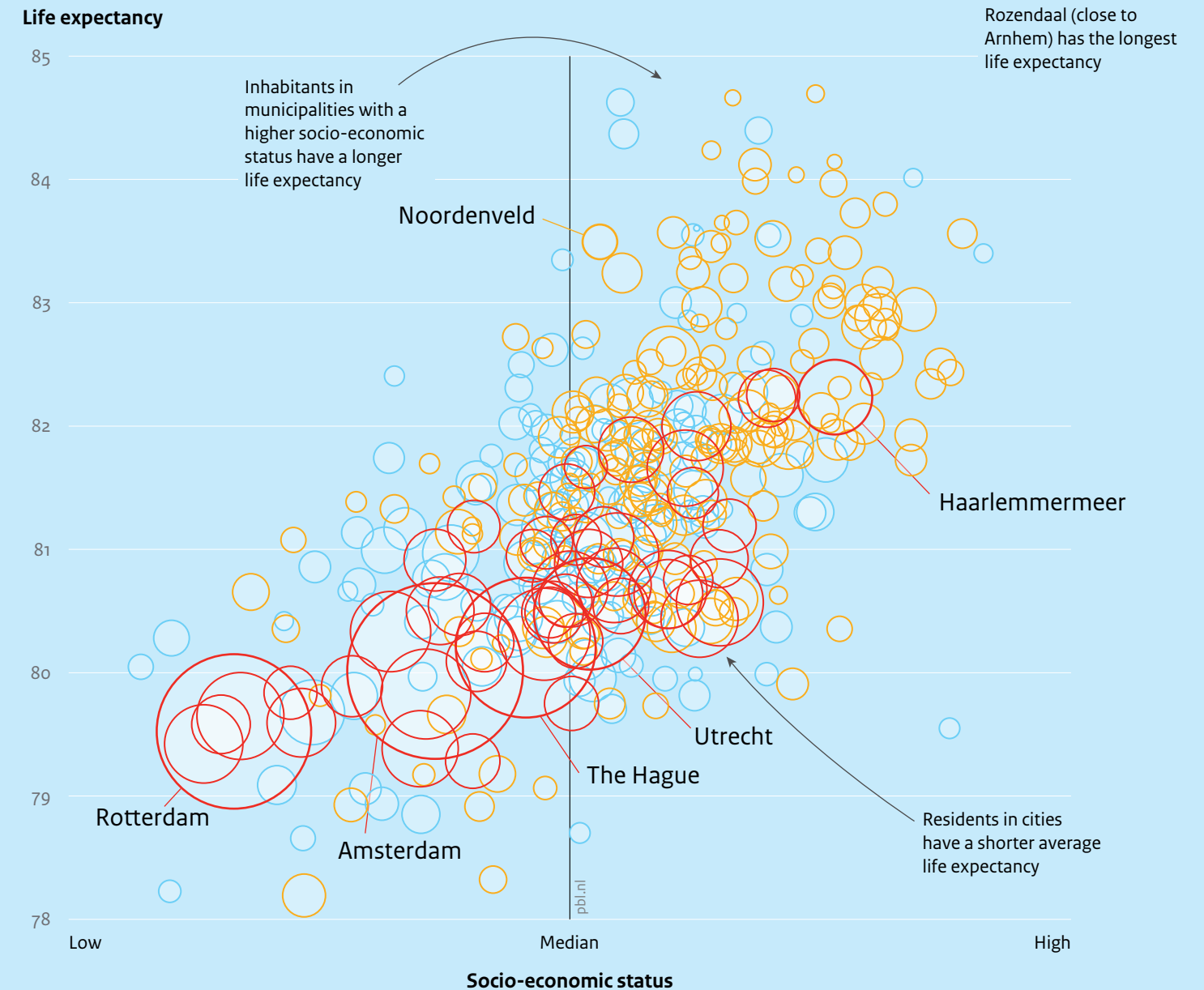
The liveability and safety of Dutch cities have improved tremendously over the past few decades. Transport and manufacturing have become safer, cleaner, and less noisy. Levels of hazardous substances, such as nitric oxide and nitrogen dioxide (NOx), sulphur dioxide (SO<sub>2</sub>) and fine particulate matter (PM<sub>10</sub>), have decreased, dramatically, as has the crime rate, both real and perceived.

Crime, nuisance and feelings of unsafety, of course, have not gone away completely (CBS, 2014). This is especially true in the four large cities, but sometimes small towns, suburbs and rural areas are also plagued by 'urban problems'. On average, inhabitants of large cities are less healthy and live shorter lives. This is mainly linked to the relatively large number of low-income people with a low level of education who tend to live in social housing in the least attractive neighbourhoods. Low educated people have substantially shorter lifespans than the highly educated, partly because they have not learned how to take care of their health, e.g. by healthy food and sufficient exercise (RIVM, 2014). Other factors may include unhealthy work environments or time schedules, and the costs of fresh food and fitness. Life expectancy in well-to-do urban neighbourhoods with highly educated residents, in contrast, tends to be long.



## Inhabitants per municipality, 2014

Source: RIVM, adaptation by PBL



# Cities as incubators for innovation

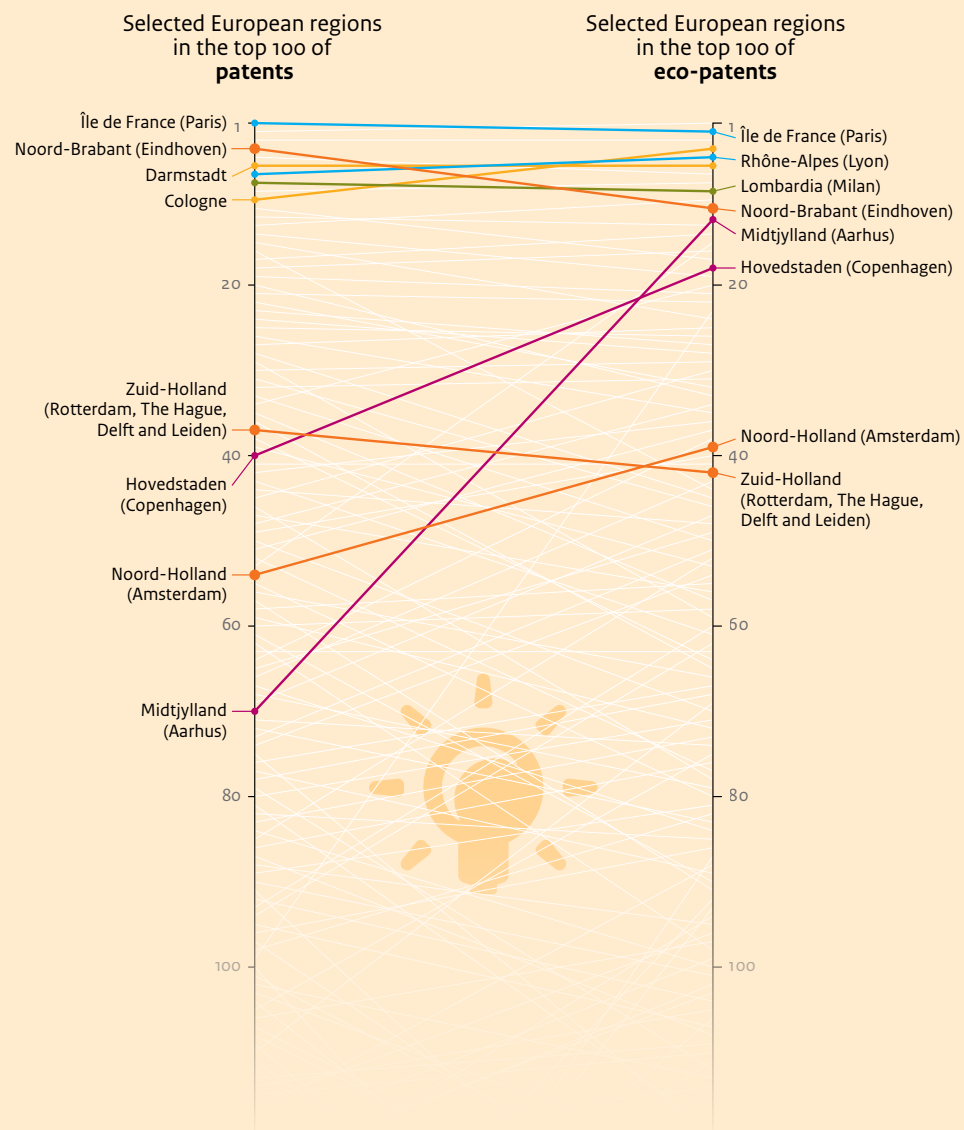
Urban regions are incubators for innovation and entrepreneurship. These areas are vital for the Dutch economy, which needs to learn to become much more efficient with natural resources and energy, in order to remain competitive. Smart and clean technologies offer economic opportunities; the global demand for energy-efficient technologies and sustainable products is growing rapidly (PBL, 2014a).

Start-ups are important for innovation and growth, but they often don't survive after the first phase of initiation. Instead of conquering the market with their innovative idea or product, they get stuck in the 'valley of death'; a phase in which a start-up firm will die off before a steady stream of revenue is established. 'Green' start-ups have a particularly hard time overcoming this hurdle. A clearer long-term ambition for greening the economy and investments in green funds may help companies traverse this 'valley of death'.

Cities are at the forefront of the transition towards a green economy. Urban citizens and civic entrepreneurs are launching all kinds of sustainability initiatives. Businesses and research institutes dealing with green innovation are highly clustered in the large urban agglomerations. Their knowledge, creativity and efforts offer opportunities for innovation and green growth.

## Ranking European regions by patents and eco-patents

Source: OECD REGPAT, adaptation by PBL



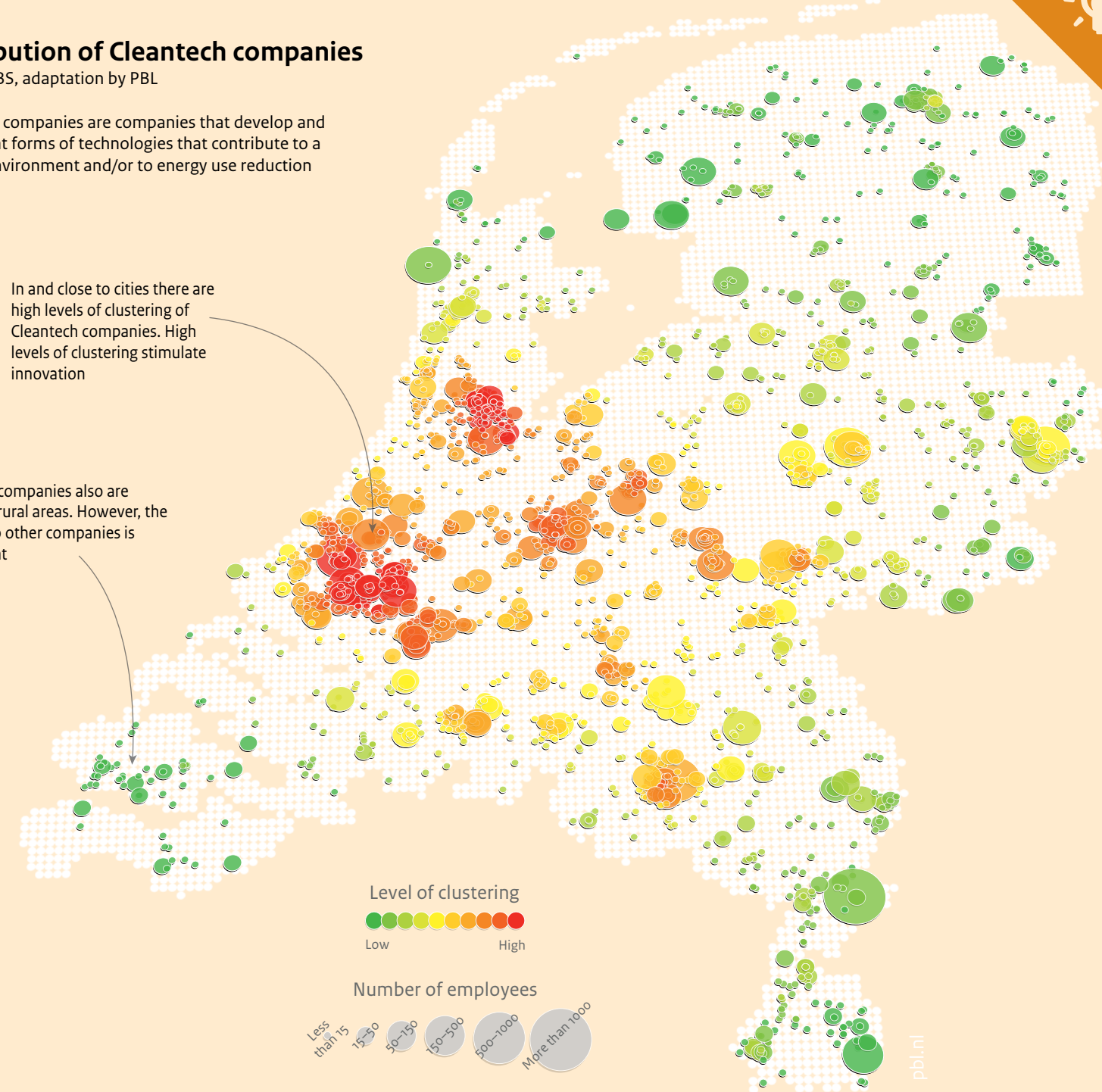
## Distribution of Cleantech companies

Source: CBS, adaptation by PBL

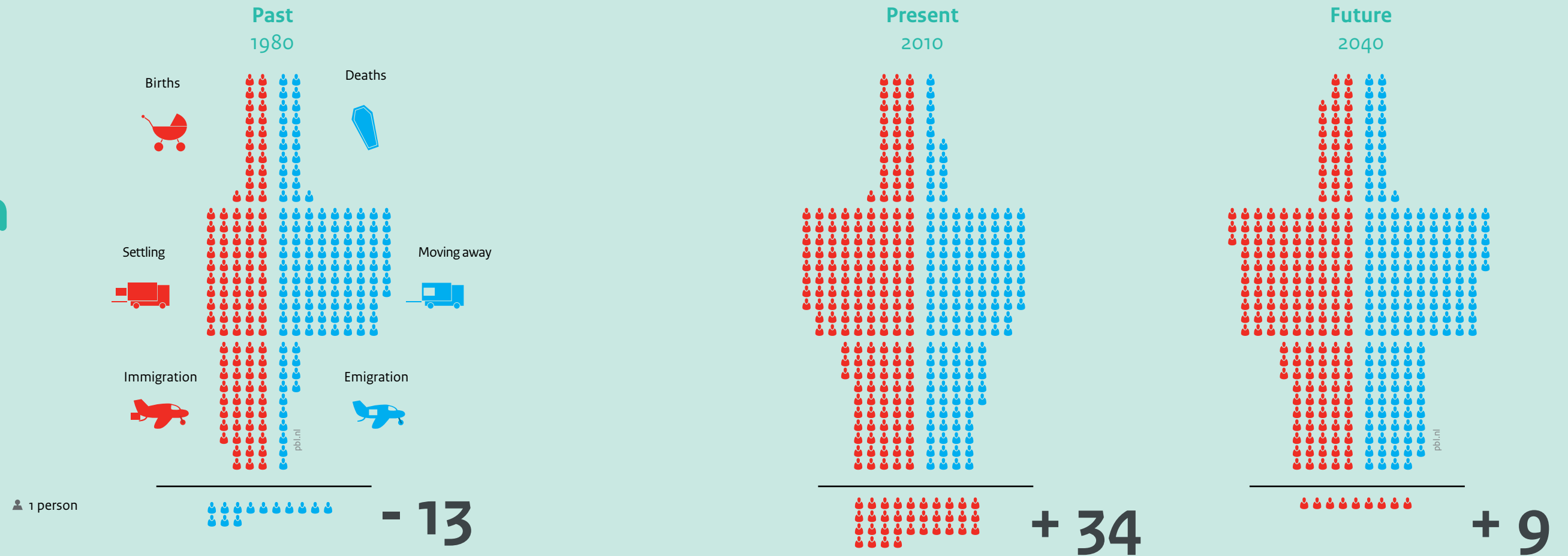
Cleantech companies are companies that develop and implement forms of technologies that contribute to a cleaner environment and/or to energy use reduction

In and close to cities there are high levels of clustering of Cleantech companies. High levels of clustering stimulate innovation

Cleantech companies also are located in rural areas. However, the distance to other companies is rather great



# A day in the life of Amsterdam



The city of Amsterdam changes day by day. Population numbers have increased since the 1990s, and this trend is expected to continue well into the 21st century. Amsterdam was not always this popular. In the 1970s and 1980s, many families turned their backs on the small city

apartments in favour of single-family dwellings in suburbs or new towns such as Alkmaar, Hoofddorp, Hoorn, Purmerend, Lelystad and Almere. Many businesses also vacated the city for accessible locations along the motorways where space was cheap and plentiful.

The tide turned in the 1990s. Amsterdam became more attractive for young people and families. Trendy neighbourhoods, such as the Jordaan, began to attract young, well-educated and well-paid people, who valued the charming historic surroundings and copious cultural attractions over

physical space. New urban redevelopment projects were developed on both the western and eastern side of the city. On a typical day in 2010, approximately 30 children were born in Amsterdam and about 15 people died. In addition to the positive natural population growth, the influx of people from elsewhere in

the country also boosted Amsterdam's population. Approximately 90 people moved to Amsterdam on any given day in 2010, while only 80 left the city. In addition, about 55 foreign immigrants arrived, 10 more than decided to emigrate on that day. At the end of the day, each day, Amsterdam grew by 34 people. Between 1980 and 2010,

the population in Amsterdam increased from 715,000 to 790,000. It is expected that Amsterdam will stay a popular place of residence in the future and that the city will reach a population of around 925,000 inhabitants by 2040.



# Appendix

All infographics in Cities in the Netherlands have been created and edited by PBL Netherlands Environmental Assessment Agency and are based on infographics published in the ‘De Nederlandse bevolking in beeld’ (PBL, 2014b) and ‘De stad verbeeld’ (PBL, 2015b).

The authors would like to thank the following people from the Ministry of the Interior and Kingdom Relations (BZK) and the Ministry of Infrastructure and the Environment (IenM) for their contribution to this publication: Syd Jordaans (BZK), Yvonne van Remmen (BZK) and Willemieke Hornis (IenM).

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The following sources were used:

## Page 8 Cities are popular

The map on population change is based on data provided by Statistics Netherlands (CBS). The future projection is based on calculations by PBL and CBS (2013).

The classification of ‘City’, ‘Commuting zone’ and ‘Rural area’ is based on the definition by the OECD (2012). More information on the definition can be found here: <http://www.oecd.org/regional/redefining-urban-new-way-to-measure-metropolitan-areas.htm>

## Page 10 An urban nation

This infographic is based on data provided by LISA (data on employment), Statistics Netherlands (CBS) and the National Institute for Public Health and the Environment (RIVM). The classification of ‘City’, ‘Commuting zone’ and ‘Rural Area’ is based on the definition by the OECD (2012).

## Page 12 Less growth and more decline

This infographic on population growth and decline per municipality is based on data provided by Statistics Netherlands (CBS). The future projection is based on calculations by PBL and CBS (2013). More information can be found here: <http://www.pbl.nl/themasites/regionale-bevolkingsprognose>

## Page 14 The gravitational pull of the Randstad

This infographic on population growth and migration flows per region is based on data provided by Statistics Netherlands (CBS). The future projection is based on calculations by PBL and CBS (2013).

## Page 16 Large cities attract migrants

This infographic on immigration and emigration in the four largest Dutch cities is based on data provided by Statistics Netherlands (CBS).

## Page 18 Cities are where the jobs are

The map on job density is based on data provided by LISA. The classification of ‘Cities’, ‘Commuting zone’ and ‘Rural area’ is based on the definition by the OECD (2012). The graphic on job growth for the four largest urban regions in the Netherlands is based on data from the European Regional Database provided by Cambridge Econometrics (version April 2015).

## Page 20 Economic growth has many faces

This infographic on employment growth and labour productivity growth is based on data from the European Regional Database provided by Cambridge Econometrics (version April 2015). The European Regional Database contains socioeconomic data for 27 European countries on a regional scale (NUTS3) for the period 1980 to 2012.

## Page 22 Income disparities in the city

The maps showing ‘income level per person (2008)’ and ‘share of the population with a non-western background (2010)’ are based on data provided by Statistics Netherlands (CBS).

## Page 24 Wealthier = Healthier

This infographic on life expectancy per municipality in relationship to socio-economic status is based on data provided by the National Institute for Public Health and the Environment (RIVM).

## Page 26 Cities as incubators for innovation

The ranking of European regions by patents and eco-patents is based on data published by the OECD (REGPAT database, version July 2014). The distribution of Cleantech companies in the Netherlands is based on data by Statistics Netherlands (CBS). The map has been published in an earlier PBL publication: PBL publication: ‘Green Gains: In search of opportunities for the Dutch economy’ (PBL, 2014a).

## Page 28 A day in the life of Amsterdam

This infographic on population change in Amsterdam is based on data provided by Statistics Netherlands (CBS). The future projection is based on calculations by PBL and CBS (2013).

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