

# Urban Regions in the Delta



## Settlement patterns of international knowledge workers in The Netherlands

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## HELP UvA-VU (international part): Implications of housing and residential milieu preferences of highly educated international migrants (in creative and knowledge intensive industries) for spatial development of metropolitan areas

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# 1. Introduction

## 1.1 Introduction to HELP-international and the first work package

### *Introduction to HELP-international*

This research project is an extension to the project Higher Educated Location Preferences (HELP UvA-VU). The objective was to focus on the housing and location preferences (stated and revealed) of international migrants, particularly those with higher-level education and/or skills, and if possible with special attention for sectors of the economy, such as creative and knowledge intensive industries, which are widely regarded to be vital for the Dutch economy.

The attractiveness of cities to these international migrants is widely regarded as one of the key factors for the flourishing and growth of urban areas in the coming decades. The project consists of four projects that will together generate an extensive and up-to-date view on and insight in the housing requirements of this particular category. The highly-skilled international migrants are divided in two categories: the directly immigrating migrants, who obtained their skills elsewhere; and the international students, who obtained their skills in the region and who might or might not consider to stay in the Amsterdam or Eindhoven region.

We will start with an overview of the literature about housing orientations of high-skilled transnational migrants and students (contributions from all projects); this will be followed by an investigation of the stated preferences of high-skilled transnational migrants (project 1); we will add to this an analysis of the kind of relationship that is maintained between international students and the metropolitan area of Amsterdam after the international students finished their studies in Amsterdam (project 2). In project 3, we will build a general model for location choice of high-skilled international migrants and connect the model to a simulation tool that calculates and visualizes the model outcomes under different scenarios. In project 4, the focus will be on the dynamics of the international migrants in general, and those working in creative and knowledge intensive industries, after arrival and after settling in the urban region. How are their residential preferences changing over time and how do they compare with other categories? The remainder of this report will deal with the first work package: the stated preferences of skilled migrants.

### *The fourth work package of HELP-international*

This study addresses the actual settlement and mobility behaviour of new international migrants on two moments in time. The first moment is the arrival in the Amsterdam or Eindhoven metropolitan region. We expect that for migrants in this stage readily available housing, not far from work and perhaps close to co-nationals, is the main consideration. The first dwelling may be suboptimal. Specific residential milieus will function as 'ports of entry', from which international knowledge workers will likely look for optimal housing. The second moment in time is their final address, since we expect that migrants will end at their most optimal location. We assume that

from the second relocation onwards, immediate access to housing will become less important and aspects such as location, dwelling type and dwelling size become more important. Here, the dimensions known from migration theory are supposedly the main driving factors, in particular age and changes in household situation, as well as differences in income situation. However, actually not much is known about such residential behaviour of high-skilled immigrants in creative knowledge industries, and about the differentiation within that category and relative to other categories in the population.

## 1.2 Background and societal relevance

As a result of the growing importance of creative and knowledge-intensive sectors in both national and regional economies, combined with a growing internationalization of the economies, academic and policy interest in transnational migrants in those sectors has grown recently. In TIME of March 5th 2012 (pp. 40-44) it is argued that the international orientation of European economies has helped them to stay important. Based on Eurostat data, The Netherlands actually needs over 600,000 international workers extra before 2050 if the country intends to survive in the ever more globalising economy. As a result, cities have to strengthen their links to global pools of creative-knowledge talent in order to remain competitive and must pay increasing attention to the conditions that attract and retain highly skilled international migrants. International migration of highly skilled people serves different purposes in the economy. It can fill short-term labour gaps or be used to address long-term skills shortages and help with the gradual development of a skilled labour force.

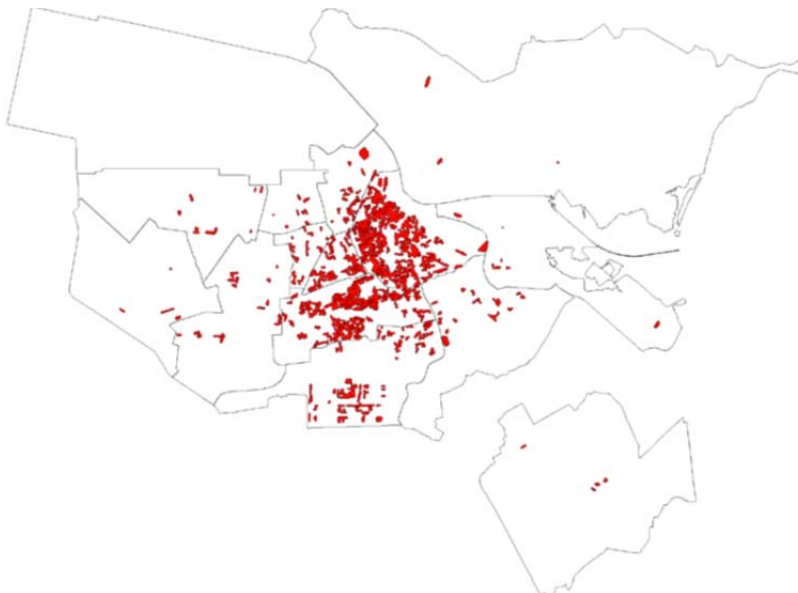
Whereas many countries previously pursued restrictive immigration policies, in the past decade, policies were developed by the European Union (EU) and European cities and countries to attract highly skilled foreign workers. This development was spurred by labour shortages in the information technology sector and in parts of service industries such as banking and the health sector. Already in 1999, EU countries formulated a common framework to manage migration and an important role was ascribed to legal migration for the enhancement of the knowledge-based economy in Europe in the 'Hague Programme' of 2004. In 2007, a Blue Card for highly-skilled workers from outside the EU was proposed, which offered them the chance to gain a working and residence permit for the EU. Still, only 34 percent of all highly educated international migrants live in European countries, while the US is the most popular destinations of all OECD countries. Differences between nation states in terms of pensions, social security systems and bureaucracy form significant obstacles to foreign migration within the European Union (Pethe et al., 2010).

Notwithstanding, many urban economies and particularly those with a strong international orientation, have acknowledged a growing inflow of international knowledge workers over the past decade. Also the two regional case studies in this project, the Amsterdam Metropolitan Area and the Brainport area Eindhoven have a growing international population, of which skilled migrants account for a large share of population growth. In the Amsterdam Metropolitan Area already 13 percent of the residents currently is of 'western migrant' origin; in the City of Amsterdam this is even 15 percent. The Eindhoven region offers more high tech employment than regional technical graduates can fill in, which makes the region strongly dependent on international talent, at least on short term (NRC, 2013). The Eindhoven Brainport region expects a steep increase in the number of international migrants until 2020. The number of international knowledge workers already increased from 700 in 2007 to 2,400 in 2012, and is expected to double to approximately 5,000 in

2020. Around 80 percent of the population growth expectedly consists of single-person households. In addition, approximately 29,000 labour migrants that are not necessarily highly-skilled are living in the Eindhoven region. It is a large challenge for both the city and the region to accommodate these workers and to offer housing that meets their demands (Municipality of Eindhoven, 2014).

Although an extensive literature exists on the residential preferences of skilled workers in general (see Sleutjes, 2013 for an extensive overview of this literature), there is still a lack of knowledge regarding the specific preferences and behaviour with respect to the dwelling choices and orientations towards certain residential milieus of highly educated international migrants. Still, urban policy makers across Europe have adopted the view that for internationally oriented workers, residential preferences, lifestyle and amenity use deviate from other categories of workers. Florida's (2002) Creative Class theory is particularly popular among policy-makers throughout the US and Europe, who developed policies to attract the 'creative class' to their city. Meanwhile, however, there has been substantial criticism on Florida's work and counter-evidence has been gathered both in the US and in Europe. For example, Martin-Brelot et al. (2010) show, based on a research in 13 European metropolitan areas, that international creative knowledge workers are not necessarily attracted to the city because of amenities, or even housing conditions, but mainly because of employment opportunities and personal networks. Residential conditions hardly played a role for attracting people, but may play an important role in retaining them. In this regard it is very important to take the large variety of skilled migrants into consideration. Whereas some only stay for a short term, many others will not leave anymore.

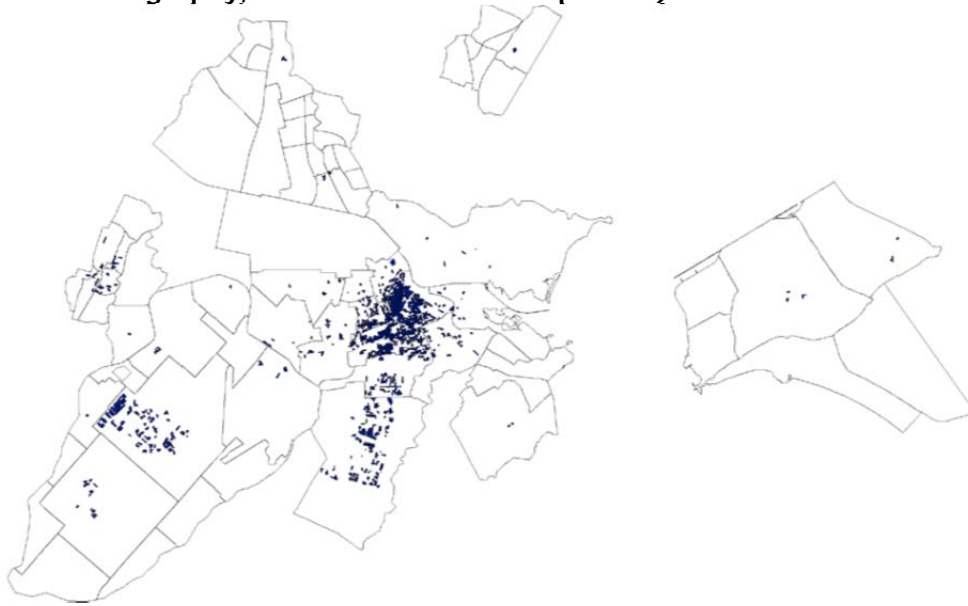
**Figure 1.1 The dispersal of Western migrants across the Amsterdam municipality in 2010. Concentrations are defined as two standard deviations above the mean (>25.6 percent) of Western migrants in the Amsterdam region (Source: Regiomonitor, UvA, Urban Geography, O+S Amsterdam).**



Also, whereas Florida (2002) argued the existence of a new and highly dynamic 'creative class' that would have a strong preference for living in or close to the centres of large cities, concentrations of international migrants from more affluent countries are also found in more suburban loca-

tions. For example, Figure 1.1 shows that within the Municipality of Amsterdam, the largest concentrations of Western migrants are found within an axis running from the inner-city southward to the city limits. With the exception of the southern outskirts Buitenveldert, concentrations of Western migrants are small outside the ring road and also north of the River IJ. At the regional level, the City of Amsterdam clearly has the largest concentration of Western migrants. However, some larger concentrations can be found in the southern suburb of Amstelveen, the suburb Hoofddorp near Schiphol airport, and in the City of Haarlem, the other urban centre in the region. Outside these places, there are no significant concentrations of Western migrants, indicating that migrants settle down in urban centres, but also in specific suburban places.

**Figure 1.2 The dispersal of Western migrants across the Amsterdam Metropolitan Area in 2008. Concentrations are defined as two standard deviations above the mean (>23 percent) of Western migrants in the Amsterdam region (Source: Regiomonitor, UvA, Urban Geography, data from local municipalities).**



Thus, although proximity to urban amenities and a lively residential environment might be essential factors in the choice of residential location for part of the 'creative class', it is not driving all of them. It is important to understand that there are different types of migrants, since this will directly influence the measures which can be used to attract or retain them. There are highly urban-oriented migrants and there are those who seem to prefer more spacious suburban locations, and their housing demands will likely differ accordingly. In that regard it is important to better understand the needs of different sub groups of transnational migrants. This study aims to do so by looking at the actual settlement and relocation patterns of skilled migrants.

### 1.3 Structure of report

The remainder of this report is structured as follows. The second part offers an overview of the literature on international knowledge migration, as well as the residential choice of highly-skilled workers in general, and international migrants in particular. The third chapter describes the process of data collection, the methodology and the variables used in the models, as well as a description of the research population. Chapter 4 will present the outcomes of the statistical anal-

yses. The final section will provide a short summary of the main results, as well as a number of conclusions and policy recommendations.



## 2. International labour migration and residential preferences of skilled workers: a literature review<sup>1</sup>

This section presents an overview of the literature on international labour migration, as well as the location choice of skilled workers in general, and international migrants in particular. The first sub section deals with classical and modern theories on migration in general, whereas the second sub section will go deeper into the literature on skilled labour migration. The third sub section sketches the insights from the literature on residential location choice.

A large literature exists on location choice and residential preferences of people, and increasingly the distinction between high-skilled and low-skilled workers has been made. However, the literature has not paid much attention to the specific preferences of skilled migrants. Therefore this literature review will mainly focus on residential preferences of skilled workers in general.

### 2.1 General theories on international labour migration

Several theories dealt with the underlying motivations for labour migration. 'Classical migration theories' explain migration processes by emphasizing economic disparities between regions. Migration decisions result from push-factors in the region of origin and pull-factors in the destination area. Classical migration theory also takes spatial distance, migration laws and personal facts into account, since political conflicts or escaping from danger may also steer migration (Bontje et al., 2009).

'Neoclassical migration theories' further elaborated on this push-pull-model and can be subdivided into 'macro-economic' and 'micro-economic' approaches. Macro-economic approaches focus on disparities between places of production and labour markets, including differences in wages and in the supply and demand for labour, but disregard other possible factors (Bontje et al., 2009). On the contrary, micro-economic approaches emphasize rational migration decisions by individual migrants, and individual features, social conditions and migration costs are seen as the main factors influencing the probability of migration. Whereas for highly-skilled workers, the expected income in the destination country increases the incentive to migrate, for non-highly skilled migrants income is of less importance. Rather, through migration, they hope to boost their human

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<sup>1</sup> The literature section of this report is largely identical to the literature section in HELP International report 1, since the research questions are mainly based on the same theoretical arguments and empirical studies.

capital and, indirectly, their perspectives on the job market. In contrast to classical migration theories, neoclassical theory disregards international political and economic contexts and social boundaries (Massey et al., 1993; Bontje et al., 2009).

The 'new migration economy' approach focuses on both income and the household situation. The theory assumes that households try to maximise their expected income and minimize economic risks. The associated money transfer from abroad, resulting from the migration of one household member, can be used to increase the productivity of the household. Often, this type of migration is temporary, and includes for example guest labourers (Bontje et al., 2009).

The 'dual labour market theory' suggests that migration results from political and socioeconomic factors. From this perspective, the segmentation of the labour market influences labour migration. In advanced industrial societies, there is a dual economy with a capital-intensive primary segment and a labour-intensive secondary segment. The secondary segment is characterised by insecurity and low wages, and unpopular with native workers. Advanced economies therefore depend on labour migration for the secondary segment (Bontje et al., 2009).

The 'world system theory' divides the world into three zones: core, semi-periphery and periphery. International labour migration is presumed to follow the international flows of capital and goods in the opposite direction, and is therefore concentrated in global cities. Migration is a consequence of economic globalisation and the emergence of the capitalistic market in developing countries. International migration primarily appears between former colonial powers and its colonies because of already existing relations in the fields of economy, transport, administration, culture and language (Bontje et al., 2009).

Since the 1990s, migration studies have increasingly focused on the role of social networks (meso level). The 'theory of migration systems' assumes that the intensive exchange of information, goods, services, capital, ideas and persons between specific countries causes a stable system. Migration systems can be formal and informal, including individuals and institutions of both countries. Social ethnic networks, multinational firms, educational institutions or other corporations play an important role. This approach encompasses the economic, political, social, demographical and historical context of migration systems, while taking into account disparities and interdependencies at both ends of the migration flow. Flexible political and economic relations are expected to have a large influence on migration systems. For example, ethnic networks built by migrants and their family and friends are highly relevant. On the one hand, they lower the costs and risks of migration and help to keep in touch with the home region, and on the other hand they help migrants with integration into the host society. However, social networks may also cause dependency and liability, which may hamper integration into the host society (Bontje et al., 2009).

## 2.2 Migration of knowledge workers: from 'brain drain' to 'brain circulation'

One concept that is often linked to the migration of skilled workers is 'brain drain', which assumes permanent migration from less to more developed countries. Economic factors, such as a higher income level in the destination area, are regarded as the main migration motives. Seen from the perspective of 'dependency theory', industrialised societies benefit from a loss of human capital in developing regions (Bontje et al., 2009). However, the theory disregards the fact that highly skilled workers may return to their country of origin, thereby pushing development in their home

country through improved skills (Saxenian, 1999). This process is referred to as 'brain circulation' (Bontje et al., 2009).

The increasing internationalisation of the economy has reduced the relevance of the brain drain concept through time (Beaverstock, 1990; Bontje et al., 2009), corresponding with changes in migration systems and processes. In the 1980s, the international financial market was deregulated and many industrial producers moved production units outside their home markets. This resulted in the emergence of a large number of transnational production and service companies, and consequently in the 'brain exchange' of highly skilled professionals within these international organisations. These 'expats' were often sent to a foreign branch for a short period, ranging from a few months to a few years. Although expats generally had little choice in selecting their countries of destination, they were in a privileged position, since they were often compensated through relocation service and a salary that was higher than the home level. Based on studies on expats in the financial service sectors, the geography of their mobility often corresponds closely with the geography of the global cities (Beaverstock 1994; 1996; 2002).

Migration has become a circular movement, implying that migrants return to their home regions after one or more migration steps (Vertovec, 2007). Not only has there been a shift toward the movement of highly skilled workers since the 1980s, but increasingly also migration between advanced capitalist countries takes place, as well as migration from advanced economies to developing countries. Furthermore, a new type of international migration has emerged: 'transnational migration', which has led to the development of international communities and social spaces that are not bounded in one specific national context (Bontje et al., 2009). The concept of 'brain circulation' seems better applicable to the Dutch situation than the concept of 'brain drain' (Pethe & Hafner, 2013).

The brain exchange perspective has been criticized, mainly for its dominant economic perspective, while neglecting the migrant as an individual agent (Scott, 2006). As a result of the technological progress, small actors have become more internationally mobile, increasing the likelihood that highly skilled individual change between small and medium-sized companies, rather than between large multinationals (Bontje et al., 2009). Although theoretical debates and empirical studies so far are mostly focused on expats, this is only a relatively small sub-category of transnational highly skilled migrants. Many higher skilled workers move abroad because on their own initiative, and because of personal motives, rather than job opportunities or career perspectives (Bontje et al., 2009).

In their case study on migrants in the Amsterdam Metropolitan Area, Pethe & Hafner (2013) distinguished between 'demand-related' and 'supply-related' migration. Demand-related migration is related to rising labour demand from companies. It results from the international expansion by companies, the necessity of the exchange of expertise and knowledge for innovations, as well as the need to overcome short-term labour shortages or the shrinking labour force. Supply-related migration relates to the increasing mobility of skilled professionals due to both professional and private reasons. The internationalization of social networks and education, the free movement of citizens within the borders of the EU, humanitarian migration, and the inflow of repatriates all contributed to the increase of supply-migrated migration. In addition, there is a large group of second generation foreign professionals who were born in European countries as offspring of former guest-workers (Pethe & Hafner, 2013).

Demand-related migrants can be subdivided into four categories. A first category is 'corporate migrants', who often work for transnational companies on a short-term basis and generally have higher incomes. This category of migrants attached much value to acquired expertise, working experience within a company and knowledge, but also hard factors, such as taxation and access to highways or airports, may help to attract this group (Pethe & Hafner, 2013). For international knowledge migrants, the Dutch national government has provided a number of favourable conditions, such as less strict salary criteria, accelerated immigration procedures, generous arrangements for permanent settlement, and tax incentives. Regarding the latter, the '30 percent tax rule' offers a tax reduction to those highly-skilled migrants whose expertise is in high demand on the Dutch labour market. Returns to skills are thus made more progressive, which is especially attractive for those migrants with high incomes (Hercog, 2008).

Besides labour migrants, there are also many 'graduates', including students, recent graduates and 'lifestyle migrants', for whom social networks are important channels for finding jobs and accommodation. Compared to the corporate migrants they earn moderate incomes.

A third category consists of 'European free movers', who often leave their country of origin after graduation or in the early stages of their career. These migrants are often independent, single individuals, and their incomes are rather mixed. Still, the European migrants who move into the Amsterdam region in general belong to the highest income categories.

A final category of demand-related migrants consists of 'migrants from newly emerging countries'. Since the turn of the millennium, Indian and Chinese companies, followed by professionals, have expanded their markets toward Europe. These companies were motivated by shortages in IT professionals in many European countries, the increasing trade between China and Europe, and the removing of barriers to migration from less developed countries. The number of immigrants from China and India to the Amsterdam Metropolitan Area increased from 358 to 1,281 between 1999 and 2006. Most of the Chinese and Indian workers are relatively young (under 35). Compared to other migrant groups, they are often married and have double-income households (Pethe & Hafner, 2013).

### 2.3 Attracting and retaining skilled migrants: the role of soft and hard conditions, and diversity within the creative class

In the literature there are fierce debates about the type of conditions that are needed to attract and retain talented people<sup>2</sup>. Two red threads come forward in the literature: the ongoing importance of hard factors and social capital on the one hand, and the large differences within the 'creative class' on the other.

#### *The people-based perspective: the role of diversity and amenities*

One stream of thought, which has dominated urban economic and cultural policies for years, is the 'people-based perspective on economic growth' (Storper & Scott, 2009), which can be subdivided into three main sub strands. The most prominent –in terms of policy influence– sub-strand is Florida's (2002) 'Creative Class Theory', which suggests that economic growth is spurred not only by individuals' level of education but rather by creativity, resulting from social interaction,

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<sup>2</sup> See Sleutjes, B. (2013), *The Hard and Soft Side of European Knowledge Regions*, Amsterdam: University of Amsterdam/ AISSR, for a more extensive overview of these studies.

authenticity and identity. Inspired by Jacobs (1961), Florida considers cities the ultimate location for innovative industries, since cosmopolitan cities are characterized by heterogeneity, which in turn drives creativity and innovations (Florida, 2002; Helbrecht, 2004). The Creative Class Theory is built around the so-called the '3 T's': Talent, Technology and Tolerance. According to Florida (2002), talented and creative people congregate together in metropolitan areas because of tolerance and diversity. These aspects are therefore regarded the keys to economic success.

A second strand within the people-based perspective regards skills and amenities as the main drivers of location choice and urban growth. According to this 'Consumer City' approach, human capital or the availability of skilled workers steers economic growth and these skilled workers are in turn attracted by amenities (Glaeser et al., 2001).

The third strand within the people-based approach is similar to the Consumer City approach, but considers urban amenities as the principal drivers of urban growth and competitiveness in the global race for resources and investments (Clark et al., 2002). It regards cities as 'entertainment machines' and those cities with the most and highest quality urban amenities are most likely to attract human capital. Amenities cover a wide range of facilities, such as attractive residential milieus, shopping centres, cultural functions, restaurants, sports facilities and recreation areas (Jacobs, 1961; Clark et al., 2002). These facilities may help to attract potential employees belonging to certain household types, age groups, educational levels and specific origins to certain areas. Rather than private goods, public goods determine quality of life and therefore Clark et al. (2002) prefer to speak of quality of place.

#### *The ongoing importance of hard conditions and social capital*

The people-based perspective has been subject of strong criticism, mainly for overestimating the role of soft conditions, while underestimating the important role of employment opportunities. Most recent empirical evidence on the location decisions of knowledge workers in European knowledge regions has been gathered in the Accommodating Creative Knowledge (ACRE) project, which included a survey among knowledge workers, both native and international, in 13 European city regions whose local economies are characterized by a (recent) emphasis on human capital. Two overall conclusions of this project should be emphasized. First, in Europe, social capital plays a dominant role in the process of making a relocation decision. The presence of family members or friends, following a partner, or having been born or having studied in a certain region are important reasons for choosing a place of residence. These types of social capital have been neglected by Florida (Brown & Meczynski, 2009; Musterd & Murie, 2010).

Second, besides social capital, hard economic factors are the main drivers of relocation: job opportunities, wages and accessibility (Bontje et al., 2008; Brown & Meczynski, 2009; Martin-Brelot et al., 2010). Thus, people generally do not move to places simply because of their available soft conditions. Rather, people move because of the availability of suitable jobs or because of personal trajectories and networks (Musterd & Murie, 2010). Also Houston et al. (2008) concluded, based on their case study of talented migrant workers in Scotland, that employment opportunities are becoming more rather than less important through time. A recent German study by Buch et al. (2013) showed that all labour market indicators have significant positive influence on migration decisions. Cities with low unemployment, relatively high employment growth and high wages are the most attractive for mobile workers. However, also the quality of life of a city was found to influence residential choice of workers, especially nature amenities such as recreation areas, cli-

matic conditions and accessibility. Also the urban housing market matters, especially flat size (Buch et al., 2013).

A study on international migrants in the Eindhoven region showed a similar pattern. More than 60 percent of the international knowledge workers came to the Netherlands because they considered it as a career opportunity, and almost 50 percent mentioned the attractive scientific climate. Approximately a quarter of the international knowledge workers considered moving to the Eindhoven region as a strategy to gain international experience, and an equal percentage came to the Eindhoven region for study reasons. For 15 percent, the social, economic, political and cultural climate of The Netherlands was the main reason for in-migration, but only 2 percent mentioned the Eindhoven Region as place of residence as the main reason for moving to the Netherlands (Buiskool & Grijpstra, 2006).

Recent empirical evidence on the creative class in Dublin showed the continued importance of hard location factors: costs and size of the dwelling were considered important, just like distance and journey time between home and work and the quality of transport infrastructure. However, soft factors were rarely mentioned among the main reasons for choosing a location. In fact, proximity to pubs or nightclubs was considered unimportant by 42 percent of the population (Lawton et al., 2013).

A study by Hansen and Niedomysl (2009) studied which factors are considered important for migration decisions of the creative class in Sweden. Their study focused on work and career opportunities, culture and entertainment, and outdoor activities and recreation. They distinguished between workers with high and low levels of education and also between different age groups. Differences in migration activities between low and high educated workers were found to be marginal. Only the group of people up to 25 years, including many students, tends to move towards regions with high degrees of quality of life. The next wave of migration occurs after graduation when people move to enter the job market, away from the larger cities and toward lower ranking regions. Thus, migration to places with a high-ranking people climate takes place before people become part of the creative class whereas people move in the opposite direction after entering the creative class. Most migrants that moved more than 20 kilometres stated employment as the main reason for moving (26 percent), followed by social reasons (24 percent) (Hansen & Niedomysl, 2009).

Hansen and Niedomysl (2009) concluded that soft conditions play a secondary role behind hard conditions when making relocation decisions. In addition, the clearest differences between highly and low educated workers concern hard conditions rather than soft conditions. For example, half of all workers considered cultural and entertainment facilities of no importance or small importance for making their migration decision, whereas 18 percent considered this of great importance and 2 percent of utmost importance. No significant differences between workers with high and low levels of education were found in this respect. Similarly, outdoor activities and recreation hardly played a role in making migration decisions, whereas 32 percent of the highly educated workers considered work of utmost importance; more than twice as high as the share of low educated workers. In contrast, for 38 percent of the low educated workers work was not important as a location decision factor, whereas this was the case for 20 percent of the highly educated workers. Career opportunities are considered less important than the job itself, but highly educated workers (15 percent) more often attach high value to this than low educated workers (6 percent). Looking specifically at highly educated workers, it stands out that work is by far the

most important factor underlying migration decisions. Still, outdoor activities and recreation, as well as cultural and entertainment facilities, were considered important by 20 percent of the highly educated workers. Interestingly, outdoor activities and recreation are more important for older migrants, especially for retired persons, and also for people belonging to higher income groups. Cultural and entertainment facilities are more often considered as a migration reason by older migrants, again especially by retired people (Hansen & Niedomysl, 2009). Niedomysl (2010) suggested that amenities should be considered as preferences, rather than needs or demands. These aspects are relevant mainly when other factors -such as jobs and affordable housing—are equal in different potential destinations (Niedomysl & Hansen, 2010).

Migueluez and Moreno (2014) investigated the determinants of the mobility of highly-educated knowledge workers between NUTS2 regions in the European Union. Their research confirms the dominant finding that, in the European context, 'hard' location factors such as job opportunities are the most important factors in attracting native and international knowledge migrants, while natural and cultural amenities are of secondary, but still significant, importance.

#### *Heterogeneity within the creative class*

Several studies criticized Florida's broad definition of the creative class, which according to them should not be considered one uniform group. The creative class itself is also considered highly diverse and a dichotomy such as that between 'bohemians' and 'nerds' (Kotkin, 2000) is still insufficient to illustrate the diversity within the creative class (Kooijman & Romein, 2007). Thus, *the* creative class on which urban policy should be focused is non-existent. Servillo et al. (2011) suggested that the role that environmental, physical and social attributes play for the attractiveness of a region or city is different for specific groups.

## 2.4 Different residential preferences within the creative class

Several studies looking at residential preferences incorporated household situations and lifestyles as main determinants of residential location choice.

#### *Demographic features and lifestyles*

Based on empirical studies on creative and knowledge workers in the European context, the critique that the three people-based approaches consider knowledge workers as one homogeneous group seems to be justified. This statement is confirmed by several empirical studies on (creative) knowledge workers in European city regions, which outlined large differences in residential preferences between different sub-groups of the creative class. Most notable conclusion is that not all knowledge workers prefer metropolitan areas. Different types of regions can be attractive for different types of knowledge workers, based on their lifestyle. In their empirical study on knowledge workers in Scandinavian countries, Andersen et al. (2010) concluded that metropolitan areas are not more or less attractive than suburban areas but rather attract different groups of knowledge workers. Metropolitan areas attract workers because of employment opportunities and retain people because of (cultural) amenities. Smaller urban centres and suburban or rural areas also attract workers because of employment opportunities but retain people especially because of social soft conditions: quietness, space and social cohesion. These cultural and social soft factors may be attractive to different types of individuals. For families, smaller centres seem to be more attractive than metropolitan areas, whereas younger people are mainly attracted to central parts of large cities with a larger cultural and leisure supply (Andersen et al., 2010).



Other studies confirmed that a choice for an urban or a suburban residential milieu is determined by demographic characteristics, rather than by being part of 'the creative class' or not. Residential preferences appear to be strongly correlated with age, especially the preference for highly urban milieus. According to Lawton et al. (2013), the younger age cohorts (under 35) do have residential preferences conforming Florida's creative class thesis, whereas the proportion of individuals living in the urban periphery is largely consistent across age cohorts. Interviews with transnational migrants have pointed at the importance of life cycle and personal trajectory factors (e.g. becoming parents) for making location decisions, even for those living in the inner city districts. Similar findings were presented in studies from Scandinavia (Andersen et al., 2010), Israel (Frenkel et al., 2013) and Australia (Verdich, 2010). Based on these studies, younger knowledge workers—especially singles or couples without children—prefer inner city districts with large concentrations of (cultural) amenities, whereas older and settled knowledge workers more often prefer suburban residential milieus. The decision to move is informed by a complex set of push and pull factors whose importance varies across the life cycle.

Beckers and Boschman (2013) conducted a statistical analysis on the residential preferences of knowledge migrants in the Netherlands and found that for this group, the characteristics of the local living environment, including urban amenities, do matter for location choices. This group tends to favour highly urban milieus and in general up-market neighbourhoods in or in close proximity to city centres. However, their study also suggested that these residential preferences change during the life cycle. Once individuals start living together or start a family, quieter neighbourhoods become more popular and proximity to school outweighs proximity to work (Beckers & Boschman, 2013).

Similarly, Bendit et al. (2011) concluded after their empirical study on knowledge workers in Tel Aviv that knowledge-workers are attracted to dense urban environments and large cities. They generally prefer communities with a large number of culture and education facilities, and well-established knowledge communities with ample networking opportunities. Also the availability of appropriate housing, as well as mobility and accessibility, are considered important by knowledge workers. In general, they prefer locations that are highly accessible to both their workplace(s) and the metropolitan core. An interesting finding in their study is that the residential location choices of knowledge-workers are related to the main orientation of their activity patterns. Culture-oriented and sport-oriented activity patterns increase the tendency to reside in the metropolitan core, whereas a home-oriented activity pattern increases the propensity to reside in the outer suburbs and the metropolitan fringe (Bendit et al., 2011).

#### *Different preferences between occupational groups*

A number of studies have looked into differences in residential preferences between different occupational sub groups within the workforce. Many of the scholars of gentrification have made an explicit link between employment and residential orientation. The relationship between the urban environment and specific forms of employment is twofold. Specific economic activities have become more urban, and many of the workers in these sectors want to live close to work and hence increasingly settle in (inner) cities (Kloosterman, 2004). The other dimension of this relationship is that people working in specific sectors of work, notably new services such as advertisement, design and finance are part of an emerging new middle class that does not display the same type of taste and residential preferences as the 'traditional' middle class (Butler, 1997). These scholars argued that the transformation of urban space was driven by a newly emerging housing demand for inner-city living associated with a specific class fraction within the broader middle classes. The



transformation of specific urban neighbourhoods, gentrification, is indeed strongly associated with a changing occupational profile of these areas (Zukin, 1987; Ley, 2003). Butler and Robson (2003) argue that for explaining the residential practices of the middle classes one has to understand the practices in the fields of consumption, education, housing and employment. The trade-offs that are made between these fields depend on the resources (capital) of the household as well as their household composition and also arguably their residential background and social networks (Boterman, 2013).

A recent empirical study by Lawton et al. (2013) has shown that, based on a case study from Dublin, residential preferences of the creative class- using the broad definition including workers in creative and knowledge intensive industries- are highly diverse. Only half of Dublin's creative workers live in the inner city, whereas 29 percent live in the city outskirts and another 20 percent in the periphery. In general, they found that residential preferences of the creative class do not differ much from the choice characteristics of the general population.

However, when looking more specifically at job categories, a clearer picture emerges. Most notable, whereas workers in cultural or creative industries show a highly-urban residential pattern, the residential preferences of workers in non-creative knowledge-intensive occupations are more similar to the general public. An empirical study on Amsterdam found that workers in creative occupations had the strongest urban orientation. Of all architects employed in Amsterdam, 71 percent also lived within the city, whereas this was the case for 17 percent of the ICT workers. Apart from architects, also knowledge workers in the public sector (60 percent), in advertising (52 percent) and staff of the social sciences and law faculties of polytechnics and universities (around 50 percent) had predominantly urban residential preferences (Musterd, 2002). These findings are in line with previous studies that differentiated between residential preferences of occupational and educational groups (Helbrecht, 1998; De Wijs-Mulkens, 1999).

These findings are also in line with international studies on different occupation groups within the creative class. Kotkin (2000) stated that high-tech workers in the United States do not have a preference for dense urban areas, but rather congregate in safe, suburban communities, which he refers to as 'nerdistans'. A Dutch empirical study by Van Oort et al. (2003) on the residential preferences of Dutch ICT workers has shown that their residential preferences do not differ much from those of highly-skilled workers in general. In line with some of the earlier mentioned studies, their study concluded that residential location choice differs between lifestyle groups and is often related to differences in household situation. About one quarter of all ICT workers preferred a location in or near the city centre, while the rest -generally older and settled workers—prefer a suburban or exurban location. Proximity to the workplace was not considered very important by most ICT workers, as long as they had good accessibility to the workplace: they expressed a high 'commuting tolerance'. A choice for a residential area depends on the characteristics of the house, the neighbourhood and the availability of facilities (Van Oort et al., 2003).

For workers in cultural industries urban centres do appear to be the most popular destinations, since these groups attach more value to living near amenities and meeting places that enable them to live near the 'scene'. Also symbolic values are more relevant to workers in cultural industries. Markusen (2006) confirmed that artists prefer living in urban areas and also make an important contribution to urban development. However, there is also disagreement among scholars on this subject, since other studies found no such evidence even for the most artistic occupational groups that are supposedly highly urban-oriented, or nuanced the relevance of soft factors rela-

tive to hard conditions. For example, Borén and Young (2011) concluded after their study on artists' location preferences in the Stockholm region that even for these highly-creative workers, work opportunities are at least as important as city attractiveness. They suggest that a 'one size fits all' policy approach to attracting creative people is therefore likely to be unsuccessful.

#### Residential preferences of international migrants

Although a large strand of literature deals with residential preferences of skilled workers, the residential preferences of international knowledge workers have not been researched thoroughly thus far. It does seem to be highly relevant how a city 'looks' and 'feels', and how the housing market is structured and how it functions, in order to *retain* the high-skilled migrants. This is important for the demand-led international migrants, who once entered the city because there was a job and for those who were sent to a city abroad because of labour (Beaverstock, 1994), but perhaps this is even more important for the so-called supply-led migrants, such as the student population or other migrants who entered the place not for a job (Pethe, 2007). They might develop a relation with the city and when they enter the labour market, they start to ask for suitable environments and for dwelling types that fit their profiles. These are not necessarily the same demands as comparable categories of non-migrants have.

The ACRE project has paid some specific attention to the relocation motives and residential preferences of different categories of international migrants, including a case study on Amsterdam (Musterd & Murie, 2010; Musterd & Kovács, 2013). Demand-related migrants can be subdivided into four subgroups in terms of residential preferences. Corporate migrants tend to prefer subcentres in the region, as is symbolized by the Japanese community in Amstelveen, which can be seen as a clear example of corporate migrants. The group of graduates expresses a clear preference for inner-city milieus, particularly the highest income group. Measures to attract the group of free movers should focus on the preference of young single people for inner-city residential environments, with housing in different price categories, and assistance with necessary administrative procedures. The residential preferences of 'migrants from newly emerging countries', especially Indian and Chinese workers, who work in only a selected number of sectors such as IT or trade, range from inner-city housing (one-third) to suburban medium-priced accommodation. Policy-measures aimed to attract this group should take into account employment opportunities for partners and ensure access to both medium- and upper-level housing. In so far companies do not offer relocation services, information in English is important as well for this migrant category (Pethe & Hafner, 2013). Pareja-Eastaway et al. (2010) found that in the Amsterdam Metropolitan Area, housing affordability was the main financial bottleneck for high-skilled migrants: 93 percent of young and 84 per cent of older highly-skilled migrants considered the housing costs 'very expensive' or 'expensive'.

A small number of studies have gained insight in the residential preferences of highly skilled knowledge migrants in the Eindhoven region. However, no reference to Dutch knowledge workers was made. The first one, by Buiskool and Grijpstra (2006) describes a survey among international workers on their valuation of different aspects of living in Eindhoven. A clear distinction can be made between workers at the technical university, who in general are younger and have lower incomes, and knowledge workers working for private companies. Most of the respondents included in their survey live in the city of Eindhoven, while outside Eindhoven the largest concentrations are found in Veldhoven -near ASML—or outside the region, particularly in 's-Hertogenbosch or the Randstad. From the international knowledge workers, 42 percent live in an apartment or flat, whereas 35 percent have a single family dwelling, almost equally spread between detached, sem-

id detached, corner house and terraced houses. Excluding the group of international knowledge workers working for the university, a higher share (55 percent) is living in a single family dwelling. Most of the international knowledge workers live in rented dwellings (around 70 percent), whereas one fifth is owner-occupier. Almost 10 percent of the international knowledge workers live in an accommodation which is rented or owned by their employer (Buiskool & Grijpstra, 2006).

Regarding the housing situation and their living environment, the international knowledge workers were in general satisfied, except the supply and accessibility of housing. Concerning the supply, the international knowledge workers expressed the need for increasing the volume, diversity and quality of accommodation in the Eindhoven Region. These items were rated as poor or very poor by 40 to 50 percent of all respondents. Particularly, there was high demand for 1-2 bedroom apartments and also for furnished flats. Concerning access, the price of housing was rated negatively by almost 70 percent of all international knowledge workers. In addition, the long waiting lists at agencies were regarded problematic. Furthermore, the international knowledge workers indicated a demand for more information on the housing market, particularly in English language, and more guidance and assistance with finding accommodation, either through a central contact point for foreign workers or through the employer (Buiskool & Grijpstra, 2006).

The second study was conducted by Vriens and Van der Dam (2011), which was based on a survey among international workers. The international knowledge workers in their sample largely came from Asia (China, India), Eastern Europe (Romania and Poland), but also from Brazil, the USA and Turkey. Based on their results, most of the knowledge workers seek housing in or close to the city centre, with a preference for independent housing, rental dwellings, apartments and studios. Also high demand was expressed for all inclusive housing: furnished dwellings, including internet and telephone connection, and including energy and service costs.

Regarding the price that international knowledge workers are willing to pay, there is a large difference between workers at educational institutes and workers at private companies. Workers at education institutes seek housing up to €550 euro a month, and supply in this category is limited outside the social rented sector. The monthly net income of knowledge workers at education institutes is around €2,000 euros, and these people are in general below 30. Corporation Vestide has taken care of the accommodation of this group in student housing, leading to the displacement of students for whom also a lack of housing is available in the city. Workers at private companies, on the other hand, hardly face problems with finding accommodation. Knowledge workers at private companies in general have higher incomes, approximately between € 30,000 and € 40,000 a year. The larger companies arrange housing for their foreign employees and are familiar with their wishes, or at least they have good contacts with suppliers of private rented dwellings. In some cases the employer pays for housing costs, and their higher income enables them to seek in more expensive segments of the housing market, in which there is a large offer. Problems are thus mainly with younger workers who seek affordable apartments near the centre (Vriens & Van der Dam, 2011).

# 3. Data, methodology and research population

## 3.1 Research design: research questions, methodology and data collection

### Research questions and methodology

The research design in this study is geared to uncover the settlement patterns of skilled international migrants in The Netherlands, and differences within this group. The following two research questions are central in this report:

1. *“In which types of residential milieu and which type of housing do highly-skilled migrants from different countries settle upon arrival in the Amsterdam or Eindhoven region? And which differences are there between the two regions?”*

Here, the main focus will be on the location and status of the first residential district where skilled migrants will settle: the ‘port of entry’. Location will be defined based on the urban-suburban dichotomy. If migrant settled in the urban centres in the two regions – Amsterdam or Haarlem in the Amsterdam Metropolitan Area and Eindhoven or Helmond in the Eindhoven – we consider this an urban point of entry. If migrants first settled in other municipalities in the region, these addresses are considered a suburban point of entry. Status will be defined based on the following characteristics, which can be subdivided into housing, socio-economic, and socio-cultural characteristics:

- Housing characteristics:
  - o Share of owner-occupied dwellings
  - o Average net housing worth (in Dutch: WOZ)
- Socio-economic characteristics:
  - o Share of high income households
  - o Share of low income households
- Socio-cultural characteristics:
  - o Share of Western migrants

2. *“Which residential patterns, in terms of housing type and residential milieu can be distinguished in the relocation behaviour of international migrants? And which differences are there between the two regions?”*

This question deals with the mobility patterns after settling at the port-of-entry. First, we want to know how many migrants relocate, and if they relocate, what differences are there between the first and the final address. We hypothesize that skilled migrants do not immediately settle in their most optimal residential district, and the address where they will eventually settle is of higher status than the port of entry. Again, we will distinguish the relocation behaviour of different groups, based on age categories, household situation and income groups.

Second, for all migrants that relocated, we are interested in the urban or suburban orientation of the move: to what extent do relocations take place between urban and suburban areas, or rather within these types of areas? In other words: do international workers stick with their urban or suburban environment after moving? In the same vein, we are interested whether international migrants move to neighbourhoods with a different, presumably higher, status than the port of entry. We assume that the initial location may have resulted out of lack of choice, and the choice for the following addresses will better reflect their actual preferences.

For the answering of both research questions, we will make use of a quantitative research approach. Descriptive statics and logistic regression analyses will be used to present the mobility patterns and to depict which types of labour migrants are more likely to relocate in general, and to specific types of locations in particular.

#### Data collection

The mobility patterns of skilled migrants in the Amsterdam and Eindhoven regions was measured using micro data from Statistics Netherlands (CBS). We made use of the Social Statistical Database (SSB). This longitudinal dataset is based on register and income tax data. It contains detailed information on individual backgrounds, residential mobility and residential milieus.

<b>File name</b>	<b>Variables derived from database</b>
GBApersoontab 2012	Age, country of birth
GBAhuishoudensbus 2012	Number of household members, number of children (with start and end date)
GBAmigratiegebeurtenisbus 2012	Migration type, migration date
Migratiemotiefbus 1999-2011	Migrative motive
GBAadresbus 2012	Adress (with start and end date)
WRGplus 2012	Municipality, neighbourhood, urban or suburban (own calculation)
CBS wijken en buurten 1995-2012	Neighbourhood status: housing, socio-economic and socio-cultural
IHI 2003-2012	Household income (in deciles) at different points in time
IPI 2003-2012	Personal income (in deciles) at different points in time

**Table 3.1 Data used for analysis (Sources: Statistics Netherlands, CBS)**

Through different files within this dataset, we gathered data on age, country of birth, category of origin, migration date, migration motives, household situation, personal and household income, and addresses. The files contain changes in personal situations through time and can be linked to each other through a unique identification code. This way it was possible to study address changes over time and link these to changes in the personal or household situation.

In order to get information on the dwelling type, the location and the neighbourhood status of the addresses at different points in time, the data were linked to the Housing Register Plus data base (WRG+), from which we could derive the neighbourhood and the dwelling type. Since the neighbourhood is now known, it was possible to link CBS neighbourhood data to the database, which provided more detailed information on the housing market, the socio-economic status and the socio-cultural neighbourhood composition. This way, it became possible to study the neighbourhood status at the port-of-entry, and changes in status after relocation. Table 3.1 summarizes the data files used and the information derived from them.

### 3.2 Research population

#### *Population selection*

The population consists of 1,254 migrants in the Amsterdam and Eindhoven metropolitan region, who migrated to The Netherlands after the age of 18 for work or study-related reasons between 1994 and 2012. A first selection was made based on country of birth, which could be derived from the SSB data file 'GBAPERSOONTAB'. All people that were born outside The Netherlands and do not belong to the Dutch category of origin (at least one Dutch parent) were selected. A second selection criterion is age: only respondents who moved to The Netherlands after the age of eighteen were selected, in order to filter out children of migrants who spent at least part of their childhood in The Netherlands and therefore fall outside the target group of this study. A third step in the selection was the migration motive: all respondents that migrated because of work, study, internship or specifically as a knowledge migrant (under the 'Knowledge worker rule', only known for persons from outside the EU) were selected. A fourth selection criterion is region: only migrants whose 'port of entry' is within the Amsterdam metropolitan Area or the SRE Eindhoven region have been included. In order to make this selection, first the addresses of people were gathered through 'GBAADRESBUS', and these were thereafter linked to detailed information about the address from the 'WRGplus' dataset, including the municipality. A large majority of the total population lives in the Amsterdam region: 1,040 workers, or 83 percent.

#### *Population characteristics*

In addition to making a distinction in levels of income (to distinguish those working in higher level segments of the labour market) and age, our population of international migrants will be categorised based on nationality:

- From countries with growing economies: Brazil, Russia, India, China, South-Africa ('BRICS')
- From countries with advanced economies (Western Europe, USA, Canada, Australia, New-Zeeland, Japan, South-Korea, Taiwan, Singapore, Israel)
- From countries in Middle and Eastern Europe (excluding Russia)
- From other, predominantly developing, countries

	<b>Total</b>	<b>Amsterdam Metropolitan Area</b>	<b>SRE region Eindhoven</b>
Advanced economies	69%	72%	52.5%
Middle and Eastern Europe	11.5%	8%	30%
BRICS	6%	5%	8%
Less developed countries	14%	15.5%	9%

**Table 3.2 Population distribution across categories of origin in the two city regions<sup>3</sup>**

In both city regions, the majority of the migrants is from countries with advanced economies, but much more in the Amsterdam region (72 percent) than in the Eindhoven region (52.5 percent) (Table 3.2). Another interesting difference between the two regions is the share of workers from Middle and Eastern Europe. This group makes up 8 percent of the total knowledge migrant population in the Amsterdam region, but 30 percent in the Eindhoven region. The share of knowledge workers from less developed countries is somewhat higher in the Amsterdam region (15.5 percent) than in the Eindhoven region (9 percent).

	<b>Total</b>	<b>Amsterdam Metropolitan Area</b>	<b>SRE region Eindhoven</b>
<i>Age at t1 and t2</i>			
Under 30 at start t1	46%	45%	50.5%
Under 30 at start t2	21%	21%	24%
<i>Household situation at t1</i>			
Single-person household	52%	52.5%	50%
Two-person household	36%	36%	35%
More than two persons in household	12%	11%	14%
<i>Household situation at t2</i>			
Single-person household	31%	31%	32%
Household with children	39%	39%	41.5%
Remains single person household	22%	22%	23%
Household growth	30%	30%	27%
From no children to children	33%	33%	32%
Duration of residence at t1 > 3 years	47%	48.5%	40%
Owner occupier at t1	42%	40%	49%
Owner occupier at t2	54%	56%	48%

**Table 3.3 Household situation of migrant population at t1 and t2<sup>4</sup>**

Table 3.3 shows the personal characteristics of the international labour migrants. At t1, 46 percent of the population was below the age of thirty (average age was 31), with small differences between the two regions. The population in the Metropolitan Region Eindhoven was somewhat younger (50.5 percent under 30) than the population in the Amsterdam Metropolitan Area (45

<sup>3</sup> "Eigen berekening Universiteit van Amsterdam, op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie"

<sup>4</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."



percent under 30). At t2, the average age was 35 and only 21 percent was still under the age of thirty; in the Amsterdam and Eindhoven regions, these shares were 21 and 24 percent, respectively.

At the first moment in time (t1), 52 percent of the migrants had a single-person household, with only small differences between the two regions: 52.5 percent in the Amsterdam region and 50 percent in the Eindhoven region. Another 36 percent consisted of couples and only 12 percent had a household of more than two persons. In Eindhoven, the average household size was slightly higher: here, 14 percent had a household with more than two members.

At the second point in time, the share of single-person households decreased sharply to 31 percent, with minor differences between the two regions. At the same time, 39 percent of the population had a household with children, and in the Eindhoven region even 41.5 percent. One third of the households without children at t1 (33 percent) changed into households with children at t2, and 30 percent of the migrants acknowledged a general increase in household size between t1 and t2. Differences between the two city-regions with respect to the household situation are small. Only in the Eindhoven region, slightly less migrants acknowledged an increase in household size, which could be explained by the on average larger household size at t1.

	Total		Amsterdam Metropolitan Area		SRE region Eindhoven	
	T1	T2	T1	T2	T1	T2
First decile	13.5%	7%	12%	7%	17%	7%
Second decile	8%	5%	6.5%	5%	14%	5%
Third decile	11%	7%	11%	7%	11%	9%
Fourth decile	9%	8.5%	9%	9%	7%	7%
Fifth decile	10.5%	11%	10%	11%	11%	12%
Sixth decile	10%	10%	10%	9%	13%	16%
Seventh decile	8%	10.5%	8%	9%	9%	16%
Eighth decile	10%	11%	10%	12%	9%	10%
Ninth decile	10%	14%	11%	14%	8%	12%
Tenth decile	10%	16%	12%	18%	3%	7%
Income increase between t1 and t2	34.5%		34%		37%	

**Table 3.4 Dispersion of population across household income deciles, at t1 and t2<sup>5</sup>**

Table 3.4 shows the dispersion of the research population across household income deciles, at both moments in time. The figure shows that the average income of the research population increased between t1 and t2: the shares in the lowest three deciles sharply decreased both for the total population and in both city regions, whereas the four highest deciles all increased. In total, for 34.5 percent the income at t2 was higher than at t1. In the Eindhoven region, even 37 percent acknowledged an increase in income, but in this region also more people belonged to the lowest income deciles at t1.

<sup>5</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS."



### 3.3 Research areas

The research was carried out in two metropolitan regions: the Amsterdam Metropolitan Area and the Metropolitan Area Eindhoven<sup>6</sup>.

#### *Amsterdam Metropolitan Area*

**Figure 3.2 The Amsterdam Metropolitan Area (Source: Google Maps)**



Amsterdam is the largest city of the Netherlands with 800,000 inhabitants in 2012 (O+S, 2012). The whole Amsterdam metropolitan region, *Metropoolregio Amsterdam*) has over 2 Million inhabitants. Although it is also the Dutch capital, the government seat is in The Hague. Still, Amsterdam is regarded as the dominant city in the Netherlands in terms of culture and economy.

Within the Netherlands, the Amsterdam Metropolitan Area is the major destination for transnational highly skilled migrants working in creative and knowledge-intensive sectors (Pethe & Hafner, 2013). Amsterdam and the MRA have a very strong profile for knowledge workers, both in terms of hard and soft conditions. Amsterdam has a very diverse economy, which makes the city less vulnerable in times of economic crisis and attracts a broad scope of talent to the city. Several knowledge-intensive sectors are overrepresented in the MRA and Amsterdam is also the dominant city in The Netherlands in terms of creative industries. However, Amsterdam seems to foster this diversity as its main economic strength, whereas the city internationally does not excel in one specific field, and also does not show what it is really good at in particular. Especially the beta sector seems to be given too little attention in Amsterdam, despite its considerable size. This makes it difficult to brand the city internationally and to attract specific talent. The local experts especially noticed a lack of technical talent in the city and, related, a lack of schooling and training possibilities for this group. Building a stronger link between the region's educational institutions -

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<sup>6</sup> See Sleutjes, B. (2013), *The Hard and Soft Side of European Knowledge Regions*, Amsterdam: University of Amsterdam/ AISSR, for a more extensive description of the two city regions.

at different levels—and business sector, as well as the establishment of a new technical institute are the main topics on the human capital agenda.

Amsterdam also is known for its strong transport infrastructure and global connectivity, which is mainly the result of the proximity to Schiphol international airport. A downside of the MRA, however, is the high level of congestion. Also, public transport is crowded and regional connections could be improved. In addition, the city is extremely car-unfriendly, with long traffic jams and skyrocketing parking costs. The latter aspect is not necessarily problematic for all groups of knowledge workers, however.

The major weakness of Amsterdam is its housing market, which is expensive and for a large part badly accessible. It is dominated by very cheap apartments in the social sector on the one hand, to which long waiting lists apply, and very expensive dwellings in the private and owner-occupied sectors on the other hand. The middle segment is largely absent. The housing market situation makes it difficult for some groups to find appropriate housing in the city, including expats and creative workers who often earn low salaries, and restricts people with middle incomes living in social housing in their residential mobility.

Besides the housing market, Amsterdam is well endowed in terms of soft factors, however. The city is a popular tourist destination and has a large international population. Amsterdam is known as an entertainment centre with a tolerant atmosphere and liberal values. Furthermore, the city is the dominant cultural centre of the Netherlands, with a broad range of world class museums, theatres and music performances. The city scores high on authenticity, because of its preserved and monumental historic inner city, including the canal belt and the Jordaan neighbourhood (Sleutjes, 2013).

#### Metropolitan Region Eindhoven

**Figure 3.3 Map of the Metropolitan Region Eindhoven (Source: Google Maps)**



The city of Eindhoven is located in the south-eastern part of the country, in the province of North Brabant, close to the Belgian and German borders. With 216,036 inhabitants in 2011, it is the fifth largest city of the Netherlands and the major city within the country's second urban network, Brabantstad, which further includes Breda, Tilburg, 's-Hertogenbosch and Helmond. The Eindhoven region is part of the functional city-region Metropolitan Region Eindhoven (previously *Samenwerkingsverband Regio Eindhoven*, or SRE), consisting of 21 municipalities, with Eindhoven and Helmond being the main urban cores. The region has approximately 745,000 inhabitants.

Eindhoven's main strengths are related to the region's hard factors. The city region has a number of well-functioning clusters in high-tech manufacturing, IT, life-tech and automotive, and active policies to strengthen these clusters. Whereas the city is particularly known for, and thanks most of its strong growth in the 20<sup>th</sup> century to, Philips, the region is nowadays less dependent on one company but is home to three companies in the national Top 5 of R&D investors: Philips, ASML and NXP. According to all of the interviewees, work and career opportunities are also the main reasons for settling in the Eindhoven region. This view is supported by previous surveys among international knowledge workers in Eindhoven.

The city furthermore reinvented itself as a creative city, with a particular focus on design, helped by the presence of the Design Academy and the Technical University TU/e. Another strength of the region that was mentioned by all of the interviewees is the efficient cooperation between the public and private sectors and education institutes in a Triple Helix Structure.

The region's infrastructure is a stronghold, with good rail and road connections to other destinations in the Netherlands but also in Belgium or Germany. There are concrete plans to expand the regional public transport system. The city also has its own airport, although this serves only a limited number of European destinations and is standing in the shadow of Schiphol and the relatively nearby airports of Brussels and Düsseldorf.

On the hard side, a problem that Eindhoven is facing is a shortage of labour for the high tech sector, which is expected to increase further. The companies in Eindhoven demand very specific knowledge, and the Dutch technical universities still deliver too few graduates to fill in these vacancies. As a result, Eindhoven has to attract these workers from abroad, which is reflected in active internationally targeted branding strategies, including visits of Brainport Development to international career fairs, and strong network links with other European regions with a comparable economic profile (e.g., Aachen, Helsinki). The relatively small size of the university also poses a problem through a lack of critical mass. These issues are tackled at the national level by a Technique Pact, aimed at motivating youngsters for technical studies.

The soft side of the city has been given much attention by local policy makers and institutions, in particular through investments in making the inner city more attractive as an urban space, the transformation of industrial heritage into new urban functions, cultural events and enlarging the cultural supply in English. In terms of its cultural supply, Eindhoven is far behind Amsterdam and other large European cities, but it has a significant cultural offer for a city of its size.

Eindhoven's major strength on the soft side is its large amount of green areas and nature, both within the city and in the wider region, and the large supply of relatively affordable –certainly compared to the Randstad region– family dwellings in a green environment. However, Eindhoven

has been lacking residential environments that are attractive to younger people, e.g. singles, who prefer to live in apartments and near urban amenities. Over the past few years, the city has been active in filling this gap by building apartment blocks in the city centre and at Strijp-S, and currently is working on a housing pact specifically for international students and knowledge workers (Sleutjes, 2013).

# 4. Residential patterns of international labour migrants

## 4.1 Characteristics of the port-of-entry (t1) and the final address (t2)

	Total	Amsterdam Metropolitan Area	SRE region Eindhoven
<i>Location: urban or suburban</i>			
Urban area t1	85%	91%	56%
Suburban area t1	15%	9%	44%
Urban area t2	80%	88%	49%
Suburban area t2	20%	12%	51%
<i>Ownership status</i>			
Owner-occupier at t1	42%	40%	49%
Owner-occupier at t2	54%	56%	48%
<i>Neighbourhood status at t1: with ...</i>			
Above-average share of low incomes (>36.92%)	66.5%	67%	64%
Above-average share of high incomes (>24.8%)	31%	33%	24%
Above-average share of owner-occupied dwellings (>37.89%)	41.5%	35%	71%
Above-average share of Western migrants (>16%)	46%	53%	9%
Above-average net housing worth (>€273,000)	38%	40%	29%

**Table 4.1 Characteristics of the address at t1 and t2<sup>7</sup>**

### *Location: urban or suburban areas*

The 'port-of-entry' of international migrants is most often an urban area; both in the total model (85 percent) and in the Amsterdam Metropolitan Area (91 percent), nearly all labour migrants started their housing career in one of the urban centres in the region. These are Amsterdam and Haarlem in the Amsterdam Metropolitan Area and Eindhoven and Helmond in the Eindhoven region. However, in the Eindhoven region, the share of urban starters is much smaller; here 44 percent of international migrants start their housing career in one of the suburban municipalities in the region.

<sup>7</sup> "Eigen berekening Universiteit van Amsterdam op basis van het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimtereister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

At t2, still 80 percent of the total sample lives in one of the large cities, but again a large part of this is accounted for by the migrants in the Amsterdam Metropolitan Area, of which 88 percent still lives in Amsterdam or Haarlem at t2. In the Eindhoven region, at t2 even a small majority of 51 percent lives in a suburban area.

Thus, whereas the international migrants in the Amsterdam Metropolitan Area are predominantly urban oriented, the migrants that entered the Eindhoven region are much more diverse in their residential behaviour, and both urban and suburban milieus are popular.

#### Tenure status

Regarding tenure, a surprisingly high share of international migrants lives in an owner-occupied dwelling at the first address: 42 percent is owner-occupier. In the Eindhoven region, the share of owner-occupiers is higher than in the Amsterdam region: 49 percent and 40 percent respectively. At the second address, the share of owner-occupiers is higher (54 percent).

There is also a clear difference between the two regions. Whereas in the Amsterdam region the share of owner-occupiers increased from 40 to 56 percent, the share in the Eindhoven region even declined slightly but was at a more or less equal level as at t1 (48 percent). This suggests that upward mobility in terms of housing tenure has taken place especially in the Amsterdam region, where a smaller share started in an owner-occupied dwelling.

#### Neighbourhood status

Regarding the neighbourhood status of the port-of-entry, around two-third of all migrants starts in a neighbourhood with an above-average share of low income households (higher than 36.92 percent), with only minor differences between the two regions. One-third start their housing career in a neighbourhood with an above-average share of higher-income households (higher than 24.8 percent). In Eindhoven, the share living in a high-income neighbourhood is somewhat smaller (24 percent).

41.5 percent of the total population starts in a port-of-entry with an above-average share of owner-occupied dwellings. In the Amsterdam region, this share is lower with 33 percent and it is much higher in the Eindhoven region with 71 percent. In terms of housing values, 38 percent starts in a neighbourhood with an average net worth of over 273,000. In the Eindhoven region, this is only 29 percent, however.

Finally, in terms of socio-cultural status, 46 percent of the international migrants have their first address in a district with an above-average share of Western migrants. A notable difference can be observed between the two city regions, however. Whereas for 53 percent of the migrants in the Amsterdam region the port-of-entry is in a district with many Western migrants, this goes for only 9 percent of the internationals in the Eindhoven region.



# 5. Patterns and determinants of re-location

## 5.1 Relocation or staying put by international labour migrants

	Total	Amsterdam Metropolitan Area	Metropolitan region Eindhoven
<b>Had one address in The Netherlands</b>	<b>28%</b>	<b>27%</b>	<b>30%</b>
... and still lives in The Netherlands	17%	16%	19%
... and now left The Netherlands	11%	11%	11%
<b>Relocated at least once within the Netherlands</b>	<b>72%</b>	<b>73%</b>	<b>70%</b>
... within region	84%	88%	66%
... outside region	16%	12%	34%
... and still lives in The Netherlands	63%	63%	64.5%
... and now left The Netherlands	9%	10%	5.5%

**Table 5.1 Movers and non-movers within the international labour migrants population<sup>8</sup>**

Table 5.1 shows that a majority (72 percent) of the population has relocated at least once during their stay in The Netherlands, indicating that the final address (t2) is different from the port of entry (t1). Only 9 percent had left The Netherlands at the beginning of 2013, which means that their final address ended before January 2013. 28 percent of the population had only one address while staying in The Netherlands, of which 17 percent was still living in The Netherlands at the beginning of 2013 whereas the other 11 percent have left the country.

Differences between the two city regions are small, since 73 percent of the Amsterdam migrants relocated, compared to 70 percent in the Eindhoven region. Of the relocating migrants, most (84 percent) stayed within the same region as the port of entry. In the Amsterdam region, migrants more often stayed within the same region after relocation (88 percent) than in the Eindhoven region (66 percent). In the Eindhoven region, 34 percent ended up outside the metropolitan region after relocation.

<sup>8</sup> "Eigen berekening Universiteit van Amsterdam op basis van het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

*Relocating or staying put: which factors drive mobility?*

The first analysis shows which characteristics of international migrants correlate with a higher probability of relocation, based on a logistic regression model with 'being relocated or not' as the main dependent variable. The outcomes are presented in Table 5.2.

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
<b>Migrant from advanced economy (ref: rest)</b>	.794	.802	.819
<b>Age at t1 below 30 (ref: age = above 30)</b>	3.256***	3.312***	3.379*
<b>Household change from no children to household with children (ref: rest)</b>	1.926*	2.280*	1.623
<b>Household change from single-person to multiple person household (ref: rest)</b>	1.192	1.028	1.481
<b>Household change from multiple person to single person household (ref: rest)</b>	2.187	1.681	4.399
<b>Owner-occupier at t1 = renter at t1)</b>	.859	.393	.508
<b>Length of residence at t1 &gt; 3 years (ref: &lt; 3 years)</b>	.053***	.043***	.061***
<b>Address at t1 in Eindhoven region (ref: Amsterdam region)</b>	.490*	X	X
<b>Address at t1 is in city (ref: suburban area)</b>	1.224	1.043	1.401
<b>Address at t1 is in neighbourhood with above average % of low incomes</b>	1.619	1.857	.922
<b>Address at t1 is in neighbourhood with above average % of high incomes</b>	2.526*	3.056*	.952
<b>Address at t1 is in neighbourhood with above average % of Western migrants</b>	.575	.439*	9.520
<b>Address at t1 is in neighbourhood with above average net housing worth (WOZ)</b>	.903	1.168	.649
<b>Address at t1 is in neighbourhood with above average % of owner-occupied dwellings</b>	.816	.871	.783
<i>Constant</i>	10.000	12.449	1.449
<i>R-square</i>	.467	.496	.520

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.2 What are the characteristics of migrants who relocated during their stay in The Netherlands<sup>9</sup>**

Workers who were below the age of thirty at t1 have a higher probability of having relocated at t2, both in the general model and in the two regional sub models. Also migrants whose household changed into a household with children between t1 and t2 have a higher likelihood of relocating, which is most likely related to increased spatial demands. A long length of residence at the first address negatively correlates with the chances of relocation, possibly because long-time residents are more satisfied with their residential location or because they face barriers to relocation.

<sup>9</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."



A variable for change in income was not included, since a cross tabulation showed that all respondents who acknowledged an increase in income have relocated between t1 and t2<sup>10</sup>. The households who have not acknowledged an increase in income are more equally dispersed across the mover and non-mover categories. An increase in income thus appears to be a strong predictor for relocation probability.

Also some characteristics of the residential environment at t1 seem of influence on relocation probability. First, a regional difference was found, since internationals in the Eindhoven region more often stayed put between t1 and t2 than migrants in the Amsterdam region. Mobility seems to be higher in the more densely urban Amsterdam Metropolitan Area than in the more suburban metropolitan region Eindhoven.

Second, living in a neighbourhood with an above-average share of high income households (>24.8%) is positively and significantly related to the chance of relocation. This could have two possible explanations. One is that people with lower incomes than the average of the neighbourhood may feel out of place in higher-income neighbourhoods, but it may also simple be the case that people with higher incomes have more financial opportunities for relocation, and therefore more choice.

Furthermore, only in the Amsterdam sub model, migrants are less likely to relocate if they lived in a neighbourhood with an above-average share of Western migrants (>16%) at t1. This indicates that migrants feel at home in neighbourhoods where many other Western migrants live, likely because of the larger diversity and the existence of (expat) communities. The non-significance of this factor in the Eindhoven region might be explained by the generally lower concentration of international people within the region.

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<sup>10</sup> "Eigen berekening Universiteit van Amsterdam op basis van het bij het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS."

## 5.2 Changes in location and neighbourhood status after relocation

	Total	Amsterdam Metropolitan Area	Metropolitan region Eindhoven
Relocated from urban to suburban	13%	11.5%	19%
Relocated from rental to owner-occupied dwelling	25%	26%	18%
Relocated to district with higher share owner-occupied housing	26%	27%	22%
Relocated to district with higher net housing worth (WOZ)	24%	25%	21%
Relocated to area with higher share of Western migrants	18%	17%	19%
Relocated to district with higher share high incomes	24%	21%	30%

**Table 5.3 Changes in location and neighbourhood status after relocation<sup>11</sup>**

Table 5.3 shows that of all people who relocated, a minority of 13 percent moved from an urban to a suburban area. In the Eindhoven region, this is slightly higher with 19 percent and in the Amsterdam Metropolitan Area, a somewhat smaller share of movers changed from an urban to a suburban setting. These findings indicate that people choosing for the Eindhoven region are more suburban oriented than people choosing the Amsterdam region. The findings also show that migrants in general stick with their first choice: compared to the situation at t1, the shares of suburban dwellers are only slightly higher at t2.

Some upward mobility has taken place between t1 and t2, as is shown by Table 5.3. One out of four relocated migrants traded a rented dwelling for an owner-occupied dwelling, and interestingly, this happened more in the Amsterdam region (26 percent) than in the Eindhoven region (18 percent). A similar picture emerged when looking at relocations to neighbourhoods with a higher share of owner-occupied dwellings: 26 percent relocated to a neighbourhood with a higher share of owner-occupied dwellings. Although at t1 more migrants lived in a district with relatively many owner-occupied dwellings in the Eindhoven region (71 percent) than in the Amsterdam region (35 percent), the increase between t1 and t2 was slightly stronger in the Amsterdam region (27 percent compared to 22 percent).

Also, 24 percent relocated from a district with a higher net housing worth (WOZ in Dutch), and somewhat more in the Amsterdam region (25 percent) than in the Eindhoven region (21 percent). 18 percent of the international labour migrants relocated to a district with a higher share of Western migrants, with only small differences between the two regions. 24 percent of the relocated migrants ended up in a district with a higher average income than the port-of-entry. In Eindhoven, this share is higher, with 30 percent compared to 21 percent in the Amsterdam Metropolitan Area.

<sup>11</sup> "Eigen berekening Universiteit van Amsterdam op basis van het bij het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

Still, the figures also show that a large majority of respondents did not acknowledge upward mobility after relocation in the fields of average income, the share of owner-occupied dwellings, the average net housing worth, or the share of Western migrants. This is in line with the previous finding on urban and suburban areas that most migrants do not change their living environment drastically after relocation.

Determinants of relocation

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	.916	.537	2.329
Age at t2 below 30 (ref: age = above 30)	2.093	3.826*	.000
Household change from no children to household with children (ref: rest)	3.560*	7.858**	.265
Household change from single-person to multiple person household (ref: rest)	.895	.595	9.796
Household change from multiple person to single person household (ref: rest)	3.973	3.228	11.367
Household income (in deciles) increased (ref: income has not increased)	1.028	.602	3.079
Length of residence at t1 > 3 years (ref: < 3 years)	1.294	1.360	.858
Constant	.037***	.036***	.021**
R-square	.083	.178	.271

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.4 Characteristics of migrants relocating from urban to suburban areas<sup>12</sup>**

For those who relocated, Table 5.4 presents the outcomes of a logistic regression model with 'relocation from urban to suburban area' as the main dependent variable. This model shows that migrants whose household changed from a household without children into a household with children have the highest likelihood of being relocated, except in the Eindhoven model where this variable is not significant. This may be related to the in general more suburban character of the City of Eindhoven. Also within the city limits of Eindhoven, many districts with single-family dwellings can be found, in contrast to the more densely built city of Amsterdam, where the housing market is dominated by apartments.

<sup>12</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	1.604	1.710	1.065
Age at t2 below 30 (ref: age = above 30)	.334**	.243**	2.241
Household change from no children to household with children (ref: rest)	2.620**	3.101***	1.866
Household change from single-person to multiple person household (ref: rest)	.701	.772	.264
Household change from multiple person to single person household (ref: rest)	2.794*	2.446	9.223
Household income (in deciles) increased (ref: income has not increased)	4.512***	3.825***	13.560**
Length of residence at t1 > 3 years (ref: < 3 years)	.401**	.332***	.526
Constant	.170***	.198***	.077**
R-square	.256	.273	.336

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.5 Characteristics of migrants relocating to district with higher net housing worth<sup>13</sup>**

Table 5.5 shows which characteristics increase or decrease the probability of relocating to a district with a higher net housing worth (in Dutch: *WOZ*). This probability is higher for people whose household situation changed from no children to a household with children between t1 and t2, or from a multiple person household to a single-person household. Whereas the prior finding can be explained by an increased demand for space, and the higher average net worth of larger dwellings, the latter finding is somewhat surprising as one would expect single-person households to relocate to smaller and less expensive dwellings. The finding that an increasing household income is positively related to relocating to a district with a higher net housing worth is in line with expectations. The likelihood is smaller for persons under the age of thirty at t2 and persons with a long period of residence at the first address.

Interestingly, whereas the Amsterdam model closely resembles the general picture, in the Eindhoven model, only an increase in household income is strongly positively related with upward mobility in terms of net housing worth.

<sup>13</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	1.116	1.066	.969
Age at t2 below 30 (ref: age = above 30)	.380*	.335**	.614
Household change from no children to household with children (ref: rest)	3.598***	4.142***	1.985
Household change from single-person to multiple person household (ref: rest)	.596	.506	1.243
Household change from multiple person to single person household (ref: rest)	2.284	1.691	13.630*
Household income (in deciles) increased (ref: income has not increased)	3.881***	3.421***	6.878*
Length of residence at t1 > 3 years (ref: < 3 years)	.352***	.291***	.534
Constant	.228***	.313**	.086**
R-square	.268	.285	.302

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.6 Characteristics of migrants relocating to district with higher share of owner-occupied dwellings<sup>14</sup>**

Table 5.6 presents the outcomes of a regression model with 'being relocated to a neighbourhood with a higher share of owner-occupied dwellings' as the dependent variable. The outcomes show that migrants who were below the age of thirty at t2, and workers with a long length of residence at the first address, have a smaller likelihood of being relocated to a district with a higher share of owner-occupied dwellings. This chance is higher, however, for migrants whose household changed into a household with children between t1 and t2 and for persons whose household income has risen between t1 and t2. Thus, an increased demand for space and an increase in financial means contribute to relocation to a neighbourhood with a higher status.

Again, the Amsterdam model resembles the general picture, while in Eindhoven, only an increase in household income and –somewhat surprisingly– a household change from multiple persons to a single-person household positively influence the relocation to districts with higher shares of owner-occupied dwellings.

<sup>14</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	1.047	1.151	1.442
Age at t2 below 30 (ref: age = above 30)	.422*	.557	.000
Household change from no children to household with children (ref: rest)	2.239**	2.173*	1.457
Household change from single-person to multiple person household (ref: rest)	.973	.907	.988
Household change from multiple person to single person household (ref: rest)	1.312	1.219	3.858
Household income (in deciles) increased (ref: income has not increased)	1.112	2.350*	4.887*
Length of residence at t1 > 3 years (ref: < 3 years)	.331***	.440*	.324
Constant	.247***	.150***	.118*
R-square	.110	.126	.314

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.7 Characteristics of migrants relocating to district with higher share of Western migrants<sup>15</sup>**

Table 5.7 shows that the likelihood to have moved to a neighbourhood with relatively more Western migrants increases if the first child was born after t1 and is lower for persons under the age of thirty at t2 and for persons with a long length of residence at the first address. In both the regional sub models, also an increase in household income shows a significant positive effect. Being a migrant from a country with an advanced economy is not relevant, which indicates that Western migrants do not have a stronger tendency than others to locate amongst other migrants, certainly not in later stages of their housing career in The Netherlands.

<sup>15</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	.485	.445	.596
Age at t2 below 30 (ref: age = above 30)	.641	.209	3.325
Household change from no children to household with children (ref: rest)	3.644**	6.971**	1.052
Household change from single-person to multiple person household (ref: rest)	.216**	.145*	.582
Household change from multiple person to single person household (ref: rest)	3.392	2.849	7.592
Household income (in deciles) increased (ref: income has not increased)	7.719***	7.543**	9.124**
Length of residence at t1 > 3 years (ref: < 3 years)	.455	.324	.336
Constant	.203**	.267	.158*
R-square	.329	.411	.304

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.8 Characteristics of migrants relocating to district with higher share of high income households<sup>16</sup>**

Finally, in Table 5.8 the results are presented of a regression model explaining the relocation to a district with a larger share of high income households. The model shows that this likelihood increases if the respondent's own household income has increased between t1 and t2. Also a household change into a household with children increases the likelihood of upward mobility, but in general a change from a single-person household into a multiple-person household has a negative influence. No effects were found for age, and also migrants from advanced economies do not more or less often relocate to neighbourhoods with a higher income status.

<sup>16</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."

	Model a: All Exp(B)	Model b: Amsterdam Exp(B)	Model c: Eindhoven Exp(B)
Migrant from advanced economy (ref: rest)	.971	.845	1.334
Age at t2 below 30 (ref: age = above 30)	.767	.666	4.324
Household change from no children to household with children (ref: rest)	1.428	1.504	.596
Household change from single-person to multiple person household (ref: rest)	1.372	1.145	7.080
Household change from multiple person to single person household (ref: rest)	1.152	1.625	.000
Household income (in deciles) increased (ref: income has not increased)	1.108	1.034	3.370
Length of residence at t1 > 3 years (ref: < 3 years)	1.421	1.238	2.814
Constant	.267***	.381*	.030*
R-square	.027	.026	.283

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

**Table 5.9 Characteristics of migrants relocating from rented to owner-occupied dwelling<sup>17</sup>**

As Table 5.9 shows, no significant associations were found between personal characteristics of migrants and the relocation from a rented dwelling to an owner-occupied dwelling. Although household changes are strongly related to upward mobility in terms of neighbourhood status, they do not influence the revealed preferences for dwelling types, at least when ownership status is concerned. Also migrants from advanced economies do not significantly more or less often than others trade rented dwellings for owner-occupied dwellings.

<sup>17</sup> "Eigen berekening Universiteit van Amsterdam op basis van bij het CBS beschikbaar gestelde microdatabestand betreffende demografische achtergronden van personen die voorkomen in de Gemeentelijke Basis Administratie, het door CBS beschikbaar gestelde microdatabestand betreffende de huishoudens van personen die voorkomen in de Gemeentelijke Basis Administratie (GBA), bij het CBS beschikbaar gestelde microdatabestanden betreffende Integrale Huishoudens Inkomens, welke afkomstig zijn van het CBS, het door het CBS beschikbaar gestelde microdatabestand betreffende de adressen van personen die voorkomen in de Gemeentelijke Basis Administratie, en de door CBS beschikbaar gestelde microdatabestanden betreffende het Woonruimteregister verrijkt 2012, welke afkomstig zijn van de Nederlandse gemeenten."



# 6. Conclusions

This report aimed to find answers to two research questions. This chapter will provide answers to these questions.

## 6.1 Answers to research questions

1. *“In which types of residential milieu and which type of housing do highly-skilled migrants from different countries settle upon arrival in the Amsterdam or Eindhoven region? And which differences are there between the two regions?”*

The results of the study show that a large majority of the international migrants in the Amsterdam Metropolitan region start their residential career in The Netherlands in an urban residential environment, in the cities of Amsterdam or Haarlem. In the Eindhoven region, the urban and suburban dwellers are more equally dispersed. Surprisingly, almost half of the ports-of-entry is an owner-occupied dwelling; and more in the Eindhoven region than in the Amsterdam region.

In terms of neighbourhood status of the port-of-entry, the majority of internationals start in a neighbourhood with an above-average share of low incomes, but for one third, the port-of-entry is a high-income neighbourhood. In terms of housing values, 38 percent start in a neighbourhood with an above-average net worth, but in the Eindhoven region, this share is somewhat lower (29 percent). Finally, a notable difference between Amsterdam and Eindhoven was found related to the socio-cultural status of the port-of-entry. Whereas in Amsterdam, more than half of the migrants start in a district with a relatively large concentration of Western migrants, this goes for only 9 per cent of the internationals in Eindhoven.

2. *“Which residential patterns, in terms of housing type and residential milieu can be distinguished in their relocation patterns? And which differences are there between the two regions?”*

For 28 percent of the international migrants, the port-of-entry is or was their only address in The Netherlands. This implies that a large majority of 72 percent has relocated at least once. In terms of location choice, 13 percent relocated from an urban to a suburban area, and more often in the Eindhoven region (19 percent). By and large, however, the share of urban dwellers at t2 largely resembles that at t1, in both regions, indicating that most relocations take place either within or between cities, or within or between suburban areas.

About one quarter moved from a rented to an owner-occupied dwelling, and more in the Amsterdam region than in the Eindhoven region. Also in terms of neighbourhood status, for a majority no large changes in status are acknowledged after relocation. The chances of upward mobility are larger for those migrants whose household changed into a household with children or acknowledged an increase in income. Changes between the regions regarding upward mobility relate to an increase in the share of owner-occupied dwellings (more in Amsterdam) and an increase in the share of high incomes (more in Eindhoven). These differences can be explained by the fact that the Eindhoven region had a better starting position regarding the share of owner-occupied dwellings, while in the Amsterdam region more people lived in higher income districts than in Eindhoven.

## 6.2 Overall conclusions and recommendations

In line with the study on stated preferences, we see large differences between the Amsterdam and Eindhoven regions regarding the settlement and relocation behaviour of international migrants. Whereas a large majority of workers in the Amsterdam region are urban oriented, the workers in the Eindhoven region are more mixed and settle just as often in suburban as in urban areas.

Another main finding is that although a large majority of labour migrants in the two regions (72 percent) relocated at least once during their stay in The Netherlands, a large majority sticks with their first choice concerning preferences for urban or suburban locations. The share of suburban dwellers is hardly higher at the second point of measurement. Of all people who relocated, a minority of 13 percent moved from an urban to a suburban area. Most relocations take place from urban to urban areas or from suburban to suburban areas. An interesting finding is that in the Eindhoven region, a larger share of labour migrants leaves the region after relocation than in the Amsterdam region.

These findings indicate on the one hand -and most importantly- that not all international knowledge workers prefer urban settings. On the other hand, these results illustrate that a different type of worker, in terms of residential preferences, chooses for the Amsterdam and the Eindhoven regions. In the Amsterdam region, people not only start in urban areas, but also keep living there after relocation. If we assume that the final address more closely resembles people's actual preferences than the port-of-entry, workers in Amsterdam are clearly strongly urban oriented. In the Eindhoven region, both the ports-of-entry and the second addresses are equally dispersed across the region, which indicate more diverse residential preferences among the international labour migrants in this region.

The likelihood to relocate is mainly related to changes in household situation, especially a change from no children to a household with children, and is also more likely at relatively young age. We also found that respondents more often move out of neighbourhoods with above-average share of high-income households.

Another main conclusion should be that for the majority of internationals no large changes were acknowledged in terms of home-ownership or neighbourhood status after relocation. Each indicator of upward mobility was acknowledged by at most one quarter of all migrants. In general, we found that relocation to neighbourhoods with a higher socio-economic status is more likely after

an increase in household income, but also happens more often after changes in household size, especially after the birth of children.

The large differences between Amsterdam and Eindhoven, regarding both the preferences for urban or suburban milieus and the valuation of amenities, suggest that different types of policies are needed in both regions. Eindhoven as a tech pole with many suburban residential environments in a green area should, based on our results, be highly attractive for the dominant types of workers there. Following Kotkin (2000), Eindhoven's green and suburban milieus make the city attractive for the more suburban oriented technical workers and families with children, both Dutch and international. This is a strength that should be cherished, certainly at the regional level. An explicit focus on the realization of highly-urban residential milieus might not be the best strategy in order to be attractive for the type of workers Eindhoven is looking for. However, the finding that 34 percent of all migrants leave the region after relocation is somewhat concerning. Future research should find out what types of workers choose to leave the region. It is, however, outside the scope of this study to find out the reasons for this relocation.

In Amsterdam, there is clearly more demand for urban milieus: not only do internationals predominantly start in urban milieus, most of them stick to these types of areas after relocation. However, the higher chance of relocation to a suburban area after the birth of children indicates that, at least at the regional level, there should be enough diversity in terms of residential milieus. Recently policies have been developed and are being planned to make the city more attractive for middle income groups, including family gentrifiers, for example through the selling of social rented dwellings. Although these policies might certainly help to keep families with children in the city, they may in fact enlarge another problem that came forward in the stated preferences studies<sup>18</sup>: the affordability of housing. In the longer run, such developments may make the city less accessible for mainly younger (international) talents that are (yet) outside the highest income ranges, but do have a strong urban preference.

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<sup>18</sup> See: Sleutjes, B. & W.R. Boterman (2014), Stated preferences of international knowledge workers in The Netherlands, Amsterdam: University of Amsterdam / AISSR, and: Boterman, W.R. & B. Sleutjes (2014) "Stated residential preferences of higher educated workers in Amsterdam and Eindhoven", Amsterdam: University of Amsterdam / AISSR

# Nederlandse samenvatting

## Inleiding

In de internationale literatuur over de woonvoorkeuren van 'kenniswerkers' woedt er al enige jaren een debat over de vraag of werknemers in kennisintensieve en creatieve sectoren een specifiek stedelijke voorkeur hebben. Ze zouden worden aangetrokken door specifiek stedelijke voorzieningen zoals bijvoorbeeld uitgaansmogelijkheden, musea en theatervoorstellingen. Bovendien zouden zij prijs stellen op de diversiteit die stedelijke gebieden eigen is en ook graag in appartementen wonen. Er is veel onderzoek gedaan naar de vraag wat er een rol speelt in het aantrekken van deze groepen tot stedelijke gebieden, maar de conclusies zijn niet eenduidig. Er is wel veel beleid geformuleerd dat stoelt op sommige van deze inzichten.

Dit onderzoek is opgezet met als doel om een aantal vragen die naar ons inzicht nog niet goed uitgezocht zijn te beantwoorden. Hiertoe hebben we een studie opgezet die twee contrasterende groepen hoogopgeleide werknemers met elkaar vergelijkt: Nederlandse en internationale kenniswerkers. Door deze vergelijking op dezelfde manier te organiseren in twee stedelijke regio's, Amsterdam en Eindhoven, wordt de vergelijking verder betrouwbaar gemaakt. Bovendien dient deze regionale selectie nog een ander belangrijk doel. Door middel van een vergelijkende studie tussen deze twee regio's is het ook mogelijk om te onderzoeken of er een verschil is tussen de woonvoorkeuren van hoogopgeleiden in stedelijke regio's met contrasterende economische profielen. Waar het eerste deelonderzoek aandacht besteedde aan de woonvoorkeuren van internationale kennismigranten als zij een keuze zouden hebben, gaat deze deelstudie specifiek in op hun daadwerkelijke woongedrag en verhuisbewegingen.

De twee hoofdvragen van het onderzoek zijn:

- *"In welk type woonmilieu starten hoogopgeleide kennismigranten hun wooncarrière in de regio Amsterdam of de regio Eindhoven? En welke verschillen bestaan er tussen de twee regio's?"*
- *"Welke woonpatronen, op het gebied van woningtypen woonmilieu, kunnen worden onderscheiden in het verhuisgedrag van internationale migranten? En welke verschillen bestaan er tussen de twee regio's?"*

## Methoden

Voor dit onderzoek is gebruik gemaakt van bij het CBS beschikbaar gestelde microdata, die inzicht geven in de demografische achtergronden, de huishoudensamenstelling, het inkomen en de adressen van inwoners van Nederland. Uit de bevolking is een sample getrokken van internatio-

nale migranten die sinds 1995 voor werk of studie-gerelateerde redenen naar Nederland zijn verhuisd na de leeftijd van 18 jaar. Op basis van de adressen kon ook de regio worden achterhaald en is een selectie gemaakt van arbeidsmigranten die in de regio's Amsterdam en Eindhoven wonen. Via de adresgegevens zijn ook buurtkenmerken bekend, waardoor het niet alleen mogelijk was te onderzoeken of migranten verhuizen, maar ook of daarbij sprake is van een verandering in type locatie of buurtstatus. De bevindingen zijn gebaseerd

## Bevindingen en aanbevelingen

Een studie naar de 'toegangspoorten' tot de regio en daaropvolgende verhuisbewegingen van internationale arbeidsmigranten in de Amsterdamse en Eindhovense regio laat zien dat een ruime meerderheid hun woon carrière start in een stedelijk gebied. Wel zijn er verschillen tussen de twee regio's: in Eindhoven start bijvoorbeeld juist 44 procent van de internationals in een suburbane gemeente rondom de stad Eindhoven. Deze bevindingen zijn in lijn met het stated preferences onderzoek, waar ook al naar voren kwam dat werknemers in de Eindhovense regio sterker subuurbaan georiënteerd zijn.

Een van de belangrijkste uitkomsten is dat hoewel 72 procent minstens één keer van adres is gewisseld tijdens het verblijf in Nederland, migranten vaak bij hun eerste keuze blijven als het gaat om stedelijkheid en status van hun woonomgeving. Na verhuizing is het aandeel suburbane bewoners nauwelijks groter dan tijdens het eerste meetmoment. Ook slechts 13 procent van de verhuizingen betreft een beweging van een stedelijk naar een subuurbaan gebied; de meeste verhuizingen zijn tussen steden onderling of tussen suburbs onderling. Daarnaast komt slechts een minderheid na verhuizing te wonen in een buurt met een hogere sociaaleconomische status, vergeleken met het eerste adres. Een interessante bevinding is daarnaast dat in de regio Amsterdam het merendeel na verhuizing binnen de regio blijft wonen, terwijl in de regio Eindhoven 34 procent de regio verlaat. Meer onderzoek en beleidsaandacht is nodig naar welke groepen exact de regio verlaten, en vooral ook de reden waarom.

De verhuiskans hangt vooral af van veranderingen in huishoudensamenstelling, vooral als er een verschuiving van geen kinderen naar een huishouden met kinderen heeft plaatsgevonden, en is ook groter op relatief jonge leeftijd. Ook lijkt inkomen een rol te spelen, daar alle huishoudens die een inkomensstijging hebben doorgemaakt verhuisd zijn in de loop der tijd. Verhuizingen vinden relatief vaak plaats vanuit buurten met een bovengemiddeld aandeel hoge inkomens. Verhuizingen waarbij een stijging in buurtstatus plaatsvindt zijn het meest waarschijnlijk na inkomensstijging en –wederom– na de geboorte van kinderen.

De grote verschillen tussen de regio's Amsterdam en Eindhoven laten enerzijds zien dat het woongedrag van arbeidsmigranten sterk uiteenloopt, en anderzijds dat een ander type kennis migrant voor de regio Eindhoven kiest dan voor de regio Amsterdam. Ervan uitgaande dat het tweede adres sterker overeenkomt met de daadwerkelijke woonvoorkeur dan het startmilieu, zijn en blijven kenniswerkers in de regio Amsterdam sterk stedelijk georiënteerd, terwijl de kenniswerkers in de regio Eindhoven sterk uiteenlopende woonvoorkeuren hebben. Dit vraagt ook om ander beleid in de twee regio's. Waar de regio Eindhoven het suburbane karakter moet koesteren -zeker gezien de overheersende technische beroepsgroep met suburbane woonvoorkeuren-, moet de regio Amsterdam vooral aantrekkelijk blijven voor hen die een stedelijke woonvoorkeur hebben. De sterkere verhuigeneidheid richting de suburbs na de geboorte van kinderen maakt diversiteit in woonmilieus op regionaal niveau echter wel belangrijk. Recent beleid in Amsterdam dat er juist

op gericht is om huishoudens met kinderen in de stad te houden kan echter op langere termijn averechts werken. Door stijgende huizenprijzen en een kleinere voorraad sociale huurwoningen wordt de stad minder toegankelijk voor de vele kenniswerkers, vooral jongeren en alleenstaanden, die (nog) niet tot de hogere inkomensgroepen behoren.

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# Urban Regions in the Delta

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