

HOUSING THE MOBILE ENTREPRENEUR

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Housing the Mobile Entrepreneur

The location behaviour of firms in urban residential neighbourhoods

Het huisvesten van de mobiele ondernemer
(met een samenvatting in het Nederlands)

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1 Introduction

The spatial behaviour of firms and the importance of real estate properties

Published in 1826, Von Thünen's *The Isolated State* is recognised as one of the foundations of spatial economics and location theory. *The Isolated State* is a study into the factors that explain agricultural land-use around a central city, isolated from other markets. Firm location theory has significantly evolved since 1826, as firms over time have based their location decisions on changing sets of reasons. In the two centuries following the Von Thünen publication, much of the world has progressed from an agricultural to an industrial society and, at the turn of the 20th century, has developed into an advanced global economy in which services are increasingly important.

This dissertation juxtaposes three notions that are important for the explanation of firm location behaviour in today's advanced economies. First, it examines the location behaviour of firms in urban residential neighbourhoods as an emerging and growing type of working location. Alongside the much researched geography of central business districts (CBDs), industrial estates, office parks or other homogenous work sites, these residential neighbourhoods play an important role in the constantly evolving and dynamic urban landscapes of economic production. Second, while adapting quantitative methods and a traditional 'rational' (Barnes, 2003) locational analysis framework – where firm location is explained by rationally assumed important factors and the locational outcome is judged in terms of optimal profitability for the firm – this thesis argues that the locational behaviour of firms encompasses more than profit-maximisation in the pure economic sense of the word. We argue that due to more flexible life-work combinations, firm location behaviour is increasingly influenced by the private life considerations of entrepreneurs. Third, this thesis stresses the importance of real estate property characteristics in explaining the location behaviour of neighbourhood-based firms.

New ways of work (such as those focused on services) have opened up new locational demands, leading to changing patterns of economic activity in conventional

residential neighbourhoods, which could be considered as a 'banal intermediate location' as in Phelps (2004). In economic geography in general (and locational analyses in particular), it is therefore worthwhile to study the links among the neighbourhood economy, the increasingly flexible and mobile ways entrepreneurs go about their business and the role of real estate characteristics in the location behaviour of firms. Although the neighbourhood economy and changing work practices and lifestyles of entrepreneurs have been addressed by authors in various academic fields (e.g., Wennekers & Thurik, 1999; Scott, 2000; Hutton, 2004; Welter et al., 2007), the academic added value of this research lies in the fact that we connect the locational demands of neighbourhood-based firms with the characteristics of the real estate properties where this local economic activity occurs. Real estate characteristics are connected to the relatively new ways of work, but these working opportunities may also be moulded by real estate availability and characteristics. With regard to societal relevance, the link among the neighbourhood economy, the role of flexible life-work combinations and the role of real estate properties is also important. The results may offer new clues that contribute to the discussion on how to most effectively shape policies aimed at stimulating a vibrant neighbourhood and urban economy.

In the next section, we elaborate on why such policies aimed at stimulating the neighbourhood economy are important in the Dutch context and how this research contributes in terms of strategic policymaking. In the three subsequent sections, we elaborate on the academic relevance of this dissertation by discussing *the restless urban landscape* (1.2), the increasingly *mobile and flexible life-work combinations* of entrepreneurs (1.3) and the role of *real estate properties* – which are locational immobile by nature – in the location choices of an increasingly mobile firm population (1.4). In Section 1.5, the research goal and the research questions are put forward, followed by a description of the research area and the use of methods and data. Finally, the thesis outline is sketched in Section 1.8.

1.1 Neighbourhood revitalisation policies: fostering the local economy

It is often claimed that the amount and type of economic activity in a neighbourhood goes hand-in-hand with its liveability and vitality. It is generally assumed that economic activity in residential neighbourhoods creates direct employment and prosperity, provides services and amenities and brings a type of pleasantly perceived 'buzz' of people engaged in face-to-face interactions, which is a fundamental aspect of proximity in economic action (Storper & Venables, 2004).

The long-term effects of a vibrant neighbourhood economy can be the attraction of more commercial activity. Moreover, a vibrant neighbourhood economy can facilitate a deepening of social cohesion with cumulative effects, as a cohesive neighbourhood in turn stimulates successful local economic activities (Johannisson, 2011; Sleutjes, 2012). This rationale for fostering local entrepreneurship is mentioned in national and urban policy documents on neighbourhood revitalisation in the Netherlands, Germany and Great Britain (Neuman et al., 2012; Welter et al., 2007; OECD, 2003).

In recent years, the responsibility for much public spending has been transferred to local municipalities in devolution processes, thus increasing the competition between cities in attracting firms (Markusen, 2008). In the Netherlands, this competition in attracting firms is not solely market-led because municipalities have powerful spatial planning instruments to influence the supply of business properties. As a result, the rivalry between municipalities in attracting firms has led to inefficient land use and vacant properties due to oversupply, accompanied by high interest charges for municipalities (Van Oort et al., 2007; Olden, 2010). One could argue that the regional motives for competitiveness, often expressed in the construction of industrial estates, have local consequences: new industrial estates are considered successful, while older, less modern estates (from which firms relocate to the new ones) have difficulties finding appropriate replacements for vacant properties (Knoben & Weterings, 2010). The supply of 'cheap' premises on industrial estates ultimately victimises the neighbourhood economy (Raspe et al., 2010). Entrepreneurs looking for a new business property are steered towards these industrial estates because of the relatively large supply within the real estate market, the relatively low prices and the good physical (car) accessibility. Moreover, several studies show that disadvantaged neighbourhoods have more firms moving out than do average neighbourhoods (Gottlieb, 1995; Raspe et al., 2010; Sleutjes & Beckers, 2012). Relocating firms are more likely to abandon these weaker neighbourhoods than stronger ones (Raspe et al., 2010; Weterings et al., 2008), leaving (commercial) business properties that might subsequently be occupied by less viable firms or remain vacant. This can eventually lead to an economic downgrading of the area.

To facilitate economic activity in residential neighbourhoods, it is thus important to gain insight on the location factors that attract and deter firms. Understanding the location needs and factors of business property can aid municipalities in determining whether and how to occasionally intervene in the real estate market, possibly providing insights that lead to more sustainable policy measures. In both the policy and academic arenas, there are discussions about whether these economic policies should be area-based or whether they should target individual firms or entrepreneurs. Those who support area-based policies argue that problems

arising in specific places cannot be solved apart from their geographical context and should be addressed with place-based policies. Those who support individual-based policies argue that policies aimed at individual entrepreneurs or firms have a greater impact and are most suitable for increasing firm performance while guaranteeing equal access to opportunities, regardless of the geographical context (Barca et al., 2012). With regard to the place- versus individual-based policy debate, this dissertation considers whether policies aimed at revitalising neighbourhood economies should target area-based policies, real estate projects or individual entrepreneurs (Haughwout, 2010).

1.2 The restless urban landscape

In many of today's advanced economies, economic activity primarily revolves around the production of knowledge, information and symbols (Scott, 2004). Since the early 1990s, urban planners and economic geographers have addressed how changes in economic production processes are related to the use of urban space and the built environment. Knox (1991) categorised urban landscapes as 'restless' in the face of changes typical of post-Fordist¹ production, such as the increasingly flexible organisation of production, the increasing market segmentation and flexible specialisation, the on-going processes of globalisation and the continuing advancements in technology and communication (Castells, 1999; Scott, 2000). Others have linked post-Fordist economic developments to the revival of the 'New Economy' of the inner cities, the 'post-modern' developments at the urban fringe and the development of 'flagship' spaces, suggesting that the transformation of urban landscapes is intrinsically linked to social change and economic development (Evans, 2003; Hutton, 2004; Lever, 2001).

Theories on post-modern or entrepreneurial urban landscapes provide a better understanding of how urban landscapes evolve. However, these theories and studies are frequently framed in neo-Marxist terms – inspired by David Harvey's (1989) influential *Managerialism to Entrepreneurialism* – that stress the unequal distribution of power over (urban) space and the arising conflicts. In economic geography, however, the majority of the existing literature focuses on cluster formation of knowledge-intensive and creative industries; the firm is perceived as a free agent that is barely influenced by the structure of power, wealth distribution and/or other regulatory restraints. While extensive research exists on either entrepreneurial flagship spaces or clusters of knowledge-intensive and creative

1 Post-Fordism is linked to concepts such as post-modernism, the New Economy, advanced capitalism, post-industrialism and the pervasiveness of consumerism in all areas of private life.

industries, little academic attention has been paid to the changing patterns of economic activity in more conventional residential neighbourhoods. Given the shift towards knowledge-intensive sectors and the possibilities offered by digital technology, these residential landscapes may offer fertile ground for economic activities. Urban residential neighbourhoods are eminently suitable as production sites of the New Economy, but following Phelps (2004), “In comparison with the enormous weight of theoretical and empirical interest in industry clusters, we know very little about the economic basis of these seemingly banal locations” (Phelps, 2004:972).

Economic activity in such ‘banal’ urban areas is not marginal. Urban landscapes that are principally residential (in terms of actual land-use and land-use zoning practices) often house a variety of economic activities. Research on larger municipalities in the Netherlands shows that approximately 36% of firm establishments are located in these residential neighbourhoods, thus accounting for 40% of the jobs (Raspe et al., 2010). Residential neighbourhoods are home to primarily small- and medium-sized firms (Folmer & Risselada, 2012; Pijlman et al., 2010). Along with the more traditional locally oriented consumer services sector, a significant portion of the neighbourhood-based firm population is active in knowledge-intensive sectors that cater to non-local markets (Mason et al., 2011; Sleutjes, 2012). These firms set up shop in residential properties, as home-based businesses or in local commercial properties. Evidence from the Netherlands shows that approximately 55% of neighbourhood firms are home-based (Risselada & Folmer, 2012; Hagens et al., 2009). According to Mason et al., (2011) “The growing significance of home-based businesses is deeply entwined with the revival of the small business sector that has characterised advanced economies over the past twenty-five years” (Mason et al., 2011:627). In the Netherlands, the share of solo-entrepreneurs as a proportion of the total labour force has risen from 6.8% in 2001 to 8.5% in 2009 (Koster & De Vries, 2011). Since 2008 (when the economic crisis hit the Dutch economy), the share of solo-entrepreneurs has increased even further. Although these start-ups can be necessity-driven due to the lack of opportunities within permanent employment, the majority still pursue self-employment out of opportunity-driven motives (Van Es & Van Vuren, 2010). Despite the economic crisis, the self-employed have long been optimistic about the future; since 2008, however, their turnover has been under strong pressure, and they are delving into their pension accrual (De Vries et al., 2010).

Residential neighbourhoods have thus progressively become places of production and business services. These local economic activities do not leave a noticeable physical imprint in the urban landscape (as do the post-modern flagship projects or big-box retail complexes) but they instead quietly infiltrate existing neighbourhood structures. As a research area, these residential neighbourhoods

comprise the largest possible heterogeneity in firms, sectors and real estate characteristics (Jacobs, 1969; Duranton & Puga 2000). Because the neighbourhoods are already heterogeneous with respect to the characteristics of their inhabitants and spatial qualities, we must address how this heterogeneity affects firm location behaviour.

1.3 Flexible life-work combinations and rational choice

Due to technological innovations, people are increasingly able to work wherever they please; with an internet connection and a laptop, entrepreneurs can theoretically set up shop almost anywhere. Although it has been anticipated that this would lead to ‘the death of distance’ (Cairncross, 1997) or a ‘flat world’ (Friedman, 2005), theories in new economic geography (Krugman, 1991), evolutionary economic geography (Boschma & Frenken, 2006) and Florida’s creative class argument (Florida, 2004) have emphasised the continuing importance of cluster formation and agglomeration economies, especially on the urban and regional scales.

On a microeconomic level, the manner in which individuals go about their everyday work has changed drastically as well. In *Incidents of my Career*, American economist Paul Krugman attests that he ‘experienced an explosion of research productivity’ leading up to his seminal *Geography and Trade* (Krugman, 1991). This increased productivity was partly due to technological innovations:

“It may sound silly, but I think that the advent of improved software for personal computers, and especially the availability of laptop machines that could come with me on my international travels, encouraged me to write technical papers. I am an extremely fast but disorganized and impatient worker; a technology that lets me produce a paper – equations, simulations, and all – in a hotel room somewhere over a weekend perfectly fits my style” (Krugman, 1995:37).

As Krugman’s “explosion of research productivity” exemplifies, innovative technologies have opened up a variety of possibilities on how, when and where to work. Entrepreneurs benefit from this, displaying more varied and flexible work patterns in which the borders between private life and work are ever waning. Especially for home-based businesses, the spatial behaviour of the firm is closely linked to the private life and social networks of the entrepreneur (Dahl & Sorenson, 2009; Mackloet et al., 2006; Stam, 2003). However, in locational analyses such as Krugman’s influ-

ential New Economic Geography models, it is assumed that the locational strategies of firms are based on rational choices of utility-maximisation in an equilibrium setting (Barnes, 2003). This assumption implies that location factors related to private life are largely left out of the equation. Although models of the New Economic Geography have proven to be very valuable in endogenously clarifying Marshallian clustering effects at the regional and municipal scales, firm location decisions at the micro level should be interpreted as more than a purely rational choice of a utility-maximising firm. Entrepreneurs may differ with respect to growth ambitions, their work practices and choice of lifestyles. The everyday interactions of entrepreneurs in relation to their local environment and personal lives are frequently absent in economic locational analyses, which are often characterised by functional, rationalistic reasoning (Barnes, 2003; Johannisson, 2011). Consequently, when adopting a quantitative and rational framework to examine the spatial behaviour of firms, one should note that firm behaviour might increasingly be explained by entrepreneurs striving for an optimal balance between private life and work life. The spatial behaviour of firms should therefore not merely be measured by the parameters of the profit-maximising utility function of the firm. This dissertation explores location factors that are increasingly linked to the private life considerations of entrepreneurs. Because entrepreneurs may differ in their profit-maximising behaviours and preferred work-lifestyles, this research addresses whether and how this heterogeneity influences the firm location choices of entrepreneurs.

1.4 The importance of real estate properties for firm location behaviour

Firms also have increasingly heterogeneous real estate requirements. Because of technology advancements, the shift towards a primarily knowledge-based economy, transitional labour market conditions (mixing working with living) and the rise of ‘the consumer city’ (in which amenities are thought to be crucial for urban consumption and production (Glaeser et al., 2001)), firms and entrepreneurs today have very different business property requirements than they did twenty years ago. The more flexible, non-hierarchical firms and mobile entrepreneurs of today’s economy set up shop in business properties that differ from more traditional manufacturing firms, with their rigid real estate demands and higher property-related sunk costs. In this sense, firms of the New Economy are less sedentary with regard to their business property. Nevertheless, business property costs are part of a firm’s production function, and because firm (re)location is dependent on the available supply of real estate properties, business property is conditional for firm relocation. This conditional nature of real estate is an important factor

in explaining the location behaviour of firms and deserves more attention in firm locational analysis.

Real estate is immobile, and because available units are scarce and the supply cannot be easily adjusted to a changing demand, real estate markets are thin and heterogeneous. While different commercial properties may meet a firm's business property demands in varying degrees, a firm cannot combine different available units to create the most desired property. Firm mobility within the commercial real estate market is thus complex and predominantly supply-oriented:

“Real property is locationally specific and generally immobile. This can put sellers in a monopoly position relative to buyers” (Adams et al., 2001:454).

Because available real estate is a prerequisite for firm location, the features of the local real estate market play an important role in shaping firm location patterns within regions and cities. This can be crucial with regard to environmental land-use plans that limit what is possible (and delineate what is desirable) in terms of allowing economic activity in specific real estate properties. However, specific property sizes, ownership structures and property attributes are also likely to influence a choice for a business property.

How these real estate markets and, more specifically, business property characteristics influence firm location behaviour has not received much attention in urban economic theory and empirical research. Little academic attention has been paid to how features of the ‘New Economy’ have led to changes in demand for space (with exception of Dixon, 2005; Lizieri, 2003; Longcore & Rees, 1996; Hutton, 2004). As Lizieri (2003) notes,

“Changes in business environment associated with globalisation, innovation in information and communications technologies and the drive towards more flexible production systems should be reflected in changes in occupational requirements of property” (Lizieri, 2003:1151).

In this dissertation, real estate characteristics measured at the property level (i.e., business property characteristics) are introduced as important conditions for firm (re)location and entrepreneurial success in neighbourhoods. We account for real estate factors when modelling the location behaviours of firms and analyse to what extent business property factors are important for firm location choices relative to location factors that are not related to the specific real estate property. Throughout the dissertation, we differentiate between firms located on residential properties (i.e., home-based businesses (HBBs)) and firms located on commercial properties (i.e., firms in commercial property (FCPS)) as property types. This

property differentiation between HBBS and FCPS acts in two ways. First, it enables an analysis in which the location of HBBS can be based on factors that differ from those used for FCPS. Second, it acts as an explanatory real estate characteristic, clarifying the micro-scale (re)location behaviour of firms.

1.5 Goal and research questions

The primary research goal put forward in this dissertation is to provide insight into the factors influencing the location behaviour of firms in urban residential neighbourhoods and what this means for policy aimed at creating favourable local business climates. The main question is

Which spatial configurations, from the real estate to the neighbourhood level, fit the current economic fragmentation and changing location decisions of firms induced by the changing economic production processes typical of advanced urban economies?

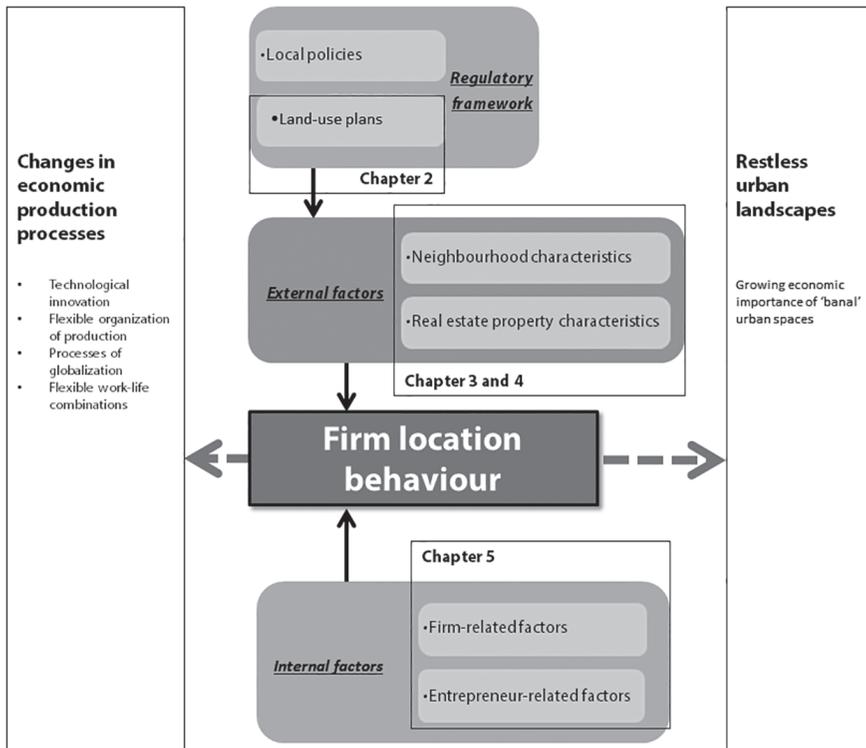
To obtain a more complete insight into which spatial configurations influence firm location behaviour, five sub-questions must be addressed:

1. Can we identify different types of economic zoning in the land-use plans of Dutch urban residential neighbourhoods, and if so, which of these zoning types are suitable for accommodating local economic activities?
2. How do real estate factors influence the likelihood of firm relocation in urban residential neighbourhoods, when controlled for firm and neighbourhood heterogeneity?
3. Which types of neighbourhoods attract relocating firms, and does this differ between sectors and for HBBS and FCPS?
4. In their location choice, do entrepreneurs perceive business property as more important relative to other location factors, and to what extent is this related to firm and neighbourhood characteristics?
5. To what extent is the choice to run a business from home (i.e., an HBB) related to the work-lifestyle characteristics of the entrepreneur?

Figure 1.1 is a representation of the factors that influence firm location behaviour and the contribution of this dissertation. Chapter 2 links the regulatory framework of the urban planning regime of the Netherlands to the location behaviour of firms. This exploration at the neighbourhood level sets the stage for the microanalyses in the following chapters. Chapters 3 and 4 consider the neighbourhood-level variables (both push and pull factors) to be explanations for firm relocation. Chapter 3 also considers

real estate business property factors at the individual firm level. We explore the relative importance of these business property factors and pay special attention to how the lifestyle factors of entrepreneurs influence firm location decisions in Chapter 5.

Figure 1.1: factors influencing firm location behaviour in residential neighbourhoods



1.6 Research area

Our research area consisted of residential neighbourhoods in five Dutch cities: Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer. These five municipalities applied for participation in the 'Dynamic neighbourhoods in dynamic urban economies' project, the overarching research program of which this dissertation is a part. The cities of Zoetermeer, Dordrecht and Leiden are considered medium-sized, with approximately 120,000 inhabitants, while Amsterdam and Utrecht are larger, with 767,000 and 306,000 inhabitants, respectively. All cities belong to the

Randstad region, a conurbation in the Western Netherlands that is often considered to function as one regional economy (OECD, 2007; Lambregts et al., 2006). Chapters 3 and 4 only concern the location behaviour of firms in the residential neighbourhoods of Amsterdam. This was primarily due to data limitations: the municipality of Amsterdam was able and willing to provide the real estate data necessary for the analyses. For the analyses in Chapter 2, we selected 44 residential neighbourhoods of a diverse socio-economic status² in the five research cities (see Appendix I for neighbourhood selection). This primary selection was also the basis for the neighbourhood selection used in Chapter 5, which consisted of 41 residential neighbourhoods. The cities chosen for our analysis are a representative cross-section of residential neighbourhoods in large- and medium-sized Dutch cities. Amsterdam and Utrecht are among the largest cities in the Netherlands, Dordrecht and Leiden are relatively old cities in Holland that serve regional economies, and Zoetermeer is a typical larger new town near The Hague that grew significantly in the 1970s and 1980s. As the city of Amsterdam is the largest urban economy in the Netherlands, the outcomes of these analyses are most interesting and exemplary for other cities in the Netherlands (Musterd & Ostendorf, 1994). Overall, the research area and neighbourhood selection is representative for urban residential neighbourhoods in dense economic regions similar to the Randstad.

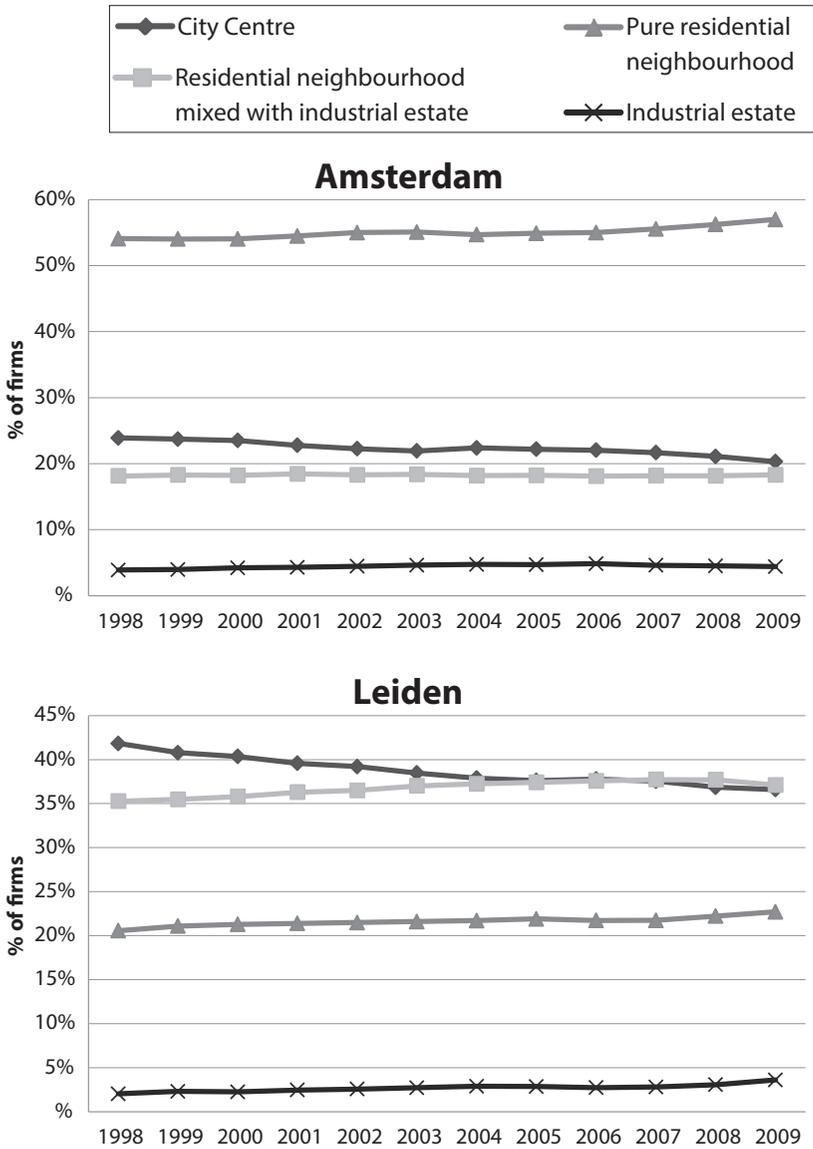
In the five cities that comprise the research area, the residential neighbourhoods of Amsterdam, Utrecht and Zoetermeer house the largest share of all firm establishments in the municipality (57%, 54% and 73%, respectively, in 2009). This is not the case for Dordrecht and Leiden, which show shares of 33% and 23%, respectively, of all firm establishments. However, Figure 1.2 shows that for all five cities, the share of firm establishments in purely³ residential neighbourhoods has increased compared to other neighbourhood types from 1998-2009. Although in terms of the sheer number of firms, the municipalities of Utrecht and Amsterdam are of a different magnitude than the other three cities, we see an increasing share of firm activity in the residential neighbourhoods of all five cities. This is not unexpected, as the share of solo-entrepreneurs has been steadily increasing (Pijlman et al., 2010; Koster & De Vries, 2011) and we know that firm start-ups are often home-based and thus likely to spring up in residential neighbourhoods (Mackloet et al., 2006).

2 Neighbourhoods were ranked by socio-economic status. A factor analysis was performed to group seven variables that indicate the socio-economic status of the neighbourhood (including income, unemployment levels and data on housing stock) into two variables. Consequently, a k-means cluster analysis was used to rank all neighbourhoods into the categories.

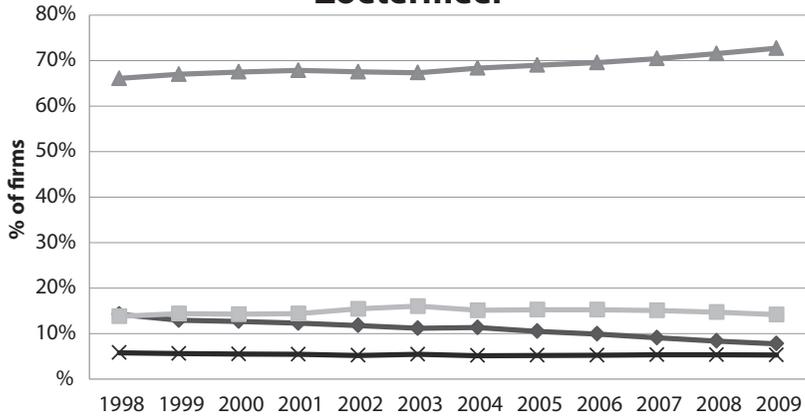
3 The categorisation into four types of neighbourhoods is made on the basis of postal code areas. First, only areas with more than 500 residential addresses are selected. This group is divided into three categories: neighbourhoods with a city centre function, neighbourhoods that have an industrial site within them and the remainder, categorised as “purely” residential neighbourhoods (Raspe et al., 2010).

Figure 1.2: Share of Firm Establishments differentiated by Neighbourhood Type – 1998-2009

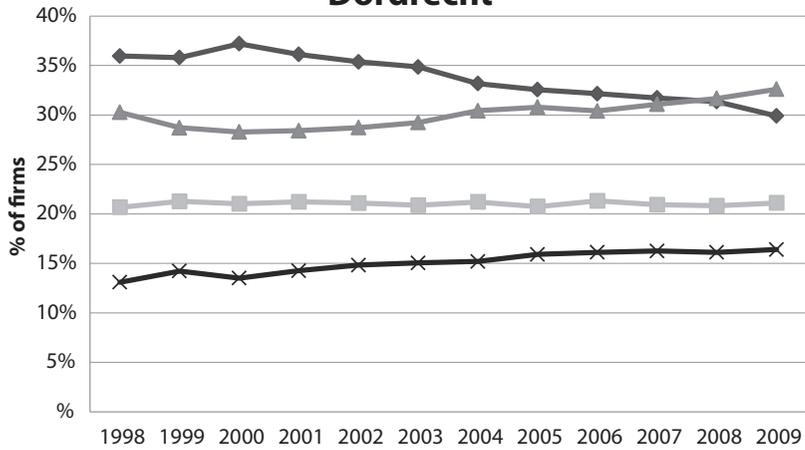
Source: LISA, PBL, IBIS, Locatus



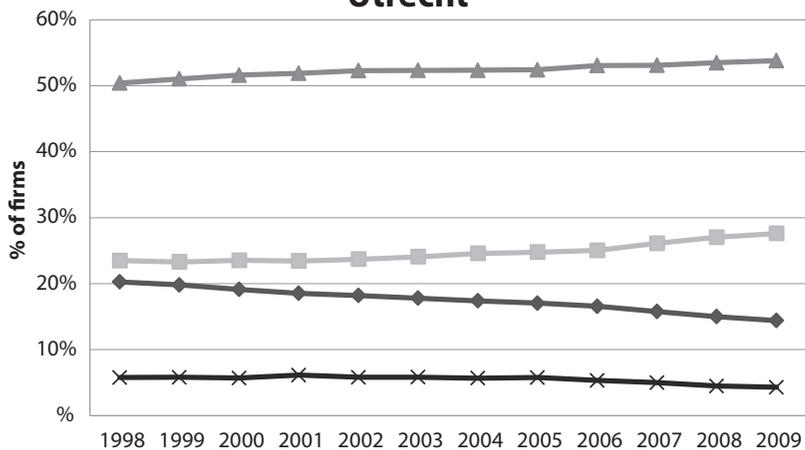
Zoetermeer



Dordrecht



Utrecht



1.7 Methods and data

In this dissertation, we primarily adopt quantitative methods when investigating firm location behaviour. We utilise a micro-perspective and explain firm relocation behaviour using statistical analyses that are primarily based on firm-level data. Within economic sociology, economic geography and institutional economics, the notion that economic action is embedded in local social, cultural and institutional contexts is well established (Wood & Valler, 2004). In line with the *relational economic geography* of Bathelt & Gluckner (2003), we consider both the agent and the structure to engage in a dialectic process where economic activities on a micro scale both influence and are influenced by their context. We therefore initially explore the structural context by studying the relationship between land-use plans and neighbourhood economic activities in Chapter 2. In the following chapters, we place the agent – firm and entrepreneur – at the core of the research. In Chapters 3 through 5, we focus on the *actual location behaviour* of firms. Accordingly, the primary emphasis is on the *outcomes* of locational decisions, subsequent to the decision-making process.⁴ These outcomes are studied within the neighbourhood context by applying a multi-level setting.

We used three different datasets for the analyses. To analyse the different types of land-use plans, we collected a dataset that ranked neighbourhood land-use maps based on several criteria. This was combined with aggregated data from the LISA-register (*National Information System of Employment*) and neighbourhood data from the Netherlands Statistics (CBS). The LISA register consists of all firm establishments in the Netherlands and contains both employment and address information. For the analyses of the push and pull factors that influence location behaviour in Chapters 3 and 4, the LISA-register data were combined with the municipality of Amsterdam's real estate records, which contained information on the characteristics of the firms' property locations. This dataset was enriched by including neighbourhood variables constructed from CBS data, which were then linked via postal code to CBS-defined neighbourhoods. For the analysis in Chapter 5 of the relative importance of real estate factors and the effect of lifestyle factors on firm relocation, we used data gathered from a survey conducted between May 2011 and July 2011. This survey was conducted among entrepreneurs located in the 41 selected residential neighbourhoods in the research area.

4 Behavioural studies about firm relocation have also shown the dialectic nature of the decision-making process at the firm level (see, for example, Pen, 2002)

1.8 Thesis outline

In Chapter 2, we address the urban landscape. We study whether residential neighbourhoods differ in the amount of economic zoning in neighbourhood land-use plans and explore the relationship between types of land-use plans and the relative number of firm establishments. Although we initially identify economic land-use zones at the real estate property level, after qualitatively researching the neighbourhood land-use maps, the final analysis in Chapter 2 is at the neighbourhood level. In Chapter 3, the analysis occurs at the firm level, explaining the relocation likelihood of firms by business property, firm and neighbourhood push factors. In Chapter 4, we return to the neighbourhood level and study neighbourhood pull factors for intra-municipal firm relocations in Amsterdam while also using firm-level data. In Chapter 5, firm-level survey data are used to analyse how business property features are judged relative to other location factors. We also study to what extent the choice to run a business from home (HBB) is related to the work-lifestyle characteristics of the entrepreneur. Finally, Chapter 6 summarises, concludes, and discusses the findings and policy implications and presents future avenues of research.

2 Planning the Neighbourhood Economy*

Land-Use Plans and the Economic Potential of Urban Residential Neighbourhoods in the Netherlands

Abstract: This chapter investigates the relationship between zoning by-laws, as put forward in governmental land-use plans and the viability of urban residential neighbourhood economies. The Dutch planning tradition has long been characterised by strict separation of functions and top down planning. We argue that profound changes in social and economic structures make land-use planning practices less suitable for the current policy formula of “mixed urban milieus”. Although the residential neighbourhood might not be the location of large firms, it definitely attracts small ones, and facilitates starting businesses whose presence (and potential growth) can be beneficial to the city as a whole. We present a typology of spatial patterns of neighbourhood economies based on land-use plans and describe whether these are related to the distinctive economic development of the neighbourhood over the period 1999–2007.

2.1 Introduction

Marshallian arguments that explain processes of agglomeration economies in inner city areas and industrial districts continue to strongly influence the current debate on urban economies (Phelps, 2004). One of the implications of this is that the bulk of the literature on urban economies has a focus on Central Business Districts (CBDs) or industrial clusters. However, several authors have drawn attention to the (economic) significance of new urban landscapes different from CBDs and industrial clusters, and how changes in the organisation of production are related to the built environment in these atypical places of production (see, for instance, Knox, 1991; Phelps, 2004; Gospodini, 2006). Phelps (2004)

* This paper was co-authored with Emma Folmer and is published in *European Planning Studies*.

argues that in the light of decentralisation and polycentric metropolitan areas, more theoretical and empirical work should be devoted to the economic significance of inner and outer suburbs, or what he calls “banal” urban spaces. The work of Knox (1991) and Gospodini (2006), considers the connection between economic structure and urban form; the changes in the urban landscape that are the result of the transition from “Fordist” to advanced capitalism. Gospodini (2006) describes how the combination of built heritage and new buildings in central cities are especially attractive for “new urban economic activities” in informational, financial and creative sectors. Knox (1991) emphasizes the role of developer companies in designing fashionable office space and trendy warehouses to fit both producers and consumers in the “new urban economy” (McNeill & While, 2001). Knox’ (1991) claim is that geographers “have generally failed to come to terms with the emergence and significance of new urban landscapes” (p. 182).

Since Knox’ claim, many studies on how economic restructuring and urban shape are connected have proved to be valuable (see, for instance, Hutton, 2004; Phelps, 2004), but often leave out the intermediary role of the local regulatory framework and environmental land-use plans. We claim that this is a crucial link in the chain that connects economic structure and urban landscape – limiting what is possible and delineating what is desirable in urban space. In this paper, we want to address this link and draw attention to the ways in which existing local planning frameworks accommodate or constrain the change towards a post-industrial economy by influencing the built environment and the way it is used. Much like Hajer and Zonneveld (2000) we question whether traditional Dutch land-control oriented strategic planning is effective in the light of a transition towards flexible production systems. Combining this side of the “sociospatial dialectic” (Soja, 1980) with a focus on an a-typical location of economic activity – the residential neighbourhood – we aim to contribute to the debate about the relationship between the urban economy and urban form. We analyse how neighbourhood economies have developed over a period of 9 years (1999–2007) and link this to the urban environment as documented in statutory land-use plans. The main question of this paper is: can we identify different types of economic zoning in the land-use plans, and if so, are there types of land-use plans that are either more or less suitable to accommodate a vibrant local neighbourhood economy?

In the Netherlands, the built environment of both urban and rural areas and their functions are to a large extent controlled by land-use plans. Therefore, these plans offer the best entry to a detailed study of local regulatory frameworks. Land-use plans control which functions (residential, economic, leisure, infrastructure) are allowed where in a very detailed manner. This means that through land-use plans, city governments can influence spatial patterns of economic activity and fa-

cilitate or hinder the (re)location of new and existing firms. This strong tradition of regulating use of space offers an interesting contrast to the Dutch' advanced urban economy and its recent liberal views on entrepreneurship.

Our focus on land-use policies is embedded within the framework of increasing attention for governance and institutions and how they influence local economic development. The importance of institutions for economic systems is rooted in the idea that the phenomenon that we call "economy" or the "economic system" is neither a mechanical system nor a set of individual preferences but rather an "instituted process" influenced by formal as well as informal institutions (Amin, 1999, p. 367). Within economic sociology, economic geography and institutional economics the idea is now well established that economies are embedded in local social, cultural and institutional contexts (Wood & Valler, 2004). We analyse how the regulatory framework of spatial planning is related to the local economic activity in the neighbourhood. However, this should not be interpreted as a one-on-one relationship. The level of education, local entrepreneurship incentives the social and economic composition of the residents are prone to influence the composition of the neighbourhood economy as well.

In this paper, qualitative and quantitative methods are used to grasp both the richness of information contained in land-use plans whilst linking it to economic developments on the neighbourhood level. Based on land-use plans for 44 Dutch urban residential neighbourhoods we propose a typology of 4 different types of neighbourhood economies as reflected in those plans. We combine a descriptive and explanatory analysis, hoping to capture the general change that is taking place in neighbourhoods, as a result of economic restructuring and at the same time describe how residential neighbourhoods are distinctive from each other as well as from other urban spaces.

The following section of the paper concisely puts forward processes that influence economic activities in urban residential neighbourhoods. Section 3 elaborates on the development of Dutch spatial planning and on the activity of land-use planning in particular. Next, our method and data are explained in Section 4, leading up to the empirical analysis in Sections 5 and 6. Section 7 concludes and discusses the findings.

2.2 The neighbourhood as a place of production

Changes in the organisation of production in contemporary capitalism have led to what oftentimes has been called a post-Fordist or post-industrial economic structure (Lash & Urry, 1994). Two interrelated outcomes of these changes are of particular interest when studying economic activities on a neighbourhood level: a

shift in dominant sectors and a shift in firm size (Scott, 2000). The shift towards knowledge and design intensive sectors that rely heavily on human capital input have tended to erode the importance of internal economies of scale, opening up an important window of opportunity for small and medium-sized firms. The shift towards smaller firm size, less polluting and nuisance-sensitive sectors and changes in dominant technologies potentially allow more of these firms to settle in residential urban areas.

How the “new urban economy” influences urban landscapes has been theorised upon by both planners and geographers. Gospodini’s (2006) theoretical argument entails that “the locational trends of flourishing post-industrial economic activities, along with the development of new urban governance strategies tend to rearrange the landscapes of the post-modern city” (p. 311). He contrasts the emergence of entrepreneurial and creative “islands” of business activity in the inner city to the “scattered developments” in urban fringes. Taking some of his arguments from Knox (1991), Gospodini states that changing economic structures are primarily influencing the urban landscape. However, Knox’s (1991) argument itself was more nuanced, arguing that “the spatial imprint of capitalism is not a smooth and automatic process in which the ‘needs’ of capital are stamped, without resistance and constraint, onto the landscape” (p. 181). For instance, one might question whether urban residential neighbourhoods are susceptible for accommodating structural changes in the economy. In this sense, the conditioning role of the local regulatory framework might be an important factor, influencing to which degree “flourishing postindustrial economic activities” are located in residential areas. This regulatory framework plays an intermediary role, often not accounted for in the arguments by the preceding authors and sheds light on the other side of the “socio-spatial dialectic” between the organisation of production and urban form (Soja, 1980; Sheppard, 2002). At the same time, the study of these local regulations brings attention to the potential of urban residential districts as places for “new” economic activity. Especially in the Netherlands, the tradition of top down land-use planning combined with very detailed zoning regulations could easily hinder the adaptation of the built environment to changing needs of today’s entrepreneurs. The above implies that our frame of reference is the formal one. We look at rules and regulations as stated in the land-use plan; we do not look at practices of spatial planners and planning authorities. Since the Netherlands is also known for “tolerance policy” – for example with regard to Dutch policy on soft-drugs use – it might be the case that formal regulations in practice are not as strictly complied with.

Even beyond the question of land-use planning, one could argue that Dutch municipal governments often direct their (limited) resources to (central) business districts or deprived neighbourhoods, while hardly paying attention to the

economic potential of “ordinary” suburban-like residential districts. As a consequence, the economic importance of these districts, as sites of both production and consumption, might be overlooked. As a consumer site Dutch cities have, similar to many other advanced urban economies, witnessed significant changes in residential preferences. Whereas larger cities in the 1960s and 1970s were confronted by an outflow of the middle-classes, the closing decades of the twentieth century have shown reversal of this trend. Instead of leaving the city, many middle-class households opted to live in urban environments again where employment opportunities and amenities are close at hand (Ley, 1996; Karsten, 2003; Florida, 2004). As a site of production, literature on entrepreneurship and location choice also shows that many firms start from home (Schutjens & Stam, 2003). Often these firms’ location needs are very much connected to lifestyle preferences (Mackloet et al., 2006). There is a regained interest in urban living by people that predominantly work in post-Fordist sectors. These jobs are in turn eminently suitable to be performed from within residential neighbourhoods, even from home, without pollution or nuisance of production activities. This leads us to expect a rise in economic activity in urban residential areas. However, it remains to be seen to what extent the existing land-use zoning practices show flexibility with regard to accommodating these economic activities.

2.3 Dutch spatial policy and land-use planning

Very much like the rest of Western Europe, planning in the Netherlands from the 1950s was heavily dominated by functionalism. The dominant doctrine was the separation of functions in space founded on Le Corbusier’s ideas of “spatially autonomous” functions (Le Corbusier, 1933). This resulted in strict land-use zoning practices that controlled what functions could be located where in a detailed manner. During the 1980s, many European countries shifted towards more post-modern urban design and planning, entailing mainly a renewed focus on land-use mixing, as was the norm before the 1950s (Gospodini, 2006). According to several authors, the Dutch planning practice however, remained “stuck” in functionalism (see, for instance, De Roo, 2000; Pols et al., 2009). Although the Dutch policy discourse was following other European countries in emphasizing the importance of “real” and “vibrant” cities, its planning practice lagged behind. As in other Western countries, the “compact city” discourse gained foot in the Dutch policy debate. The Fifth Spatial Planning Memorandum of the Dutch government (Ministry of Housing, Spatial Planning and the Environment, 2000) expressed an ambition towards more mixed and diverse urban environments. The

compact city with mixed functions is aiming to facilitate economic development (due to its focus on economic activity and leisure) and at the same time offer a high quality living environment for city inhabitants. Despite this new policy discourse however, the planning practice of detailed land-use zoning and regulations seemed to persist. This persistence has several reasons, partly to do with the mindset of urban planners and local politicians. First, municipalities still attribute economic gain to mono-functional office parks by hoping to attract large (multi) national companies while at the same time continue to design very detailed zoning plans that do not allow much flexibility when it comes to the spatial mixing of functions (Pols et al., 2009). This might also have to do with the “environmental dilemmas” and clashing interests of users that are more likely to occur in mixed functional spaces (De Roo, 2000). Local politicians often succumb to pressures of “NIMBY” like arguments coming from neighbourhood residents. Second, municipalities can choose between designing a “general” or a “detailed” land-use plan where the former is flexible towards diverse functions that can be interchanged. In practice, the majority of the municipalities opt for detailed zoning plans for legal security reasons or to avoid ambiguity. Legal rights to buildings and land-uses depend heavily on land-use plans, so local governments want to avoid costly and drawn-out conflicts over space. Third, the earning capacity for landowners is often higher for residential functions than for mixed or economic functions. This is due to a longer depreciation period for residential buildings compared to office buildings (Pols et al., 2009). Lastly, the tendency to solidly arrange the (urban) landscape is a highly valued tradition in a country as small and densely populated as the Netherlands.

Dutch urban planning practice relies heavily on environmental zoning, with detailed regulations for the degree of separation between residential and other land uses. Municipalities are obliged to design land-use plans for city districts separately, with a mandatory 10-year revision period. The activity of zoning implies that geographically delineated zones are assigned a certain land use function. Within the neighbourhood land-use plan, assigned functions may vary even within the same property, in which, for example, the ground floor of a building is for commercial use while the other floors are assigned a residential function. These local land-use plans, together with policy plans on different levels (municipal and regional level), are output of a local political process with which urban space is assigned certain qualities, and through which these qualities can be (re)shaped. Over the years, municipal governments have gained more autonomy and control in designing land-use plans. National government guidelines have become less strict, allowing municipalities more freedom in their decisions regarding land-use. Through land-use plans, local planners have always had the possibility of changing land-use functions by making statements about the future functions of buildings or areas if

they were to change ownership. Also, new functions can be ascribed to areas that are being redeveloped or restructured. This policy and planning practice entertains the thought that if urban form is adapted to the changing needs of the organisation of production, economic growth will follow. However, urban form, function and its existing legal structures might not share the flexibility that is so characteristic of the “New Economy”.

We can conclude that the majority of the Dutch land-use plans were created within a top-down doctrine of “high modernity”:¹ functional and environmental zoning heavily influenced by notions of spatial separation of functions. Although recent views and policies are more oriented toward mixing of functions, local planning practice seems resilient with regard to this policy interest. It seems as if policy ideas and societal developments on a more macro level are not congruent with the implicit rational and functional foundation of the land-use plan. What we will see in the remainder of this study is to what extent the existing land-use planning of residential neighbourhoods facilitates or limits a vibrant local economy.

2.4 Method and data

For our analysis we selected five cities in the Netherlands: Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer. The cities of Zoetermeer, Dordrecht and Leiden are medium sized with around 120,000 inhabitants whilst Amsterdam and Utrecht are larger with, respectively, 767,000 and 306,000 inhabitants in 2010. All cities belong to the Randstad region, the conurbation in the West of the Netherlands, which is often considered to function as one regional economy (Figure 2.1 on page 32). They offer a broad array of Dutch urban environments differing in size, physical structure, age, economic background and growth rates. Zoetermeer can be characterised as a new-town and as a planned centre of urban growth while Amsterdam, Utrecht, Dordrecht and Leiden have been defined by trade and handicraft since the seventeenth century. The research design is a cross-sectional analysis of the number of firms in residential neighbourhoods. We examine variation across neighbourhoods and across time. The outcome variable – the number of firms in the neighbourhood – is analysed between 1999 and 2007.

1 “High modernism” refers to the belief that bureaucratic planners can order and control physical space from behind their desks (Scott, 1998).

Figure 2.1: Research area



Source: CBS/Kadaster Emmen 2008/BWBS.

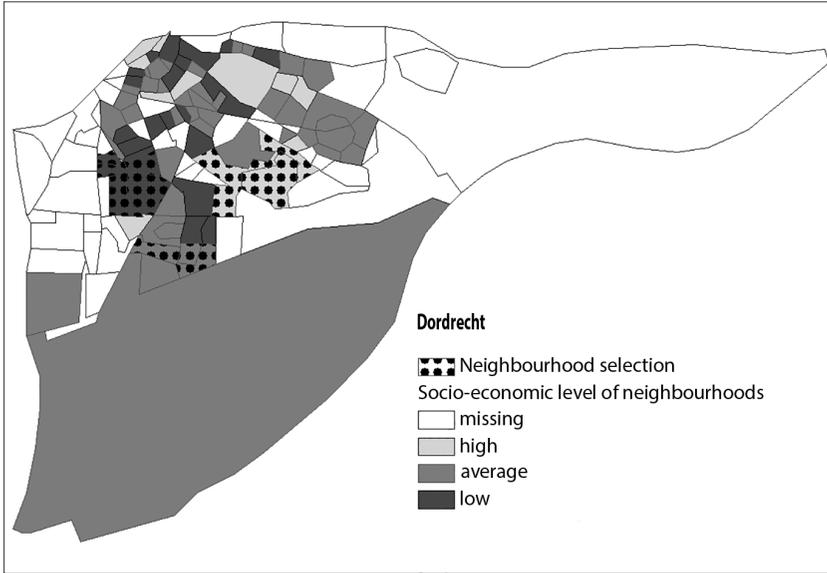
We selected 44 residential neighbourhoods with a diverse socio-economic status² to assure a heterogeneous research sample. In the selection we included only neighbourhoods that can be categorised as “purely residential neighbourhoods”³ We excluded city centre neighbourhoods or those neighbourhoods with a designated industrial estate within its boundaries since these more formal work sites are assumed to have different dynamics. This resulted in a selection of six to eight geographically dispersed neighbourhoods per city. The selected neighbourhoods have an average size of 4600 inhabitants, with a population range of 1000–10,000. The municipal administrative boundaries are used, since the zoning plans are also designed according to these boundaries. In terms of square kilometres, the selected neighbourhoods are very diverse, ranging between 0.3 and 2.5 km². Economic activity is measured by the number of firms located in the neighbourhood. For calculating this number LISA⁴ data were used, which list all business establishments in the five cities for the period 1999–2007. Schools, hospitals and some public sectors that do not produce for a “market” were excluded from the analysis. Consequently we display the number of firms as a ratio per 100 inhabitants, to correct for neighbourhood population size. The data related to land-use plans was acquired by an in-depth study of the most recent zoning plans of the selected 44 neighbourhoods. To get an idea of the research area, Figure 2.2 on page 34 shows the selected neighbourhoods in Dordrecht and Utrecht.

2.5 Urban residential neighbourhoods, Urban zoning and economic activity

In 2010 a first attempt was made to empirically explore the scale and scope of economic activity in residential neighbourhoods in the Netherlands. This publication of the Dutch Environmental Planning Agency (PBL) deals with residential neighbourhoods in the Netherlands as an aggregate entity within the Dutch economy

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- 2 Neighbourhoods were ranked by socio-economic status. A factor analysis was performed to group seven variables that indicate socio-economic status of the neighbourhood (including income, unemployment levels and data on housing stock) into two variables. Consequently, k-means cluster analysis was used to rank all the neighbourhoods into the categories.
 - 3 The categorization into four types of neighbourhoods is made on the basis of postal code areas. First, only areas with more than 500 residential addresses are selected. This group is divided into three categories: neighbourhoods with a city centre function, neighbourhoods that have an industrial site within them and the residue is categorised as “purely” residential neighbourhoods (Raspe et al., 2010).
 - 4 The National Information System of Employment register (LISA-*Landelijk Informatie Systeem Arbeidsplaatsen*) is based on Chamber of Commerce data supplemented with employment figures at firm level.

Figure 2.2: Map of selected neighbourhoods in Dordrecht and Utrecht



Source: CBS/Kadaster Emmen 2008/BWBS.

and it argues that economic activity in these residential neighbourhoods is losing ground in comparison to other areas. The findings of the PBL illustrate that the number of both firms and jobs in Dutch residential neighbourhoods are lagging behind compared to the national average. What is especially remarkable is that even the figures on knowledge intensive sectors in residential neighbourhoods are below the national average (Raspe et al., 2010). It is debatable whether these nationally aggregated findings are exemplary for more localised urban economies. Putting cities and neighbourhoods in a comparative perspective, as we do in this paper, might show very diverging localised economic trajectories (Kloosterman & Rath, 2001).

Contrary to the conclusions of the PBL, a relatively large part of firm establishments in our selected research cities are located in purely residential urban districts. When we consider all the residential neighbourhoods in Amsterdam, Utrecht and Zoetermeer the neighbourhoods that can be categorised as purely residential house the largest share of all firm establishments in the municipality (respectively, 56%, 53% and 61% in 2007). In Leiden and Dordrecht the residential neighbourhood is not the dominant area of business activity. Here, the share of firm establishments in residential neighbourhoods is, respectively, 21% and 31% in 2007. In four of the five selected cities, purely residential neighbourhoods make up around half of the city districts. In Leiden it is a bit less with one-third. The largest part of the economic activity in these neighbourhoods consists of small firms and self-employed entrepreneurs. On average 60% of all firms consist of one person, while the Dutch average is around 42% (Raspe et al., 2010, p. 36). The most important sectors in the residential neighbourhoods of these five cities are business and consumer services with a combined average share of 69% in the period between 1999 and 2007. This supports the statement made earlier that it is these kinds of post-Fordist economic activities that are suited to be performed in primarily residential areas.

When we look at the number of firms, including self-employed entrepreneurs, in the city as a whole in 2007 we see that Amsterdam (60,000 firms) and Utrecht (20,000 firms) are of a different order than Leiden and Dordrecht (both around 4000 firms) and Zoetermeer (5000 firms). Between 1999 and 2007 an municipal-wide increase in the number of firms can be observed in Amsterdam, Utrecht and Zoetermeer with growth figures of, respectively, 23%, 37% and 65(!)%. However, Dordrecht and Leiden show no growth in this period, with figures of, respectively, 23% and 20.4%. In Zoetermeer the number of firms is growing faster than in the other cities. In addition, it is interesting to see that in this period the share of firms located in residential neighbourhoods is growing substantially as well. Thus, in the case of Zoetermeer, net growth in firms seems to take place within residential neighbourhoods.

We now turn to the detailed analysis of the 44 selected neighbourhoods. For 40 of our 44 neighbourhoods,⁵ the municipalities designed a detailed land-use plan, ascribing specific functions to each built entity on the map. For four neighbourhoods, a more “global” map was designed which differs slightly in its visual representation because it divides the neighbourhood in areas with different colours that refer to the dominant function of that area. Within the land-use plan, some flexibility can still be achieved by assigning “mixed functions” to buildings or allowing the interchangeability of functions. This interchangeability can range from permitting some to all non-residential functions to interchange with each other without extra regulatory burdens. However, the changeability from residential to non-residential functions is not often found due to housing stock regulations.⁶ Every land-use plan consists of a detailed map with functions attributed to each respective building.⁷ The plan also has a detailed explanatory memorandum, which provides information on the neighbourhood. It describes its history and policy considerations, contains detailed zoning regulations, recent developments and future plans for the neighbourhood. As such, the land-use map and explanatory memorandum are determinants of both form and function. For the document analysis presented in Table 2.1 we examined both the land-use map and the accompanying memorandum.

Table 2.1 shows two dimensions of the land-use plan: the number of mapped economic functions (column 2) and the type of spatial economic planning (column 3). The fourth column indicates the publication year of the most recent zoning plan. The last three columns provide information on our outcome variable, the Firm:Inhabitant rate (F:I rate) that reflects the number of firms per 100 inhabitants in each neighbourhood. The F:I rate is presented for 1999, 2007 and the change in F:I rate during this period.

The number of mapped economic functions indicates the actual premises on the land-use map that can be used for economic or mixed functions (quantity). It denotes a + when there is 2 relative to the other functions on the map and compared to the other land-use plans of the 44 neighbourhoods – more premises on the map that allow economic activity or if the (re)development of such physical structure is expressed in the memorandum. Also, the spaces that allow for “mixed functions” are regarded as beneficial to economic activity as is a high level of interchangeability of functions. If both are the case, the denotation is ++.

5 Wittenstein, Mildenburg, Zuilenburg and Vredenburg in Dordrecht have a global land-use plan.

6 In Utrecht and Amsterdam, if one wants to change the residential function of a building to a non-residential function, the number of M² taken away from the housing stock have to be compensated by adding M² for residential use or for compensation, a substantial sum of money has to be paid.

7 Or groups of buildings in the case of the “global” land-use plan.

The type of economic planning refers to the regulation of economic activity in the neighbourhood. This typology of the different forms of planning evolved during the qualitative analysis of the plans and can be seen as grounded in them. We distinguish four types of spatial economic planning: centralisation (C), decentralisation (DC), restriction (R) and lack of economic planning (NO). Centralised economic planning applies when all designated spaces for economic activity tend to be located in one spot while decentralisation implies a spread of economic spaces throughout the neighbourhood. Restriction represents an active limitation of economic activities in the neighbourhood. The presence of local amenities in other neighbourhoods is often used as an argument for this restrictive policy. The neighbourhoods that are characterised by a lack of economic planning have memoranda that do not contain any statements about how economic activity in the neighbourhood should be regulated.

Table 2.1: Analysis of neighbourhood land-use plans

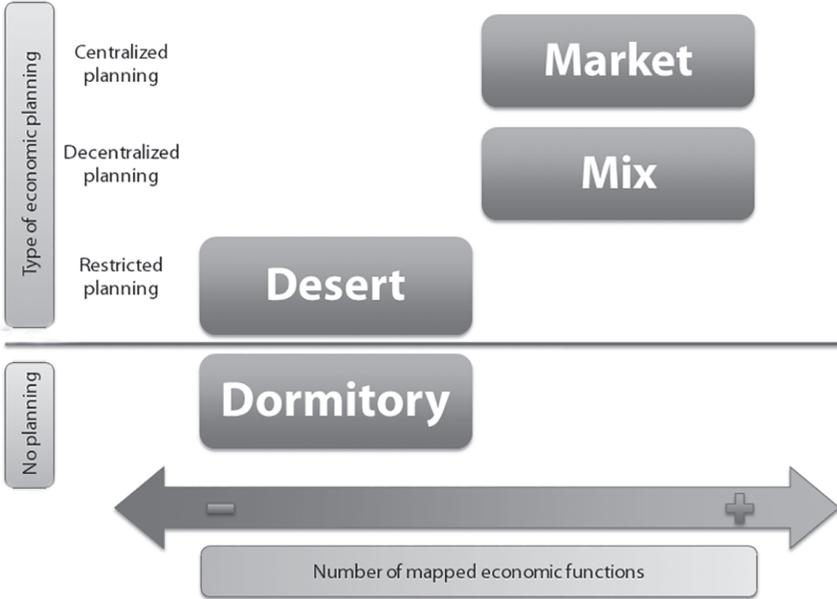
CITY	Neighbourhood	Mapped economic functions	Planning type	Year of publication	F:I 1999	F:I 2007	Growth F:I 1999-2007
AMSTERDAM	Willemspark	++	DC	2002	17.55	21.77	4.22
	Apollobuurt	++	DC	1996	12.40	14.26	1.86
	Helmertsbuurt	+	DC	2005	10.61	11.90	1.29
	De Krommert	+	DC	2002	4.62	6.37	1.75
	Westlandgracht	++	DC	2010	15.32	16.13	0.81
	Overtoomse Veld	+	DC	2004	3.14	3.58	0.44
	Overtoomse Sluis	+	DC	2005	7.14	9.17	2.02
UTRECHT	Buiten Wittenvrouwen	+	DC	1992	12.30	13.50	1.20
	Wilhelminapark	+	DC	2000	7.90	9.50	1.60
	Langerak	-	NO	2002	-	5.35	5.35
	Veldhuizen	+	C	1998	-	3.18	3.18
	Ondiep	++	DC	2006	1.66	3.13	1.47
	Schilderbuurt	+	DC	2000	4.91	6.94	2.03
	Pijlsweerd Noord	-	NO	1994	1.53	3.07	1.53
	Pijlsweerd Zuid	++	DC	1994	6.59	9.01	2.42
De Meern	++	DC	2005	3.14	4.19	1.05	

CITY	Neighbourhood	Mapped economic functions	Planning type	Year of publication	F:I 1999	F:I 2007	Growth F:I 1999-2007
DORDRECHT	Oud-Dubbeldam	+	C	2005	5.05	4.80	-0.25
	Admiraalspln(3)	+	C	2004	5.73	3.48	-2.25
	Mildenburg(4)	-	R	1993	1.57	2.15	0.58
	Vredenburg(4)	+	C	1993	1.91	2.13	0.22
	Crabbefoh -Zuid	+	C	2005	1.55	1.90	0.35
	Dubbeldam -Zuid	-	R	2005	2.14	1.64	-0.50
	Wittenstein	-	R	1993	1.72	1.58	-0.14
	Zuilenburg	-	R	1993	0.81	1.47	0.66
	Kinsbergenst	-	R	2004	1.11	1.35	0.24
	Ewijkstraat	-	R	2004	1.16	1.12	-0.04
	ZeehavenIn	-	R	2004	0.77	0.96	0.19
	Crabbefoh -Noord	-	R	2005	0.87	0.80	-0.07
	D. Rijkersstr	-	R	2004	0.15	0.00	-0.15
ZOETERMEER	Rokkeveen West	+	DC	2007	1.88	4.02	2.14
	Rokkeveen Oost	+	DC	2007	1.15	2.52	1.38
	Seghwaert NO	-	NO	2006	1.20	2.43	1.23
	Seghwaert ZW	+	DC	2006	1.78	3.19	1.42
	Meerzicht W	+	DC	1999	1.70	2.41	0.71
	Meerzicht O	+	DC	1999	1.27	2.07	0.80
LEIDEN	Raadsherenbuurt	-	NO	1975	2.57	3.26	0.69
	Houtkwartier	-	NO	1993	3.06	3.21	0.16
	Waardeiland	-	NO	2008	1.32	2.04	0.72
	De Kooi	+	C	2003	1.69	1.80	0.11
	Noorder-kwartier	-	R	2003	1.70	1.65	-0.05
	Slaaghwijk	-	R	2006	2.05	1.64	-0.41
	Kloosterhof	+	N.A.	2008	1.00	1.46	0.46
	Schenkwijk	+	C	2008	1.96	1.86	-0.09
	Dobbewijk-Zuid	-	R	2008	0.73	1.15	0.42

Notes: DC, decentralised planning; C, centralised planning; R, restricted planning; NO, no economic planning; +, high no. of ec. functions; ++, high no. of ec. functions and mix functions/interchangeability; 2, low no. of economic functions.

Quite straightforward, we expect to find higher number of firms in neighbourhoods that allot more space to “economic activity”. We expect restrictive planning to go hand in hand with a lower number of firms in the neighbourhood. However, it is less obvious how other types of economic planning relate to the number of firms in a neighbourhood. Visualizing the two dimensions of zoning plans as two axes, four types of economic zoning are distinguished (Figure 2.3). It is important to note that these four types function as ideal types, offering a stripped-down image of quite detailed and complex land-use plans.

Figure 2.3: The land-use planning typology



The Market

A neighbourhood square surrounded by low rise shops, sometimes topped with residential flats and accompanied by abundant parking space. This image is typical for the concentration of economic activity of the neighbourhoods that we categorised as “market”. These neighbourhoods have a land-use plan that expresses the policy preference to develop the primacy of one local neighbourhood shopping centre, which is usually located on a neighbourhood square. The land-use maps thus often display a number of buildings that can contain economic activity, albeit limited and very much concentrated in one spot.⁸ This type is predominantly present in Dordrecht and Leiden. The centralised economic zone is designed to contain businesses ranging from retail to all sorts of services. In concurrence, the dispersion of business activity outside this local shopping centre is often expressed as

8 The neighbourhoods Mildenburg and Vredenburg in Dordrecht form an exception to this. The neighbourhood shopping centre is located exactly on the “border” of these two neighbourhoods. Both zoning plans only pay marginal attention to economic activity, simply stating the number of M2 designated for business and retail and the preference for not expanding the economic activity throughout the neighbourhood. (This might also have to do with the fact that the zoning plans for these neighbourhoods are of a “global” nature.)

something that “should be limited” or is even “unwanted” in the explanatory memorandum (explanatory memorandum zoning plan Zuilenburg and Vredenburg, p. 17). This negative stance towards the scattering of business activity is expressed by the limited amount of built space that is assigned a “business” or “mixed” function outside the neighbourhood shopping centre. Seven of the 44 neighbourhoods can be considered a market-type. The F:I rate for the market is reasonably high in 1999, but they show very small or even negative growth rates for 2007. There is a limited growth potential to neighbourhood shopping centres. When there is no room for economic activity or mixed functions outside the neighbourhood shopping centre, the capacity for economic growth both in size of firms as well as in number of firms is delineated and limited. The lack of growth potential could possibly be ameliorated by positive attention for home-based business or attention for small- and medium-sized enterprises on a higher policy level. We observed that many “market-neighbourhoods” are surrounded by neighbourhoods that can be characterised as “Deserts”.

The Desert

Many of the “desert” type neighbourhoods are post-war neighbourhoods characterised by a mix of low- and high rise buildings. Some of these neighbourhoods are dealing with a combination of social and economic deprivation. This type is subjected to a strict limitation policy when it comes to economic activity and is often within direct influence of the shopping centre that is located in an adjacent neighbourhood. The land-use plan for this type of neighbourhood often stresses the availability of services and retail in an adjacent neighbourhood as an argument to limit the amount of local space for economic activity. We identified twelve of the 44 selected neighbourhoods as “deserts”. In terms of the number of business establishments, the economic performance of these neighbourhoods is poor, with generally low F:I rates for 1999 and very small or negative F:I growth rates. There are hardly any or no allotted spaces for economic functions in this type, thus offering no prospects for firms that want to expand due to, for example, firm growth. Furthermore, for home-based businesses in these kinds of neighbourhoods, it is impossible to find business space in their “own” neighbourhood in case of a firm relocation. And since houses in this type of neighbourhoods are oftentimes not very spacious, the growth of home-based business is hampered. This situation might be ameliorated by a lenient position towards home-based business in the land-use plan, including possibilities for adjustments to the house, or with special attention for small- and medium-sized enterprises in the city structure plan. For instance, some of the neighbourhoods with low social economic status in

Dordrecht⁹ have been appointed as neighbourhoods that should receive special economic attention in the coming years. This might improve their economic position in the years to come.

The Mix

Many of the “mix” neighbourhoods are more varied in building style and appearance than the “desert” neighbourhoods. The neighbourhoods that are set up according to the “mix” type have a land-use map with quite a number of mapped functions that are designated as “economic” or “mixed functions”. These neighbourhoods do not have one delimited shopping centre, but instead shops and business are scattered along a few (mostly two or three) main streets. The land-use plans often emphasize the economic vitality and diversity of functions in the neighbourhood and can be seen as areas that policy makers might have in mind when stressing intensive use of existing space and mixing of functions. In our sample, there are eighteen neighbourhoods that can be characterised as “mix”. The zoning plan for Rokkeveen-West and Seghwaert ZW, for instance, notes that that a choice was made for low-rise building, explicitly leaving room for neighbourhood amenities and “small businesses like galleries, dentists, physicians and offices” (explanatory memorandum Seghwaert, 2006, p. 21). Especially the Amsterdam neighbourhoods are characterised by a high degree of interchangeability. For instance, the explanatory memorandum for the Helmersbuurt states that the neighbourhood has three “economic axes” along which the interchangeability of (non-residential) functions is almost completely unrestricted (p. 50). These neighbourhoods have land-use plans that overall contain more “innovative” elements that might be beneficial for vital neighbourhood economies such as extending the maximum nuisance levels (Amsterdam, Helmersbuurt) and influencing the type of economic activity to attract higher quality businesses (Utrecht, Buiten Wittevrouwen). As for the number of firms, we can observe that the F:I rates are quite high. In some cases the number of firms in the “mix” neighbourhoods is similar to the “market” type, but especially in some of the Amsterdam and Utrecht “mix” neighbourhoods, the F:I rates are much higher even. The main difference between the “market” and the “mix” can be observed in the F:I growth rate which is much higher in the “mix” type. A high degree of flexibility, interchangeability and a mix of residential and economic functions seem to attract more start-up firms.

9 Van Kinsbergenstraat, Ewijkstraat, Zeehavenlaan, D. Rijkersstraat get special attention in the city structure plan, published in 2008.

The Dormitory

The dormitory type is characterised by a lack of mapped economic functions in the land-use map. Calm, spacious residential areas build in the latter part of the twentieth century are emblematic within this type of land-use plan. At the same time, no explicit economic policy or regulation can be attributed to this type of neighbourhood. As such, it partly falls outside of the two dimensions in the typology and is different from the “desert” because economic activity is not explicitly restricted. We could identify six neighbourhoods of this type in our sample. The lack of economic premises in this type of neighbourhood is the result of conservative or “containment” land-use planning, due to (re)focusing on a different neighbourhood function. The latter is the case in the *Wilhelminapark* (Utrecht) neighbourhood where the zoning plan stresses a renewed focus on the park function of the neighbourhood. The zoning plan for *Waardeiland* (Leiden) states that this neighbourhood has a leisure function due to the small marina on its grounds. Also, the architectural homogeneity and high-value residencies are mentioned as arguments for its conservative land-use plan. Most interestingly, all of the “dormitory” neighbourhoods have reasonably high F:I rates, a few of them even higher than some of the “market” types. Most likely, the economic activity in these neighbourhoods is largely “invisible”, in the form of home-based businesses. The dwellings are generally spacious and attractive, providing a pleasant living environment and probably also a comfortable working environment. The recently built neighbourhood *Langerak* in Utrecht is an example of a “boom” of business activity. The combination of modern dwellings and a lack of regulation toward home-based economic activity seem to drive the large number of firms in this neighbourhood.

The typology that we derived from the land-use plans offers a framework for conceptualizing policies that are applied to the urban neighbourhood economy. In general, a high number of mapped economic functions, as expected, goes together with a high number of firms relative to the population size (F:I ratio). However, combined with a centralised planning type, the growth potential of the neighbourhood economy is limited, as is the case in the “market” type of neighbourhood. As we can observe in the “Dormitory” neighbourhood, a low number of mapped economic functions does not always result in low F:I rates. Since Dormitory neighbourhoods have hardly any visible economic functions on the land-use map, the F:I rate is presumably foremost a reflection of home-based economic activity. These seemingly sleepy neighbourhoods might actually be prone to function as incubator areas for small or new firms. Table 2.2 presents an overview of the aggregated F:I rates for each planning type.

Table 2.2: F:I rates and F:I growth per planning type

Planning type	<i>N</i>	F:I 1999	F:I 2007	Growth F:I 1999-2007
Market	7	3.03	2.74	-0.29
Mix	18	6.43	7.94	1.51
Desert	12	1.23	1.29	0.06
Dormitory	6	1.94	3.23	1.29
Total	43	3.16	3.80	0.64

2.6 Testing the typology

In this section we will test whether the typology presented in the previous section – the linkage between the type of planning and the F:I rate and F:I growth in different neighbourhoods – holds statistically. We cannot perform any parametric tests on the raw data since it is derived from a population that we cannot assume to be normally distributed. However, it is possible to perform a non-parametric test on the F:I rates when we rank them. Consequently, low scores on the F:I rate are represented by low ranks, and high scores on the F:I rate are represented by high ranks. The main disadvantage of data-ranking is that we lose information on the exact magnitude of differences between scores (Gibbons, 1993). In this analysis we opted to use the Mann–Whitney and Kruskal–Wallis test.¹⁰

For the Mann–Whitney test the sample is split along the axis of the land-use planning typology (as presented in Figure 2.3) that indicates the level of mapped economic functions as high ($N=25$) or low ($N=19$). The second test is the Kruskal–Wallis test. For this test we split the sample along the other axis of the zoning typology: the types of economic planning. For both tests, we look at the F:I rate in 2007 and the F:I growth rate, the latter signalling growth or decline of the number of firms in each neighbourhood for the period 1999–2007.¹¹ Tables 2.3 and 2.4 show the test results for both tests.

¹⁰ The Mann–Whitney test is considered to be the non-parametric alternative to the student's T test or ANOVA test. The Kruskal–Wallis test is the non-parametric counterpart of one-way ANOVA (Gibbons, 1993).

¹¹ For this test holds that $N=42$, because growth rates could not be established for the two young Utrecht neighbourhoods Langerak and Veldhuizen since their population numbers are not available for 1999.

Table 2.3: Mann–Whitney test

Number of mapped economic functions	N	Median	Mann-Whitney U	Z	Exact Sig. (1-tailed)	Effect size
<i>F:I rate 2007</i>						
High	26	3.80	70.00	-3.92	.000	.59
Low	18	1.64				
Total	44					
<i>F:I growth rate (1999 – 2007)</i>						
High	25	1.29	94.00	-3.04	.001	.47
Low	17	0.19				
Total	42					

The Mann–Whitney test (Table 2.3) indicates that neighbourhoods with a high amount of mapped economic functions (the Market and the Mix) have significantly higher F:I rates in 2007 than neighbourhoods with a low amount of mapped economic functions (the Desert and the Dormitory). This is what we expected and it indicates that the buildings designated for economic activity in the neighbourhood are actually also used as such. Moreover, neighbourhoods with land-use plans that have a high number of mapped economic functions generally display significant higher F:I growth rates. The effect sizes are quite large, indicating that specific land-use zoning is strongly related to the existent daily practices in the neighbourhood. In this sense the conditionality of the zoning map has consequences for local economic reality.

Table 2.4: Kruskal–Wallis test

Type of economic planning	N	Median	Mean Rank	Chi-square (H)	Assymp sig.	Df
<i>F:I rate 2007</i>						
Centralised planning (Market)	7	2.13	20.57	28.21	.000	3
Decentralised planning (Mix)	18	6.65	31.83			
Restrictive planning (Desert)	12	1.41	7.08			
No planning (Dormitory)	6	3.14	24.00			
Total	43					
<i>F:I growth rate (1999 – 2007)</i>						
Centralised planning (Market)	6	0.01	8.83	29.21	.000	3
Decentralised planning (Mix)	18	1.56	31.50			
Restrictive planning (Desert)	12	-0.045	10.58			
No planning (Dormitory)	5	0.72	22.80			
Total	41					

For the results of the Kruskal–Wallis test (Table 2.4) we first look at the column “mean rank” which shows that the neighbourhoods with decentralised planning rank the highest on F:I rates (mean rank=31,83). In addition, it shows that neighbourhoods that are characterised by restrictive planning (the Deserts) have the lowest F:I rates in 2007 as well as very small F:I growth rates. This seems plausible, since planning in these neighbourhoods is geared toward restricting economic activity. However, it is remarkable that neighbourhoods led by centralised planning show even slightly lower mean ranks (based on F:I growth rates) than those characterised by a restrictive planning type. Thus, even though Markets have a large number of mapped economic functions, they show very limited growth potential. Another interesting observation concerns the relatively favourable position of the neighbourhoods with no specific economic planning (Dormitories) for both the F:I rate in 2007 and F:I growth rate. The lack of economic planning in these neighbourhoods is accompanied by a small number of formal mapped economic functions, but still, there seems to be a lot of “unmapped” economic activity going on in these neighbourhoods.

Table 2.4 shows the advantageous position in F:I growth rates of Dormitories, and even Deserts, in comparison to Markets. This indicates that centralised planning is strongly negatively related to the growth of economic activity. It is interesting to see that the Dormitory even marginally surpasses the Market type of neighbourhood when we only look at the F:I rate of 2007. Since the Market has more mapped economic functions, these neighbourhoods are expected to have a higher F:I rate than Dormitories. However, the mean ranks of the KW-test on the F:I rates in 2007 shows that this is not so obvious, and that space assigned to economic functions alone is not a sufficient condition for a high number of firms. Location of these built spaces and the regulations that accompany them are of equal importance. We see that the neighbourhoods with decentralised planning and an emphasis on economic functions are outperforming all other types of neighbourhoods in both F:I rate and F:I growth.

Overall, the tests show that residential neighbourhoods with land-use plans that intend a notable amount of built space to be used for economic activities, be it buildings that are specially designed for business or buildings that allow for interchangeable use, rank higher on number of firms that operate from these neighbourhoods. Allotting physical space to economic functions thus seems to matter. However, the different planning types show that other factors also play a crucial role in the development of the neighbourhood economy. Some of the neighbourhoods that lack built space for economic functions still have relatively high F:I rates. Interestingly, when we compare “Markets” to “Dormitories”, we observed that the latter are actually performing better on both F:I rate and F:I growth rates. This seems to reinforce the proposition that Dormitories are possible incubators for entrepreneurs starting from home.

When interpreting the results mentioned above, it is important to keep in mind that policy goals stated in these land-use plans probably also reflect a certain “base rate”. Land-use planning is influenced by the historically present level of economic activity in a specific neighbourhood and the plan also serves as a reflection of the physical environment. After all, it is not always possible to “add” buildings or redevelop existing ones if policy goals change. However, once a certain “base rate” of economic activity is in place, land-use plans have the ability to secure business locations as qualities of space on the neighbourhood level, making sure business activity is facilitated. At the same time, land-use plans (as sediments of policy goals) can restrict (future) business space, for instance, by explicitly stating that it is unwanted outside neighbourhood shopping centres or at certain locations. In this sense, the process is a two-way street in which economic activities are both influencing as well as influenced by the zoning plan. The land-use plan is a way to facilitate or prohibit certain activities in the neighbourhood; however, it cannot cause firms to locate in specific areas.

The reciprocal relation between the land-use plan and observed economic activity is also influenced by factors that go beyond the scope of this paper. For example, if we compare Table 2.1 with the detailed description of the neighbourhoods (see Appendix I) we can observe that neighbourhoods of high social economic status are generally doing better in number of firms. This holds between cities as well as within cities and might have to do with the overall image of a neighbourhood, or with the educational attainment of residents. Maybe there is also more local market demand in the wealthier neighbourhoods. The nature of the data does not allow judgements regarding the reasons for this difference.

2.7 Conclusion and discussion

Although relatively unexplored for its economic significance, the urban residential neighbourhood is an appealing research area where various macro social and economic developments intersect at the micro level. In this paper the local regulatory framework and land-use zoning practice of residential neighbourhoods in connection to local economic activity was the starting point of our research. Land-use planning can be an influential instrument in shaping the economic vitality of a neighbourhood since it has legal implications. Changes in the organisation of production have increased opportunities for small firms. These firms can settle in residential neighbourhoods provided that the local regulatory framework is supportive. We have explored this local regulatory framework and observe that it is an important conditioning link between urban form and economic practices. The dialectic link between urban landscapes and local economic practices (Soja, 1980;

Knox, 1991) is mediated by the local regulatory framework, in which the land-use plan is conditional for the form and functioning of both urban space and local economic production systems.

We have observed that in Dutch urban residential neighbourhoods, diverse policies toward economic activity are applied. Two important distinctions in Dutch land-use plans are the “number of mapped economic functions and the type of economic planning”. These two dimensions result in four types of neighbourhood economies. The main characteristic of the “market” is centralisation, locating all business activity in a limited and central location in the neighbourhood. This specific practice of zoning implies a limited growth potential and seems to have stronger negative effects on economic activity than a lack of economic zoning. The “mix” type of neighbourhood combines a high number of mapped economic functions with a decentralisation policy. It might be the case that the presence of several main streets of economic activity allows for a “trickling down” effect, attracting economic activity in adjacent streets as well. In the “desert”, economic activity is explicitly barred from the neighbourhood. Explicitly restricting economic activity is a conscious choice, but it is also detrimental for the type of economic activity that is not related to any type of environmental nuisance. The “dormitory” type of neighbourhood shows a general lack of economic zoning and has no apparent economic planning. This might not always be accompanied by a lack of economic activity due to high numbers of home-based business that are not apparent in the land-use plan. A “vacuum” with regard to economic policy in these neighbourhoods might actually create room and lenient – because of lack of – rules for entrepreneurs starting from home.

We have investigated which existing built structures and regulations as captured in land-use plans are favourable to accommodating firms. Most surprisingly, we found seemingly sleepy neighbourhoods, in terms of the local zoning practices, to contain a substantial amount of business activity. This strengthens the ideas about post-Fordist economic activities as suitable to be performed from home or workspaces adjacent to residential spaces. Advancements in ICT technology make entrepreneurs, and teleworking employees, more flexible in managing their work, both spatially and temporally. In this sense, the home and the residential neighbourhood become a more integral part of working life (Green et al., 2000). Neighbourhoods that are planned and regulated according to the degree of separation of functions offer the least fertile ground for flexible “new” economic activities. It shows that a diverse and vital neighbourhood economy cannot be planned, but only planned for, by providing frameworks that are beneficial to local economic development (Scott, 1998).

The findings of this paper are based within the Dutch regulatory framework where top-down spatial planning is (still) the predominant mode of practice. The

specificity of the Dutch land-use plan thus contextualizes the results. In, for example, Belgium, zoning rules are much more lenient. However, in the Netherlands, as in other European countries, there is a general policy idea that mixed neighbourhoods are the way to create sustainable communities for the future. Our findings suggest that generally, centralised and restrictive planning is related to small growth of local economic activity. If local governments want to stimulate mixed neighbourhoods, it is wise to look at how spatial plans are organised and to avoid centralised planning practices where economic activity is concentrated and confined to a specific locality in the neighbourhood. This might be difficult when the build environment is more an outcome of market-led development, and less the outcome of governmental spatial planning (for example in the US). In the past, real estate investors seemed primarily interested in investing in large scale mono-functional projects. However, the demand for offices, retail and apartments real estate in mixed areas is increasing, which is reflected in higher property values and investment returns (Pivo & Fisher, 2011). This might lead to different practices, also in private planned real estate developments.

If the policy discourse of mixing functions is to find its way to the reality in neighbourhoods, these neighbourhoods and their land-use plans are in need of more fundamental changes. Although the residential neighbourhood might not often house large firms, it definitely seems a place for small firms, and a place that facilitates starting businesses whose presence (and potential growth) can be beneficial to the city as a whole. Economic development on the city-level is important, but land-use plans and local policy can partly influence which neighbourhoods “win” economic activity and which neighbourhoods lose out. In accordance with earlier research on local zoning and efficient land use (Farmer, 2003) we think that residential neighbourhoods can perform very well economically without investments in costly redevelopment projects. Making land-use regulations more flexible and applying “enlightened” zoning practices can increase the economic potential of these areas (Farmer, 2003). To be sure, we do not wish to advocate a view of city governments whose sole focus is the economic attributes of neighbourhoods. However, we do think that changing economic structures have opened up a “window of economic opportunity” for residential neighbourhoods.

For future research, it is interesting to investigate what strategies local governments can take to increase the flexibility of their land-use plans, which might decrease the “response time” with which they can be updated to suit changing economic structures and urban planning needs. As has been discussed in paragraph 3, recent changes in Dutch planning policy offer some new possibilities for municipalities to increase the flexibility of zoning plans by starting to develop zoning plans for “mixed areas”. Also, putting zoning practices of different countries in comparative perspective might offer interesting research opportunities. It is

also worthwhile to examine how spatial regulations are related to the type of firms found within residential neighbourhoods. The post-Fordist economy offers possibilities for economically vital, lively urban residential neighbourhoods. Providing space for (starting) entrepreneurs in residential neighbourhoods and flexibility towards their needs can contribute to a viable urban economy. Future research on land-use plans could increase our knowledge on the interaction between policy goals, legal restrictions and the spatial configuration of neighbourhood economies. We hope that the typology of neighbourhoods, according to land-use plans in relation to economic activity, might serve as a comprehensible tool in the design and further research of the effects of land-use plans.

3 Real Estate Determinants of Firm Relocation in Urban Residential Neighbourhoods*

The case of Amsterdam , the Netherlands

Abstract: Real estate factors, such as property ownership, size and age, are generally not accounted for in research on revealed relocation decisions of firms. This is remarkable, as entrepreneurs often suggest that real estate characteristics at the property level provide an explanation for firm relocation behaviour in addition to more-frequently tested drivers of firm relocation. We assess the role of real estate determinants, focusing on firms in urban residential neighbourhoods, differentiating between firms located in residential and commercial properties. We find that property ownership is negatively related to relocation likelihood, while being located in property with multiple users is positively related to relocation likelihood. For firms in residential properties high property age and large property size limits firm relocation. Our findings confirm that real estate characteristics are important determinants for relocation likelihood of firms, suggesting that the structure of neighbourhood housing stocks can be linked to the mobility pattern of local firms.

3.1 Introduction

The location of firms is one of the main concerns of economic geography, suggesting that ‘place matters’ in economic development. In the search for the importance of place for national or regional economic processes, empirical studies focus on whether and how location characteristics affect firm performance. Many studies assess the effects of the local market, accessibility, industrial clusters, the local workforce, legal institutions and less tangible sets of locally exclusive factors

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on firm performance. In turn, the performance of firms at a given location also influences the economic development of geographically delineated entities, ranging from the very local economic structure of urban neighbourhoods to the more macroeconomic configuration of cities, regions and countries.

Firm location is the outcome of either a firm's start-up location choice or the relocation choice of an established firm. Traditionally in location studies, start-up firm locations have received more attention than established firm relocations – this is especially true as a result of theories emphasising the importance of start-up firms and entrepreneurship for economic growth (Birch, 1987; Wennekers & Thurik, 1999). Nonetheless, the literature on firm migration and relocation is burgeoning (Brouwer et al., 2004; Holl, 2004; Mariotti, 2005).

The distinction between the firm location and relocation process is essential because forces guiding firm relocations are different from forces guiding primary location decisions: “[T]he firm has a history, and this history is likely to have an influence on the locational outcome of the process. This locational outcome is therefore *conditional*”¹ (Pellenbarg et al., 2002:111). Unlike a start-up firm, when an established firm decides to relocate, the original location plays a role in this process. Therefore, a firm's relocation provides information on the *differences* between the original and destination locations, revealing which location characteristics matter to the relocated firms and to their entrepreneurs.

Relocation studies often focus on entrepreneurial characteristics, firm characteristics and neighbourhood features to determine the drivers of firm relocation (Sleutjes & Völker, 2012). These studies, however, overlook factors linked to the nature of the former and current real estate locations. Generally, the effect of real estate characteristics does not receive much attention in urban economic theory (D'Arcy & Keogh, 1999). More recent empirical work that does take property characteristics into account, is founded primarily on the results obtained from surveys that look at stated preferences for potential future firm relocation (Van Dijk & Pellenbarg, 2000; Hu et al., 2008; Knobens & Oerlemans, 2008). Although valuable, these small-scale empirical studies focus only on the theoretical relocation behaviour of firms; therefore, they do not know the firm's actual reasons for relocating.

This article takes real estate characteristics into account when modelling the relocation probability of firms. The aim is to assess whether real estate characteristics at the property level provide an additional explanation for relocation behaviour, next to the more frequently tested drivers of relocation such as firm growth, firm age and firm size. In addition to controlling for firm-related factors, we also take several socioeconomic and accessibility factors at the neighbourhood level into account because firms are embedded in their communities (Trettin & Welter,

1 Italics are part of original text.

2007). Our insights may be of value to policymakers in developing planning tools concerning property characteristics influencing the relocation behaviour of firms in urban residential neighbourhoods.

To address the issues raised above, data from residential neighbourhoods in Amsterdam were collected and analysed. We were able to combine data based on information obtained from firms registered with the Chamber of Commerce with data obtained from property descriptions from the municipality of Amsterdam at the firm level. The study specifically focuses on the relocation behaviour of firms in residential neighbourhoods as this micro geographical setting provides both a diverse supply of real estate and a diverse firm population, including home-based businesses (HBBs). An additional reason to study firm relocation behaviour in urban residential neighbourhoods is the local nature of firm relocations in general. Empirical studies on firm relocation are often based on migration between cities or regions (Maoh & Kanaroglou, 2007). However, in advanced economies, approximately 75% of firm relocations are intra-municipal (Moeckel, 2007; Van Oort et al., 2007; Huisman, 2012; Maoh & Kanaroglou, 2007; Pellenbarg & Knobens 2012). These intra-municipal relocations take place between or within neighbourhoods, rendering features of the neighbourhood of origin as potential drivers of firm relocation.

The following section presents a theoretical argument on what drives firm relocation in urban residential neighbourhoods. In Section 3, the research method and descriptions of the data are presented. Section 4 addresses the results of the binary logistic regression models. Conclusions and policy implications are pointed to in Section 5.

3.2 Theoretical framework

The relocation of a firm is strenuous for the actors involved. Both entrepreneurs and employees see their daily routine disrupted, for better or for worse, and the actual move to a different property eats precious time, money and energy. Thus, a firm's decision to relocate is not taken lightly or instantaneously, and it occurs in different ways, depending on the size, structure, culture and type of organisation of the firm and depending on the external characteristics of the environment.

Table 3.1 provides a concise categorisation of relocation factors in which we distinguish between internal factors and external factors. Internal factors influencing firm relocation behaviour are either the characteristics of the entrepreneur or firm characteristics, such as firm size, firm growth and sector. These factors are internal to the firm and are related to the individual decisions of the entrepreneur. External factors also influence the decision to relocate. Here we make a distinc-

tion between firm related location factors and environment related location factors. Firm related location factors are measured at the individual level of the firm. However, they are external to the firm because they include features related to location. For example, real estate characteristics of the firm's business property are considered firm related location factors. Environment related location factors are not measured at the individual level of the firm. Instead they are measured at a higher geographic level. For example, neighbourhood characteristics, as an embedded level of firm relations and certain agglomeration economies, play a significant role in firm relocation decisions.

Table 3.1: Categorisation of relocation factors

Internal factors	Characteristics of the entrepreneur
	Characteristics of the firm
External factors	Firm related location factors
	Environment related location factors

Firm-external factors can be categorised into *push* factors (the decision *to* relocate) and *pull* factors (the decision *where* to relocate). In this paper, we have taken an eclectic approach and tested whether adding business property factors to a model encompassing firm and neighbourhood level indicators helped to model and explain a firm's decision to relocate. As a consequence of this approach, in the analysis, we have only accounted for push factors, *i.e.*, features of the former location (for a study of pull factors, see, for example, Bodenmann & Axhausen, 2012).

Internal and external drivers of relocation can either be 'tangible' or 'non-tangible.' Hard, tangible factors are characterised as objectively quantifiable. Soft, non-tangible factors are those that express a preference that cannot be supported by rational arguments, reflecting particular emotional and cultural values (Musterd et al., 2007). In this paper, we focussed on explaining firm relocation by the harder, 'tangible' factors mainly because of data availability. However, softer factors and personal preferences influence the relocation decision-making process as well (Greenhalgh, 2008). For example, entrepreneurs have social and business ties that influence the likelihood of relocation (Dahl & Sorenson, 2009). They might also have lifestyle preferences that could influence the probability of relocation (Jarvis & Pratt, 2006; Mackloet et al., 2006). Additionally, individual preferences for the look and feel of a property have become a more important factor, especially in the location behaviour of cultural industries (Drake, 2003; Ley, 2003). Regarding ex-

ternal environmental factors, quality of life factors and 'local buzz' are increasingly important location factors and are therefore assumed to influence relocation decisions for both residents as well as firms (Florida, 2004; Storper & Venables 2004; Currid-Halkett, 2007).

Ultimately, a firm's relocation choice is related to a combination of factors that in turn are likely to be interrelated. For example, firm size might be related to the entrepreneur's lifestyle preferences and the firm's growth ambitions, which likely translate to a preferred property size and type. Despite these interdependencies, the relocation factors that are key in our analysis will be discussed independently in the following sections for the sake of clarity.

Internal relocation factors

Factors that influence firm relocation are hypothesised in neo-classical, behavioural and institutional location theories (Hayter, 1997). (Neo-)Classical location theory in economic geography assumes that an entrepreneur is a well-informed, rational human being. He or she makes rational location choices based on cost-efficiency in terms of needed production factors, distribution markets and transportation costs (Von Thünen, 1966; Weber, 1969). As firms operate in a dynamic environment in which the firm's internal and external factors can change, the optimal location may change over time and cause a firm to relocate. Given the fact that transaction costs of an actual relocation are substantial, firms often stay in a location that is not considered optimal from a neo-classical perspective. If the profit of leaving is lower than the profit realised by staying, firms will choose to operate in the margins of profitability (Smith, 1966).

However, if actual relocation occurs, several factors may have played a role. First, neoclassical theory assumes that economies of scale lead to firm growth because larger firms are more profitable than smaller firms due to diminishing transaction costs. Growing firms will eventually need a larger workspace, and empirical evidence indeed shows that firm growth is one of the most important push factors for firm relocation (Cooke, 1983; Brouwer et al., 2004; Van Oort et al., 2007; Pellenbarg, 2005). Second, neoclassical economic theory assumes that the larger the market demand, the more likely profits are to increase. Firms that supply a local market are less prone to relocate because they depend on local demand, taking for granted that this demand does not rapidly diminish over time. If the demand diminishes, dependence on a local market would lead to firm relocation. Firms that supply larger geographic markets are more flexible in their location choice, serving markets less dependent on physical distance. Firms active in business services or information and communication often do not depend on the local market and are therefore more likely to relocate than those firms who are

dependent upon local markets. With regard to the use of real estate, the service and information and communication sectors also have less sunk costs related to the use of their property and are therefore more mobile than other firms (De Bok & Van Oort, 2011).

The factors mentioned above presuppose that economic actors are rational agents that strive for profit maximisation. However, entrepreneurs might, for example, combine work with care-taking tasks (Risselada & Schutjens, 2012). Like profit maximisation, economic actors are also bound by their rationality. Entrepreneurs have limited knowledge concerning the optimal location. Behavioural economic geography accounts for this bounded rationality and knowledge and assumes that the application and analysis of information, and the firm's ability to act upon this information, are of importance in relocation choice (Pred, 1966). Small firms are more bounded by the amount of information they receive because of limited resources (Greenhalgh, 2008) and because "information channels are typically more highly personalised around certain key decision-makers and rely more on informal contact." (Hayter, 1997:141). The liability of "smallness" makes younger firms more likely to fail (Brüderl & Schüssler, 1990), but if growth ambition is present and hurdles to creating a successful business are overcome, then small firms will need to expand and are more likely to relocate, especially at the intra-municipal level (Brouwer et al., 2004; Stam, 2003). Moreover, with firm growth and firm age, the firm is more able to process and apply information on the optimal location, thereby influencing the relocation likelihood.

Institutional location theory advocates that motivation for certain actions is influenced and embedded in local rules, norms and regulations. Firms do not operate in a social and cultural vacuum; instead, they are rooted in (place-) specific institutions. For example, the Dutch planning regime has quite stringent zoning rules at the neighbourhood level (Folmer & Risselada, 2012). At the firm level, this institutional framework might affect certain sectors more than others. For example, environmental rules do not allow polluting firms to be located in a residential neighbourhood. These laws can be implemented to force firms to relocate. Moreover, to regulate economic activity at the neighbourhood level, zoning by-laws often forbid economic activities from home if they cause noise or parking nuisances (Lynes & Murray, 2009). Policy can also influence firm relocation behaviour by, for example, distributing regional grants for firms that relocate to a specific area. These location subsidies have a positive effect as a pull factor, especially when localisation economies stemming from clustered firms in the same industry are in effect (Devereux et al., 2006).

External relocation factors

The focus of this study is on the relation between business property characteristics and the likelihood of firm relocation. Below, we formulate seven hypotheses on how business property characteristics influence relocation behaviour of firms. After stating these hypotheses, we also indicate which neighbourhood level factors are controlled for and give a concise theoretical reasoning for the use of these neighbourhood control variables.

When distinguishing between firms located in commercial properties and home-based firms, we hypothesise that due to fixed rental terms and larger sunk costs, firms located in commercial properties encounter higher transaction costs and are therefore less likely to relocate than firms based at the entrepreneur's home. Also, comparing the average yearly relocation of households and firms in the Netherlands, we can see that the annual percentage of relocation of private households is approximately 9% (Statistics Netherlands, 2009), while the annual relocation of firms (in both commercial and residential properties) is approximately 4% (Van Oort et al., 2007). One may expect that the higher relocation propensity of private households will lead to a higher relocation likelihood of HBBS in comparison to firms in commercial properties.

Hypothesis 1: Firms located on commercial property are less likely to relocate than HBBS.

The availability of real estate plays a constraining role in firm relocation decisions. In the Netherlands, lack of floor space is one of the main reasons for firm relocation (De Bok & Sanders, 2005; Mensen & Rijt-Veltman, 2005). During our period of research, readily available units of property were scarce, and the supply could not easily be adjusted to a changing demand. Moreover, the real estate market is heterogeneous. Different commercial properties may meet a firm's needs to varying degrees. However, a firm cannot combine different available units to create the most desirable property. Rather, the firm must choose an available property that meets the requirements of the firm in the best possible manner. Mobility within the commercial real estate market is thus complex and supply oriented. "Real estate property is locationally specific and generally immobile." (Adams et al., 2001:454). Because of the immobile nature of the real estate market and due to the larger transaction costs of the ownership rights in comparison to tenure rights, we expect that firms that own their property will be less likely to relocate than firms leasing their property (Van Dijk & Pellenbarg, 2000).

Hypothesis 2: Property owners will be less likely to relocate than firms located on leased property.

A firm's relocation choice is a bounded decision influenced by the type and availability of business properties. However, the restrictive nature of the real estate market can provide municipalities with a powerful tool to accommodate market-led property regeneration in geographically targeted areas by creating, for example, Urban Development Corporations (Turok, 1992) and Business Improvement Districts (Ward, 2006). More detailed scientific studies on firm relocation behaviour vis-à-vis real estate characteristics do not exist. As Lizieri (2003) states, "Changes in business environment associated with globalisation, innovation in information and communications technologies and the drive towards more flexible production systems should be reflected in changes in occupational requirements of property. Although much research assumes that property, as a derived demand, will simply be supplied in response to changed demand, in practice, the institutional structure of the market can act as a constraint on the provision of appropriate space." (Lizieri, 2003:1151).

Lizieri suggests that a key element of the changing needs in commercial real estate markets is an increased need for flexibility. The growing number of flexible, self-employed entrepreneurs may use property in a very flexible way: working from home, from a bar, at a client's firm, in a temporary rented meeting room or from other "third spaces." Although property dimensions in light of home-working have been mentioned in literature, little is known regarding what location factors are important for home-based firms (Green et al., 2000; Louw & De Vries, 2002). Property flexibility at the premises, itself, is often a characteristic of larger-scaled office buildings and multi-tenant business centres, and it can accommodate firm growth and thereby postpone a firm's decision for relocation (Olden, 2010). Likewise, a larger property size also enables firms to accommodate firm growth on site compared to smaller properties.

Hypothesis 3: Firms located in property housing multiple tenants are less likely to relocate than firms that are single users of the property.

Hypothesis 4: Firms located on larger properties are less likely to relocate than firms located on smaller properties.

It is expected that a firm's relocation decision is affected by the quality of its current property. Firms located in higher quality properties are less likely to relocate than firms located in lower quality properties. The age of the particular property is seen as indicative of the quality of the real estate. This is different for HBBS than it is for

firms located in commercial real estate properties. Older residential homes in Amsterdam often exude a certain positive quality, while older commercial buildings and offices are likely to hurt the perception of the building's quality.

Hypothesis 5: Among HBBs, property age is negatively related to firm relocation. Property age is positively related to firm relocation for firms located on commercial property.

The relocation of an HBB often goes hand in hand with a move of the private household (Mackloet et al., 2006). Home-based firm relocations will more likely be influenced by factors related to the household and not to an increased need for floor space to accommodate firm growth. These home-based entrepreneurs, who are often self-employed, do generally not exhibit growth ambitions², suggesting that neoclassical factors such as firm growth and firm size will less impact their relocation behaviour. However, if firm growth does occur, HBBs have less flexibility in accommodating to this increased need for space. Because of property constraints, HBBs will be more affected by firm growth than firms in commercial properties.

Hypothesis 6: The positive effect of firm growth on relocation is larger for HBBs than it is for firms located on commercial property.

Since neoclassical factors based on optimal location considerations are less important for HBBs, it is expected that small HBBs will more likely stay at their present location while larger HBBs – primarily because of property constraints – will relocate. For firms in commercial property, neo-classical factors play a more decisive role. Therefore, firm size will have an opposite effect here: small firms in commercial properties have less transaction costs and are more willing to relocate to a more optimal location than larger firms, who are more prone to stay at a sub-optimal location because of higher transaction and search costs (Van Dijk & Pellenberg, 2000).

Hypothesis 7: Firms size has a positive effect on relocation for HBBs while it has a negative effect on the relocation of firms located on commercial property.

Moving from factors related to the individual properties to the features of the firm's environment, there are several neighbourhood level factors that influence

2 A survey conducted in 2010 concluded that only 13% would want to adopt staff in the future (De Vries & Vroonhof, 2010).

firm relocation behaviour. In the analysis we control for neighbourhood accessibility, liveability and economic prosperity. A lack of physical accessibility is a main driver of firm relocation (De Bok & Sanders, 2005; Holl, 2004; Van Oort et al., 2007). Accessibility to both suppliers and to customers reduces transaction costs. It is expected that the accessibility of the neighbourhood influences firm relocation behaviour. Other factors at the neighbourhood level include liveability and prosperity. Recent research shows that local liveability problems lead to increased relocation out of the neighbourhood in question (Raspe et al., 2010). The economic prosperity of the neighbourhood in terms of market potential may play a role in firm relocation behaviour, especially for neighbourhood-oriented sectors. For instance, because of higher market demand and potential, neighbourhood-oriented firms are less likely to relocate out of wealthier neighbourhoods than out of poorer neighbourhoods. Then again, wealthy residents are more mobile and therefore have greater ability to exercise their purchasing power in other places. We take these neighbourhood factors into account as control factors and assume that their influence on the relocation likelihood of firms in commercial real estate differs from their influence on the relocation behaviour of HBBS, of which the latter is assumed to have relatively strong local ties.

Of course, the definition of what a residential neighbourhood entails and what its geographical borders are is always arbitrary (Ioannides & Topa, 2010, Gould Ellen & O'Regan, 2010). Regardless, within this locality, a real estate market is present, and it plays a role in a firm's decision regarding whether and where to relocate. For example, policy-based research by Olden (2010) has shown that cheaper and readily available real estate located in more homogenous work areas, such as industrial estates and office parks, lure firms out of residential areas to the urban fringes (Raspe et al., 2010). As a result, the literature on commercial real estate primarily theorises on property use in these homogeneous work areas. A fair amount of urban economic activity, however, still occurs in residential areas, where there is a mix of commercial and residential real estate (Hutton, 2008). Although the primary function of the neighbourhood may be residential, residential neighbourhoods increasingly have become a place of economic activity due to the rapidly expanding use of information technology, the increased importance of knowledge production and the need for flexibility in advanced economies (Castells, 1999). The number of home-based entrepreneurs and freelancers has risen substantially (Mason et al., 2011; Hagens et al., 2009). Firms located in residential neighbourhoods choose to relocate based on different factors than firms located in industrial estates or in commercial and business districts due to their mixed-use nature and the limited supply of available real estate in residential neighbourhoods compared to more homogeneous work areas, such as industrial estates.

The before mentioned theoretical framework suggests that several features of the firm and the neighbourhood are likely to be associated with firm relocation. We control for these features but are primarily interested in the effect of property-related factors on firm relocation. Additionally, the effect of firm, property and neighbourhood factors is expected to differ between home-based firms and commercial property-based firms. This dichotomous property dimension is the starting point for each model – one for each of the two property types.

3.3 Research method and data

To investigate whether real estate characteristics at the property level are drivers of relocation, three data sources were combined. We used data on establishment levels obtained from the LISA (*National Information System of Employment*) database, an employment register that covers all establishments in the Netherlands, to measure firm relocations. Our subset of LISA data includes all business establishments in the city of Amsterdam for a 4-year period from 2005-2008. In this dataset, each firm establishment that had a different 6-digit postal code in the subsequent year was considered a relocating firm, which served as our binary dependent variable. In the Netherlands, the 6-digit postal code is the most specific part of the address, indicating a section of a street. In other words, a street is split into several 6-digit postal codes. To retrieve the real estate characteristics of these business establishments, we used the business address as the key and linked the LISA-data to the municipality of Amsterdam's real estate records, which contained information on the characteristics of the firm's original property location. Finally, we enriched the dataset by including neighbourhood variables that were constructed from data from Statistics Netherlands (CBS) and then linked via postal code to CBS-defined neighbourhoods.

We 'cleaned' the dataset of cases corresponding to schools, hospitals and some of the other properties linked to the public sector or to government. The rationale for discarding these 'firms' is that public organisations do not serve the private market and have their own organisational dynamic. Moreover, because the urban residential neighbourhood provides both a diverse supply of real estate and a diverse firm population, we only included firms that originated from neighbourhoods categorised as residential.³ Consequently, firms located on industrial estates or in the central business/commercial districts containing primarily retail and office buildings and other public functions were excluded from the analysis.

3 Primarily using the categorisation used in the publication *Bedrijvigheid en leefbaarheid in stedelijke woonwijken* of the Netherlands Environmental Assessment Agency (Raspe et al., 2010)

The research thus consists of all residential neighbourhoods of the municipality of Amsterdam during the period 2005-2008. Amsterdam is the capital of the Netherlands and also its largest city with 780,559 inhabitants as of January 2011 (O+S, 2011). Amsterdam is part of the Randstad region, the metropolitan area in the western part of the Netherlands, which is often considered to be one regional economy. The city comprises a large part of the Dutch economy, and it often houses the European headquarters of multinational corporations in many different sectors, such as advertising (Röling, 2010). In addition to serving as the national agglomeration of economic activity, Amsterdam is also a city with many residential areas in the 17th century canal belt, the 19th century areas surrounding its historic centre and the post-World War II extensions. The municipality of Amsterdam serves as a good example of a dynamic urban economy with effective agglomeration economies. By choosing to focus solely on Amsterdam, we opted for a unique case selection, emphasising variation within instead of variation across municipalities.

The empirical part of this paper, presented in section 4, begins with a descriptive analysis of the number of firm relocations in the city of Amsterdam, setting the stage for an analysis of the five binary logistic models. In all of the models, the Y consists of the binary variable, $Y=1$, meaning that a firm has relocated. The logistic regression for Y is based on the following specification:

$$\text{logit}(Y) = \left(\frac{\pi}{1-\pi} \right) = \alpha + \beta_1 \chi_1 + \beta_2 \chi_2 \quad (1)$$

Where π is the probability of the event (yearly relocation), α is the intercept, β s are regression coefficients, and χ s are the predictors. The models have been constructed by adding ‘blocks’ of variables in sequence to see whether each block adds significantly to the predictive power of the model.⁴ Because the outcome variable is binary, the used function is not linear but S-shaped and is sometimes referred to as ‘escalator shaped’ (King & Zeng, 2001). Within this function, the Maximum Likelihood (ML) method is used. We could have opted for probit models, but these are both theoretically and empirically highly consistent with our logistic regression models (Hu et al., 2008:75).⁵

As stated above, the dependent variable in all models measures whether the firm had a different 6-digit postal code the following year ($T+1$). If so, the firm was

4 In each model, the null-block, which is not incorporated in the tables, only includes a constant. This implies that in this first calculation, the dependent variable is predicted merely by chance.

5 When reporting logistic regressions, the odds ratio is reported as the ‘Exp(B).’ This ratio is derived directly from the regression coefficients and suggests “the change in odds of Y given a unit of change in X ” (Peng et al., 2002:10).

given a 1. In models 1, 2 and 3, the probability to relocate in general is analysed, including for those firms that relocate outside of Amsterdam. In models 4 and 5, the probability to relocate *within* the municipality of Amsterdam is computed. This differentiation between all relocations and those relocations only within the Amsterdam municipal boundaries was analysed to see whether the parameters related to relocation probability for smaller distances are different than the parameters for the relocation probability for larger distances.

Next to our distinction between overall relocations and relocations only within the municipality of Amsterdam, we differentiated between the relocation likelihood of firms located in commercial properties and those based in residential properties. Firms located in residential property are likely to be HBBs because residential zoning in the Netherlands is quite stringent. The data on real estate features acquired from the municipality reflect these zoning rules. The first model estimates the relocation probability of *all* firms. A dummy variable is included to differentiate the relocation probability of HBBs and firms located in commercial properties. Supported by the earlier formulated hypotheses, we assume that for an HBB, property characteristics have a different effect on the decision to relocate than for firms based in commercial properties. Therefore, the relocation probabilities for these two types of firms are computed separately in the following four models.

The dataset consists of annual firm data over four years, from 2005 through 2008, implying that firms have a probability to be included multiple times. Year dummies control for some temporal variations in the dataset, but fixed effects at the firm level were not included. The dependent variable is the *yearly chance of relocation*; therefore, the 'population at risk of relocation' is thus somewhat indifferent to temporal variation. Some of the firms' history is nevertheless taken into account: firms present in the data are always conditional on the survival of the previous two years because the variable that is a proxy for firm growth is based on the number of employees at T is divided by the number of employees at T-2. We tested the robustness of the estimates of the five models by calculating a multilevel model for the neighbourhood effects and examined whether this made a substantial difference (see Appendix II). Moreover, because only a small number of firms relocate, a rare events logit was performed to test whether our estimates are biased due to the fact that the dependent variable is characterised by much fewer 1s than 0s (see Appendix III). The results of that analysis are consistent with those presented here, suggesting a high degree of robustness of the estimations.

Table 3.2 presents the variables included in the models. The dependent variable, RELOC_NETHERLANDS, has a mean of 0.062, which indicates that, in general, 6.2% of Amsterdam firms in residential neighbourhoods (used in models 1, 2 and 3) have relocated during the 2005-2008 period. The dependent variable, RELOC_MU-

NICIPAL, measures the relocations that have taken place within the city of Amsterdam. As explained before, the yearly relocation probabilities are calculated on the condition that a firm has survived the two previous years. The independent variables firm age and firm size are both log transformations to base 10. Firm growth is a variable in which the number of FTE at T is divided by the number of FTE at T-2 years, of which the square root is taken to bring larger scores closer to the centre. The descriptive statistics of the variable of property ownership show that approximately 25% of firms in the dataset own the building in which they are located. Table 3.2 also indicates that 21% of the firms are located in a property where multiple firms are situated (multiuse property).

The independent variable that measures the spending power of the neighbourhood in which the firm is located (neighbourhood prosperity) and the proxy that captures the social status of the neighbourhood (neighbourhood liveability) deserve some further explanation. These factors were constructed by means of a Principal Component Analysis (PCA) in which two components from seven indicators of the socio-economic neighbourhood status were constructed. Neighbourhood prosperity is a construct that measures the economic power, or market potential, of the neighbourhood. It includes the mean of income, property value and the percentage of high incomes. Neighbourhood liveability is a construct that measures the social status of a neighbourhood. It is a reverse composition of the percentage of non-active residents⁶, welfare recipients, unemployed residents and tenant housing, which in the case of Amsterdam tends to be social housing.

Table 3.2: Descriptive statistics of variables included in the models

N	114,754					
	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Source</i>	<i>Year</i>
Dependent Variables						
RELOC_NETHERLANDS (0/1) Model 1, 2 and 3)	.062	.241	.00	1.00	LISA	2005-2008
RELOC_MUNICIPAL (0/1) (Model 5 and 6)	.046	.209	.00	1.00	LISA	2005-2008
Independent Variables						
Firm size	.254	.391	.00	3.54	LISA	2005-2008
Firm age	.915	.227	.30	2.26	LISA	2005-2008

⁶ The proportion of income recipients (15-64) of which the main part of income consists of welfare.

N	114,754					
	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Source</i>	<i>Year</i>
Firm growth	1.017	.195	.07	7.18	LISA	2005-2008
Sector			Categorical		LISA	2005-2008
Year 2005 (0/1)	.276	.447	.00	1.00	LISA	2005-2008
Year 2006 (0/1)	.262	.440	.00	1.00	LISA	2005-2008
Year 2007 (0/1)	.248	.432	.00	1.00	LISA	2005-2008
Neighbourhood prosperity	.819	1.546	-.93	5.38	CBS	2005 and 2007
Neighbourhood liveability	.849	.575	-1.00	1.83	CBS	2005 and 2007
Distance to train station	2.238	1.239	.50	6.90	CBS	2007
Distance to freeway	2.162	.927	.40	4.40	CBS	2007
HBB (0/1)	.593	.491	.00	1.00	Property registry of municipality of Amsterdam	2005-2008
Property ownership (0/1)	.249	.433	.00	1.00		2005-2008
Multiuse property (0/1)	.214	.410	.00	1.00		2005-2008
Property size	2.075	.487	.00	4.93		2005-2008
Property age	1.791	.524	.00	2.61		2005-2008

The independent variable sector is categorical and has been converted into two dummies for each category in the logistic regression analysis, while the sector 'Industry, construction, transport, wholesale and storage' serves as the reference category. Figure 3.1 (see page 66) presents an overview of the sectors that are present in this categorical variable. Figure 3.2 (see page 66) provides a description of the types of property in which firms are located in the residential neighbourhoods of Amsterdam. It shows that almost 60% are located in residential property, which fits the picture of a city where residential neighbourhoods are home to numerous home-based firms, but where commercial property is also locally present. The three property types presented in Figure 3.2 were the basis of differentiation between the models for commercial property-based firms (in retail property, property related to the hospitality industry and office and business premises) and the models for home-based firms (in residential property only).

Zip codes assigned to non-residential areas and firms that do not produce for a commercial market were removed from the data. This led to a dataset of 221,947 cases, where each case represents a firm-year within the 2005-2008 period. As stated above, firms can thus be included multiple times during the 4-year period. The total number of firms (80,638) is therefore much smaller than the number of firm-years present in the original dataset (221,947). Due to the requirement that firms must have survived the previous two years to be included in the model, the final number of observations used is 114,754.

Figure 3.1: Industrial sectors

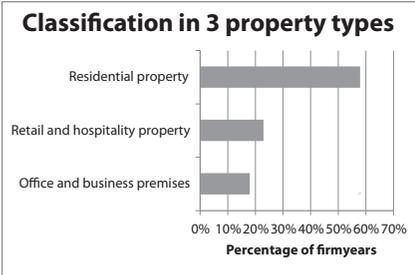
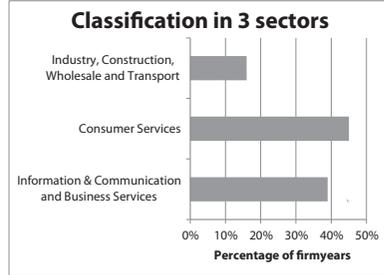


Figure 3.2: Real estate characterisation



Source: LISA, Vastgoed Amsterdam, CBS

Of the Amsterdam firms that were included in the model, 6.2% of the firms relocated (annually) within the Netherlands. Of the total number of relocations, a yearly average of 77% takes place within the municipal boundaries of Amsterdam, which is in line with the Dutch average of a 75% rate of intra-municipal relocations (Van Oort et al., 2007).

Table 3.3: Average yearly firm relocation and relocation distance in Amsterdam residential neighbourhoods, 2005-2008

<i>Yearly average percentage of firm relocations</i>		<i>Yearly average percentage of inter- and intra-municipal relocations</i>	
Firms that do not relocate	94%		
Firms that relocate	6%	Relocation out of Amsterdam	23%
		Relocation within Amsterdam	77%

Source: LISA, Vastgoed Amsterdam, CBS

3.4 Results

Tables 4 to 7 display the results of our analysis on the likelihood that firms in Amsterdam residential neighbourhoods will relocate. At the bottom of each table, the statistics used to assess the blocks and models can be found. First, the -2 Log Likelihood (-2LL) indicates the difference between the observed and the predicted values and is comparable to the residual sum of squares in a multiple regression. It is an indication of how much unexplained variation remains after the data are fitted, and therefore, the larger the -2LL, the more poorly the model fits the data. Looking

at the -2LL numbers for all of the models, it can be concluded that with each model, more variation is explained. However, still much variation remains unexplained; suggesting that firm relocation is influenced by factors which cannot be controlled for in these econometric models. All of the blocks added in each of the models provided a significantly lower -2LL compared to the initial -2LL, and thus, it is a better explanation of the data than if the block were not included ($p < .05$). Second, there are two variations of the R^2 -value used in linear regression. These pseudo R-squares are computed on the basis of the relative improvement of likelihood of the full model compared to the intercept model. The Cox & Snell R^2 -value has no theoretical maximum of 1 because when the model has perfect explanatory power, the Cox & Snell R^2 is: $1 - L(M_{Intercept})^{2/N}$, which does not equal 1. Nagelkerke's R^2 corrects for this by dividing the Cox & Snell R^2 by the maximum possible value of the null model. Overall, these measures are grasping the substantive significance of the model in the same fashion. When judging the pseudo R-squares, the explanatory power is rather low. Because of the large size of the sample – almost 120,000 cases – this low value is not unusual. In large datasets, it is common to get a low R^2 -value and many significant regression coefficients. Therefore, it is more meaningful to look at the increase of Nagelkerke's R-square in relation to the previous block.

In the following paragraph, some general results with regard to Table 3.4 (model 1) (page 68) and Table 3.5 (comparing the percentage of relocations for HBBs and firms located in commercial properties) (page 69) are presented. From Table 3.6 onward, a distinction between computations for the relocation probability of HBBs and the relocation probability of firms in commercial property will be made, resulting in the presentation of two models in each table. Furthermore, Tables 3.6 and 3.7 (pages 70 and 72) are different in that Table 3.6 includes the overall relocation likelihood, while Table 3.7 only considers relocations that have taken place at an intra-municipal level (i.e., within Amsterdam).

In model 1, the yearly relocation probability of all Amsterdam firms is computed (Table 3.4). The model statistics show that by adding the property variables, the explanatory power increases with 33% compared to block 2. Model 1 also shows that all property-related factors, except for property size, play a significant role in explaining the relocation probability of the firms. The results indicate that HBBs are more inclined to relocate than firms located in commercial property. This finding is also supported when calculating the average percentage of relocations for home-based and commercial property-based firms separately, as can be seen in Table 3.5, and the result applies for the number of firm relocations at both the inter- and intra-municipal levels. In this first general model, neighbourhood features do not appear to be important in explaining the relocation propensity of firms. However, for small distance relocations, for instance, within the municipality of Amsterdam, the neighbourhood characteristics might play a role.

Table 3.4: Empirical result for the yearly relocation probability of Amsterdam firms within the Netherlands⁷

	MODEL 1					
	All property					
	Block 1		Block 2		Block 3	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Constant	-1.380 ***	.251	-1.385 ***	.250	-1.941 ***	.143
Firm Characteristics						
Firm size	-.138 ***	.871	-.145 ***	.865	-.056	.945
Firm age	-1.603 ***	.201	-1.608 ***	.200	-1.517 ***	.219
Firm growth	.199 ***	1.220	.199 ***	1.221	.186 ***	1.204
Industry, construction, transport, wholesale and storage						
Consumer services	-.335 *	.715	-.343	.710	-.284	.753
ICT and business services	.166 ***	1.180	.155 ***	1.168	.139 ***	1.150
Year 2005 (0/1)	-.208 ***	.812	-.216 ***	.806	-.202 ***	.817
Year 2006 (0/1)	-.068 *	.934	-.075 **	.928	-.064 *	.938
Year 2007 (0/1)	.120 ***	1.128	.114 ***	1.121	.140 ***	1.150
Neighbourhood Characteristics						
Neighbourhood prosperity			.010	1.010	-.005	.995
Neighbourhood liveability			-.056 **	.943	-.031	.969
Distance to trainstation			-.015	.985	-.017	.983
Distance to freeway			.000	1.000	.011	1.011
Property Characteristics						
HBB (0/1)					.396 ***	1.485
Property ownership (0/1)					-.278 ***	.757
Multiuse property (0/1)					.450 ***	1.568
Property size					.034	1.035
Property age					.049 *	1.050
Model statistics						
Initial -2 LL		53,313		51,966		51,952
-2 LL		51,966		51,952		51,601
Cox & Snell R Square		.012		.012		.015
Nagelkerke R Square		.031		.032		.040
Missing		-		-		-
N		114,748		114,748		114,748

*** = P<0.01; ** = P<0.05; * = P<0.1

⁷ Conditional on survival T-2

Table 3.5: Comparing relocations between HBBs and firms in commercial property

	Commercial Property				Home Based Businesses		
	Relocation	N	% of total		Relocation	N	% of total
Relocation likelihood	No	44,367	95.2%	Relocation likelihood	No	63,272	92.9%
	Yes	2,255	4.8%		Yes	4,854	7.1%
	Total	46,622			Total	68,126	
Relocation likelihood within Amsterdam	No	44,367	96.3%	Relocation likelihood within Amsterdam	No	63,272	94.6%
	Yes	1,681	3.7%		Yes	3,592	5.4%
	Total	46,048			Total	66,864	

In models 2 through 5, we present the parameters that explain the relocation likelihood for firms in commercial property and home-based businesses separately. From Nagelkerke's R^2 , it can be concluded that the relocation likelihood of firms located in commercial properties is better explained by the variables included in the model than it is for the relocation likelihood of HBBs. When looking at the individual drivers of relocation, and when comparing the general relocation probability within the Netherlands to that of the probability to relocate within the municipality of Amsterdam, some interesting distinctions between HBBs and firms in commercial properties become apparent.

The results will be discussed in depth in the following sections. The argument will be structured by separately discussing the property characteristics and the firm and neighbourhood control variables. Because block 3 of the models includes all variables, the results discussed below are based primarily on the outcomes of block 3. Nevertheless, we present all blocks separately in order to judge whether the added variables provide additional explanatory value and to see whether parameter estimates of previous blocks change direction with the addition of new variables.

Property Characteristics

The property characteristics were added in block 3 for all of the models. By looking at Nagelkerke's R-square, we can see that for all models, the explanatory power increases significantly with the addition of property variables. This provides support for the general assumption that property characteristics of the individual firm should not be left out when explaining their relocation behaviour. In the following paragraphs, each of the hypotheses as put forward in the theoretical section are discussed separately and are followed by other findings.

Table 3.6: Determinants of the yearly relocation probability for firms located in Commercial property (model 2) and for Home Based Businesses (model 3)⁸

	MODEL 2							
	<i>Commercial property</i>							
	Block 1		Block 2		Block 3			
	B	Exp(B)	B	Exp(B)	B	Exp(B)		
Constant	-1.827 ***	.161	-1.830 ***	.160	-2.572 ***	.076		
<i>Firm Characteristics</i>								
Firm size	-.232 ***	.793	-.232 ***	.793	-.243 ***	.784		
Firm age	-1.071 ***	.343	-1.070 ***	.343	-.951 ***	.386		
Firm growth	.169 **	1.184	.171 **	1.186	.185 **	1.203		
Industry, construction, transport, wholesale and storage							***	
Consumer services	-.624 ***	.536	-.629 ***	.533	-.527 ***	.590		
ICT and business services	.396 ***	1.486	.348 ***	1.416	.239 ***	1.270		
Year 2005 (0/1)	-.204 ***	.816	-.218 ***	.804	-.202 ***	.817		
Year 2006 (0/1)	-.120 *	.887	-.132 **	.877	-.120 *	.887		
Year 2007 (0/1)	.062	1.064	.049	1.050	.056	1.057		
<i>Neighbourhood Characteristics</i>								
Neighbourhood prosperity			.058 ***	1.059	.012	1.012		
Neighbourhood liveability			.024	1.024	.003	1.003		
Distance to trainstation			.005	1.005	.016	1.016		
Distance to freeway			-.009	.991	.008	1.008		
<i>Property Characteristics</i>								
Property ownership (0/1)					-.181 **	.834		
Multiuise property (0/1)					.559 ***	1.749		
Propertysize					.081 **	1.084		
Property age					.093 **	1.097		
<i>Model statistics</i>								
Initial -2 LL		18,059		17,343		17,324		
-2 LL		17,343		17,324		17,172		
Cox & Snell R Square		.015		.016		.019		
Nagelkerke R Square		.048		.049		.059		
Missing		-		-		-		
N		46,622		46,622		46,622		

***= P<0.01; ** = P<0.05; * = P<0.1

MODEL 3					
<i>Home Based Businesses</i>					
Block 1		Block 2		Block 3	
B	Exp(B)	B	Exp(B)	B	Exp(B)
-1.234 ***	.291	-1.261 ***	.283	.134 ***	1.143
.385 ***	1.470	.391 ***	1.479	.422 ***	1.524
-1.822 ***	.162	-1.806 ***	.164	-1.711 ***	.181
.167 *	1.182	.166 *	1.180	.165 *	1.180
***		***		***	
-1.118 ***	.889	-.125 ***	.883	-.117 ***	.890
.077 *	1.080	.078 *	1.081	.108 ***	1.114
-.170 ***	.844	-.173 ***	.841	-.192 ***	.826
-.001	.999	-.004	.996	-.028	.973
.187 ***	1.205	.184 ***	1.202	.182 ***	1.199
		-.019 *	.981	.027 **	1.027
		-.079 ***	.917	-.032	.968
		-.030 **	.971	-.010	.990
		.016	1.016	.016	1.016
				-.177 ***	.838
				.300 ***	1.350
				-.774 ***	.461
				-.020	.980
34,997		34,302		34,278	
34,302		34,278		34,106	
.010		.011		.013	
.025		.026		.032	
-		-		-	
68,126		68,126		68,126	

Table 3.7: Determinants of the yearly within-municipality relocation probability for firms located in Commercial property (model 4) and for Home Based Businesses (model 5)⁹

	MODEL 4									
	Commercial property									
	Block 1			Block 2			Block 3			
	B		Exp(B)	B		Exp(B)	B		Exp(B)	
Constant	-2.139	***	.118	-2.282	***	.102	-2.965	***	.052	
Firm Characteristics										
Firm size	-.148	***	.862	-.147	***	.864	-.151	***	.860	
Firm age	-1.226	***	.294	-1.230	***	.292	-1.147	***	.318	
Firm growth	.203	***	1.225	.206	***	1.229	.215	***	1.239	
Industry, construction, transport, wholesale and storage		***			***			***		
Consumer services	-.573	***	.564	-.590	***	.554	-.513	***	.599	
ICT and business services	.525	***	1.691	.455	***	1.576	.377	***	1.459	
Year 2005 (0/1)	-.221	***	.801	-.268	***	.765	-.282	***	.754	
Year 2006 (0/1)	-.068		.934	-.110		.896	-.126		.881	
Year 2007 (0/1)	.024		1.024	-.017		.983	-.037		.963	
Neighbourhood Characteristics										
Neighbourhood prosperity				.066	***	1.068	.023		1.023	
Neighbourhood liveability				-.015		.985	-.012		.988	
Distance to trainstation				-.001		.999	.006		1.006	
Distance to freeway				.058		1.059	.063	**	1.065	
Property Characteristics										
Property ownership (0/1)							-.161	*	.852	
Multiuse property (0/1)							.446	***	1.561	
Property size							.066		1.068	
Property age							.166	***	1.181	
Model statistics										
Initial -2 LL			14,429			13,804			13,777	
-2 LL			13,804			13,777			13,698	
Cox & Snell R Square			.013			.014			.016	
Nagelkerke R Square			.050			.052			.059	
Missing			-			-			-	
N			46,048			46,048			46,048	

*** = P<0.01; ** = P<0.05; * = P<0.1

⁹ Conditional on survival T-2

MODEL 5								
Home Based Businesses								
Block 1			Block 2			Block 3		
B		Exp(B)	B		Exp(B)	B		Exp(B)
-1.447	***	.235	-1.543	***	.214	-.221		.802
.512	***	1.668	.520	***	1.682	.539	***	1.715
-1.991	***	.137	-1.967	***	.140	-1.868	***	.154
.169	*	1.184	.168	*	1.183	.172	*	1.187
	***			***			***	
-0.091	*	.913	-.104	**	.901	-.093	*	.912
.101	**	1.106	.100	**	1.105	.137	***	1.147
-.191	***	.826	-.201	***	.818	-.232	***	.793
.070		1.072	.061		1.062	.024		1.025
.179	***	1.196	.172	***	1.187	.158	***	1.171
			-.029	**	.972	.013		1.013
			-.155	***	.833	-.084	***	.912
			-.050	***	.951	-.028	*	.972
			.043	**	1.044	.044	**	1.045
						-.229	***	.796
						.332	***	1.393
						-.800	***	.449
						.062		1.064
		27,993			27,365			27,303
		27,365			27,303			27,128
		.009			.010			.013
		.027			.030			.038
		-			-			-
		66,864			66,864			66,864

From both Table 3.5 and the HBB effect on firm relocation probability in Table 3.4, it can be concluded that firms in residential properties have a higher relocation probability than those located in commercial properties. The first hypothesis, that firms in commercial properties are less likely to relocate than HBBs, is thus confirmed. In light of flexibility issues, the higher relocation probability of HBBs compared to firms in commercial properties also reflects the idea that residential properties offer a firm relatively few expansion possibilities.

The second hypothesis is that property owners are less likely to relocate than firms located in leased property. This hypothesis can be confirmed: building owners are indeed less inclined to relocate. This negative relation between relocation likelihood and property ownership holds in all of the models.

Flexibility at the property level was measured first, by property size and second, by whether or not a firm was located with other firms (in a multi-tenant business centre or office building) – both indicators of a possible ability to adjust the amount of floor space. The latter property characteristic was used to test the third hypothesis: firms located in real estate housing multiple tenants are less likely to relocate than firms that are the sole users of the property. The idea was that firms in multi-tenant properties are able to accommodate firm growth on site. However, this hypothesis is firmly rejected. In fact, the parameter estimate points the other way: firms based in multi-tenant properties show a far stronger tendency to relocate than those firms that are not. Being located in multi-tenant property might bring with it the nuisance of other co-located firms. Additionally, one could argue that these types of properties are often occupied by firms that have growth ambitions and that see multi-tenant properties as a first step to single-user properties.

The fourth hypothesis, also related to property flexibility, is that firms in large properties are less likely to relocate than firms in smaller properties. Our models show that this can be confirmed for home-based businesses, where the size of the building has considerable influence on relocation probability. Firms in larger dwellings are less likely to relocate than those in smaller ones. However, for firms located in commercial properties, this hypothesis is not supported. In fact, there is even a slightly positive effect of property size.

The fifth hypothesis is that for HBBs, the age of the property would have a negative effect on the relocation probability because older residential homes in Amsterdam would represent a higher quality. For firms in commercial properties, the opposite is expected: the property age has a positive effect on relocation behaviour because older commercial estates would be equated with lower quality. This hypothesis is confirmed, although the effects are not very strong. With regard to firms based in commercial properties, the effect is somewhat stronger for relocation within the municipality (Table 3.7) than when all relocations are included (Table 3.6), suggesting that being located in an older building (with less modern

facilities) creates a stronger push factor for firms that relocate within Amsterdam than for firms in general.

Hypotheses six and seven are discussed in the following section because they focus on the interaction between firm characteristics and property type.¹⁰

Firm characteristics

As shown in the literature, traditional firm factors play an important role in firm relocation behaviour. For the likelihood to relocate within the Netherlands, firm characteristics point toward the expected direction. This is true in Table 3.4, where the entire firm population is considered, but it is also true for the more specific models in Tables 3.6 and 3.7. First, the older the firm, the less likely it is to relocate. Because the correlation between firm age and firm growth is not very powerful (0.18 for commercial property and 0.10 for HBB), we cannot assume that younger firms are more likely to grow in general or demonstrate a higher relocation propensity. Thus, based on these results, the effect of firm age can be explained primarily by suggesting that younger firms start in sub-optimal locations and that once initial hurdles have been overcome, they develop different location preferences and are more likely to relocate. Second, firm growth has a slightly positive effect on the likelihood of relocation for both firms in commercial properties as well as for home-based firms. For the former category, this effect is somewhat stronger. Hypothesis six, which states that firm growth for firms located in residential properties is more positively related to firm relocation than it is for firms in commercial properties, is thus rejected.

For firms located in commercial properties, firm size has a negative influence on relocation probability, while for home-based firms it has a positive influence on relocation probability. In other words, smaller firms located in commercial properties are more likely to relocate than larger firms, while smaller HBBS are less likely to relocate than larger HBBS. This result supports hypothesis 7.¹¹

Sectoral differences are important sources of heterogeneity in relocation probabilities. The parameter estimates of the sector dummy are in line with expectations, especially in the models in which the relocation behaviour of firms in commercial

¹⁰ The interaction effect between *firm growth* and *property size* was included because we expected growing firms in smaller properties to be more likely to relocate than growing firms in larger properties. However, the results were insignificant and were left out in the final models. We also tested for non-linear effects of firm size and firm age by adding the variables firmage^2 and firm-size^2 . These did not prove significant and did not add explanatory power to the model.

¹¹ The interaction effect between *firm growth* and *firm size* was included because we expected small growth firms to be more likely to relocate than large growth firms. However, the results were insignificant and were left out in the final models.

properties is analysed separately (models 2 and 4). Business service firms and firms active in the information and communication sectors generally show significantly higher relocation propensities because they are not dependent on local markets and because they generally have lower sunk costs, while consumer services show a significantly lower relocation likelihood compared to the reference category. This can be explained by the fact that consumer services depend on local markets. For the reference sector, the lower relocation propensity is more likely related to specific technical property specifications than it is to market localisation. However, also firms that are active in consumer services seem to have 'rigid' property requirements, with higher transaction costs of relocation, leading to a lower likelihood of relocation. As can be seen in models 3 and 5, differences by sector play a less important role in explaining the relocation behaviour of HBBs than for firms located in commercial properties.

In general, it can be argued that HBBs have a higher overall relocation propensity, as can be seen in Table 3.5. However, from the factors included in our models, the relocation of HBBs is more difficult to explain than relocation of firms located in commercial properties, which can be seen by the relatively low significance of the Nagelkerke's R^2 for all HBB models. The explanation of the relocation likelihood of HBBs is likely due to different factors than the ones included in our analyses. While we have revealed new determinants of firm relocation in general, HBB relocation is not yet fully understood.

When zeroing in on factors that explain the likelihood of firm relocation *within* the municipality, the same firm features are in effect, although for commercial property, the effect of firm size on relocation propensity diminishes: for firms located in commercial properties, firm size has a stronger effect on the likelihood to relocate than it does on intra-municipal relocations alone.

Fixed effects were added to control for temporal differences. In 2005, notably fewer firms relocated. Additionally, in 2006, fewer firms relocated than in the succeeding 2 years. This might be related to overall economic trends or to previous economic trends then taking effect.

Neighbourhood characteristics

Because the primary goal of this analysis is to determine the added value of property characteristics in explaining the likelihood of firms to relocate, we have chosen to include the factors related to neighbourhoods in the model before the property factors, even though neighbourhood factors are important at a higher geographical level. The neighbourhood factors added to block 2 in all of the models generally do not provide much explanatory power on top of the firm characteristics modelled in block 1. In models 1 through 3, which focus on all firm relocations,

neighbourhood factors do not play a role. There is only a small positive effect of neighbourhood prosperity on the relocation likelihood of home-based businesses, where HBBS in wealthier neighbourhoods are slightly more inclined to relocate than HBBS in economically weaker districts.¹²

In models 4 and 5, it can be seen that for firms relocating within Amsterdam, neighbourhood factors play a slightly more important role than for firms relocating in general – especially for HBBS. Although the parameter coefficients are small, it can be argued that HBBS in neighbourhoods with a higher liveability score are less likely to relocate than HBBS located in less liveable neighbourhoods.

Accessibility of the neighbourhood plays a very minor role as a driver of firm relocation, although the increase in distance from a freeway entrance has a slightly positive effect on relocation at the municipal level (models 4 and 5). Similar results regarding neighbourhood accessibility were found in the empirical studies of Knoben & Oerlemans (2008) and De Bok & Van Oort (2011). The fact that these accessibility factors are not deemed to be important push factors in our models might be due to the fact that for many present-day entrepreneurs, accessibility is related to more than just easy access to a freeway or to public transportation. For many firms in residential areas, accessibility is primarily a question of nearby parking facilities or non-physical accessibility, such as a high-speed Internet connection.

3.5 Conclusions and policy implications

In this paper, we tested several factors to determine their relationship to firm relocation behaviour in urban residential neighbourhoods using several levels of analysis. Special attention was given to the role of business property characteristics – a set of little researched but important location features that may act as push factors for firm relocation. We were able to construct a unique dataset using firm relocations in residential neighbourhoods in the municipality of Amsterdam. Firm relocation was measured by the actual, revealed behaviour of firms from 2005-2008, and it was matched with business property characteristics at the level of the firm's former business establishment. A binary logit model estimated the probability of firm relocation on two geographical scales, addressing the overall likelihood of firm relocation and, more specifically, the likelihood of firm relocation within the municipality of Amsterdam.

¹² The interaction effect between *firm sector* and *neighbourhood prosperity* was included. We expected firms active in consumer services in rich neighbourhoods to be less likely to relocate than firms active in consumer services in poor neighbourhoods. However, the results were insignificant and were left out in the final models.

The residential neighbourhood has increasingly become a place for economic activity for self-employed entrepreneurs and home-based businesses, fuelled by the possibilities created by communication technologies and the need for a flexible workforce in advanced urban economies. The relocation behaviour of firms located in urban residential neighbourhoods is interesting because the neighbourhoods are home not only to numerous firms but also to a large variety of firm types. These firms are part of a local environment that is different from more homogeneous office sites or industrial estates, which are often located at the fringe of urban municipalities. Thus, with regard to property characteristics, residential neighbourhoods provide a fertile base for analysing firms located in different types of property, whether it is residential property (dwellings) or commercial real estate.

In addition to more traditional drivers at the firm level and factors at the neighbourhood level presumably playing a role in firm relocation, local real estate features at the individual firm level are bound to affect firm relocation as well. We tested how business property features of the original location affect a firm's relocation behaviour, while controlling for other drivers mentioned in the literature at the firm and neighbourhood levels. We used a dataset where, on an annual basis, all firms that are located in residential neighbourhoods of Amsterdam are present. In these neighbourhoods, approximately 60% of firms are located in residential properties. Firms active in consumer and business services comprise the largest percentages, 45% and 30%, respectively.

We find that most firms remained in their current locations but that if a firm did relocate, it most likely chose another location in Amsterdam. Over three quarters of all firm relocations occurred within Amsterdam's municipal borders. Home-based firms have an overall higher propensity to relocate than firms located in commercial properties for all firm relocations in general and for intra-municipal relocations in particular. The relocation behaviours of firms located in commercial properties and in residential properties (HBBS) were analysed separately to evaluate the specific role that property type plays in firm relocation behaviour.

Our empirical findings on the importance of business property characteristics for firm relocation indicate that in relocation studies, business real estate in residential neighbourhoods deserves a place of its own. Property factors provide a significant additional explanation of the variation in firm relocation probability, both for relocation in general and for firm relocation within the municipality. We conclude that for firm relocation in general and for intra-municipal firm relocation, property ownership decreases the relocation probability. Another important determinant of firm relocation is property flexibility, which is measured by two indicators. Being located in flexible multiuser property is positively related to firm relocation, while being located in a large business property

is negatively related to relocation, which is especially the case for HBBS, where firms located in larger dwellings are less likely to relocate than those in smaller dwellings.

Firms located in residential properties show different relocation behaviour than firms housed in commercial properties. The difference in a firm's moving propensity is likely due to a different use for the property. Adding property characteristics improved our understanding of firm relocation behaviour compared to the studies that lacked these characteristics. However, the used data do not allow us to make general causal statements of the effect of real estate factors on relocation behaviour. Also, results are only based on relocation behaviour of firms in an urban, dynamic context. Still, we have provided an initial model that shows a relationship between the characteristics related to the property of origin and the relocation behaviour of firms located in the residential neighbourhoods of Amsterdam. These results provide a solid base for further research into whether these real estate factors on firm relocation are causally linked.

In all models, firm characteristics play a significant role in firm relocation, although this is more applicable to firms in commercial properties than it is for HBBS. For most of the firm-related characteristics, the coefficient for both groups is similar. Sectoral differences seem to apply for both HBBS and firms located in commercial properties. As expected, firms active in consumer services are less likely to relocate than the reference group of firms in industry, construction, transport, wholesale and storage, while firms in business services are more likely to relocate than the reference category. However, when it comes to firm size, the model suggests that small firms in the commercial property segment are more likely to relocate than large firms, but among HBBS, small firms are less likely to relocate than large firms.

Finally, factors at the neighbourhood level do not provide much more explanatory value than factors at the firm or property levels. For home-based firms, there is some evidence that firms in neighbourhoods with liveability problems are more likely to relocate than firms in relatively liveable districts. However, these results do not match the results for firms in commercial properties.

What do our results imply for local economic policy? In the Netherlands, where the government has a profound influence on real estate, the supply of business property at the neighbourhood level is an important policy tool, for which our findings provide some clues. First, property ownership plays a conditioning role on the relocation behaviour of firms in urban residential neighbourhoods, where relocation is less likely to occur when firms have ownership of their property. These results have two effects: on the one hand, the firms that own their property are more embedded in the local culture, which may be a policy objective for the municipalities so that firms contribute to a local and sustainable development of eco-

conomic activity at the neighbourhood level. On the other hand, this conditioning role of ownership might hinder firm growth, and in the end, local, regional and national economic growth. Second, flexibility of the specific property, in terms of property size, might encourage home-based firms to remain at their present locations. Larger dwellings allow home-based firms to be more flexible in adapting the amount of floor space needed due to internal changes (i.e., firm growth) or due to external firm developments (such as changing market demands or competition). The property size effect does not apply to firms located in commercial real estate. For local policy-makers aiming to stimulate neighbourhood economic activity, the effect of property size on the likely relocation of HBBS suggests that adapting land-use plans and zoning regulations in favour of HBBS, or adapting the local housing stock in favour of larger dwellings, provides a local anchor for this type of business. Moreover, urban and regional planning agencies should think of ways to increase the flexibility between economic and residential functions within land-use plans (Folmer & Risselada, 2012). Third, the likelihood of relocation is related to the firm's business sector. It is important to keep this in mind if the aim of a particular policy is to facilitate certain types of activities at the local level. Finally, one of the arguments in favour of using local policy to improve neighbourhood liveability and accessibility is that it is assumed that firms will stay because of an attractive or improved local setting (Sleutjes & Völker, 2012). This argument, however, does not apply to the residential neighbourhoods in our study because our findings suggest that real estate characteristics play a much larger role than neighbourhood features in influencing the relocation behaviour of firms – especially for commercial property-based firms. Economic policy should thus pay due attention to firm property features at the local level when it strives to anchor firms and entrepreneurs to the neighbourhood economy.

4 Destination Choices of Relocating Firms*

Considering neighbourhood pull factors at the intra-municipal level of Amsterdam, the Netherlands

Abstract: Using register data, this paper addresses the need for intra-municipal and real estate circumstances related to destination choice of relocating firms in the city of Amsterdam, The Netherlands. Using a conditional logit model we study which neighbourhood factors attract intra-municipal relocating firms, and whether this differs between commercial property and residential property based firms. Results show that, accept for an accessibility and localisation pull factor, firms do not collectively prefer the same set of neighbourhood characteristics. As our findings suggest that firms relocating to residential properties are hardly motivated by classical economic location factors, for future firm relocation studies it is important to differentiate between firms relocating to residential and commercial properties. Firms relocating to commercial properties tend to cluster in neighbourhoods with a commercial property stock, a relatively high firm density and a diverse firm population. Policies aimed at strengthening neighbourhood economies should target areas where these factors are present or likely to thrive.

4.1 Introduction

Firm relocation studies provide insight into the spatial behaviour of firms and contribute to theoretical understanding of the changing spatial distribution of economic activity in general and of the economic impact of firm migration on the economies of cities in particular. In a burgeoning body of research, fuelled by the growing availability of micro-data, push and pull factors are often discerned. Although inevitably intertwined, push factors are considered the drivers of the decision to relocate, while pull factors constitute characteristics that attract firms to

* This paper is currently under review at an international scientific journal

specific locations. Relocation studies that focus on pull factors primarily consider destination choices at the regional level, modelling inter-municipal relocations in mainly European countries (Bodenmann & Axhausen, 2011; Kronenberg, 2012; Manjón-Antolín & Arauzo-Carod, 2009). However, 75% of relocating firms in European countries choose a destination location within their own municipality, at the *intra*-municipal level (Sleutjens & Beckers, 2012; Van Oort et al., 2007; Risselada et al., 2013). Thus, by concentrating on the behaviour of firms relocating between municipalities or regions, a large part of the research population is disregarded in the majority of firm relocation studies. The fact that many firms relocate within their present municipality suggests that the micro-scale of the municipal neighbourhood may be of relevance in explaining the relocation behaviour of firms (Knoben and Oerlemans, 2008). In relocation studies, characteristics at the neighbourhood level therefore potentially contribute to explanations of the patterns and motives of relocating firms (Weterings, 2012).

In addition to the suggestion that firm relocation studies should incorporate neighbourhood characteristics more prominently, there is also a need to gain a deeper understanding of the role of real estate factors in explaining the relocation behaviour of firms – factors that are more prominently present at the neighbourhood level than at any higher level. There is a growing body of research that emphasises the fact that firms consider factors related to real estate properties of more importance than other location factors (Sleutjes, 2012; Risselada & Schutjens, 2012). In studies on firm relocation and location choices conducted using large datasets, such as data from the Chamber of Commerce, little attention has been paid to firms' specific business property features (see Bodenmann & Axhausen, 2011; Maoh & Kanaroglou, 2007; Van Oort et al., 2007). Although De Bok and Sanders (2005) made a distinction between relocating firms choosing different types of property, this distinction was based on firm sector codes, not actual real estate data. The little interest paid to property features in neighbourhoods in the study of (re)location behaviour of firms is mostly due to data limitations. Most firm-level registers do not provide information on real estate characteristics. Consequently, in studies based on large datasets, all firm relocations are treated as equal, which has important limiting implications. For example, firm relocation studies have not explicitly dealt with the fact that home-based entrepreneurs, a growing group of economic activity located in residential properties, will focus relocation decisions around a different set of motives (i.e., private life considerations) than firms located in commercial properties.

Using register data, this paper addresses the need for consideration of intra-municipal and real estate circumstances in the destination choices of relocating firms in the city of Amsterdam in the Netherlands. The research population consists of firms that *originate* from a residential neighbourhood in Amsterdam. For their *destination*, each neighbourhood in Amsterdam can be chosen, including the city centre,

an office park or an industrial estate. The research focus on firms originating from urban residential neighbourhoods is based on the notion that these areas comprise the largest possible heterogeneity in firms, sectors and real estate characteristics (Jacobs, 1969; Duranton & Puga 2000). Overall, we answer the following question: Which neighbourhood factors attract intra-municipal relocating firms, and does this differ between sectors and for commercial property-based and residential property-based firms? To answer this question, individual-level register data on firms were combined with property-level real estate data and Statistics Netherlands (CBS) neighbourhood data. Real estate information on the firms' origin and destination locations enabled us to account for whether a firm relocates to and from a commercial property or a residential property. A differentiation between firms active in different sectors was also made, which is an important condition for gaining a proper understanding of firm destination location choices in general, and in the two types of real estate in particular (Kronenberg, 2012). In answering this research question, the study contributes to existing relocation literature in several ways. Primarily, it considers neighbourhood pull factors for intra-municipal firm relocations for the first time. Second, it distinguishes between firms in commercial properties and those in residential properties with varying sectoral foci. Third, it explores the role of the local real estate stocks by including a real estate-related neighbourhood pull factor.

The paper is structured as follows. Section 2 offers a background to the specificity of the urban residential neighbourhood as a local environment for economic activity and why it is important to consider pull factors at the neighbourhood level. In section 3, the theoretical argument concerning pull factors relevant at the neighbourhood level is introduced. This argument is the basis for four specific hypotheses introduced after the corresponding theoretical arguments and two general assumptions, which are introduced at the end of the third section. Section 4 introduces the data and method used in our empirical testing. Section 5 specifies our modelling strategy. Section 6 discusses the results of our analysis leading to the conclusions presented in Section 7.

4.2 Economic activities in urban residential neighbourhoods

Our empirical study focuses on the relocation behaviour of firms that originate from *urban residential neighbourhoods* and relocate within their municipality of origin. There are two reasons for choosing such a specific research area: conceptual richness and policy relevance.

First, firm relocation within the municipality of origin is most common, which suggests that in choosing a new location, entrepreneurs are affected by factors that

differ across neighbourhoods within a city. Because residential neighbourhoods offer a local environment that is more diverse than homogeneous work environments such as office parks, industrial estates and central business districts, these neighbourhoods potentially offer insight into the diverse firm population from which new and migrating establishments emerge (Duranton & Puga 2004) that, when firm relocation occurs, might consider a divergent pattern of location choices. Furthermore, with regard to business property characteristics, residential neighbourhoods offer the greatest possible heterogeneity of firms located in different types of properties, be they residential, retail, office or other production sites. In turn, this phenomenon might influence the pull factors of importance in locational destination choices (Duranton & Puga 2000). For example, there is an increasing proportion of solo entrepreneurs that tend to be located at home (i.e., in residential properties). Location studies hardly differentiate between home-based businesses (HBBS) and firms in commercial properties (FCPS). HBBS are often treated the same as all other firms in the population: as profit maximisers in the pure economic sense of the term, suggesting that firms will choose to locate where their profit is optimal (Weber, 1969). However, if HBBS relocate, private life considerations, such as increased need for floor space due to family expansion or being close to an urban cultural infrastructure (Karsten, 2003), might outweigh factors such as firm growth, local market demand and firm accessibility.

Second, within the Netherlands, there are numerous local economic development programs geared toward revitalisation of the neighbourhood economy, and in other European countries, the local economy is at the heart of municipal policy debates (Welter et al., 2007; OECD, 2003). The rationale for a strong local neighbourhood economy is frequently geared toward fostering local entrepreneurship, but it is also partly the result of increased policy attention paid to mixed urban neighbourhoods. This phenomenon in turn is nourished by the fact that in an increasingly flexible and knowledge-based economy, residential neighbourhoods are able to accommodate firms (Folmer & Risselada, 2012; Gospodini, 2006; Hutton, 2004). Unlike manufacturing firms, firms active in business services and information, communication and technology (ICT) do not need very specific business properties and rarely cause nuisance and pollution. For these firms, the residential neighbourhood seems to be a perfect business arena. Lastly, the policy rationale for a strong neighbourhood economy is also founded on the idea that a vibrant local economy attracts people, creating local 'buzz', and with that, an increased number of 'eyes on the street' (Jacobs, 1972). By showing which neighbourhood factors attract firms from different business property types, this study gives insight into the relocation choices of firms that decide to relocate within their own municipality. In doing so, it considers whether local policies aiming at revitalising neighbourhood economies are useful and whether these should target area-based policies, real estate projects or individual entrepreneurs (Haughwout, 2010).

4.3 Theoretical framework

Throughout this dissertation, we have used a categorisation that distinguishes internal from external factors influencing firm relocation. Internal factors are those that can be linked to either entrepreneurial or firm characteristics. It is important to control for those internal characteristics that can cause sorting effects (Ionnides & Topa 2010, Ellen & O'Regan 2010). External factors can relate to the specific features of the business premises, such as the size and ownership of the business property and whether the firm is located in a residential or commercial property. We labelled these *firm-related location factors*. External factors can also relate to the more general environment, such as neighbourhood characteristics, both at the origin and destination locations, which we labelled *environment-related location factors* (see Table 4.1). In this study, the term *origin location* refers to the former business location while the term *destination location* refers to the current business location.

Table 4.1: Categorisation of relocation factors

Internal factors	Characteristics of the entrepreneur
	Characteristics of the firm
External factors	Firm-related location factors (e.g., business property factors)
	Environment-related location factors (e.g., neighbourhood factors)

Before discussing the expected influence of neighbourhood pull factors on firm relocation behaviour, it is important to note that the influences of some of these neighbourhood factors are expected to be different for firms in different types of properties and for firms active in different sectors. First, recent studies on firm location choices have stressed the fact that firm property factors are of key importance in the location choice, more so than factors related to the local surroundings (Sleutjes, 2012; Risselada & Schutjens, 2012). Still, the surroundings of a specific property influence intra-municipal location choices as well (Weterings, 2012). These locational characteristics contextualise the specific business premise: an entrepreneur is more likely to relocate to a property in a neighbourhood that maximises the firm's profits (or the entrepreneur's private life benefits) than to a similar type of property in a neighbourhood that does not have these preferred characteristics. Considering the above, firms in different business property types (residential or commercial) will value neighbourhood pull factors differently. As argued in the introduction, relocation studies hardly differentiate between firms

located in residential properties and those located in business properties. As the number of HBBS comprises an ever larger part of the firm population (Mason et al., 2011), in explaining neighbourhood pull factors, it is important to consider this business property dimension and differentiate between firms that relocate to residential properties (HBBS) and firms that relocate to commercial properties. Second, location factors, such as market potential and accessibility (be it physical or otherwise), can be judged and compared between neighbourhoods. However, the importance of some neighbourhood characteristics differs between sectors (Weterings, 2012; Kronenberg, 2012, Risselada et al., 2013). Therefore, we also analyse neighbourhood pull factors separately based on a categorisation in three sectors: consumer services; ICT and business services; and industry, construction, wholesale and storage.

Getting to the actual pull factors at the neighbourhood level, according to the literature – which mostly considers regional or municipal location factors not measured at the neighbourhood level – the following characteristics are likely to be of importance to intra-municipal firm relocation choices: accessibility, spending power, liveability and the structure of the local real estate property. Elaborations on these four characteristics are presented below, leading to four hypotheses. After the hypotheses are introduced, two general expectations of the difference between the relocation behaviour of firms in commercial properties and firms in residential properties are put forward. The theoretical section concludes with a summary of the control factors.

Location studies at the inter-municipal level suggest that accessibility by road is a very significant pull factor for firms (Holl, 2004; Van Oort et al., 2007, De Bok & Sanders, 2005). The studies of Van Oort et al. (2007) and De Bok & Sanders (2005) are based on data from the Netherlands, where place-based policies for the development of industrial estates on the outskirts of municipalities or in locations with good visibility along the highway have attracted firms due to readily available business properties (Olden, 2010). These types of areas generally are easily accessible by car, and there might be an unobserved relation between the accessibility of certain locations and the availability of real estate properties in these locations (Koster, 2013). This suggests that it is difficult to isolate the effect of road accessibility for inter-municipal relocations. At the intra-municipal level, there is not much research on accessibility as a neighbourhood *pull* factor. A recent study does show that, as a *push* factor, accessibility at the neighbourhood level is not a significant driver of relocation (Risselada et al., 2013). Taking the above into consideration, evidence on the importance of accessibility at the intra-municipal level is not very unequivocal. However, based on the results of inter-municipal relocation studies on pull factors, and in line with the classical economic location theory suggesting that accessibility to both suppliers and to customers reduces transaction costs

(Weber, 1969), it is likely that firms value road accessibility as a pull factor. However, this classical economic location assumption is based on pure rational location behaviour in terms of the profit maximisation of the firm, disregarding the private choices of entrepreneurs and their households. With regard to accessibility, it is thus important to keep in mind that firms that are home based might place less value on these types of factors and therefore value accessibility to a lesser degree.

Hypothesis 1: For firms relocating to commercial properties, neighbourhood road accessibility is a stronger pull factor than for firms relocating to residential properties.

Purely based on the classic location theory that small distances to the market maximise firm profits, neighbourhoods with high economic prosperity are expected to attract relocating firms. However, for intra-municipal relocations, in an urban economy with scarce amounts of space, it can be assumed that high economic prosperity of a residential neighbourhood is positively related to high real estate prices. At an inter-municipal level, higher land prices negatively affect destination choices (Bodenmann & Axhausen, 2011). Still, these real estate prices capture not only the specific value of the characteristics of the real estate property but also the attributes of the local environment.¹ The higher the property prizes are, the more these areas can be considered attractive environments. Thus, there are arguments to support hypotheses on both negative and positive effects of relocation based on local economic prosperity. Based on a sectoral differentiation, it is a plausible argument that for consumer-related sectors, high local spending power increases market demand and indicates a larger market potential. Based on the idea that the location choices of firms revolve around choosing an optimal location in terms of market access, it is expected that firms that depend on local costumers – consumer services – are attracted to prosperous neighbourhoods.

Hypothesis 2: More so than other sectors, relocating firms active in consumer services are attracted to economic prosperous neighbourhoods.

Liveability pull factors at the neighbourhood level have not been studied before, but because pull and push factors are very much interrelated (Van Wissen, 2000), the hypotheses below are formulated on evidence found in studies on neighbourhood *push* factors. Several authors have shown that although firm characteristics play more crucial parts, disadvantaged neighbourhoods have more firms moving

1 As in hedonic pricing methods often used in real estate research (Des Rosiers et al., 2000; Koster 2013).

out than average neighbourhoods do (Gottlieb, 1995; Raspe et al., 2010; Sleutjes & Beckers, 2012). Sleutjes & Beckers (2012) found evidence that for some firms relocating from disadvantaged neighbourhoods, the local market situation and liveability were primary concerns in their relocation behaviour. Based on this evidence of neighbourhood liveability as a push factor, we expect that firms are also less likely to relocate to disadvantaged neighbourhoods and neighbourhoods with low scores on liveability.

The above reasoning suggests that, in general, neighbourhood liveability has a positive influence on a firm's destination choice. Weterings (2012) has shown that in the Netherlands, consumer services in particular are sensitive to safety issues, and safety is also an aspect of liveability. For home-based firms, liveability factors are expected to have a larger positive effect as well. As their household relocation choices are centred on private life aspects, HBBS are likely to put more emphasis on the liveability aspects of a neighbourhood than firms relocating to a commercial property. Again, although there is no evidence on liveability as a neighbourhood pull factor, we know that for HBBS, as a push factor, liveability has a negative effect on the likelihood of firm relocation (Risselada et al., 2013).

Hypothesis 3a: Generally, firms are more attracted to places with high scores on neighbourhood liveability than to neighbourhoods with low scores on liveability.

Hypothesis 3b: This positive effect of liveability is stronger for firms that are active in consumer services than for other relocating firms.

Hypothesis 3c: This positive effect of liveability is stronger for firms that relocate to a residential property than for firms relocating to a commercial property.

For relocating firms originating from commercial properties, the availability of commercial real estate is a main concern. For example, policy-based research by Olden (2010) and the Netherlands Environmental Assessment Agency (PBL) has shown that cheaper and readily available real estate located in more homogenous work areas, such as industrial estates and office parks, lures firms out of residential areas to industrial estates and to the fringes of urban areas (Raspe et al., 2010). Readily available space in neighbourhoods that contain industrial or business land-use zones within their borders is expected to be a significant pull factor for firms that relocate to or from commercial properties (Lizieri, 2003; Louw, 2009; Olden, 2010). For firms relocating to residential properties, this effect is not preordained.

Hypothesis 4: Firms relocating to commercial properties are attracted to neighbourhoods that include business or industrial estates (more so than firms relocating to residential properties).

In addition to these hypotheses, there are two more general expectations about the location behaviour of HBBS compared to that of firms in commercial properties that we want to test. First, although an “agents’ strategies and actions may deviate from existing development paths” (Bathelt & Glückler, 2003:128), entrepreneurs are likely to make path-dependent choices with regard to business properties (Risselada & Schutjens, 2012). We therefore expect that firms stick with their former property choice in the sense that the conditions of the previous property influence the choice for a destination property. In other words, HBBS are likely to relocate to residential properties, while firms based in commercial properties are likely to relocate to commercial properties. To test this proposition, our modelling results in section 6 are presented for both the origin property (differentiating between firms relocating *from* residential versus commercial properties) and the destination property (differentiating between firms relocating *to* residential versus commercial properties). There is also an analysis of the *change* in property type in which four categories are distinguished: within commercial property, from commercial to residential property, from residential to commercial property, and within residential property. A second general expectation is that neighbourhood pull factors better explain the destination choices of firms that relocate to or from commercial properties than the destination choices of firms that relocate to or from residential properties. While focusing on pull factors that are theoretically assumed to influence *firm* location behaviour, HBBS are more likely to deviate from this path: they place more emphasis on factors related to the household. Thus, when distinguishing between property types, the model explaining the destination choices of firms in commercial properties will have a better fit than the model explaining the destination choices of HBBS.

In our analysis, we control for several neighbourhood characteristics that theoretically are of importance in explaining the destination choices of relocating firms. The economic geographic literature concerned with location analysis has emphasised the importance of firms benefiting from agglomeration externalities, both in terms of diversity (urbanisation or Jacobian externalities) and specialisation (localisation or Marshallian externalities) (Duranton & Puga, 2001; Glaeser et al., 1992; Porter, 1998; Rosenthal & Strange, 2004). Although these insights have primarily been confirmed on a regional level², we do control for specialisation and diversity

2 Van Soest et al. (2006) show that processes of agglomeration, diversity and specialisation function on several spatial levels simultaneously, including the neighbourhood level.

at the neighbourhood level as well. Density has also been found to be an important pull factor at the municipal level (Kronenberg, 2012) and is a significant keep factor at the neighbourhood level (Weterings, 2012). Consequently, we control for the density of the neighbourhood in terms of both firms and population. We also control for the distance between the origin and destination locations. The reason for controlling for this distance at the intra-municipal scale is not so much the presumed decay of social and business networks with distance, as we assume that such networks remain stable when relocating within the municipality (Knoben & Oerlemans, 2008; Stam, 2003). However, distances between origins and destinations should be accounted for with regard to local market orientation, bounded information channels and place attachment (Van Dijk & Pellenbarg, 2000; Kronenberg, 2012).

4.4 Research area, data and methods

As argued in section 2, firms in urban residential neighbourhoods are part of a local environment that is more diverse than formal work-related areas such as office parks, industrial estates and city centres or shopping malls. With regard to firm and property characteristics, these districts provide a diverse research population in which firms are located in various types of real estate. The research population consists of firms that *originate* from an urban residential neighbourhood. Any neighbourhood in the municipality can be chosen as a *destination* location except the neighbourhood of origin.

The research area consists of residential neighbourhoods in the municipality of Amsterdam, the Netherlands, based on borders defined by Statistics Netherlands (CBS). Figure 4.1 shows the CBS neighbourhood classification. These residential neighbourhoods have an average size of 8,500 inhabitants but have a very wide population range, from 1,300 to 26,000. In terms of square kilometres, the neighbourhoods are also diverse, ranging between 0.6 and 3.5 km². The office of statistics of the municipality of Amsterdam (O+S Amsterdam) provided us with property-level data on firm establishments for the years 2005 to 2008. These entries were combined with the LISA registers³ of 2005 to 2008. The LISA register consists of all firm establishments in the Netherlands, with both employment and address information. For the four study years, we identified relocating firms by comparing

3 The National Information System of Employment register (LISA-*Landelijk Informatie Systeem Arbeidsplaatsen*) includes firm-level data on all business establishments in the Netherlands with a spatial component (address) and a socio-economic component (employment and sector).

6-digit postal codes⁴. Relocating firms were identified as those registered firms that in a given year had a different postal code than they had in the following year. The combination of both data sources provided a unique dataset that allowed us to trace relocating firms and have information on the origin properties for the period 2005–2008 and on the destination properties for the period 2005–2007. On the basis of the destination neighbourhoods, we included information at the neighbourhood level. Some of these neighbourhood data were available from Statistics Netherlands; others were aggregated variables constructed via the LISA register or other sources (see Table 4.3).

Figure 4.1: CBS Neighbourhood classification and neighbourhood selection



Source: Cartografische Afdeling, Faculty of Geosciences, Utrecht University

4 In the Netherlands, a 6-digit postal code is the most specific part of the address, indicating part of a street.

The research area is partly the result of the availability of the property-level real estate data from the municipality of Amsterdam. Amsterdam is, in a European context, a representative advanced urban economy in the sense that it is not a very large urban agglomeration, such as Paris or London, but it is a dynamic urban economy with agglomeration externalities and quite a few European headquarters of multinationals (Koster, 2013). Both functional and social mixing policies have been part of Amsterdam's spatial planning instruments, resulting in its residential neighbourhoods being home to quite heterogeneous business and residential populations.

Table 4.2 provides an overview of the firm population in Amsterdam during the period of 2005–2008. It is important to note that these are 'firm-years', meaning that it is a combined dataset of 4 years in which each of the 4 years that a firm is present in the data counts as a case. It is important to note that the firm population only includes those firms that existed at T-2 years. To put it another way, a firm's presence in the data is always conditional on the survival of the previous two years. In this sense, our firm population consists of relatively stable firms that survived the initial two years and of which the 'liability of newness' has somewhat eroded (Bruderl & Schussler, 1990). Table 4.2 shows the average yearly share of Amsterdam-based relocating firms (6%). Of all the relocating firms, 24% relocated out of Amsterdam, while 76% relocated within Amsterdam. Of these intra-municipal relocations, 82% relocated out of their original neighbourhood, as defined by CBS borders, while 18% relocated within the neighbourhood of origin.

Table 4.2: Inter-municipal and intra-municipal relocations of Amsterdam firms

	<i>firm-years</i>	<i>Percentage</i>
Firm population 2005–2008	114,748	100%
Firms staying put 2005–2008	107,639	94%
Firm relocations 2005–2008	7,109	6%
Firm relocations 2005–2008 out of Amsterdam	1,836	26%
Firm relocations 2005–2008 within Amsterdam	5,273	74%
Firms relocations 2005–2008 out of origin neighbourhood	4,312	82%
Firm relocations 2005–2008 within origin neighbourhood	961	18%

As a starting point for the analysis, we used the dataset in which we selected the firms that relocated within the municipality but out of the neighbourhood of origin to another neighbourhood in Amsterdam during the period of 2005–2008 (See Table 4.2, N=4,312). Due to data constraints, some of the relocating firms

could not be linked to a destination neighbourhood⁵, resulting in a final population of 3,966 *intra*-municipal but *inter*-neighbourhood relocating firms during the period of 2005 to 2008.

4.5 Model specification

To analyse the neighbourhood destination choices of relocating firms, we use McFadden's (1974) random utility maximisation framework to estimate a conditional logit model (CLM)⁶ across 93 potential neighbourhoods within the municipality of Amsterdam. Conditional on the decision to relocate, firm i chooses neighbourhood j among all possible neighbourhood alternatives k ($n=92$) where profit U_{ij} is maximally utilised. The number of 92 neighbourhood alternatives (k) is based on the total of 93 Amsterdam neighbourhoods minus the neighbourhood of origin.

$$P_{ij} = \frac{\exp(U_{ij})}{\sum_{k=1}^n \exp(U_{ik})} \quad (1)$$

The profit function, however, cannot be observed directly, but only via the characteristics of the neighbourhoods. It is assumed that the systematic part of the profit is related to the likelihood that firm chooses neighbourhood j . The profit function is assumed to be explained by a set of regressors that reflect both location-specific neighbourhood characteristics that are equal for all firms and location- and sector-specific neighbourhood characteristics (for example, the degree of sector specialisation for firm active in consumer services in neighbourhood j).

$$U_{ij} = \beta_1 X_{ij}^1 + \beta_2 X_{ij}^2 + \dots + \beta_m X_{ij}^m \quad (2)$$

The CLM assumes independence of irrelevant alternatives (IIA), according to which assumption, odds are determined without reference to other outcomes that might be available (Long, 1997). For our analysis, the IIA assumption implies that each relocating firm can choose among 92 neighbourhoods in the municipality of Amsterdam, without accounting for possible alternatives located outside the municipal borders. This factor does not have severe implications because we only

5 The 6-digit postal code at T and the 6-digit postal code at T+1 were used to identify relocating firms. However, not all T+1 postal codes could be matched to a CBS-defined neighbourhood.

6 Many location studies use count data models (CDMs); however, CLM is able to account for alternative-specific variables. Keeping the analysis at the level of the individual decision maker (firm) was also preferred to a neighborhood-level analysis, characteristic of CDMs.

address intra-municipal relocations, conditional on the decision to relocate (i.e., the decision to relocate within the municipality is made prior to the decision to which neighbourhood to relocate to). McFadden (1974) suggested that, because of the IIA assumption, conditional logit models are especially useful when outcome categories “can plausibly be assumed to be distinct and weighed independently in the eyes of each decision maker.” (McFadden, 1974:113) In this sense we do assume that neighbourhoods are ‘rationally’ weighted against other alternative neighbourhoods in the city.

For the conditional logit model on neighbourhood pull factors, the dependent variable is a binary variable that indicates whether the neighbourhood alternative is chosen by firm. Table 4.3 shows the distribution across sectors and the origin and destination properties of the relocating firms, the key independent neighbourhood variables and the neighbourhood control variables. Table 4.3 shows that the majority of the firms are active ICT or business services. Approximately 70% of relocating firms originate from residential properties. Furthermore, 70% of the firms for which we could include a destination property⁷ relocated to residential properties. Focusing on the relocation itself, approximately 14% of firms originating from residential properties relocated to commercial properties, and a surprisingly large share of firms based in commercial properties relocated to residential properties (12%).

The proxy measuring the spending power of the neighbourhoods (neighbourhood prosperity) and the liveability of the neighbourhoods (neighbourhood liveability) deserves some further explanation. These factors were constructed by means of a principal component analysis (PCA), generating two components from seven indicators of socio-economic neighbourhood status. The ‘neighbourhood prosperity’ component reflects the market potential of the neighbourhood. It includes the average income, property values and the percentage of households with high incomes. ‘Neighbourhood liveability’ is a construct indicating the social status of a neighbourhood. It is the reverse score of the percentage of non-active residents, welfare recipients, unemployed residents and tenant housing, which in the case of Amsterdam is primarily social housing. A measure of liveability should also proxy the degrees of safety and nuisance in the neighbourhood (Raspe et al., 2010). Therefore, we included a dummy variable based on the ‘liveability barometer’, which is constructed by the Dutch government’s Ministry of Housing, Building and Integration (DG WBI). This liveability barometer measures neighbourhood liveability with respect to a large number of indicators divided into 6 dimensions, namely, housing stock, public space, amenities, demographics, social cohesion and

7 Without destination properties of 2008 because of non-available data on destination properties in 2009 (N=2,614)

safety. As Table 4.3 shows, according to this index, 26% of the residential neighbourhoods in Amsterdam have a low score on the liveability barometer. The two accessibility variables measure the average distance of all neighbourhood inhabitants from the nearest train station and the nearest highway ramp in kilometres. The variable ‘industrial estate within neighbourhood’ in Table 4.3 shows that 23% of the residential neighbourhoods have industrial land-use zones within their borders. This finding is an indication of the neighbourhood real estate stock, reflecting the presence of local commercial business properties.

Control variables in the analysis of neighbourhood pull factors included a measure of distance, which is the average distance from the neighbourhood of origin to the destination neighbourhood, based on x and y coordinates. We controlled for two density variables: one for the number of firms per inhabitants and one for population density, as measured by the number of addresses per square kilometre. Controls also included a Herfindahl measure for sector diversity (Henderson et al., 1995). This Herfindahl measure, H_j , is the sum of squares of the shares of firm establishments in sectors in neighbourhood j . If the index is 1, the whole neighbourhood economy is composed of one sector. Accordingly, smaller values indicate sectoral diversity of the specific sector of the firm in neighbourhood j .

$$H_j = \sum_k \left(\frac{E_{jk}}{E_j} \right)^2 \tag{3}$$

Last, we included a control variable for sector specialisation to measure the share of firm establishments in neighbourhood j that are active in the same sector as firm i .

Table 4.3: Descriptive statistics

2005–2008 N= 3,966 / 2005-2007 N= 2,614							
	%	Mean	SD	Minimum	Maximum	Source ⁺	Year
Sector and property distribution							
Sector							
Industry, construction, wholesale and storage	16%					LISA	2005-2008
Consumer services	31%					LISA	2005-2008
ICT and business services	53%					LISA	2005-2008

2005–2008 N= 3,966 / 2005–2007 N= 2,614							
	%	Mean	SD	Minimum	Maximum	Source ^a	Year
Origin property							
Residential	69%					O+S Amsterdam	2005–2008
Commercial	31%					O+S Amsterdam	2005–2008
Destination property							
Residential	69%					O+S Amsterdam	2005–2008
Commercial	31%					O+S Amsterdam	2005–2008
Relocation origin and destination property types							
From commercial to commercial property	16%					O+S Amsterdam	2005–2007
From residential to commercial property	14%					O+S Amsterdam	2005–2007
From commercial to residential property	12%					O+S Amsterdam	2005–2007
From residential to residential property	58%					O+S Amsterdam	2005–2007
Key neighbourhood destination variables							
Neighbourhood prosperity		0.77	1.42	-0.93	5.38	CBS	2005&2007
Neighbourhood liveability		-0.82	0.55	-1.83	1.00	CBS	2005&2007
Low score on 'liveability barometer' (0/1)*	26%					DG WBI	2006
Access by train		2.30	1.32	0.50	6.90	CBS	2007
Access by car		2.21	0.99	0.40	4.40	CBS	2007
Industrial estate within neigh. (0/1)	24%					PBL	2006
Neighbourhood destination control variables							
Distance		3226.32	2481.10	17.88	16530.36	O+S Amsterdam	2005–2007
Population density		6201.43	3294.60	237	12067	CBS	2005&2007
Firm density		0.45	1.48	0.03	10.61	CBS and LISA	2007
Herfindahl		0.32	0.05	0.21	0.49	LISA	2007
Specialisation		1.06	0.30	0.36	2.61	LISA	2007

^aO+S Amsterdam: Office of statistics of the municipality of Amsterdam. LISA: National Information System of Employment. CBS: Statistics Netherlands. PBL: Netherlands Environmental Assessment Agency, DG WBI: Ministry of Housing, Building and Integration

* This variable was only included in model 1 for general firm relocations.

The data for the analysis on neighbourhood pull factors encompasses four years of information on relocating firms for which we assume that neighbourhood characteristics are stable over time. The study period was one of economic prosperity, but it is taken for granted that this economic growth is equally distributed among neighbourhoods. For the specialisation measure, the Herfindahl index and the variable measuring the number of firm per inhabitants, the data were taken from the corresponding year. For the two PCA components measuring neighbourhood prosperity and liveability, a combination of 2005 and 2007 data was used. For other neighbourhood variables, Table 4.3 shows the source and year of the data used.

4.6 Results

In this section, we first discuss hypotheses one through four and then discuss an argument concerning whether the results are in line with the expectation that firms tend to make path-dependent property choices and whether the variables incorporated in the model better explain the location choice behaviour of firms in commercial properties than the location choice behaviour of HBBs. A concise clarification of the effect of control variables is put forward at the end of the section.

We draw our conclusions based on the models that are presented in tables 4.4, 4.5 and 4.6 (pages 98-105). Table 4.4 shows the conditional logit model analysing the relocation destination choice of all relocating firms. In this model, the variables are added in four steps to show whether adding independent variables influences the explanatory power of other variables. The first step models only the prosperity and liveability variables. The second step includes the accessibility variables. The third step adds the real estate variable, and in the fourth step, the control variables (except distance) are added. The distance control variable is added in the first step, prior to the addition of the other variables, as in spatial gravity models (see Van Oort et al., 2007). Table 4.5 shows only the full model but distinguishes by firm sector. Table 4.6 shows the full model by business origin and destination locations. Table 4.7 makes a more precise distinction by relocation behaviour between origin and destination locations.

Table 4.4 shows that in general terms, firms are more likely to relocate to neighbourhoods that are relatively easily accessible by car than to less accessible neighbourhoods. The first hypothesis was that for firms relocating to commercial properties, neighbourhood accessibility is a stronger pull factor than for firms relocating to residential properties. This hypothesis is confirmed when looking at the results in Table 4.6, in which the coefficient for the variable 'access by car' is stronger for firms relocating to commercial properties than for firms relocating to residential properties. The results are confirmed by the data on the origin locations;

Table 4.4: Neighbourhood pull factors (conditional logit model)

	<i>All Firms</i>		
	Socio-economic		
	<i>Coeff.</i>		<i>S.E.</i>
Distance	-0.0003	***	8.0E-06
<i>Key neighbourhood destination variables</i>			
Neighbourhood prosperity	0.0899	***	0.0125
Neighbourhood liveability	0.1285	***	0.0319
Low score on 'liveability barometer' (0/1) ^a	0.0782	*	0.0446
Access by train			
Access by car			
Industrial estate in neighbourhood (0/1)			
<i>Neighbourhood destination control variables</i>			
Population density			
Firm density			
Herfindahl			
Specialisation			
N			368,838
Log likelihood			-17,057
Pseudo R2			0.051

^aThis variable is left out of the computations in tables 4.5, 4.6 and 4.7.

*** = P<0.01; ** = P<0.05; * = P<0.1

ADD accessibility			ADD structure of real estate market			ADD controls		
<i>Coeff.</i>		<i>S.E.</i>	<i>Coeff.</i>		<i>S.E.</i>	<i>Coeff.</i>		<i>S.E.</i>
-0.0003	***	8.2E-06	-0.0003	***	8.2E-06	-0.0003	***	8.2E-06
0.0806	***	0.0131	0.0809	***	0.0131	0.0773	***	0.0139
0.1755	***	0.0340	0.1689	***	0.0346	0.0819	**	0.0370
0.1309	***	0.0457	0.1247	***	0.0460	0.0595		0.0495
-0.0119		0.0134	-0.0127		0.0134	-0.0518	***	0.0144
0.1183	***	0.0172	0.1211	***	0.0174	0.1485	***	0.0172
			0.0403		0.0395	-0.2135	***	0.0449
						-0.0001	***	7.0E-06
						0.0835	***	0.0135
						-1.1667	***	0.3686
						0.5493	***	0.0505
368,838			368,838			368,838		
-17,033			-17,033			-16,899		
0.052			0.053			0.060		

Table 4.5: Neighbourhood pull factors by sector (conditional logit model)

	<i>By Sector</i>		
	Industry, construction, wholesale and storage		
	<i>Coeff.</i>		<i>S.E.</i>
Distance	-0.0003	***	1.9E-05
<i>Key neighbourhood destination variables</i>			
Neighbourhood prosperity	-0.1317	***	0.0446
Neighbourhood liveability	0.1640	**	0.0817
Access by train	-0.0469		0.0353
Access by car	0.0949	**	0.0442
Industrial estate in neighbourhood (0/1)	-0.1341		0.1057
<i>Neighbourhood destination control variables</i>			
Population density	-0.0001	***	1.7E-05
Firm density	0.0891	***	0.0300
Herfindahl	-0.6295		1.0730
Specialisation	0.0967		0.1362
N			58,962
Log likelihood			-2,722
Pseudo R2			0.053

***= P<0.01; ** = P<0.05; * = P<0.1

Consumer			ICT and business services		
<i>Coeff.</i>		<i>S.E.</i>	<i>Coeff.</i>		<i>S.E.</i>
-0.0003	***	1.4E-05	-0.0003	***	1.2E-05
0.0983	**	0.0352	0.1205	***	0.0233
0.0181		0.0583	0.1088	**	0.0459
-0.0804	***	0.0269	-0.0462	**	0.0234
0.0897	***	0.0314	0.1943	***	0.0236
-0.2046	*	0.0849	-0.1640	**	0.0633
-0.0001	***	1.2E-05	-4.1E-05	***	9.3E-06
0.0930	***	0.0226	0.0795	***	0.0187
-2.8319	**	1.0311	-1.9354	***	0.5627
1.0646	***	0.2657	0.5345	***	0.1376
		115,227			194,649
		-5,295			-8,848
		0.057			0.067

Table 4.6: Neighbourhood pull factors by property origin and destination (conditional logit model)

	<i>By destination property</i>		
	To commercial property		
	<i>Coeff.</i>		<i>S.E.</i>
Distance	-0.0004	***	2.0E-05
<i>Key neighbourhood destination variables</i>			
Neighbourhood prosperity	0.2455	***	0.0275
Neighbourhood liveability	-0.1352	*	0.0776
Access by train	-0.1048	***	0.0363
Access by car	0.2877	***	0.0401
Industrial estate in neighbourhood (0/1)	0.5181	***	0.1000
<i>Neighbourhood destination control variables</i>			
Population density	-3.7E-05	**	1.6E-05
Firm density	0.1796	***	0.0215
Herfindahl	-4.6790	***	0.8837
Specialisation	0.7099	***	0.1031
N ^a	74,586		
Log likelihood	-3,238		
Pseudo R2	0.109		

*** = P<0.01; ** = P<0.05; * = P<0.1

^a Because the information on the destination property has to be taken from the following year (T+1) and because no real estate property-level data for the year 2009 were available, we could not include information about the destination properties of firms that relocated in 2008. Therefore, when we account for the destination property choice, the outcomes are based on a smaller number of cases (N=2,614).

<i>By origin property</i>								
To residential property			From commercial property			From residential property		
<i>Coeff.</i>		<i>S.E.</i>	<i>Coeff.</i>		<i>S.E.</i>	<i>Coeff.</i>		<i>S.E.</i>
-0.0003	***	1.2E-05	-0.0004	***	1.7E-05	-0.0003	***	9.4E-06
0.1009	***	0.0224	0.1704	***	0.0220	0.0271	*	0.0162
0.3101	***	0.0528	0.0792		0.0613	0.0548		0.0383
-0.0736	***	0.0207	-0.1038	***	0.0289	-0.0357	**	0.0167
0.1228	***	0.0268	0.1823	***	0.0318	0.1440	***	0.0206
-0.3302	***	0.0709	0.1188		0.0810	-0.3299	***	0.0544
-0.0000345	***	9.8E-06	-0.0001	***	1.3E-05	-0.0001	***	7.7E-06
-4.4004	***	0.4944	0.2040	***	0.0176	-0.0418	*	0.0231
3.2741	***	0.7715	-2.2691	***	0.6687	-0.9770	**	0.4511
0.5634	***	0.0844	0.5683	***	0.0905	0.5529	***	0.0615
168,516			112,995			255,843		
-7,625			-5,024			-11,762		
0.071			0.088			0.057		

**Table 4.7: Neighbourhood pull factors by type of origin and destination property
(conditional logit model)**

	<i>By type of origin and destination property</i>		
	From commercial property		
	To commercial property		
	<i>Coeff.</i>		<i>S.E.</i>
Distance	-0.0004	***	3.1E-05
<i>Key neighbourhood destination variables</i>			
Neighbourhood prosperity	0.2373	***	0.0366
Neighbourhood liveability	-0.0841		0.1082
Access by train	-0.0610		0.0505
Access by car	0.1944	***	0.0561
Industrial estate in neighbourhood (0/1)	0.3765	***	0.1406
<i>Neighbourhood destination control variables</i>			
Population density	-0.0001	**	2.2E-05
Firm density	0.2658	***	0.0274
Herfindahl	-2.9579	**	1.1633
Specialisation	0.7698	***	0.1474
N			39,804
Log likelihood			-1,702
Pseudo R2			0.123

*** = P<0.01; ** = P<0.05; * = P<0.1

From residential property To commercial property		From commercial property To residential property		From residential property To residential property	
<i>Coeff.</i>	<i>S.E.</i>	<i>Coeff.</i>	<i>S.E.</i>	<i>Coeff.</i>	<i>S.E.</i>
-0.0003 ***	2.8E-05	-0.0003 ***	3.5E-05	-0.0003 ***	1.3E-05
0.2473 ***	0.0423	0.1712 ***	0.0487	0.0861 ***	0.0253
-0.1912 *	0.1120	0.3568 ***	0.1310	0.3083 ***	0.0578
-0.1338 **	0.0528	-0.0711	0.0542	-0.0765 ***	0.0224
0.3914 ***	0.0581	0.1147 *	0.0656	0.1255 ***	0.0294
0.6466 ***	0.1430	-0.2150	0.1734	-0.3508 ***	0.0778
0.0000	2.3E-05	-3.3E-06	2.4E-05	-3.9E-05 ***	1.1E-05
0.0770 **	0.0366	-3.2067 ***	1.0426	-4.7273 ***	0.5612
-6.9536 ***	1.3833	1.5070	1.8662	3.6396 ***	0.8475
0.6523 ***	0.1463	0.4571 **	0.2105	0.5886 ***	0.0924
34,782		28,551		139,965	
-1,517		-1,298		-6,320	
0.105		0.068		0.074	

again, firms originating from commercial properties are more prone to value car accessibility than HBBS. All the models show that accessibility by train is not a pull factor for firms that relocate within the municipality.

Second, we hypothesised that relocating firms active in consumer services are attracted to economically prosperous neighbourhoods, more so than other sectors. This hypothesis is only confirmed when comparing firms engaged in consumer services to firms engaged in industry, construction, wholesale and storage (Table 4.5). However, when comparing consumer services firms to firms active in ICT and business services, the hypothesis does not hold. ICT and business services firms have a far higher coefficient, indicating that these firms have a significantly higher tendency to relocate to economically prosperous neighbourhoods than consumer services. From earlier research, we know that firms active in ICT and business services are more likely to originate from residential properties than other sectors (Risselada & Folmer, 2012), and if home businesses are more attracted to prosperous neighbourhoods than other firms, one might argue that we measure an indirect HBB effect. However, when differentiating between property types in Table 4.6, we can see that firms originating from commercial properties are more strongly attracted to prosperous neighbourhoods than home-based businesses. Therefore, we can conclude that we are not indirectly measuring an HBB effect. Taking into account all firm sectors, the second hypothesis is rejected. The fact that ICT and business services are more likely to relocate to prosperous neighbourhoods might be because these firms, which often cater to non-local markets, do not consider nearby market potential but rather primarily value neighbourhood reputation or value the quality of the properties to be found in more prosperous neighbourhoods.

Hypotheses 3a, 3b, and 3c were related to local liveability as a neighbourhood pull factor. Hypothesis 3a was that, in general, firms are attracted to places with high scores on neighbourhood liveability. This hypothesis is confirmed with regard to the general liveability score as measured by the variable 'Neighbourhood Liveability' in Table 4.4, although the positive relationship diminishes with the inclusion of the control factors density, sector diversity and specialisation. Moreover, the effect of the dummy variable that accounts for a low score on the liveability barometer (which, in addition to the characteristics that are measured in 'Neighbourhood liveability', accounts for social cohesion, safety and characteristics of the housing stock) disappears when adding the control variables. In the latter models shown in tables 4.5, 4.6 and 4.7, the effect is not included⁸.

Hypothesis 3b stated that for firms active in consumer services, the liveability effect is stronger than for other relocating firms. Based on the results shown in Table

⁸ The variable did not prove significant in the general full model, and it also did not prove to make a difference in initial computations when differentiating among property types and sectors.

4.5, this hypothesis is rejected. Because the hypothesis was primarily based on the fact that consumer services are sensitive to safety issues, we also tested a model in which the dummy variable ‘low score on the liveability barometer’ was included. This approach did not yield any significant results. Overall, the results in Table 4.5 indicate that when differentiating among sectors, firms active in industry, construction wholesale and storage are most attracted to neighbourhoods with high liveability scores. Theoretically, you would expect exactly the opposite. As Table 4.8 shows, the share of HBBs in the sector industry, construction wholesale and storage is 25%, while in the other two sectors, it is approximately 31%. This finding suggests that we might be measuring a small indirect HBB effect.

Table 4.8: Property type by sector crosstab

	<i>Industry, Construction, Wholesale and Transport</i>	<i>Consumer Services</i>	<i>ICT and Business Services</i>	<i>Total</i>
HBB	25,1%	31,7%	31,7%	30,6%
Firms in commercial property	74,9%	68,3%	68,3%	69,4%

When not differentiated by sector but by property type, hypothesis 3c suggests that for firms relocating to a residential property, the effect of liveability is stronger than for other relocating firms. This hypothesis is confirmed by the results shown in Table 4.6 for destination properties. Interestingly, while there is a positive effect of liveability on the destination choice of firms that relocate to residential properties, there is a negative effect of liveability on firms relocating to commercial properties. This finding suggests that firms relocating to residential properties base their relocation on different sets of location factors than firms relocating to commercial properties. We also included a model that differentiates between firms relocating from commercial properties and firms relocating from residential properties. Looking at the property of origin, the effect of liveability is not significant for firms relocating out of both types of property, which suggests that the origin property is not a sufficient indicator of relocation behaviour when looking at neighbourhood pull factors. This phenomenon most likely has to do with the fact that although most firms relocate to the same type of property as their origin property, we do witness a substantial share of firms (26%) that relocate from residential to commercial properties or vice versa.

The fourth and final hypothesis argued that firms relocating to commercial properties are attracted to neighbourhoods that include business or industrial es-

tates and that for firms relocating to or from residential properties, this relationship is not present. This last hypothesis is confirmed, as Table 4.7 shows that for firms relocating to commercial properties, there is a positive relation between the likelihood of choosing the neighbourhood and the presence of industrial or business estates in the neighbourhood. Interestingly, HBBs show a negative coefficient, indicating that they are more likely to stay away from neighbourhoods with business or industrial land-use zones.

Overall, we expected that firms would make path-dependent business property choices. However, the results show that 26% of relocating firms deviate from their origin property choice, as 14% 'upsized', relocating from an HBB to a commercial property, while 12% choose to 'downsize', relocating from a commercial to a residential property. A second and more general expectation is that these primarily neo-classical neighbourhood pull factors better explain the destination choices of firms that relocate to or from commercial properties than the destination choices of firms relocating to or from residential properties. Table 4.7 clearly shows that this is indeed the case. The most economically 'rational' location choices are made by firms that relocate from commercial to commercial properties.

The control variables used show that agglomeration effects at the neighbourhood level are important in analysing intra-municipal firm relocation choices. Table 4.4 illustrates that intra-municipal relocating firms are generally attracted to neighbourhoods where there is a strong degree of specialisation in the firm's particular sector but preferably also diversity across sectors, as shown by the significant negative coefficient of the Herfindahl index. When we differentiate by sector in Table 4.5, we see that consumer sectors in particular are attracted to neighbourhoods characterised by specialisation in their own sector. We also see diversification among sectors, indicating that agglomeration economies are also at work on an intra-municipal neighbourhood level (Van Soest et al., 2006). When differentiating between HBBs and firms relocating out of commercial properties in Tables 4.6 and 4.7, we see that firms relocating to commercial properties are attracted to neighbourhoods that are characterised by diversity in sectors (measured by the Herfindahl index), while firms relocating to residential properties are attracted to neighbourhoods characterised by sectoral homogeneity. This could be because the residential neighbourhoods with homogenous firm populations are also those that are characterised by homogenous property stock that for a vast majority consists of residential properties. With regard to the density control variable, it is interesting to see that those neighbourhoods that have a high firm density attract firms relocating to commercial properties but deter firms relocating to residential properties.

4.7 Conclusions

The study described in this paper examines the neighbourhood characteristics influencing the destination choices of relocating firms in Amsterdam, the Netherlands. The study examined whether firms in commercial properties are attracted by different neighbourhood characteristics than home-based businesses and whether destination choices differ across sectors. The results are based on data from the LISA register, combined with property-level real estate data.

The study focuses on the relocation behaviour of firms that originate from *urban residential neighbourhoods* and relocate within their municipality of origin (Amsterdam). Because intra-municipal firm relocation is most common, entrepreneurs might be affected by factors that differ across neighbourhoods within the city. Moreover, residential neighbourhoods are home to a wide variety of firms located in both commercial and residential properties. Most relocation studies do not differentiate between HBBs and firms, neglecting the fact that home-based entrepreneurs will centre the firm's relocation decisions primarily on private life considerations.

The results of this study indicate that the destination choices of firms that relocate within the municipality of Amsterdam are influenced by neighbourhood characteristics. Firms generally relocate to neighbourhoods that are easily accessible by car and are characterised by higher degrees of specialisation in the firm's specific sector. Except for these accessibility and localisation pull factors, firms do not collectively prefer the same set of neighbourhood characteristics. For example, firms active in ICT and business services are attracted to economically prosperous neighbourhoods, while those active in industry, construction, wholesale and storage tend to relocate to less prosperous neighbourhoods in which property prices and rents are lower and more space is available.

With regard to various neighbourhood pull factors, it is necessary and worthwhile to differentiate between firms that relocate to residential properties and those that relocate to commercial properties. This real estate property distinction is an important determinant for the attractiveness of neighbourhood pull factors. HBBs are attracted to neighbourhoods with high scores on liveability, while firms relocating to commercial properties are drawn to places with low scores on liveability. In addition, firms relocating to commercial properties are attracted to neighbourhoods that include business or industrial estates, while HBBs are more likely to stay away from neighbourhoods that have business or industrial land-use zones within their borders. Last, firms relocating to commercial properties are attracted to neighbourhoods that have diverse sectoral firm populations, while firms relocating to residential properties are attracted to neighbourhoods with more homogenous firm populations. This phenomenon supports the idea that agglomeration

economies are a factor of influence not only at the regional and municipal level but also at the intra-municipal neighbourhood level (Van Soest et al., 2006).

Given that the unexplained variation increases when explaining the relocation choices of HBBS, this study shows that HBB relocations are hardly motivated by neo-classical economic location factors. Although in essence this seems very plausible, it suggests that, in future location studies based on commercial registers, researchers must be aware of the complications that arise when including the entire firm population. Commercial registers do not differentiate between HBBS and firms in commercial properties. As the number of HBBS increases (Mason et al., 2011), the explanation of firm (re)location behaviour moves away from a pure economic profit-maximising rationale. Because real estate data linked to firm-level data are not easy to obtain, for research based on commercial register data and in a neo-classical framework, it is useful to exclude one-person firms, as they are likely to be home based.

Considering the results of the study, the population selected—relocating firms within the municipality of Amsterdam – raises two issues. First, Holl (2004) has shown that, at the regional level, the location preferences of relocating firms differ from those of start-up firms. Selecting only relocating firms for analysis confines the results on the importance of pull factors to being applicable only to relocating firms and not reflecting the factors that are important to firm start-ups. Selecting only relocating firms is in itself unproblematic. However, with this selection criterion also comes the assumption that the decision to relocate from a specific site or neighbourhood (push) is made independently from the decision about where to relocate to (pull), implying that firms that do not relocate are not affected by ‘pulling’ or ‘pushing’ forces and are located at the optimal location or at least in the margins of profitability (for which optimal might refer to either private life or economic profit maximisation). Although behavioural studies on firm relocation have shown the dialectic nature of the decision-making process (Pen, 2002), this study focuses solely on what attracts *relocating* firms and leaves out the preceding decision *to relocate*. It treats the two as independent from and sequential to each other. By not accounting for those firms that do not relocate, we neglect the keep factors but obtain a deeper understanding of what drives those firms that do relocate (for a study with a focus on push factors, see Risselada et al., 2013). Second, we assume that the results hold for relocating firms that originate from urban residential neighbourhoods and that decide to relocate within the city. This assumption implies that the decision to relocate within the municipality is independent of alternative choices outside of the municipality in terms of both other properties and other neighbourhoods. Many relocation studies take the same approach at the country or regional level (De Bok & Van Oort, 2011; Kronenberg, 2012; Manjón-Antolín & Arauzo-Carod, 2009), and because 75% of firms relocate within the

same municipality, one could also argue that this study is the first to pay attention to these intra-municipal relocations.

With regard to neighbourhood-based policies aimed at revitalising neighbourhood economies by attracting businesses, the results suggest that to appeal to firms relocating to commercial properties, it is worthwhile to invest in neighbourhood accessibility, optimise the local commercial property stock and safeguard sectoral diversity by stimulating a mixed property stock with both residential and commercial properties. Safeguarding existing commercial and retail clusters within the neighbourhood is worthwhile as it fosters demand for local places of production, rather than pushing firms to relocate to more readily available business properties on industrial estates outside of the municipality. However, if a residential neighbourhood does not have commercial properties or retail spaces to begin with, it is less worthwhile or effective to stimulate economic activity by developing commercial spaces from a blank slate, detached from the local economic context. For neighbourhoods that only consist of residential properties, it might be more useful to improve neighbourhood aspects concerned with, for example, liveability. In general, both economic and social neighbourhood policy initiatives are primarily effective if there is a strong local commitment and willingness on the part of existing entrepreneurs and other motivated stakeholders (Neumann et al., 2012)

A strong neighbourhood economy might also be prompted by high numbers of home-based entrepreneurs. These types of firms are attracted to neighbourhoods with high liveability scores, because their location choice behaviours are based primarily on household relocation decisions. In addition, they generally relocate to neighbourhoods that have a homogeneous firm population, suggesting that neighbourhood cohesion is important for HBBS. Providing an attractive residential environment also, by default, attracts home-based firms. However, supported by the fact that the explanatory power of the statistical models presented in this paper increases when explaining the relocation behaviour of firms relocating to commercial properties, local policies should primarily be concerned with those firms that make more explicit firm location choices, i.e., choose commercial properties.

Last, our results suggest that processes of agglomeration also function at the neighbourhood level. Firms relocating to commercial properties tend to cluster together in neighbourhoods with a commercial property stock, a relatively high firm density and a diverse firm population. Policies aimed at strengthening neighbourhood economies should specifically target those areas where these factors are present or likely to thrive. Evenly distributing policy funds across all municipal neighbourhoods will be less effective.

5 Firm Location Behaviour in the New Economy*

Understanding the role of property factors in location decisions of firms in urban residential neighbourhoods

5.1 Introduction

The flexible knowledge-based and networked character of an information communication and technology (ICT) driven economy brings new types of jobs and entrepreneurs, different mobility patterns, and changing time-space combinations leading to structural changes in cities, regions, and the global economy. Many studies conceptualise the manner in which this changing economic configuration relates to the spatial and economic structures in (urban) society, the changing connectivity in economic transactions or the emergence of new production sites (Castells, 1999; Gospodini, 2006; Hutton, 2009; Pratt, 2000). However, this New Economy (Hutton, 2004) has also opened up a variety of work-lifestyle configurations for individuals. Less academic attention is given to these changing work practices and with that, to the changes in the business property requirements of firms and entrepreneurs at the micro level.

Recent empirical evidence has shown that business property characteristics strongly influence firm relocation decisions (Risselada et al., 2013; Sleutjes, 2012). However, the value that neighbourhood firms attach to business property characteristics compared to other location factors is largely unknown and may vary substantially among firms and entrepreneurs. Firm location studies that do focus on business property “tend to adopt positivist methodologies which emphasise the application of rational decision-making techniques by utility-maximisers within a mainstream economics paradigm” (Guy & Henneberry, 2000:2399). Several authors claim that this positivist perspective on location decision-making fails to consider the (institutionalised) social context (Ball, 1998; Healey, 1991) and

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behavioural perspective (Black et al., 2003; D'Arcy & Keogh, 1998). This omission is strongly emerging now that a new type of economy is increasingly enabling people to adopt entrepreneurial lifestyles. A growing number of entrepreneurs display varied work-home combinations in which entrepreneurial preferences and the choices for business property are closely and inseparably linked to the private home situation of entrepreneurs and thus to the choice of their personal dwelling. For example, recent studies show that a growing number of New Economy enterprises in knowledge, personal services and consumer sectors are Home Based Businesses (HBBs) and that for a majority of these entrepreneurs, running the shop from home is a deliberate choice (Mason et al., 2011).

We suggest that because entrepreneurs differ, for instance, with respect to work-lifestyles, growth ambitions, profit-maximising behaviour, factors influencing firm location also vary. Unless this heterogeneity among entrepreneurs is addressed, scholars investigating the determinants of firm location decisions may arrive at incorrect conclusions, which provide a weak basis for local economic policy. The study aims to answer two research questions addressing this heterogeneity:

- 1 In their location choice, do entrepreneurs perceive business property factors as more important relative to other location factors,¹ and to what extent is this related to firm and neighbourhood characteristics?
- 2 To what extent is the choice to run a business from home (HBB) related to the work-lifestyle characteristics of the entrepreneur?

To answer the two questions above we study the location behaviour of firms in residential neighbourhoods and consider these neighbourhoods as the micro scale in which spatial economic alternatives are being judged and weighted according to the individual preferences of entrepreneurs. While it is largely known that the New Economy has sparked transformational processes in the *inner cities* of advanced urban economies (Hutton, 2004), our study shifts this geographical focus to *urban residential neighbourhoods*, suggesting that the New Economy induces transformational processes in such neighbourhoods as well. Throughout the Western world, residential neighbourhoods increasingly become areas for both living *and* working (Phillips, 2002; Raspe et al., 2010; Sleutjes et al., 2012) and mirror the 'everydayness' of entrepreneurship (Johannisson, 2011). In the Netherlands, approximately 40% of all jobs are located in urban residential neighbourhoods, housing 35% of all private firms (Raspe et al., 2010). After the period of separation of work and resi-

1 The relative importance of business property factors is measured by comparing the importance given to real estate factors to the importance given to location factors that are not related to the business property.

dence that characterised Dutch urban planning after the Second World War came the emergence, since the turn of the century, of urban residential neighbourhoods that increasingly function as production sites for both home-based entrepreneurs and firms in commercial property. These (mostly) small local firms are underrepresented in the academic literature on firm location decisions and behaviour (Mason et al., 2011; Phillips, 2002; Green et al. 2000).

The paper is structured as follows. The next section presents the theoretical arguments for the importance of business property characteristics for firm location behaviour and the choice to become a HBB. Section 3 addresses the methods and data used for the empirical analyses. Section 4 deals with the results of the analyses. The conclusions and policy implications of the findings are discussed in section 5.

5.2 Theory

Factors that influence the location behaviour of firms can be categorised as either internal or external (see Table 5.1). Firm-internal factors are associated with firm characteristics or entrepreneurial characteristics, such as age, education and lifestyle preferences of the entrepreneur. External location factors are the characteristics of the specific site and surroundings of the firm. These can be firm specific, for example, real estate characteristics and parking facilities at the firm's premises or cover the wider economic or social environment, including the distance to markets and the quantity and quality of the local labour force (Brouwer et al., 2004; Van Dijk & Pellenbarg, 2000).

Table 5.1: Categorisation of factors affecting firm (re)location

Internal factors	Characteristics of the entrepreneur
	Characteristics of the firm
External factors	Firm related location factors
	Environment related location factors

Because in most residential neighbourhoods the possibilities for business expansion are relatively limited, growing firms are 'pushed' out and relocate to larger premises on more readily available in commercial areas or business parks (Louw et al., 2009; Raspe et al., 2010; Sleutjes & Völker, 2012). Thus, firm growth and the resulting demand for (physical) space is one of the most important *firm-*

internal factors triggering the decision to relocate (Maoh & Kanaroglou, 2007). However, firm relocation may also be driven by *firm-external factors*. In this respect, Pellenbarg et al. (2002) consider both *push*, *pull* and *keep* factors that influence firm relocation. At the heart of this debate lies the assumption that the economic, social, and physical characteristics of the direct production environment of firms make some business locations more attractive than other locations.

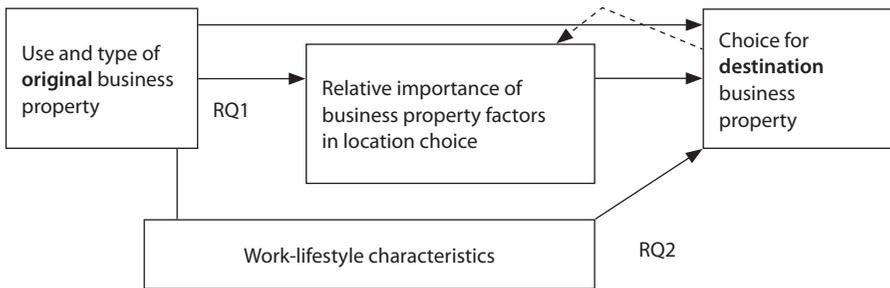
Push factors are perceived as negative and invoke firm relocation to avoid negative neighbourhood effects on firms or their entrepreneurs ('pushing firms out' of the original location). In this sense, the declining quality of the original business location is a relocation *push* factor, for instance when local vandalism increases, the neighbourhood deteriorates or the (local) market size decreases. In contrast, *pull* and *keep* factors stimulate the attraction and retention of firms, respectively. They are generally perceived as positive characteristics of the business premises or environment. Note that in the *push-pull-keep* debate dominating firm relocation studies, firm-external factors are assessed relatively. For instance, neighbourhood quality is defined *relative* to the quality of other neighbourhoods; if the latter neighbourhoods are better, their characteristics then might turn into *pull* factors for firm relocation.

We argue that, thus far, the literature on firm location decisions fails to acknowledge two key dimensions. First, with regard to firm-external location factors, business property characteristics are key push and pull determinants of firm relocation, but these factors are only rarely included in empirical studies in this field (Risselada et al. 2013). This is surprising, considering that the lack of space, which obviously relates to actual (or expected) firm growth, is one of the main reasons why firms relocate (De Bok & Sanders, 2005; Mensen & Rijt-Veltman, 2005). This omission has often been caused by the absence of registration data on firms, e.g., their business location characteristics and their (changing) addresses as a result of relocation. A second neglected dimension relates to the entrepreneur's personal characteristics, professional ambitions, strategies and choices with respect to the balance between work and private life. Empirical studies on the effects of firm-internal factors on firm location decisions only incorporate firm-level factors, such as firm age, size and growth or industrial sector.

In this paper the two dimensions – business property factors and entrepreneurial lifestyle preferences – are combined both conceptually and empirically. We argue that the use and type of the original business property (push) influences the relative importance given to business property factors in choosing a destination (research question 1). The relative importance of business property factors is also influenced by the features of the destination location itself (pull). Hence, a firm's location choice depends on characteristics of both the original and the destination

business property and environment. Furthermore, whether the choice for the business property is residential or commercial depends on work-lifestyle characteristics of the entrepreneur (research question 2), even when controlling for features of the original business property and characteristics of the destination location (see Figure 5.1).

Figure 5.1: Lifestyle and business property as factors in firm location choice, the place of the two research questions



Property factors as key elements in firm location behaviour

The first research question concerns how important firms perceive business property factors relative to other location factors, and to what extent this is related to the use and type of the business property. Recent empirical evidence on the importance of business property features for firm relocation shows that size, ownership, and age of the business property are important push factors for firm relocations, whose effects even hold when traditional firm-internal and firm-external factors are considered (Risselada et al., 2013). Furthermore, Risselada et al. (2013) have shown that for HBBS, firm-related factors (e.g., firm age, firm size, and firm growth) and factors related to the business property play a different role in the relocation decision than for firms in commercial property. Business property characteristics are thus valued differently by HBBS compared to FCPS. We assume that FCPS value their property primarily as a place for business activity and not for other private (or household) activities. Therefore FCPS attach the most value to real estate factors. Entrepreneurs relocating from a commercial property have had previous experience in exploiting a business property. This involves greater costs, which reflects the greater value they attach to business property factors relative to firms relocating from residential properties or new start-ups.

Hypothesis 1: Compared with HBBs and new start-ups, FCPS attach the most value to real estate factors

Besides the differentiation between the relocation of HBB, FCPS and the location of firm start-ups, in analysing the relative importance of business property factors we should also account for how intensively real estate assets are used. Because of the type of product, product processes, inputs and outputs and the physical floor space required, the demands on the use of business property differ among various firm types, for instance between knowledge-intensive and manufacturing firms (Olden, 2010). Although many traditional sectors are location bound (shopkeepers, artisans, commercial services), advanced economies –rooted in post-Fordist flexible production processes with a focus on services and knowledge work– enable entrepreneurs to work at different sites: at home, at the client's premises, with partners, during travel and in other 'third spaces'. This is paralleled by the management of corporate real estate in which the integration of telework, E-procurement, and E-business facilities reduce the required amount of floor space of firms (Gibson & Luck, 2006). Thus, the manner in which business property factors influence the location behaviour of firms is entwined with the features of a continuously evolving ICT-driven New Economy (Dixon, 2005) in which the flexible nature of new types of business activity affects how entrepreneurs value their business property.

Based on the argument that the degree of work flexibility affects the intensity of business property use, we have two assumptions. First, we assume that entrepreneurs who spend a lot of time at the business property, be it at home or at their commercial property, will place more value on factors related to the business property than those spending most of their time on other work locations, sometimes far away from the business property. Second, we assume that if the business property is often used to meet with clients, partners or suppliers, the value given to specific real estate features is higher than when there is hardly or no face-to-face (F2F) interaction at the business property site. For example, in some sectors, the aesthetic value conveyed by the business property has perceived importance for establishing a customer base and market demand (Zukin, 2010).

Hypothesis 2: The percentage of work time the entrepreneur spends at the business property is positively related to the relative importance of business property factors

Hypothesis 3: If the business property is much used as a place to meet with clients and customers, the relative importance of business property factors is higher than if the business property is not used as a meeting place.

Other firm or entrepreneur characteristics, such as the firm sector, firm age and firm size might also influence the valuation of business property features. Firm age and sector are controlled for in the analysis but are not expected to influence the *relative* importance given to real estate factors in the location choice. For example, firms active in knowledge-intensive sectors have less sunk costs related to the use of their property and are therefore less likely to highly value real estate factors in their choice of location (De Bok & Van Oort, 2011). However, because of their large production and market scope, they might not value external location factors at all. We therefore assume that the measure of the *relative* importance of real estate factors compared with other location factors does not differ across sectors. The same goes for firm age. Young firms are more restricted in the information they are able to process than older firms, because of limited resources and experience; with higher age, the firm is more able to process and apply the relevant information in choosing the optimal location (Pred, 1966). Given we measure the *relative* importance of property characteristics in the location choice, older firms both judge property and other location characteristics equally less or more important, suggesting that the relative share remains the same.

With regard to firm-external factors at a higher spatial level, firms are more inclined to relocate from neighbourhoods with liveability problems (push) (Raspe et al., 2010). As push and pull factors are intertwined, we assume that positive characteristics of the destination neighbourhood (pull) negatively influence the relative importance given to business property factors. In the analysis we control for characteristics of the destination neighbourhood by adding two proxies measuring the destination neighbourhoods prosperity and liveability.

Lifestyle characteristics, entrepreneurship and firm (re)location

The second research question is concerned with the extent to which the choice to run the business from home (HBB) is related to the work-lifestyle aspects of the entrepreneur? Rational profit-maximising economic behaviour is conditioned by an individual's context, as defined by one's social networks and embodied, objectified and institutionalised cultural dispositions (Bathelt & Glückler, 2003; Bourdieu, 1984; Granovetter, 1985). The contribution of such general theoretical insights to the understanding of firm relocation can best be illustrated and tested by looking at the actual spatial behaviour of individual firms, the underlying entrepreneurial decisions, and their drivers. For entrepreneurs making firm location decisions, the conditioning role of social contexts and institutional dispositions means that the effect of pure rational profit maximisation on the decision's outcome is mitigated by other factors, such as person-

al or social networks (Dahl & Sorenson, 2009; Schutjens & Völker, 2010; Stam, 2003); the image, identity of place and attachment to neighbourhood (Drake, 2003; Raspe et al., 2010); and bounded information and other private concerns (Evans, 2004; Greenhalgh, 2008; Mackloet et al., 2006). In a broader sense, one could even consider the decision to become an entrepreneur and to be entrepreneurial a 'lifestyle' choice in itself (Malecki, 2009). Thus, the reasoning behind firm location choice is far more complex and wide-ranging than only that of minimising costs and profiting from, for instance, clustering effects (Greenhalgh, 2008; Mackloet et al., 2006).

Studies in economic geography seldom consider entrepreneurial work-lifestyle factors in analysing why economic activity happens in specific places. However, when investigating location behaviour at a micro scale, these lifestyle characteristics must be taken into account, especially given the recent changes in work and lifestyle patterns. Traditionally, trade-offs with respect to the characteristics of both the original and the destination business property or neighbourhood are considered to be well-defined and rational, even though the behavioural perspective does account for the bounded information of the entrepreneur and academic debates on the location behaviour of firms in creative industries have also regarded lifestyle factors to be important. Within the creative industries literature, studies have focused on the spatial qualities of the specific property and the local surrounding of a firm, i.e., 'the look and feel' of the physical environment and the building, and have found these to be significant determinants of the firm location choices (Smit & Schutjens, 2011). These physical qualities are primarily valued on the basis of the aesthetic and cultural values formed through the social and cultural capital of entrepreneurs (Crewe, 2000; Currid-Halkett, 2007; Drake, 2003; Heebels & Van Aalst, 2010; Smit, 2011).

The importance of 'lifestyle' on how entrepreneurial activity is undertaken does receive a good deal of attention in academic fields different from economic geography, for example, in tourism and hospitality research and in entrepreneurship research (Cederholm & Hultman, 2010; Bridge et al., 2009; Lewis, 2008). These studies exemplify that business location, entrepreneurial activity and growth aspirations are oftentimes entwined with personal and family life. McMahon (2001) defines lifestyle entrepreneurs as follows:

"Following the low growth development pathway, these concerns generally have few, if any, growth aspirations. They principally exist to provide their owner-managers with a source of employment and income. Furthermore, they are frequently operated in a manner consistent with the life-style aspirations of their owner-managers" (McMahon, 2001: 210).

From their study on the boundaries between personal and commercial values in commercial homes – such as bed & breakfast and galleries – Cederholm & Hultman (2010) conclude that lifestyle businesses frequently shy away from the common rationale of market and growth ambitions. In our paper, such lifestyle *values* or preferences are suggested to lead to work-lifestyle *choices* resulting in work-lifestyle *characteristics*. Essentially, we are measuring these revealed choices, i.e., the work-lifestyle characteristics, of the entrepreneur.

According to the traditional differentiation of factors in relocation studies (see Table 5.1), work-lifestyles are considered as firm-internal because they can be regarded as a characteristic of the entrepreneur. We explore four indicators of work-lifestyle characteristics that are expected to influence the likelihood of entrepreneurs choosing to run their businesses from home. The first indicator is the extent to which the entrepreneur has firm growth ambitions. The second indicator is related to whether the entrepreneur aims to combine his/her professional career with caretaking tasks. The third and fourth indicators are related to whether the entrepreneur is responsible for the main household income and the number of work hours of the entrepreneur.

(NON-)AMBITIOUS ENTREPRENEURSHIP

Many suggest that the relationship between entrepreneurship and firm ownership is blurred. On the one hand, entrepreneurship is not limited to the establishment of a firm but can also be considered in terms of intrapreneurship, or one's display of entrepreneurial traits as an employee (Bosma et al., 2010). On the other hand, not all firm owners have an entrepreneurial character. The demand for flexible, highly skilled labour has given rise to many 'firms' created by self-employed freelancers. These freelancers might not by definition have an intrinsic drive to 'work for themselves' and be entrepreneurial. Tentatively, one can make a distinction between the behavioural perspective and an occupational definition of entrepreneurship as primarily involving the ownership or creation of an enterprise (Stam et al. 2012). Taking this occupational perspective as a starting point leads to the need to define a degree of entrepreneurial ambitiousness as a distinctive lifestyle characteristic.

In a recent literature review, Stam et al. (2012) distinguishes several motives that characterise ambitious entrepreneurs based on their need for achievement (McClelland, 1961). This need for achievement makes ambitious entrepreneurs likely to show growth ambitions with regard to employment, innovation and turnover and to behave accordingly. Non-ambitious entrepreneurs show neither similar growth ambitions nor the ambition to develop innovative products. Studies by Mackloet et al. (2006) and Mason et al. (2010) have shown that home-based busi-

ness owners do show some growth ambitions in terms of revenue, but they are primarily content with the situation of their business and want neither to outgrow their home base nor to hire employees (Pratt, 1999). Therefore, it is expected that non-ambitious entrepreneurs are more likely to be home based.

Hypothesis 4: The degree of ambitiousness of the entrepreneur is negatively related to the likelihood to be a HBB.

CARING TASKS

An entrepreneur, in the occupational sense of the word, could have made a deliberate choice to become self-employed because it provides more flexibility than a job. For instance, self-employment enables an individual to work part-time and to meticulously plan professional activities all by herself/himself during the day, week or month (Hanson & Pratt, 1988; Thompson et al., 2009). Pratt (1999) used U.S. bureau of census data to show that family responsibilities played a minor role in starting a business, but were significantly more important for HBBs compared to non-HBBs. In a more gender-specific study by Walker & Webster (2004) the ‘balance of work and family’ and the ‘flexibility of working hours’ were part of the most commonly mentioned reasons for women to become *self-employed*. Although these are also important reasons for men, they are significantly less so than for women. Because many firms have their start-up location at home, it is assumed that the reasons for becoming self-employed also form part of the reasons for choosing to be a home-based entrepreneur. In a study on HBBs in the United Kingdom alone, it was found that more than a quarter of HBBs were started from home to accommodate family needs (Mason et al., 2011). Based on these findings we hypothesize the following:

Hypothesis 5: Entrepreneurs performing caring tasks are more likely to be home-based than those not performing caring tasks.

PRIMARY INCOME AND WORKING HOURS

The studies of Pratt (1999) and Mason (2010) have shown that home-based businesses are more often a source of second income than firms based in commercial property. Moreover, entrepreneurs of HBBs consistently work fewer hours than do entrepreneurs of FCPS. This finding is also confirmed in the study on female home-based entrepreneurs (Thompson et al., 2009). These two lifestyle factors, which are most likely, but not necessarily, related, also influence the likelihood of being an HBB.

Hypothesis 6: Entrepreneurs that do not provide the primary family income are more likely to be home-based than entrepreneurs that do provide a primary family income.

Hypothesis 7: The average workweek hours of the entrepreneur is negatively related to the likelihood to be a home-based entrepreneur.

In the analysis on which factors influence the likelihood to be a HBB, we control for the gender of the entrepreneur, firm sector, firm age and firm size². We also control for two other firm-internal factors relating to the use of business property: the amount of work time the entrepreneur spends at the property and the degree to which the property functions as a place to meet with clients or costumers. Moreover, based on the expectation that an entrepreneur's valuation of property factors influences location choice, we control for the relative importance of business property factors. We also account for the fact that being home-based at the original location influences the likelihood to be home-based at the destination location.

5.3 Data and Method

The empirical analysis is based on information from 370 entrepreneurs operating in 41 residential neighbourhoods of 5 Dutch cities (Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer), which was gathered from a survey conducted between May 2011 and July 2011. Zoetermeer, Dordrecht and Leiden are medium sized with approximately 120.000 inhabitants while Amsterdam and Utrecht are larger with 767.000 and 306.000 inhabitants in 2010 respectively. All cities belong to the Randstad region, the conurbation in the West of the Netherlands, which is often considered to function as one regional economy. Zoetermeer was planned and created as a new centre of urban growth in the 1950s, while Amsterdam, Utrecht, Dordrecht and Leiden developed from and have thrived on trade and handicraft since the 17th century. The cities offer a broad array of Dutch urban residential environments differing in size, physical structure, age and economic background.

The municipal administrative boundaries were used to demarcate the neighbourhoods that serve as our research area. For the fieldwork, we selected 41 resi-

2 In answering research question two in Table 5.7, firm size will not be considered in the first two computations because there is a large correlation between firm size and the likelihood to be home based.

dential neighbourhoods varying in socio-economic status³ to ensure a heterogeneous research sample. In the selection, only neighbourhoods that can be categorised as 'purely residential neighbourhoods'⁴ were included; city centre neighbourhoods and neighbourhoods with a designated industrial estate within its boundaries were excluded because these more formal work sites are assumed to have different economic dynamics. This resulted in a selection of six to eight research neighbourhoods for each city. The research neighbourhoods were geographically dispersed and had an average size of 4,600 inhabitants. In the research areas, a sector-stratified sample of entrepreneurs was drawn based on data from the LISA (*National Information System of Employment*) database, an employment register covering all establishments in the Netherlands. The percentage of the firm population in the sample was different for each city because some Amsterdam and Utrecht neighbourhoods contain dozens more firms than the neighbourhoods of the smaller cities.

The questionnaire used was part of a larger research project on the Dutch neighbourhood economy and consisted of a total of 89 questions on a variety of topics such as: general firm characteristics, perceived neighbourhood characteristics, costumers and markets, lifestyle preferences, ambitions and the perceived important location factors in the choice for their current business property (i.e., destination location). To increase the survey response rate, we chose a personal, but time consuming, method. First, we sent a letter to the sampled firms, describing the aim of the survey and announcing the personal delivery of the questionnaire to their (home, store or office) door. In the period between May and July 2011, we personally handed out 1,683 questionnaires door-to-door. Entrepreneurs were given the choice to have us pick up the questionnaire at a later time or to send in the completed questionnaire by mail. With 370 returned and usable questionnaires, the response rate was 22%. Compared to average response rates for mail surveys among firms of approximately 8% (Knoben & Oerlemans, 2008) we succeeded in raising the response rate considerably. Moreover, visiting the 41 neighbourhoods, the HBBs and firms in commercial business properties, gave us a qualitative sense of the look and feel of these neighbourhoods (see Figure 5.2 and 5.3). Although these neighbourhoods are similar in providing housing, they are very diverse in urban form, their planning systems and the degree of economic activity (see also Folmer & Risselada, 2012).

3 Neighbourhoods were ranked by socio-economic status. A factor analysis was performed to group seven variables that indicate socio-economic status of the neighbourhood (including income, unemployment levels and data on housing stock) into two variables. Consequently, k-means cluster analysis was used to rank all the neighbourhoods into the categories.

4 The categorisation into three types of neighbourhoods is made on the basis of postal code areas. Only areas with more than 500 residential addresses were selected. These neighbourhoods were divided into three categories: neighbourhoods with a city centre function, neighbourhoods including an industrial site, and areas categorised as 'purely' residential neighbourhoods (PBL, 2010)

Figure 5.2: Zoetermeer



Picture by Emma Folmer

Figure 5.3: Utrecht



Picture by Emma Folmer

Table 5.2 shows the key variables for answering the first research question. The dependent variable (relative importance of real estate factors) is measured as the average score of five statements on the importance of property factors minus the average score of 11 statements about other location factors, not related to the property (see the appendix IV for the specification of location factors). Because we expect location costs to be a proxy for both real estate quality as well as locational quality in terms of market proximity, living amenities and other neighbourhood qualities (see for example Rouwendal & Van der Straaten, 2007), the factor measuring the importance of location costs was purposely left out of the equation.

$$\text{Relative Importance Property Factors} = (x_{\text{property factors}}) - (x_{\text{other location factors}})$$

Both categories are internally consistent (Cronbach's alpha is 0,898 for property factors and 0,9 for other location factors) and the dependent variable is distributed normally. Getting to the independent variables used to answer the first research question, Table 5.2 shows that for over 60% of all firms, the destination location is the initial start-up location; of the entrepreneurs who relocated, two-third relocated from a residential property.

Table 5.2: Summary of dependent and key independent variables RQ 1

	%	Mean	SD
<i>Dependent variable</i>			
Relative importance of real estate factors		.44	.89
<i>Key independent variables (use and type of original business property)</i>			
Original location			
Firm start-up	61		
HBB	22.8		
FCP	16.2		
Working more than 50% of time at the business property			
Yes	69.1		
No	30.9		
Business property is place for F2F contact with business relations			
Yes	39.7		
No	60.3		

To answer the second research question a dichotomous variable was constructed measuring the destination location choice (i.e., their current business property) for a HBB a 1, and the choice for a commercial property a 0. With regard to the independent variables, Table 5.3 shows that almost 67% of the firms in the sample are home-based. The work-lifestyle variable measuring the entrepreneur's ambition is a scale variable in which four statements about the wish for future firm growth are taken into account namely: The desire to wane firm activity or to quit the business, the desire to stabilize current firm activity, the ambition to innovate or for growth in turnover, and the desire for growth in sales, floor space or employees.

Table 5.3: Summary of dependent and key independent variables RQ 2

	%	Mean	SD
<i>Dependent variable</i>			
Destination location			
HBB	66.8		
FCP	33.2		
<i>Key independent variables (work-lifestyle)</i>			
Ambition		1.51	.71
Care tasks			
Yes	36.8		
No	63.2		
Not primary income			
Yes	30.3		
No	69.7		
Number of work hours per week		41.07	17.86

Table 5.4 shows the used control variables showing that the majority of the respondents are male entrepreneurs. The share of solo self-employed entrepreneurs is 61%, of which 20% has at least one employee. Of the firms based in commercial property 76% has at least one employee. Taking the sectoral distribution as a starting point, the survey sample is representative of our research population. Firms in business services are somewhat underrepresented but still comprise 25% of the respondents. The two neighbourhood factors measuring the prosperity and liveability were constructed by means of a Principal Component Analysis (PCA) in which two components from seven indicators of the socio-economic neighbourhood sta-

tus were constructed. Neighbourhood prosperity is a construct that measures the economic power, or market potential, of the neighbourhood. It includes the mean of income, property value and the percentage of high incomes. Neighbourhood liveability is a construct that measures the social status of a neighbourhood. It is a reverse composition of the percentage of non-active residents, welfare recipients, unemployed residents and tenant housing, which in the Netherlands tends to be social housing.

Table 5.4: Control variables

	%	Mean	SD
<i>Internal factors</i>			
Gender			
Male	62		
Female	38		
Firm age (Log)		.31	.49
Firm size (Log)		.28	.44
Sector			
Industry, transport, wholesale and car repair	10.8		
Public sector and healthcare	23.9		
Consumer services	33.4		
Financial services	6.9		
Business services	25		
<i>External factors</i>			
Neighbourhood prosperity (pull)		.49	1.37
Neighbourhood liveability (pull)		.07	.92

5.4 Results

In answering the first research question, whether the relative importance given to business property factors in choosing the firm's location is related to firm characteristics and characteristics of the original property, one descriptive table and an Ordinary Least Squares (OLS) regression model are presented. For the second research question, regarding the influence of lifestyle aspects on the choice to run the business from home, a logistic regression model was performed.

The relative importance of business property factors

Entrepreneurs either originate from commercial properties (FCPs), residential properties (HBBs) or started their business at the destination location (Start-ups) (see Table 5.2: 16%, 23% and 61%, respectively). Table 5.5 shows the differences in relative importance of business property factors between these three types of firms. The fact that all of the average scores in Table 5.5 are positive suggests that firms in all categories attach more value to business property factors than to other location factors. At first glance, firm start-ups and firms relocating from a residential property find property factors, relative to other factors, less important than firms relocating from commercial properties.

Table 5.5: Variation in relative importance of business property factors among Home-Based Businesses (HBBs), Firms in Commercial Property (FCP) and Firm Start-ups

Direction of location	Relative importance property factors	N	%
Firm Start-up in HBB	.31	136	42
From HBB to HBB	.27	62	19
From FCP to HBB	.42	17	5
Firm Start-up in FCP	.58	52	16
From HBB to FCP	.46	18	6
From FCP to FCP	.82*	40	12
Valid total	.43	325	100
Missing		45**	
Total		370	

* This category shows a significant larger mean than the category 'From HBB to HBB' and 'Firm start-up in HBB'. Based on two-sided tests assuming equal variances with significance level 0.05.

** The missing cases represent respondents that did not fill out enough questions on the location factors to obtain a score on the relative importance of business property factors

Which factors determine the relative importance of business property characteristic in the firm location choice? Table 5.6 (page 130) presents two regression models. In model 1, the relative importance of property factors is a function of firm-internal and property-related factors. In model 2 this function is extended by adding two neighbourhood control variables. Model 1 shows that firms originating from commercial properties, which is the reference category, place significantly more emphasis on business property factors than other firms ($p < 0.10$). However,

Table 5.6: OLS regression of the relative importance of business property factors

	Model 1		Model 2 ^a	
	<i>Standardised Beta</i>	<i>Sig.</i>	<i>Standardised Beta</i>	<i>Sig.</i>
(Constant)		**		*
<i>Firm and entrepreneurial characteristics (control)</i>				
Gender (Female=1)	-.050		-.035	
Firm age (at time of location choice)	-.047		-.023	
Industry, transport, wholesale and car repair	.111	*	.118	*
Consumer services	-.046		-.035	
Financial services	-.002		-.004	
Business services	-.016		-.027	
<i>Use and type of original business property</i>				
Firm start-up	-.165	*	-.133	
Original location HBB	-.150	*	-.122	
Working more than 50% of time at business property	.107	*	.111	*
Business property is place for F2F contact with clients	.100		.084	
<i>Neighbourhood characteristics (control)</i>				
Neighbourhood prosperity (pull)			.106	*
Neighbourhood liveability (pull)			-.115	*
Model Summary				
	R ²	N	R ²	N
	.067	306	.097	306

^aIn order to cope with the two neighbourhood level variables, a multilevel model was also tested. However, as the interclass correlation coefficient showed that only 3.6% of variance can be attributed to the neighbourhood level, only the OLS regression results are shown.

* = $p < 0.1$

model 2 shows that including the effect of the prosperity and liveability in the destination neighbourhood, as a proxy for neighbourhood pull effects, renders the effect of originating from commercial property obsolete. Therefore, the first hypothesis is rejected.

The second hypothesis was that entrepreneurs spending more time at the business property place more value on factors related to the property than entrepreneurs that spend less of their time at their business site. This expectation is confirmed in both model 1 and model 2.

The third hypothesis was that if the business property is much used as a place to meet with clients and customers, the relative importance of business property factors is higher than if the business property is not used as a meeting place. Both models show no significant evidence and hypothesis three is rejected.

Finally, entrepreneurs active in “industry, transport, wholesale and car repair” attach more importance to property factors than firms in other sectors. This was not expected but might have to do with specific property demands regarding the production process, while at the same time, industry, transport, wholesale and car repair sectors are likely to attach less importance to other location factors, such as local market conditions or cluster advantages. Moreover, moving to a neighbourhood with high scores on liveability is negatively linked to the relative importance of property factors while moving to a prosperous neighbourhood has a positive effect. This suggests that for firms relocating to neighbourhoods with high scores on liveability, the role of the neighbourhood becomes more important relative to the characteristics of the business property. The positive relationship between the relative importance of real estate factors and the neighbourhood prosperity might be caused by the fact that neighbourhood prosperity is a construct that also measures the local property value.

Life-style factors as drivers of being a home-based business?

The second research question focuses on the extent to which the choice to run the business from home is related to entrepreneurial work-lifestyles. Table 5.7 (page 132-133) shows to what extent the likelihood to be an HBB relates to internal firm factors and entrepreneurial-related factors. Again, in Model 1, we put forward only firm and business property-related factors. In Model 2, we add the four key factors explaining the likelihood to be home based: the life-style characteristics. In model 3 and 4, we add control variables for firm size and neighbourhood characteristics.

In each model, next to the two ‘usual suspects’ in explaining the choice to base a firm from home, i.e., gender, firm sector and firm age, three specific business property factors are also included. The first is the degree to which the business site is used to meet with business relations; the second is the extent to which the entrepreneur works mainly at the business site. Both factors seem important in the choice to run the firm from home, more so than the third property related factor, the relative importance of business property factors, which is not a significant driver. As expected, the factor indicating whether a firm is previously home-based shows that entrepreneurs are ‘routine agents’: entrepreneurs tend to stick over time to their choice of running their firm from home.

Table 5.7: Logistic regression on the likelihood to be a HBB

	Model 1		
	<i>B</i>	<i>Sig.</i>	<i>S.E.</i>
<i>Firm and entrepreneurial characteristics (control)</i>			
Gender (Female=1)	.939	***	.336
Firm age	-1.519	***	.333
Industry, transport, wholesale and car repair	.224		.578
Consumer services	.204		.370
Financial services	1.006		.660
Business services	.900	**	.442
<i>Business property-related factors (control)</i>			
Previous location HBB	1.073	***	.370
Business property is meeting place (F2F contact)	-1.667	***	.315
% of work time spend at business property	-.482		.549
Relative importance of business property factors	-.240		.161
<i>Work-lifestyle characteristics</i>			
Ambition			
Care tasks			
Not primary income			
Nr of hours weekly spend on firm			
<i>Firm characteristic (control)</i>			
Firm size			
<i>Neighbourhood characteristics (control)</i>			
Neighbourhood prosperity (pull)			
Neighbourhood liveability (pull)			
Constant	.375		.684
Model Summary	Nagelkerke R ²		N
	.352		294

^a Because two variables at neighbourhood level were added we also tested a multilevel model. The logistic regression coefficients proved to be robust and for the sake of clarity and comparison to previous models, the results of the logistic computation are put forward in model 4.

*** = P<0.01; ** = P<0.05; * = P<0.1

Model 2			Model 3			Model 4 ^a		
<i>B</i>	<i>Sig.</i>	<i>S.E</i>	<i>B</i>	<i>Sig.</i>	<i>S.E</i>	<i>B</i>	<i>Sig.</i>	<i>S.E</i>
.285		.384	.351		.435	.405		.458
-1.742	***	.358	-1.279	***	.391	-1.331	***	.410
.334		.618	.152		.656	.256		.687
.269		.401	.050		.444	.272		.479
1.027		.708	1.129		.778	1.451	*	.783
.901	*	.475	1.020	*	.538	1.193	**	.571
1.172	***	.398	1.079	**	.440	.933	**	.451
-1.347	***	.338	-1.035	***	.375	-1.027	***	.390
-.888		.606	-1.157	*	.682	-1.309	*	.708
-.223		.177	.053		.208	.141		.232
-.674	***	.249	-.388		.267	-.472	*	.282
1.085	***	.361	.668	*	.397	.809	*	.421
.868	**	.441	1.092	**	.545	1.027	*	.585
-.023	**	.010	-.012		.012	-.014		.013
			-2.757	***	.505	-2.732	***	.535
						.235	*	.136
						.857	***	.229
.205		1.196	1.220		1.417	.909		1.476
Nagelkerke R ²	N	Nagelkerke R ²	N	Nagelkerke R ²	N	Nagelkerke R ²	N	
.467	294	.581	294	.624	294		294	

Model 2 shows that work-lifestyle factors significantly impact the likelihood to be home-based, even when other gender, firm and business property factors are included. In fact, the work-lifestyle factors take away the significant effect of gender in model 1. However, firm size and destination neighbourhood characteristics (model 3 and 4) mitigate some of the work-lifestyle effects. By adding the control for firm size the explanatory power of the model increases quite significantly. As expected, the choice to locate the firm at home (HBB) is strongly driven by the size of the firm: only small firms can be run easily from home. The effect of neighbourhood controls shows that in areas characterised by high liveability scores the likelihood of being an HBB is higher.

Are effects of the separate work-style factors as expected? In model 2, the business growth ambition of the entrepreneur significantly and negatively relates to the likelihood to be an HBB, which was expected (hypothesis 4). The effect disappears when we control for firm size, but when adding neighbourhood controls the effect becomes significant again, confirming the fourth hypothesis. Entrepreneurs who perform caring tasks are more likely to be home based, even when we control for firm size and neighbourhood features ($p < .05$), which confirms the fifth expectation. The sixth hypothesis is confirmed as well; if the household income does not primarily come from the firm, the entrepreneur is more likely to have a HBB. Finally, contrary to expectations, the number of hours per week an entrepreneur invests in his/her firm does not relate to running the firm from home when controlled for other factors, thus rejecting the seventh hypothesis.

In short, there are three work-lifestyle factors that matter to whether neighbourhood firms are home based. Running the firm from home is negatively associated with the growth ambition of the entrepreneur and is positively associated with firms in which the entrepreneur performs caring tasks, and with firms that do not provide the primary household income.

5.5 Conclusion

A new type of economy is increasingly enabling people to adopt entrepreneurial lifestyles or work-styles, allowing entrepreneurs to display varied work-home combinations. In firm location studies, little attention has been given to the fact that these changing work practices lead to changes in the business property requirements of firms and entrepreneurs. It can be assumed that entrepreneurs differ in their profit-maximising behaviour, their real estate requirements and preferred work-lifestyles. This paper therefore addresses whether and how this heterogeneity influences the firm location choices of entrepreneurs and looked at two heterogeneity dimensions. First, we wanted to know how important do firms perceive

business property factors and to what extent this was related to the use and type of the business property. Second we looked at whether work-lifestyle aspects of the entrepreneur are related to the choice to run the firm from home.

The analyses show that in choosing a (new) location, firms generally place more emphasis on property-related factors than on factors that are *not* related to business property. When controlling for neighbourhood pull-factors, there is no conclusive evidence that the relative importance of business property factors is related to the use of the property or the type of original property. Only one factor remains important: if entrepreneurs spend more time at the business property, they place significantly more value on factors related to the business property than entrepreneurs working mostly at other places (e.g., at their clients' premises).

With regard to the choice to run the firm from home, our results show that work-lifestyle factors do influence the likelihood to base the firm at the entrepreneur's home, even when controlling for other firm-internal and -external factors and for the original location. Three of the hypotheses concerning work-lifestyle factors are confirmed; when the firms' revenue is not the primary household income, or when the entrepreneur also performs caring tasks, the firm is more likely to be home based. These findings hold when we control for firm size, the main driver of the decision to run the firm from home. Also, adding the work-lifestyle factors takes away the gender effect. These results show that the lifestyle of the entrepreneur matters in the firm location choice. For many small neighborhood entrepreneurs the firm location is based on a maximisation of a private-life and work, and not on a monetary profit utility function only. As Pratt notes in her study on HBBS in the U.S., it seems that:

“[T]he choice of a home-based or non-home-based business comes down to balancing economic needs with lifestyle choices” (Pratt, 1999:VIII).

A firm's location decision is based on a complex array of factors and considerations significant to entrepreneurs, which could not all be accounted for in our study. The limitations of our analyses are threefold. First, regarding firm-external factors, only pull factors of the destination neighbourhoods are controlled for; due to data limitations, the potential push factors of the neighbourhood of origin are not included. Second, because of the cross-sectional fieldwork design, no information was available on entrepreneurial work-lifestyle characteristics that have changed over time. This static approach might have caused us to miss certain triggers of location behaviour, especially if household composition or location preferences have changed or as the current economic recession affected the income sources of many households and entrepreneurs. The same problem applies to several firm-internal factors that we had to assume to be stable over time. Third, despite the

above average fieldwork response, the number of cases was limited. This justifies a follow-up study that either draws on a larger group of respondents or uses in-depth interviews to deepen the insights into how changing work-lifestyles interact with processes of firm location choice.

What do these findings mean for neighbourhood-based policies? When local economic policy aims to attract and retain local entrepreneurs, supplying high quality local real estate might help. This strategy should be primarily targeted at entrepreneurs with specific property demands regarding the production process or entrepreneurs that spend much time at the business property. However, the results suggest that for firms relocating to neighbourhoods with high scores on liveability, the role of property becomes less important relative to non-property related location factors. Thus, a real estate based policy strategy is not worthwhile in every local milieu.

A second implication for local economic policy is that influencing the choice of entrepreneurs to run their firm from home is a utopia. Not only does the former type of premises matter, but also entrepreneurial work-lifestyles that are intrinsically beyond the public domain influence the likelihood that entrepreneurs choose their home as business property. As expected, firm size is a major determinant in running the firm from home. To fuel demand for local commercial real estate, however, entrepreneurs should be stimulated to hire employees. For this, business growth ambitions are crucial. Yet entrepreneurial growth ambitions are low (Stam et al., 2012) and are subject to influences at the national, regional and individual levels (Bosma et al., 2012). Is this bad news for local policymakers? We think not. Of course, knowing that the entrepreneur's choice to perform business activities from home and the persistence of this choice over time are related to the importance of (individual) work-lifestyle practices might limit local policymakers' hope to facilitate this growing component of the neighbourhood economy. However, this may also deflect local policy attention and initiatives towards those entrepreneurs who are actually sensitive to commercial property characteristics. Focusing on these types of entrepreneurs and their business demands will lead to effective investments in the local neighbourhood economy and, more specifically, local investments in commercial property.

6 Conclusion, Policy Implications and Discussion

6.1 Introduction

The objective of the research in this dissertation was to provide a better understanding of the factors influencing the location behaviour of firms in urban residential neighbourhoods. Little academic attention has been paid to economic activities in these conventional residential neighbourhoods. However, new ways of working have created new locational demands. In this thesis, we linked the neighbourhood economy with the increasingly flexible and mobile ways entrepreneurs go about their business; we are the first to thoroughly address the role of real estate characteristics in the (re)location choices of these neighbourhood firms in the Netherlands. With regard to societal relevance, the research focus on the neighbourhood economy, the role of flexible life-work combinations and the role of real estate properties is important. In Europe, stimulating and fostering local entrepreneurship has been one of the policy tools used to revitalise neighbourhoods (Neuman et al., 2012; Welter et al., 2007). Economic activities in residential neighbourhoods are assumed to create direct employment and prosperity, provide services and amenities and increase the potential for face-to-face interaction – an important condition for efficiently transferring knowledge in today’s advanced economies (Storper & Venables, 2004). In the Netherlands, however, the government-led oversupply of cheaper premises on industrial estates is victimising the neighbourhood economy. Entrepreneurs looking for new business properties are steered towards these estates because of the relatively large supply within the real estate market, the relatively low prices and the good physical (car) accessibility (Raspe et al., 2010; Van Oort et al., 2007). Those successful growth-oriented entrepreneurs in need of larger business properties consequently often relocate outside of urban neighbourhoods. In doing so, they do not effectively contribute to a vibrant neighbourhood economy in the long run. With regard to policy, it is thus worthwhile to know how these potentially mobile entrepreneurs can be ac-

commodated within a neighbourhood. Understanding the location behaviour of firms and the effect of business property factors may offer new clues contributing to the discussion on how to most effectively shape policies aimed at stimulating the neighbourhood economy.

The primary research question of this dissertation is thus: *What spatial configurations, from the real estate to the neighbourhood level, fit the current economic fragmentation and changing location decisions of firms induced by the changing economic production processes typical of advanced urban economies?* In Chapter 2, we explored the structural context of the neighbourhood economy and examined the way in which the spatial regulatory framework in the Netherlands influences the location behaviour of firms in urban residential neighbourhoods. Based on the land-use plans of 44 Dutch urban residential neighbourhoods, we proposed a typology of 4 different types of neighbourhood economies, as reflected in those plans. We linked these neighbourhood types to the level and growth of economic activity in the neighbourhoods. Chapter 3 moved away from the neighbourhood structural context and placed the firm at centre stage. We analysed the factors that cause firms to move from their location, differentiating between home-based businesses (HBBS) and commercial property-based firms (FCPS), specifically examining the role of real estate factors in explaining the likelihood of firm relocation. Chapter 4 considered the pull factors of relocation choices and determined the factors that attract relocating firms in destination neighbourhoods. Finally, Chapter 5 specifically investigated the entrepreneurial level and evaluated whether entrepreneurs perceive business property factors as more important relative to other location factors. This chapter also investigated the role of lifestyle factors in the locational decisions of neighbourhood-based entrepreneurs.

The five sub-questions of this dissertation are addressed below, followed by a more generalised answer to the main research question and conclusion on the factors influencing the location behaviour of firms in urban residential neighbourhoods. Section 6.4 focuses on the implications of the results for policies aimed at creating desirable local business climates. Finally, a discussion of the implications for further research is put forward in Section 6.5.

6.2 Summary of results

1. *Can we identify different types of economic zoning in the land-use plans of Dutch urban residential neighbourhoods, and if so, which of these zoning types are suitable to accommodate local economic activities?*

We studied the land-use plans of 44 residential neighbourhoods of a diverse socio-economic status in five research cities. The five cities chosen were a representative cross-section of residential neighbourhoods in large- and medium-sized Dutch cities. Amsterdam and Utrecht are among the largest cities in the Netherlands, Dordrecht and Leiden are relatively old cities in Holland that serve regional economies, and Zoetermeer is a typical larger new town near The Hague that grew significantly in the 1970s and 1980s.

In Chapter 2, we proposed a typology of four neighbourhood economies – The Market, the Mix, the Desert and the Dormitory – to distinguish among different types of economic zoning in land-use plans. The primary characteristic of the Market was centralisation, locating all business activity in a limited and central location in the neighbourhood. This specific zoning practice implies a limited growth potential for local economic activities. The Mix type of neighbourhood combined a high number of mapped economic functions within a decentralisation policy. Such neighbourhoods generally have a high amount of economic activity. In the Desert, economic activity was explicitly barred from the neighbourhood. Explicitly restricting economic activity in land-use plans is negatively related to the number and growth of local economic activities. Finally, the Dormitory type of neighbourhood showed a general lack of economic zoning with no apparent economic planning.

We expected to find a greater number of firms in neighbourhoods with a high number of mapped economic zones, and expected restrictive planning to go hand in hand with fewer firms in the neighbourhood. Surprisingly, we found that the seemingly sleepy ‘Dormitory’ neighbourhoods (in terms of local zoning practices) contained a substantial amount of business activity. We also found high growth rates of economic activity in these Dormitory areas. The “vacuum” with regard to economic policy might actually create room for entrepreneurs to begin businesses from home. This strengthens the theoretical assumption about ‘new’ or post-Fordist economic activities as suitable for the home environment or in workspaces adjacent to residential spaces (Hutton, 2004; Phelps, 2004). Advancements in information and communication technology (ICT) allow entrepreneurs and teleworking employees more flexibility in managing their work, both spatially and temporally. In this sense, the home and the residential neighbourhood become a more integral part of working life (Green et al., 2000; Johannisson, 2011).

2. How do real estate factors influence the likelihood of firm relocation in urban residential neighbourhoods, when controlled for firm and neighbourhood heterogeneity?

On an annual basis, 6% of the Dutch firm population in urban residential neighbourhoods relocate. Our empirical findings on the importance of business property characteristics to firm relocation indicated that business real estate deserves a

place of its own in relocation studies. Next to firm-related factors, property factors provided a significant additional explanation of the variation in firm relocation probability, even more so than neighbourhood factors. As for firm relocation in general, property ownership decreased the relocation probability. Another important determinant of firm relocation was property flexibility, which was measured using two indicators. Being located in a flexible multi-user property was positively related to firm relocation, while being located in a large business property was negatively related to relocation, especially for HBBS.

Firms located in residential properties showed different relocation behaviour than firms housed in commercial properties. Overall, home-based firms had a higher propensity to relocate, with a yearly relocation percentage of 7.1% compared to 4.8% for firms in commercial properties. The difference between the relocation propensities of HBBS compared to FCPS is likely due to a different use of the property. Adding property characteristics improved our understanding of firm relocation behaviour compared to the studies that lack these factors. Concerning firm size, the model suggests that small firms in the commercial property segment are more likely to relocate than large firms, but among HBBS, small firms are less likely to relocate than large firms. A possible explanation for this is that fixed costs for FCPS increase with firm size, while very different mechanisms are presumably at work for home-based businesses. In a HHB, a larger firm size is likely to increase the tension between the necessary spaces for either firm or private life activities, ultimately increasing the likelihood of relocation.

Finally, neighbourhood-level factors did not generally provide significantly more explanatory value for relocation probabilities than factors at the firm or property levels. However, for home-based firms, there was specific evidence that firms in neighbourhoods with liveability problems were more likely to relocate than firms in relatively liveable districts. For firms in commercial properties, this negative effect of liveability on the likelihood of relocation was absent. This difference may be due to liveability issues affecting the likelihood of household relocation. FCPS are more likely to base their relocation decision on factors related to cost and are generally less concerned with neighbourhood liveability.

3. *Which types of neighbourhoods attract relocating firms, and does this differ between sectors and for HBBS and FCPS?*

Switching from push factors in explaining the likelihood of relocation (as in Research Question 2), this research question focused on pull factors related to the destination choice of relocating firms. The results indicate that intra-municipal relocating firms generally relocated to neighbourhoods that were easily accessible by car and characterised by higher degrees of specialisation in the firm's specific sector.

Except for these accessibility and localisation pull factors, firms did not collectively prefer the same set of neighbourhood characteristics. Firms active in ICT and business services were attracted to economically prosperous neighbourhoods, while those active in industry, construction, wholesale and storage tended to relocate to less prosperous neighbourhoods, presumably because of low property prices and rents and more readily available business properties.

The aforementioned conclusions are congruent with results from previous studies on firm relocation. However, in answering the above research question, we found that when studying destination choices of relocating firms it was necessary and worthwhile to differentiate between firms that relocated to residential as opposed to commercial properties. In answering Research Question 2, we already showed that the relocation likelihood of HBBs was affected by the liveability of the neighbourhood. In answering RQ3 (on pull factors), we showed that firms relocating to residential properties were also attracted to neighbourhoods with high scores on liveability, while the firms that relocated to commercial properties were drawn to places with low scores on liveability. In addition, firms relocating to commercial properties were attracted to neighbourhoods that included business or industrial estates, while HBBs were more likely to stay away from these neighbourhoods. Finally, firms relocating to commercial properties were attracted to neighbourhoods with diverse sectoral firm populations, while firms relocating to residential properties were attracted to neighbourhoods with more homogenous sectoral firm populations. Given that the unexplained variance increased when explaining the relocation choices of HBBs compared to FCPS, this study shows that HBB relocations were less motivated by the more rational relocation factors that are often considered in firm relocation studies, such as firm sector, size, market proximity and other classical economic location factors.

4. *In their location choice, do entrepreneurs perceive business property factors as more important relative to other location factors, and to what extent is this related to firm and neighbourhood characteristics?*

In our study of push factors for relocation (RQ2), we showed that real estate characteristics played a more important role than neighbourhood factors. In looking at pull factors (RQ3), we showed that neighbourhood factors did matter in the destination choices of relocating firms. In answering Research Question 4, we examined the importance of real estate factors relative to factors not related to the business property. Based on survey data, the results showed that in choosing a destination location, neighbourhood firms generally placed more emphasis on property-related factors. There was, however, no conclusive evidence that the relative importance of business property factors was related to the use of the property

or to its original use. Only one factor appeared consistently important: when entrepreneurs spent more time at their own business property, they placed significantly more value on factors related to the property than did entrepreneurs working mostly at other places.

5. *To what extent is the choice to run a business from home (HBB) related to the work-lifestyle characteristics of the entrepreneur?*

Based on survey data, our results showed that work-lifestyle factors influenced the likelihood to base a firm at the entrepreneur's home, even when controlling for other firm-internal and firm-external factors and for the original location. When a firm's revenue was not the primary household income or when the entrepreneur also performed caregiving tasks, the entrepreneur was more likely to have a home-based firm. In addition, adding these work-lifestyle factors removed the gender effect. These results showed that the lifestyle of the entrepreneurs mattered in firm location choices. For many home-based neighbourhood entrepreneurs, the firm location was a consideration of both private and firm related location factors in which the maximisation of private life and work life was at stake.

6.3 Heterogeneity among neighbourhoods and firms

The primary research question of this dissertation was: *What spatial configurations, from the real estate to the neighbourhood level, fit the current economic fragmentation and changing location decisions of firms induced by the changing economic production processes typical of advanced urban economies?* One of the main conclusions is that real estate factors such as property ownership, size and age play a more important role than neighbourhood factors in explaining the relocation likelihood of firms. These real estate factors are not generally accounted for in research on the revealed relocation decisions of firms, but we showed that they deserve a place of their own. Consequently, business property characteristics improved our insight into firm location behaviour, and should therefore be incorporated into locational analyses alongside the more often controlled for factors such as firm sector and size.

Neighbourhood factors do matter in the destination choices of relocating firms. Overall, our results showed that urban residential neighbourhoods were heterogeneous in their physical structure, degree of prosperity, liveability, accessibility, local firm characteristics and local rules and regulations. These neighbour-

hood characteristics were interrelated to the general location behaviour of local economic activity. First, with regard to the regulatory framework, we showed that some neighbourhoods allowed flexibility in economic zoning, while others purposely banned economic activity. Our analyses showed that a more lenient regulatory framework was related to a higher amount of and potential for (i.e., possible growth) local economic activities. We found surprisingly high growth rates in neighbourhoods with a lack of economic zoning and no apparent economic planning. A possible explanation is that a void with regard to economic policy might actually create room for entrepreneurs starting a business from home. Second, with regard to location pull factors at the neighbourhood level, we also found evidence that car accessibility was important in attracting firms and that firms generally relocated to neighbourhoods that were characterised by higher degrees of specialisation in the firm's specific sector. This indicated that, at the neighbourhood level, specialisation (localisation or Marshallian externalities) was generally more important than diversity (urbanisation or Jacobian externalities). However, when differentiating between HBBS and FCPS, we saw that such general tendencies were a minor part of the story, as these different types of firms displayed specific locational preferences.

Along with the fact that there was heterogeneity among neighbourhoods, these areas also housed a very heterogeneous firm population displaying different locational behaviours. First, with an average yearly relocation probability of 7.1%, HBBS were more mobile than FCPS, of which 3.7% relocated on an annual basis. Second, these firms did not collectively value the same location factors. When differentiating between HBBS and FCPS, we noted that these two groups of firms occasionally valued location factors in opposing ways – for example, as push factors with regard to firm size and property size and as a pull factor with neighbourhood liveability. Not differentiating between firms in commercial and residential properties would nullify these interaction effects. Firms in commercial properties were largely confined to the more classical firm related location factors, both in terms of push and pull factors. For HBBS, however, neighbourhood liveability was a significant pull factor. This was probably because choosing to have a home-based firm is partially the result of entrepreneurial lifestyle factors. Therefore, the location choice of the firm coincides with the location of the household. In all the tested models used in this dissertation, the unexplained variation increased when explaining the relocation choices of HBBS compared to FCPS, indicating that HBB relocations were motivated by different sets of location factors. The incorporation of lifestyle values, rather than the explanatory variables more commonly used in locational analysis, seems to be a logical explanation.

The increasing heterogeneity among firms due to changes in production processes (and the effect on the urban economy) has been acknowledged by authors

such as Scott (2000), Hutton (2004), Florida (2004), Gospodini (2006) and others. The fact that urban areas house a very heterogeneous firm population displaying increasingly fragmented locational behaviours deserves greater focus in locational analysis and theory. As we have seen in the first decades of the 21st century, advancements in the economic production process have not waned. On-going ICT advancements (for example, the use of electronic tablets and smartphones) and the trend of flexible employment regulations seem to further contribute to an increasingly diverse firm population displaying fragmented location patterns. Moreover, the economic recession that began in 2008 has given rise to flexible and temporary 'pop-up' uses of vacant retail and other commercial spaces. This development might stimulate reforms with regard to flexibility in rental terms and other regulations for the use of commercial real estate properties.

6.4 Entrepreneurial-, real estate- or neighbourhood-based policies?

The New Economy has opened up new ways of working. Housing an increasingly heterogeneous and potentially mobile firm population calls for different procedures, both in academic research and in local (spatial) policies. What do our results imply for local economic policies aimed at creating a desirable local business climate?

Policies aimed at revitalising a neighbourhood economy are likely to be place-based, as they target a specific urban area – the residential neighbourhood. Those who support such place-based policies argue that (economic) problems arising in specific places cannot be solved apart from their (geographical) context. Their adversaries believe that individual-based policies aimed at individual entrepreneurs (regardless of geographical context) are more effective in enhancing overall economic performance while guaranteeing equal access to opportunities (Barca et al., 2012). The effectiveness of area-based policies with regard to limiting the relocation likelihood of neighbourhood-based firms and for attracting firms to residential neighbourhoods will be discussed below.

Reducing the impact of push factors for firm relocation

One of the arguments in favour of using place-based policies such as improving neighbourhood liveability and accessibility is that it is assumed that firms remain in place because of an attractive or improved local setting (Sleutjes & Völker, 2012). This argument, however, did not hold for the residential neighbourhoods in our study. We have shown that neighbourhood factors barely influenced the likelihood

of firm relocation. As a neighbourhood push factor, only liveability had a minor effect on the relocation likelihood of home-based firms that relocated within their municipality. We did find that real estate factors were important determinants of the relocation likelihood of firms, suggesting that the structure of the neighbourhood housing stock can be linked to the mobility pattern of local firms. As a matter of policy, this implies that place-based policies should pay attention to the neighbourhood real estate structure when striving to anchor firms and entrepreneurs to the neighbourhood.

In the Netherlands, where the government has a profound influence on real estate structure and the supply of business property at the neighbourhood level, our findings provided some clues for effective real estate-based policymaking. With regard to neighbourhood real estate structure, ownership and flexibility (in terms of property size and flexible zoning regulation) are areas that can be targeted by neighbourhood-based policies. First, relocation is less likely to occur when firms own their property. Firms that own their property are more embedded in the local culture, which may be a policy objective for the municipalities so that firms contribute to the local and sustainable development of economic activity at the neighbourhood level. However, this conditioning role of property ownership can hinder firm growth, and by association, local, municipal and regional economic growth. Second, the flexibility of a specific property in terms of size might encourage home-based firms to remain at their present locations. Larger dwellings allow home-based firms to be more flexible in adapting the amount of floor space needed due to internal changes (i.e., firm growth) or external developments (such as changing market demands or competition). The effect of property size on the likely relocation of HBBS also suggests that adapting land-use plans and zoning regulations in favour of home-based economic activities (or adapting the local housing stock in favour of larger dwellings) provides a local anchor for HBBS. Moreover, urban and regional planning agencies should craft ways of increasing the flexibility between economic and residential functions within land-use plans.

Alongside real estate factors, this research confirms that firm-related factors play an important role in explaining firm relocation. For example, the likelihood of relocation is related to the firm's business sector: consumer services are less mobile, while firms active in business services or ICT are more mobile. These firm-related factors cannot be influenced by place-based policies. However, if the aim of a particular policy is to facilitate certain types of activities at the local level, it is important to have a clear overview of the local firm population and an understanding of the local economic context.

Creating an attractive local business environment

Creating an attractive local business environment can be achieved by allowing flexibility in local land-use plans and by targeting certain neighbourhood characteristics. Our findings suggest that centralised and restrictive planning is generally related to limited growth of local economic activity. If local governments want to stimulate mixed neighbourhoods, it is wise to look at how spatial plans are organised and to avoid centralised planning practices where economic activity is concentrated and confined to a specific central place (e.g., a shopping centre) in the neighbourhood. The design of local land-use plans can, to some degree, influence which neighbourhoods “win” or “lose” economic activity. Crafting more flexible land-use regulations and applying “enlightened” zoning practices can increase the economic potential of urban residential areas (Farmer, 2003).

In stimulating an attractive local business climate, policies on the municipal and regional levels are also important. Dutch national economic policy measures have had perverse effects on the supply of commercial properties in industrial estates on the outskirts of urban areas. For decades, economic growth was stimulated and made possible by the development of industrial estates. Unlike residential neighbourhoods, these estates offer sufficient space, possibility for expansion and good (car) accessibility. These policy measures have led to increased firm migration from residential neighbourhoods to industrial estates (Weterings et al. 2008; Weterings & Raspe 2010). Municipal governments should note that creating inexpensive and attractive business properties on the outskirts of town is not beneficial for creating vibrant neighbourhood economies. Rather than investing in new industrial estates, municipal governments should stimulate commercial real estate developments within existing urban areas. However, this has been made difficult in the Netherlands because of the municipal land development gains involved in the greenfield development of industrial estates (Buitelaar et al.; 2013).

To attract firms wishing to relocate to commercial properties, one should invest in neighbourhood accessibility, optimise the local commercial property stock and preserve sectoral diversity by stimulating a mixed property stock with both residential and commercial properties. Safeguarding existing commercial and retail clusters within a neighbourhood is also advisable, as it fosters demand for local places of production rather than pushing firms to more readily available business properties on industrial estates outside of the municipality. However, if a residential neighbourhood does not have commercial properties or retail spaces to begin with, it is less worthwhile or effective to stimulate economic activity by developing commercial spaces from a blank slate, detached from the local economic context. For neighbourhoods that only consist of residential properties, it might be more useful to improve neighbourhood aspects concerned with liveability. Our results

also suggest that processes of agglomeration also function at the neighbourhood level. Firms relocating to commercial properties tend to cluster together in neighbourhoods with a commercial property stock, a relatively high firm density and a diverse firm population. Policies aimed at strengthening neighbourhood economies should specifically target areas where these factors are present or likely to thrive. Evenly distributing policy funds across all municipal neighbourhoods will be less effective.

An active neighbourhood economy might also be promoted by high numbers of home-based entrepreneurs. These types of firms are attracted to neighbourhoods with high liveability scores because their location choice behaviours are primarily based on household relocation decisions. Providing an attractive residential environment also (by default) attracts home-based firms. However, influencing the choice of entrepreneurs to run their firm from home is intrinsically beyond the public domain. Because the entrepreneur's choice to perform business activities from home is related to the importance of (individual) work-lifestyle preferences, a local policymaker is limited in facilitating this growing component of the neighbourhood economy. However, this knowledge may also redirect local policy attention and initiatives towards those entrepreneurs who are actually interested in buying or renting local commercial business property. Focusing on these types of entrepreneurs and their business demands will lead to effective investments in the local neighbourhood economy and, more specifically, local investments in commercial property. Supported by the fact that the explanatory power of all of the statistical models used in this dissertation increases when explaining the relocation behaviour of firms relocating to commercial properties, local policies should primarily be concerned with those firms that make explicit firm location choices instead of residential location choices, i.e., local policies should only focus on those entrepreneurs choosing commercial properties.

Overall, place-based policies can be considered an effective tool in attracting firms that want to relocate to commercial properties. Real estate-based policies and flexibility in land-use zoning can be attractive in facilitating both the commercial and residential property based firms. Overall, these policy initiatives should reiterate the current economic profile of the neighbourhood and fit the local economic context. Finally, it is worthwhile to note that neighbourhood policy initiatives are primarily effective if there is *a strong local commitment and willingness on the part of existing entrepreneurs and other motivated stakeholders* (Neumann et al., 2012). Without such a commitment, both neighbourhood-based and individual-based policy initiatives are rendered obsolete and typically unsuccessful.

6.5 Discussion and future research

This dissertation has offered new insights on how spatial configurations, from the real estate to the neighbourhood level, influence firm (re)location behaviour. These insights are subject to several limitations that can justify follow-up research. The results also present several new questions and avenues for future research.

A firm's location decision is based on a complex range of factors and considerations significant to entrepreneurs; these factors could not be completely accounted for in our analyses. Our results are based on revealed location behaviours and consider the work-lifestyle choices (i.e., outcomes) of entrepreneurs. By studying the revealed location behaviour, we analysed the decisions that firms ultimately made and consequently provided an important point of view within location studies. By choosing to focus on revealed location behaviour, the results do not provide insights into the decision-making process with regard to firm location behaviour. Especially with regard to lifestyle choices and motivations, the understanding of location behaviour could have been deepened by including more qualitative and inductive research aspects. Moreover, a more qualitative aspect to the research would have also contributed to a dynamic and historical perspective at the micro level. Also on a macro level a more dynamic approach would have enabled us to better describe changes in locational behaviour of firms over time. Especially with regard to the results based on survey data, a more dynamic approach by using longitudinal survey-data would have been valuable. However, due to the cross-sectional nature of the survey, this dynamic approach was not possible. Finally, as we focussed on firms in urban residential neighbourhoods the comparative nature of this dissertation is limited. Although the comparative aspect is to be found among the heterogeneous firm population within urban residential neighbourhoods, we do not contrast the location behaviour of these neighbourhood-based firms with that of firms located in other types of economic production milieus, such as industrial estates or central business districts, lessening the authority of our results on the specificity of location behaviour of residential neighbourhood-based firms compared to locational tendencies of firms found in other types of production milieus.

With regard to RQ1 (on which types of economic zoning in land-use plans are most suitable to accommodate local economic activities), it should be noted that land-use planning is influenced by the historically present level of economic activity in a specific neighbourhood that (to some degree) reflects the local physical environment. At the same time, land-use plans (as products of policy goals) can also restrict (future) business space. In this sense, economic activities influence – and are influenced by – the local zoning plan. Further research into the degree of causality between economic zoning and the amount and growth of local economic activity can deepen our insight into the direct economic effects of land-use

plans. This future research would be especially worthwhile in countries such as the Netherlands, where land-use plans have a stringent effect on the sorting of economic activities in urban spaces.

In answering RQ2 and RQ3 (regarding firm, real estate and neighbourhood push and pull factors), we focused on relocating firms within residential neighbourhoods. The location preferences of existing firms differ from those of start-up firms (Holl, 2004). Our focus on relocation behaviour limited the results on the importance of push and pull factors to only *relocating* firms, thus not reflecting the factors that are important to start-up firms. Unlike a start-up firm, an established firm's original location plays a conditional role in the process of relocation (Peltenberg et al., 2002). Therefore, a firm's relocation provides information on the *differences* between the original and destination locations, revealing which location characteristics matter to the relocated firms and to their entrepreneurs. The fact that we only analysed firm relocations in residential neighbourhoods in Amsterdam was mostly due to data limitations: only the municipality of Amsterdam was able and willing to provide the necessary real estate data. Follow-up research based on a dataset that includes various municipalities and can account for real estate factors would strengthen the results of RQ2 and RQ3.

The results on the relative importance of business property factors and the role of lifestyle factors in the choice to be home-based (RQ4 and RQ5) were measured through survey data. Because of the cross-sectional fieldwork design, we were limited to a static approach, which may have caused us to miss certain triggers of location behaviour, particularly if household composition or location preferences changed as a result of the current economic recession affecting the income sources of many households and entrepreneurs. The same problem applies to several firm-internal factors that we assumed to be stable over time. We also had to rely on a limited number of cases in answering RQ4 and RQ5. Such limitations justify follow-up studies that either draw on a larger group of respondents or use in-depth interviews to broaden insights on how changing work-lifestyles interact with the processes of firm location choice.

Alongside the fact that certain limitations justify follow-up research, these findings can also prompt future avenues of research on their own. First, we have shown that real estate factors influence the relocation likelihood of firms. Factors related to the business property have not been accounted for in earlier studies on revealed firm relocation behaviour. This is surprising, as the incorporation of real estate factors (i.e., characteristics of the dwelling) are widespread in research on residential relocation and migration (Vanderhart, 1994; Hooimeijer & Heida, 1995; Lu, 1998; Dieleman, 2000; Helderma, 2007). Our research suggests that, similar to residential relocation studies, research on firm (re)location should more systematically incorporate real estate factors in explaining revealed firm location behaviour.

However, as witnessed in our own research, it is difficult to access firm-level real estate data that can be linked to commercial registers such as the LISA-register. It takes time and effort to collect and link these various data sources, and these property-level real estate data are often subject to privacy regulations. Nonetheless, future firm relocation research should be dedicated to assuring that real estate factors are controlled for, especially when researching a firm population housed in diverse business properties such as urban residential neighbourhoods. Second, future research should contribute to a deeper understanding about the role of lifestyle factors in the location behaviour of firms. Future research can also provide insights about how to value HBBS in locational analyses. Until now, firm location studies based on register data have neglected the fact that home-based entrepreneurs will centre the firm's relocation decisions primarily on private life considerations. Our research has shown that in residential neighbourhoods, 60% of all firms are home-based. Again, commercial register data does not provide information that allows for a distinction between firms in commercial and residential properties. Future research must create innovative techniques that can provide this property differentiation; otherwise, when the objective of the research is primarily linked to explaining firm location behaviour, researchers must consider excluding part of the potential firm population. Our suggestion is that when researching firm location in heterogeneous urban areas, firms that have one employee should be discarded from the research population, as they are likely to be home-based and thus making location choices for the coinciding household and not the firm.

As economic production processes have progressed, the theory on firm location has also evolved. At a macroeconomic level, these changes in production processes have led to changing location preferences of firms, reflected in a continually evolving and 'restless' urban landscape. With regard to micro-level firm location behaviour, this restless urban landscape is the outcome of increasingly converging patterns of firm location. This thesis has shown that the real estate and private-life preferences of entrepreneurs are inseparably linked to these converging locational patterns. While an increasingly fragmented firm population makes the study of general patterns of firm location more difficult, it opens up avenues of research that explain the locational specificities for particular industries, economic sectors or, for example, the locational specificities for HBBS. Future research should examine how such diverging patterns come into being by going beyond clarifying firm location behaviour based only on firm-related characteristics. This often requires qualitative research, but quantitative studies should also find ways to incorporate factors that are proxies for private-life preferences of entrepreneurs.

Appendici

I: Neighbourhood selection

socio-economic status	Amsterdam	Utrecht	Zoetermeer	Dordrecht	Leiden
High	Apollobuurt (8020)* pre-war	Buiten Wittevrouwen (4250) pre-war	Rokkeveen West 8660) post-war	Oud-Dubbeldam (2510) post-war	Raadsherenbuurt (920) pre-war
	Willemsparkbuurt (5120) pre-war	Wilhelminapark (3200) pre-war	Rokkeveen Oost (13830) post-war	Dubbeldam-Zuid (1290) post-war	Houtkwartier (1370) pre-war
		Schildersbuurt (3370) pre-war			Waardeiland (1080) post-war
Average	Helmersbuurt (6800) pre-war	Langerak (3700) post-war – VINEX	Seghwaert Noordoost (9610) post-war	Wittenstein (3410) post-war	Kloosterhof (3020) post-war
	Overtoomse Sluis (7080) pre-war	Veldhuizen (8570) post-war – VINEX	Seghwaert Zuidwest (7550) post-war	Mildenburg (2014) post-war	Dobbewijk-Zuid (4520) post-war
		De Meern (10560) post-war		Zuilenburg (1700) post-war	Schenkwijk (2360) post-war
				Vredenburg (2960) post-war	
Low	De Krommert (11970) pre-war	Ondiep (5680) pre-war	Meerzicht west (9230) post-war	Crabbehof Zuid (4320) post-war	Noorderkwartier (5140) mixed pre- and post-war
	Overtoomse Veld (9660) post-war	Pijlsweerd-Noord (1990) pre-war	Meerzicht oost (5890) post-war	Crabbehof Noord (2760) post-war	De Kooi (6210) pre-war
	Westlandgracht (4500) post-war	Pijlsweerd-Zuid (3320) pre-war		Admiralsplein (660) post-war	Slaaghwijk (4580) post-war
				Van Kinsbergenstraat (1470) post-war	
				Dorus Rijkersstraat (660) post-war	
				Van Ewijkstraat (1340) post-war	
			Zeehavenlaan (520) post-war		

* Number of inhabitants in 2007 is expressed between brackets.

II: Rare events robustness check

The percentage of firm establishments that relocated annually was 6 during the period from 2005-2008. This means that only a fraction of our population relocates and that the dependent variable is characterised by an excess of zero's. Since the mean of a binary variable is the relative frequency of events in the data, this small number of 'events' might lead to estimated event probabilities that are too small. King and Zeng (2001) introduce a prior correction to deal with possible rare events bias:

“Prior correction involves computing the usual logistic regression MLE and correcting the estimates based on prior information about the fraction of ones in the population and the observed fraction of ones in the sample (King & Zeng, 2001:144)

Kosuke et al. (2007) have developed this correction into an application in the “R” environment for statistical computing. We performed the rare events analysis for our models 4 and 5 since these models only include the intra-municipal relocations and therefore have the smallest number (and shares) of ones. In model 4 (including only those firms located on commercial property), the yearly relocation percentage is 3.7%, while the average share of yearly relocations in model 5 (with only HBBS) is 5.4%. The parameters of the rare events analysis did not differ from the results presented in the paper, thereby signifying their robustness.

III: Multilevel robustness check

The variables that are added in block two of each of the models presented in the paper are measured at the level of the neighbourhood. This means that the assumed neighbourhood effects are not related exclusively to individual firms. By using a multilevel model, we can interpret whether neighbourhood effects also influence firm level estimates. To test the robustness of the estimates, we computed a multilevel analysis for relocation likelihood comparable to model 1, block two. In this multilevel model, we compare the null-model to a model in which the intercepts can differ between neighbourhood (random intercepts) and a model in which slopes can differ between neighbourhoods (random slopes). The results and significance of the estimates did not deviate much from the presented ones, again signifying the robustness of our model outcomes.

IV: Categorisation of location factors

Property factors	Look and feel of property
	Floor plan design
	Size of property
	Availability of property
	Contractual conditions linked to property
<hr/>	
Other location factors	Accessibility by public transport
	Accessibility by car
	Cost considerations
	Private life considerations
	Collaboration possibilities
	Residence of employees
	Presence of other firms
	Amenities in neighbourhood
	Potential local market
	Mixed use in neighbourhood
Reputation of the neighbourhood	

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Het huisvesten van de mobiele ondernemer

(Samenvatting in het Nederlands)

Dit proefschrift draagt bij aan onderzoek naar de factoren die het locatiegedrag van bedrijven in ontwikkelde stedelijke economieën beïnvloeden. In de eerste plaats richt het onderzoek zich op de locatiekeuzes van bedrijven in stedelijke woonwijken. In het vinden van verklaringen voor bedrijfslocatiekeuzes en bedrijfsverhuizingen ligt de focus in dit proefschrift op het belang van privé-overwegingen van de ondernemer, en het belang van vastgoedkenmerken van het bedrijfspand. De hoofdvraag van het onderzoek is als volgt:

Welke ruimtelijke configuraties, van pand- tot buurtniveau, sluiten aan op de huidige economische fragmentatie en toenemende variatie in locatiekeuzes van bedrijven, veroorzaakt door de veranderende productieprocessen in ontwikkelde stedelijke economieën?

Aanleiding

Sinds de start van het krachtwijkenbeleid van minister Vogelaar (Wonen, Wijken en Integratie) in 2007 maakt wijkeconomie deel uit van het Nederlandse beleidsdiscours. Ook buiten de krachtwijken is wijkeconomie in de afgelopen jaren een belangrijk thema geweest. Gemeenten hebben ingezet op instrumenten als startersondersteuning, kansenzones, functiemenging en microkredieten om ondernemerschap in wijken te stimuleren. Gemeenten geven verscheidene redenen om de wijkeconomie te willen bevorderen. Zij zien de economische kracht van wijken als belangrijke motor van de stedelijke economie, en als bron van werkgelegenheid en een vitale wijk. Ook wordt gedacht dat een vitale wijkeconomie de levendigheid op straat kan bevorderen en daarmee ook bijdraagt aan een verhoogde sociale controle. Naast het willen voorzien in een vitale wijkeconomie zijn gemeentelijke overheden de afgelopen decennia ook zeer actief geweest in de gronduitgifte voor

de bouw van bedrijventerreinen. Dit heeft geleid tot een overaanbod aan bedrijfspanden op dergelijke terreinen, vaak gesitueerd aan de rand van de stad of op zichtlocaties langs de snelweg. Ondernemers op zoek naar een nieuw bedrijfspand worden verleid te verhuizen naar dit goedkopere en beschikbare vastgoed buiten de stad. Deze verhuisbeweging is schadelijk voor de economische kracht van stedelijke woonwijken. Inzicht in het locatiegedrag van bedrijven en de invloed van vastgoedfactoren op dit locatiegedrag bieden nieuwe aanknopingspunten voor het effectief vormgeven van beleid dat gericht is op het stimuleren van de wijk economie.

Naast deze maatschappelijke relevantie draagt dit proefschrift op drie punten bij aan het academisch onderzoek naar locatiekeuzen van bedrijven. Ten eerste ligt de focus op locatiegedrag van ondernemers in stedelijke woonwijken. Hoewel 40% van de banen in de grotere steden van Nederland zich bevindt in deze woonwijken is de locatiekeuze van ondernemers in de woonwijk zelden het onderwerp van locatiestudies. Ten tweede exploreren we in het onderzoek de invloed van keuzes in de privé sfeer van de ondernemer op zijn of haar bedrijfslocatiekeuze. Dergelijke factoren worden in locatiestudies op basis van grootschalige datasets nauwelijks meegenomen. Echter, in een wereld waar ondernemers steeds mobieler en flexibeler zijn in de manier waarop en waar zij hun werk doen, zal dit ook van invloed zijn op de bedrijfslocatiekeuze. Ten derde is het onderzoek beschreven in deze dissertatie een van de eerste onderzoeken die vastgoedfactoren meeneemt in het kwantitatief verklaren van locatiekeuzes van ondernemers.

Deelvragen

Om de hoofdvraag zo goed mogelijk te beantwoorden zijn verschillende deelvragen opgesteld:

1. Kunnen we verschillende economische planningstypen identificeren in de bestemmingsplannen van Nederlandse woonwijken, en zo ja, welke van deze economische planningstypen zijn geschikt voor het faciliteren van economische activiteiten?
2. Hoe beïnvloeden vastgoedfactoren de verhuisgeneigdheid van bedrijven in stedelijke woonwijken, wanneer gecontroleerd wordt voor buurt- en bedrijfsfactoren?
3. Tot welk type buurten worden verhuizende bedrijven aangetrokken en verschilt dit tussen sectoren en voor bedrijven aan huis en bedrijven in commercieel vastgoed?
4. Vinden ondernemers vastgoedkenmerken belangrijker dan andere locatiefactoren in de locatiekeuze van het bedrijf, en in hoeverre is dit relatieve belang te verklaren door bedrijfs- en buurtkenmerken?
5. In hoeverre wordt de keuze voor een bedrijf aan huis beïnvloed door werk-leefstijlfactoren van de ondernemer?

Theoretische achtergrond

Economisch handelen is ingebed in sociale, culturele en institutionele contexten die kunnen variëren van lokaal tot mondiaal niveau. Aan de grondslag van dit onderzoek ligt de assumptie dat economisch handelen voorkomt uit een dialectisch proces waar de actor invloed heeft op lokale context terwijl de lokale context tegelijkertijd het handelen van de actor beïnvloed. In het beantwoorden van de eerste deelvraag ligt de focus op de structurele context en wordt de relatie tussen bestemmingsplannen economische activiteit onderzocht. In volgende deelvragen staat de actor centraal. In deelvraag 2 en 3 staat het verhuisgedrag van het bedrijf centraal en in deelvraag 4 en 5 staan de gedrag en de keuzes van de ondernemer centraal.

Binnen bedrijfslocatiestudies wordt vaak onderscheid gemaakt tussen interne en externe factoren die van invloed zijn op het locatie- en verhuisgedrag van ondernemers. Interne factoren zijn de kenmerken van de ondernemer of het bedrijf. Hierbij valt te denken aan de ambitie van de ondernemer, de bedrijfssector en de bedrijfsgrootte. Externe factoren hebben betrekking op de bedrijfsomgeving (het pand en de buurtkenmerken) en hierbij wordt onderscheid gemaakt tussen push- en pullfactoren. Pushfactoren zijn de externe factoren die een verhuizing van een bedrijf in de hand werken. Pullfactoren zijn de externe factoren die een aanzuijgende werking uitoefenen op de keuze voor de bedrijfslocatie. In deelvraag 1 en 3 staan de externe factoren op buurtniveau centraal met een focus op pullfactoren. In deelvraag 2 staan pushfactoren centraal, waarbij de focus ligt op de rol van pandkenmerken. Deelvraag 4 en 5 richten zich op het relatieve belang van pandkenmerken en bij deze twee deelvragen ligt de focus op de invloed van interne factoren op de locatiekeuze van het bedrijf.

Dataverzameling en onderzoeksmethodiek

Het onderzoeksgebied bestaat uit woonwijken in vijf Nederlandse steden: Amsterdam, Dordrecht, Leiden, Utrecht en Zoetermeer. De steden Zoetermeer, Dordrecht en Leiden zijn middelgrote steden, met ongeveer 120.000 inwoners. Amsterdam en Utrecht behoren met respectievelijk 767.000 en 306.000 inwoners tot de grootste steden in Nederland. Alle steden behoren tot de Randstad, een gebied dat functioneert als één regionale economie. Het onderzoeksgebied biedt een representatieve dwarsdoorsnede van de woonwijken in grote en middelgrote Nederlandse steden.

Voor de analyses die ten grondslag liggen aan de beantwoording van deelvragen 1, 4 en 5 zijn 44 woonbuurten van een diverse socio-economische status in de vijf onderzoeksteden geselecteerd. Voor het beantwoorden van deelvragen 2 en 3 is een

ander onderzoeksgebied aangehouden omdat we alleen gebruik konden maken van vastgoedgegevens uit de gemeente Amsterdam. Het onderzoeksgebied voor deelvragen 2 en 3 bestaat daarom uit alle stedelijke woonwijken van Amsterdam.

In deze dissertatie is gebruik gemaakt van verschillende, voornamelijk kwantitatieve, databronnen. Voor de beantwoording van deelvraag 1 is een dataset opgesteld waarin de bestemmingsplannen van 44 woonbuurten op verschillende criteria zijn beoordeeld. Voor de analyse werd de kwalitatieve beoordeling van bestemmingsplannen gecombineerd met geaggregeerde gegevens van het LISA (*Landelijk Informatie Systeem Arbeidsplaatsen*). Het LISA-databestand bevat gegevens van alle vestigingen in Nederland waar betaald werk wordt verricht. De kerngegevens per vestiging hebben een ruimtelijke component (adresgegevens) en een sociaaleconomische component (werkgelegenheid en economische activiteit). Deelvraag 2 en 3 zijn beantwoord met registerdata uit het LISA waaraan vastgoedgegevens van de gemeente Amsterdam op pandniveau gekoppeld zijn. Deelvraag 4 en 5 zijn beantwoord op basis van resultaten uit een enquête die tussen mei en juli 2011 is uitgevoerd. Deze enquête werd verspreid onder ondernemers in 41 geselecteerde woonwijken in het onderzoeksgebied.

In de volgende paragraaf worden de resultaten per deelvraag samengevat.

Bevindingen en analyse

Deelvraag 1: Kunnen we verschillende economische planningstypen identificeren in de bestemmingsplannen van Nederlandse woonwijken, en zo ja, welke van deze economische planningstypen zijn geschikt voor het faciliteren van economische activiteiten?

In Nederland is ruimte voor bedrijvigheid juridisch vastgelegd in bestemmingsplannen. Op basis van de beoordeling van bestemmingsplannen van 44 buurten in de vijf onderzoeksteden zijn de woonwijken op basis van hun economische planning in vier categorieën in te delen: gemengd, centraliserend, behoudend en beperkend. De buurten met een gemengd (functiemenging) of centraliserend (wijkwinkelcentrum) bestemmingsplan kennen de meeste bedrijven per 100 inwoners. In buurten met een behoudend bestemmingsplan is de woonfunctie het belangrijkste en wordt er praktisch geen aandacht besteed aan economische functies. Tegelijkertijd is er in het behoudende bestemmingsplan geen sprake van een expliciet restrictief karakter, zoals het geval is in de buurten met een beperkend bestemmingsplan. Verrassend genoeg zijn in de woonwijken met een behoudend bestemmingsplan relatief veel bedrijven te vinden en kenden deze wijken ook grote groei aan economische activiteit in de periode 1999-2007. Aangezien er in de bestemmingsplan-

nen van behoudende buurten nagenoeg geen formele bedrijfsruimten bestemd zijn, gaat het hier in de regel om aan huis gevestigde bedrijvigheid. Het “vacuüm” met betrekking tot het economisch beleid lijkt ruimte te bieden voor aan huis gevestigde economische activiteiten.

Deelvraag 2: Hoe beïnvloeden vastgoedfactoren de verhuisgeneigdheid van bedrijven in stedelijke woonwijken, wanneer gecontroleerd wordt voor buurt- en bedrijfsfactoren?

Het gemiddelde jaarlijkse verhuispercentage onder de bedrijfspopulatie van deze studie is 6%. Dat wil zeggen dat jaarlijks 6% van de bedrijven verhuist naar een ander pand op een andere locatie. Naast de vaak geteste bedrijfsfactoren spelen vastgoedkenmerken van het bedrijfspand een belangrijke rol in het verklaren van deze verhuiskans. Wanneer alle bedrijven gezamenlijk worden geanalyseerd laten de resultaten zien dat wanneer een ondernemer het bedrijfspand bezit, de kans dat hij zal verhuizen kleiner is. De grootte van het pand heeft ook een negatieve invloed op de verhuiskans: Hoe groter het pand waar de ondernemer in is gevestigd, hoe kleiner de kans dat er verhuist wordt. Dit geldt vooral voor bedrijven die aan huis zijn gevestigd. Tot slot verhuizen bedrijven gevestigd in een bedrijfsverzamelgebouw vaker dan bedrijven die hun vestigingsadres niet delen met andere bedrijven.

Aan huis gevestigde bedrijven vertonen een ander verhuisgedrag dan bedrijven in commercieel vastgoed. Ten eerste zijn ze met een gemiddeld jaarlijks verhuispercentage van 7,1% meer geneigd te verhuizen dan bedrijven gevestigd in commercieel vastgoed, met een gemiddeld jaarlijks verhuispercentage van 4,8%. Wat betreft bedrijfsgrootte suggereren de statistische modellen dat kleine bedrijven gevestigd in commercieel vastgoed een hogere verhuiskans hebben dan grote bedrijven, maar dat voor bedrijven aan huis precies het tegenovergestelde geldt: kleine bedrijven aan huis zijn minder geneigd te verhuizen dan grote bedrijven. Een mogelijke verklaring hiervoor is dat voor bedrijven in commercieel vastgoed de vaste kosten toenemen naarmate het bedrijf groeit. Voor bedrijven aan huis geldt dit in mindere mate en hier liggen vermoedelijk hele andere mechanismen ten grondslag aan een verhuizing. Zo zal een grotere bedrijfsomvang wellicht zorgen voor een toenemende spanning tussen het ruimtegebruik van het privé huishouden en het bedrijf. Tot slot bleken factoren op buurtniveau weinig extra verklarende waarde te bieden bovenop de geteste bedrijfs- en pandfactoren. Specifiek voor aan huis gevestigde bedrijven is er wel bewijs gevonden dat bedrijven gevestigd in buurten met leefbaarheidsproblemen een hogere verhuiskans hebben dan bedrijven gevestigd in relatief leefbare wijken.

Uit de resultaten blijkt dat op basis van de meegenomen bedrijfs-, buurt- en pandfactoren de verhuiskans van bedrijven in commercieel vastgoed grondiger

kan worden verklaard dan de verhuiskans van bedrijven aan huis. Dit is begrijpelijk gezien het feit dat het verhuisgedrag van een bedrijf aan huis waarschijnlijk veel meer wordt beïnvloed door factoren in de privé sfeer. Dergelijke privéfactoren worden nog nauwelijks in de statistische modellen van kwantitatieve locatiestudies meegenomen. Dit komt deels doordat er in de gebruikte grootschalige statistische bestanden, die hun oorsprong vaak vinden in commerciële registerdata, geen informatie bestaat over persoonskenmerken.

Deelvraag 3: Tot welk type buurten worden verhuizende bedrijven aangetrokken en verschilt dit tussen sectoren en voor bedrijven aan huis en bedrijven in commercieel vastgoed?

In de vorige deelvraag stonden pushfactoren centraal. In deze deelvraag gaat het om welke pullfactoren op buurtniveau van invloed zijn op de bestemmingskeuze van verhuisde bedrijven. De resultaten laten zien dat bedrijven die op intra-gemeentelijk niveau verhuizen worden aangetrokken tot buurten die makkelijk bereikbaar zijn per auto. Daarnaast worden verhuizende bedrijven aangetrokken tot buurten gekenmerkt door een hogere mate van specialisatie in de specifieke sector van het bedrijf. Afgezien van deze bereikbaarheid en lokalisatie pull factor geven bedrijven niet collectief de voorkeur aan een dezelfde sets van buurtkenmerken. Zo worden bedrijven actief in ICT en zakelijke dienstverlening aangetrokken tot meer welvarende buurten terwijl de bedrijven actief in industrie, bouwnijverheid, opslag en groothandel juist worden aangetrokken tot minder welvarende buurten, vermoedelijk vanwege de lage huizenprijzen en beter commercieel vastgoed.

De resultaten laten zien dat het bij het bestuderen van de bestemmingskeuze van bedrijven noodzakelijk is om onderscheid te maken tussen bedrijven aan huis en bedrijven in commercieel vastgoed. Bij het beantwoorden van deelvraag 2 bleek al dat de leefbaarheid in de buurt een pushfactor is bij het bepalen van de verhuiskans van bedrijven aan huis. Bij het beantwoorden van deelvraag 3 blijkt bovendien dat bedrijven die naar residentieel vastgoed verhuizen (i.e., bedrijven aan huis) worden aangetrokken tot buurten met hoge scores op leefbaarheid terwijl bedrijven verhuizend naar commercieel vastgoed worden aangetrokken tot buurten met lage scores op leefbaarheid. Daarnaast worden bedrijven die verhuizen naar commercieel vastgoed aangetrokken tot buurten met (een deel van) een bedrijventerrein binnen hun buurtgrenzen, terwijl bedrijven verhuizend naar residentieel vastgoed eerder wegblijven van dergelijke buurten. Tot slot worden bedrijven verhuizend naar commercieel vastgoed aangetrokken tot buurten die een bedrijfspopulatie kennen met een grotere diversiteit aan sectoren terwijl bedrijven verhuizend naar residentieel vastgoed worden aangetrokken tot buurten met een meer homogene bedrijfspopulatie, met minder diversiteit tussen sectoren.

Net als bij deelvraag 2 wordt, op basis van de meegenomen buurtfactoren, de bestemmingskeuze van bedrijven in commercieel vastgoed beter verklaard dan de bestemmingskeuze van bedrijven aan huis. Het onderzoek laat zien dat het locatiedrag van bedrijven aan huis in mindere mate kan worden beoordeeld op basis van de rationele economische factoren zoals bedrijfssector, bereikbaarheid en nabijheid van de markt.

Deelvraag 4: Vinden ondernemers vastgoedkenmerken belangrijker dan andere locatiefactoren in de locatiekeuze van het bedrijf, en in hoeverre is dit relatieve belang te verklaren door bedrijfs- en buurtkenmerken?

Bij het beantwoorden van deelvraag 2 is gebleken dat vastgoedkenmerken van het bedrijfspand een grotere invloed hebben op de verhuiskans dan buurtfactoren. Deelvraag 3 liet zien dat buurtfactoren wel belangrijk zijn bij de bestemmingskeuze van bedrijven. In deelvraag 4 wordt het relatieve belang van vastgoedkenmerken ten opzichte van andere locatiegebonden factoren, zoals bereikbaarheid en marktgerelateerde factoren, geanalyseerd. Om deelvraag 4 te kunnen beantwoorden, hebben we een enquête uitgezet onder de ondernemers in het onderzoekgebied. De resultaten van de enquête laten zien dat bedrijven in hun locatiekeuze meer nadruk leggen op vastgoedkenmerken dan op andere locatiefactoren. Er is geen indicatie dat dit relatieve belang van vastgoedfactoren sterk wordt beïnvloed door de bedrijfs- en buurtkenmerken. Slechts één factor bleek van significant belang: ondernemers die meer tijd doorbrengen op hun bedrijfslocatie hechten aanzienlijk meer waarde aan vastgoedfactoren dan ondernemers die meer tijd doorbrengen weg van de bedrijfslocatie.

Deelvraag 5: In hoeverre wordt de keuze voor een bedrijf aan huis beïnvloed door werk-leefstijlfactoren van de ondernemer?

De enquêtedata laten zien dat werk-leefstijlfactoren van invloed zijn op de keuze voor een bedrijf aan huis, zelfs wanneer er wordt gecontroleerd voor andere interne en externe locatiefactoren. Drie van de vier geteste werk-leefstijlfactoren beïnvloeden de keuze voor een bedrijf aan huis. Wanneer de inkomsten van de onderneming niet de primaire inkomsten van het huishouden zijn is de kans groter dat de ondernemer het bedrijf aan huis vestigt. Wanneer de ondernemer ook zorgtaken uitvoert is de kans groter dat de ondernemer het bedrijf aan huis vestigt. Daarnaast is de groeiambitie van de ondernemer negatief gecorreleerd met de keuze het bedrijf aan huis te vestigen. De enige werk-leefstijlfactor die geen significante invloed had op de keuze voor een bedrijf aan huis was het gemiddelde aantal wekelijkse werkuren van de ondernemer besteed aan het bedrijf.

Deze resultaten laten zien dat keuzes in de levensstijl van de ondernemer, zoals groeiambitie en het uitvoeren van zorgtaken, van invloed zijn op de bedrijfslocatiekeuze. Voor ondernemers met een bedrijf aan huis is de bedrijfslocatiekeuze gebaseerd op een afweging van zowel privéoverwegingen als bedrijfsfactoren. In toekomstig bedrijfslocatieonderzoek moet dan ook meer dan voorheen rekening worden gehouden met het feit dat de locatiekeuze van een onderneming in steeds grotere mate wordt bepaald door een optimale balans tussen werk en privé, en niet zozeer alleen in het teken staat van de winstmaximalisatie van het bedrijf.

Synthese

De hoofdvraag van dit onderzoek luidde:

Welke ruimtelijke configuraties, van pand- tot buurniveau, sluiten aan op de huidige economische fragmentatie en toenemende variatie in locatiekeuzes van bedrijven, veroorzaakt door de veranderende productieprocessen in ontwikkelde stedelijke economieën?

Een van de belangrijkste conclusies van dit proefschrift is dat vastgoedfactoren een belangrijke, significante rol spelen in het verklaren van het verhuisgedrag van bedrijven. Deze vastgoed factoren worden over het algemeen echter niet meegenomen in kwantitatief georiënteerd locatieonderzoek. Omdat het onze inzichten in het locatiegedrag van bedrijven vergroot, dienen naast de vaak geteste bedrijfskenmerken als sector, leeftijd en bedrijfsgrootte ook vastgoedfactoren te worden meegenomen bij het onderzoek naar bedrijfslocatiekeuzes en bedrijfsverplaatsingen.

Buurtfactoren hebben nauwelijks invloed op de beslissing om te verhuizen maar spelen wel degelijk een rol in de bestemmingskeuze van een bedrijf. Dit onderzoek laat zien dat stedelijke woonbuurten divers zijn in hun fysieke structuur, de mate van welvaart, leefbaarheid, bereikbaarheid, lokale bedrijfsstructuren en lokale wet- en regelgeving. Deze buurtkenmerken zijn dan ook van invloed op de hoeveelheid lokale economische activiteit. In deze dissertatie wordt beargumenteerd dat in buurten met meer flexibele bestemmingsplannen meer perspectief en ruimte lijkt te zijn voor lokale economische activiteiten. Met betrekking tot pull-factoren op wijkniveau, vonden we ook aanwijzingen dat bereikbaarheid per auto belangrijk was in het aantrekken van bedrijven en dat bedrijven geneigd zijn te verhuizen naar wijken die een hogere mate van specialisatie in specifieke sector van het bedrijf kennen. Echter, afgezien van deze bereikbaarheid en lokalisatie pullfactor geven bedrijven niet collectief de voorkeur aan een bepaalde set van buurtkenmerken.

Naast een heterogeniteit onder stedelijke woonbuurten, huisvesten deze buurten dus ook een zeer heterogene bedrijfspopulatie met gedifferentieerde vestigingsplaatsvoorkeuren. Deze diverse bedrijfspopulatie hecht dan ook niet gezamenlijk aan dezelfde locatiefactoren en waardeert sommige locatiefactoren zelfs op tegengestelde manieren. Dit geldt vooral wanneer we onderscheid maken tussen bedrijven aan huis en bedrijven gevestigd in commercieel vastgoed. Zo zijn bedrijven aan huis bijvoorbeeld geneigd om te verhuizen naar buurten met betere scores op leefbaarheid terwijl bedrijven in commercieel vastgoed geneigd zijn te verhuizen naar buurten met lagere scores op leefbaarheid. Wanneer er in locatieonderzoek meer rekening wordt gehouden met deze diversiteit aan bedrijvigheid kunnen dergelijke interactie-effecten, bijvoorbeeld tussen verschillende typen vastgoed, in kaart worden gebracht. Dit leidt uiteindelijk tot betere inzichten in het locatiegedrag van een steeds meer heterogene bedrijfspopulatie.

Beleidsimplicaties

Veranderingen in productieprocessen hebben nieuwe manieren van werk mogelijk gemaakt. Het huisvesten van een steeds meer heterogene en mobiele bedrijfspopulatie vraagt om alternatieve regelgeving en aangepast beleid. Gemeenten hechten belang aan een levendige wijk economie. Op basis van de resultaten van dit onderzoek beschreven in deze dissertatie kan worden ingezet op het verminderen van de impact van pushfactoren in de vastgoed sfeer en het creëren van een aantrekkelijk lokaal ondernemingsklimaat.

Ten eerste laat deze dissertatie zien dat vastgoedfactoren van invloed zijn op de verhuiskans van bedrijven. Dit suggereert dat de lokale vastgoedstructuur kan worden gekoppeld aan de verhuisgedrag van lokale bedrijven. Beleid gericht op het verminderen van de impact van pushfactoren zou dan ook een focus moeten hebben op het vastgoedaanbod in de wijk. Bestemmingsplannen met een “vacuüm” met betrekking tot het economisch beleid of het aanpassen van de lokale woningvoorraad in het voordeel van grotere woningen biedt een anker voor aan huis gevestigde bedrijvigheid. Bovendien zou er binnen bestemmingsplannen meer flexibiliteit en inwisselbaarheid moeten zijn tussen economische en residentiële functies.

Afgezien van het faciliteren van de mogelijkheden tot thuis ondernemen lijkt het een utopie om economisch lokaal beleid te richten op het aantrekken van aan huis gevestigde bedrijvigheid. De locatiekeuzes van deze thuisondernemers liggen buiten het publieke domein en zijn niet terug te voeren op de meer rationele economische locatiefactoren. Voor het creëren van een aantrekkelijk lokaal ondernemingsklimaat is het verstandig om de beleidsfocus te leggen op het aantrekken van bedrijven die zich in commercieel vastgoed willen vestigen. Dit kan door middel

van het investeren in de bereikbaarheid, het optimaliseren van de lokale commerciële vastgoedvoorraad en het behoud van sectorale diversiteit. Inzetten op handhaving van bestaande bedrijfs- en detailhandelsclusters binnen een wijk is ook aan te raden. Let wel, dergelijke beleidsinterventies hebben alleen succes wanneer ze passen binnen de lokale context.

Tot slot: beleid gericht op het stimuleren van de wijkeconomie zal maar moeilijk kunnen samengaan met actief (en vaak financieel aantrekkelijk) gronduitgiftebeleid dat de bouw van bedrijventerreinen en kantoorlocaties aan de rand van de stad of op zichtlocaties langs de snelweg mogelijk maakt. Dus steden die graag een bedrijvige en levendige wijkeconomie willen stimuleren, is het af te raden om tegelijkertijd in te zetten op een actief gronduitgifte beleid dat de ontwikkeling van bedrijventerreinen en kantoorlocaties mogelijk maakt.