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Zoning the neighbourhood economy

The zoning plan as a formal institution and its relation to diverging economic trajectories of urban residential neighbourhoods

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1. Introduction

How changes in economic and social structures have influenced urban space, ways of work, residence and leisure and created tension between the 'global' and 'local' have been extensively researched and theorized upon (Castells, 1999; Hall, 1998; Sassen, 2006; Scott, 2000). The way in which these macro processes affect economic activities in residential neighbourhoods specifically, and how they change the importance of the neighbourhood as a milieu for economic activity has received less scientific attention. However, we believe that it is this micro spatial scale of the urban residential neighbourhood that is exceptionally suited for research against the backdrop of three developments mentioned below: (1) the expansion of post-Fordist and service related economy, (2) a regained interest in urban living and (3) the Dutch policy focus on a compact city and mixed neighbourhood.

First, new types of economic activities bring with them new geographies of work. With today's information and services related global economy, the amount of people involved in so called 'Post-Fordist' economic activity is increasingly defining the workforce, especially in the Western world (Lash & Urry, 1994). The production of knowledge and information has become the economy's core while production of goods, with its accompanying large-scale factories, is increasingly off-shored to countries with a cheaper labour force. Although production chains are increasingly global, this does not mean that the local economy loses importance. On the contrary, literature on local and regional economic development has expanded in the last decade (Gibbs et al., 2001). Second, next to changing economic activity, a change in residential preferences can be observed. After a period of suburbanization and a policy preference for the separation of work and home of the '60 and '70 into the mid '80 there is a regained interest in urban living and the urban lifestyle (Florida, 2004; Karsten, 2003; Ley, 1996). Third, government led spatial planning traditionally has had a profound influence on land use development in the Netherlands. From the 1980's onward Dutch spatial policy has focused on creating compact cities and preventing urban sprawl (Pols et al., 2009). Mixed neighbourhoods where economic, residential and leisure activities are combined are a key element in this ideal Dutch compact city. Moreover, policy that steers towards a compact city enables entrepreneurs to set up shop in areas different from office parks or industrial estates.

At the neighbourhood level the three developments mentioned above come together: There is a regained interest in urban living by residents that often occupy jobs in post-Fordist sectors. These jobs are in turn eminently suitable to be performed from within residential neighbourhoods, even from home, since they are in no need of large or polluting factories. In addition, this development could spark a more vibrant neighbourhood in which local residents and firms use the local amenities, providing firms with a solid local market. Accordingly, Dutch local policy recently is more focussed on bringing work back into the residential neighbourhood and puts emphasis on the regeneration of urban areas instead of the functional separation of work and home (Van Meijeren & Ouwehand, 2007).

In this paper the main focus is on how local policy at the neighbourhood level is shaped and how formal institutional regulations, transmitted through legal zoning plans, are related to the amount and type of economic activity within Dutch urban residential neighbourhoods. We are interested in these zoning plans since they reflect the more general policy assumptions on economic activities in residential neighbourhoods at a very specific spatial scale. For a proper analysis of the latter we explore if new geographies of work within Dutch urban centres can be observed by looking at the overall development of economic activity within Dutch residential neighbourhoods in the last ten years in terms of numbers and differentiated by sectors. This is analyzed by using comprehensive data of the Dutch chamber of commerce listing all firms of five Dutch cities in the period 1998-2007 in combination with data derived from publically accessible zoning plans.

The following section of the paper presents a few theoretical insights on the most important processes that influenced recent developments in the geography of work. After these theoretical notions we will elaborate on the development of Dutch spatial planning as a whole and on the activity of zoning in particular. Moreover, some recent empirical evidence on economic activity in residential neighbourhoods is discussed. In the following section the method and data we used are explained leading up to our empirical section where we

elaborate on our findings. Finally, a concluding summary and some policy recommendations are presented.

2. Small enterprises and formal institutions

From economies of scale to small batch production

In the course of the 20th century, industrialisation and rationalisation of a large part of the world economy led to larger scales of production. As the scale of economic production increased, relative production costs declined and competitiveness rose (Scott, 2000). It was long thought that these economies of scale would weed out small-business. This seems plausible: When a company can increase its production, the average costs per unit will decrease. Following this argument, small firms are often perceived as insufficient and not economically viable. However, these scale advantages tend to occur in industries with high capital costs, in which those costs can be distributed across a large number of production units. It is less relevant in economic activities like consulting or design intensive services where products are mainly an outcome of human talent. Moreover, technological improvements have made it possible to develop products or services at minimal costs. For example, with the marginal cost of purchasing a computer, income can be generated by utilizing one's social network, personal skills or an inspiring idea. Together with important shifts in production and consumption patterns that are characteristic of post-industrial societies, small-scale business became feasible again. Flexible, 'just-in-time' production chains became more important, as well as high-quality, knowledge or design intensive producer and consumer services and goods. Overall, one could argue that even though large global enterprises and large-scale production are ubiquitous, there is a regained momentum for small-scale production, craftsmanship and freelance work.

The zoning plan as a formal institution

Since about two decades, the attention for governance and institutions and how they influence local economic development has increased. The notion of the role played by institutions is rooted in the idea that the phenomenon that we call 'economy' or the 'economic system' is neither a mechanical system or a set of individual preferences but rather an 'instituted process' heavily influenced by formal as well as informal institutions (Amin, 1999:367). 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). However, in line with the 'Relational Economic Geography' of Bathelt & Gluckner (2003) we consider agent and structure to engage in a dialectic process in which economic activities on a micro scale are both influencing as well as influenced by their context. Relational economic geography rests on the principle of 'contextuality', path-dependency and contingency. In this case 'contextuality' is defined as follows: any action is '*embedded in structures of social and economic relations and is thus conceptualized as a context-specific process*' (Bathelt & Glückler, 2003:128). This context leads to decisions, actions and interactions that are based on earlier actions. The proposition of path-dependency accounts for this. Conversely, the notion of contingency, which means that outcomes are subject to unseen forces and chance, leaves room for the fact that '*the agents' strategies and actions may deviate from existing developments paths*' (Bathelt & Glückler, 2003:128). Thus, we take the institutional context as our starting point for the research but believe that an actors' deviant action or strategy is likely to occur.

Institutions can be differentiated into formal and informal institutions. The former can take the form of rules, laws and organisations while the latter are often associated with individual habits, group routines or social norms and values (Amin, 1999). In this paper we focus on one form of a formal institution and how this institution is related to the development of local economic development. The activity of zoning, its accompanying zoning plan and the inherent regulations can be seen as an institution that is responding to a broader set of economic and social forces as they affect individual neighbourhoods (Moore, 1982). In this sense, zoning can be a very influential instrument not only shaping the spatial qualities of a neighbourhood, but also influencing economic vitality and attractiveness for tourists (see Pang & Rath, 2007).

For a long time the activity of spatial planning, and thus zoning, was seen as separate from 'dirty' politics. It was seen as a rational, scientific endeavour. It was the instrument by which

one could create order and control in space. However, more recently it has been acknowledged that 'the rational mastery of the irrational' cannot be put that simply. Spatial plans have a strong normative dimension carrying notions on 'how the world ought to be' (Richardson, 2005). Consequently, it has been recognized that spatial planning and its products are the sediment of a political process; produced by collective action, calling up particular attention to space qualities (Healy, 2006).

Urban zoning plans together with policy plans on different levels (neighbourhood and city-level) are part of the output of a political process with which urban space is assigned certain qualities and through which these qualities can be (re)shaped. Especially these zoning plans are an important part of tying up the policy goals that are set with regard to residential quality, public space and spatial qualities in general. However, these plans have remained quite unexplored in scientific research to this day, even though they contain relevant information on the design of urban space. This article takes a new and exploratory approach by considering zoning plans as important sources of information on qualities of space. It is interesting to explore to what extent zoning plans reflect the actual quality of space: is the 'design' of urban space reflected in the actual economic dynamics in the neighbourhood?

3. Dutch Spatial policy and zoning plans

Healy (2006) argues that although efforts are being made to develop a spatial planning discourse at the European level, national planning cultures substantially differentiate from each other. According to Healy, Dutch planning policy today is characterized by a 'spatial consciousness' that tries to relate spatial planning to the broader policy fields of social and economic policy. This also reflected in the integrated approach that is taken with regard to priority neighbourhoods¹. However, she also notes that during the 1970s and 1980s there was a (Europe-wide) narrowing shift in spatial planning in which planners increasingly focused on bounded projects and regulations. According to De Roo (2000), this shift has persisted in the Netherlands, leaving the planning system rather one dimensional and top-down. The narrowing shift of spatial planning as described by Healy, with diminishing attention for the social and economic policy domains (see also Richardson 2005), is probably connected to the doctrine of separation of functions in space that thrived for a long time in Britain and the Netherlands. The spatial separation of functions has its foundations in the ideas of the 'garden city' (Howard) and standardisation and order in spatial design as proposed by Le Corbusier (1929). In Le Corbusier's ideas the functions of living, working and leisure were all 'spatially autonomous' and the high-rise building was the ideal architectural form of the functional city (Pols et al., 2009). These notions were put into practice in many post-war Dutch suburbs as well as new and restructured urban districts. Further separation of functions was made possible by the development of public transportation and car ownership. This allowed people to live at further distance from their workplace.

Dutch government interest is now moving in the opposite direction, trying to increase the spatial mixing of functions. The ambitions for a more mixed and diverse city are expressed by national government in the white paper on public space (VROM, 2000). It states that government wishes to strengthen its urban centres within urban networks. Functional diversity and intensifying use of already built spaces are seen as important ways to strengthen urban centres. This policy reversal has been present for some years, although in practice these ambitions have not been implemented yet. Pols et al. (2009) mention two reasons for this lack of policy implementation in reality: The economic gain that municipalities attribute to mono-functional industrial estates by hoping to attract large (multi)national companies and the local governance persistence to design very detailed zoning plans that do not allow flexibility when it comes to the spatial mixing of functions. A way of incorporating this flexibility in the zoning plan is for instance to facilitate the interchangeability of various functions within one area of built space. The persistence of the spatial separation of functions is important to note here, because the space for economic functions is an essential part of the neighbourhood economy.

The notion of a compact, diverse city that combines functions within the same spatial entity has gained popularity in the Netherlands from the late 1980s onwards (De Roo, 2000). The negative effects of urban sprawl were becoming visible and the compact city would

¹ The Dutch 'neighbourhood approach' see also page 6.

accommodate a variety of social and economic processes that have been going on in the last two decades. There is a clear advantage in locating work, living and leisure close together because it diminishes travel time and at the same time is thought to provide attractive living environments for the 'new' urban population. A relatively young, highly educated population is drawn to the city in concurrence with the economic sectors that employ these people (Florida, 2004). This compact city with mixed functions is aiming to facilitate economic development (due to its room for economic activity and leisure) and at the same time offer a high quality living environment for city inhabitants. These two goals are prone to cause what De Roo calls 'environmental dilemmas', where the interests of the users of different functions will clash. In the Netherlands the ways to deal with these clashes are traditionally developed at the national policy level. The next paragraph deals more extensively with Dutch zoning regulations and the implementation of economic functions in zoning plans.

The Dutch zoning plan

On the most micro scale Dutch zoning plans are guiding spatial developments. Since the 1990s, Dutch zoning activity centres on Integrated Environmental Zoning (IEZ); an instrument which assumes a direct causal relation between the polluting source and its sensitive surroundings² (De Roo, 2000). De Roo argues that it is a functional rationality approach based on distance and direct causal thinking. This makes the system one-dimensional, with little room for local needs and interests. However, since the publication of his arguments, some changes have been made in Dutch zoning policy. In the Dutch environmental zoning guide for municipalities³ it has been stated that although former published guidelines were very strict, almost serving the purpose of laws, current guidelines should be seen as exactly that: guidelines, which leave room for municipalities to implement them as they see fit. The guideline proposes two standards of environmental zoning: environmental zoning in 'quiet residential areas' and zoning in 'mixed areas'. This differentiation is new, and can be seen as an implementation of the government ambition to increase functional mixing. The most important difference between the two standards is that the first one works according to distances (in metres) between a business and a residential building based on several sources of pollution⁴ while the second is based on categories of businesses (without guiding distances in meters) that can be allowed together with the residential function in the same building (A), next to residential buildings (B) and in the same street as residential buildings (C).

Besides this differentiation in zoning guidelines, another important policy change has been implemented in 2008, granting more discretion to municipalities in designing and enforcing zoning plans. The new planning law⁵ states that authorities at the national and provincial level can express their preferences for spatial plans before these plans are made by the municipality. However, after the plan has been finalized, possibilities for higher scale authorities of rejecting or adjusting the plan are highly limited. Part of this policy is the mandatory rule that municipalities should revise their zoning plans every ten years to prevent obsolescence. Moreover, municipalities have been given more instruments to enforce the compliance to zoning plans by means of penalties and fines. These developments seem to point in the direction of increased weight or importance of zoning plans while at the same time municipalities are becoming the main authoritative body in drawing up zoning plans.

Despite these recent policy changes, zoning plans often lag behind changes in urban development plans. Partly because they are oriented towards the long-term, but it might also be an outcome of other practices, such as the division of labour between policy makers on the one hand and planners on the other. This paper does not offer insights into this more bureaucratic/organisational discussion on planning. However, the discrepancy between policy goals and zoning practice might be of importance regarding the neighbourhood economy.

²The sensitive spatial function refers to the residential function.

³VNG-gids voor bedrijven en milieuzonering (2009)

⁴Next to residential buildings only economic activity in category 1 is allowed. Within 30 meters from a residential building only economic activity in category 2 is allowed. From a distance of 50 meters and up economic activity in category 3.1 is allowed and from 100 meters and up economic activity in category 3.2 is allowed. The category is determined from scores in meters on the indices of smell, dust, noise and danger. The highest categorization of these four indices holds as the guiding distance between the economic activity and the residential function. Municipalities are allowed to divert from these distances for instance if due to historical development a business is now located at a place where it is not supposed to be (according to these rules).

⁵De nieuwe Wet Ruimtelijke Ordening (WRO) (2008)

As was stated in the previous paragraph, the attention for mixing functions in the neighbourhood has increased on both the national as well as the local policy level. Economic activity is one of the three pillars of the 'neighbourhood approach'⁶, designed to revitalise impoverished urban areas (Directie Grootestedenbeleid, 2006). Policy goals and initiatives are laid out in structure plans, and the zoning plan is the physical embodiment of these goals. In principle, zoning plans are revised every ten years, reassessing the (desired) spatial situation and incorporating new policy goals. When there are no major changes intended in the design or functions of the built space zoning plans can also serve more of a containment function than an active design function. While in most recent policy documents (city structure plans) a positive stance is taken towards stimulating economic activity in residential neighbourhoods, many zoning plans are still based on separation of functions and give primacy to the residential function in their locally drawn out plans (Pols et al., 2009).

Several things might cause the primacy of the residential function and the limited amount of changes in zoning plans. At the national level, the policy goal of mixing functions as stated in the white paper on public space (VROM, 2000) is not an integrated part of the individual ministries. Rather, the ministry of economic affairs (EZ) seems to be oriented towards the development of large office parks while the ministry of neighbourhood development and integration (WWI) is oriented towards residential and social aspects of the neighbourhood (Pols et al., 2009). Furthermore, on a local level, municipalities can choose between designing a 'global' or a 'detailed' zoning plan where the former shows less detailed assignment of specific functions towards each building on the map. Rather, the global zoning plan assigns several 'zones' in the plan with their specific functions. In practice, the majority of the municipalities opt for detailed zoning plans for reasons such as legal security or to avoid ambiguity⁷. When a zoning plan is approved, property owners, inhabitants and other parties who have an interest in the designated area derive legal rights from the plan, giving legal status to the plan and making it hard to implement changes without costly negotiation with involved parties. Lastly, the earning capacity for landowners is often higher for residential functions than for mixed or economic functions. This is due to a much longer depreciation period for residential buildings compared to office buildings (fifty years as opposed to fifteen years) (Pols et al., 2009). In practice, zoning plans display an interesting mix between confirmation of the status quo and implementation of new policy goals with regard to spatial planning. If an area has a certain function, it is designated as such in the zoning plan and policy makers cannot force the users of that function to change locations (status quo). However, the plan can contain statements regarding the future use of those locations⁸ as well as appoint certain functions to spaces that are being unused or restructured (new policy goals).

Some empirical evidence on economic activity in residential neighbourhoods

In 2010 a first attempt was made to empirically explore the scale and scope of economic activity in residential neighbourhoods in the Netherlands. In the publication of the Dutch Environmental Assessment Agency (PBL) it is argued that economic activity in residential neighbourhoods is losing ground in comparison to other areas in the Netherlands. The findings illustrate that the number of both firms and jobs are lagging behind compared to the national average. What is especially interesting is that even the figures on knowledge intensive sectors in residential neighbourhoods are below the national average (PBL, 2010). These developments are not in line with what you would expect given the recent policy focus on mixed neighbourhood, a regained interest in city living and the rise of the post-Fordist economy. The PBL attributes the relative shortfall in numbers of firms to a surplus of firms that relocate out of neighbourhoods. The relative lack of large firms in residential neighbourhoods, and the accompanying shortfall of jobs are caused by firms with growth potential that relocate out of the neighbourhood. This seems plausible: Since firms with growing capacity often need more (floor)space, one of the main reasons for firm relocation is firm growth. Firms thus seem to move out of their original neighbourhood, to a more spacious location, for example an industrial estate (Olden, 2010; PBL, 2010).

⁶ Social, Spatial and Economic

⁷ See for instance explanatory memorandum for the zoning plan of Dubbeldam, Dordrecht (2005)

⁸ Along the lines of: 'if the location becomes vacant, the future destination should be...'

Summing up, we can conclude that the majority of the current Dutch zoning plans were created within a top-down doctrine of Integrated Environmental Zoning, heavily influenced by notions of spatial separation of functions. Although recent views and policies are more oriented toward mixing of functions, these policy interests are often not reflected in the zoning plans. In addition, recent empirical research shows that economic development in residential neighbourhoods is lagging behind in spite of the recent policy interest in the neighbourhood economy. Might this counterintuitive development be caused by legally binding zoning plans that do not leave much room for economic activity, nor allow for growing firms to find commercial property inside the neighbourhood? It seems as if policy ideas on a more macro level are not congruent with actual developments. However, the empirical part of this paper will show how some neighbourhood zoning plans entail more 'progressive' elements when it comes to neighbourhood economy. After describing the neighbourhood case selection and the data used for this paper we will outline recent trends and patterns in economic activity in residential neighbourhoods within our research area, in which we find different patterns than the ones described by the PBL. After this we turn to an even more local level and investigate how zoning plans and local economic development relate to each other.

4. Method and data

This paper is based on data from five cities in the Netherlands: Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer. Zoetermeer, Dordrecht and Leiden are medium sized cities ranging between 117.000 and 122.000 inhabitants whilst Amsterdam and Utrecht are relatively large cities with respectively 767.000 and 306.000 inhabitants. All these cities belong to the Randstad region, the conurbation located in the west of Holland. The main data for this paper consist of chamber of commerce data (LISA), listing all business establishments in these five cities for the ten year period 1998-2007. For the research related to zoning plans, 31 neighbourhoods within the 5 cities were selected. For each of these neighbourhoods the most recent zoning plan and the city structure plan for each city was studied. In addition to this we have data from 4 in-depth interviews and the results from a survey with a limited amount of entrepreneurs and shopkeepers in these neighbourhoods (N=86). The four in-depth interviews were held with (zoning) policy makers in Utrecht and Amsterdam

In our analysis we only included neighbourhoods that can be categorized as 'pure residential'⁹. Moreover we cleaned the data of firms that do not produce for a 'market' such as schools, hospitals and some public sectors. We excluded neighbourhoods that can be categorized as city centre or as a residential neighbourhood with a designated industrial estate within its boundaries since these neighbourhoods are assumed to have different business dynamics. In our more detailed analysis of 31 neighbourhoods we wanted to include neighbourhoods that rank differently on socio-economic status. In this sense we take into account that certain contrasting socio-economic neighbourhood characteristics might be of influence on the amount of local economic activity. In a previous effort, we have made a ranking of all the neighbourhoods in these five cities¹⁰, ranking them into three categories: low socio-economic status, medium socio-economic status and high socio-economic status. We included neighbourhoods from each category to increase variation in the sample and see whether this ranking could add explanatory value to the variation in zoning plans. For each city we included three to five neighbourhoods from different parts of the city, only for Dordrecht we had to include a larger number of neighbourhoods to keep the covered space comparable since the city of Dordrecht has divided its neighbourhoods into very small entities. See Appendix A for more detailed information on each neighbourhood.

In the previous paragraph it was explained that the municipality can opt for drafting either a global or a detailed zoning plan. For 27 of our 31 neighbourhoods¹¹, the municipalities designed a detailed zoning plan ascribing a specific function to each build entity on the map.

⁹ The categorization into four types of neighbourhoods is made on the basis of postal code areas. First, a division is made between areas with less than 500 residential addresses and areas with more than 500 residential addresses. The latter group is divided into 3 categories: neighbourhoods with a city centre function, neighbourhoods that have an industrial site within them and the residue is categorized as 'pure' residential neighbourhoods (categorization based on the Dutch Environmental Assessment Agency (PBL))

¹⁰ The ranking was done in two steps: First, a factor analysis was performed to group seven socio-economic variables (including income, unemployment levels and data on housing stock) into two variables. Second, k-means cluster analysis was used to rank all the neighbourhoods into three categories.

¹¹ Four neighbourhoods in Dordrecht have a global zoning plan: Wittenstein, Mildenburg, Zuilenburg and Vredenburg.

However, the detailed zoning plan can achieve more flexibility for instance by assigning 'mixed functions' to buildings, or allowing for the interchangeability of functions. The interchangeability of functions can range from allowing some non-residential functions to be interchanged with each other without extra regulatory burdens to allowing all non-residential functions to be interchangeable without extra regulatory burdens. Free interchangeability between residential to non-residential functions is not so common due to municipality rules on the availability of residential space¹². Furthermore, the zoning plans differ in the degree to which they allow for businesses to be combined with the residential function.

In all the zoning plans, the residential function was assigned to the majority of the buildings on the map. Other listed functions were predominantly 'mixed function', 'green/park function', 'business function' 'hotel' or 'catering function' and 'societal function'. Infrastructure assigning the location of roads and railways is also an important part of the zoning plan. From the zoning map itself only limited amount of information can be gathered, for instance, whether the zoning plan has any buildings designated for offices, business or retail at all and whether built space allows for 'mixed functions'. Every zoning plan comes with a very detailed explanatory memorandum, which provides a wide array of information about the neighbourhood. It describes the history of development as well as policy considerations on different levels that apply to the neighbourhood and lays out recent developments and future plans for the neighbourhood in concordance with the city structure plan. This structure plan describes future plans for city development for a period between 10-15 years. It also contains input from other policy fields than planning such as social, cultural and economic policy plans. For the analysis of the zoning plans all three documents were used: the zoning plan, the explanatory memorandum and the city structure plan. The documents were coded along five dimensions: The main function of the neighbourhood, a special focus on neighbourhood economy, a special resistance to neighbourhood economy, the attention for home-based business and what the orientation is towards SME on a higher policy level (that of the city as a whole). In addition, the publication year of the zoning plan is given.

5. Shifting geographic patterns of urban economic activity in the Netherlands

From paragraph 3, you might gather that zoning plans leave little room for economic activity in residential neighbourhoods. However, our analysis shows that a large share of urban firms can be found in residential neighbourhoods. Graph 1 shows the development of economic activity in four types of neighbourhood (i.e. districts) in the five cities, including self-employed, as share of the total urban economy. From the figures we can learn that a relatively large part of businesses establishments are located in pure residential urban districts. In Amsterdam, Utrecht and Leiden the share of firms in pure residential districts has increased somewhat. Dordrecht and Zoetermeer show larger growth-figures. In Dordrecht this is mainly at the expense of firm activity in the city centre, in Zoetermeer pure residential districts show the highest growth rates and therefore take up an increasing share of the total. However, in Dordrecht and Leiden, pure residential neighbourhoods are not the dominant areas of business activity.

When we place this development in the perspective of the overall development of the city economy (see appendix B), we see that in absolute numbers, Amsterdam and Utrecht are of a different order than the other three cities. However, in terms of growth, Amsterdam and Utrecht are lagging behind on Zoetermeer. In Zoetermeer, the city economy as a whole as well as the number of firms in residential neighbourhoods is growing while in other neighbourhoods the number of firms is decreasing. This means that the major part of firm growth takes place in the residential neighbourhoods in Zoetermeer.

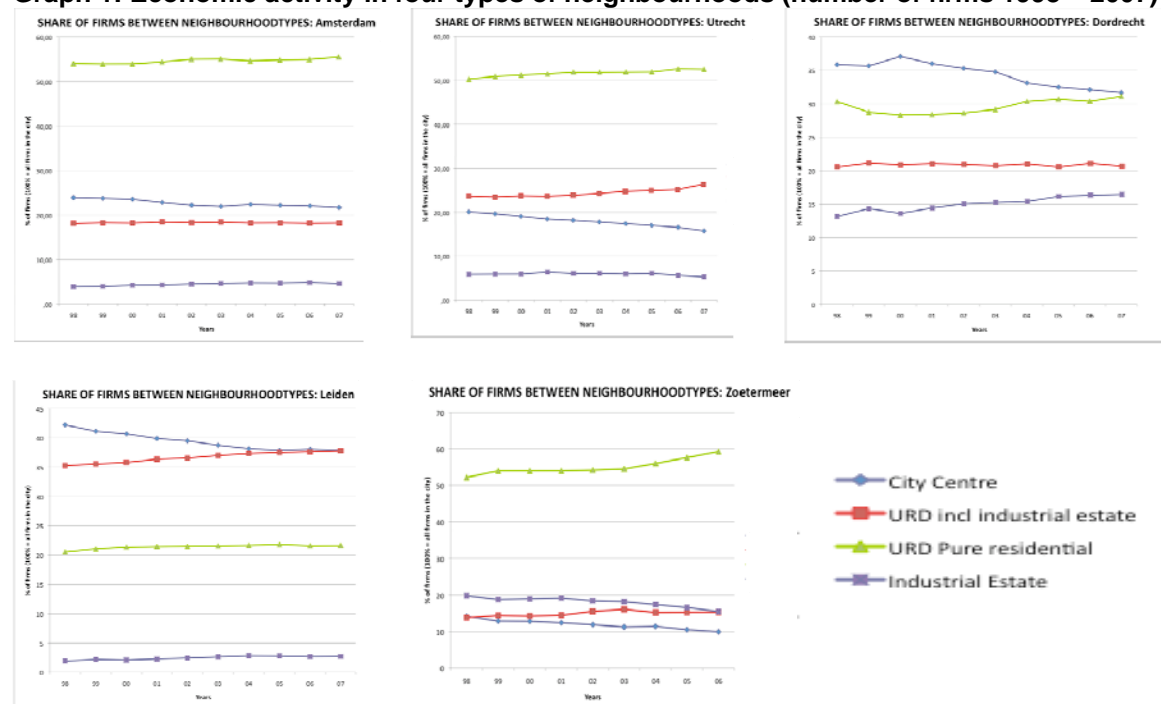
Graph 2 visualizes what type of economic activity is present in pure residential urban districts and how this has developed. The five cities have larger than national average numbers of self employed in their pure residential neighbourhoods and have hardly any large firms. Zoetermeer and Utrecht are an exception; both cities have large offices in residential neighbourhoods. Looking at the data up close shows that the pure residential districts of these two cities include firms with more than 1000 employees. When comparing the

¹² Most often it is the case that if one wants to change the residential function of a building to a non-residential function, a replacing residential property of the same size has to be added to the housing stock.

distribution of industrial sectors in residential neighbourhoods to the city as a whole there are two things noteworthy: First, the share of economic activity related to business services is relatively high in pure residential districts while consumer services are relatively more often located in other urban areas. Second, business and consumer services overrule other sectors by far, both in cities as a whole and in pure residential neighbourhoods in particular. These findings on the numbers and kinds of business underscore the macro developments that have been laid out in the theoretical part of this paper. It seems that there is new leverage for small and medium sized firms, and that these businesses are increasingly located in the residential neighbourhood. However, residential neighbourhoods are not isolated entities, and are heavily influenced by how the city economy is doing as a whole. As the world becomes 'spikier' (Florida, 2008) instead of flatter (Friedman, 2005), so maybe the neighbourhood economy: Are we able to distinguish between 'winner' and 'loser' neighbourhoods and cities alike? If we compare our data to that of a broader empirical research of the PBL, we can say that as urban centres, Zoetermeer, Utrecht and Amsterdam are winners. They exhibit city wide growth rates (see appendix B) as well as high and growing numbers of firms within their residential neighbourhoods. Dordrecht and Leiden on the other hand show no growth at all (appendix B) and have a smaller share of firms in residential neighbourhoods. Overall, in terms of numbers of firms, the pure residential neighbourhood is not lagging behind compared to the city as a whole.

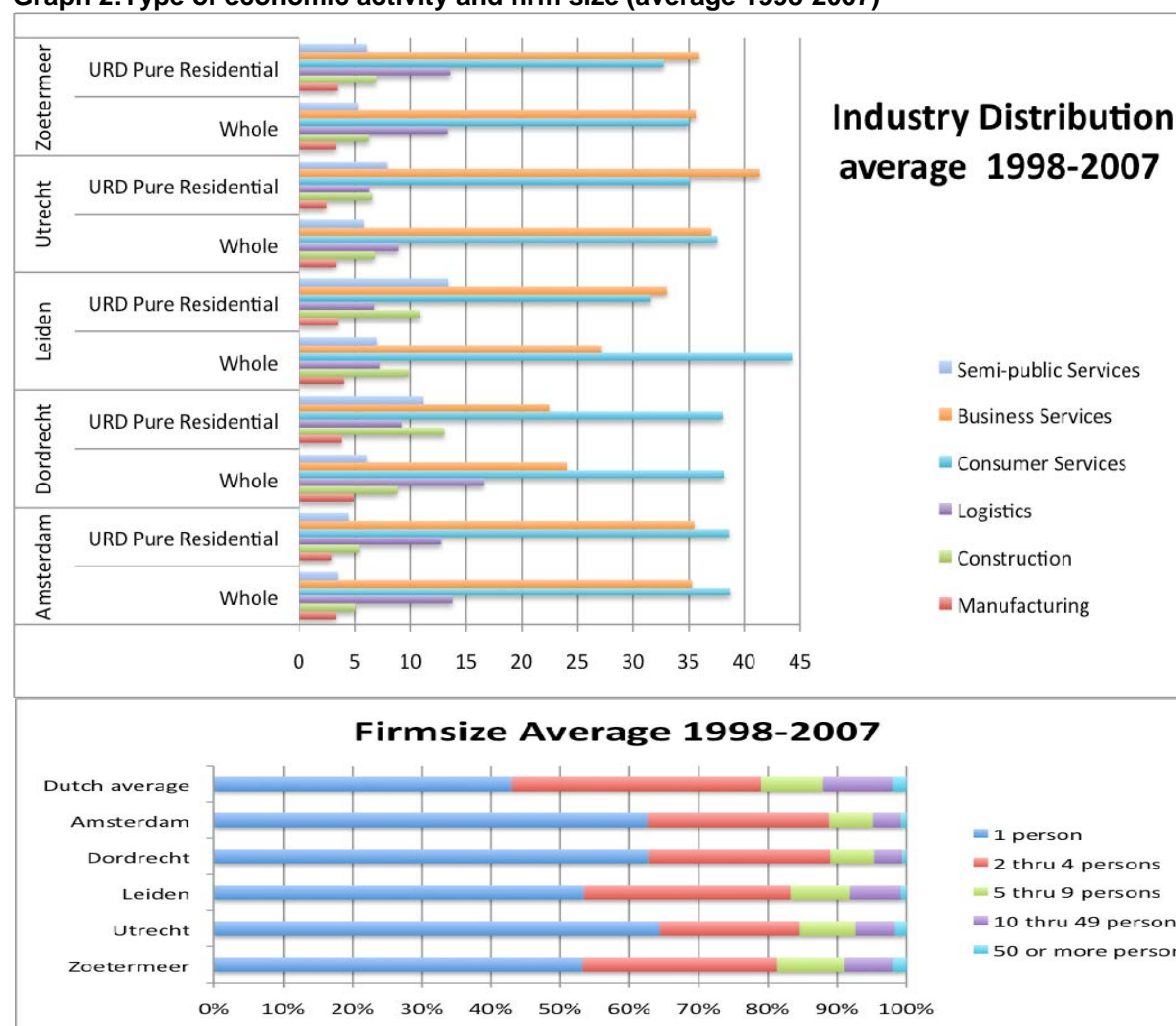
The figures we present are not congruent with those of the Dutch Environmental Assessment Agency (PBL) discussed earlier. Our data shows that the residential neighbourhood is housing a larger share of firms in 2007 than it did in 1998. This might be because we analyse the pure residential neighbourhood against the development of the city that it is located in, and not compared to the Netherlands as a whole. On a more micro scale we believe that there is a great variety in how residential neighbourhoods are developing in terms of economic activity. But this might be better explained when we look at neighbourhoods separately, as we will do in the following section.

Graph 1: Economic activity in four types of neighbourhoods (number of firms 1998 – 2007)



Source: (LISA 1998-2007)

Graph 2: Type of economic activity and firm size (average 1998-2007)



Source: (LISA 1998-2007) and (PBL, 2010:37)

Neighbourhood zoning and economic activity

When we take a closer look at the number of firms in our 31 selected neighbourhoods (Table 2A-2C last three columns) we can immediately see that some neighbourhoods display much higher levels of economic activity than others, and also growth rates are divergent. An important part of our data for this study comprises the absolute number of firms in each neighbourhood. By calculating the number of firms per 100 inhabitants for each neighbourhood we have taken a first step towards providing a standardized measure of economic activity in residential neighbourhoods. This operation results in the B:I rates (number of businesses per 100 inhabitants for 1999 and 2007 and the growth rate for this period) which are expressed in the last three columns of table 2A-C. When corrected for neighbourhood size by means of B:I rates, Amsterdam displays the highest amount of economic activity for all its neighbourhoods. In Utrecht, two of the five neighbourhoods show B:I rates three times as high as for all the other neighbourhoods as well. It is not necessarily the case that pre-war neighbourhoods have higher numbers of economic activity, as was stated by Pols et al. (2009) (see Appendix A) although the neighbourhoods in Amsterdam are doing extremely well and are all pre-war neighbourhoods. There might very well be a strong connection between zoning plans and pre-war neighbourhoods. However, for now, we leave this discussion behind and we focus on the relationship between zoning plans and the size of the neighbourhood economy.

Before we discuss the possible relationships between zoning plans and the number of firms in a neighbourhood it is important to clarify the meaning of the coding as used in table 2A-C. The zoning plans, the explanatory memorandum and the city structure plans were coded qualitatively along five dimensions. The main function of a neighbourhood is often denoted in the first paragraph of the explanatory memorandum to the zoning plan. In most of our cases, the main function is residential, but sometimes the residential function is combined with, or even overshadowed by for example an economic or ecological function. The table denotes a + for the attention in a zoning plan for economic activity when the physical structure of the plan allows for the positive zoning of economic activity within the area or if (re)development of such physical structures are expressed in the memorandum. Also, the presence of built space that allows for 'mixed functions' is regarded as positive for economic activity as is a high level of interchangeability of (non-residential) functions. If both are the case, the denotation is ++. Resisting economic activity (+) is the case when the explanatory memorandum explicitly states that it is going to re-zone the purpose of a specific area from economic to residential or when it is mentioned that the spread of economic activity will be prevented as much as possible. Special attention to home based businesses, (i.e. in the positive sense) is denoted with a + when the rules for allowing the practice of a profession at home are wider than the standard rules¹³. Also, when the plan includes the development of houses that integrate special room for businesses (*woon-werk eenheden*), the denotation is +. When neither of these occurs, the denotation is 'standard'. The policy orientation towards small and medium sized businesses is distilled from the city structure plan that is written for the city as a whole. Some neighbourhoods are given special attention in these structure plans, demarcating their importance as future sites of economic development. These neighbourhoods are given a +, the others n.a. (not applicable). The city structure plans are all published quite recently¹⁴. These plans describe current situations and future plans for most parts of the city and thus can provide us with useful information about past/current situation and desired changes.

Table 2A: Amsterdam & Utrecht

Neighbourhood		Main function neighbourhood	Special focus on economic activity?	Resisting economic activity?	Attention for home-based business?	Policy orientation towards SME	Year	B:I 1999	B:I 2007	Growth B:I
AMSTERDAM	Willemspark	Residential	++	±(1)	+	+	2002	17,55	21,77	4,22
	Apollohuurt	Residential Architecture	++	±(2)	Standard	+	1996	12,40	14,26	1,86
	Helmersbuurt	Residential Leisure	+	-	Standard	+	?	10,61	11,90	1,29
	De Krommert	Creative Economy	+	-	Standard	+	2002	4,62	6,37	1,75
UTRECHT	Buiten Witten-vrouwen	Residential Leisure	+	+	Standard	+	1992	12,30	13,50	1,20
	Wilhelminap	Residential Ecological	-	±	Standard	+	2000	7,90	9,50	1,60
	Langerak	Residential	-	-	+	+	2002	-	5.35	5.35
	Veldhuizen	Residential	+	-	Standard	+	2003	-	3.18	3.18
	Ondiep	Residential Economic	++	-	+	+	2006	1.66	3.13	3.13

¹³ The standard rules are that depending on the spatial isolation of the house, business activity in category 1 or 2 are allowed with a max of 30% of the floor space of the house. In addition, the 'residential character' of the building can not be affected.

¹⁴ For the city structure plans the publication dates are (Amsterdam: 2010, Utrecht 2004, Dordrecht 2008, Leiden 2004 and Zoetermeer 2008).

Table 2B: Leiden & Zoetermeer,

Neighbourhood		Main function neighbourhood	Special focus on economic activity?	Resisting economic activity?	Attention for home-based business?	Policy orientation towards SME	Year	B:I 1999	B:I 2007	Growth B:I
ZOETERMEER	Rokkeveen West	Residential Ecological	+	-	Standard	+	2007	1,88	4,02	2,14
	Seghwaert NO	Residential Ecological	+	-	+	+	2006	1,2	2,43	1,23
	Meerzicht W	Residential	-	-	Standard	+	1999	1,7	2,41	0,71
LEIDEN	Raadsherenbuurt	Residential Ecological	-	+	Standard	n.a.	1975	2,57	3,26	0,69
	Waardeiland	Residential Leisure	-	+	Standard	n.a.	2008	1,32	2,04	0,72
	De Kooi	Residential	+	-	Standard	+	2003	1,69	1,8	0,11
	Noorder-kwartier	Residential	-	±	Standard	+	2003	1,7	1,65	-0,05
	Kloosterhof	Residential	++ (5)	+	Standard	n.a.	2008	1	1,46	0,46
	Dobbewijk-Zuid	Residential	+	-	Standard	n.a.	2008	0,73	1,15	0,42

Table 2C: Dordrecht

Neighbourhood		Main function neighbourhood	Special focus on economic activity?	Resisting economic activity?	Attention for home-based business?	Policy orientation towards SME	Year	B:I 1999	B:I 2007	Growth B:I
DORDRECHT	Oud-Dubbeldam	Residential Ecological	+	-	+	n.a.	2005	5,05	4,8	-0,25
	Admiraalsplein(3)	Economic	+	-	Standard	+	2004	5,73	3,48	-2,25
	Mildenburg(4)	Residential	-	-	Standard	n.a.	1993	1,57	2,15	0,58
	Vredenburg(4)	Residential Ecological	-	±	Standard	n.a.	1993	1,91	2,13	0,22
	Crabbehof -Zuid	Residential	+	±	Standard	+	2005	1,55	1,9	0,35
	Dubbeldam -Zuid	Residential Ecological	-	-	+	n.a.	2005	2,14	1,64	-0,50
	Wittenstein	Residential Leisure	-	-	Standard	n.a.	1993	1,72	1,58	-0,14
	Zuilenburg	Residential	-	±	Standard	n.a.	1993	0,81	1,47	0,66
	Kinsbergenst	Residential	-	-	Standard	+	2004	1,11	1,35	0,24
	Ewijkstra	Residential	-	-	Standard	+	2004	1,16	1,12	-0,04
	Zeehavenln	Residential	-	-	Standard	+	2004	0,77	0,96	0,19
	Crabbehof - Noord	Residential	-	±	Standard	+	2005	0,87	0,8	-0,07
	D. Rijkersstr	Residential	-	-	Standard	+	2004	0,15	0	-0,15

*In 2005 the ALMV (General Living Environment Regulation) was implemented. This prohibits certain low-quality economic activity such as phone-shops, game halls and takeaway restaurants.

(1) Willemspark: There is an emphasis on mixed use allocation and business, office and retail allocation in the zoning plan. However, there is a clear limit on the size of building space that can be used for retail (500m²) together with a specified share of the amount of catering (cafés and restaurants) businesses.

(2) Apollobuurt: The zoning plan has build in a lot of room for economic activity but the explanatory memorandum reports the desire of shopkeepers to be able to expand the floor space of their shops. Due to protests from neighbourhood inhabitants, the zoning plan explicitly prevents this expansion.

(3) Admiraalsplein: for the neighbourhoods Admiraalsplein, Kinsbergenstraat, D. Rijkersstraat, Ewijkstraat and Zeehavenlaan as well as Crabbehof-Zuid and Crabbehof-Noord holds that in the city structure plan these neighbourhoods are designated as spots for economic development in the near future. However, since the city structure plan was published in 2008, the effects of these initiatives are not yet visible in the zoning plan. The explanatory memorandum to the zoning plan for these neighbourhoods still tells the story of strict separation of functions.

(4) Mildenburg/Vredenburg: The neighbourhood shopping centre is right on the border of these two neighbourhoods.

(5) Kloosterhof: This neighbourhood presents a remarkable situation where in the zoning plan there is a lot of room for economic activity. The explanatory memorandum is stressing the point that it is too much, and that in the future the room for economic activity should be drastically limited.

Centralization vs. mixing of functions throughout the neighbourhood

The neighbourhoods expressed in blue in table 2A-C have a neighbourhood shopping centre within their boundaries. The orange neighbourhoods are adjacent to neighbourhoods with a local shopping centre i.e. that are within the range of influence from this shopping centre. This is important because in Dordrecht and Leiden zoning plans and documents seem to express the preference to develop the primacy of one local neighbourhood shopping centre, usually located on a neighbourhood square. This neighbourhood shopping centre should contain several kinds of businesses, ranging from retail to consumer services and business services. In concurrence with this preference, the spread of business activity outside this local shopping centre is often delineated as something that 'should be limited' or even 'unwanted' (explanatory memorandum zoning plan Zuilenburg and Vredenburg p.17). This negative stance towards the 'scattering' of business activity is expressed in the zoning plans by the limited amount of built space that is assigned a 'business' or 'mixed' function outside the neighbourhood shopping centre designated for 'retail' or 'centre' function. The neighbourhoods marked in blue thus often do have built space that is designated for economic activity, albeit limited and very much concentrated in one spot¹⁵. In Amsterdam and Utrecht we find a completely different situation. These neighbourhoods do not have one delimited neighbourhood shopping centre, but instead shops and business are scattered along a few (mostly two or three) main streets. The zoning plans for most of the Utrecht and Amsterdam neighbourhoods have quite some built space that is designated for business or mixed functions (denoted by the + signs in the third column of table 2) and especially in Amsterdam the interchangeability of functions is high. For instance, the explanatory memorandum for the Helmersbuurt in Amsterdam states that the neighbourhood has three 'economic axes' 'along which the interchangeability of (non-residential) functions is almost completely unrestricted' (p.50).

In Zoetermeer, something remarkable is going on: On the one hand the city encourages centralization of retail much like Dordrecht and Leiden (policy document on retail Zoetermeer 2006) but on the other hand the city structure plan very much encourages economic development on the neighbourhood level, promoting a 'balance between working and living in all the city neighbourhoods' (Zoetermeer structure plan 2008:23). Accordingly, the neighbourhoods of Rokkeveen and Seghwaert are very much set up along the principles of the mixing of functions. The explanatory memorandum notes that a choice was made for low-rise building, explicitly leaving room for neighbourhood amenities and 'small businesses like galleries, dentists, physicians and offices' between the houses (explanatory memorandum Seghwaert 2006:21). When it comes to retail, the Zoetermeer policy closely resembles the Dordrecht and Leiden policies, but other kinds of business are allowed more space in residential areas than in Dordrecht and Leiden.

As for the number of businesses, we can observe that the B:I rates in both Amsterdam and Utrecht are impressive and that some neighbourhoods show high growth rates (Willemspark in Amsterdam and Ondiep in Utrecht). These neighbourhoods both indicate a double + sign when it comes to the focus on economic activity in the zoning plan. The background for this positive attention for economic activity in these neighbourhoods is different¹⁶, but the effect is the same: high numbers of businesses and growth. The overall picture in Dordrecht is less promising: Although the B:I rates are reasonably high in some neighbourhoods, growth rates are mostly very small or negative, indicating decline rather than growth of economic activity. Even the neighbourhoods that have a neighbourhood shopping centre do not display growth, even though they start out with relatively high numbers of firms. Although the decline in the Leiden neighbourhoods is less severe, the trend is similar. None of the neighbourhoods show significant growth in business activity, not even the neighbourhood with the designated neighbourhood shopping centre (De Kooi). Zoetermeer shows a different development: Starting from relatively modest B:I rates in 1999, the number of businesses shows quite an

¹⁵ 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 square meters 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.)

¹⁶ Ondiep in Utrecht is a priority neighbourhood in the neighbourhood approach, catching a lot of policy attention for economic activity. Willemspark in Amsterdam has been designated since a few years as a connection area for business between several other neighbourhoods in the South of Amsterdam and the city centre.

impressive growth, with Meerzicht-West lagging behind somewhat. This is also the neighbourhood with the least focus on economic activity in the zoning plan.

The extent to which economic activity is spread throughout the neighbourhood might also have something to do with the regulation towards home-based businesses in the zoning plan. Unfortunately, our cases do not show very high variation on this dimension in table 2A-C. Most neighbourhoods deploy standard rules, and only a few exceptions are present in our case selection. Overall, there are six neighbourhoods (in Amsterdam, Dordrecht, Utrecht and Zoetermeer) that do have more lenient rules than the standard ones when it comes to home based business. The Amsterdam neighbourhood Willemspark consequently scores very positive when it comes to various ways of stimulating economic activity in the neighbourhood. This is clearly reflected in the high B:I rates and growth rate. In the Utrecht and Zoetermeer neighbourhoods we are witnessing high business rates, while the Dordrecht neighbourhoods show some decline. Apart from Dordrecht, the neighbourhoods with more lenient rules towards home-based business are doing quite well. Since the B:I rates do not differentiate between types of business, it is hard to say how the number of home-based businesses is developing. In any case, graph 2 indicates that the number of self-employed (which we believe is positively related to the number of home based businesses) is especially high in Amsterdam, Utrecht and Dordrecht.

Social-economic status and economic activity

Of the neighbourhoods that do not have a local shopping centre within their boundaries we generally see that the neighbourhoods with high social-economic status are doing better than the neighbourhoods with low social-economic status. This holds between cities as well as within cities. This might have to do with the overall image of a neighbourhood or with the educational attainment of residents. Maybe there might also be a higher local market demand in these 'rich' neighbourhoods. The nature of the data does not allow us to make judgements regarding the reasons for this difference. However, it must be noted that even the neighbourhoods with low social-economic status in Amsterdam and Utrecht are doing much better with respect to the number of firms compared to their counterparts in Dordrecht, Leiden and Zoetermeer. Having a neighbourhood shopping centre drastically increases the number of firms in neighbourhoods with low socio-economic status, but on the other hand seems to have a negative effect on the number of businesses in adjacent neighbourhoods. Since these adjacent neighbourhoods are more often than not also of low socio-economic status (usually the status pertains to a whole district) this entails a double negative strain on neighbourhood economy in these neighbourhoods. At the same time, although having a shopping centre might increase the 'base rate' of businesses in the neighbourhood, it is not a guarantee for significant growth as we can see in the Dordrecht and Leiden cases.

Resisting economic activity in the zoning plan

When it comes to resisting economic activity, we see that both Dordrecht and Leiden have 4 neighbourhoods where to varying degrees economic activity is resisted in the zoning plan. In the Dordrecht cases, the zoning plans explicitly mention that scattering of economic activity outside the designated neighbourhood shopping centre is unwanted, whereas in Leiden, the residential function of the 4 neighbourhoods is mentioned as main reason for preventing the growth of economic activity. In Leiden, the neighbourhood Kloosterhof presents a remarkable situation where due to historic circumstances the economic function has claimed quite some space in a specific area in the neighbourhood to the extent that it is becoming a nuisance to the residential function. The explanatory memorandum states: 'although we are dealing with an economically attractive concentration of activity, the problem is now that it has been growing to the extent that the environmental impact for the sensitive functions has become too high' (explanatory memorandum zoning plan Kloosterhof p. 46-47). The memorandum goes further to state that 'relocation of some of the businesses is desirable' (Ibid.). However, the memorandum also mentions the complex juridical situation that the municipality has to deal with to replace the business function with a residential location; dealing with various actors, property rights and built spaces.

The neighbourhoods that resist economic activity in the zoning plan show very small growth rates of businesses, and even decline in two cases. However, it must be said that this complements the general trend in Dordrecht and Leiden and that the limited growth rates or decline are not unique for the neighbourhoods that resist economic activity in their zoning plans. In the Utrecht neighbourhood Buiten Wittenvrouw the explanatory memorandum mentions the implementation (in 2005) of a 'general living environment' regulation that prohibits the establishments of certain 'low quality' businesses such as phone shops, game-halls and take-away restaurants. It is interesting that the municipality expresses its views on what it sees as low quality business, and that it actively tries to shape the quality and diversity of business establishments. However, this new regulation seems to be quite ambiguous since in general the attitude towards economic activity in the neighbourhood is quite positive; which is also reflected in the B:I rates.

'Positive' vs. 'negative' zoning

We cannot perform any parametric statistical tests on the raw data since the data is coming from a population that we cannot assume to be normally distributed. However, it is possible to perform a non-parametric test on the B:I rates. Non-parametric test make less restrictive assumptions than 'classical' statistical techniques. Most non-parametric tests are based on data-ranking, ranking the lowest score (in terms of the number of firms) as 1, the next score as 2 and so on. Instead of running an analysis on the actual data, an analysis of these ranks is performed. Consequently, low scores on the 'B:I rates' are represented by low ranks, and high scores on the B:I ratio 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 case we chose the Mann-Whitney test¹⁷, because we have divided the neighbourhoods into two groups: Neighbourhoods that have zoning plans that allow space for economic activity¹⁸ (i.e. 'positive' N= 15) and neighbourhoods that have zoning plans that don't (or hardly) allow space for economic activity (i.e. 'negative' N=16). The first step of the analysis is to rank the neighbourhoods in terms of the number of businesses (regardless of the 'group' to which they belong) and the second step is to test whether the difference in ranks between the group with the 'positive' zoning plans significantly differs from the neighbourhoods with the 'negative' zoning plans. The next section presents the result for the Mann-Whitney test. It is important to note that the test compares the two groups ('positive zoning' and 'negative zoning') for each year separately, so no statistical comparison is made between 1999 and 2007, we can only compare the test scores of these two years separately. Consequently we have repeated the test for the B:I growth rates, signalling growth or decline of the number of businesses in each neighbourhood for the period 1999-2007¹⁹.

For 1999, the number of firms per 100 inhabitants (Mdn = 3.2) in neighbourhoods with positive zoning plans towards economic activity differed from the number of firms (Mdn = 1.5) in neighbourhoods with negative zoning plans towards economic activity. This difference was not significant at the 0.05 level (sig. 0.057), $U = 61.00$, $z = -1.920$. The effect size was however of medium size (-.35) (threshold for a medium effect is .3) indicating that neighbourhoods having a zoning plan that is positive towards economic activity rank higher on economic activity than neighbourhoods with negative zoning plans, though not significantly. For 2007, the number of firms per 100 inhabitants (Mdn = 3.7) in neighbourhoods with positive zoning plans towards economic activity differed significantly from the number of firms (Mdn = 1.6) in neighbourhoods with negative zoning plans towards economic activity. This difference was significant at the 0.05 level (sig. 0.002), $U = 40.00$, $z = -3.007$. The effect is larger than it was in 1999 (-0.54) indicating that neighbourhoods with positive zoning towards economic activity rank significantly higher on economic activity than neighbourhoods with negative zoning plans. The main conclusion from this test is that high numbers of firms are more often found in neighbourhoods with positive zoning towards economic activity than in neighbourhoods with negative zoning. In 2007, this effect is larger than in 1999, indicating a larger difference in B:I rates between neighbourhoods with positive

¹⁷ The Mann-Whitney test is considered to be the non-parametric alternative to the student's t test or ANOVA test (Gibbons 1993).

¹⁸ The denotation 'positive' or 'negative' is based on the third column of table 2A-C, being either a + or ++ (positive) or a - (negative).

¹⁹ For this test holds that N=29, because growth rates could not be established for the two Utrecht neighbourhoods Langerak and Veldhuizen since their population numbers were not registered for 1999.

zoning plans towards neighbourhood economy compared to neighbourhoods with negative zoning. Since almost all studied zoning plans date from the period 1999-2007; zoning plans published in the middle of this period might represent a deviation from the situation of 1999, implementing new policy goals. Therefore, the B:I rates of 1999 are probably a reflection of earlier (unstudied) zoning plans with other policy goals regarding economic activity in the neighbourhood. We might be witnessing a policy change in the larger effect size for 2007 indicating a sharper distinction between positive and negative zoning towards neighbourhood economy.

The same test was performed for the B:I growth rates as indicated in the last column of table 2A-C. When it comes to the long-term development of the number of businesses in the neighbourhoods, we see that in neighbourhoods with positive zoning plans towards economic activity the growth of the number of firms per 100 inhabitants (Mdn = 1.21) differed from the growth of the number of firms in neighbourhoods with negative zoning plans towards economic activity (Mdn = 0.22). This difference is significant at the 0.05 level (sig. 0.045), $U = 59.00$, $z = -2.008$. The test indicates a medium effect size, with an effect of -0.37. We can state that the residential neighbourhoods with positive zoning plans towards economic activity display higher growth rates of businesses than neighbourhoods with negative zoning plans towards economic activity.

We can learn from these tests that residential neighbourhoods with zoning plans that specifically intend a notable amount of build 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 businesses and growth numbers than neighbourhoods that lack such an orientation towards economic activity in the neighbourhood. We have to make the observation here that zoning plans partly reflect the 'base rate' or historically grown amount of economic activity in the neighbourhood, and mainly 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, zoning plans have the ability to secure the business locations as qualities of space, making sure business activity is facilitated on the neighbourhood level. At the same time, zoning plans (as sediment of policy goals) can restrict (future) amounts of business space by explicitly stating that it is unwanted outside neighbourhood shopping centers or at certain locations (as was the case in Kloosterhof).

Findings from the interviews

Up till now we have discussed zoning plans and policy documents and the views these express towards economic activity in the selected neighbourhoods. However, it is also interesting to learn more about the actual practice of city policy makers with regard to the neighbourhood economy. Are their views and practices largely in line with the shifting ideas on integrated spatial planning and the growing interest for economic activity in the neighbourhood on higher policy levels? From the interviews with policy makers in Amsterdam and Utrecht we learned that the attention for economic activity on low scale levels (i.e. neighbourhoods and city districts) is increasing. From the interviews it became clear that policy makers try to 'fit in' economic activity in the neighbourhood but often have different ways in which this is given form, displaying different policy goals. The following fragment illustrates that although the residential function holds a pre-eminent position in the zoning plan, more attention is being paid to fitting in economic functions:

'The main policy of the city district is that we protect the residential function. This means that we describe where residential areas are, also with regard to buildings with mixed functions. For any not-residential function we have arranged for a strong interchangeability meaning that different kinds of non-residential functions can exist in a building without much further demands.' (Alderman for economic policy district Amsterdam-South)

This fragment seems to point to a rather loose handling of the non-residential functions and also points out the interchangeability of functions that characterizes the neighbourhoods of Amsterdam-South (Willemspark and Apollobuurt in our sample²⁰). Still, primacy is given to

²⁰ The zoning plan of the Helmersbuurt in Amsterdam also mentions high interchangeability (see page 13)

the residential function. In the Utrecht neighbourhood Ondiep, the policy support for starting as well as growing businesses seems elaborative:

'In the neighbourhood we have some entrepreneurs who are located in a cluster of old buildings suitable for small businesses. Rent levels are extremely low and businesses are diverse such as a dog trimmer, a shop for special lamps and a visual arts production company. When one of these businesses is growing and wants to expand, we suggest that they move to the bigger shopping street, where rent levels are higher. Another starting business can then take over their space, so we make sure that in the zoning plan these buildings are reserved for business.' (Neighbourhood manager Ondiep, Utrecht)

In this case, the policy is very much oriented towards providing chances for starting entrepreneurs as well as facilitating growth. This approach seems more specified than the one in Amsterdam-South, assigning specific space to starting businesses. However, this approach requires that there is enough space also in the bigger shopping streets to facilitate the move of entrepreneurs. The next fragment is a nice illustration of how the post-fordist economy, in this case cultural industry, is used as a policy instrument for revitalizing the neighbourhood economy:

'This neighbourhood²¹ is very interesting with regard to mixing. We have this policy that deliberately wants to stimulate creative entrepreneurship and galleries and workmanship. We see a lot of people working from home in this way, especially creative people. We are also now trying to change the zoning plan so that more festive activities and cultural activities can be allowed in the Atrium²².' (Alderman for economy and neighbourhoods, district Amsterdam-West).

These interview fragments provide a limited amount of information on policy practices towards the neighbourhood economy since they are taken from only two cities. However, they show how strategies can differ when it comes to facilitating economic activity, even within the same city (Amsterdam). Zoning plans and regulations are part of the opportunities and constraints that influence these strategies.

Lastly, we derived some specific information from a survey (N=86) carried out by human geography students of the University of Amsterdam. This survey was held within the neighbourhood selection in the cities of Amsterdam, Utrecht and Leiden. Entrepreneurs of local firms were asked several questions concerning their firm and their judgement of the neighbourhood. It should be noted that the firms that participated were visible from the street and publically accessible. Therefore the more 'hidden' economy of Home-Based Businesses is not taken into account. The results from the short survey again show that the amount of sole-proprietor firms is high, comparable to the share we derived from LISA (52% vs. 59%). Especially noteworthy is the fact that many of the respondents are located in the neighbourhood for over 10 years (59%) and, when asked the hypothetical question what to do when they had to expand because of firm-growth, 65% of the respondents said that it would not be possible within their current neighbourhood. This confirms the conclusions drawn in the PBL (2010) publication: Firms that are small stay put while firms that grow leave the neighbourhood. When it comes to zoning plans, it seems that policies aiming for mixed neighbourhoods should not only give importance to securing and facilitating existing economic activity, but also provide some flexibility when it comes to growth in order to keep firms that are performing well and are growing within the area.

Since the Mann-Whitney test result shows that neighbourhoods with zoning plans favouring economic activity show significantly higher B:I rates, it can be argued that when room is being drawn, quite literally, into the zoning plan, this space will be occupied. In this sense, one could argue that growing firms can be facilitated in their changing requirements by zoning plans that allow for growth. This way, firms have the chance to stay put and at the same time the recent policy orientation on a more macro level can find its way into the legally binding document that is the zoning plan. But there is more to it. Literature on entrepreneurship and location choice shows that many firms start from home (Mensen & Rijt-Veltman, 2005; Schutjens &

²¹ De Krommert, Amsterdam.

²² This is a very prominent, historical building that houses a school for creative professions and is located practically in the centre of the neighbourhood.

Stam, 2003). Often these firms' changing location needs are connected to changing lifestyle preferences as well (Mackloet et al., 2006). It might be interesting for municipalities to focus on these special cases where personal and business motives are very much intertwined. Or do as in Utrecht, where changing requirements are met by offering differentiated business space to starting and growing firms. Although it might be hard to draw into a map or put into words in a policy document, there seems to be a growing demand for real estate suited for home based businesses although according to Louw the balance between supply and demand for work-residential units is difficult to find (Louw, 1999).

6. Conclusions

In this paper we have explored the linkage between formal local policy as set out in zoning plans, its explanatory memoranda and structure plans and the local economic activity in residential neighbourhoods. We believe this relationship is interesting since it is a research area that is relatively under-researched even though it is an interesting site to explore how the expansion of post-Fordist and service related economy, a regained interest in city living and the Dutch policy focus on a compact city and mixed neighbourhood are related to each other. In this paper the institutional context is the starting point for our research, although we believe that individual action and strategy can deviate. However, zoning can be an influential instrument in shaping the economic vitality of a neighbourhood since it has legal implications. The zoning plan also shows the normative policy dimension carrying notions on the political agenda. Moreover, this paper shows an innovative approach towards zoning, making use of the detailed information on micro-level that can be gathered from zoning plans and the accompanying policy documents.

Dutch government tries to increase spatial mixing of functions. The ambitions for a more mixed and diverse city are expressed by national government in the note on public space (VROM, 2000). Dutch zoning plans originate within a top-down doctrine and are often still very much based on the spatial separation of functions. They are frequently not congruent with the increasing policy interests for economic activity and the mixing of functions in neighbourhoods, as expressed on a more macro level. There seems to be a gap between policy goals and the current practice of zoning. Zoning plans ought to be revised every ten years, and municipalities can 'use' the zoning plan to contain the existing situation or actively design spatial qualities and incorporate new policy goals. Recent empirical research done by PBL indicated that economic development in residential neighbourhood is lagging behind in spite of the recent policy interest in the neighbourhood economy. However, our own data shows that neighbourhoods and, cities alike, have very different trajectories when it comes to their local economy.

The empirical research that is presented in this paper was derived from LISA-data of five cities in the Netherlands: Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer, recent zoning plans, the city structure plan, 4 in-depth interviews with policymakers and the results from a survey with entrepreneurs and shopkeepers in these neighbourhoods (N=86). As for changing patterns of urban economic activity, we found that residential neighbourhoods house a large and also increasing share of economic activity in comparison to the rest of the city. This economic activity is largely made up of sole-proprietor firms, predominantly in Business Services. At the city level Zoetermeer, Utrecht and Amsterdam show general growth rates as well as high and growth in numbers of firms within their residential neighbourhoods. Dordrecht and Leiden on the other hand show no growth at all and have a smaller share of firms in residential neighbourhoods. These findings are in line with what one would expect regarding the macro social and economic developments that we described in paragraph 1 and 2. Some zoning plans seem in line with these developments, supporting economic activity in the residential neighbourhood, whilst others are putting a strain on economic development.

Zooming in, to the 31 specific neighbourhoods, we also witness distinctive developments and policy directions. Table 2A-C showed that neighbourhoods display very diverging patterns when it comes to the number of businesses and growth rates. We have also seen that city policies differ when it comes to policy goals towards economic activity in their residential neighbourhoods. In terms of spatial distribution, Dordrecht and Leiden opt for centralization, locating all business activity in a limited and central location in the neighbourhood. This policy

and this practice of zoning presents some difficulties: The possibilities for growth of the number of businesses are limited since the zoning plan and the policies explicitly prevent an increase in buildings that are suitable for business. Also, it seems to put a strain on neighbourhoods that are adjacent to the neighbourhoods with a designated shopping area, especially when they are of low social-economic status. Amsterdam and Utrecht deploy a more decentralised policy when it comes to economic activity, and zoning plans tell us that in most cases there are two or three main shopping streets in these neighbourhoods. It might be the case that these streets allow for a certain 'trickling down' effect, where they attract economic activity in adjacent streets as well. Zoetermeer shows that a combination of these policies is also possible: While the desire is expressed to concentrate retail much in the same way as in Dordrecht and Leiden, other business activity is welcomed in the neighbourhood and this is expressed in the zoning plan by a high amount of buildings with 'mixed function' or 'business function'. Coming back to differences in social economic status, if zoning and policy circumstances are the same, neighbourhoods that are of high social-economic status seem to be performing better with regard to the amount of firms. It is hard to pinpoint the exact origin for this difference, since this was not the main focus of the research. It might be related to a larger market demand in the local neighbourhood.

Zoning plans that explicitly mention the resistance of economic activity show small growth rates overall. However, these districts often also are in favour of centralization of economic functions. We have to keep in mind that residential neighbourhoods are not isolated entities; their economies are affected by the economic development of the city as a whole. For example, Zoetermeer as a city is growing in terms of number of firms and this growth is largely materializing in the residential neighbourhoods. Concurrently, Zoetermeer has a rather positive stance towards business activity in the residential neighbourhood as expressed in zoning plans and policy documents. Leiden and Dordrecht favour centralization, and sometimes therefore resist economic activities within their zoning plans. At the same time, these two cities' overall development is also not showing any growth when it comes to the amount of economic activity.

The empirical evidence presented in this paper indicates that the centralisation policy that Dordrecht and Leiden have implemented is not beneficial for the economic activity in the residential neighbourhood. It might be too bold a statement to say that the slow growth of the city economy as a whole is directly linked to the limited space that is drawn out for firms in the neighbourhood zoning plans, but nevertheless we see that the room that is drawn in the Zoetermeer zoning plans is eagerly taken up by businesses. Although the residential neighbourhood might not be the place of big businesses, it definitely seems to attract small and starting businesses whose presence (and potential growth) can be beneficial to the city as a whole. The economic development on the larger scale of the city is important, but zoning plans and local policy can partly determine which neighbourhoods 'win' economic activity and which neighbourhoods lose out. In contrast to earlier conventions, it is no longer necessary to locate economic activity on the rims of the city; on industrial estates or on office parks.

Finally, the Mann-Whitney test shows that when we group our cases in neighbourhoods with 'positive' zoning towards economic activity on the one hand and 'negative' zoning on the other we find that the former have significantly higher amount of businesses (in 2007) and growth rates than the latter. Although we cannot speak of a causal relation in this context, the difference in effect size between 1999 and 2007 might indicate that zoning plans that were published during this period have different policy goals than older zoning plans, causing the divergence between neighbourhoods to increase. Although zoning plans might partly just be a reflection of the existing situation and the possibilities for restructuring might differ between neighbourhoods, we have shown that zoning plans are a reflection of policy goals and that these two together can play a significant role in either facilitating or hindering space for an active neighbourhood economy. More 'positive' zoning plans discussed in this paper generally show a wider array of functions, higher interchangeability of functions, and have a higher share of buildings that are assigned 'mixed' functions, allowing more flexibility and less pressure of regulation on entrepreneurs.

For the future it is interesting to investigate what strategies local governments can follow to increase the flexibility of their zoning plans, which might decrease the 'response time' with

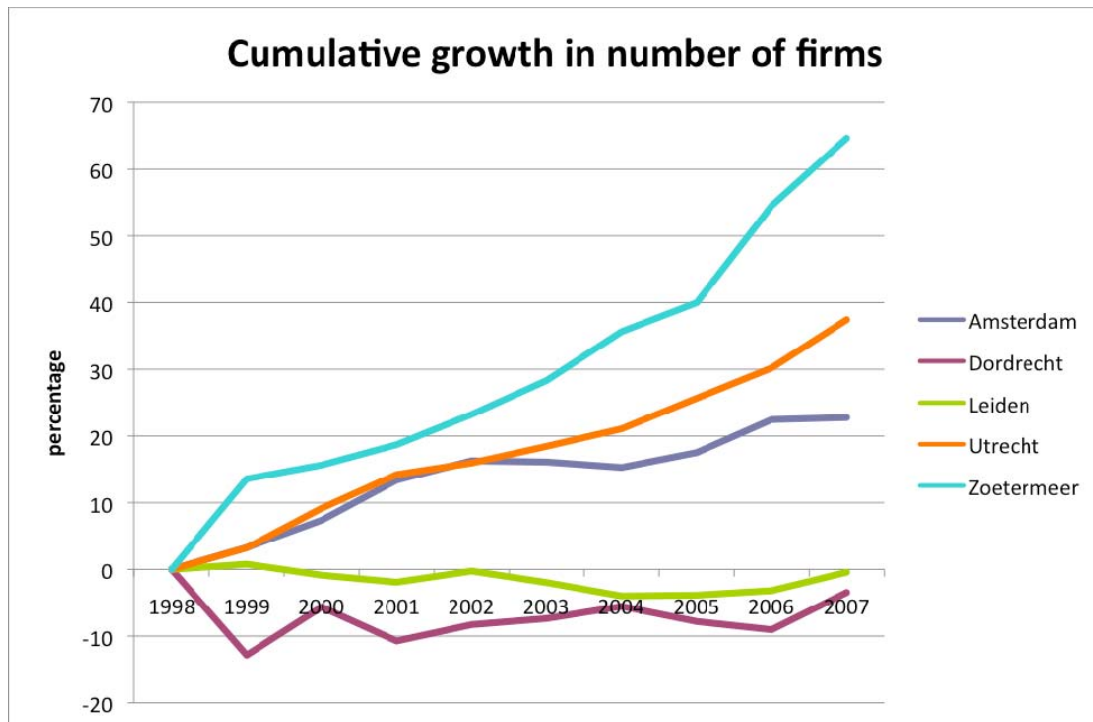
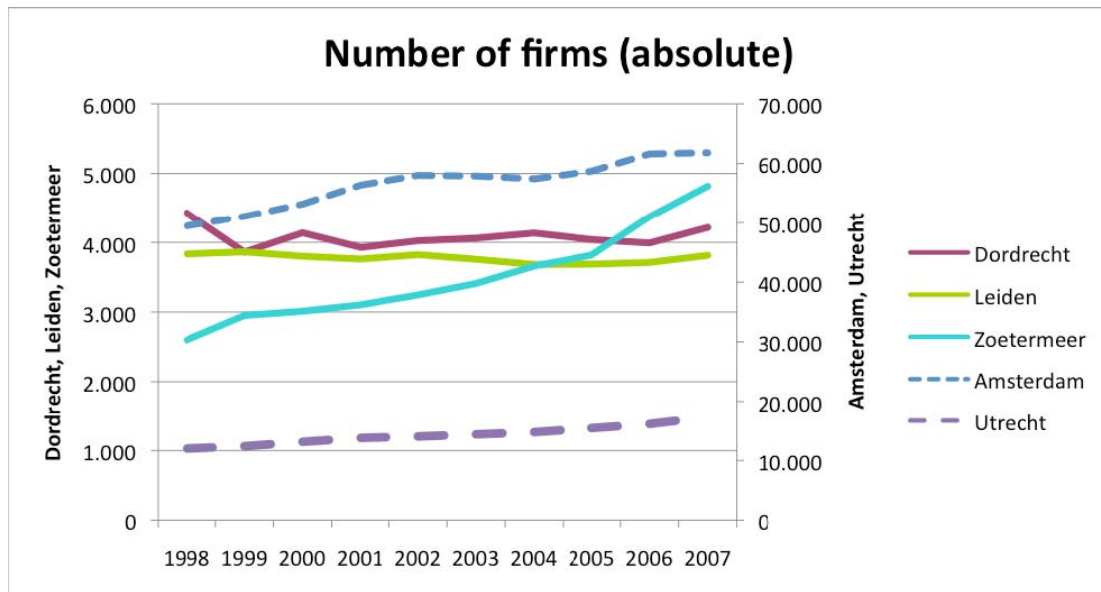
which new policy goals can be realised as qualities of space. As has been discussed in paragraph 3, recent changes in Dutch planning policy might offer some new possibilities for municipalities to increase the flexibility and responsiveness of zoning plans. The post-fordist economy offers possibilities for economically vital, lively urban residential neighbourhoods. Providing space for (starting) entrepreneurs in residential neighbourhoods and certain flexibility towards their needs can contribute to an economically sound urban centre. Overall, zoning plans contain a substantial amount of information; future research on these plans using various methods could increase our knowledge on the interaction between policy goals, legal restrictions and the spatial configuration of the neighbourhood economy.

APPENDIX A: Neighbourhood selection

	Amsterdam	Utrecht	Zoetermeer	Dordrecht	Leiden
High socio-ec status	Apollobuurt (8020*) (pre-war)	Buiten Wittevrouwen (4250) (pre-war)	Rokkeveen West (8660) (mixed pre- /postwar)	Oud-Dubbeldam (2510) (postwar)	Raadsherenbuurt (920) (pre-war)
	Willemsparkbuurt (5120) (pre-war)	Wilhelminapark (3200) (pre-war)		Dubbeldam-Zuid (1290) (postwar)	Waardeiland (1080) (postwar)
Medium socio-ec status	Helmersbuurt (6800) (pre-war)	Langerak (3700) (postwar – VINEX)	Seghwaert Noordoost (9610) (postwar)	Wittenstein (3410) (postwar)	Kloosterhof (3020) (postwar)
		Veldhuizen (8570) (postwar – VINEX)		Mildenburg (2014) (postwar)	Dobbewijk-Zuid (4520) (postwar)
				Zuilenburg (1700) (postwar)	
				Vredenburg (2960) (postwar)	
Low socio-ec status	De Krommert (11970) (pre-war)	Ondiep (5680) (pre-war)	Meerzicht west (9230) (postwar)	Crabbehof Zuid (4320) (postwar)	Noorderkwartier (5140) (pre-war)
				Crabbehof Noord (2760) (postwar)	De Kooi (6210) (pre-war)
				Admiraalsplein (660) (postwar)	
				Van Kinsbergenstraat (1470) (postwar)	
				Dorus Rijkersstraat (660) (postwar)	
				Van Ewijkstraat (1340) (postwar)	
				Zeehavenlaan (520) (postwar)	

*Number of inhabitants is expressed between brackets

APPENDIX B



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