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Master Thesis

- Campus Performance and their Characteristics; a Data Study in the Netherlands-

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Abstract

Campuses are booming in many different countries and can have several positive effects on a region (Braam et al., 2017), and these are also shown in research on campuses in The Netherlands (BCI, 2014; BiGGaR, 2014). The Dutch government has been advised to define hotspots of national importance to the Dutch economy, in order to give them support (AWTI, 2014). Campuses can be clusters for economic activity, where spill-overs can occur. An important empirical question is whether the most spill-over effects come from specialization or diversifying regional economies (Frenken et al., 2007). The literature is ambiguous about which type of economy is best for a region. Therefore was the aim of this research to see what type of campus performs best in attracting businesses, different company sizes and employment. Also a comparison is made with the performance of non-campus (i.e. municipalities) areas to understand if their performance followed the general trend in the Dutch economy.

Using a big dataset on Dutch businesses (LISA, 2014), campus areas (500m range) and non-campus areas were defined. Also the campus areas are divided in three maturity phases (BCI, 2014) and using the Dutch Topsector demarcation (Statistics Netherlands, 2014), in order to define whether they are specialized or diversified campuses. Using straight counts for the period 2008-2014 and a Random Effects Panel Data model, a comprehensive analysis could be made. The results show that the global financial crisis has had a large positive effect on micro and small businesses growth in all areas, where earlier research did not take this economic trend in account (BCI, 2014). Campus areas did however show growth in employment, where non-campus areas did not. Also campus areas showed more growth in larger businesses than non-campus areas, meaning that campus areas did not just follow the general trend in the economy. Of all campuses, the mature campuses showed the most promising growth in different types of businesses and also a significant positive relation with employment growth. Between specialized and diversified campuses, the diversified campuses showed a significant relation with employment growth at the 10% significance level while the straight counts between the two campus typologies showed only a marginal difference in business growth. This paper contributes to the diversity-specialization debate, showing that indeed this is not an either-or question (Van Oort, 2014). The results of this study provide metrics to measure campuses contribution to innovation and growth and can help the Dutch government define the hotspots of national strategic importance and help them decide what type of campuses need better support (AWTI, 2014).

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1. Introduction

1.1 Science Parks

Innovation campuses are hot and booming in many different countries. Researchers, civil workers, civilians and entrepreneurs are connected in order to innovate and attract businesses. Different campuses have different goals where they use marketing to attract specific businesses and institutions (FD, 2016). These campuses have received special attention as a policy tool to facilitate localized economic growth by attracting high-tech firms, especially small and medium enterprises. In the period from 1991 to 2011 for example, the number of science parks in China has grown from 27 to 88 in total (Cheng et al., 2014). In the Netherlands the amount of campuses has reached 32 and the number of 'technology parks' has grown to 20 (FD, 2016). In Japan an increasing number of science parks have started to operate since the 1980's (Fukugawa, 2006) and this can be said for several other countries as well (Radosevic & Myrzakhmet, 2009; Vasquez-Urriago et al., 2006; Lindelöf & Löfsten, 2006).

So what makes these Science Parks so interesting? Braam et al (2017) describe several mechanisms how universities or Science Parks can influence a region: (1) the attraction of human capital, (2) acquisition of innovative activities, (3) attraction of business activity and (4) lastly they can have aggregated effects on the regional economics. As everyone sees the benefits of creating campuses, more and more initiatives are started to create new innovative campuses. Van Oort, believes that policy-makers should stick to the regions specific specialisation (FD, 2016). Campuses are also an important part of a regional-economic environment. They exchange, for example, knowledge and establish partnerships with parties outside of the campus, but they also establish relationships with suppliers. A campus can function as a magnet and attract people, institutes and companies, where a continuous flow of ideas are created (BCI, 2014).

Research from private research institutes like BiGGAR (2014) and BCI (2014) also show positive effects regarding economic activity. Start-ups and spin-outs for example who have emerged around the University Medical Campuses in the Netherlands contribute to the economy in terms of turnover and employment. This contribution is only relatively small in comparison to the social returns that medical research has on the economy and the returns it creates in collaborative research. The Dutch Life Science sector was marked by the Dutch government as top sector due to its current strong position and scope for growth. In the year 2011 it was estimated that this sector involved 343 companies, supported 22.732 jobs, generated 17.8 billion € in revenue and stimulated over 2 billion € investment in research and development (BiGGAR, 2014). Other mature or appointed as 'growth' campuses in the Netherlands seem to perform well. In a period of 2.5 years the number of companies on the campuses has grown with 14 percent, while the number of spin-offs has grown with 28 percent. Also innovation and the connection from small and medium-sized enterprises with campuses are high on the agenda of the Dutch government (BCI, 2014).

1.2 Definition of campuses

There are different definitions regarding campuses. Many international researchers (Cheng et al., 2014; Ponds et al., 2010; Vasquez-Urriago et al., 2016) use the term Science Parks (SPs). According to Cheng et al. (2014) Science Parks are property-based initiatives that provide resources and services in logistical, administrative, marketing and financial areas. Most of these factors are essential for high-tech small medium enterprises (SMEs), yet difficult to access (Cheng et al., 2014). A distinction has to be made between Science Parks and industrial parks; the latter is focused on production and the Science Parks are more technology-oriented. The AWTI (2014) uses the name hotspot to globally indicate *'a geographic concentration of firms and one or more knowledge institutions that together with other institutions form a network focused on the production of knowledge and innovation. A regional hotspot has an own identity and is organized to stimulate innovation and continuous development of the hotspot* (AWTI, 2014)'. Boekholt et al. (2009) defines a campus as *'a physical location of high-end real estate and common facilities which have the purpose to encourage the establishment, growth and acquisition of knowledge-based firms and knowledge-intensive organizations and their cooperation. With an active policy aimed on facilitating R&D, innovation, transfer of knowledge and people and capital between the organizations on the campus and attract knowledge-intensive locations'.* According to the BCI (2012),

BCI (2009) acknowledges four types of business environments. (1) Science or Research Parks, where these parks are a business support and technology transfer initiative that provides an environment where large and international businesses can develop a specific and close interaction with a particular centre of knowledge creation for their mutual benefits. It also has formal and operational links with these centers of knowledge creation such as universities, higher education institutes and research organisations. (2) Technology Parks, where tenants are mostly engaged in technological development and commercial application of research with low or non-existent direct academic involvement. (3) Technopole, mixed use areas that also include science and/or technology parks. (4) Company campus, a large individual company site with R&D focus (BCI, 2009). In a later research (BCI 2012), a campus is defined when it meets the following conditions; (1) it has a physical location with high-end real estate facilities, (2) it focuses on R&D and/or knowledge-intensive activities, (3) it has a presence of a 'long term' knowledge institution and (4) a campus provides open and active innovation. BCI (2012) made also an assessment of four different types of phases a campus can be in; (1) the idea phase, (2) the start-up phase, (3) the growth phase and last (4) the mature phase.

Despite the many definitions for Science Parks or campuses, for this research the definitions of BCI (2012) will be followed in order to make a categorization of campuses. For the sake of clarity, in this study the term campus will be used to make up for the different names used in literature and policies.

1.3 Dutch policy on campuses

A research has been conducted by the 'Adviesraad voor Wetenschap, Technologie en Innovatie', AWTI (2014), on Dutch 'hotspots' and their importance for the regional and national economy, concluding that these hotspots, including campuses, can add to attractive and dynamic ecosystems which contribute to the growth and innovation strength of the Netherlands. Campuses can play a role in the development of regional clusters and they profit from strong clusters. A campus can attract knowledge-workers, institutes and companies and they promote the development and exchange of ideas (AWTI, 2016). Some of these hotspots have been created with the help of local, regional or national government, as some have the financial means to make long-term investments in the local knowledge infrastructure. They stress that governments should take the different types and life-phases of campuses into account in their policies, and that they lack in good metrics to measure their contribution to innovation and growth. This is important for the strategic value of hotspots in the Dutch economy. Important is also that governments realize that the self-organizing character of these hotspots are crucial for their success. This means that governments should stick to a facilitating or supporting role (AWTI, 2014).

The AWTI (2014) adviced the Dutch government to identify the hotspots with national importance and support these in for example; (1) supporting the open character, in order to attract (foreign) businesses, (2) providing connections between relevant 'Topsectors' to provide chances for knowledge-intensive businesses, (3) being a 'critical friend' to nationally important hotspots to help, especially start-up and growth hotspots, in their strengths, weaknesses and growth opportunities, (4) supporting local governments in facilitating regional hotspots.

1.4 Research Question

The focus of this research is to examine, in the case of the Netherlands and their campuses as defined by the BCI (2009), what type of campuses perform best. A comparison to non-campus (i.e. their municipalities) areas is made to be able to understand if their performance follows the general trends observed in the research period in the Dutch economy. In this regard it has been also taken into account the relation with the Topsector policy. A typology has been made in order to define different phases of campus maturity and whether a campus is specialized or diversified. Further we want to assess their performance regarding business dynamics, employment and attraction of different sizes of businesses by providing metrics to measure campuses contribution to innovation and growth. Therefore the following research question is defined:

What type of campus in the Netherlands perform better in terms of attracting businesses, different company sizes and employment, and how does this compare to non-campus areas?

1.5 Relevance

This research can help policy makers assess and decide what type of campus is of interest for the Dutch economy when it comes to growth of employment and attraction of businesses. As stated by the AWTI (2016), campuses can play an important role in the development of a regional economy. This research takes all the different types and sorts of campuses into account and can therefore help point out the performance, in turn to help policy makers decide their strategy regarding facilitation and the support of campuses.

1.6 Contribution to literature

This research can add value to the specialization – diversification debate (Frenken et al, 2007; Van Oort, 2014; Boschma & Martin, 2010), as we'll be looking at specialized and diversified campuses and their performance in their surrounding regions.

2. Theory

2.1 Agglomeration economies and clusters

Campuses can cluster economic activity and when firms benefit from being located close to one another this can be defined as an agglomeration economy. Frenken et al. (2007) distinguish several sources of agglomeration economies:

(1) Localization economies; external economies available to all local firms in the same sector. Usually the productivity of labour in a sector in a city is assumed to increase its total employment in that same sector, also called Marshallian externalities. These externalities arise from three sources; labour market pooling, creation of specialized suppliers and emergence of knowledge spill-overs (Henderson, 2003);

(2) Urbanization economies; external economies available to all local firms arising from urban size and density. Populous locations are more likely to house knowledge institutions, universities, research laboratories and trade associations. It is the dense presence of these institutions that supports the production and transfer of knowledge, stimulating innovative behaviour;

(3) Jacobs externalities; external economies available to all local firms coming from a variety of sectors.

A diverse mix in an urbanized locality improves the opportunities to interact, copy, modify and recombine ideas, practices and technologies across industries. Geographical proximity between firms in different industries makes it possible to make such recombination possible, especially when firms operate under the same institution (Frenken et al., 2007).

It is important to make a distinction between different types of spill-over effects, because an important empirical question holds whether these spill-overs occur when a region is specialized in few sectors (localization economies) or diversified (Jacob’s externalities) or whether it comes from urbanization economies, or perhaps from all three. According to Frenken et al. (2007) localization economies are expected to spur incremental innovation and process innovation, as the spill-overs originate from similar firms producing similar products. However by contrast, Jacob’s externalities are expected to facilitate particular radical innovation as knowledge from different sectors is recombined in complete new technologies, which can in turn lead to new markets and employment, causing different impacts.

An important goal of campuses is to connect the right firms with the right people and institutions in order to accommodate innovation and growth for the campus and the region. Theory suggests that as firms belonging to the same sector locate near one another, they accrue important benefits. Using common suppliers and taking advantage of pooled human capital allows these firms to reduce their production and transaction costs, increase their productivity and become more competitive (Kemeny and Storper 2014 in Cortinovis & Van Oort, 2015). Crucial in the success of a campus is the dynamic side of localization economies, where firms belonging to the same sectors are also part of a cognitive community and hence can profit from exchanging knowledge and mutual learning opportunities. These knowledge and imitation effects that develop over time mostly affect the growth performance of firms. These dynamics will prove beneficial to the regional economy also, by fostering growth and development (Cortinovis & Van Oort, 2015). However in cities also beneficial effects are associated when there is a larger variety of goods and consumption preferences and a proximity of firms from different sectors. A region can therefore also benefit from attracting different sectors and foster diversity within its economy (Cortinovis & Van Oort, 2015). Whether specialisation or diversification benefits an economy the most is therefore indecisive and still open for discussion. Even so there are scholars that show that these two can easily coexist (Durantan & Puga, 2000).

2.2 Specialized vs Diversified economies

Some development strategists suggest that a polycentric nature of a set of smaller and medium-sized cities in Europe, each with its own peculiar characteristics and specialization in the activities to which it is best suited, creates fruitful urban variety, leading to an optimization of economic development. Until now, however, there is little empirical support for explanations based on the concepts of related and unrelated variety and sectoral specialization (Van Oort et al., 2014). The specialization/diversity debate in urban economics is an example of potential gains of different theories and conceptual frameworks in economic geography literature. Question is if cities or regions should specialize in certain technologies to locally gain from clusters, shared labour markets and input-output relations, or whether they should diversify over various products and industries and hence have both growth opportunities from inter-industry spill-overs as well as portfolio advantages that hedge a regional economy in times of economic turmoil (Van Oort et al., 2014). In the latter case, regional diversification can be used as a risk-spreading strategy. A high variety in sectors of a regional economy implies that a negative shock in demand for a sector will only have a mild negative effect on growth and employment (Frenken et al., 2007). The expectation for specialized campus areas therefore is a negative relation with factors like employment, while for diversified campus a positive relation is expected due to resilience after an economic shock (Van Oort, 2014). Another relationship occurring with variety and economic development is on the long-term effect of an economic system. Mainly in rural areas the need for variety is high, because a low variety of sectors will cause structural unemployment and will ultimately stagnate. In this retrospect the need for new sectors in an economy is needed to absorb labour that has become unnecessary in pre-existing sectors due to productivity increases and demand saturation (Pasinetti, 1993).

Sectoral diversity and specialization have been seen as the main economic-geographic circumstance stimulating growth since papers from earlier research (Glaeser et al., 1992, Henderson et al., 1995). Since then the dichotomy of specialization-diversification has been treated as a strict division and many studies have tried to find the definitive answer: “Who is right, Marshall or Jacobs”? This is however not an “either-or” question, as findings shows that both specialization and diversity matters for regional economic performance, on different geographic levels, for different time periods, over the industry lifecycle and in different institutional settings. Answers to the “either-or” questions are at best inconclusive, with outcomes being dependent on measurement of many respects, like scale, context, period and type of performance indicators. Often many tests do not provide an actual measurement of knowledge-transfer of spill-overs, which is supposed to be one of the main mechanisms to drive agglomeration economies (Van Oort et al., 2014).

New theoretical developments in institutional and evolutionary economic geography have recently emerged, offering different views in economic explanations for regional economic development and the role of relatedness and diversification (Boschma & Martin, 2010). The now emerging evolutionary geography prompts questions whether concepts of diversification and specialization may fully capture the complex role of variety within the economy. This has caused a revival in interest in the role of specific forms of variety. Frenken et al. (2007) state that diversification consists of related variety and unrelated variety, and argue that not simply the presence of different technological or industrial sectors will trigger positive results but that sectors require complementarities that exist in terms of shared competences. This induces a distinction between related and unrelated variety, because knowledge spill-overs will not just transfer to all industries evenly. Industries with related sectors (or related variety) are more likely to have successful knowledge transfer and thus enhancing growth and employment, where unrelated sectors are expected to reduce risk and reduce regional unemployment and promote regional economic growth (Frenken et al., 2007).

2.3 Life phases of clusters

A typology of campuses which is quite unknown to the empirical literature is different life phases of campuses. The most relevant literature on this subject is the description of life cycles on cluster areas, as campuses can act as clusters (Cortinovis & Van Oort, 2015). Cluster life cycles consist of three different stages; (1) the development stage (start-up), (2) the expansion stage (growth) and (3) the mature stage (Brenner & Schlump, 2011). In the start-up stage (1), one can detect the emergence of some places where an industry becomes concentrated. While this industry is growing, more firms will appear and start to become larger. In this stage only little interaction takes place between firms in the same region, but for example, the interaction between firms and universities can be a driving force in this stage. In this stage it's important that the presence of related industries also play a role for further growth of the cluster. Start-ups and spin-offs are of great importance in this stage, but the parent firm or organization is also of importance. In the growth stage (2) the market for the respective industry increases tremendously, and so does the number of firms and employment. Agglomeration processes, like interaction between firms, cooperation, networks and innovations (Frenken et al., 2007) become important for the development of the cluster (Brenner & Schlump, 2011). Start-ups are still important, although losing slight importance. In the mature stage of the cluster (3), the growth will have slowed down. Start-ups do not play a role anymore, while regional networking and cooperation activities are the main features of well-established clusters (Brenner & Schlump, 2011).

2.4 Size of businesses on Science Parks

There is little to no scientific research on business size and performance on campuses. But we do know what kind of effect a small or big business can have on regional economic development. Small firms for example, can have an important effect on regional development by their flexibility in changing environments. They are also often labour-intensive and therefore creating employment, and the entrance of small firms can enhance competition, which can accelerate adoption of efficient practices among existing firms (Komarek & Loveridge, 2015). In most cases smaller businesses are associated with faster rates of employment growth: this can be within a sector, but also across several sectors (Shaffer; 2006 in Komarek & Loveridge, 2015). Komarek & Loveridge (2015) however also stress that the focus should not lie only on small firms as research has shown that small businesses do not solely act as the engine for economic growth and that entrepreneurs can come from all different sizes of businesses. It is the distribution of size classes that matters for economic growth.

At the other side of the medallion, we know that big businesses like multinationals (MNE's) can also have positive effects on economic growth in regions. MNE's can bring foreign direct investment (FDI), new technologies, products and management practices with them to region, which will in turn increase local productivity, diversify local markets and increase regional income (Faria, 2016). Economies of agglomeration also show to be one of the main determinants of investments and FDI location, while multinationals can determine the optimal location for domestic entrepreneurs (Faria, 2016). With all the above being mentioned, we know that the different sizes in businesses can have different positive effects on regions. However there is no certainty of which type of business is more desirable to have on a location. What we do see in the literature is that Science Parks tend to focus on small and medium enterprises as they are often considered the engine of economic growth (Cheng et al., 2014).

2.5 How do campuses perform?

Trying to achieve the same level of success as in the Silicon Valley, many countries have started the development of campuses. These campuses are believed to be a tool to attract firms and stimulate economic growth (Phan et al., in Cheng et al., 2013). Agglomerations of firms, universities and other knowledge-intensive organizations are beneficial for the generation and utilization of knowledge (Ponds et al, 2010 in Vasquez-Urriago et al., 2016). All campuses are policy driven and have a main common objective to promote cooperation and technology transfer (Hogan, 1996 in Vasquez-Urriago et al., 2016). Recent empirical evidence suggests doubt regarding the effectiveness of campuses. The evidence shows ineffectiveness from campuses in establishing knowledge linkages with local research institutes, in stimulating regional technology development, and in increasing profits and employment (Cheng et al., 2014).

The presence of campuses in China for example show an increasing probability of attracting high-tech SMEs, but this is mostly for a campus with a scale at the national level, who benefits from more favourable policies and a more active R&D environment. However, parks at the municipal level are attractive to non-tech and high-tech SME's. A reason for this might be that SME's in an early stage of development seek cheap and accessible locations. The parks on a municipal level show promise for appropriate environments for low- and medium-tech SME's to grow, because their entry barriers are flexible (Cheng et al., 2014). Evidence from Spain shows that being located near a campus has a positive effect on the likelihood for cooperation for innovation and it also positively affects intangible results of cooperation with the firm's main innovation partner. The reason for the latter result is believed to be due the higher diversity of their relationships with the main knowledge institution on campus (Vasquez & Urriago, 2006).

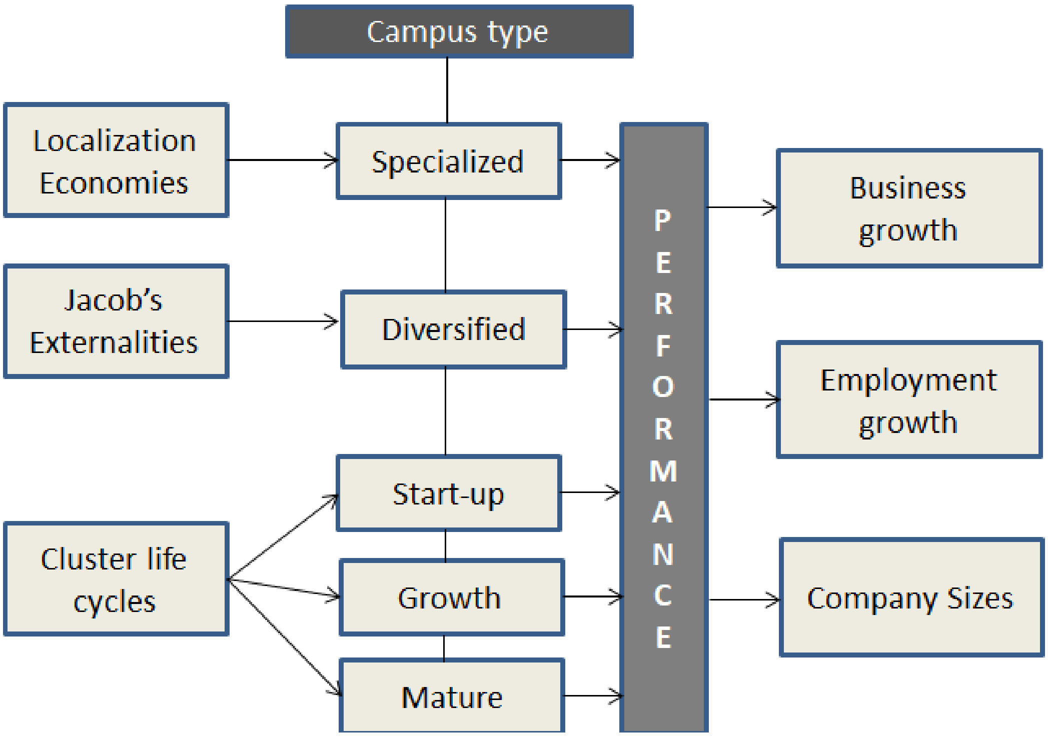
Science Parks are seen as entrepreneurial environments (Lindelöf & Löfsten, 2006). They are also believed to be beneficial for high-tech small and medium-sized enterprises (SME's), which are considered the new engine of economic growth (Cheng et al., 2014). New technology based firms (NTBF's) are expected to 'perform better' than the average firm. Important herein is the attitude and motivation of the founders as a key factor to raise funds and achieve high growth and profitability. In the Dutch High-Tech Systems & Materials Topsector it seems that small high-tech businesses often settle in the vicinity of a Technological University (Panne & Dolfsma, 2010).

Entrepreneurs need to be pro-active, take risks and be innovative. Especially small firms tend to be more entrepreneurial. Also the creation and diffusion of knowledge are critical drivers for high-tech firms development. New knowledge can change products, markets, market structures, production technologies and organisational structures. Knowledge can be seen as a separate production factor or as an attribute linked to capital goods and labour (Cheng et al., 2014).

2.5 Conceptual model

In the previous paragraphs many elements from the literature have been used to create an empirical basis for research on different types of campuses. As there has not been much research on different types of campuses before, many elements from agglomeration (Frenken et al., 2007), diversifying/specializing regional economies (Van Oort et al., 2014) and cluster life cycles (Brenner & Schlump, 2011) have been used to create an empirical framework for performance on campus areas. In order to provide a schematic overview, a conceptual model has been created of all the relevant topics in this research in Figure 1. As there is no clear statement in the literature, whether specializing or diversifying economies are the best option for a region/campus. Therefore, for both specializing and diversifying campuses we expect a positive effect on the performance of campuses, because of agglomeration effects (Frenken et al., 2007). For different life phases, we expect the largest growth in businesses and employment for campuses with the growth type (Brenner & Schlump, 2011)

Figure 1: Conceptual model

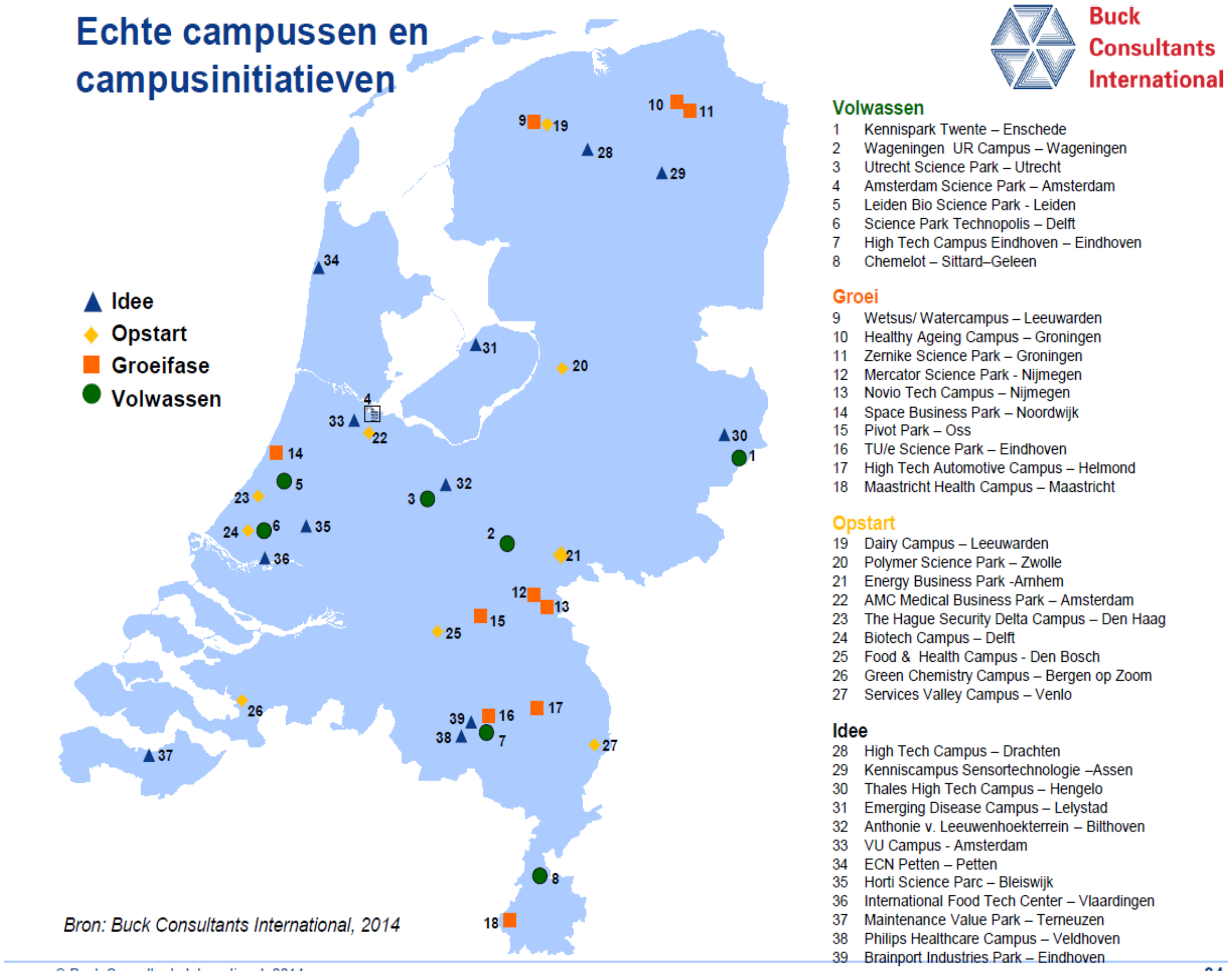


3. Methodology

3.1 Description of Dutch campuses

According to BCI (2014) there are 39 campuses who meet their definition of different phases of a campus: idea, start-up, growth and mature. In this study only the three following campus phases were used: (1) start-up campuses are campuses that just started with the physical development of its environment and refers mostly to the first two years of the development; (2) growth campuses are campuses already in a later stage of development and shows that the number of researchers and businesses on campus is growing; (3) mature campuses are campuses who have several large research institutes and/or businesses on location. These definitions give us a fairly even distribution of the campuses, respectively seven in the start-up phase, ten in growth and eight in a maturity phase. Figure 1 shows all the relevant campuses according to the campus definition and their details for this study. The Food & Health Campus in 's Hertogenbosch was excluded because of the absence of a tangible campus location and the Services Valley Campus in Venlo ceased to exist. This leaves us with a total 25 campuses to work with in the Netherlands.

Figure 2: Echte campussen en campusinitiatieven. BCI (2014).



3.2 Topsectors

The Dutch government aims to strengthen the knowledge-based economy to make the country more competitive and dynamic (EZ, 2009). Firstly the government wanted to achieve this goal in 2004 by a regional-oriented policy called 'Pieken in de Delta' where 6 'strong' regions were chosen in order to eliminate bottlenecks in these regions (EZ, 2004). Measures to strengthen the labour market, stimulate R&D and the fiscal system were taken to help solve these bottlenecks (EZ, 2004). These measures were then supplemented with 6 key-sectors chosen on ambition, organizing power, economic strength and knowledge & innovation; Flower & Food, High Tech Systems & Materials, Water, Creative Industry, Chemicals and Pensions & Insurances. These measures and key-sectors were created by a collaboration of local, regional and national governments, but also businesses, employee and employer organizations and universities (Innovatieplatform, 2007).

The 'Pieken in de Delta' policy was adjusted in 2011, as the Dutch government believed that these policies should not be driven by regulations and fiscal benefits, but instead, businesses should be able to get enough space to innovate, invest and to export their products. It is not the government, but it's the entrepreneurs who utilize economic chances and therefore generate economic growth and employment. The new policy means less subsidies in exchange for lower taxes, less and simpler rules, more access for corporate finance, better utilization of the knowledge infrastructure by businesses and better connection to education for the needs of businesses (EZ, 2011). The most important sectors for the Netherlands were defined and named as 'Topsectors' (TS). These sectors are chosen because they are knowledge-intensive, export-oriented and can help solve important societal issues, like the ageing population or climate change. An agenda has been made for every sector and together with local governments, businesses and knowledge institution these collaborations should be put in practice. The focus is also on strong regional clusters that can benefit the Dutch welfare by attracting foreign businesses to their region (EZ, 2011).

The current Topsectors as assessed in 2010 by the Dutch government (EZ, 2014) are:

(1) Agriculture and Food is the TS with the highest number of independent workers and also is the second biggest TS with about 73 billion of revenue.

(2) Chemicals is a TS with a high production level (8% of Dutch total), and businesses who are very innovative with relatively many employees.

(3) Creative Industry has the most businesses of all TS's, about 97 thousand, of which mostly independent workers and small businesses.

(4) The Energy TS is very capital-intensive and has relatively the least amount of companies, even so are the production (55 billion euro), the added value (27 billion euro) and the investments (4,9 billion euro) very high.

(5) The High Tech Systems & Materials TS is in terms of production, added value and export the biggest TS. Also its innovative potential characterizes this TS .

(6) The Life Science & Health TS is relatively small, with only 2000 companies in 2010, however it is responsible for about 13% of all the R&D expenditures.

(7) The Logistics TS does many investments (4,6 billion euro) and is the TS with the most employees (about 800 thousand).

(8) The Horticulture TS has a relatively very high export value of products.

(9) The Water TS has relatively many big businesses, especially in water-technology businesses. All together they spend about 360 million euro on innovations.

In the following paragraphs the process of data gathering will be further explained, but for this chapter we will focus on the grouping of companies in TS's. The dataset LISA (2016: see par. 3.4, Data) provides SBI (Standaard Bedrijfsindeling) codes which allows us to see what type of company we are dealing with. Statistics Netherlands (2014) provides in a report a demarcation for all Topsectors based on their 2 to 5 digit SBI-codes. The demarcation from Statistics Netherlands was used in order to divide all the cases in the dataset and check whether they fall under a Topsector or not. This allowed placing the businesses in the right Topsector. The businesses were then added together in order to provide the sum of companies in a Topsector related to a campus or municipality.

3.2.2 Typology: Specialization vs Diversification

As there is no earlier research regarding specialization or diversification of campuses, an assessment was made based on the available data provided by LISA (2016). Table (1) shows the percentages on a campus of the amount of businesses in a particular TS in 2014. When a specialism or TS could not easily be defined or when it did not match with the definitions given by the Statistics Netherlands (2014) it was assigned 'None', so a clear distinction could be made.

Some campuses promote themselves as specialized in a certain sector/domain, where the affiliated knowledge institutions and businesses focus on. Websites of all the campuses were screened in order to evaluate the sector/domain they wish to promote to the general public. This information was then matched with the TS definitions of Statistics Netherlands (2014). So for example, the High Tech Campus promotes the high tech auto industry, and is then assigned to the TS High Tech Systems & Materials.

Strikingly, many campuses that would have been expected to be classified as specialized were instead classified as diversified. Based on information provided by their website the Wetsus Watercampus, for example, characterizes themselves as a campus focusing on Water Technology. Therefore one would expect to cope with a specialized campus, with a large portion of water-related businesses at the campus. The values show that only 1.4% of the businesses on the Wetsus Watercampus are related to the TS Water according to the Statistics Netherlands (2014), see Table (1). As other TS's show larger percentages this campus is therefore categorized as a diversified campus in this study. Based on the above described methodology, all the campuses were now assessed and defined as specialized or diversified campus. The threshold to give a campus the specialized status has been chosen in this study when more than 20% of the businesses matched with the corresponding TS. This means that even in the case of campuses promoting themselves as a specialist, this 20% threshold in matching TS businesses can show different results. In this study, numbers of employees working in the matching TS are not taken into account, only the number of businesses. Giving the campuses a typology based on figures seems to produce more objective outcomes than profiles provided by the campuses themselves. This way the subjective view/ marketing campaign of a campus is eliminated and thus replaced by an objective operationalization. This study defined a total of 14 diversified campuses and 11 specialized campuses.

Table 1: Typology of Specialized and Diversified Campuses

2014	TS	Type	% AF	% Ch	% LS	% HTS	% CI	% En	% Log	% Hor	% Wa
's-Gravenhage			36,1	0,1	0,5	13,8	45,0	0,4	2,5	1,1	0,4
Security Delta Campus	None	Diversified	14,8	0,6	1,8	17,8	56,2	2,4	3,6	2,4	0,6
Amsterdam			13,0	0,1	0,5	12,1	69,6	0,5	3,5	0,4	0,5
Amsterdam Science Park	None	Diversified	9,5	3,2	7,9	42,9	20,6	11,1	1,6	0,0	3,2
Medical Business Park	LS	Specialized	11,1	0,0	31,1	17,8	33,3	2,2	2,2	0,0	2,2
Arnhem			16,9	0,3	0,7	19,6	56,2	0,9	4,6	0,4	0,5
Energy Business Park	En	Diversified	12,5	0,0	3,1	27,1	53,1	3,1	1,0	0,0	0,0
Bergen op Zoom			28,1	0,7	1,2	28,6	31,2	0,8	6,0	2,0	1,6
Green Chemistry Campus	Ch	Diversified	6,3	9,4	0,0	21,9	3,1	3,1	56,3	0,0	0,0
Delft			23,1	0,0	0,6	32,4	39,7	1,4	2,0	0,5	0,3
Technopolis	None	Diversified	4,4	1,1	0,0	61,5	17,6	12,1	1,1	0,0	2,2
Biotech Campus	AF	Specialized	22,9	0,0	2,9	30,0	44,3	0,0	0,0	0,0	0,0
Eindhoven			15,4	0,2	0,7	29,4	47,2	1,0	5,5	0,3	0,3
High Tech Campus	HTS	Specialized	4,5	1,5	9,1	50,0	18,2	13,6	3,0	0,0	0,0
TU/E	HTS	Specialized	3,2	0,0	0,0	64,5	0,0	25,8	6,5	0,0	0,0
Enschede			23,3	0,7	1,1	31,0	35,7	1,6	4,9	1,2	0,5
Kennispark Twente	None	Diversified	18,1	0,0	2,9	35,2	34,3	4,8	4,8	0,0	0,0
Geleen/Stein			26,2	2,2	1,6	27,9	30,7	1,2	8,5	1,0	0,7
Chemelot	Ch	Specialized	14,3	20,0	4,3	20,0	12,9	12,9	12,9	1,4	1,4
Groningen			16,4	0,2	1,1	22,8	53,8	0,7	4,2	0,2	0,6
Zernike Campus	None	Diversified	20,8	0,0	0,0	29,2	41,7	2,1	4,2	2,1	0,0
Healthy Ageing Campus	LS	Diversified	32,2	0,0	3,3	18,6	42,7	1,0	1,9	0,0	0,2
Helmond			26,1	0,7	0,8	30,3	32,2	1,4	7,2	0,9	0,3
Automotive Campus	HTS	Specialized	20,0	0,0	0,0	20,0	60,0	0,0	0,0	0,0	0,0
Leeuwarden			18,7	0,1	1,0	22,4	47,1	0,9	5,9	0,3	3,6
Dairy Campus	AF	Diversified	8,3	0,0	0,0	25,0	58,3	0,0	0,0	8,3	0,0
Wetsus Watercampus	Wa	Diversified	24,5	0,5	1,0	20,7	44,2	4,3	2,9	0,5	1,4
Leiden			35,1	0,3	2,0	22,5	34,6	0,9	2,1	0,6	1,9
Bio Science Park	LS	Specialized	10,8	0,0	50,8	27,7	6,2	4,6	0,0	0,0	0,0
Maastricht			25,5	0,8	1,1	18,9	46,9	0,7	4,7	0,6	0,8
Health Campus	LS	Specialized	6,5	3,2	29,0	22,6	29,0	0,0	8,1	1,6	0,0
Nijmegen			19,7	0,1	1,7	18,9	51,4	0,7	6,2	1,0	0,5
Mercator Science Park	None	Diversified	12,7	1,3	11,4	25,3	40,5	7,6	1,3	0,0	0,0
Novio Tech	LS	Diversified	10,0	0,0	0,0	40,0	45,0	0,0	0,0	5,0	0,0
Oss			31,2	0,8	1,4	27,3	26,7	0,5	9,4	1,4	1,3
Pivot Park	LS	Diversified	19,6	4,3	13,0	26,1	23,9	4,3	8,7	0,0	0,0
Utrecht			13,5	0,1	0,5	18,5	61,7	0,5	4,6	0,3	0,3
Science Park Utrecht	None	Diversified	25,3	0,0	16,1	25,3	26,4	6,9	0,0	0,0	0,0
Wageningen			24,4	0,3	1,4	29,9	37,1	2,7	2,2	1,0	1,1
Wageningen Campus	AF	Specialized	45,5	0,0	0,0	40,9	0,0	13,6	0,0	0,0	0,0
Noordwijk/Katwijk			30,7	0,2	0,6	11,6	15,9	0,2	6,4	32,9	1,5
Space Business Park	HTS	Specialized	14,9	1,5	0,0	37,3	13,4	6,0	3,0	22,4	1,5
Zwolle			20,2	0,3	0,7	23,3	47,2	0,4	6,4	0,6	0,8
Polymer Science Park	HTS	Specialized	7,9	1,3	1,3	27,6	57,9	1,3	2,6	0,0	0,0

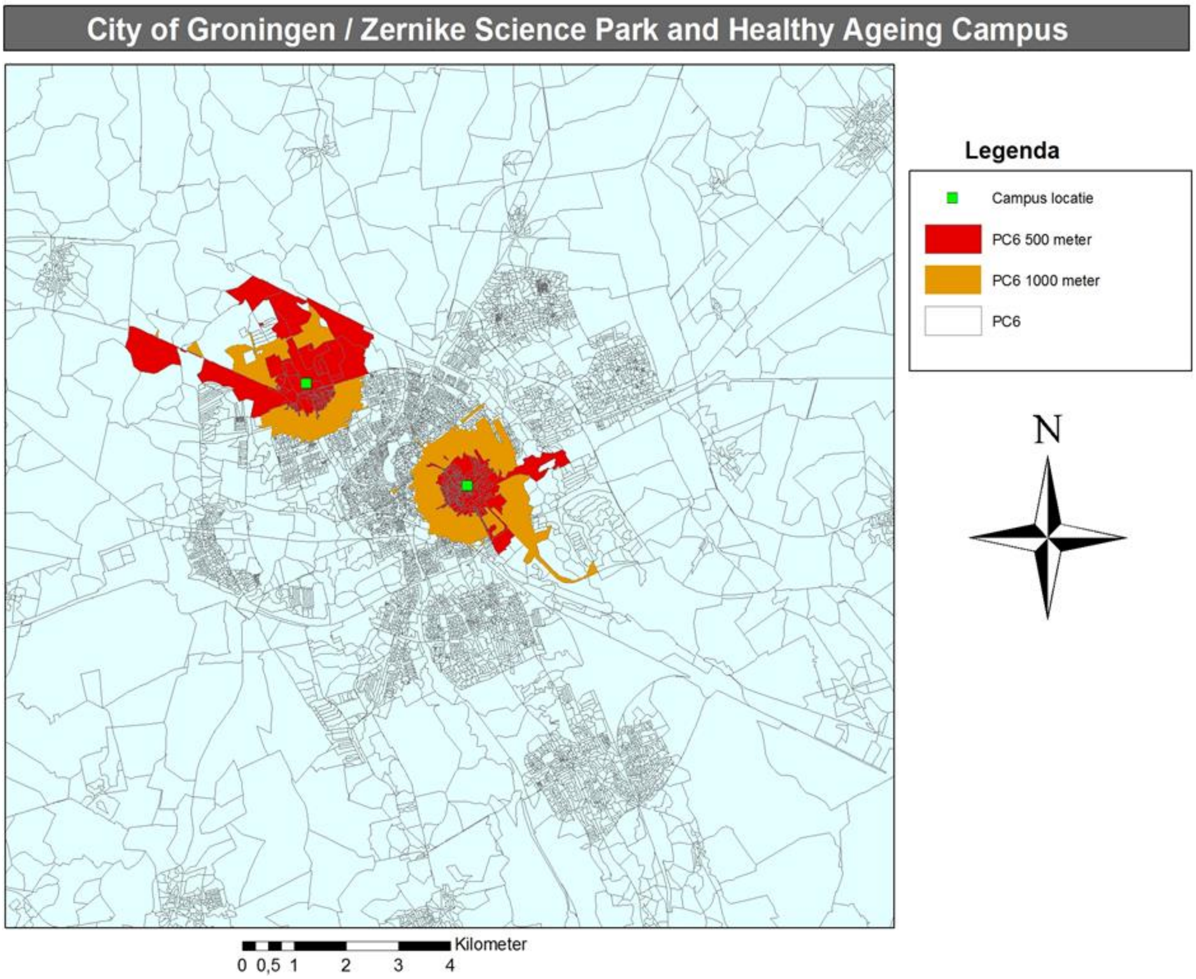
***TS: (Affiliated) Topsector, AF: Agriculture & Food, Ch: Chemics, LS: Life Sciences, HTS: High Tech Systems and Materials, CI: Creative Industry. En: Energy, Log: Logistics, Hor: Horticulture, Wa : Water**

3.3 Businesses

In order to answer the research question about assessing the performance of the campuses, we need to know which companies are located at or in the vicinity of the campuses. Sizes, locations and borders of campuses tend to differ. Therefore a goal was also to capture companies who might not choose to settle directly on campus, but in the vicinity of a campus. Geographic Information Systems (GIS) was used using the campus' postal codes in order to create a buffer zone around the campuses and by capturing all the 6-digits postal codes in the relevant areas to identify businesses. For the above mentioned reasons we used two operational limits of a campus on the bases of buffer zones. These buffer zones included a 500 meter and a one kilometer buffer zone and therefore every postal area was captured that is included in the areas. However, a side effect of this approach is obviously that of all the companies captured in these zones, not all might have a direct relationship with the campuses. Yet, it is still meaningful to see whether the campuses act as regional growth zones for companies and employment (Komarek & Loveridge, 2015).

In the cases of a city with two campuses, both the 500 meter and the one kilometer buffer zones of each campus did not show overlap, thus no businesses were accounted for twice in the analysis. Figure 2 shows as example the result in GIS of a city (Groningen) with two campuses and their buffer zones, the same was done for every other city containing one or more campuses. All 6-digits postal codes in the buffer zones are extracted.

Figure 1: Map of Groningen



3.4 Data

The LISA database was used to obtain information on companies. LISA is a database with data on all the organizations in the Netherlands where paid work is done. The core of this data has a spatial and a social-economic component, like employment and the type of economic activity, which is very relevant for this research. This database also includes governmental, education and healthcare offices, which is important information for the study on campuses (LISA, 2016). Data was requested on all the municipalities which contain one or more campuses. The Dairy Campus in Goutum for example, falls under the municipality of Leeuwarden, this meaning that all villages and cities under one municipality are combined. The ranges for the campuses Chemelot and Space Business Park show that these fall in more than one municipality. For Chemelot campus this includes the municipalities Geleen and Stein and for the Space Business Park, Noordwijk and Katwijk. For these two cases the data on these municipalities were combined in the analysis in order to make a good comparison.

The data were provided in a SPSS (statistical program) data file, containing the social economic and spatial data on all fifteen municipalities for the period 2008-2014. For this period, there are a total of 2,149,850 cases (businesses) with the following variables provided; 6-digit postal code, place, x-y coordinates, workplaces (WP) total, WP men, WP woman, WP full and part time, Year and SBI codes 1-5 digits. The last mentioned variable contains detailed information on the industrial classification of the company.

The statistical program R was used to write a code to create a dummy for all the 6-digits postal codes in the 500 meter and one kilometer buffer zones, whether they fall in a campus (1) or not (0). Another dummy was created for cities containing two campuses, so a distinction could be made between the two campuses. This was in turn implemented in SPPS so a clear distinction could be made between all the campuses and municipalities.

In order to make the most out of the available data, new variables were created. The new variables include the sum of different sizes in companies (see below) and the sum of companies in a particular TS.

3.4.1 Business size

Company size is defined in this dataset by the number of employees per company. According to BDO (2016) companies can be classified as micro (<10 employees), small (11-50 employees), medium (51-250 employees) and big (>250 employees). SPSS was used to create new variables for micro, small, medium and big companies as described above. When for some area's the sum of the micro, small, medium and big company variable did not perfectly match the company total variable, because the dataset had a small number of companies who did not have any employees, they were excluded from the analysis.

3.5 Modelling

In order to create the following models, aggregated data were used in the attempt to make a prediction of increase or decrease in workplaces for the created variables in statistical program Stata. As we are using the entities campuses and non-campus areas with measurements over time, we are dealing with panel data. A Random Effects Panel Data model (Hoechle, 2007) enables us to make a good distinction between the three different entities, as it will automatically use the non-campus dummy as reference for specialized and diversified campuses and the growth campus dummy as reference category for mature and startup campuses. This model will be using a random effects model instead of a standard pooled OLS regression, as fixed effects or a random effects model will allow us to control for variables which cannot easily be accounted for in this dataset. There could be many external factors why an area could show variation in company dynamics or employment. This way, individual heterogeneity is accounted for (Hoechle, 2007). There are several downsides for this particular dataset in using fixed effects. A fixed effect model does not allow variables to be included in the regression when this variable is constant over time. This means that all the dummy variables would automatically be omitted in the regression, which is quite crucial in answering the research question.

Based on the available data and variables, several formulas were created to estimate the parameters. First a decomposition on campus and non-campus areas are shown (Model 1). The same has been done for the different typologies on campuses (Models 2 and 3) described above in order to test for differences amongst the campuses.

Model (1)

$$\begin{aligned} workplaces_{it} = \beta_0 + D.Campus_i\beta_1 + Cases_i\beta_2 + Size.Micro_i\beta_3 + Size.Small_i\beta_4 \\ + Size.Medium_i\beta_5 + Size.Big_i\beta_6 + Woman_i\beta_7 + Year_t + \varepsilon_{it} \end{aligned}$$

Model (2)

$$\begin{aligned} workplaces_{it} = \beta_0 + D.StartupCampus_i\beta_1 + D.GrowthCampus_i\beta_2 + D.MatureCampus_i\beta_3 \\ + Cases_i\beta_4 + Size.Micro_i\beta_5 + Size.Small_i\beta_6 + Size.Medium_i\beta_7 + Size.Big_i\beta_8 \\ + Woman_i\beta_9 + Year_t + \varepsilon_{it} \end{aligned}$$

Model (3)

$$\begin{aligned} workplaces_{it} = \beta_0 + diverse_i\beta_1 + specialised_i\beta_2 + Cases_i\beta_3 + Size.Micro_i\beta_4 \\ + Size.Small_i\beta_5 + Size.Medium_i\beta_6 + Size.Big_i\beta_7 + Woman_i\beta_8 + Year_t + \varepsilon_{it} \end{aligned}$$

The variable $workplace_{it}$ is used as the dependent variable for this model as employment is a good indicator to measure regional economic growth (Schubert & Kroll, 2014). The variables $D.Campus_i\beta_1, D.StartupCampus_i\beta_1, D.GrowthCampus_i\beta_2, D.MatureCampus_i\beta_3, diverse_i\beta_1$ $and\ specialised_i\beta_2$ are dummies, and the reference dummy is automatically based on non-campus areas. The variable $Woman_i\beta_7$ is added to assess the difference in relation between men and woman and their effect on employment.

As we look not only at a decomposition of campuses, but also at growth rates and the differences among campuses, the next models (Models 4, 5 and 6) are used to estimate the parameters for those variables:

Model (4)

$$Workplace.Growth_{it} = \beta_0 + D.Campus_i\beta_1 + Business.Growth_i\beta_2 + Woman.Growth_i\beta_3 + Micro.Growth_i\beta_4 + Small.Growth_i\beta_5 + Medium\_Growth_i\beta_6 + Big\_Growth_i\beta_7 + Year_t + \varepsilon_{it}$$

Model (5)

$$Workplace.Growth_{it} = \beta_0 + D.StartupCampus_i\beta_1 + D.GrowthCampus_i\beta_2 + D.MatureCampus_i\beta_3 + Woman.Growth_i\beta_4 + Micro.Growth_i\beta_5 + Small.Growth_i\beta_6 + Medium\_Growth_i\beta_7 + Big\_Growth_i\beta_8 + Year_t + \varepsilon_{it}$$

Model (6)

$$Workplace.Growth_{it} = \beta_0 + diverse_i\beta_1 + specialised_i\beta_2 + Business.Growth_i\beta_3 + Woman.Growth_i\beta_4 + Micro.Growth_i\beta_5 + Small.Growth_i\beta_6 + Medium\_Growth_i\beta_7 + Big\_Growth_i\beta_8 + Year_t + \varepsilon_{it}$$

4 Results

4.1 Businesses and Workplaces

In this section we will show mainly results about the companies and workplaces in all campus locations and non-campus (i.e. their municipalities) areas. Table 2 provides an overview of all the collected data for the 500m range described in the methodology. In this table the description of the municipality is shown first, followed by the campus or campuses present in that same municipality. Only the last observation of 2014 and the index growth rate using 2008 as basis are shown. When we look at some individual campuses we see for example that especially the Amsterdam Science Park, Dairy Campus Leeuwarden and Wageningen Campus seem to perform exceptionally well regarding relative businesses and employment growth. Those campuses show a large contrast to campuses like the Automotive Campus in Helmond and the Medical Business Park in Amsterdam. When we look instead at the overall performance we see that 17 of the 25 campuses show a positive growth and better performance over the years than their municipalities, while most of the municipalities show a decline in the amount of workplaces.

Table 2: Absolute values and index growth rates on companies and workplaces

Location	Companies		Workplaces	
	2014	2008 = 100	2014	2008 = 100
	abs	growth	abs	growth
's-Gravenhage	38606	116	236247	92
The Hague Security Delta Campus	499	151	16725	124
Amsterdam	119856	162	549810	110
Amsterdam Science Park	198	141	3424	350
Amsterdam Medical Business Park	193	95	12036	85
Arnhem	13137	134	98664	101
Energy Business Park Arnhem	243	127	3415	110
Bergen op Zoom	4569	122	26656	95
Green Chemistry Campus Bergen op Zoom	89	110	3881	93
Delft	5336	107	40267	92
Technopolis Delft	218	97	7565	100
Biotech Campus Delft	245	123	1939	86
Eindhoven	18843	133	134933	98
High Tech Eindhoven	217	123	6331	100
TU/E	77	164	6150	107
Enschede	9657	118	78244	101
Kennispark Twente	323	120	1836	96
Geleen/Stein	8679	125	56583	95
Chemelot Geleen	172	162	2725	155
Groningen	14463	126	100825	99
Zernike Campus Groningen	151	137	5824	137
Healthy Ageing Campus Groningen	1078	115	23749	104
Helmond	6627	114	42332	99
Helmond Automotive Campus	35	95	86	84
Leeuwarden	7659	134	56916	98
Dairy Campus Leeuwarden	37	206	80	235
Wetsus/Watercampus Leeuwarden	740	116	11313	85
Leiden	4748	111	52162	105
Leiden Bio Science Park	133	106	9375	100
Maastricht	9467	128	62622	93
Maastricht Health Campus	212	117	9042	109
Nijmegen	12628	134	75032	95
Nijmegen Campus	361	127	18468	104
Novio Tech Nijmegen	115	125	3756	122
Oss	5775	122	34533	96
Pivot Park Oss	215	119	4933	70
Utrecht	32601	152	215945	106
Science Park Utrecht	191	148	18651	105
Wageningen	2541	129	16486	101
Wageningen Campus	46	148	2275	207
Noordwijk/Katwijk	3161	119	26127	91
Space Business Park Noordwijk	222	148	5017	117
Zwolle	7705	134	85582	104
Polymer Science Park Zwolle	309	192	3870	134
Mean	**7554**	**130**	**49373**	**113**

The first

obvious observation we make is the relatively large growth of the number of companies in the 2008-2014 period for almost all locations. All municipalities show a growth in the total amount of companies. For the campuses only the Amsterdam Medical Business Park, Technopolis Delft and Helmond Automotive Campus show a relative decline in companies. With regard to the number of workplaces however, we see a far more moderate growth and even many locations in decline. Table 3 shows the absolute growth rates for businesses (N) and Workplaces (WP) for the period 2008-2014 for both non-campuses and campuses combined (**Total**), and non-campuses and campuses separated (**Non-Campus, Campus).**

Table 3: Campus and Non-Campus business (N) and workplace (WP) growth

	Total	*Non-Campus*	*Campus*
N Growth	37,93	38,20	25,28
WP Growth	1,58	0,01	5,23

The **Total** shows a large growth in businesses of almost 38%. Municipalities performed better than campuses. This is an interesting value because, due to the global financial crisis occurred in 2007 maybe such a strong businesses growth would not have been expected to occur in this period. However the data show also only a moderate growth in workplaces of 1.6%. This suggests that the growth in businesses is mostly a growth in micro and small companies. In this case campuses performed better than municipalities.

Tables 2 and 3 above have shown how the campuses have performed in general over the years regarding employment and business dynamics compared to their hosting municipality. Below we focus on the question if there is a distinction in performance between the different groups of campuses regarding company dynamics and employment.

4.1.1 Mature, Growth & Start-up campuses

Following the classification used by the BCI (2014) described in the methodology, all the campuses were divided in their respective life stage. The values shown in Table 4 consist of the absolute growth % of businesses (**%N)** and workplaces (**%WP)** per campus life phase. These values are preceded by the standard deviations from absolute growth values of both the workplaces (**SD WP**) and businesses (**SD N)** and the means for both businesses and workplaces.

Table 4: Mean, Standard Deviation and Growth rates % of Start-up, Growth and Mature Campuses

	Mean N	**Mean WP**	**SD N**	**SD WP**	**%N**	**%WP**
Start-up	231	5992	65	1509	36,4	4,8
Growth	321	8834	40	1189	20,6	2
Mature	187	6523	37	820	41,5	11,7

In the previous section we could note differences in performance between campuses and municipalities. The means in Table 4 show that the growth campuses are the largest growers in both businesses and workplaces. Mature campuses however have the smallest amount of businesses on campus, but show more workplaces than start-up campuses, suggesting the presence of larger businesses. The standard deviations show that the start-up campuses have the largest outliers for both businesses and workplaces, indicating large differences in performance between the overall campuses. Mature campuses on the other hand do seem to be more consistent in both employment and business growth values. The start-up campuses show a stronger average % growth rate for both businesses and workplaces compared to growth campuses. The mature campuses seem to excel with 41.5% growth in businesses and almost 12% in workplaces.

4.1.2 Specialized vs Diversified

In this section we address the question whether specialized campuses perform differently than diversified campuses regarding company dynamics and employment. Table 5 shows that the specialized campus has the highest values in both businesses and workplaces. The standard deviation shows that regarding businesses the dynamics are quite similar for both types, but diversified campuses have larger outliers in growth values. Specialized campuses have a stronger absolute growth % of businesses with 31.1% compared to the 23% of diversified campuses. However, the workplace growth showed an opposite trend as diversified campuses attracted more employment in the period 2008-2014.

Table 5: Mean, Standard Deviation and Growth rates % of Diversified and Specialized campuses

	Mean N	Mean WP	SD N	SD WP	%N	%WP
Diversified	169	5350	47	1404	23,0	5,5
Specialized	318	8830	42	885	31,1	4,6

4.2 Company Size

We also focused on the sizes of the companies located on the municipalities and campuses, to see if they differ from one another. As mentioned earlier, we consider four different types of companies; micro (<10 employees), small (10-50), medium (50-250) and big (>250) (BDO, 2016). The literature is not consistent about what size of business is most desirable to measure for evaluating campuses performance (Faria, 2016; Komarek & Loveridge 2015). However it is interesting to understand the dynamics in business sizes on campuses, and to observe if a certain type of campus attracts certain size of businesses.

There are several campus areas with quite some big companies in the vicinity, like The Hague Security Delta campus, Utrecht Science Park and Mercator Science Park (See Table 2). However there are also campuses with little or no big and medium businesses like the Dairy Campus or Helmond Automotive Campus. As they have no medium and big businesses on campus, these index rates were set on 100, as no growth occurred.

Table 6 provides the overall growth % values for the four different company sizes in 2008-2014 both aggregated and separated for non-campus and campuses areas in order to make a comparison.

Table 6: Absolute values and index growth rates on micro, small, medium and big businness on non-campus and campus areas.

	micro		small		medium		big	
	2014	2008 = 100	2014	2008 = 100	2014	2008 = 100	2014	2008 = 100
Location	*abs*	*growth*	*abs*	*growth*	*abs*	*growth*	*abs*	*growth*
's-Gravenhage	36149	119	1853	85	501	91	103	90
The Hague Security Delta Campus	412	158	54	135	18	100	15	125
Amsterdam	113657	167	4950	106	1040	96	209	92
Amsterdam Science Park	168	137	19	146	8	200	3	100
Amsterdam Medical Business Park	160	105	17	59	11	79	5	71
Arnhem	12085	140	781	90	214	83	54	96
Energy Business Park Arnhem	220	133	14	93	6	86	3	100
Bergen op Zoom	4202	124	249	88	64	110	12	86
Green Chemistry Campus Bergen op Zoom	47	115	26	108	13	100	3	100
Delft	4836	111	387	84	90	82	23	110
Technopolis Delft	135	91	46	102	27	129	10	100
Biotech Campus Delft	230	124	11	138	3	100	1	50
Eindhoven	17291	138	1123	91	348	93	71	108
High Tech Eindhoven	178	123	27	135	5	63	7	175
TU/E	52	173	17	155	7	175	1	50
Enschede	8504	122	763	103	156	93	40	95
Kennispark Twente	285	123	24	96	7	117	0	100
Geleen/Stein	7984	128	532	93	138	95	25	83
Chemelot Geleen	131	164	26	153	14	200	1	50
Groningen	13140	132	1005	94	263	79	43	91
Zernike Campus Groningen	123	145	12	109	8	100	8	133
Healthy Ageing Campus Groningen	943	120	89	88	34	94	9	82
Helmond	6100	117	380	94	118	93	16	100
Helmond Automotive Campus	34	94	1	100	0	100	0	100
Leeuwarden	7092	141	401	82	128	86	31	103
Dairy Campus Leeuwarden	36	200	1	100	0	100	0	100
Wetsus/Watercampus Leeuwarden	610	122	87	97	34	87	9	90
Leiden	4104	115	490	97	129	87	25	139
Leiden Bio Science Park	68	100	35	135	21	88	9	113
Maastricht	8713	133	556	86	170	96	28	85
Maastricht Health Campus	172	122	27	108	7	70	6	120
Nijmegen	11665	139	754	91	176	81	32	103
Nijmegen Campus	297	129	29	112	23	115	12	150
Novio Tech Nijmegen	86	139	14	67	12	200	3	100
Oss	5271	125	391	92	104	104	8	57
Pivot Park Oss	181	120	26	144	5	71	3	75
Utrecht	30257	159	1729	99	478	94	109	100
Science Park Utrecht	138	200	26	137	9	47	17	106
Wageningen	2308	134	171	97	56	89	6	120
Wageningen Campus	35	159	4	100	3	100	4	200
Noordwijk/Katwijk	2986	125	372	103	67	91	7	58
Space Business Park Noordwijk	155	172	54	110	12	120	1	100
Zwolle	6755	143	636	96	166	76	58	126
Polymer Science Park Zwolle	248	218	46	177	11	92	2	100
Mean	**7006**	**136**	**415**	**106**	**107**	**101**	**23**	**101**

Table 7: Absolute growth % values for micro, small, medium and big businesses of Non-Campus and Campus areas

	micro	*small*	*medium*	*big*
Total	43,2	-3,9	-9,0	-2,2
Non-Campus	43,4	-4,4	-9,5	-3,5
Campuses	30,8	10,4	-0,3	8,2

Table 7 shows an overall very strong growth in micro businesses in the period 2008-2014. For the municipalities (non-campus) areas, all other business sizes show a decline, with the medium sized businesses as the strongest decliner. Campuses however, were less affected for small and big companies. These results are in line with the trend on business growth in the Netherlands. Reasons for the strong growth of micro companies seem to be attributable to the effects of the financial crisis in 2007 that created a strong growth in one-man businesses and also a decline in all other types of business sizes (Statistics Netherlands, 2015). Non-campus areas follow the trend caused by the financial crisis, as their absolute growth percentages are slightly higher than the percentages for the total area. For the campuses the micro business growth is also strong, but lower than the municipalities. Small and big business absolute growth % values are also quite positive, while only medium sized businesses show a very small decline of 0.3%.

4.2.1 Mature, Growth & Start-up campuses

An evaluation is made on differences in company sizes at campuses at different stages of their lives. Table 8 provides the absolute growth % rates and mean values for 2014 for all the campuses in the start-up phase. Unlike in the previous paragraphs, the standard deviations for sizes are here omitted, for readability reasons.

Table 8: Means and absolute growth % values of micro, small, medium and big businesses of Start-up, Growth and Mature Campuses

	Mean Micro	**Mean Small**	**Mean Mediun**	**Mean Big**	**%micro**	**%small**	**%medium**	**%big**
Start-up	193	24	9	4	44,4	33,1	-7,5	0,0
Growth	265	26	12	6	25,8	41,8	1,4	4,0
Mature	142	26	12	6	28,4	22,5	2,2	18,6

The means show that the growth campuses have the largest amount of micro businesses, while the start-up campuses have the smallest amounts of small, medium and big businesses. Growth and mature campuses are quite evenly distributed with regard to medium and big businesses. The start-up campuses showed a relatively large growth % for micro and small businesses; only the Amsterdam Medical Business Park and Energy Business Park Arnhem have not grown in small businesses (see Table 6). Their performance on medium and big sized businesses is clearly lower however, indicating that little dynamics have taken place on start-up campuses for these types of companies. Growth campuses show a positive growth for micro companies (25.8%) and quite a large absolute growth value for small companies (41.8%), with good performers like TU/E, Zernike Campus and the Space

Business Park (see Table 6). When it comes to attracting medium and big sized businesses the growth campuses show better performance than start-up campuses, with respectively 1.4% and 4% growth.

The large growth in workplaces in start-up campuses reported in paragraph 4.1.1 and Table 4 is therefore most likely due to the stronger growth of micro companies. The mature campuses show positive absolutes growth rates % for all types of companies, with perhaps most strikingly the relatively big absolute growth rate of 18.6% for big companies.

4.2.2. Specialized vs Diversified

An evaluation is made on differences for specialized and diversified campuses and if the diversified campuses indeed show to be most resilient as found in the literature (Van Oort, 2014). In paragraph 4.1.2 it was shown that the specialized campuses had the largest growth in businesses while the diversified campus showed a higher growth in workplaces

Table 9 shows that the diversified campuses have a growth of 28.3% in micro sized businesses, a small growth in small sized businesses, no growth in medium sized businesses and a relative large growth of 9.2% in big businesses. The data for specialized campuses show a much stronger growth for micro sized businesses (37.5%) and for small sized businesses (23.3%), while there is a decrease of -1.1% in medium businesses. Big businesses increased of 5.7%.

Table 9: Means and absolute growth % values of micro, small, medium and big businesses of Diversified and Specialized Campuses

	Mean Micro	Mean Small	Mean Medium	Mean Big	%micro	%small	%medium	%big
Diversified	263	33	15	7	28,3	4,2	0,0	9,2
Specialized	133	24	9	3	37,5	23,3	-1,1	5,7

Therefore as expected, specialized campuses show a stronger increase in small businesses. This is in line with the literature, as the presence of smaller businesses can also be a characteristic of specialized campuses (Komerak & Loverdige, 2015). The results show that the medium sized businesses are performing very poorly for both types of campuses. However, both specialized and diversified campuses show to have positive absolute growth rates for all other business sizes.

4.3 Analysis

In this chapter the results will be analyzed based on the statistical models described in the methodology. First we will describe the differences with activity on campus and non-campus, later we will focus on the different phases and the specialism and diversification typology.

4.3.1 Decomposition of campus & non-campus areas

In this paragraph we will analyze the results based on the statistical models described in the methodology. Using a Random-Effects GLS Regression the obtained results are presented in Table 9. The following models can be interpreted as a standard regression model.

What we see in Table 10 is a model showing a decomposition for the 19 municipalities (non-campus) and 25 campuses (44 groups in total) for the period 2008-2014 (308 observations in total). Using the absolute amount of workplaces as the dependent variable, and using a dummy (*D_Campus*), we are now able to see what is happening around campus and non-campus areas. Using this dummy, this model automatically depicts non-campus areas as the reference category.

Therefore the coefficients can be read as following: Campuses show to have a significant amount of 4632 more workplaces than non-campus areas. The control variables coefficients show that, for the entire observation area, when one business (*Cases)* is added, this will generate ca. 11 more workplaces. For the different sizes however we see that *Size_Micro* has a negative relation with employment, meaning that an increase of micro businesses has a negative effect on the amount of workplaces. As reported earlier, this negative relation could be due to the financial crisis which created greater uncertainty. Earlier research shows that this uncertainty is mainly felt by the relatively smaller businesses and has a negative effect on employment (Ghosal & Ye, 2015). For *Size_Small, Size_Medium,* and *Size_Big* we see a positive relation regarding employment. The coefficients show that the employment for these types of businesses is respectively, 14, 26 and 40 workplaces, when one of these types of businesses is added. These coefficients are no surprise however, as it is to be expected that an increase in larger businesses creates larger amounts of workplaces. Interestingly for the variable *Woman* we see that when this variable is added with one, the coefficient of workplaces seems to rise with 1.5. Anderson (2016) describes in his research that a positive relation like this might occur due to certain policies invested in the employment. He also states however that no convincing statistical evidence is apparent for this sample.

Table 10: Decomposition model on campus and non-campus areas

```
Random-effects GLS regression                   Number of obs      =       308
Group variable: location_nr                     Number of groups   =        44

R-sq:                                           Obs per group:
     within  = 0.9658                                         min =          7
     between = 0.9994                                         avg =        7.0
     overall = 0.9994                                         max =          7

                                                Wald chi2(13)      =  108089.89
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =     0.0000
```

Workplaces	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_Campus	4631.677	699.619	6.62	0.000	3260.449	6002.906
Cases	10.81345	2.776664	3.89	0.000	5.371288	16.25561
Size_Micro	-10.66592	2.776919	-3.84	0.000	-16.10858	-5.223261
Size_Small	14.21621	3.280739	4.33	0.000	7.786077	20.64634
Size_Medium	26.15189	5.919995	4.42	0.000	14.54891	37.75486
Size_Big	40.84652	19.08659	2.14	0.032	3.437482	78.25555
Women	1.493022	.0494182	30.21	0.000	1.396164	1.58988
Year						
2009	40.33191	126.4345	0.32	0.750	-207.4751	288.1389
2010	-102.7309	128.1126	-0.80	0.423	-353.8269	148.3651
2011	-219.4914	129.4991	-1.69	0.090	-473.305	34.32221
2012	-291.3404	130.979	-2.22	0.026	-548.0545	-34.62624
2013	-294.8263	134.8053	-2.19	0.029	-559.0397	-30.61282
2014	-122.1456	137.1781	-0.89	0.373	-391.0098	146.7185
_cons	-3873.371	626.9618	-6.18	0.000	-5102.193	-2644.548
sigma_u	1792.8437					
sigma_e	566.93997					
rho	.90909295	(fraction of variance due to u_i)				

Dependent variable: Workplaces

4.3.1.1 Growth on campus & non-campus areas

The model in Table 11 will provide the coefficients for the growth % rates on campus and non-campus areas for the research period. Like the previous model on the decomposition of campus and non-campus areas, the *D_Campus* dummy will automatically use non-campus areas as reference category. This model still has 44 entities, however one less observation per group, as we're controlling for growth percentages.

What we see first is that the coefficient for *D_Campus* is no longer significant, meaning that for these independent variables <u>being located on a campus area doesn't necessarily mean growth in workplaces in comparison to non-campus areas</u>. These results are in contrast to earlier research conducted by the BCI (2014), where they show growth rates for employment on campuses. However when compared to non-campus areas, these growth rates are not significant. What we do see in this model are significant coefficients for *Woman_Growth, Medium_Growth and Big_Growth*. As we're working with percentages now, this means that when the number of women working grows with 1%, the woman employment grows with an additional significant 0.6%. The coefficient for medium sized businesses shows that when this amount grows with 1%, employment significantly grows with a small 0.02%. For big sized businesses we see that there is a significant negative relation with employment, with a coefficient of -0.02%. According to the literature, the reason for this negative relation is that smaller firms have higher job creation and destruction than older and larger firms, and therefore lower dynamics and employment growth (Aterido et al., 2011).

Table 11: Growth model on Campus and Non-Campus areas

```
Random-effects GLS regression                   Number of obs      =       264
Group variable: location_nr                     Number of groups   =        44

R-sq:                                           Obs per group:
     within  = 0.8012                                          min =         6
     between = 0.7565                                          avg =       6.0
     overall = 0.7775                                          max =         6

                                                Wald chi2(12)      =    941.20
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

Workplace_Gro~h	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_Campus	.4050249	.7306497	0.55	0.579	-1.027022	1.837072
Business_Growth	.0755936	.0573937	1.32	0.188	-.0368959	.1880832
Women_Growth	.5606274	.020391	27.49	0.000	.5206618	.6005931
Micro_Growth	.0134915	.0424765	0.32	0.751	-.069761	.096744
Small_Growth	.0186665	.0159039	1.17	0.241	-.0125046	.0498377
Medium_Growth	.023173	.0104001	2.23	0.026	.0027892	.0435567
Big_Growth	-.0191417	.0055689	-3.44	0.001	-.0300565	-.008227
Year						
2010	.3359575	.8034681	0.42	0.676	-1.238811	1.910726
2011	1.359377	.7785235	1.75	0.081	-.1665015	2.885255
2012	.1434889	.808733	0.18	0.859	-1.441599	1.728576
2013	.2520686	.8174524	0.31	0.758	-1.350109	1.854246
2014	.8148149	.8000035	1.02	0.308	-.7531631	2.382793
_cons	-1.240982	.8141046	-1.52	0.127	-2.836598	.3546338
sigma_u	1.8529223					
sigma_e	3.4825483					
rho	.2206297	(fraction of variance due to u_i)				

Dependent variable: Workplaces

In this and the previous paragraph we've discussed the models for campus and non-campus areas. In the next few chapters we will be looking at the different types of campuses.

4.3.2 Decomposition of mature, growth & start-up campuses

The model in Table 12 provides a decomposition for start-up, growth and mature campuses. As the control variables are based on the entire number of groups (campuses and non-campus areas combined), the coefficients of these control variables will hardly change and therefore will no longer be discussed.

Table 12: Decomposition on Start-up, Growth and Mature campuses

```
Random-effects GLS regression                   Number of obs      =       308
Group variable: location_nr                     Number of groups   =        44

R-sq:                                           Obs per group:
     within  = 0.9658                                         min =         7
     between = 0.9995                                         avg =       7.0
     overall = 0.9994                                         max =         7

                                                Wald chi2(15)      = 106653.27
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

Workplaces	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_StartupCampus	5143.615	930.0069	5.53	0.000	3320.836	6966.395
D_GrowthCampus	4247.709	839.0179	5.06	0.000	2603.264	5892.154
D_MatureCampus	4678.388	900.1731	5.20	0.000	2914.081	6442.694
Cases	10.83304	2.784047	3.89	0.000	5.376405	16.28967
Size_Micro	-10.68689	2.784306	-3.84	0.000	-16.14403	-5.229754
Size_Small	14.16783	3.290789	4.31	0.000	7.718006	20.61766
Size_Medium	26.06362	5.931126	4.39	0.000	14.43882	37.68841
Size_Big	40.23867	19.1569	2.10	0.036	2.691831	77.7855
Women	1.495098	.0497241	30.07	0.000	1.397641	1.592556
Year						
2009	40.18239	126.5099	0.32	0.751	-207.7724	288.1372
2010	-103.02	128.1921	-0.80	0.422	-354.2718	148.2318
2011	-219.8537	129.5827	-1.70	0.090	-473.8312	34.1238
2012	-291.917	131.0699	-2.23	0.026	-548.8092	-35.0248
2013	-295.2758	134.9004	-2.19	0.029	-559.6757	-30.87585
2014	-122.6019	137.2771	-0.89	0.372	-391.6602	146.4563
_cons	-3880.665	631.2494	-6.15	0.000	-5117.891	-2643.439
sigma_u	1804.7511					
sigma_e	566.93997					
rho	.91018118	(fraction of variance due to u_i)				

Dependent variable: Workplaces

Contrary to the previous models that used a dummy for campuses, the dummy for this model is now divided in *D_StartupCampus*, *D_GrowthCampus* and *D_MatureCampus*. Non-campus areas will still act as reference category, as when all added together, they add up to 100. According to this model a start-up campus will have 5144 more workplaces than non-campus areas: for growth and mature campuses, this coefficient is respectively 4248 and 4678. These dummies differ from the straight counts shown in chapter 4.1.1. Possible reason for this difference is that in this model, non-campus areas are used as reference category, meaning that, for example, start-up campuses are relatively large compared to their referenced area. Even so, when we compare the three types of campuses, we don't see relatively large outliers, meaning that the differences are slim.

4.3.2.1 Growth on mature, growth & start-up campuses

The model in Table 13 will provide the coefficients for the growth % rates on start-up, growth and mature campuses and non-campus areas for the research period. Like in the previous paragraph the coefficients of the control variables will hardly change and therefore will no longer be discussed.

Table 13: Growth model on Start-up, Growth and Mature Campuses

```
Random-effects GLS regression                 Number of obs      =       264
Group variable: location_nr                   Number of groups   =        44

R-sq:                                         Obs per group:
     within  = 0.8010                                        min =         6
     between = 0.8055                                        avg =       6.0
     overall = 0.7988                                        max =         6

                                              Wald chi2(14)      =    992.07
corr(u_i, X)   = 0 (assumed)                  Prob > chi2        =    0.0000
```

Workplace_Gro~h	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_StartupCampus	-1.130273	.9409377	-1.20	0.230	-2.974477	.7139315
D_GrowthCampus	-.4046536	.8246674	-0.49	0.624	-2.020972	1.211665
D_MatureCampus	2.802451	.8993918	3.12	0.002	1.039676	4.565227
Business_Growth	.0821791	.0567701	1.45	0.148	-.0290883	.1934465
Micro_Growth	.0110636	.0422018	0.26	0.793	-.0716505	.0937777
Small_Growth	.0165435	.0158134	1.05	0.295	-.0144503	.0475373
Medium_Growth	.0230015	.0103406	2.22	0.026	.0027343	.0432688
Big_Growth	-.0185393	.0055106	-3.36	0.001	-.0293399	-.0077387
Women_Growth	.5604538	.0202273	27.71	0.000	.5208089	.6000986
Year						
2010	.3607594	.8032986	0.45	0.653	-1.213677	1.935196
2011	1.379504	.778443	1.77	0.076	-.1462162	2.905224
2012	.1686567	.8081374	0.21	0.835	-1.415264	1.752577
2013	.2976257	.8169076	0.36	0.716	-1.303484	1.898735
2014	.8382812	.7997597	1.05	0.295	-.729219	2.405781
_cons	-1.282023	.7719242	-1.66	0.097	-2.794967	.2309207
sigma_u	1.4968052					
sigma_e	3.4825483					
rho	.15592547	(fraction of variance due to u_i)				

Dependent variable: Workplaces

There is a significant growth coefficient for *D_MatureCampus,* meaning that when located on a mature campus, we experience 2.8% growth in workplaces compared to non-campus areas. The other types of campuses do not show positive effects on employment.

4.3.3 Decomposition of specialized & diversified campuses

The model in Table 14 provides a decomposition of diversified and specialized campuses, with non-campus areas as the reference group, for the research period.

Table 14: Decomposition model on diversified and specialized campuses

```
R-sq:                                    Obs per group:
     within  = 0.9658                                  min =          7
     between = 0.9994                                  avg =        7.0
     overall = 0.9994                                  max =          7

                                         Wald chi2(14)      =  105646.98
corr(u_i, X)   = 0 (assumed)             Prob > chi2        =     0.0000
```

Workplaces	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
diverse	5004.346	937.5289	5.34	0.000	3166.823	6841.869
specialised	4489.786	745.0297	6.03	0.000	3029.554	5950.017
Cases	10.88019	2.784493	3.91	0.000	5.422688	16.3377
Size_Micro	-10.73471	2.784783	-3.85	0.000	-16.19278	-5.276633
Size_Small	14.1379	3.292346	4.29	0.000	7.685024	20.59078
Size_Medium	25.93278	5.925081	4.38	0.000	14.31984	37.54573
Size_Big	39.74169	19.09308	2.08	0.037	2.319945	77.16344
Women	1.495757	.0495794	30.17	0.000	1.398584	1.592931
Year						
2009	40.33964	126.2411	0.32	0.749	-207.0883	287.7676
2010	-102.8651	127.9209	-0.80	0.421	-353.5854	147.8552
2011	-219.6377	129.3101	-1.70	0.089	-473.081	33.80545
2012	-291.8323	130.794	-2.23	0.026	-548.1838	-35.48088
2013	-294.9451	134.6224	-2.19	0.028	-558.8002	-31.09009
2014	-122.2847	136.9944	-0.89	0.372	-390.7889	146.2194
_cons	-3877.931	634.0712	-6.12	0.000	-5120.688	-2635.175
sigma_u	1818.2267					
sigma_e	566.93997					
rho	.91139007	(fraction of variance due to u_i)				

Dependent variable: Workplaces

Diversified campuses show a coefficient of 5004 more workplaces than non-campus areas and specialized campuses show to have 4490 more workplaces than non-campus areas. Like the previously described decomposition on start-up, growth and mature campuses, this difference in values with the straight counts shown in chapter 4.1.2 could be due to the non-campus reference category, meaning that diversified campuses show relatively larger portions of workplaces than their referenced area. However, even if the diversified campuses show to be quite larger in workplaces than the specialized campuses, this difference between the two campus types is statistically not significant.

4.3.3.1 Growth on specialized & diversified campuses

The model in Table 15 provides the coefficients for the growth % rates on start-up, growth and mature campuses and non-campus areas for the research period. When we look at the dummy variable *specialised* we see a negative relation, but also that this coefficient is not significant. The dummy variable *diversified* is not significant at the 5% level, but it is significant at the 10% level. With this lower probability, diversified campuses show a positive relation with workplace growth of 2% compared to non-campus areas. Therefore Van Oort's statement (2014) on resilience and the benefit of a diversified economy can be assumed to be true. This model shows that a higher variety in types of businesses could provide an increase in employment.

Table 15: Growth model on Specialized and Diversified campuses

```
Random-effects GLS regression                   Number of obs      =       264
Group variable: location_nr                     Number of groups   =        44

R-sq:                                           Obs per group:
     within  = 0.8013                                         min =          6
     between = 0.7712                                         avg =        6.0
     overall = 0.7850                                         max =          6

                                                Wald chi2(13)      =    959.17
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

Workplace_Gro~h	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
diverse	2.019819	1.058178	1.91	0.056	-.054172	4.09381
specialised	-.2179763	.7870221	-0.28	0.782	-1.760511	1.324559
Business_Growth	.0751539	.0569674	1.32	0.187	-.0365001	.1868079
Micro_Growth	.0149043	.0421589	0.35	0.724	-.0677256	.0975341
Small_Growth	.0206553	.0158084	1.31	0.191	-.0103287	.0516392
Medium_Growth	.0218773	.0103378	2.12	0.034	.0016156	.0421391
Big_Growth	-.0193365	.0055287	-3.50	0.000	-.0301725	-.0085004
Women_Growth	.5591078	.0202482	27.61	0.000	.519422	.5987936
Year						
2010	.3149315	.7971724	0.40	0.693	-1.247498	1.877361
2011	1.353436	.7723657	1.75	0.080	-.1603725	2.867245
2012	.1403823	.8023623	0.17	0.861	-1.432219	1.712984
2013	.2425428	.8110229	0.30	0.765	-1.347033	1.832119
2014	.8071279	.7936931	1.02	0.309	-.7484819	2.362738
_cons	-1.23747	.8099395	-1.53	0.127	-2.824923	.3499819
sigma_u	1.8708551					
sigma_e	3.4825483					
rho	.22395986	(fraction of variance due to u_i)				

Dependent variable: Workplaces

5. Conclusion

The results obtained in this study indicate that in the research period of comparison 2008-2014, non-campus (i.e. municipalities) areas showed more growth in businesses than their campus areas, of respectively 38.2% for municipalities against 25.3% for campuses. This is quite a large difference in growth. The BCI's (2014) on business growth on campuses also showed a large positive growth on campuses. However they did not seem to have taken into account the general trend of the Dutch economy (i.e. the growth in non-campus areas), where the amount of micro businesses has exploded due to the financial crisis (Statistics Netherlands, 2015). However the difference in business growth, this does not mean that campuses are underperforming compared to municipalities, because when we look at the workplace growth we see that the campuses show a positive growth rate of 5.2%, while the non-campus areas barely show any growth. Based on these results, it can be concluded that the employment on campuses has not been hit as hard as the municipalities with regard to the financial crisis.

The results also show that big businesses have grown with 8.2% on campus locations. This growth in big businesses indicates that campus areas could help regions to be more susceptible to economic shocks (van Oort, 2014). According to Cheng et al. (2014) however, campuses should be locations that attract small and medium enterprises. Looking at the results, we could state that this is partly true, as campuses show growth in micro and small businesses but a very small decline in medium sized businesses. The literature however does not provide a clear picture on what types of businesses size is best for economic growth (Komerak & Loveridge, 2015; Faria, 2016).

When we compare the campuses on the basis of their life stages of innovation, we see that in the research period the mature campuses are the largest growers in terms of employment and number of businesses. This means that campuses do not necessarily following the cluster life cycle described by Brenner & Schlump (2011), where growth clusters are supposed to show the best performance regarding business and employment growth. Mature campuses also attracted more medium and big businesses than start-up campuses and growth campuses. This is also in line with the relatively strong workplace growth showed by the mature campuses in the past 7 years. The results indicate that start-up campuses are not yet able to attract medium or big companies, while growth campuses perform variably with regard to attracting medium or big companies. Komarek & Loveridge (2015) stressed that the distribution of different size classes of businesses is an important factor for economic growth. The results from the mature campuses support this view.

In the comparison period 2008-2014, the specialized campuses showed the largest growth in businesses compared to the diversified campuses, while the difference in workplace growth between the two typologies was marginal. These results are quite surprising as literature suggests that diversified campuses should thrive better after a global financial crisis, therefore showing the best values regarding both employment and business growth (Frenken et al., 2007; Van Oort, 2014). Therefore it seems fair to say that also specialized campuses have shown a reasonable amount of resilience after the financial crisis and have shown to be able to attract businesses. While the straight counts and the decomposition analysis has shown that there is more employment at the campus areas than at the non-campus areas, the results indicate that the definition 'campus' in itself does not necessarily show a significant relation with employment growth in the model with these independent variables. But when we analyze the different types of campuses we see that the mature campuses and the diversified campuses show a significant positive relation with employment growth. Therefore the criticism of van Oort's (Financieel Dagblad, 2016) on the lack of performance of the high amount of new campus initiatives seems to be right as are the already established campuses that show a significant relation with employment growth. Like many other empirical studies on the diversity and specialization debate, a definitive answer on these two types of campuses cannot be given. This paper shows once again that the diversity-specialization debate is not an either-or question, but that both can matter for regional economic performance, where the outcomes are dependent on context, scale, period and performance indicators (Van Oort, 2014).

This research provides metrics and insight on how campuses contribute to innovation and growth in the regional or the national economy and therefore can help to identify campuses that can be of strategic importance to the Dutch economy. Especially the mature campuses indicate growth in larger firms in the research period coupled to a better distribution in size classes of business on campus. In addition, the mature and the diversified campuses have shown a relation with employment growth. Therefore in accordance to the AWTI's (2014) advice, the Dutch government could support and facilitate these campuses in their strengths and growth opportunities.

6. Limitations & Recommendations

There is little to no empirical research on the life stages of innovation campuses and their effects on region's economy. The typology made by the BCI (2012) regarding the different types of life stages is only based on desk-research and short interviews with representatives from these campuses. Unfortunately BCI did not provide the data gathered by this research and interviews. Therefore we have to trust their judgment regarding the classification of these phases, without being able to control for eventual misclassifications. More research on this matter could therefore provide a better insight of what type of campuses are best for a region, or whether new campus initiatives are profitable at all. It should be noted that the use of the Statistics Netherlands (2014) typology of Topsectors (TS) can produce sometimes arbitrary allocations. For example the manufacturing of medical equipment falls under the TS High Tech Systems and Materials, while this could be expected to be a business within the Life Sciences TS. Therefore for some sectors and type of businesses the possibility of some wrong allocation cannot be prevented.

The method used to define specialized and diversified campuses is based on percentages of businesses in the 9 predefined TS's. In this research a 20% minimum threshold of the 'right' TS businesses was used to define a specialized campus, on the condition that the same campus promotes itself to operate ina specific TS. The minimum of 20% is low, yet the reason for this percentage is that using a 500m range can create a 'noise' in the data and therefore add irrelevant businesses to a campus. In this study, the number of businesses active in the TS was used for the typology. For future research it might be interesting to see what happens if the number of employees is used for defining specializing and diversifying campuses. More research on this matter could help future researchers to better define specialized and diversified areas.

Some campuses are located in city centers, showing larger numbers of companies and employment and have therefore captured a wider range of businesses. For some campuses this might create a distorted view, as some small campuses in city centers might show large numbers of businesses and employment.

The dependent and independents are correlated, as a growth in businesses is often related with growth in employment. This means that for both decomposition and growth models a high r-squared can be seen due to this correlation. However also in this situation, the results can still be interesting and helpful in answering the research question, as they provide an overview of what happens to the regressors of the variables when located on a specific type of campus. As the LISA dataset only provide a limited number of variables, adding more variables to the model, like innovation measures or profits, might create a model where the differences in employment growth between campus and non-campus areas can be explained.

Something that could not be taken into account in this research is the possibility that some campus initiatives are 'picky' in the businesses they allow on their campus terrain. For example, when businesses have to meet strict conditions to enter a campus location. If that is the case, businesses growth might not be a good measurement for performance. However, the 500m range can still be a good measurement on performance and the nearby region. An assessment whether this is the case and if this influences businesses growth on campuses could help future research.

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8. Appendices

Table 16, 500 meter, 2014

2014	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticul	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	28279	3730	14	53	1429	4648	41	260	112	40	38606	36149	1853	501	103	236247	108431	127816
The Hague Security Delta Campus	330	25	1	3	30	95	4	6	4	1	499	412	54	18	15	16725	6751	9974
Amsterdam	77962	5431	50	210	5071	29148	189	1455	151	189	119856	113657	4950	1040	209	549810	243344	306466
Amsterdam Science Park	135	6	2	5	27	13	7	1	0	2	198	168	19	8	3	3424	967	2457
Amsterdam Medical Business Park	148	5	0	14	8	15	1	1	0	1	193	160	17	11	5	12036	7268	4768
Arnhem	9368	637	12	25	738	2118	33	175	14	17	13137	12085	781	214	54	98664	49616	49048
Energy Business Park Arnhem	147	12	0	3	26	51	3	1	0	0	243	220	14	6	3	3415	1190	2225
Bergen op Zoom	3550	286	7	12	291	318	8	61	20	16	4569	4202	249	64	12	26656	13642	13014
Green Chemistry Campus Bergen op Zoom	57	2	3	0	7	1	1	18	0	0	89	47	26	13	3	3881	836	3045
Delft	3599	402	0	10	563	689	24	35	8	6	5336	4836	387	90	23	40267	18979	21288
Technopolis Delft	127	4	1	0	56	16	11	1	0	2	218	135	46	27	10	7565	2486	5079
Biotech Campus Delft	175	16	0	2	21	31	0	0	0	0	245	230	11	3	1	1939	866	1073
Eindhoven	13052	889	13	42	1703	2734	57	317	20	16	18843	17291	1123	348	71	134933	59396	75537
High Tech Eindhoven	151	3	1	6	33	12	9	2	0	0	217	178	27	5	7	6331	2317	4014
TU/E	46	1	0	0	20	0	8	2	0	0	77	52	17	7	1	6150	1573	4577
Enschede	7159	581	17	28	775	891	40	123	30	13	9657	8504	763	156	40	78244	38021	40223
Kennispark Twente	218	19	0	3	37	36	5	5	0	0	323	285	24	7	0	1836	785	1051
Geleen/Stein	6746	507	42	31	539	594	23	165	19	13	8679	7984	532	138	25	56583	24446	32137
Chemelot Geleen	102	10	14	3	14	9	9	9	1	1	172	131	26	14	1	2725	829	1896
Groningen	9895	751	8	48	1041	2458	32	194	10	26	14463	13140	1005	263	43	100825	45903	54922
Zernike Campus Groningen	103	10	0	0	14	20	1	2	1	0	151	123	12	8	8	5824	2752	3072
Healthy Ageing Campus Groningen	659	135	0	14	78	179	4	8	0	1	1078	943	89	34	9	23749	14109	9640
Helmond	5147	387	10	12	448	477	20	107	14	5	6627	6100	380	118	16	42332	18696	23636
Helmond Automotive Campus	30	1	0	0	1	3	0	0	0	0	35	34	1	0	0	86	32	54
Leeuwarden	5555	394	2	20	472	992	19	124	6	75	7659	7092	401	128	31	56916	28588	28328
Dairy Campus Leeuwarden	25	1	0	0	3	7	0	0	1	0	37	36	1	0	0	80	49	31
Wetsus/Watercampus Leeuwarden	532	51	1	2	43	92	9	6	1	3	740	610	87	34	9	11313	5768	5545
Leiden	3617	397	3	23	255	391	10	24	7	21	4748	4104	490	129	25	52162	28650	23512
Leiden Bio Science Park	68	7	0	33	18	4	3	0	0	0	133	68	35	21	9	9375	4194	5181
Maastricht	6961	638	19	28	474	1176	18	119	14	20	9467	8713	556	170	28	62622	29547	33075
Maastricht Health Campus	150	4	2	18	14	18	0	5	1	0	212	172	27	7	6	9042	5769	3273
Nijmegen	9328	649	2	55	623	1697	22	203	32	17	12628	11665	754	176	32	75032	35528	39504
Nijmegen Campus	282	10	1	9	20	32	6	1	0	0	361	297	29	23	12	18468	11614	6854
Novio Tech Nijmegen	95	2	0	0	8	9	0	0	1	0	115	86	14	12	3	3756	1902	1854
Oss	4511	394	10	18	345	337	6	119	18	17	5775	5271	391	104	8	34533	14498	20035
Pivot Park Oss	169	9	2	6	12	11	2	4	0	0	215	181	26	5	3	4933	1724	3209
Utrecht	22284	1395	12	56	1904	6366	53	472	27	32	32601	30257	1729	478	109	215945	96402	119543
Science Park Utrecht	104	22	0	14	22	23	6	0	0	0	191	138	26	9	17	18651	10929	7722
Wageningen	1811	178	2	10	218	271	20	16	7	8	2541	2308	171	56	6	16486	8032	8454
Wageningen Campus	24	10	0	0	9	0	3	0	0	0	46	35	4	3	4	2275	1154	1121
Noordwijk/Katwijk	2285	269	2	5	102	139	2	56	288	13	3161	2986	372	67	7	26127	13108	13019
Space Business Park Noordwijk	155	10	1	0	25	9	4	2	15	1	222	155	54	12	1	5017	1438	3579
Zwolle	5620	421	6	14	486	985	9	134	13	17	7705	6755	636	166	58	85582	43055	42527
Polymer Science Park Zwolle	233	6	1	1	21	44	1	2	0	0	309	248	46	11	2	3870	2170	1700

Table 17, 500 meter, 2013

2013	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticult	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	27454	3742	15	50	1339	4364	40	241	92	41	37378	34876	1894	504	104	237464	109826	127638
The Hague Security Delta Campus	313	24	1	1	32	86	4	5	3	0	469	386	49	20	14	16643	6789	9854
Amsterdam	73404	5142	44	182	4778	26955	179	1443	127	180	112434	106288	4887	1042	217	540580	240020	300560
Amsterdam Science Park	121	6	1	5	25	11	4	1	0	1	175	145	20	8	2	3089	923	2166
Amsterdam Medical Business Park	145	2	0	15	11	14	3	2	0	1	193	162	19	8	4	11063	6955	4108
Arnhem	9077	604	12	29	716	2008	31	195	13	19	12704	11635	785	224	58	99252	49953	49299
Energy Business Park Arnhem	149	10	0	3	28	43	3	0	0	0	236	216	13	4	3	3338	1162	2176
Bergen op Zoom	3546	283	7	13	286	288	8	59	21	15	4526	4173	266	59	12	27075	13835	13240
Green Chemistry Campus Bergen op Zoom	54	2	3	0	9	1	0	20	0	0	89	45	26	14	3	4092	833	3259
Delft	3548	415	0	11	541	657	24	36	9	6	5247	4731	396	95	25	41497	19695	21802
Technopolis Delft	132	2	1	0	53	15	11	1	1	2	218	135	50	24	9	7602	2467	5135
Biotech Campus Delft	167	15	0	2	18	28	0	0	0	0	230	217	9	3	1	1936	874	1062
Eindhoven	12877	871	13	41	1731	2588	52	308	18	15	18514	16953	1130	353	74	137749	59850	77899
High Tech Eindhoven	152	4	1	5	34	16	8	2	0	0	222	182	28	5	7	6417	2374	4043
TU/E	38	1	0	0	23	0	10	1	0	0	73	47	17	7	2	5490	1209	4281
Enschede	7164	582	17	30	738	830	34	128	30	14	9567	8351	740	160	40	78162	37451	40711
Kennispark Twente	208	15	0	3	34	34	4	4	0	0	302	265	25	6	0	1632	695	937
Geleen/Stein	6586	507	42	30	531	546	23	166	18	12	8461	7750	537	151	23	56940	24879	32061
Chemelot Geleen	101	10	13	3	13	8	8	8	1	1	166	125	27	13	1	2601	817	1784
Groningen	9905	733	9	48	1032	2403	29	211	12	28	14410	13069	1021	272	45	102131	46779	55352
Zernike Campus Groningen	104	11	0	0	16	19	1	2	0	0	153	128	9	8	8	5352	2469	2883
Healthy Ageing Campus Groningen	664	131	0	15	60	174	4	9	0	1	1058	913	98	35	11	23888	14233	9655
Helmond	4993	376	10	12	450	463	17	112	14	6	6453	5908	379	125	16	43166	18881	24285
Helmond Automotive Campus	32	0	0	0	2	3	0	0	0	0	37	36	1	0	0	85	32	53
Leeuwarden	5252	381	2	23	459	917	20	116	5	75	7250	6658	433	124	31	57015	28780	28235
Dairy Campus Leeuwarden	23	2	0	0	2	4	0	0	1	0	32	31	1	0	0	76	53	23
Wetsus/Watercampus Leeuwarden	531	49	1	2	40	78	10	6	1	3	721	591	79	43	8	12043	6137	5906
Leiden	3842	385	3	22	273	421	12	30	10	21	5019	4344	519	127	24	52179	28347	23832
Leiden Bio Science Park	83	8	0	34	20	4	4	0	0	1	154	83	35	26	10	9397	4197	5200
Maastricht	6737	620	19	25	455	1130	17	113	14	22	9152	8360	595	169	28	62707	29510	33197
Maastricht Health Campus	141	2	2	20	13	15	0	5	1	0	199	163	22	8	6	9053	5718	3335
Nijmegen	9049	618	3	46	605	1631	19	191	29	17	12208	11209	777	194	27	75854	36555	39299
Nijmegen Campus	279	9	1	11	20	31	6	1	0	0	358	293	30	24	11	18382	11584	6798
Novio Tech Nijmegen	88	1	0	0	5	7	0	0	1	0	102	70	18	10	4	3438	1677	1761
Oss	4474	402	10	18	331	313	8	119	16	16	5707	5208	389	102	8	34418	14266	20152
Pivot Park Oss	164	9	1	6	11	9	1	4	0	0	205	176	21	5	3	4878	1676	3202
Utrecht	21096	1344	12	60	1814	5852	55	449	28	35	30745	28360	1760	470	118	214681	95589	119092
Science Park Utrecht	114	19	0	12	17	21	6	0	0	0	189	136	26	8	17	18505	10759	7746
Wageningen	1748	176	2	8	220	257	21	16	8	8	2464	2235	160	61	7	17237	8142	9095
Wageningen Campus	21	9	0	0	8	1	3	0	0	0	42	31	5	3	3	1950	940	1010
Noordwijk/Katwijk	2295	275	2	5	102	147	1	57	287	11	3182	3010	360	71	7	26483	13290	13193
Space Business Park Noordwijk	148	10	1	0	23	9	4	2	17	1	215	153	49	12	1	4995	1386	3609
Zwolle	5460	385	6	14	472	913	8	134	13	17	7422	6434	625	187	56	85716	42913	42803
Polymer Science Park Zwolle	215	7	1	1	16	39	1	3	0	0	283	216	47	16	2	4017	2211	1806

Table 18, 500 meter, 2012

2012	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticult	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	26719	3765	17	53	1315	4164	40	229	90	39	36431	33782	2018	513	117	242824	111540	131284
The Hague Security Delta Campus	306	25	0	1	31	80	5	7	3	0	458	378	46	22	12	15641	6534	9107
Amsterdam	69840	4991	33	172	4682	25202	177	1377	109	184	106767	100733	4744	1079	211	528386	234154	294232
Amsterdam Science Park	129	6	1	5	26	10	3	0	0	1	181	152	20	7	2	3216	897	2319
Amsterdam Medical Business Park	159	2	0	18	11	17	4	3	0	1	215	178	22	12	3	11337	6918	4419
Arnhem	8848	611	14	25	674	1905	30	196	16	19	12338	11235	813	234	56	100158	50042	50116
Energy Business Park Arnhem	142	9	0	3	23	46	3	0	0	1	227	206	14	4	3	3242	1084	2158
Bergen op Zoom	3442	285	7	15	278	279	6	65	21	14	4412	4063	264	64	12	27428	14059	13369
Green Chemistry Campus Bergen op Zoom	50	2	2	0	9	1	0	17	0	0	81	38	26	13	4	4038	866	3172
Delft	3484	417	1	11	527	620	22	35	7	7	5131	4597	413	95	25	42011	19962	22049
Technopolis Delft	129	2	1	0	48	26	11	1	0	1	219	137	47	25	10	7816	2537	5279
Biotech Campus Delft	155	17	0	1	18	23	0	0	0	0	214	199	10	4	1	1836	798	1038
Eindhoven	12612	873	15	42	1713	2453	48	284	17	15	18072	16463	1170	370	70	137815	59828	77987
High Tech Eindhoven	150	3	1	5	31	16	7	1	0	0	214	176	25	6	7	7489	2627	4862
TU/E	34	1	0	0	23	0	10	1	0	0	69	46	15	6	2	5883	1345	4538
Enschede	7022	567	18	30	699	801	37	135	30	18	9357	8158	731	162	41	79275	37564	41711
Kennispark Twente	195	15	0	3	34	29	3	5	0	0	284	246	28	6	0	1687	685	1002
Geleen/Stein	6573	492	25	29	536	528	23	170	19	11	8406	7701	531	148	26	59553	25444	34109
Chemelot Geleen	98	10	6	2	13	8	1	8	2	1	149	79	6	2	1	1813	585	1228
Groningen	9860	727	8	47	1009	2372	32	222	12	29	14318	12879	1085	304	39	105501	48024	57477
Zernike Campus Groningen	104	11	0	2	19	19	3	2	0	0	160	135	9	8	8	5144	2292	2852
Healthy Ageing Campus Groningen	681	137	0	14	62	169	4	13	0	2	1082	926	111	34	10	23468	13970	9498
Helmond	5031	378	9	13	430	447	17	112	15	7	6459	5891	398	126	16	43061	19074	23987
Helmond Automotive Campus	33	0	0	0	2	3	0	0	0	0	38	37	1	0	0	88	33	55
Leeuwarden	5075	370	2	21	430	839	19	109	7	77	6949	6323	462	129	32	57754	28890	28864
Dairy Campus Leeuwarden	24	2	0	0	2	5	0	0	1	0	34	34	0	0	0	64	53	11
Wetsus/Watercampus Leeuwarden	493	50	1	2	35	79	3	6	1	2	672	540	81	43	8	12378	6277	6101
Leiden	3976	365	4	24	284	430	11	32	7	27	5160	4493	512	126	23	51752	28051	23701
Leiden Bio Science Park	81	7	0	34	19	3	5	0	0	0	149	80	33	28	8	8498	3655	4843
Maastricht	6755	643	18	26	458	1103	17	115	16	23	9174	8361	616	165	32	63553	29479	34074
Maastricht Health Campus	152	4	2	18	15	14	0	6	1	0	212	174	23	10	5	8983	5634	3349
Nijmegen	8688	616	4	39	556	1503	20	195	25	17	11663	10635	793	207	26	77098	36433	40665
Nijmegen Campus	276	9	1	10	26	35	7	0	0	0	364	304	32	20	8	18633	11858	6775
Novio Tech Nijmegen	86	3	0	0	4	6	0	0	1	0	100	69	20	7	4	3199	1535	1664
Oss	4457	401	11	18	312	313	10	132	17	16	5687	5170	403	105	9	36164	15284	20880
Pivot Park Oss	168	10	0	2	10	9	0	4	0	0	203	175	20	5	3	4954	1687	3267
Utrecht	20073	1316	11	56	1723	5422	46	402	28	34	29111	26677	1776	478	115	217362	96204	121158
Science Park Utrecht	112	20	0	13	22	19	7	0	0	0	193	131	28	14	15	18364	10686	7678
Wageningen	1675	173	2	6	200	243	21	16	8	7	2351	2110	170	64	7	17103	8261	8842
Wageningen Campus	19	11	0	0	4	1	3	0	0	0	38	28	3	4	3	1779	866	913
Noordwijk/Katwijk	2277	278	2	5	99	139	2	53	295	10	3160	2969	369	75	7	26915	13333	13582
Space Business Park Noordwijk	143	11	1	0	17	9	2	2	16	1	202	138	50	13	1	4731	1221	3510
Zwolle	5309	393	7	16	441	868	9	128	11	15	7197	6147	634	195	52	85858	42338	43520
Polymer Science Park Zwolle	216	7	1	1	16	32	1	4	0	0	278	206	49	15	2	4091	2140	1951

Table 19, 500 meter, 2011

2011	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticul	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	26407	3877	18	56	1296	3934	49	243	85	43	36008	33313	2055	517	122	249566	114298	135268
The Hague Security Delta Campus	299	27	0	1	33	75	5	11	3	0	454	373	52	18	11	13787	5619	8168
Amsterdam	67773	4976	31	168	4679	23933	171	1371	130	182	103414	97255	4850	1091	218	531793	236335	295458
Amsterdam Science Park	132	6	0	5	29	10	4	0	0	1	187	159	19	7	2	2913	839	2074
Amsterdam Medical Business Park	144	4	0	16	13	17	4	3	0	1	202	161	24	14	3	11619	7064	4555
Arnhem	8402	588	14	28	649	1768	29	191	13	20	11702	10584	815	246	56	100349	49924	50425
Energy Business Park Arnhem	132	9	0	3	23	37	3	0	0	1	208	185	14	6	3	3260	1105	2155
Bergen op Zoom	3350	305	7	15	269	261	6	68	23	13	4317	3948	283	62	13	27966	14265	13701
Green Chemistry Campus Bergen op Zoom	51	2	2	0	10	2	1	16	0	1	85	42	24	15	3	3880	663	3217
Delft	3475	423	1	14	529	634	24	36	4	7	5147	4610	415	96	26	42453	20326	22127
Technopolis Delft	124	3	1	0	56	20	13	1	0	1	219	212	11	4	1	7879	2503	5376
Biotech Campus Delft	163	18	0	1	21	25	0	0	0	0	228	139	46	23	11	1862	814	1048
Eindhoven	12103	861	17	43	1677	2240	45	279	19	18	17302	15695	1183	359	66	137027	58696	78331
High Tech Eindhoven	143	3	1	4	37	15	8	2	0	0	213	178	21	6	8	7620	2772	4848
TU/E	34	1	0	0	22	2	10	0	0	0	69	47	13	7	2	6608	1541	5067
Enschede	7105	571	20	31	708	768	33	130	35	17	9418	8229	721	167	39	79477	37159	42318
Kennispark Twente	217	23	0	1	29	32	3	4	0	0	309	268	28	6	0	1707	714	993
Geleen/Stein	6346	488	26	26	528	499	20	169	24	14	8140	7419	545	148	28	59633	25575	34058
Chemelot Geleen	90	11	5	2	13	6	1	5	2	1	136	106	22	7	1	1838	579	1259
Groningen	9477	722	8	49	949	2225	26	218	15	31	13720	12276	1071	319	44	106139	47626	58513
Zernike Campus Groningen	100	7	0	1	17	16	5	2	0	0	148	120	11	9	7	5012	2231	2781
Healthy Ageing Campus Groningen	656	128	1	12	59	150	4	11	0	3	1024	880	96	39	8	22958	13608	9350
Helmond	5010	387	10	13	439	424	19	117	18	8	6445	5862	407	124	16	42954	18879	24075
Helmond Automotive Campus	35	0	0	0	2	3	0	0	0	0	40	39	1	0	0	93	32	61
Leeuwarden	4974	367	1	20	439	771	17	106	8	72	6775	6147	466	132	28	56739	28079	28660
Dairy Campus Leeuwarden	25	2	0	0	2	6	0	0	1	0	36	36	0	0	0	65	53	12
Wetsus/Watercampus Leeuwarden	481	53	1	2	34	74	3	7	0	1	656	525	78	45	8	13240	6726	6514
Leiden	4066	380	4	27	295	429	8	33	7	25	5274	4599	515	132	21	50852	27290	23562
Leiden Bio Science Park	84	8	0	35	14	2	4	0	0	0	147	80	30	28	9	8433	3661	4772
Maastricht	6620	641	20	29	451	1046	17	113	13	22	8972	8138	630	175	29	65450	30293	35157
Maastricht Health Campus	148	4	2	17	14	10	0	6	1	0	202	163	23	11	5	8951	5614	3337
Nijmegen	8417	619	4	38	522	1430	20	201	27	18	11296	10256	804	207	29	77993	36337	41656
Nijmegen Campus	271	10	1	10	24	28	7	0	0	0	351	292	29	19	11	18889	12048	6841
Novio Tech Nijmegen	84	1	1	0	5	6	0	0	1	0	98	67	22	5	4	3086	1413	1673
Oss	4425	407	10	15	310	289	12	122	21	15	5626	5104	411	100	11	36688	15461	21227
Pivot Park Oss	166	10	1	2	9	9	0	4	0	0	201	173	20	5	3	5469	1965	3504
Utrecht	19372	1277	13	50	1621	4986	41	370	28	33	27791	25315	1773	496	117	215087	94255	120832
Science Park Utrecht	104	17	0	13	20	18	6	0	0	0	178	117	26	16	14	17962	10392	7570
Wageningen	1646	177	2	6	200	218	20	16	8	7	2300	2063	165	62	9	17271	8308	8963
Wageningen Campus	17	10	0	0	1	2	2	0	0	0	32	23	3	4	2	1316	561	755
Noordwijk/Katwijk	2348	286	2	5	103	145	2	55	314	9	3269	3083	371	76	10	29183	14690	14493
Space Business Park Noordwijk	139	10	1	0	18	8	2	1	18	1	198	129	56	12	1	4778	1260	3518
Zwolle	5215	376	8	18	404	814	8	132	10	17	7002	5929	653	188	53	84411	41179	43232
Polymer Science Park Zwolle	189	6	1	1	15	25	1	3	0	0	241	181	36	14	3	4358	2170	2188

Table 20, 500 meter, 2010

2010	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticul	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	26693	4038	16	57	1326	3820	45	287	86	49	36417	33663	2101	530	121	252819	114230	138589
The Hague Security Delta Campus	279	24	0	1	31	65	6	7	1	0	414	341	42	19	12	13842	5606	8236
Amsterdam	62993	4828	34	167	4870	22076	163	1334	122	179	96766	90741	4719	1089	217	523907	230123	293784
Amsterdam Science Park	118	6	0	5	33	12	1	0	0	1	176	152	19	3	2	2059	595	1464
Amsterdam Medical Business Park	129	2	0	18	15	17	4	2	0	0	187	143	26	14	4	11701	7190	4511
Arnhem	8017	566	15	28	637	1600	33	162	13	20	11091	9964	819	254	53	99021	48708	50313
Energy Business Park Arnhem	122	10	0	3	25	40	4	1	0	1	206	183	14	6	3	3325	1105	2220
Bergen op Zoom	3196	304	5	17	261	254	8	66	23	13	4147	3789	271	61	11	27236	13610	13626
Green Chemistry Campus Bergen op Zoom	49	3	2	0	9	2	0	14	0	1	80	39	22	16	3	3829	655	3174
Delft	3522	452	1	12	537	589	23	43	3	6	5188	4624	444	93	26	42644	20272	22372
Technopolis Delft	127	4	2	0	61	10	12	2	0	1	219	139	45	25	10	8060	2538	5522
Biotech Campus Delft	151	22	0	1	19	26	0	1	0	0	220	206	9	4	1	1849	779	1070
Eindhoven	11881	849	18	47	1662	2037	50	277	23	20	16864	15276	1173	345	70	135963	59171	76792
High Tech Eindhoven	132	4	1	4	34	15	10	1	0	0	201	163	23	7	8	7511	2807	4704
TU/E	37	1	0	0	20	2	10	0	0	0	70	48	15	5	2	5417	1170	4247
Enschede	6953	574	20	31	682	708	34	121	37	17	9177	7983	713	167	39	77658	36280	41378
Kennispark Twente	205	21	0	1	22	33	2	4	0	0	288	252	24	6	0	1693	762	931
Geleen/Stein	6069	481	25	21	516	455	22	177	24	15	7805	7071	555	151	28	60258	25535	34723
Chemelot Geleen	90	12	2	1	11	3	1	5	2	1	128	100	20	7	1	1808	582	1226
Groningen	9011	720	9	43	884	2060	22	224	15	33	13021	11593	1065	312	45	103435	46555	56880
Zernike Campus Groningen	94	6	0	1	9	17	5	1	0	0	133	107	11	9	6	4630	2029	2601
Healthy Ageing Campus Groningen	637	135	1	15	59	142	4	11	0	2	1006	860	101	37	8	22730	13338	9392
Helmond	4902	392	13	12	450	398	20	109	23	7	6326	5742	413	126	15	43130	18937	24193
Helmond Automotive Campus	36	0	0	0	0	3	0	0	0	0	39	38	1	0	0	96	31	65
Leeuwarden	4722	366	1	17	430	713	17	103	10	66	6445	5798	483	133	29	56773	27589	29184
Dairy Campus Leeuwarden	25	0	0	0	0	6	0	0	1	0	32	32	0	0	0	67	54	13
Wetsus/Watercampus Leeuwarden	485	51	1	2	26	69	1	7	0	1	643	512	79	43	8	13376	6915	6461
Leiden	3648	368	4	27	262	320	5	31	8	20	4693	4015	520	132	20	50896	26919	23977
Leiden Bio Science Park	80	6	0	31	12	0	3	0	0	0	132	69	29	25	9	8056	3967	4089
Maastricht	6270	632	23	31	441	965	16	106	19	22	8525	7691	631	174	29	65510	30231	35279
Maastricht Health Campus	140	5	1	16	11	14	0	6	1	0	194	153	25	11	5	8968	5620	3348
Nijmegen	7914	624	4	36	492	1332	17	199	21	17	10656	9617	804	200	33	76322	35545	40777
Nijmegen Campus	252	9	0	11	20	22	6	0	0	0	320	262	29	18	11	18761	11837	6924
Novio Tech Nijmegen	88	1	1	0	5	6	0	0	1	0	102	71	22	5	4	3173	1448	1725
Oss	4385	395	9	18	312	274	12	117	22	16	5560	5035	412	100	13	36848	15742	21106
Pivot Park Oss	159	11	1	1	9	9	0	2	0	0	192	163	20	7	2	6177	2185	3992
Utrecht	17739	1244	15	51	1528	4371	40	339	30	30	25387	22927	1754	494	115	211172	92361	118811
Science Park Utrecht	107	16	0	12	18	14	5	0	0	0	172	111	23	18	15	17950	10379	7571
Wageningen	1543	185	2	7	189	195	17	14	6	7	2165	1924	172	62	7	16975	8103	8872
Wageningen Campus	16	9	0	0	2	0	0	0	0	0	27	19	3	3	2	1127	491	636
Noordwijk/Katwijk	2035	265	3	5	90	100	1	45	298	11	2853	2622	378	78	10	29187	14541	14646
Space Business Park Noordwijk	125	10	1	0	18	4	2	1	18	1	180	116	51	12	1	4609	1222	3387
Zwolle	4943	371	7	17	392	720	8	135	14	19	6626	5591	638	196	48	82482	40211	42271
Polymer Science Park Zwolle	161	6	1	2	15	26	1	3	0	0	215	157	33	15	3	4428	2299	2129

Table 21, 500 meter, 2009

2009	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticul	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	26000	3868	16	58	1318	3573	41	299	75	55	35303	32502	2121	548	113	255408	115026	140382
The Hague Security Delta Campus	259	26	0	1	24	60	6	7	1	0	384	314	38	20	12	14327	5694	8633
Amsterdam	57511	4723	32	155	4703	16315	141	1289	117	181	85167	79088	4767	1088	224	515321	225080	290241
Amsterdam Science Park	109	5	1	6	34	15	1	0	0	1	172	147	18	7	0	1558	515	1043
Amsterdam Medical Business Park	129	2	0	19	17	11	8	0	0	0	186	141	24	15	6	12901	7493	5408
Arnhem	7712	563	16	24	603	1467	29	146	14	21	10595	9455	823	256	59	98225	48356	49869
Energy Business Park Arnhem	116	9	0	3	23	36	3	0	0	1	191	167	15	6	3	3263	1055	2208
Bergen op Zoom	3086	306	7	16	265	231	6	66	21	15	4019	3658	282	61	11	27591	13509	14082
Green Chemistry Campus Bergen op Zoom	49	3	2	0	8	2	0	15	0	1	80	41	21	15	3	4073	758	3315
Delft	3465	456	1	14	534	554	20	43	2	5	5094	4516	452	101	23	43564	20488	23076
Technopolis Delft	132	5	2	0	62	7	13	1	0	1	223	144	47	22	10	7749	2506	5243
Biotech Campus Delft	154	20	1	1	18	21	1	3	0	0	219	205	8	4	1	2062	862	1200
Eindhoven	11186	865	18	44	1602	1702	47	289	19	19	15791	14155	1203	361	72	140225	60105	80120
High Tech Eindhoven	127	5	0	4	31	15	10	1	0	0	193	156	22	8	7	7920	2921	4999
TU/E	34	1	0	0	20	0	10	0	0	0	65	43	12	8	2	4983	929	4054
Enschede	6771	577	21	31	661	655	29	126	31	16	8918	7696	744	173	37	78457	36186	42271
Kennispark Twente	194	23	0	2	30	27	1	3	0	0	280	239	25	6	1	2043	938	1105
Geleen/Stein	5821	472	23	19	506	425	19	172	24	11	7492	6743	570	149	30	60868	25187	35681
Chemelot Geleen	88	10	2	1	9	1	0	5	1	1	118	94	16	6	2	1730	576	1154
Groningen	8607	704	8	43	825	1917	26	209	12	32	12383	10903	1100	330	47	104863	45323	59540
Zernike Campus Groningen	89	5	0	1	8	12	5	1	0	0	121	94	12	9	6	4582	1957	2625
Healthy Ageing Campus Groningen	605	135	1	14	52	133	5	12	0	3	960	810	106	36	8	23045	13603	9442
Helmond	4790	372	14	12	518	369	25	103	24	10	6237	5653	410	128	14	42808	18768	24040
Helmond Automotive Campus	33	0	0	0	0	3	0	0	0	0	36	35	1	0	0	97	34	63
Leeuwarden	4574	362	1	15	424	655	19	105	6	71	6232	5571	485	144	29	57289	27532	29757
Dairy Campus Leeuwarden	23	0	0	0	0	6	0	0	1	0	30	30	0	0	0	64	51	13
Wetsus/Watercampus Leeuwarden	481	52	1	2	23	60	2	6	0	1	628	497	83	38	9	13433	6888	6545
Leiden	3624	371	4	25	255	274	5	36	7	18	4619	3923	528	143	18	50674	26811	23863
Leiden Bio Science Park	83	7	0	35	16	0	3	0	0	0	144	83	28	25	8	7794	3381	4413
Maastricht	5936	628	23	24	429	795	17	102	23	19	7996	7159	629	177	31	66145	30341	35804
Maastricht Health Campus	141	7	1	13	14	10	0	7	1	0	194	152	26	11	5	8637	5329	3308
Nijmegen	7538	623	4	39	464	1215	16	208	24	20	10151	9092	809	215	33	77230	35534	41696
Nijmegen Campus	229	0	10	8	18	20	0	0	0	0	285	236	26	19	10	18548	11619	6929
Novio Tech Nijmegen	81	2	1	0	6	6	0	0	1	0	97	68	20	5	4	3041	1376	1665
Oss	4466	403	9	19	317	262	10	122	20	14	5642	5089	439	100	14	37964	16156	21808
Pivot Park Oss	156	12	1	1	10	9	0	2	0	0	191	166	15	8	2	6325	2222	4103
Utrecht	16414	1223	14	50	1443	3830	40	342	33	32	23421	20925	1778	507	115	210310	90930	119380
Science Park Utrecht	91	14	0	12	13	12	5	0	0	0	147	89	19	20	14	17931	10254	7677
Wageningen	1497	185	1	9	180	182	17	17	4	5	2097	1848	180	64	5	16612	7991	8621
Wageningen Campus	19	8	0	0	2	1	0	0	0	0	30	21	3	4	2	1111	470	641
Noordwijk/Katwijk	2015	282	3	6	93	95	1	43	305	10	2853	2625	370	73	11	29022	14484	14538
Space Business Park Noordwijk	128	11	0	19	3	2	2	13	1	0	179	117	49	12	1	4482	1195	3287
Zwolle	4791	371	8	16	385	637	7	130	16	20	6381	5342	651	208	46	81529	39475	42054
Polymer Science Park Zwolle	149	6	0	1	14	17	1	2	0	0	190	139	26	15	3	4603	2643	1960

Table 22, 500 meter, 208

2008	Rest	Agri & Food	Chemics	Life Scienc	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticul	Water	Compani	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	24600	3472	16	59	1307	3389	47	292	71	49	33302	30372	2189	552	115	255585	114260	141325
The Hague Security Delta Campus	228	24	0	1	20	47	3	6	1	0	330	260	40	18	12	13498	5375	8123
Amsterdam	52188	4678	35	155	3999	11347	129	1191	112	180	74014	68030	4671	1085	228	498925	218205	280720
Amsterdam Science Park	89	7	1	6	27	8	1	0	0	1	140	123	13	4	0	978	364	614
Amsterdam Medical Business Park	141	6	0	20	15	12	8	1	0	0	203	153	29	14	7	14175	8060	6115
Arnhem	7160	553	16	25	535	1358	25	124	13	20	9829	8648	865	258	56	97458	47060	50398
Energy Business Park Arnhem	116	9	0	3	23	34	3	2	0	1	191	166	15	7	3	3106	1057	2049
Bergen op Zoom	2901	262	7	16	255	203	5	66	10	12	3737	3377	283	58	14	28118	13836	14282
Green Chemistry Campus Bergen op Zoom	48	3	3	0	7	2	0	16	0	2	81	41	24	13	3	4178	721	3457
Delft	3390	446	0	12	526	530	18	43	1	4	4970	4367	458	110	21	43701	20364	23337
Technopolis Delft	132	6	1	0	61	6	15	1	1	1	224	148	45	21	10	7536	2434	5102
Biotech Campus Delft	139	16	2	1	20	18	1	2	0	1	200	185	8	3	2	2253	947	1306
Eindhoven	10252	856	18	40	1404	1267	43	282	14	19	14195	12515	1239	376	66	138321	58892	79429
High Tech Eindhoven	124	4	0	4	27	9	8	1	0	0	177	145	20	8	4	6332	2266	4066
TU/E	23	1	0	0	16	0	7	0	0	0	47	30	11	4	2	5747	1026	4721
Enschede	6244	537	20	25	610	544	26	128	20	15	8169	6970	740	168	42	77550	34996	42554
Kennispark Twente	188	21	0	2	25	27	1	5	0	0	269	231	25	6	1	1919	852	1067
Geleen/Stein	5431	438	22	20	472	380	15	162	9	15	6964	6217	572	145	30	59481	24382	35099
Chemelot Geleen	77	7	3	1	9	1	0	6	1	1	106	80	17	7	2	1759	529	1230
Groningen	8051	697	9	45	748	1638	20	195	10	32	11445	9965	1065	332	47	101866	44301	57565
Zernike Campus Groningen	80	5	0	1	6	12	5	1	0	0	110	85	11	8	6	4241	1773	2468
Healthy Ageing Campus Groningen	593	134	1	11	47	131	6	10	0	4	937	783	101	36	11	22744	13158	9586
Helmond	4462	340	15	10	502	344	23	101	13	12	5822	5218	405	127	16	42548	17983	24565
Helmond Automotive Campus	34	0	0	0	0	3	0	0	0	0	37	36	0	0	0	102	31	71
Leeuwarden	4176	362	2	15	372	576	17	118	7	69	5714	5043	489	148	30	57890	27487	30403
Dairy Campus Leeuwarden	13	0	0	0	0	5	0	0	0	0	18	18	0	0	0	34	28	6
Wetsus/Watercampus Leeuwarden	482	57	1	2	24	61	3	7	1	1	639	500	90	39	10	13348	6813	6535
Leiden	3374	352	4	21	227	221	4	35	6	19	4263	3583	506	148	18	49754	26403	23351
Leiden Bio Science Park	74	6	0	25	17	1	3	0	0	0	126	68	26	24	8	9337	5088	4249
Maastricht	5510	612	21	23	395	706	13	98	11	18	7407	6550	646	178	33	67433	30624	36809
Maastricht Health Campus	130	6	1	13	16	8	0	7	0	0	181	141	25	10	5	8308	5109	3199
Nijmegen	7029	578	5	34	428	1123	17	206	16	21	9457	8379	829	218	31	78787	35457	43330
Nijmegen Campus	219	10	0	7	21	20	6	2	0	0	285	231	26	20	8	17680	11151	6529
Novio Tech Nijmegen	75	2	1	0	7	6	0	1	0	0	92	62	21	6	3	3080	1364	1716
Oss	3738	306	11	18	279	245	9	117	8	14	4745	4204	427	100	14	36159	15443	20716
Pivot Park Oss	145	13	0	1	11	7	0	3	0	0	180	151	18	7	4	7046	2429	4617
Utrecht	15216	1153	13	50	1336	3355	38	303	24	30	21518	19036	1752	511	109	204236	87818	116418
Science Park Utrecht	79	12	0	13	13	7	5	0	0	0	129	69	19	19	16	17741	10025	7716
Wageningen	1413	174	2	10	157	166	15	18	4	5	1964	1719	177	63	5	16344	7739	8605
Wageningen Campus	20	8	0	0	2	1	0	0	0	0	31	22	4	3	2	1097	449	648
Noordwijk/Katwijk	1925	234	3	6	89	85	1	42	254	10	2649	2390	361	74	12	28862	14357	14505
Space Business Park Noordwijk	111	6	0	0	18	3	1	2	8	1	150	90	49	10	1	4281	1196	3085
Zwolle	4399	354	8	17	341	500	6	124	3	19	5771	4727	661	218	46	82297	40281	42016
Polymer Science Park Zwolle	121	5	0	1	16	15	1	2	0	0	161	114	26	12	2	2878	1113	1765

Table 23, 1000 meter, 2014

2014	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	27472	3666	14	51	1377	4479	40	256	110	39	37504	35132	1808	469	95	222897	101944	120953
The Hague Security Delta Campus	1137	89	1	5	82	264	5	10	6	2	1601	1429	99	50	23	30075	13238	16837
Amsterdam	77184	5392	49	207	5026	28953	185	1434	151	188	118769	112648	4897	1017	207	540963	238525	302438
Amsterdam Science Park	446	16	2	5	48	153	9	5	0	3	687	644	31	9	3	4407	1391	3016
Amsterdam Medical Business Park	615	34	1	17	32	70	3	18	0	1	791	693	58	33	7	19900	11663	8237
Arnhem	9209	630	12	23	725	2070	29	173	14	17	12902	11875	767	207	50	94674	47274	47400
Energy Business Park Arnhem	306	19	0	5	39	99	7	3	0	0	478	430	28	13	7	7405	3532	3873
Bergen op Zoom	3528	284	6	12	288	317	7	60	20	16	4538	4181	244	60	11	25810	13504	12306
Green Chemistry Campus Bergen op Zoom	79	4	4	0	10	2	2	19	0	0	120	68	31	17	4	4727	974	3753
Delft	2896	366	0	9	426	542	12	25	8	6	4290	3898	309	68	15	30789	15904	14885
Technopolis Delft	465	21	1	1	137	69	22	11	0	2	729	563	104	44	18	15185	4672	10513
Biotech Campus Delft	540	35	0	2	77	125	1	0	0	0	780	740	31	8	1	3797	1755	2042
Eindhoven	12338	816	13	41	1627	2557	56	297	18	14	17777	16339	1045	325	58	120776	52505	68271
High Tech Eindhoven	213	11	0	0	38	38	8	8	0	1	317	898	99	26	20	6788	1814	4974
TU/E	698	66	1	7	91	151	10	16	2	1	1043	284	23	9	1	19850	8967	10883
Enschede	6848	555	13	25	732	837	35	116	30	13	9204	8115	718	146	39	74674	36445	38229
Kennispark Twente	529	45	4	6	80	90	10	12	0	0	776	674	69	17	1	5406	2361	3045
Geleen/Stein	6413	483	36	28	507	577	23	149	18	13	8247	7592	503	128	24	52683	23521	29162
Chemelot Geleen	435	34	20	6	46	26	9	25	2	1	604	523	55	24	2	6625	1754	4871
Groningen	7983	501	8	36	843	1927	21	165	10	20	11514	10494	760	217	34	79272	34483	44789
Zernike Campus Groningen	396	30	0	8	60	72	8	6	1	1	582	503	54	16	9	8934	4265	4669
Healthy Ageing Campus Groningen	2278	365	0	18	230	658	8	33	0	6	3596	3209	292	72	17	42192	24016	18176
Helmond	5024	385	10	12	432	463	18	106	14	5	6469	5956	371	116	15	41374	18269	23105
Helmond Automotive Campus	153	3	0	0	17	17	2	1	0	0	193	178	10	2	1	1044	459	585
Leeuwarden	4275	246	1	16	377	695	17	114	5	68	5814	5393	301	98	17	35806	15300	20506
Dairy Campus Leeuwarden	67	3	0	0	9	13	0	2	1	0	95	88	5	2	0	383	210	173
Wetsus/Watercampus Leeuwarden	1770	197	2	6	132	383	11	14	2	10	2527	2257	183	62	23	32120	18877	13243
Leiden	3420	391	3	16	249	378	9	22	7	21	4516	3925	455	117	19	40114	21294	18820
Leiden Bio Science Park	265	13	0	40	24	17	4	2	0	0	365	247	70	33	15	21423	11550	9873
Maastricht	6405	612	19	25	422	1085	16	107	12	18	8721	8031	519	151	20	52817	25290	27527
Maastricht Health Campus	706	30	2	21	66	109	2	17	3	2	958	854	64	26	14	18847	10026	8821
Nijmegen	8318	609	2	45	552	1519	19	191	30	17	11302	10446	669	160	26	59330	27503	31827
Nijmegen Campus	962	32	1	13	63	170	9	6	1	0	1257	1135	75	32	15	23409	14496	8913
Novio Tech Nijmegen	425	20	0	6	36	49	9	7	2	0	545	467	53	19	6	14517	7045	7472
Oss	4202	373	8	15	303	303	4	115	18	16	5357	4902	352	94	8	31737	13342	18395
Pivot Park Oss	478	30	4	9	54	45	4	8	0	1	633	550	65	15	3	7729	2880	4849
Utrecht	22227	1389	12	56	1899	6342	52	472	27	32	32508	30187	1720	468	105	208620	92536	116084
Science Park Utrecht	161	28	0	14	27	47	7	0	0	0	284	208	35	19	21	25976	14795	11181
Wageningen	1711	162	2	10	203	248	18	16	7	8	2385	2165	165	51	4	14760	7211	7549
Wageningen Campus	124	26	0	0	24	23	5	0	0	0	202	178	10	8	6	4001	1975	2026
Noordwijk/Katwijk	2285	269	2	5	102	139	2	56	288	13	3161	2777	316	62	6	22313	11329	10984
Space Business Park Noordwijk	341	23	2	0	48	24	4	12	36	3	493	364	110	17	2	9630	4515	5115
Zwolle	5202	385	6	13	456	884	9	133	12	17	7117	6241	584	150	56	75856	36248	39608
Polymer Science Park Zwolle	651	42	1	2	51	145	1	3	1	0	897	762	98	27	4	13596	8977	4619

Table 24, 1000 meter, 2013

2013	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	26696	3680	15	48	1296	4196	39	238	90	40	36338	33924	1845	473	96	223610	103152	120458
The Hague Security Delta Campus	1071	86	1	3	75	254	5	8	5	1	1509	1338	98	51	22	30497	13463	17034
Amsterdam	72677	5107	43	181	4737	26792	176	1422	127	179	111441	105369	4833	1024	215	532369	235443	296926
Amsterdam Science Park	409	13	1	5	45	127	6	5	0	2	613	570	32	9	2	4010	1336	2674
Amsterdam Medical Business Park	584	30	1	16	32	61	4	19	0	1	748	556	61	25	6	18353	11119	7234
Arnhem	8921	599	12	27	704	1963	27	192	13	19	12477	11429	773	218	55	96211	48412	47799
Energy Business Park Arnhem	305	15	0	5	40	88	7	3	0	0	463	442	25	10	6	6379	2703	3676
Bergen op Zoom	3526	281	6	13	284	287	7	58	21	15	4498	4156	260	55	11	26225	13688	12537
Green Chemistry Campus Bergen op Zoom	74	4	4	0	11	2	1	21	0	0	117	62	32	18	4	4942	980	3962
Delft	2856	376	0	9	417	528	14	27	8	6	4241	3833	318	73	17	32112	16669	15443
Technopolis Delft	463	23	1	2	128	59	20	10	1	2	709	541	110	41	17	15096	4579	10517
Biotech Campus Delft	528	33	0	2	67	113	11	0	1	0	745	709	27	8	1	3827	1788	2039
Eindhoven	12145	800	13	40	1639	2420	51	290	18	13	17429	15982	1054	329	61	123352	52913	70439
High Tech Eindhoven	212	13	0	0	41	34	10	6	0	1	317	916	99	27	20	6138	1449	4689
TU/E	710	63	1	6	128	150	9	15	0	1	1063	284	22	9	2	20166	9071	11095
Enschede	6838	559	13	27	701	777	30	123	30	14	9112	7966	696	148	38	74377	35823	38554
Kennispark Twente	534	38	4	6	71	87	8	9	0	0	757	650	69	18	2	5417	2323	3094
Geleen/Stein	6269	483	37	27	505	528	22	150	17	12	8050	7381	505	142	22	53049	23912	29137
Chemelot Geleen	418	34	18	6	39	26	9	24	2	1	577	494	59	22	2	6492	1784	4708
Groningen	7984	494	9	37	842	1906	18	179	12	23	11504	10475	771	221	36	80272	35316	44956
Zernike Campus Groningen	398	29	0	7	61	62	9	6	0	1	573	499	48	17	9	8514	4032	4482
Healthy Ageing Campus Groningen	2291	352	0	19	205	628	7	37	0	5	3544	3136	309	77	19	42585	24133	18452
Helmond	4881	374	10	12	435	448	15	110	14	6	6305	5774	370	122	16	42297	18499	23798
Helmond Automotive Campus	144	2	0	0	17	18	2	2	0	0	185	170	10	3	0	954	414	540
Leeuwarden	4052	236	1	18	374	661	18	108	4	68	5540	5100	325	94	18	36915	15881	21034
Dairy Campus Leeuwarden	64	4	0	0	6	9	0	1	1	0	85	79	5	1	0	375	206	169
Wetsus/Watercampus Leeuwarden	1690	192	2	7	121	329	0	13	2	10	2378	2101	183	72	21	31844	18853	12991
Leiden	3633	380	3	15	266	408	11	28	10	21	4775	4156	483	112	19	40369	21183	19186
Leiden Bio Science Park	292	13	0	41	27	17	5	2	0	1	398	271	71	41	15	21207	11361	9846
Maastricht	6215	597	19	23	408	1049	15	99	12	20	8457	7736	550	151	20	53051	25326	27725
Maastricht Health Campus	663	25	2	22	60	96	2	19	3	2	894	787	67	26	14	18709	9902	8807
Nijmegen	8065	580	3	39	534	1456	17	179	27	17	10917	10032	695	167	22	61010	28864	32146
Nijmegen Campus	922	27	1	15	59	170	8	8	1	0	1211	1085	76	37	13	23158	14326	8832
Novio Tech Nijmegen	429	21	0	3	37	43	0	5	2	0	540	455	54	24	7	13506	6626	6880
Oss	4162	380	8	15	288	279	6	116	16	15	5285	4838	348	91	8	31493	13072	18421
Pivot Park Oss	476	31	3	9	54	43	3	7	0	1	627	546	62	16	3	7803	2870	4933
Utrecht	21046	1338	12	57	1810	5834	53	449	28	35	30662	28296	1752	463	115	207932	91994	115938
Science Park Utrecht	164	25	0	15	21	39	8	0	0	0	272	200	34	15	20	25254	14354	10900
Wageningen	1657	161	2	8	201	238	19	16	8	8	2318	2103	153	56	5	15413	7377	8036
Wageningen Campus	112	24	0	0	27	20	5	0	0	0	188	200	34	15	20	3774	1705	2069
Noordwijk/Katwijk	2295	275	2	5	102	147	1	57	287	11	3182	2805	303	66	6	22666	11465	11201
Space Business Park Noordwijk	333	22	2	0	46	22	4	13	40	3	485	358	106	17	2	9784	4566	5218
Zwolle	5056	354	6	13	441	830	8	131	12	17	6868	5947	578	172	54	76132	36342	39790
Polymer Science Park Zwolle	619	38	1	2	47	122	1	6	1	0	837	703	94	31	4	13601	8782	4819

Table 25, 1000 meter, 2012

2012	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	25994	3708	17	51	1273	4003	38	225	88	38	35435	32883	1963	481	107	229243	105039	124204
The Hague Security Delta Campus	1031	82	0	3	73	241	7	11	5	1	1454	1277	101	54	22	29222	13035	16187
Amsterdam	69126	4960	33	171	4634	25052	175	1353	108	183	105795	99836	4689	1061	209	520131	229540	290591
Amsterdam Science Park	401	13	1	5	49	110	4	6	0	2	591	550	29	10	2	4119	1288	2831
Amsterdam Medical Business Park	601	26	0	19	36	67	5	21	1	1	777	577	68	27	5	18689	11141	7548
Arnhem	8699	606	14	23	663	1860	26	193	16	19	12119	11038	800	228	53	96985	48483	48502
Energy Business Park Arnhem	291	14	0	5	34	91	7	3	0	1	446	363	28	12	6	6415	2643	3772
Bergen op Zoom	3420	283	6	15	276	278	6	64	21	14	4383	4044	259	60	11	26577	13911	12666
Green Chemistry Campus Bergen op Zoom	72	4	3	0	11	2	0	18	0	0	110	57	31	17	5	4889	1014	3875
Delft	2803	380	0	9	399	497	12	27	6	7	4140	3724	324	74	17	32512	16843	15669
Technopolis Delft	468	21	2	2	126	66	20	9	0	1	715	544	112	41	18	15366	4667	10699
Biotech Campus Delft	497	35	0	1	68	106	1	0	1	0	709	665	34	9	1	3785	1787	1998
Eindhoven	11868	805	15	41	1617	2293	45	267	17	13	16981	15495	1084	347	56	123327	53094	70233
High Tech Eindhoven	202	11	0	0	36	33	11	5	0	1	299	898	99	26	20	6499	1576	4923
TU/E	726	61	1	6	114	143	9	14	0	1	1075	284	23	9	1	21361	9130	12231
Enschede	6716	547	14	27	660	752	33	131	30	18	8928	7794	687	151	40	75790	36116	39674
Kennispark Twente	501	35	5	6	73	78	7	9	0	0	713	610	72	17	1	5172	2133	3039
Geleen/Stein	6260	471	20	26	508	509	22	153	18	11	7998	7342	494	137	25	55395	24362	31033
Chemelot Geleen	411	31	11	5	41	27	2	25	3	1	557	523	55	24	2	5971	1667	4304
Groningen	7892	490	8	39	809	1863	21	187	12	24	11345	10242	819	244	31	83049	36026	47023
Zernike Campus Groningen	404	26	0	6	75	70	11	7	0	1	600	529	41	20	10	8418	3848	4570
Healthy Ageing Campus Groningen	2349	359	0	18	206	627	7	43	0	6	3615	3169	345	82	16	42646	24412	18234
Helmond	4923	375	9	13	415	432	15	110	15	7	6314	5762	388	122	16	42131	18664	23467
Helmond Automotive Campus	141	3	0	0	17	18	2	2	0	0	183	178	10	2	1	1018	443	575
Leeuwarden	3925	223	1	16	342	595	17	102	6	71	5298	4838	346	95	18	37099	15667	21432
Dairy Campus Leeuwarden	61	4	0	0	5	11	0	1	1	0	83	76	6	1	0	373	182	191
Wetsus/Watercampus Leeuwarden	1606	195	2	7	120	317	5	12	2	8	2274	1983	191	76	22	32724	19329	13395
Leiden	3778	359	4	17	276	416	10	30	7	27	4924	4314	473	113	18	40169	21102	19067
Leiden Bio Science Park	279	13	0	41	27	17	6	2	0	0	385	247	70	33	15	20081	10604	9477
Maastricht	6234	617	18	24	414	1023	15	103	14	21	8483	7737	574	149	23	54093	25596	28497
Maastricht Health Campus	673	30	2	20	59	94	2	18	3	2	903	854	64	26	14	18443	9517	8926
Nijmegen	7735	579	4	34	488	1328	18	186	24	17	10413	9501	709	180	21	61928	28734	33194
Nijmegen Campus	899	27	1	12	65	174	9	5	0	0	1192	1068	81	33	10	23648	14570	9078
Novio Tech Nijmegen	416	22	0	3	33	42	0	4	2	0	522	439	55	21	7	13354	6522	6832
Oss	4140	384	9	15	274	277	8	127	17	15	5266	4800	363	94	9	33308	14135	19173
Pivot Park Oss	485	27	2	5	48	45	2	9	0	1	624	550	65	15	3	7810	2836	4974
Utrecht	20028	1311	11	52	1719	5410	44	401	28	34	29038	26622	1770	468	113	211451	92968	118483
Science Park Utrecht	157	25	0	17	26	31	9	1	0	0	266	208	35	19	21	24275	13922	10353
Wageningen	1586	158	2	6	186	226	19	16	8	7	2214	1988	162	58	6	15470	7537	7933
Wageningen Campus	108	26	0	0	18	18	5	0	0	0	175	178	10	8	6	3412	1590	1822
Noordwijk/Katwijk	2277	278	2	5	99	139	2	53	295	10	3160	2770	311	70	6	23076	11554	11522
Space Business Park Noordwijk	326	23	2	0	39	21	2	12	39	3	467	337	108	18	2	9921	4487	5434
Zwolle	4923	356	6	15	412	785	8	124	10	15	6654	5676	585	178	51	81770	40253	41517
Polymer Science Park Zwolle	602	44	2	2	45	115	2	8	1	0	821	677	98	32	3	8179	4225	3954

Table 26, 1000 meter, 2011

2011	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	25662	3811	18	54	1259	3771	46	237	83	42	34983	32389	1999	483	111	234908	107509	127399
The Hague Security Delta Campus	1044	93	0	3	70	238	8	17	5	1	1479	1297	108	52	22	28445	12408	16037
Amsterdam	67115	4946	31	166	4630	23782	170	1349	128	180	102497	96419	4789	1073	216	523791	231807	291984
Amsterdam Science Park	379	12	0	5	52	113	4	4	0	3	572	529	31	10	2	3819	1246	2573
Amsterdam Medical Business Park	555	28	0	18	39	65	5	21	2	1	734	627	73	29	5	18715	11185	7530
Arnhem	8263	583	14	26	639	1728	25	190	13	20	11501	10406	801	240	53	97129	48390	48739
Energy Business Park Arnhem	271	14	0	5	33	77	7	1	0	1	409	363	28	12	6	6480	2639	3841
Bergen op Zoom	3324	303	6	15	267	260	6	67	23	13	4284	3926	277	58	12	27103	14129	12974
Green Chemistry Campus Bergen op Zoom	77	4	3	0	12	3	1	17	0	1	118	64	30	19	4	4743	799	3944
Delft	2791	387	0	11	396	505	15	28	3	7	4143	3724	328	72	19	32916	17164	15752
Technopolis Delft	471	21	2	2	138	51	21	9	0	1	726	556	110	42	18	15579	4733	10846
Biotech Campus Delft	500	36	0	2	72	123	1	0	1	0	725	681	34	9	1	3699	1746	1953
Eindhoven	11408	795	17	42	1595	2092	42	264	19	17	16291	14807	1095	336	54	122373	52134	70239
High Tech Eindhoven	193	9	0	0	32	30	11	1	0	1	277	867	102	27	20	7221	1787	5434
TU/E	679	61	1	5	109	135	10	16	0	0	1016	246	20	9	2	21661	9088	12573
Enschede	6818	555	16	28	664	718	26	125	34	17	9001	7877	676	158	38	76097	35792	40305
Kennispark Twente	504	39	4	4	73	82	10	9	1	0	726	620	73	15	1	5087	2081	3006
Geleen/Stein	6052	465	22	23	499	483	19	154	23	14	7754	7085	504	138	27	55627	24634	30993
Chemelot Geleen	384	34	9	5	42	22	2	20	3	1	522	440	63	17	2	5844	1520	4324
Groningen	7538	492	8	40	767	1728	17	182	15	26	10813	9708	801	262	35	84436	36228	48208
Zernike Campus Groningen	366	23	0	6	63	67	12	8	0	1	546	477	41	17	9	7877	3644	4233
Healthy Ageing Campus Groningen	2329	342	1	16	195	596	6	41	0	7	3533	3091	336	88	15	41796	23593	18203
Helmond	4896	385	10	13	424	411	17	114	18	8	6296	5729	397	119	16	41991	18519	23472
Helmond Automotive Campus	149	2	0	0	17	16	2	3	0	0	189	172	11	5	0	1056	392	664
Leeuwarden	3827	223	0	15	352	544	17	97	5	67	5147	4684	347	99	16	37161	15547	21614
Dairy Campus Leeuwarden	56	4	0	0	5	11	0	1	2	0	79	75	3	1	0	307	154	153
Wetsus/Watercampus Leeuwarden	1597	195	2	7	118	296	3	15	2	6	2241	1949	194	77	20	32576	19116	13460
Leiden	3870	375	4	20	286	414	7	31	7	25	5039	4420	476	120	16	39357	20440	18917
Leiden Bio Science Park	280	13	0	42	23	17	5	2	0	0	382	259	69	40	14	19928	10511	9417
Maastricht	6098	619	20	27	411	971	15	101	11	19	8292	7529	589	155	19	54904	25979	28925
Maastricht Health Campus	670	26	2	19	54	85	2	18	3	3	882	772	64	31	15	19497	9928	9569
Nijmegen	7508	586	3	34	461	1272	17	192	26	18	10117	9191	723	178	25	62206	28673	33533
Nijmegen Campus	859	28	2	12	60	149	10	4	0	0	1124	1003	77	32	12	23613	14581	9032
Novio Tech Nijmegen	405	16	1	2	30	43	0	5	2	0	504	421	55	21	7	14149	6544	7605
Oss	4104	389	9	12	272	259	10	119	21	14	5209	4741	370	87	11	33729	14259	19470
Pivot Park Oss	487	28	2	5	47	39	2	7	0	1	618	536	61	18	3	8428	3167	5261
Utrecht	19332	1271	13	47	1619	4974	39	370	28	33	27726	25268	1768	486	114	208898	90970	117928
Science Park Utrecht	144	23	0	16	22	30	8	0	0	0	243	164	31	26	17	24151	13677	10474
Wageningen	1556	162	2	6	184	202	18	16	8	7	2161	1938	158	56	8	15647	7600	8047
Wageningen Campus	107	25	0	0	17	18	4	0	0	0	171	148	10	10	3	2940	1269	1671
Noordwijk/Katwijk	2348	286	2	5	103	145	2	55	314	9	3269	2870	315	71	9	25361	12946	12415
Space Business Park Noordwijk	328	23	2	0	42	22	2	10	42	4	475	342	112	17	2	11623	5609	6014
Zwolle	4845	339	8	16	375	741	7	126	10	16	6483	5479	605	174	51	80339	39118	41221
Polymer Science Park Zwolle	559	43	1	3	44	98	2	9	0	1	760	631	84	28	5	8430	4231	4199

Table 27, 1000 meter, 2010

2010	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	25933	3964	16	55	1294	3671	42	280	83	48	35386	32729	2050	495	110	237580	107233	130347
The Hague Security Delta Campus	1039	98	0	3	63	214	9	14	4	1	1445	1275	93	54	23	29081	12603	16478
Amsterdam	62403	4805	33	165	4820	21932	162	1316	120	176	95932	89986	4661	1070	215	516167	225699	290468
Amsterdam Science Park	341	11	0	5	54	105	1	3	0	3	523	485	30	6	2	2946	975	1971
Amsterdam Medical Business Park	496	20	1	20	44	68	5	17	2	1	674	565	73	30	6	18554	11234	7320
Arnhem	7890	562	15	26	629	1566	29	161	13	20	10911	9806	806	248	50	95972	47262	48710
Energy Business Park Arnhem	249	14	0	5	33	74	8	2	0	1	386	341	27	12	6	6374	2551	3823
Bergen op Zoom	3170	302	4	17	260	253	8	64	23	13	4114	3768	263	58	10	26408	13481	12927
Green Chemistry Campus Bergen op Zoom	75	5	3	0	10	3	3	16	0	1	113	60	30	19	4	4657	784	3873
Delft	2855	413	1	12	410	467	17	33	2	6	4216	3783	340	72	20	33457	17229	16228
Technopolis Delft	469	26	2	0	130	45	18	11	0	1	702	527	118	41	16	15334	4629	10705
Biotech Campus Delft	476	39	0	1	77	113	0	2	1	0	709	659	40	9	1	3762	1731	2031
Eindhoven	11203	779	17	46	1582	1892	45	262	23	19	15868	14397	1089	324	58	121563	52549	69014
High Tech Eindhoven	195	10	1	0	30	30	11	1	0	1	279	842	100	26	20	6047	1422	4625
TU/E	652	65	1	5	104	132	14	15	0	0	988	248	22	7	2	21281	9177	12104
Enschede	6678	552	16	28	643	667	27	115	36	16	8778	7649	669	158	38	74337	34904	39433
Kennispark Twente	480	43	4	4	61	74	9	10	1	1	687	586	68	15	1	5014	2138	2876
Geleen/Stein	5792	457	21	19	486	438	21	162	23	15	7434	6753	514	140	27	56227	24579	31648
Chemelot Geleen	367	36	6	3	41	20	2	20	3	1	499	418	61	18	2	5839	1538	4301
Groningen	7183	492	9	34	717	1605	16	189	14	28	10287	9182	811	256	33	81901	35421	46480
Zernike Campus Groningen	324	19	0	4	48	63	11	10	1	1	481	416	37	20	8	7536	3468	4068
Healthy Ageing Campus Groningen	2235	350	1	21	187	551	4	37	0	6	3392	2962	329	82	18	41358	23033	18325
Helmond	4785	391	13	12	434	386	18	106	23	7	6175	5607	403	121	15	42248	18643	23605
Helmond Automotive Campus	153	1	0	0	16	15	2	3	0	0	190	173	11	5	0	978	325	653
Leeuwarden	3622	215	0	13	357	499	17	97	8	63	4891	4408	368	96	18	37323	15442	21881
Dairy Campus Leeuwarden	53	3	0	0	2	10	0	1	1	0	70	67	2	1	0	308	141	167
Wetsus/Watercampus Leeuwarden	1411	199	2	6	97	279	1	12	2	4	2159	1867	192	79	19	32585	18934	13651
Leiden	3471	362	4	20	252	309	4	30	8	20	4480	3855	484	120	15	39109	20141	18968
Leiden Bio Science Park	257	12	0	38	22	11	4	1	0	0	345	229	65	37	14	19843	10745	9098
Maastricht	5777	606	23	30	401	889	14	97	17	19	7873	7110	592	152	19	54826	25891	28935
Maastricht Health Campus	633	31	1	17	51	90	2	15	3	3	846	734	64	33	15	19652	9960	9692
Nijmegen	7074	591	3	32	434	1187	15	191	19	17	9563	8636	725	173	28	61606	28391	33215
Nijmegen Campus	783	27	1	13	55	137	8	3	1	0	1028	911	74	29	13	23180	14242	8938
Novio Tech Nijmegen	397	16	1	2	28	36	0	5	2	0	487	403	56	21	7	13470	6197	7273
Oss	4067	377	8	14	274	246	10	114	22	15	5147	4672	373	89	13	33977	14541	19436
Pivot Park Oss	477	29	2	5	47	37	2	5	0	1	605	526	59	18	2	9048	3386	5662
Utrecht	17708	1238	15	48	1528	4367	39	339	30	30	25342	22900	1749	486	110	204406	88824	115582
Science Park Utrecht	138	22	0	15	18	18	6	0	0	0	217	138	28	26	20	24716	13916	10800
Wageningen	1461	171	2	7	172	183	16	14	6	7	2039	1810	166	57	6	15492	7464	8028
Wageningen Campus	98	23	0	0	19	12	1	0	0	0	153	133	9	8	3	2610	1130	1480
Noordwijk/Katwijk	2035	265	3	5	90	100	1	45	298	11	2853	2443	324	72	9	25265	12731	12534
Space Business Park Noordwijk	290	20	2	0	37	18	2	11	38	4	422	295	105	18	2	11542	5537	6005
Zwolle	4596	336	7	15	365	654	7	131	14	18	6143	5177	592	181	46	78424	38275	40149
Polymer Science Park Zwolle	508	41	1	4	42	92	2	7	0	1	698	571	79	30	5	8486	4235	4251

Table 28, Data 1000m, 2009

2009	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	25267	3795	16	56	1290	3436	39	292	73	53	34317	31618	2062	515	103	240058	108155	131903
The Hague Security Delta Campus	992	99	0	3	52	197	8	14	3	2	1370	1085	106	52	21	29677	12565	17112
Amsterdam	56998	4694	31	152	4655	16201	140	1273	115	177	84436	78434	4708	1072	222	507640	220739	286901
Amsterdam Science Park	290	10	1	6	54	84	1	2	0	4	452	415	29	8	0	2314	819	1495
Amsterdam Medical Business Park	461	26	1	22	45	56	9	14	2	1	637	527	72	30	8	19826	11530	8296
Arnhem	7597	559	16	22	595	1430	25	145	14	21	10424	9304	813	249	56	95195	46974	48221
Energy Business Park Arnhem	231	13	0	5	31	73	7	1	0	1	362	318	25	13	6	6293	2437	3856
Bergen op Zoom	3061	304	5	16	264	230	6	64	21	15	3986	3639	272	58	10	26726	13367	13359
Green Chemistry Campus Bergen op Zoom	74	5	4	0	9	3	0	17	0	1	113	60	31	18	4	4938	900	4038
Delft	2810	416	1	13	410	440	14	33	1	5	4143	3697	348	79	17	34289	17464	16825
Technopolis Delft	469	27	2	1	128	40	19	10	0	1	697	522	120	39	16	15074	4565	10509
Biotech Campus Delft	472	38	1	1	76	102	1	4	1	0	696	646	39	9	1	4012	1827	2185
Eindhoven	10549	792	17	44	1521	1592	43	272	19	18	14867	13352	1117	337	61	126713	53968	72745
High Tech Eindhoven	191	10	1	0	27	18	10	2	0	1	260	773	101	30	18	5595	1159	4436
TU/E	607	69	0	4	105	107	14	16	0	0	922	229	19	10	2	20820	8828	11992
Enschede	6500	558	17	27	627	620	24	120	30	15	8538	7384	698	163	35	74791	34598	40193
Kennispark Twente	465	42	4	6	64	62	6	9	1	1	660	551	71	16	3	5709	2526	3183
Geleen/Stein	5563	448	19	18	477	406	18	155	22	11	7137	6439	531	138	29	56781	24173	32608
Chemelot Geleen	346	34	6	2	38	20	1	22	3	1	473	398	55	17	3	5817	1590	4227
Groningen	6805	470	8	33	681	1498	17	174	12	27	9725	8587	825	276	35	82950	34427	48523
Zernike Campus Groningen	322	20	0	6	48	57	13	9	0	1	476	405	44	19	8	7627	3296	4331
Healthy Ageing Campus Groningen	2174	354	1	19	23	147	6	39	0	7	3263	2815	349	80	18	41913	23160	18753
Helmond	4680	371	14	12	500	357	23	100	24	10	6091	5520	401	124	14	42066	18477	23589
Helmond Automotive Campus	143	1	0	0	18	15	2	3	0	0	182	168	10	4	0	839	325	514
Leeuwarden	3494	212	0	11	355	448	19	97	5	67	4708	4223	366	100	18	36946	15132	21814
Dairy Campus Leeuwarden	50	3	0	0	2	10	0	1	1	0	67	63	3	1	0	283	125	158
Wetsus/Watercampus Leeuwarden	1534	199	2	6	90	263	2	13	1	5	2115	1812	199	81	20	33557	19176	14381
Leiden	3459	362	4	19	246	263	4	35	7	18	4417	3775	493	128	14	39254	20165	19089
Leiden Bio Science Park	248	16	0	41	25	11	4	1	0	0	346	231	63	40	12	19214	10027	9187
Maastricht	5468	604	23	23	388	728	15	93	21	16	7379	6618	584	156	21	55231	25961	29270
Maastricht Health Campus	609	31	1	14	55	77	2	16	3	3	811	693	71	32	15	19551	9709	9842
Nijmegen	6735	585	3	35	407	1092	14	198	22	19	9110	8167	725	187	29	62543	28618	33925
Nijmegen Campus	722	29	1	11	50	120	8	5	1	1	948	831	76	30	11	22706	13835	8871
Novio Tech Nijmegen	391	21	1	1	31	29	0	5	2	0	481	398	54	22	7	13570	6076	7494
Oss	4148	383	8	16	282	233	8	118	20	14	5230	4730	396	90	14	35061	14998	20063
Pivot Park Oss	474	32	2	4	45	38	2	6	0	0	603	525	58	18	2	9228	3380	5848
Utrecht	16386	1217	14	48	1443	3828	39	342	33	32	23382	20902	1773	501	110	202970	87373	115597
Science Park Utrecht	119	20	0	14	13	14	6	0	0	0	186	112	24	26	19	25271	13811	11460
Wageningen	1417	170	1	9	167	170	15	17	4	5	1975	1739	174	58	4	15080	7340	7740
Wageningen Campus	99	23	0	0	15	13	2	0	0	0	152	130	9	10	3	2643	1121	1522
Noordwijk/Katwijk	2015	282	3	6	93	95	1	43	305	10	2853	2449	322	67	10	25116	12633	12483
Space Business Park Noordwijk	281	23	1	0	39	16	2	12	35	3	412	293	97	18	2	11546	5478	6068
Zwolle	4443	335	8	14	355	577	6	127	16	19	5900	4927	609	190	45	77374	37465	39909
Polymer Science Park Zwolle	497	42	0	3	44	77	2	5	0	1	671	554	68	33	4	8758	4653	4105

Table 29, Data 1000 meter, 2008

2008	Rest	Agri & Food	Chemics	Life Sciences	High Tech Systems	Creatieve Industry	Energy	Logistics	Horticulture	Water	Companies	Micro	Small	Medium	Big	WP	Woman	Men
's-Gravenhage	23888	3405	16	57	1277	3276	45	286	69	46	32365	29547	2123	518	106	240141	107400	132741
The Hague Security Delta Campus	940	91	0	3	50	160	5	12	3	3	1267	1429	99	50	23	28942	12235	16707
Amsterdam	51728	4650	34	152	3958	11269	128	1177	111	177	73384	67478	4614	1066	226	491433	214146	277287
Amsterdam Science Park	219	12	1	6	38	46	1	4	0	4	331	302	23	6	0	1735	633	1102
Amsterdam Medical Business Park	471	29	1	23	45	52	9	11	1	0	642	526	76	31	9	20910	11850	9060
Arnhem	7052	548	16	23	528	1329	22	122	13	20	9673	8512	856	250	53	94785	45845	48940
Energy Business Park Arnhem	224	14	0	5	30	63	6	4	0	1	347	302	24	15	6	5779	2272	3507
Bergen op Zoom	2878	260	5	16	254	202	5	64	10	12	3706	3359	274	55	13	27174	13679	13495
Green Chemistry Campus Bergen op Zoom	71	5	5	0	8	3	0	18	0	2	112	59	33	16	4	5122	878	4244
Delft	2755	403	0	11	408	406	14	33	1	4	4035	3574	351	85	15	34307	17255	17052
Technopolis Delft	461	31	1	1	119	42	19	10	1	1	686	513	115	41	16	14879	4545	10334
Biotech Campus Delft	445	34	2	1	80	106	1	3	1	1	673	613	45	8	2	4304	1945	2359
Eindhoven	9666	788	17	40	1349	1198	39	265	14	18	13394	11848	1143	348	56	124191	52592	71599
High Tech Eindhoven	153	8	1	0	24	14	7	1	0	1	209	658	110	34	14	6261	1196	5065
TU/E	580	65	0	4	74	64	12	17	0	0	816	184	17	6	2	19948	8396	11552
Enschede	5989	518	17	21	575	521	22	122	19	14	7818	6688	693	156	40	73784	33410	40374
Kennispark Twente	443	40	3	6	60	50	5	11	1	1	620	513	72	18	3	5685	2438	3247
Geleen/Stein	5191	417	18	19	448	366	15	146	8	15	6643	5947	534	133	29	55409	23385	32024
Chemelot Geleen	317	28	7	2	33	15	0	22	2	1	427	350	55	19	3	5831	1526	4305
Groningen	6307	459	9	32	613	1252	12	167	10	27	8888	7749	800	280	33	79225	32483	46742
Zernike Campus Groningen	309	17	0	6	48	52	12	6	0	1	451	382	41	17	11	8502	4278	4224
Healthy Ageing Campus Groningen	2057	360	1	19	140	477	7	33	0	8	3153	2702	336	79	20	41124	22471	18653
Helmond	4362	339	15	10	482	335	21	98	13	12	5687	5095	397	124	16	41932	17770	24162
Helmond Automotive Campus	134	1	0	0	20	12	2	3	0	0	172	159	8	3	0	718	244	474
Leeuwarden	3136	214	0	10	313	394	16	107	6	68	4264	3770	379	95	19	37056	14743	22313
Dairy Campus Leeuwarden	34	3	0	0	1	8	0	3	0	0	49	46	2	1	0	249	117	132
Wetsus/Watercampus Leeuwarden	1501	202	3	7	82	240	4	15	2	2	2058	1745	198	91	21	33967	19446	14521
Leiden	3221	344	4	17	219	214	3	34	6	19	4081	3450	478	132	13	38261	19702	18559
Leiden Bio Science Park	227	14	0	29	25	8	4	1	0	0	308	201	54	40	13	20830	11789	9041
Maastricht	5068	586	21	22	362	644	12	91	10	16	6832	6047	601	161	23	56716	26382	30334
Maastricht Health Campus	572	32	1	14	49	70	1	14	1	2	756	644	70	27	15	19025	9351	9674
Nijmegen	6282	539	5	32	379	1008	13	197	16	20	8491	7534	736	194	27	63533	28715	34818
Nijmegen Campus	683	28	0	9	53	114	10	7	0	1	905	782	86	28	9	21884	13312	8572
Novio Tech Nijmegen	358	23	1	0	24	27	0	5	0	0	438	356	54	22	6	14130	5945	8185
Oss	3430	285	10	15	247	216	7	112	8	14	4344	3859	383	88	14	32964	14100	18864
Pivot Park Oss	453	34	1	4	43	36	2	8	0	0	581	496	62	19	4	10241	3772	6469
Utrecht	15187	1147	13	48	1335	3353	37	303	24	30	21477	19012	1745	506	104	196635	84160	112475
Science Park Utrecht	108	18	0	15	14	9	6	0	0	0	170	93	26	24	21	25342	13683	11659
Wageningen	1344	160	2	10	153	155	13	18	4	5	1864	1631	172	57	4	14891	7137	7754
Wageningen Campus	89	22	0	0	5	12	2	0	0	0	131	110	9	9	3	2550	1051	1499
Noordwijk/Katwijk	1925	234	3	6	89	85	1	42	254	10	2649	2252	314	67	11	24955	12540	12415
Space Business Park Noordwijk	250	14	1	0	36	14	1	10	16	3	345	228	96	17	2	11487	5455	6032
Zwolle	4046	321	8	14	311	443	5	121	3	18	5290	4325	611	196	45	77563	38004	39559
Polymer Science Park Zwolle	474	38	0	4	46	72	2	5	0	1	642	516	76	34	3	7612	3390	4222