Commercial gentrification in the Netherlands

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Index

Chapter 1: Introduction

"*Hundreds of protesters attacked a cereal cafe in east London on Saturday night … the owners of the cafe, which has been seen by some as a symbol of inequality in east London, said on Sunday that the attack left customers including children terrified for their lives (Khomami and Halliday, 2015)".*

In order to create stability in a neighbourhood, urban policy makers have to protect low-grade business to secure the 'original identity' (Ferm, 2016). An example of how things can escalate found place in London. In 2015, a huge riot took place at the Cereal killer café, a shop which sells bowls of cereals at heavy prices in a poor area of East-London. A protester of the demonstration expressed later: "It's our fault, artists like me go to these kind of areas, then the architects follow, the developers, the hipsters etcetera (Khomami and Halliday, 2015)".

Gentrification, "the process of renewal and rebuilding, accompanying the influx of middle-class or affluent people into deteriorating areas that often displaces poorer residents (Merriam Webster, 2016)", can be interpreted in several ways. As illustrated by the example of the Cereal Killer Café, stakeholders in the gentrifying process oppose the phenomenon with different kind of views (Atkinson and Bridge, 2005). Kennedy and Leonard (2001) underline this, describing gentrification is 'producing some positive outcomes, some negative outcomes, and many outcomes that are positive for some and negative for others (p.4)'. The best example for this statement can be found in the rise of property-values as a result of gentrification. These increasing property rates can be stated as a positive development, since welfare is growing in general. On the contrary, this does also generate a loss in affordable housing for vulnerable groups in the area along (Atkinson and Bridge, 2005). This topic is a major problem in big metropoles (NOS Nieuwsuur, 2016). Especially in Berlin, this effect is a common issue. In the last five years, population has increased with 200.000 new inhabitants, compared to an increase in housing stock with just 35.000 new apartments. In addition, these new houses are not affordable for people with an average salary, since housing prices have risen exceedingly (NOS, 2016). Besides, gentrification is also visible in smaller cities. Just one example is the city of Oakland, which also became commonly known by the song 'Tech $' written by rapper Zumbi (NRC Handelsblad, 2016): *"It's happening to me / I am moving my whole family … tech money, tech money"*.

Examples like these describe the major impact of gentrification; displacement of residents. Displacement can be characterized as an involuntary movement based on economic- or social factors, since residents have small influence in directing these processes. As Keating (2000) stresses, residential displacement starts with the replacement of inhabitants by increased property values, tax raise and social destruction of communities. Eventually, the process dispels predominantly lower social groups like elderly, female headed households and working class groupings (Atkinson, 2004). Besides residents, entrepreneurs are also affected by gentrification related developments in the neighbourhood. Gentrification is the consequence of a revitalizing neighbourhood, which leads to improvements in public services-, schools and crime rates (Kennedy and Leonard, 2004) . As a result of this process, the target group of businesses may shift. An influx of new residents can lead to a change in business, since those in-migrants generally have more purchasing power which stimulates developments in businesses (Kennedy and Leonard, 2004). Following Meltzer (2016), there are two ways gentrification affects local business. First, demand of local residents takes a shift. Second, cost of doing business becomes higher by increasing rents. These two reasons may affect the type of businesses in an area, an ongoing process which is called 'commercial gentrification'; business dynamics as a result of gentrification.

This research focuses on the process of commercial gentrification for the four fast growing cities of the Netherlands: Amsterdam, Rotterdam, The Hague and Utrecht. Little research has been done in the Netherlands regarding this topic, although the effects of commercial gentrification are a visible phenomenon in the four largest cities of the Netherlands. For instance, Amsterdam has been affected by the process of gentrification since the 1970s. Jan Rath (University of Amsterdam) argues this process is the consequence of success, which leads to a high pressure on the city. This pressure is unilateral, since policy has primarily been aimed to the more educated people. These people express a specific taste, which leads to a uniform panorama. "Around my university ten coffee-bars have opened in a while. This isn't wrong, but it reflects the unilateral vision" (Rath in Meershoek, 2015). Also in a relatively new gentrifying city like Rotterdam, former problematic neighbourhoods become upgraded. The process of renovations since the 1990s have a major consequence in the current urban life, since the accompanying flow of new entrepreneurs improved liveability of former critical areas in Rotterdam (van Engelen, 2015). Eventually, it seems Rotterdam follows the path of Amsterdam. Earlier studies were focused on this subject, but can be marked as defective or out-dated. For instance, Kloosterman and van der Leun (1999) examined commercial gentrification regarding Amsterdam and Rotterdam, but this research was executed almost twenty years ago and mainly focussed on policy. Besides, Folmer (2014) investigated the variation in trajectories of commercial gentrification in the Netherlands, but used small-scale data and focused mainly on policy. As this research focuses on the relationship between the amount of gentrification in a neighbourhood and the consequence for the entrepreneurial activity inside that area, this gap in literature can be fulfilled.

As Zuk et al. (2015) underpin more generally, dynamics in commercial- and retail services in combination with the process of gentrification is understudied. This becomes clear in existing literature, where different kind of views are visible. As Meltzer (2016) states, the driving force of commercial gentrification is the combination of a shift in demand with raising rents in a neighbourhood, which can lead to a push-out effect for local business. However, the influx of a new store can also lead to another kind of customer for an existing shop in the area due to an increasing multiplier effect (Zuk et al., 2015). These different kind of views effect in the main question of the research:

´How does gentrification effect the type of business activity in a gentrifying neighbourhood?´

As gentrification attracts a different kind of audience to the neighbourhood, it will be expected that entrepreneurial activity inside the area takes a shift as well. In order to answer this, a stage model of gentrification has to be constructed. Following Lees et al. (2008), this model can be used to explain the process and predict the future path of gentrification in a neighbourhood. Distinguishing neighbourhoods into different groups (of similar neighbourhoods), an overview will be given regarding the influence of gentrification in a neighbourhood.

SQ 1: How is the sectoral shift in a neighbourhood in each phase of the stage model of gentrification?

Since rising rents are another indicator of gentrifying areas, this will affect the entrepreneur as well. By asking the question if the general amount of size will be affected due to this phenomenon, the effect of rising rents for businesses will be examined.

SQ 2: How does the average size of companies in a gentrifying neighbourhood change?

Finally, local business will be researched. Generally, local business in non-gentrifying neighbourhoods is characterized as a primarily local service with small advertency from public outside the area. During the process of gentrification this focus will shift, resulting into a different type of business. This raises the question what the consequence will be for local businesses.

SQ 3: To what extent do local business become displaced by the process of gentrification?

The research has been framed in five chapters. After this introduction, main theories will be explained in the theoretical framework (chapter 2). This chapter will combine leading thoughts for the topic of commercial gentrification and discuss the stage model of gentrification. Besides, in the methodology (chapter 3), the practical approach of this research can be found. Eventually, the results of the research will be discussed in chapter 4, which is the fundament for the conclusion section in chapter 5.

Chapter 2: Theoretical framework

Gentrification is the process of change in neighbourhood character, since high-income residents displace low-income residents. Often, gentrification is linked with the concept of revitalization. Since revitalization is a main component of the gentrification process, the term should be clarified. Kennedy and Leonard (2001) describe revitalization as "the process of enhancing the physical, commercial and social components of neighbourhoods and the future prospects of its residents through private sector and/or public sector efforts (p. 6)". Since revitalization *can* lead to gentrification, the process does not randomly occur. Gentrification is best noticeable in places with prior disinvestment, since opportunities arise for profitable development (Slater, 2011). Kennedy and Leonard (2001) underline this, describing a variety of indicators for the likelihood of gentrification.

In literature, a difference has been composed between 'static' and 'dynamic' indicators of gentrification. The main difference between these indicators is the character of both types. A static indicator is described as a condition which measures the likelihood of gentrification. Dynamic indicators focus on trends, indicating gentrification is in progress (Kennedy & Leonard, 2001). By describing various *stage-models* of gentrification, it becomes clear dynamic indicators differ during the process. However, in general there is no consensus about all the aspects regarding dynamic indicators during gentrification in existing literature (Kerstein, 1990).

Static indicators

The main static indicator is 'comparatively low housing values' in neighbourhoods. This condition is commonly the result of prior disinvestment, which creates opportunities for profitable redevelopment (Slater, 2011). Since housing prices in degenerated areas are generally relatively low, potential upgrading is possible. This is called the 'rent gap', the difference "between the actual capitalized ground rent (land value) of a plot of land given its present use and the ground rent that might be gleaned under a 'higher and better' use (Smith, 1979)". The rent-gap theory is mainly focussed on dwellings with a high architectural value. These houses are particularly located in- or near the city centre. Berry (1985) underlines this, endorsing gentrifying neighbourhoods generally have a higher architectural value. Historically, dwellings in these neighbourhoods were neglected, but still possessed a high amount of aesthetical assets. In order to reach the potential land rent of an accommodation, revitalization by emphasizing these aesthetical values is inevitable (Lees et al., 2008).

Gentrification is commonly located in neighbourhoods which are undergoing a transition between manufacturing- and service dominated economies (Slater, 2011). In line with this condition, these places are mainly located near job-centres. During the current period of re-urbanisation residents appreciate proximity of amenities, which can be found in city-centres. Following Kolko," [...] the importance of location to residential choice is made explicit in the classic monocentric city model: households maximize utility over commuting costs, which are lower nearer the city centre and housing costs, which are higher nearer the city centre (Kolko 2007, p.4)". Lees et al. (2008) finally emphasize the importance of effects on a 'neighbourhood scale'. Since empirical observation suggests gentrification does not take place in the poorest areas (but areas just a bit better off), social-, institutional- and physical effects of surrounding land uses may not be underestimated. As Lees et al. (2008) describe it: " [...] a land parcel may have an enormous rent gap … but redevelopment will only be feasible if the negative barriers at the neighbourhood scale can be overcome (Lees et al. 2008, p.60)".

Dynamic indicators

In order to explain the various dynamic indicators, it is valuable to take a look at the process of gentrification. This process is explained by the 'stage models of gentrification'. The oldest stage models of gentrification were developed in order to explain the process and predict the future course of the phenomenon (Lees et al., 2008). Every stage contains a different combination of dynamic indicators, whereas a neighbourhood moves in the spectrum of the stages. The driving force below this theory is grounded in a differentiation of in-movers during various stages. Basically, the lifecycle of a gentrifying neighbourhood is comparable with the classical product lifecycle. Early in-movers (stage one) take a bigger risk by risking their financial investment, later in-movers (stage three) take a less bigger risk choosing the safe better-known gentrifying neighbourhood. This variety in different groups of in-movers is known in literature as the shift from the 'risk oblivious' to the 'risk averse' (Kerstein, 1990).

Pioneers (risk oblivious people) are generally groups with less financial room. This group take a big financial risk trying to create a better liveable neighbourhood by themselves. Primarily alternative, creative young people (better known as the creative class, a term coined by Richard Florida) move into the area since rents are cheap. 'Bohemian and counter-cultural types' share the area with longer-term, often working class residents (Shaw, 2008). In this stage of marginal gentrification almost no displacement occurs. Prices do not rise or rise slowly, because these early arrivers are richer in cultural capital than in economic capital (Yoon & Currid-Halkett, 2014). Existing residents of these neighbourhoods profit from gentrification: new housing investments, an impulse in cultural services and possible job creation in this phase could generate a positive effect (Freeman & Braconi, 2004). During this process, less risk-taking people are attracted. These 'risk-aware' have more financial margins, which increases economic level in a neighbourhood. Finally, the 'risk averse' arrive, mainly people who take office in higher posts. Physical renovation and organized security are becoming common in the neighbourhood, resulting in continuously rising rents (Duany, 2001). The neighbourhood becomes dominated by investors, since rents are too high for 'average' residents. Displacement occurs, which results in a cultural and economic 'elitist place' (Lees et al., 2008; Gale, 1980). "The end state is supposedly 'the creation of a new set of socially homogeneous middle-to-upper-middle class neighbourhoods with an associated economic and cultural transformation of neighbourhood commercial zones (Shaw 2008, p.8)".

In literature, two models describing these spatial effects of gentrification can be recognized: three-phase models versus four-phase models. In the four-stage model of gentrification, a differentiation regarding expanding- and adolescent gentrification was made (Lees et al., 2008). Over time, weaknesses appeared which showed limitations of the model. A main critique was the level of scale. The model focussed on the micro level in dynamics of space, actors and behaviour, but did not classify the process in general (Franz, 2015). Gale (1980) anticipated on this gap with his three-stage model of gentrification. His comparison between three neighbourhoods in Washington D.C., resulted in a general model with main differences between old- and new residents in a gentrifying neighbourhood (Lees et al., 2008).

Stage models describe the process of gentrification briefly, but still result in an unclear framework defining gentrifying neighbourhoods. Barton (2014) underlines this, describing the relatively vague- and unclear measures defining gentrification by stage models. As he describes, there is a wide gap between the interpretation of gentrification under scientists and journalists. Journalists try to measure the process often by a qualitative approach, while scientists tend to use quantitative methods. These different ways of reasoning result in different outcomes regarding gentrifying neighbourhoods.

In literature, few quantifiable requirements regarding gentrification are pointed out. Kennedy and Leonard (2001) distinguish these quantitative indicators in a threefold way: leading-,

primary- and secondary indicators. Leading indicators point to areas which are most likely to gentrify (earlier mentioned 'static' indicators). The other indicators are 'dynamic' signs gentrification is taking place in a neighbourhood: primary-indicators are strong signs gentrification is occurring, secondary indicators are less strong signs regarding this process. However, looking at just these single indicators do not inevitably imply gentrification is ongoing. "For example, increasing average incomes does not necessarily mean gentrification is occurring, since the growth of incomes could be attributable to the growth in incomes of original residents (Kennedy & Leonard 2001, p4)".

Both groups contain, following Kennedy and Leonard (2001), three indicators regarding dynamics of gentrification. The strongest signs gentrification is occurring (primary signs) are noticeable in shifts from tenements to homeownership, arrival of people with more interest in culture and an increase in high-quality business. Less strong signs of gentrification (secondary signs) are mentioned in a change of racial composition-, income- and occupancy rate of a neighbourhood. The combination of these indicators shows in which rate gentrification is occurring (Kennedy and Leonard, 2001).

Another source regarding dynamics of gentrification is the report of 'Gentrification and Homelessness in Upper Manhattan' (Institute for Children and Poverty, 2006). In this report, a research has been executed with the focus on five main topics regarding most gentrifying neighbourhoods in New York in the time span of 1990 – 2000 . These five main topics contain: the change in median household income levels, change in percent of college graduates over the age of 25, change in median gross-rents, change in median house values and the change in racial composition. Defining these numbers, gentrification among neighbourhoods in the study could be approached in a relative way. Another research about gentrifying areas in New York was executed by Freeman and Braconi (2004). This report gives an overview about gentrification and displacement in New York City in the 1990s. Realising this, an extensive multivariate regression analysis regarding four main key socioeconomic indicators was used: racial composition, level of rents, college graduates and average income level. Paralleling this with other general neighbourhoods, gentrifying areas of New York City could be remarked.

The final article worth mentioning is the research of Chapple (2009). In this research 19 different variables were used in order to define gentrifying neighbourhoods in the Bay area. Eventually, six main topics were extrapolated. The main factors driving the process of gentrification appeared to be the availability of amenities and public transportation. Besides, demographic factors (percentage of a white/black population) were of importance explaining the likelihood of a gentrifying neighbourhood. Also income factors (like diversity and percentage of the height of rent) and housing variables (renter occupied houses, public housing) were main topics in the process. Finally, the location of the neighbourhood was of importance.

Commercial gentrification

A main indicator for a gentrifying neighbourhood is an increase in business intended for high-income people (Kennedy and Leonard, 2001). In the 'stage model of gentrification', this change in business is defined by a shift from basic-amenities (cafés and supermarkets) to high-end business facilities (fashion houses and law firms). This development changes the image of the neighbourhood, since just exclusive amenities determine the streetscape (Gale, 1980). In literature this shift is called commercial-, retail- or industrial gentrification (Ferm, 2016), which can be defined as "the gentrification of commercial premises or commercial streets or areas (Lees et al. 2008, p.131)".

Commercial gentrification can be explained by a demand- and supply related approach. The production-based aspect of neighbourhood change is grounded in the theory of Smith (Meltzer & Capperis, 2016). He framed the process of localized economic upgrading by the processes of uneven development and allocation of capital. Examples of production related factors are commercial space

and existing markets. Besides, in the consumption-based approach, changing consumer preferences drive neighbourhood development. Possible factors regarding this approach are race and average household size in a neighbourhood. These starting points can be used explaining the process of commercial gentrification. Retail-related dynamics are always explained by a shift in production related- or consumer related factors. Production-related changes can be explained in a threefold way. Firstly, physical infrastructure can change over time. By new investments, attractiveness of a neighbourhood can grow. Secondly, information about risks operating in a neighbourhood can become more visible during time, which lowers the entry risk of an entrepreneur. Finally, incentives, like tax benefits, can make it attractive to invest in an area. Consumer based changes are primarily changes in demand, which is mainly expressed by a more heterogeneous group of customers (Meltzer & Capperis, 2016).

It is hard to say which process starts the other regarding the intertwined processes of residential-revitalization and commercial-revitalization. As Jacobus and Chapple (2010) state, this chicken-and-egg question is understudied. "It is clear that demographic changes among neighbourhood residents should eventually lead to altered retail conditions, given perfect information in the market. However it is also clear that both the presence of retail centres or strips and the absence of blighted commercial properties can influence the location decisions of households (p.3)". Realizing this, the complexity of describing both processes becomes clear.

Shift in sectors

As Yoon and Currid-Halkett (2014) stress, the familiar story is that commercial gentrification develops in a similar way like residential gentrification. The cycle starts with pioneering commercial gentrification, when industries move (in the first stage) to former manufacturing areas. When these areas become familiar for the tourism sector, commodification of this culture derives, along with entrepreneurs of related industries like cafés and restaurant (stage two). In the final phase, like in the case of residential gentrification, rents arise, which leads to a loss of the *raison d'être* of these businesses. The result is an attraction of more expensive boutiques, which convert the sense of place of a neighbourhood. Since the focus area of companies in a gentrifying neighbourhood shifts from local to (inter)national scale, other entrepreneurships which anticipate on the changing demand are attracted (Zukin et al., 2009). Generally, this results in displacement of local business (Yoon & Currid-Halkett, 2014). However, compared with residential gentrification, displacement in commercial gentrification is generally a longer process, since commercial contracts are generally signed for a longer period than residential contracts (Meltzer, 2016).

Rising rents can eventually influence the type of businesses active in the neighbourhood. Since companies have to break-even, other types and ranges of products are introduced in the area. Waldfogel (2008) agrees with this, stating heterogeneity among different consumer groups exists. Restaurant preferences differ substantially by race and education, and since markets for food retail are mainly focussed on the neighbourhood-level, restaurants may be displaced due commercial gentrification. However, other restaurants may take over, which does not cause a shift regarding amount of retail in a neighbourhood. In order to explain dynamics of this retail shift, Snepenger et al. (2003) fabricated a life-cycle model for retail spaces in city centres. The 'Downtown Tourism Lifecycle Model' mainly focuses on consumer-related change, since it intertwines the role of the tourist in the process of commercial gentrification. The model is subdivided into five stages: exploration, involvement, development, consolidation and stagnation. In the exploration phase, demands of residents of a neighbourhood are served. In the next phases, involvement and development, trendy boutiques arrive in order to serve the demands of the increase in tourists. When cultural amenities are settled and become well-known for the public, the phase of consolidation arrives. Finally, the area stagnates and has to be updated again by a refreshed approach of exploring entrepreneurs.

When the theories of Yoon & Currid-Halkett (2014) and Snepenger et al. (2003) are combined with the 'stage model of gentrification', more insights regarding business dynamics arise. Regarding these dynamics, it is important to evaluate the different kinds of businesses during the process. Zukin et al. (2009) use three indicators in order to define a spectrum regarding operating businesses: scale of ownership, quality of products and type of promotion. Finally, describing the dynamics of retail gentrification in a neighbourhood, three different groups are recognised in the research: new retail entrepreneurs, corporate investors (chains) and old local businesses.

Stage one of the 'stage model of gentrification' starts with the rise of art- and cultural related shops (Zukin et al., 2009). The reasons of moving into the neighbourhood can vary: they seize an economic opportunity, or represent the new cultural group which have moved into the area. Since there is little public (media) attention about the neighbourhood in this stage of gentrification, corporate (chain) investment is not common, combined with little displacement of industries (Lees et al. 2008, p.31). This is the exploration stage of the neighbourhood, following Snepenger et al. (2003). The next stage stresses the gaining attention of public media (Lees et al., 2008). Accompanied with this stage is the rising amount of 'external' investment. Chains become more interested in the area, since the area attracts wealthier people. Besides, more experienced retailers choose to move to the area, which have historically seen no connection with the neighbourhood (Zukin et al., 2009). This results in a different approach of retailers regarding the consumer. During the phase of involvement, the "mix of goods and service remain authentic (Snepenger et al. 2003, p.569)". However, in the development phase, displacement of old local stores by galleries, upscale coffee shops and boutiques takes place. As Meltzer and Schuetz (2011) state, upgrading neighbourhoods see a significant increase in food service and clothing stores. Relatively slower gentrifying neighbourhoods still contain a high amount of grocery shops, while the poorest neighbourhoods even suffer in so-called 'food deserts' (Schuetz, Kolko & Meltzer, 2012). Displacement continues during the final part of the 'stage model of gentrification'. During stage three, small local stores tend to be displaced, since costs rise dramatically. "Cultural activities become contrived and the stores are full of mementos, nonessentials, and niceties for everyday life (Snepenger et al. 2003, p.569)". However, in addition to this, Jeong, Heo and Jung (2015) describe the complexity of the process of commercial gentrification. Researching 'victims' of gentrification, the local long-term shop owners, it appeared that it is difficult to generalize the effects of a revitalizing neighbourhood. As they state: "Along with the ones who gets displaced are others who benefits from the change that deteriorates their neighbourhood (p.153)".

Shift in size

Meltzer and Capperis (2016) describe the change in presence of chain establishments in a neighbourhood. "Chains are more likely to enter neighbourhoods with more commercial space, lower residential vacancy rates, lower housing prices and higher-income households, and less likely to go into neighbourhoods with more owner-occupied homes and more college-educated residents (Meltzer and Capperis 2016, p.3)". Chain establishments won't open up new stores in the central part of the city, but are relocating once the market has been penetrated.

The growing influence of chain stores have two main consequences: homogenization and rising rents. With a higher amount of chains in a neighbourhood, the original character of an area becomes at stake (Bloom, 2009). Zukin et al. (2009) underline this: "But besides responding to a different consumer base, changes in the retail landscape reflect structural changes in the retail industry: the disappearance of small, mom-and-pop stores; the expansion of large chains like Wal-Mart, Whole Foods, and Starbucks … and changing corporate views of the commercial viability of the inner city (p. 48)". Besides, chains are more capitalized can better withstand local shocks. Higher rents limit smaller entrepreneurs to start a entrepreneurship or expand the yet existing company (Zukin et al., 2009). However, the same research stresses that inside gentrifying neighbourhoods of New York (Harlem and

Williamsburg) independently owned establishments increase in a faster way compared with large chain stores. New retail entrepreneurs tend to locate more in gentrifying areas compared with corporate investment (although there is an increase in chain-presence). Reasons for this phenomenon can variate in from consumer-related approaches (hipsters reject chains) and producer-related approaches (less availability regarding suitable buildings).

Since there are multiple reasons which shape retail dynamics, it is hard to make general conclusions. A lot of categories vary in this process, variating from 'types of store' to 'quality of goods'. However, generally seen the amount of rent is directly related with establishment size, which means establishments become bigger once an area is further processed in the 'stage model of gentrification' (Meltzer & Schuetz 2011; Schuetz, Kolko & Meltzer 2012). By comparing rent indicators with average retail size during different stages, a 'stage model of gentrification' regarding average establishment size can be constructed.

Stage one is generally characterized by low rents and low-income households (Lees et al. 2008, p.31). As Meltzer and Schuetz (2011) define: "…low-income neighbourhoods have lower densities of both establishments and employment, smaller average establishment size, and less diverse retail composition (p.88)". During the process of gentrification the amount of businesses expand, but tend to be smaller establishments. Generally, these new retail entrepreneurs (so-called boutiques) are small, have a high product quality and use an online form of promoting (Zukin et al., 2009). In the ultimate stage when neighbourhoods become more affluent, chains enter the area. "… Although lower valued neighbourhoods are growing relatively faster in terms of retail establishment density, they are not attracting as many larger businesses (Meltzer & Schuetz 2011, p.88)". However, as they state, it is very hard to generalize the process, since also urban policy related factors are of importance regarding shaping a neighbourhood. While just the market-related approach has been discussed above, government strategies can have big consequences for retail development. As Jacobus and Chapple (2010) state, three main strategies are used in order to shape the area: developing new commercial real estate as a catalyst, market-led business attraction and commercial district revitalization programs. Realizing these forms of state-led gentrification, the original process of market-led gentrification can sometimes be clarified in a better sense.

Local oriented business

As described by Meltzer (2016), the process of gentrification in a neighbourhood could have several consequences for local business. Since an influx of new residents change the structure of an area, this could have an implication for a shift in local demand: "[...] if the new consumers also have different tastes and usher in higher rents, then the incumbent businesses could suffer (p.2)". Besides, since small-scale industries depend in particular on social ties in the neighbourhood, an influx of wealthier residents could have rigorous consequences. Long-term residents have to make the choice between impersonal, cheaper supermarkets compared with personal, more expensive local shops. Sometimes there may not even be an option, if local shops fail to generate enough income to level the amount of rent. Ferm (2016) describes this as the familiar story: "… the gap left by declining manufacturing and industry is filled by pioneering creative entrepreneurs … over time, these 'early arrivals' are displaced by higher-value commercial occupiers or loft dwellers (p. 402)".

A gentrifying related shift regarding establishments is generally seen as a gain for middle-class income residents, which means independent or local-chain businesses take over (Meltzer & Schuetz, 2011). Original local business are generally suffering, since rents are too high in order to survive in a gentrifying neighbourhood. As Zukin et al. (2009) describe: "whatever be their specific form, though, 'boutiques' contrast with older stores catering to a poorer, more traditional, and less mobile clientele. As a vivid image of 'commercial' gentrification, boutiques can easily become a stalking horse for long-term residents' fears of displacement (p. 47/48)". When the process of `boutiquing' grows in an area,

it benefits a small group of residents but also deepens economic- and social polarization.

As Meltzer and Capperis (2016) describe, retail revitalization is mostly founded by new business-births instead of business-deaths in a neighbourhood. In their research about 'Neighbourhood differences in retail turnover (New York)', a difference in continuity of a company has been made between food establishments and general retail establishments. Since consumer-related characteristics (demand) is the main factor explaining local business dynamics, this difference is visible during time in the neighbourhood. Food establishments tend to have a stable presence in the neighbourhood, since businesses which provide necessity goods are more likely to stay in place. However, in the most recent research of Meltzer (2016), new insights regarding business displacement as a result of commercial gentrification arise. "Citywide, the majority of businesses stay in place over time. Furthermore, the rate of displacement/retention is no different across gentrifying and non-gentrifying neighbourhoods (p.2)". It is important to stress the degree of proceeding in the stage-model of gentrification. Small-business with individual entrepreneurs sometimes still have enough market share among low-income local residents to generate a profitable company (Zukin et al., 2009), or respond to the shift in an appropriate way. This is best explained by the example of Kennedy and Leonard (2001). They describe two situations which prove these dynamics can run both ways: "In some circumstances, when longstanding businesses can recognize the change in their market and respond to it effectively, the business owner can thrive, as Mr. Joseph has done in Harlem. Some rent increases associated with gentrification may too severe for savvy as well as marginal business owners (p.21)".

Like the shift in retail and shift in size, also the dynamics of local businesses is heavily dependent on urban policy. Since these businesses generally sell products with smaller margins compared with new 'boutiques', viability of these industries is at stake. As Ferm (2016) discusses, this is a main challenge for urban policy, in order to protect a urban's unique identity. Besides, mixed-use neighbourhoods are seen as a catalyst for urban growth since it makes a neighbourhood attractive for residents, different kinds of businesses and visitors (Jacobs in Folmer, 2014). Hence, regenerating deprived areas by effective policy is better known as state-led gentrification (also known as top-down gentrification). Since urban policy is situation specific, it is hard to make a general statement regarding local business displacement.

The Dutch policy is currently mainly focussed on the attractiveness for upscale production and consumption. By retaining and attracting small- and medium sized firms, the policy pursues the earlier by Jacobs defined ideal situation of a mixed-use neighbourhood. In this process, two main strategies can be remarked: individual instruments which focus on a specific target group, and spatial instruments which are trying to improve the business climate (Folmer, 2014). Since this policy is location- and situation specific, different outcomes are visible. As Folmer (2014) states: "Choosing the right instruments to meet the needs of local circumstances is very important (p. 135)". While market-led gentrification can lead to state-led gentrification in the form of policy implications, it is very hard to make statements regarding the destiny of pre-gentrifying existing businesses in general.

Eventually, some expectations can be given regarding the three topics. First, a shift in entrepreneurial activity will be very likely, since most parcels will not be affordable for a small, local oriented entrepreneur. The presence of chain stores will be very common in gentrifying neighbourhoods, since they are able to pay higher rents and serve a local exceeding audience. Regarding the average size of an entrepreneurship, a paradoxical observation can be extrapolated. Since the average value of a square meter will be much higher in a gentrifying neighbourhood, the general expectation is that smaller stores and a higher efficiency will arise. However, these parcels will be unpayable for a local (small) entrepreneur, with a consequence of growing (big) chain stores. These stores are generally located in bigger locations, which means a higher average size of an entrepreneurship. Due to this presence, the last expectation is that local business will be gradually displaced by bigger companies.

Chapter 3: Methodology

In this chapter the methodology will be covered. First, the study focus area will be discussed. This part explains which areas are going to be researched and why there has been chosen for this selection. Subsequently, the research method is framed. By explaining the choice regarding indicators for the stage model and the link with commercial gentrification, it appears how this research is executed. Finally, the approach of this research is highlighted. This part contains data sources and final steps realizing the research plan.

Focus area: an introduction

This research focuses on the four biggest cities in the Netherlands: Amsterdam, Rotterdam, The Hague and Utrecht. Expected is that the growth of the Dutch population will cluster mainly in these four areas, with a foreseen amount of approximately 300.000 additional inhabitants in this cities in 2030 (CBS, 2016). Since these new residents need housing, pressure on the housing stock will be higher. As gentrification is a process which is characterized by repeatedly exceeding customer demands during the several stages, an increase in residents can increase the chances of possible gentrification. However, gentrification is not a random process which is likely to happen everywhere. As a result of the 'back to the city' movement starting in the 80's, cities gained in importance since the service-based economy attracted people to the city-centres. This re-urbanisation motion rise house prices in the city centre, since demand exceeds supply (Oevering, 2014).

In order to gain insight in possible gentrifying areas, parameters which describe a gentrifying neighbourhood will have to be set. Kennedy and Leonard (2001) describe five conditions which indicate this likelihood of gentrification: high rate of renters, easiness of access to job centres, increasing levels of metropolitan congestion, high architectural value and low housing values. However, this research not just focuses on areas which are likely to gentrify, but also on already gentrified areas. Since 'rates of renters', 'levels of metropolitan congestion' and 'housing values' have a dynamic character, these indicators are not suitable to define neighbourhoods which are not part yet of the gentrification-process (but which are needed for this research as well).

The other two indicators create a long term view regarding the *probability* of gentrification. 'Access to job centres' and the 'amount of architectural value' in a neighbourhood are more stable over time, which means these indicators are more workable in order to define possible gentrification. However, both indicators are hard to classify in a sharp definition based on scientific literature. Therefore, it may be useful to take a look at earlier studies regarding this topic.

Focus area: selection of neighbourhoods

Quantitative approach

Following Chapple (2009), accessibility of public transportation is very important for a possible gentrifying neighbourhood. Gentrifiers tend to locate near places with a high rate of accessibility. Trams, subways and railways create this accessibility, but busses tend to be valued by the customer in a smaller extent. Following a research of the NS (2014), busses score lower in their average rating compared with the earlier described railway-modes. Apparently, this affects the amount of accessibility, since it is less comfortable to travel with busses.

In the article of Amiston (2009), which gives an overview of the overall risk of gentrification in Boston, a maximum distance of ¾ kilometres to subway stops has been used regarding the indicator 'access to job centres'. Since this distance is subjective and city-related (in Utrecht this distance could be higher than Boston, as the rail network is less extensive), it is hard to generate a general statement regarding the validity of this scale. Following Statline (CBS, 2016), the average distance to a railway stations in the four biggest cities of the Netherlands varies from 1,8 till 2,9 kilometres. Since this

number also contains the non-gentrifying areas and gentrifiers tend to value a high amount of connectivity, this number will be reduced to an average distance of 500 meters (the inner city contains a high amount of railway stations). Since bus-related public transport does not increase the amount of accessibility like railway-related public transport (as stated by earlier performed research), this will be excluded in this research.

Regarding the historical value of a neighbourhood, gentrifying neighbourhoods generally contain houses with higher architectural values (Berry, 1985). Architectural styles which dominated between 1900 and 1945 in the Netherlands, like Jugendstil and the Amsterdamse School, are often seen as buildings with high aesthetics (Boekraad, Wilms Floet & Breukel, 2009) . Besides, the architectural period after the World-War II was aimed at reconstruction, which resulted in a 'sober' architectural style. These buildings don not attract gentrifiers, since those people are preferring buildings with higher aesthetics. In earlier performed research, Amiston (2009) uses the percentage of residential buildings built before 1939. Also this indicator is useable for the Dutch case, since it represents the demand of the gentrifiers.

Qualitative approach

The indicators described above indicate the probability of a gentrifying neighbourhood by a quantitative approach. However, as described, there has been a contradiction between scientists and journalists about the interpretation regarding defining the process of gentrification. Policy makers generally use a qualitative approach, scientists tend to clarify the process by quantitative methods. Since there is no general accordance about the exact definition of recognising an (possible) gentrifying area, the combination of both approaches could be useful in order to generate the most comprehensive result of (possible) gentrifying neighbourhoods.

Comparing the results of the selection by quantitative indicators with municipality reports regarding gentrifying neighbourhoods, both approaches will be used in order to create the highest amount of certainty about this process. Since these reports generally give a good overview about local urban dynamics, these pieces can be effective as a control factor regarding gentrification in neighbourhoods. Both municipalities of Amsterdam and Rotterdam contain extensive reports regarding data about urban developments. Utrecht and The Hague offer this in a smaller extent. However, since this is just a control variable, this will not affect the continuation of the research.

Levels of scale

Regarding urban dynamics, different approaches have been used regarding the variation of data. In the municipality reports, this variety becomes obvious. In the report of Amsterdam areas have been divided by using postal-code differences, the Rotterdam report divides areas by self-stated neighbourhoods and in the Utrecht report the approach is focused on larger districts. Due to this variation of approaches which result in heterogeneous data between cities, it is hard to make a valuable comparison. Therefore, before creating a homogenous and comparable dataset, it may be valuable to take a look at the most essential question for this research: on which scale does gentrification take place?

Comparing different articles dealing with gentrification, the outcome regarding scale of the process is nearly described in a uniform way by all researches. The focus has primarily to do with the gentrifying neighbourhood, instead of gentrifying streets or districts. However, as stated by Lauria and Stout (1995), the scale of gentrification can be explained in the same ways as the term gentrification itself. This means that gentrification is generally a local process, quantitatively seen it has a small effect on the city. "If, however, gentrification is seen as part of the larger restructuring of urban space in western capitalist cities, qualitatively its policy and theory import is amplified (Lauria and Stout 1995, p. 3)". Again, the way approaching gentrification will affect the outcomes of the research.

As described by Lauria and Stout (1995), gentrification is a small-scale process which thus can

be examined best with fine-grained datasets. Since the data regarding districts generally give a too general view about the process, this will be useless in order to divide neighbourhoods in the stage model of gentrification. Besides, it may also be useful to stress the significance of a gentrifying neighbourhood for the surrounding areas, a development which is comparable with the snowball-effect. In a fine-grained level regarding researching this process this will appear, in contrary with a higher scale level of examination.

Combining the theoretical definition regarding the scale of gentrification with a practical approach, eventually the most effective approach for this research is fine-grained. First, gentrification takes place at a very local scale, which eventually affects surrounding neighbourhoods. Besides, datasets regarding neighbourhoods and postal-codes are more homogenous and comparable than broad datasets about districts. Because of this, multiform definitions about the extent of an area aren't possible in this approach since postal codes are registered by national determinations. Finally, postal-code 6 areas (PC6) are comparable and convertible with data by the CBS Statline, which enlarges the feasibility regarding the research.

Research method

Stage model of gentrification: earlier studies

In order to classify neighbourhoods into the various phases of the stage model of gentrification, dynamic indicators are useful to make a clear distinction between these stages. As described, there is a consensus among researchers about major indicators regarding the process of gentrification. Combining the researches of Kennedy and Leonard (2001), Freeman and Braconi (2004), the Institute for Children and Poverty (2006) and Chapple (2009), main indicators for a gentrifying neighbourhood can be extrapolated. All researches discuss the importance of a change in average income levels, educational composition, rent rates, housing values and racial structure of a neighbourhood. Just in the article of Kennedy and Leonard (2001) the importance of culture has been discussed. However, since other researches haven't stressed this indicator, in this research we will use the five indicators in order to define the process of gentrification in a neighbourhood.

Since no similar research has been executed, it is hard to make classifications between the various phases of the stage model based on literature. The term gentrification is somehow vague, which results in an unclear definition for the various indicators. This makes it hard to create a stage model of gentrification where the different neighbourhoods are classified on differences between the five indicators. As executed in the research of 'Gentrification in Upper Manhattan', the percentage of change for every indicator has been calculated for a period of ten years (Institute for Children and Poverty, 2006). Combining all indicators, an overview was given in which extent gentrification is occurring in an area. Also the project of Amiston (2009) uses a similar approach to calculate the risk of gentrification for a neighbourhood, combining different indicators to a general conclusion regarding the progress of gentrification.

In order to create a model for this research, there are two possible approaches. First, it is possible to make a relative comparison *between* the neighbourhoods. This approach has been used by Amiston (2009), which used less accurate but more calculable indicators. For instance, indicators like 'maximum adjacent tract income difference' and 'average size of housing units' are easy to define, but don't necessarily indicate a neighbourhood is gentrifying. The second approach focuses on relative changes *inside* the neighbourhood regarding the indicators. This approach is used in the research of the Institute for Children and Poverty (2006), which is based on indicators which are more accurate but less easy to calculate with. Examples of these indicators have been given; change in income rates and racial structure. These indicators are more applicable, but make it harder to define neighbourhoods in a framework regarding stages in gentrification.

Stage model of gentrification: this research

This research will combine both approaches. First, an overview will be calculated regarding relative changes for the neighbourhoods (like in the research of the Institute for Children and Poverty, 2006). Since all four cities are hard to compare regarding this topic, relative changes have to be calculated for every city itself. By using city averages for all five different indicators, a good overview can be given regarding relative changes in all neighbourhoods. For every indicator three numbers through time will be used, in order to generate the most accurate image regarding development in gentrification. By this, it will become clear how every neighbourhood has changed over time.

Figure 1: Flow chart of the research

Since it is difficult to compare different cities in a general model, every neighbourhood will be examined using city-related averages. This means it will be hard to generate one combined model regarding the division of all neighbourhoods in the four cities, since it is hard to compare those with each other. For instance, an area which is located in central-Amsterdam will have another ultimate reach compared with an area in the outskirts of Utrecht. By creating a relative model for every city itself, the best outcomes will be given regarding the progress in the stage model of gentrification. However, the study will primarily be focused on absolute numbers for the last available year (which is 2014 in all cases). This approach has been used, in order to avoid the question when the process of gentrification has started in the Netherlands. Smith (2010) stresses gentrification has started in the

early 90's in Europe, but by these vague definitions it is hardly possible to create a stage model. Using the most recent absolute numbers for the creation of the stage model, no debate will rise regarding the validity of applied relative numbers.

Every indicator is available by CBS Statline for (at least) 12 years in the past, apart from the indicators 'level of rent' and 'educational composition'. Since the shift from rental apartments to homeownership (a dataset which is available) gives comparable results, this indicator will be used in order to create an image about gentrifying neighbourhoods. Regarding the indicator 'educational composition', the amount of people who receive financial assistance will be used. Since people who receive financial benefits due to unemployment ('*bijstand*') are mainly those with a lower education (Troost, 2016), this indicator will be a proper replacement. Eventually, a stage model of gentrification based on these five indicators can be produced.

Commercial gentrification

After constructing the neighbourhoods in the stage model of gentrification, it becomes possible to take a look at the main focus point of this research: commercial gentrification. Since every stage of gentrification was mapped by using the variety of indicators, every neighbourhood in the sample is labelled in the framework. This is a starting point when dealing with the amount of commercial gentrification which is occurring in a neighbourhood. However, like dividing neighbourhoods into the stage model, there is also a twofold way to look at this phenomenon.

First, an overall framework can be created referring to differences *between* neighbourhoods in different stages. Framing the variety of sectors where companies can operate in, an overview is given about the dominant sectors per stage. Besides, also the changing mean size of a company in a neighbourhood is possible to calculate per stage. Doing this, it will become clear which stage contains which kind of companies. The second approach is to focus at the history, *inside* a neighbourhood. Since neighbourhoods can move up- and downwards in the stage model of gentrification (which is possible to calculate with available data), the shift in commercial activity inside a neighbourhood can be used in order to generate answers regarding sector- and size dynamics.

This research will focus on both approaches. Regarding sector- and size shifts during gentrification, a mutual comparison between different stages will be most adequate. Since the goal is to create an insight of possible differences in sector- and size per each stage, this approach will be sufficient. In order to compare entrepreneurial activity for neighbourhoods with varying size, the data has to be expressed in relative percentages. By this, an overview can be created for every neighbourhood regarding the percentage of active enterprises per sector. Plotting all the records of relative scores in a graph, it becomes clear to which extent a sector is present in every stage. Since the data of the LISA-file (which registers all entrepreneurial activity in the Netherlands) will be used, a total of 86 different sectors will be the consequence. As it is hard to make visually in a graph, two measures have been taken in order to create a workable document. First, the minimum sectoral activity of 2% (of the total business activity inside a neighbourhood) has been used. By doing this, marginal sectors will be filtered out of the dataset. Besides, sectors which are comparable and could be filed under one denominator were clustered. A table about these (clustered) sectors can be found in the appendix. Implementing these both measures, a more workable and synoptic image about the sectoral activity in the neighbourhood will be created.

To measure the extent to which the average size (amount of employees per company) develops during each stage, a maximum amount of employees of 100 per company was used. This measure was set, as large companies (100+) stretch the graph by large proportions. Since these companies also do not carry the denominator 'small- and medium sized businesses (SME's)', which is the main focus area of this research question, this is the second reason filtering them from the dataset. The eventual number of hundred employees has been used as this is the Dutch measurement method

for an SME: 'Generally, in the Netherlands the boundary for a SME has been stated on 100 employees, in the European Union this is 250 employees (Verhoeven et. al. 2010, p.11)'.

In order to gain insight about the local businesses, an internal research will be executed to create an overview about the internal shift during the gentrification process. This internal research focuses just on the stage two- and stage three neighbourhoods, since the effects of gentrification on these neighbourhoods can be more guaranteed compared to stage zero and stage one neighbourhoods (in which the effects of gentrification are not yet clearly visible). Similar like the research of Meltzer (2016), in the end it will be possible to create an overview related to the stage model. By doing this, the implications for local businesses during the process of (commercial) gentrification will become visible.

The research will primarily focus on two samples per stage per city (in total eight samples per city). By using this approach, the most characteristic, suitable and stereotypical neighbourhoods will be used in order to gain insight in the process of commercial gentrification during the four stages. However, in order to fortify obtained results, also all gentrification-receptive neighbourhoods (as defined by the earlier mentioned indicators) will be incorporated in the research for every single research question of each city (in the analysis as well). Using this control factor, stated arguments regarding the stereotype neighbourhoods for each stage gain strenght and will eventually amplify the study results.

Approach

This research is divided in three main parts. Every part asks for a different approach, accompanying with different datasets. First, the focus area will be defined by the two static indicators: access to job centres and architectural value. By using ArcGIS, it is possible to filter the non-representative neighbourhoods. The main datasets for this part are the shapefiles of CBS (which gives an overview about neighbourhoods), BAG (registration of addresses and buildings), BRT (railway lines with stations) and ESRI (postal-code 6 areas). Subsequently, the stage model of gentrification will be constructed. Using various numbers available via CBS Statline, five indicators will be applied on every neighbourhood in the sample. Some numbers have a longer history regarding registration, but this will not affect the research: since every indicator has at least a history of twelve years registration, it is possible to generate three samples for all of them. Eventually, this creates a stage model of gentrification in which the neighbourhoods are differentiated. Finally,   dynamics   regarding commercial gentrification are mapped. Looking at the variety of sectors, size of companies and death-rates of local businesses (which are available in the LISA-database), an insight will be given in this process.

Part of research	Action	Dataset + Content	Approach
I: Selection of cases	**Quantitative approach** *Goal*: calculating static indicator 1, 'access to job centres'	CBS: Wijk en Buurtkaart 2016 BAG: Basisadministratie Adressen en Gebouwen BRT: Spoorbanen met stations ESRI: Postcodevlakken (PC4)	ArcGIS analysis
I: Selection of cases	**Quantitative approach** *Goal*: calculating static indicator 2, 'architectural value'	CBS: Wijk en Buurtkaart 2016 BAG: Basisadministratie Adressen en Gebouwen ESRI: Postcodevlakken (PC4)	ArcGIS analysis
I: Selection of cases	**Qualitative approach** *Goal*: defining gentrifying neighbourhoods following local municipality reports	AMS*: Gebiedsanalyse 2015 ROT*: Monitor Gentrification 2008 THG*: Onderzoeksrapport Ruimtelijke kengetallen 2010 UTR*: Wijkwijzer 2016	ArcGIS analysis
I: Selection of cases	**Quantitative approach + qualitative approach** *Goal*: Combing approaches, defining focus area	Dataset indicator 'access to job centres' Dataset indicator 'architectural value' Control indicator 'municipality reports'	ArcGIS analysis
II: Combining a stage model	Defining 'likeliness of gentrification' indicator 1: *Income levels of neighbourhoods*	CBS Statline: Kerncijfers wijken en buurten 1995/1997 CBS Statline: Kerncijfers wijken en buurten 2005 CBS Statline: Kerncijfers wijken en buurten 2015	Data analysis
II: Combining a stage model	Defining 'likeliness of gentrification' indicator 2: *Racial structure of neighbourhoods*	CBS Statline: Kerncijfers wijken en buurten 1995/1997 CBS Statline: Kerncijfers wijken en buurten 2005 CBS Statline: Kerncijfers wijken en buurten 2015	Data analysis
II: Combining a stage model	Defining 'likeliness of gentrification' indicator 3: *Housing values of neighbourhoods*	CBS Statline: Kerncijfers wijken en buurten 1997 CBS Statline: Kerncijfers wijken en buurten 2005 CBS Statline: Kerncijfers wijken en buurten 2015	Data analysis
II: Combining a stage model	Defining 'likeliness of gentrification' indicator 4: *Shift rental houses towards private ownership*	CBS Statline: Kerncijfers wijken en buurten 2003 CBS Statline: Kerncijfers wijken en buurten 2009 CBS Statline: Kerncijfers wijken en buurten 2015	Data analysis
II: Combining a stage model	Defining 'likeliness of gentrification' indicator 5: *Educational composition of neighbourhoods*	CBS Statline: Kerncijfers wijken en buurten 2004 CBS Statline: Kerncijfers wijken en buurten 2009 CBS Statline: Kerncijfers wijken en buurten 2015	Data analysis
II: Combining a stage model	Composing a stage model of gentrification by combining indicators 1, 2, 3, 4 and 5	Datasets indicators above	Data analysis
III: Researching commercial gentrification	**Sectoral related approach:** researching differences in retail between companies in different neighbourhoods in the stage model	LISA dataset	Data analysis
III: Researching commercial gentrification	**Size-related approach**: researching differences in amount of average surface between companies in different neighbourhoods in the stage model	LISA dataset	Data analysis
III: Researching commercial gentrification	**Local business dynamics approach**: researching the consequence of gentrification for local business in the neighbourhood	LISA dataset	Data analysis
III: Researching commercial gentrification	Composing a general view about commercial gentrification regarding retail, size and local businesses	Combining approaches above	Data analysis

Chapter 4: Results

As described in the methodology, this research contains intertwined elements. In order to define the amount of commercial gentrification in the four big cities, a stage model of gentrification has to be created. However, for this stage model, cases have to be selected in the first phase. As there are four different cities examined in this approach, four separate researches are combined in this study. Because of this, the results have been split up into four parts: Amsterdam, Rotterdam, The Hague and Utrecht. By separating the cities from each other, a clear overview of the collected numbers and figures can be guaranteed.

Amsterdam

Selection of neighbourhoods

The municipality of Amsterdam contains a total of 97 neighbourhoods. In order to distinguish gentrification-receptive from non-gentrification-receptive neighbourhoods, the average distance to a railway station (a maximum of 500 metres) and average date of construction of houses (built before 1940) in each of the neighbourhoods was calculated. After this quantitative approach, the qualitative layer has been constructed by evaluating a report composed by the municipality of Amsterdam. This report (Gemeente Amsterdam, 2015) did
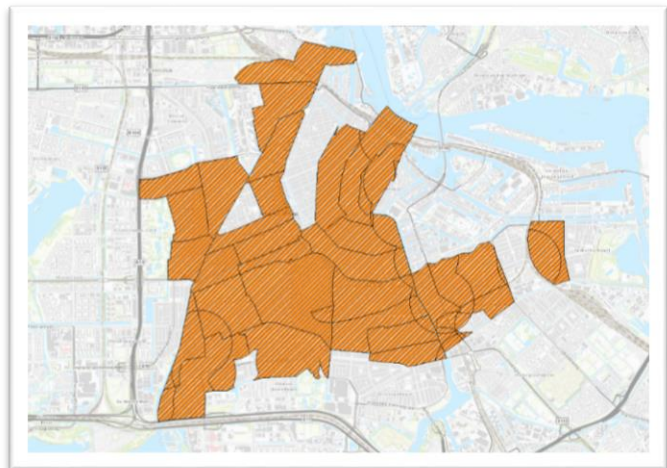
Figure 2: Selection of gentrification-receptive neighbourhoods in Amsterdam

not focus explicitly on the existence of gentrification in a neighbourhood, but distinguished districts by its internal characteristics. Analysing these features of the report, an indication regarding the possibility of gentrification for each neighbourhood could be generated. Eventually, combining the qualitative with the quantitative indicators, 32 gentrification-receptive neighbourhoods were extrapolated for the case of Amsterdam (see figure 2).

Combining a stage model

Upon creating a stage model wherein each of the selected neighbourhoods is framed, five neighbourhood-specific indicators were used: mean income level (I), racial structure (II), mean housing values (III), shift of rental housing to homeownership (IV) and the amount of people who receive
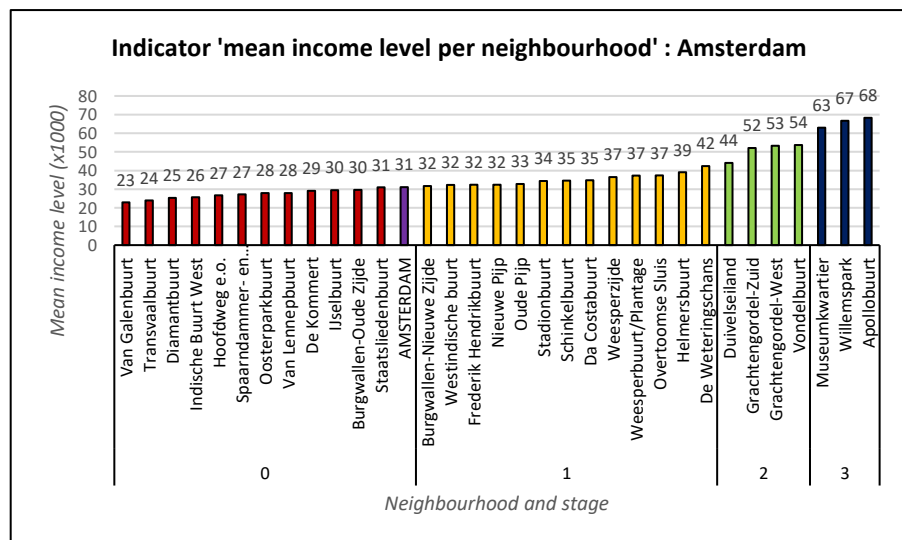
Figure 3: Indicator 'mean income level per neighbourhood'. A similar proportional distribution has been used for all other four indicators, in order to create the stage model of gentrification.

social benefits due to unemployment in a neighbourhood (V). Every indicator uses its own proportional

distribution, in order to distinguish neighbourhoods in four stages. In order to fabricate this distribution, the average number of Amsterdam has been linked to each indicator. Each neighbourhood which scores below the average of Amsterdam has been labelled as a 'stage zero' neighbourhood (for the indicators racial structure (II) and social benefit receivers (V) this is vice versa). This method was used, since gentrifying neighbourhoods (stage one and up) generally score better on these five indicators related to the average score of the city (except the earlier mentioned indicators racial structure (II) and social benefit receivers (V), where above-average numbers are indicating a less gentrifying neighbourhood). The neighbourhood which has the highest score on an indicator has been diminished by the average score of Amsterdam. Subsequently, this residue was divided by three. This results in three groups of stages, wherein each neighbourhoods will be framed. In order to elucidate this explanation, one indicator will be highlighted. When looked at the indicator regarding 'average income levels' in Amsterdam, the city average lies on €31.100. This number has been set as the threshold between stages zero and one: every neighbourhood with an average income level below €31.100 has been labelled as stage zero, every neighbourhood with an average income level above €31.100 at least in stage one. Out of the 32 neighbourhoods which have been marked as gentrification-receptive, 12 have a lower mean income than the average of Amsterdam. This implies all these neighbourhoods are labelled as stage zero on the indicator of average income level. The neighbourhood with the highest number of average income level is the Apollobuurt, generating an average income of €68.300 per person. This number will be diminished by the city average and divided by three, in order to create an equal distribution for the other three stages. Eventually, this distribution is subdivided in steps of €12.400 per stage ((€68.300 - €31.100)/3). Neighbourhoods which are labelled as stage one, have an average income between €31.101 and €43.500. Subsequently, the average income level in stage two neighbourhoods lies between €43.501 and €55.900. Finally, neighbourhoods in stage three earn an average income between €55.901 and €68.300 (see figure 3). By calculating the proportional position to the average of Amsterdam for all five indicators and combining them, a stage model of gentrification can be calculated for the 32 selected neighbourhoods (see figure 4).
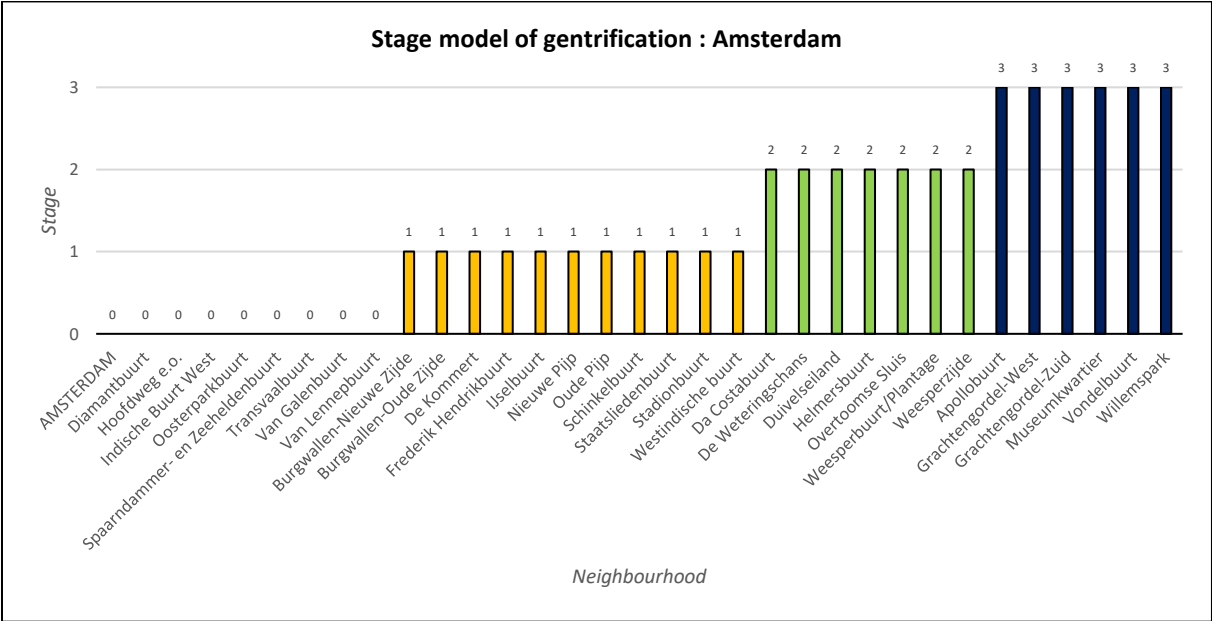

Figure 4: Stage model of gentrification for Amsterdam

Commercial gentrification

For the continuation of the research, the two most characteristic neighbourhoods were selected per stage. These neighbourhoods were chosen by the continuity of its scores on each of the five indicators. Neighbourhoods which score the most constant (f.i. on all five indicators 'stage one') and have the least deviation on each indicator were selected as samples, since these neighbourhoods generate the most representative view per stage. By applying (these) two samples per stage, a reliable

Figure 5: Selection of the eight most 'stereotype' neighbourhoods for every stage in Amsterdam

and comprehensive image of the variation regarding entrepreneurial activity will be generated.

Eventually, the selection results in the following neighbourhoods in the case of Amsterdam: the van Galenbuurt and Transvaalbuurt for stage zero, the Oude Pijp and Stadionbuurt for stage one, the Da Costabuurt and Weesperzijde for stage two and the Apollobuurt and Willemspark for stage three (see figure 5). This selection of eight neighbourhoods will be used as guideline for the research to commercial gentrification in Amsterdam, since they generate the most representative view for each stage.

In order to generate an overview regarding the extent of commercial gentrification for all four stages in Amsterdam, three defined subjects are of importance: the shift in sectoral entrepreneurial activity, the amount of employees per stage and the influence of gentrification for the earlier active local businesses. Combining these three subjects will lead to a comprehensive view about the influence of gentrification on gentrification-receptive neighbourhoods.

Sectoral differences per stage

With regard to forms of entrepreneurial activity in every stage for the eight neighbourhoods in Amsterdam, several points are noticeable (see figure 6). Firstly, the relative high amount of presence of the creative sector in each stage leaps out. However, generally a downward spiral is noticeable during the different stages for each sub-sector into this sector (the meaning of each individual number has been expressed in the appendix). Especially the sector of arts (no. 90) tends to decrease when gentrification is occurring: stage zero contains 12,9% of the total amount, stage three a total of 8,1%. For the other sectors, advertising agencies (no. 73) and industrial designing (no. 74), a smaller decrease is noticeable during the process of gentrification. Also companies related to high-grade business services are well-represented during each stage. For this sector, a different image is remarkable compared to the creative sector. With the ongoing process of increasing gentrification, high-grade business services develop in the same amount. Chiefly holdings & management advising (no. 70) increase with large proportions, taking a shift from 6% in stage zero to 12,5% in stage three. The same patterns is visible for the sub-sectors of estate agencies (no. 68) and accountancy/tax advisory (no 69), where a shift is noticeable from 2,5% in the lower stages to 6,4% in stage three. The last distinctive differences are visible in the relative amount of companies active in the educational sector (no. 85) and trade (no 46). A downward slope of almost 2% is appreciable in the public sector; from 6,6% in

stage zero to 4,8% in stage three. Regarding the trade sector, an increase of almost twice as much companies active in stage three neighbourhoods compared to stage zero neighbourhoods is noticeable. For the other sectors it is harder to make general conclusions. Regarding the health care sector, polarizing trends are visible. In case of the health-services sector (no. 86) an increasing tendency is observable related to ongoing gentrification, with approximately 3% more companies present in stage three related to other stages. However, the sub-sector of social services without caruncle (no. 88) displays another view, decreasing from 3% to 1% during the stages. A last worth mentioning sector is the somewhat smaller construction sector. Both the project development sector (no. 41) as the construction sector (no. 43) decrease when gentrification occurs, with almost no companies active in stage three neighbourhoods.
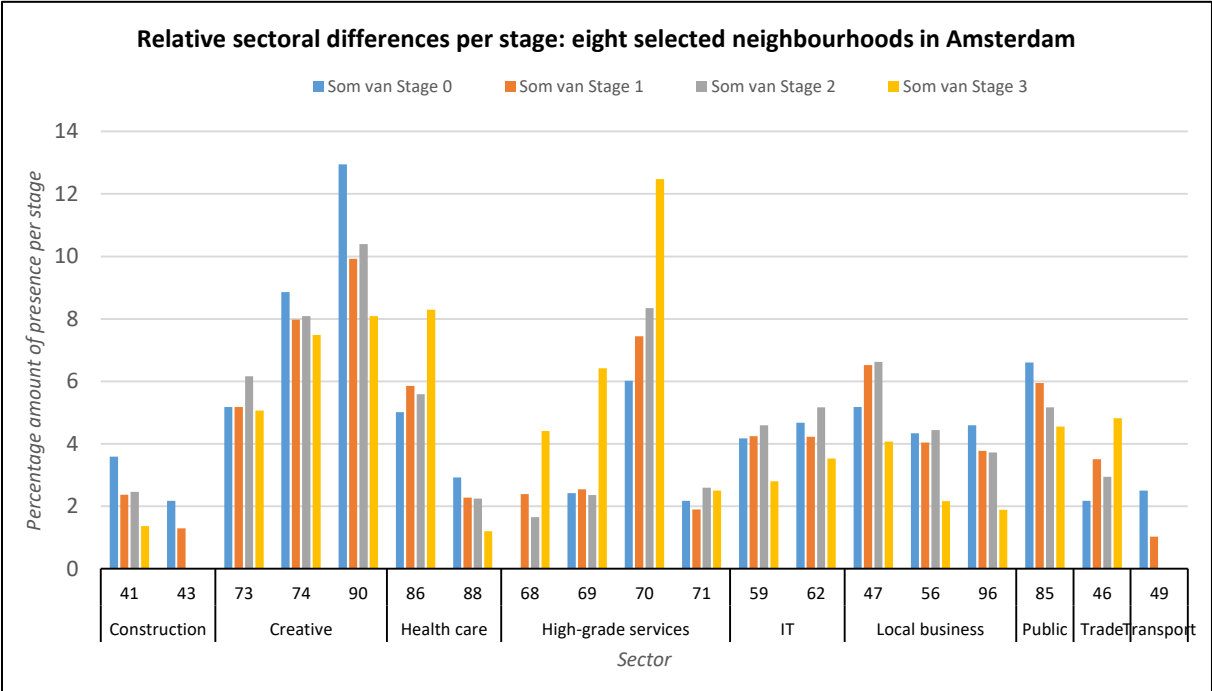

Figure 6: Relative sectoral differences per stage for the eight selected neighbourhoods in Amsterdam

Mean size of companies per stage

In order to calculate the mean size of companies per stage, the total amount of jobs per neighbourhood is divided by the total amount of companies in a neighbourhood. To generate the most representative view for the research, only SME's have been included in this research. Companies which have more than 100 employees have been filtered out of the database. Taking a look at the graph (figure 7), large differences are visible regarding the average amount of employees per company between the four stages. In the starting stages of gentrification, this number raises from an average of 2.3 employees in stage zero (van Galenbuurt and Transvaalbuurt) to 3.4 employees in stage one (Oude Pijp and Stadionbuurt). Eventually an increase can be remarked from 3.5 employees per company in stage two (Da Costabuurt and Weesperzijde) to an average of 3.8 employees in stage three (Apollobuurt and Willemspark). Hence, regarding average size of employee database per company, big differences are visible for the selected neighbourhoods during the four stages.
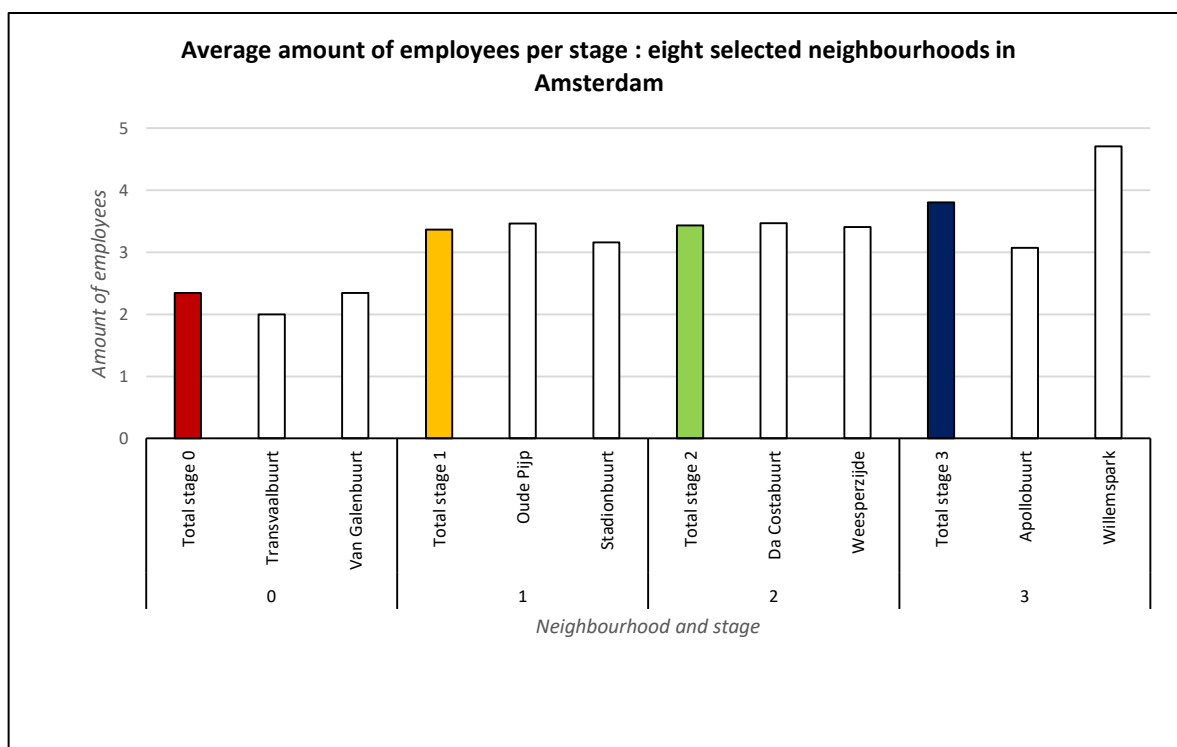
Figure 7: Average amount of employees per stage for eight neighbourhoods in Amsterdam

Local business dynamics

Local business in gentrifying areas in Amsterdam has developed by various paths during time. Researching the period between the start of gentrification (1996) and the last available data (2014), the wellness and other services (no. 96) sector relatively consolidated its presence in the neighbourhoods most. As visible in figure 8, this sector scores an average index number of 88. Eventually, this implies that this sector has grown with an average of 88% of the amount of each neighbourhood it is located in. On average, the sector did not develop by the same amounts of its neighbourhood, but distinguishes itself from the other local business sectors. These other two sectors, retail (no. 47) and food courts and beverage establishments (no. 56), show considerable different numbers compared to the wellness sector; an index number of 5 in the retail sector and 3 in the food- and beverage establishments, imply a growth level which is about 95% less compared to the neighbourhood in which it is located. Eventually, all three sectors combined, an average index number of 32 is the result for the sector local business in general. Hence, local business grows approximately with one third of the speed total business grows of the neighbourhood it is located in. When stage two and stage three neighbourhoods are distinguished and compared with each other, small differences are noticeable. The average of local business dynamics is very similar in stage two neighbourhoods (index number of 33, Da Costabuurt and Weesperzijde) compared to stage three neighbourhoods (index number of 32, Willemspark and Apollobuurt). In case of the eight selected neighbourhoods in Amsterdam, the degree of gentrification tends not to influence local business dynamics during time.
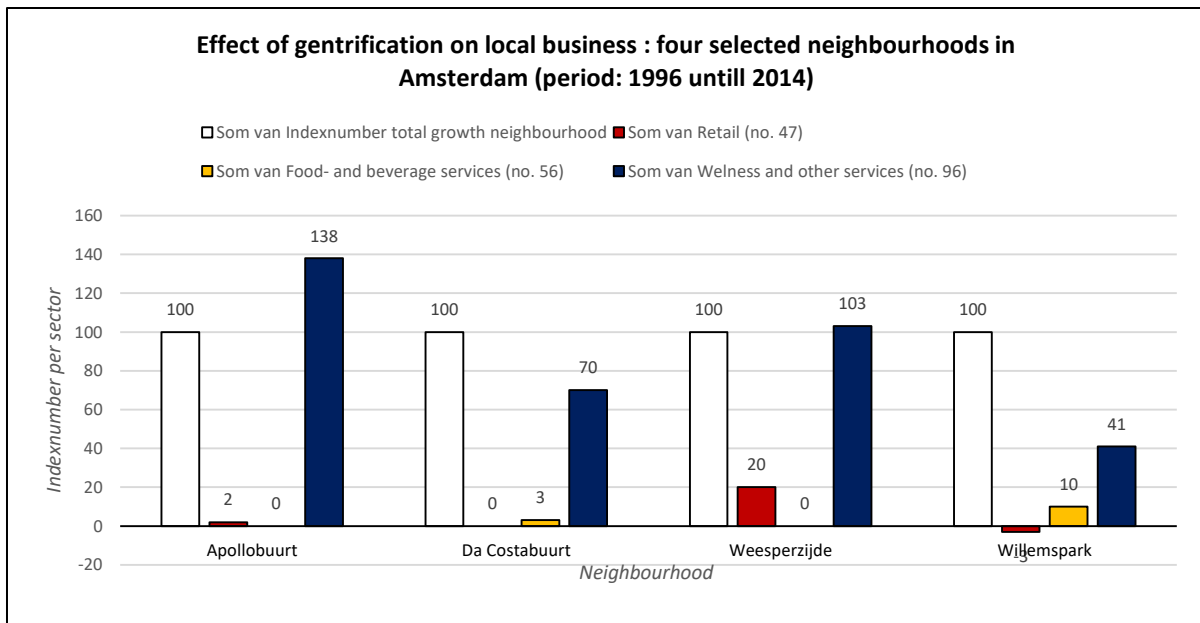
Effect of gentrification on local business : four selected neighbourhoods in Amsterdam (period: 1996 untill 2014)

☐ Som van Indexnumber total growth neighbourhood ■ Som van Retail (no. 47)
☐ Som van Food- and beverage services (no. 56) ■ Som van Welness and other services (no. 96)

Figure 8: Effect of gentrification on local business for the four selected neighbourhoods in Amsterdam

Since commercial gentrification in this research is measured by the three indicators described above (sectoral shift, employees per stage and local business dynamics), an indication can be given about the existence of commercial gentrification in Amsterdam. In short, a decrease of the creative sector compared to the increase in high-grade business services during the process of gentrification is noticeable. The average employee database of companies in higher stages becomes also higher, with an average of 2.3 in stage zero neighbourhoods compared to 3.8 in stage three neighbourhoods. Finally, local business tends to develop in a smaller extent compared to the total amount of growth in business activity in its neighbourhood.

Rotterdam

Selection of neighbourhoods

Rotterdam includes 92 neighbourhoods, of which almost 15 are industrial areas with a low population density. Defining gentrification-receptive neighbourhoods, a small difference regarding one quantitative indicator has been used compared with the approach of Amsterdam. This difference is located in the indicator with the focus on the average construction date of houses for every neighbourhood. Rotterdam suffered a lot from the World-War II by the bombardments, with a high amount of its

Figure 9: Selection of gentrification-receptive neighbourhoods in Rotterdam

housing stock destroyed (Taverne, 1990). Since a large effect would be visible regarding the amount of neighbourhoods which are labelled as gentrification-receptive (in terms of excluding plenty of neighbourhoods), the average date of construction of houses has been raised with ten years (construction date of houses < 1950). For the qualitative analysis, two websites have been used (Wijkprofiel Rotterdam 2017, Woongebieden Rotterdam 2017) in order to generate a view about the perception of the municipality of Rotterdam regarding gentrification-receptive areas. Since the
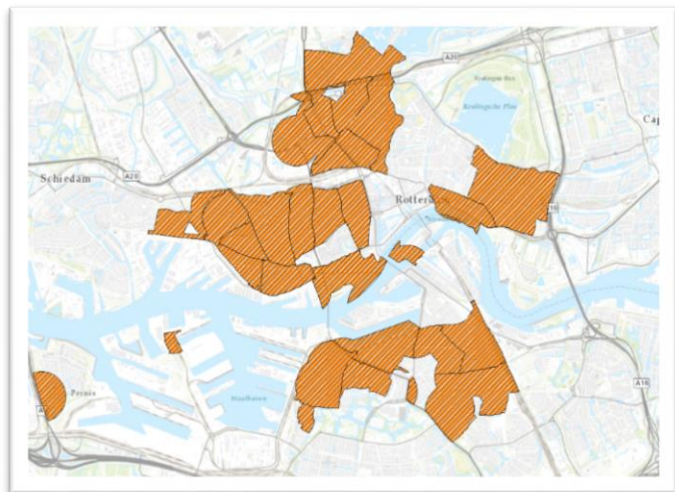
website Wijkprofiel Rotterdam (2017) focuses on numerical differences and the website Woongebieden Rotterdam (2017) on physical differences, a combination of these reports resulted in a comprehensive image concerning gentrification-receptive neighbourhoods in Rotterdam. Eventually, by combining quantitative indicators with the qualitative analysis, a dataset of 29 neighbourhoods became extrapolated (see figure 9).
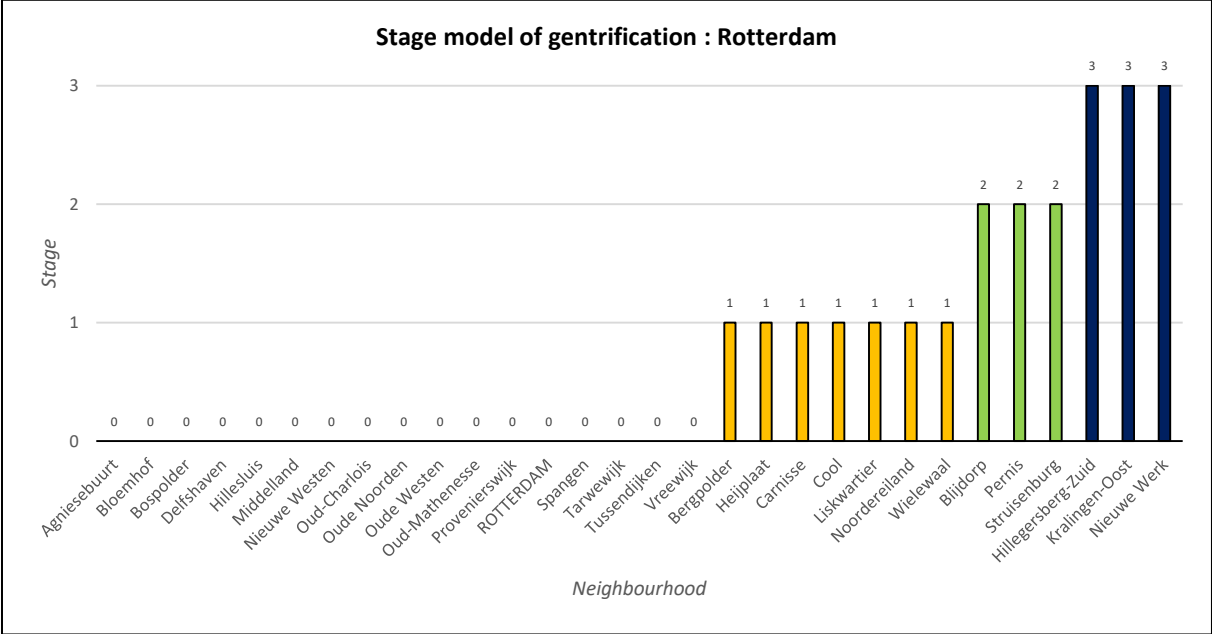
Combining a stage model

Figure 10: Stage model of gentrification for Rotterdam

The stage model of gentrification (figure 10) for Rotterdam differs from the other three cities, which is caused by relative high city averages on the five indicators. In every indicator, the average of Rotterdam is located in the upper half of the list. This implies that every indicator contains a substantial amount of low-valued stages, since all neighbourhoods which score under the city average are labelled as stage zero neighbourhoods. The relative high averages of Rotterdam on each indicator may be the result of a large amount of low values for substantial number of neighbourhoods in Rotterdam, combined with relative high outliers of a few neighbourhoods. By this, the average of Rotterdam on (most of) the five indicators has been lifted, with plenty of neighbourhoods which score lower than this mean. Given the amount of outliers which have been filtered out in order to obtain a representative stage model, this assumption may be justified. In both indicators, regarding income levels and housing values, two outliers have been filtered of the database, upon obtaining the most characteristic stage model. Relatively wealthier neighbourhoods (Kralingen-Oost, Het Nieuwe Werk and Hillegersberg-Zuid) provoke this stretching-effect of the stage model, which is the reason filtering them out of the database.

Taking a look at each separate indicator and comparing this with other cities, few observations are remarkable. First, income level differences for gentrification-receptive neighbourhoods in Rotterdam are relatively small (without outliers). However, in terms of multiculturalism of a neighbourhood, differences are by far the biggest in Rotterdam. Finally, gentrification-receptive neighbourhoods in Rotterdam have the highest percentage of social benefits receivers. These three observations regarding the relative score on indicators for the city of Rotterdam compared with the other three main cities in the Netherlands, indicate gentrification inside Rotterdam has just started. The observation that differences between stage zero, one and two are not very big yet, underlines this

conclusion. As gentrification develops, differences between stages become more remarkable among gentrification-receptive neighbourhoods.

Commercial gentrification

Eventually, eight neighbourhoods which are most applicable the stage model of gentrification are as following: Oude Westen and Provenierswijk for stage zero, Cool and Liskwartier for stage one, Struisenburg and Blijdorp for stage two and Hillegersberg-Zuid and Kralingen-Oost for stage three (see figure 11). These neighbourhoods are representing each stage for the research to the earlier mentioned subjects: the shift in sectoral entrepreneurial activity, amount of employees per stage and influence of gentrification for earlier active local businesses.
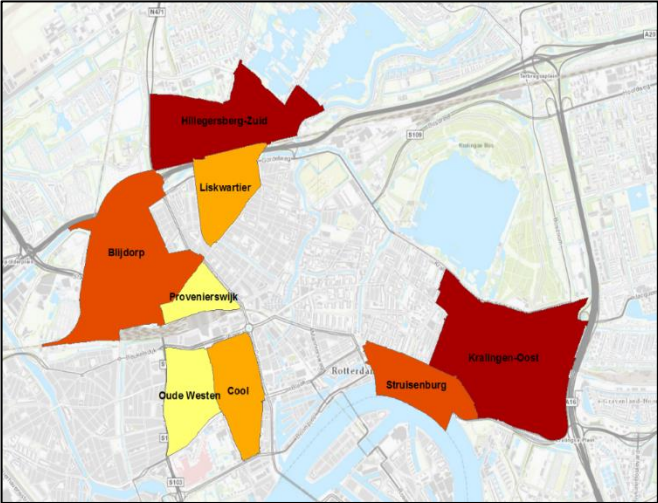

Figure 11: Selection of the eight most 'stereotype' neighbourhoods for every stage in Rotterdam

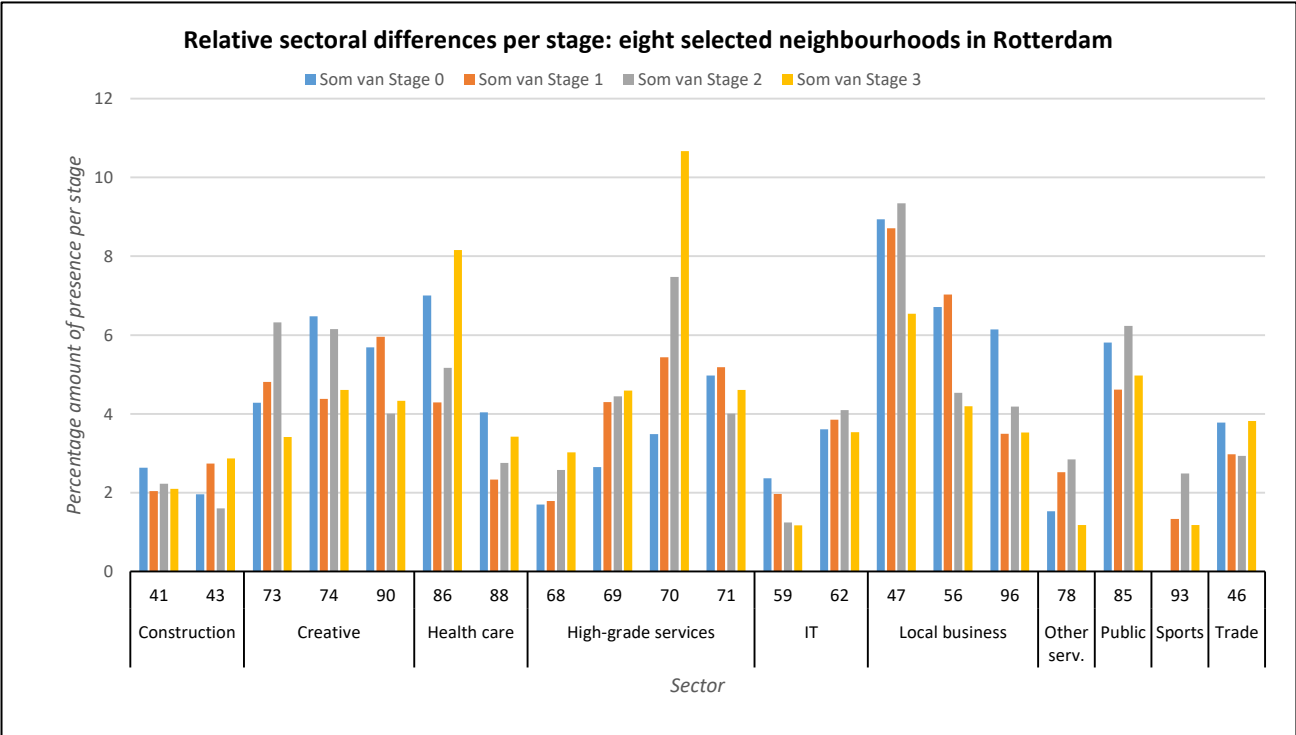*Sectoral differences per stage*

Figure 12: Relative sectoral differences per stage for the eight selected neighbourhoods in Rotterdam

Emphasizing sectoral differences between four stages, a couple of findings are noticeable. As visible in figure 12, local business takes a shift during the process of gentrification. High amounts of the retail sector (no. 47) are represented in every stage, but a clear decrease is visible between the earlier stages of gentrification (almost 9%) and stage three (almost 6%). This is also the case in the food- and beverage sector (no. 56) and wellness and other services (no. 96), all decreasing during the ongoing process of gentrification. On the other hand, high-grade business service related companies

tend to increase when gentrification occurs in a neighbourhood. With large increases in the real estate sector (no. 68), accountancy/tax advisory sector (no. 69) and holdings & management advising sector (no. 70), concluded can be that this sector benefits from the process of gentrification. In the other sectors, differences are noticeable which are less explicable. In most of the creative sub-sectors, a shift is noticeable with more activity in stage one- and two, and less activity in stage three. Finally, the health care sector tends to develop by a somewhat random pattern, with high amounts of presence in stage zero- and three, and less activity in stage one- and two neighbourhoods.
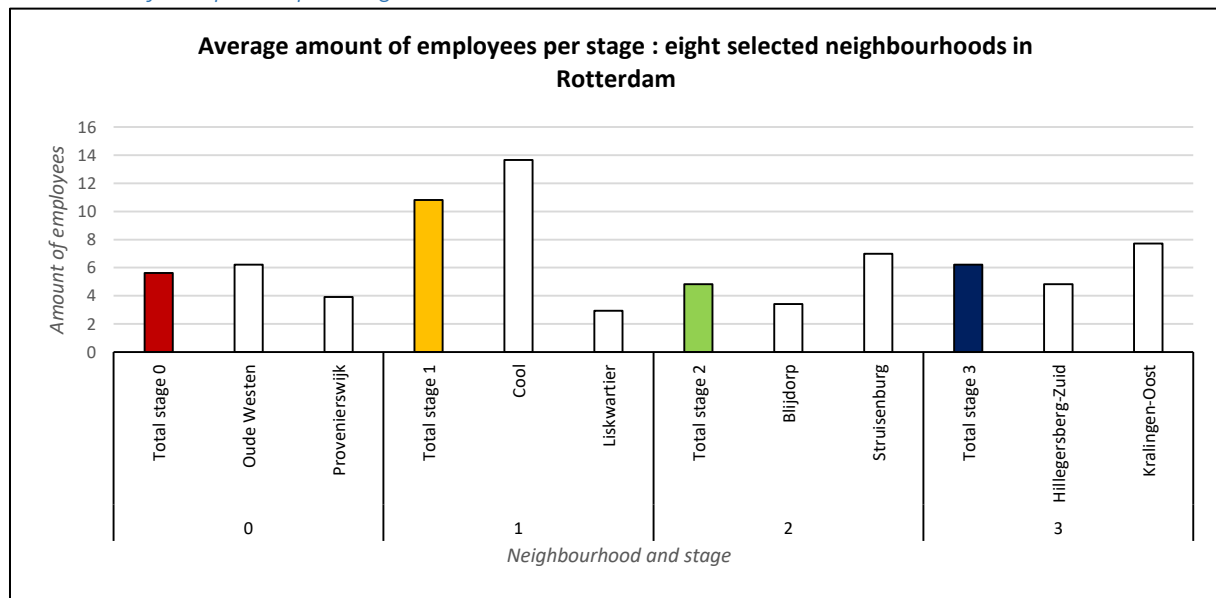
Mean size of companies per stage

Figure 13: Average amount of employees per stage for eight neighbourhoods in Rotterdam

When looking at the total amount of employees per company (figure 13), some large differences can be seen for the different stages. Stage zero, the combination of the neighbourhoods Oude Westen and Proveniersweg, generates an average of 5.6 employees per company. The average is almost twice as high in stage one, which contains a mean of 10.8 employees per company. This difference is mainly caused by the neighbourhood Cool, in which approximately half of the established companies have at least 10 employees. Since this is a relative larger neighbourhood compared to the Liskwartier (with an average of 2.9 employees), the average number for stage one raises exceedingly. Related to the other stages, stage one contains by far the highest number of mean size per company for the case of Rotterdam. Hence, stage two (Blijdorp and Struisenburg) includes an average workforce of 4.8 employees per company, compared to a mean of 6.2 employees in stage three (Kralingen-Oost and Hillegersberg-Zuid). Eventually, the main difference between average size of entrepreneurial activity in terms of amount of staff per company is mainly caused by the neighbourhood of Cool, which stretches the curve considerably.

Local business dynamics

By emphasizing dynamics in local business, different results are noticeable for the selected neighbourhoods in the period between 1996 and 2014 (see figure 14). First, the retail sector showed the least growth during the research period. With an average index number of -93, every neighbourhood (except Struisenburg) suffered among large amounts of disappearing companies in this sector. Regarding the sector food courts and beverage establishments, a different transformation becomes apparent for the four neighbourhoods. Kralingen-Oost and Blijdorp showed an increase, which is relative similar with the growth in business in its neighbourhood. However, in Hillegersberg-

Zuid and Struisenburg (with an index number of -402, as a consequence of stretching the graph this has been diminished to -200) this has been a decrease in the research period. Since the index number of Struisenburg stretches the graph by great proportions, the average index number of -50,5 is not very feasible. Finally, for the sector wellness and other services (no. 96) a similar pattern is visible. Kralingen-Oost and Hillegersberg-Zuid have transformed to neighbourhoods with less activity in these sectors, Blijdorp and Struisenburg (real index number of +2145) have undergone an increase of companies related to this sector. Since the number of Struisenburg again effects into an unfeasible average index number, this hasn't been calculated. Taking a look to differences between the extent of gentrification in a neighbourhood, remarkable differences become apparent. In neighbourhoods which have been labelled as stage two local business has increased during time: for Struisenburg 36% and for Blijdorp 1%. However, local business in stage three neighbourhoods has decreased between 1996 and 2014. Hillegersberg-Zuid loosed a total of 13% of local business during time, Kralingen-Oost 6%. Eventually, without the outliers of the neighbourhood Struisenburg (index numbers of -402 and +2145), an average index number regarding local business dynamics for the four selected gentrifying neighbourhoods in Rotterdam has been set on -36. This negative number implies local business shrank due to gentrification in Rotterdam.
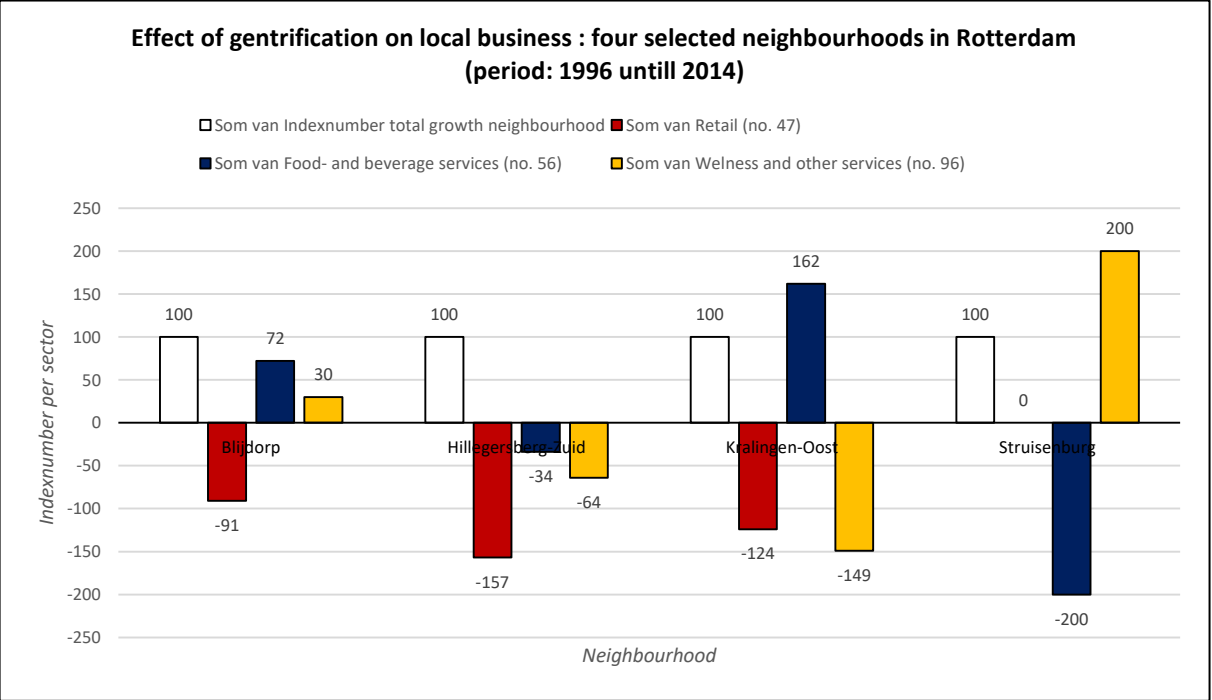

Figure 14: Effect of gentrification on local business for the four selected neighbourhoods in Rotterdam

When looked at the three indicators describing commercial gentrification in Rotterdam, few points are noticeable. Regarding sectoral differences between stages, high grade services become more apparent in neighbourhoods during the process of gentrification. However, regarding the relative amount of food courts and beverage establishments, this trend is vice versa. Concerning the mean workforce, stage one has been on top of the graph compared with the other three stages. Finally, taking a look to the shift in local business, concluded can be gentrification has a high influence

regarding local business dynamics for the four neighbourhoods in Rotterdam since all neighbourhoods show negative average index numbers.

The Hague

Selection of neighbourhoods

The municipality of The Hague has been divided in a total of 114 separate neighbourhoods. In order to split this database on the base of possibility of gentrification in each neighbourhood, a slightly different approach was used compared with other cities. Since The Hague contains the amenity of being located near the North-Sea, plenty villa-neighbourhoods were built in the outskirts of the
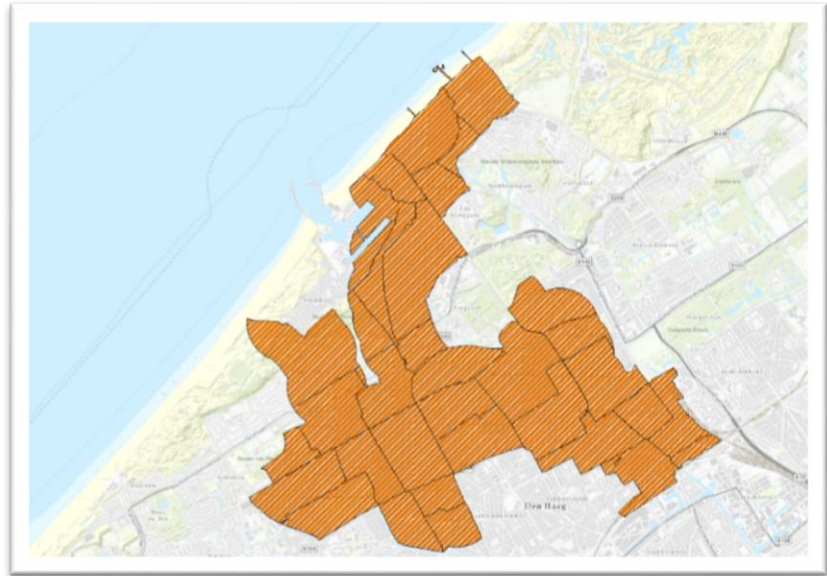

Figure 15: Selection of gentrification-receptive neighbourhoods in The Hague

city. These neighbourhoods may be marked as gentrification-receptive neighbourhoods by the quantitative indicators (proximity of railway station and average building year of houses) and eventually succeed as a stage three neighbourhood in the stage model of gentrification (since housing values are high, multiculturalism is low etc.), which would be a shortfall in the method. Since dwelling in these specific areas can just be afforded (and thus be privileged) by the rich, villa neighbourhoods generally do not fluctuate among the stage model of gentrification. Usually, these neighbourhoods would be filtered out of the database by analysing the qualitative reports of the municipality. However, since the best available report of The Hague (Wonen in Den Haag, 2017) does not provide very specific information concerning likelihood of gentrification in each neighbourhood, these neighbourhoods have been filtered out by using a slightly different approach. Using the combination of location, average housing values and the report of The Hague, villa-neighbourhoods have been separated from the other neighbourhoods in the database. Eventually, combining the quantitative indicators with the (marginal) qualitative analysis, 33 gentrification-receptive neighbourhoods were the result for the city of The Hague (see figure 15).

Combining a stage model

Regarding the five indicators which define the neighbourhoods in separate stages, the city average of The Hague is relative average compared with the other three cities. The combination of a relatively large population in the metropole area combined with a relatively large amount of villa neighbourhoods, may be the cause for this. Also regarding the stage model of gentrification for The Hague, a relative normal distribution is visible: a high amount of neighbourhoods where gentrification has just became known and a somewhat smaller amount of neighbourhoods which are already facing the process of gentrification (see figure 16). Eventually, just one outlier (Vogelwijk: housing values) had to be filtered out of the database in order to create a reliable proportional distribution for the stage model.
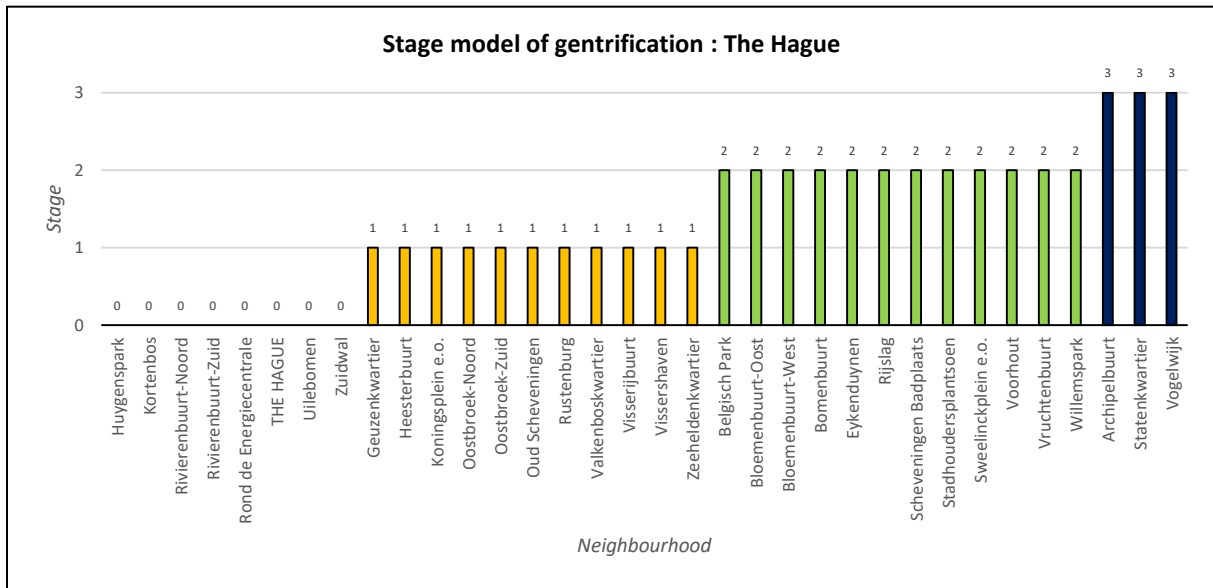
Figure 16: Stage model of gentrification for The Hague

Commercial gentrification

The neighbourhoods which are most applicable for further research on commercial gentrification in The Hague, concern: the Huygenspark and Zuidwal for stage zero, the Koningsplein (e.o.) and Zeeheldenkwartier for stage one, Sweelinckplein (e.o.) and Rijslag for stage two and the Statenkwartier and Vogelwijk for stage three. Since these areas scored the most constant on each separate indicator in the stage model of gentrification, it is
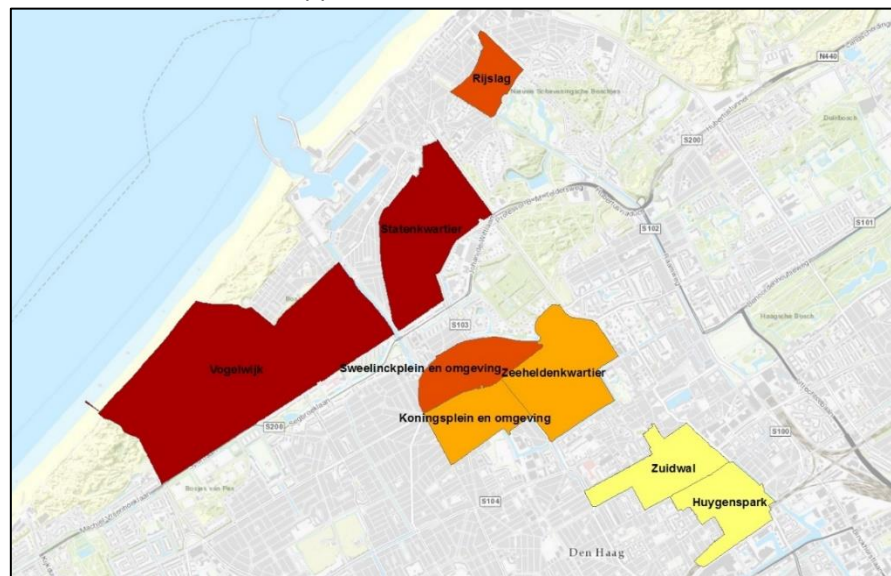

Figure 17: Selection of the eight most 'stereotype' neighbourhoods for every stage in The Hague

assumed that these neighbourhoods are the most representative for each own stage (see figure 17).

Sectoral differences per stage

In business dynamics between different stages, big deviations principally arise in the sectors which have been marked as local business (see figure 18). These sectors, which include retail (no. 47), food courts and beverage establishments (no. 56) and wellness and other services (no. 96), display a relative drop as gentrification increases. First, the retail sector lowered from a relative presence of 9,2% of the total amount of companies in stage zero, to 4,6% in stage three. Besides, the sector food courts and beverage establishments experienced a drop from 6,6% in stage zero to 2,7% in stage three. Finally, wellness and other services lowered from 6,1% in stage zero to 2,8% in stage three. Furthermore, a negative shift is visible in the creative subsectors. Especially within the sector of arts

(no. 90) a negative shift as gentrification increases, witnessing the decrease of almost 4% between stage zero and stage three. On the other hand, also sectors experience a boost from increasing gentrification. The health-care sector shows, predominantly for the general health-services (no. 86), a large increase in activity between stage zero- and stage three neighbourhoods. In a lesser extent, also the high-grade business services sector shows greater activity with increasing gentrification. Regarding the holding-sector (no. 70), a same trend is visible as in the previous mentioned cities. With approximately 1/20th (5,3%) of the total amount of companies labelled as holding industries in stage zero, a clear shift is remarkable when gentrification occurs. In stage three, the holding sector includes almost 1/6 (16,0%) of the total stock of enterprises.
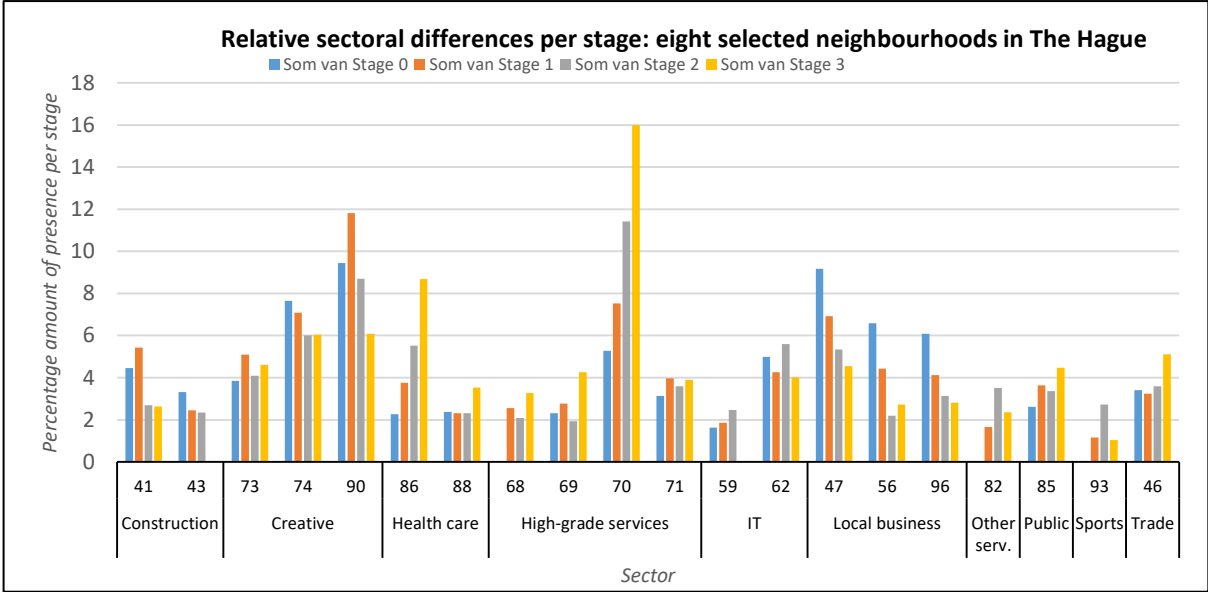

Figure 18: Relative sectoral differences per stage for the eight selected neighbourhoods in The Hague

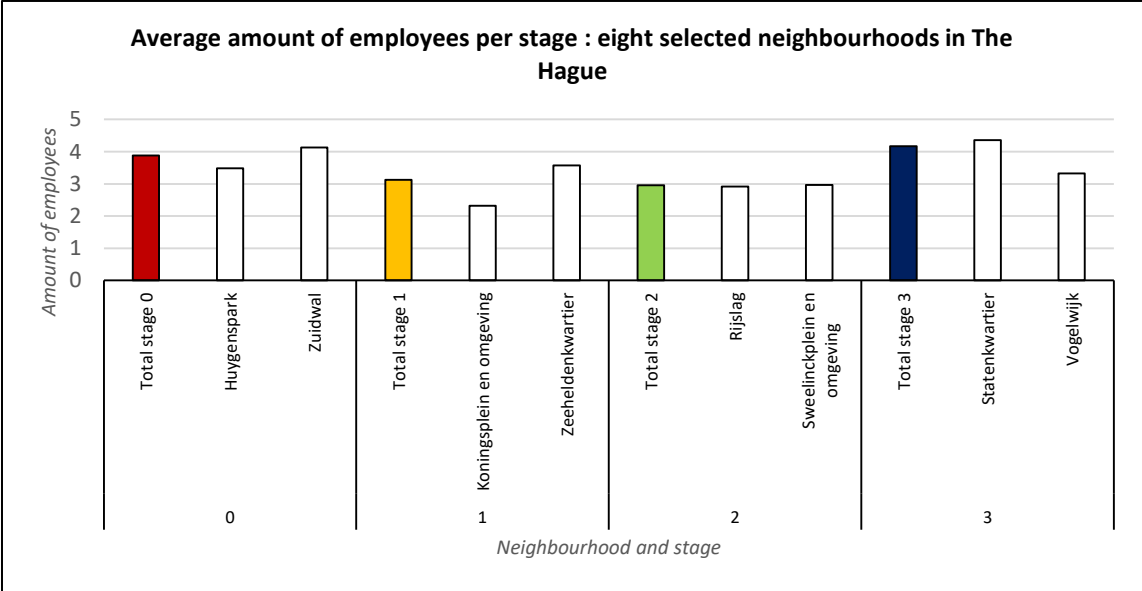### Mean size of companies per stage

Figure 19: Average amount of employees per stage for eight neighbourhoods in Rotterdam

For averages in mean size of companies among the four stages, small differences are noticeable (figure 19). The mean size of a company, in terms of amount of employees, is 3.9 people per company for stage zero (Huygenspark and Zuidwal). This number is quite similar to the average of stage one (Koningsplein and Zeeheldenkwartier), with 3.1 employees per company, and stage two

(Rijslag and Sweelinckplein) with a mean of 3.0 people. However, since the neighbourhood of Rijslag just provides 175 jobs in 60 companies, this database is very small. Hence, regarding this neighbourhood, this result is located on the edge of representativeness. Stage three (Statenkwartier and Vogelwijk) contains averagely 4.2 employees per company, which is a little higher compared to the other stages.
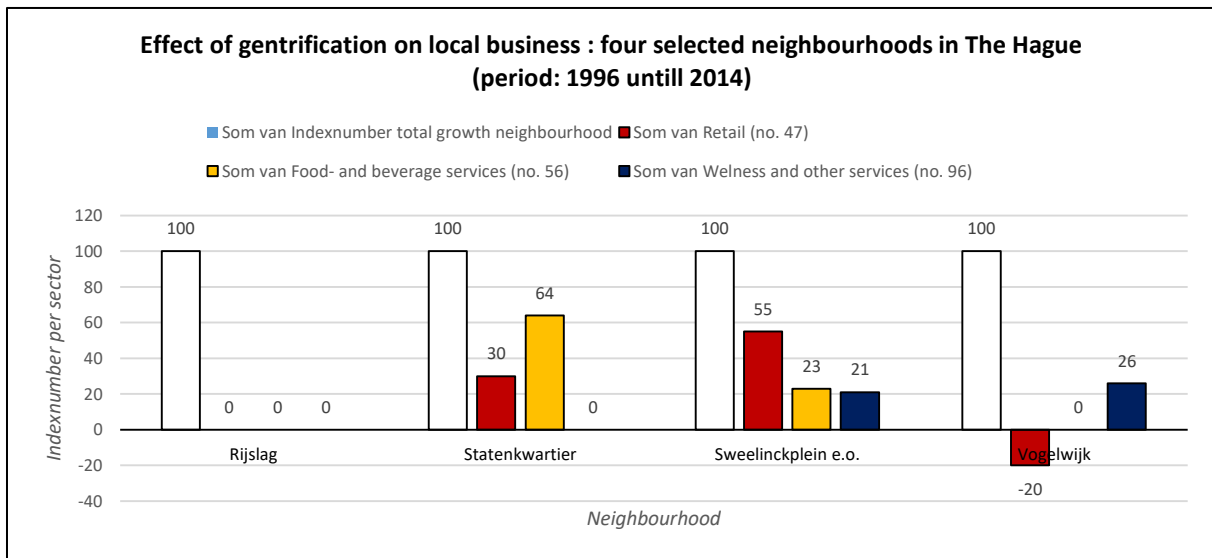
Local business dynamics

Figure 20: Effect of gentrification on local business for the four selected neighbourhoods in The Hague

Due to lack of data, not all neighbourhoods have been suitable for the research to dynamics in local business. As earlier described, a minimum of 10 companies (5 companies for smaller neighbourhoods) has been used to involve neighbourhoods in the research. This minimum has been applied, in order to create the most substantial image regarding local business dynamics. For example, since an increase from one to two companies in the retail sector generates a relative growth of 50%, this will generate a distorted image. For this reason, the neighbourhood of Rijslag was not involved in this whole part of the research.

For the other neighbourhoods, in general a positive trend is visible in The Hague. Local business has grown in the selected neighbourhoods of The Hague during the research period , with an amount of 27% for the sector of food courts and beverage establishments (no. 56), 15% for the sector retail (no. 47) and 14% for the sector of wellness and other services (no. 96). However, each individual sector has not developed by the same numbers, compared with the growth in total amount of business for each of the neighbourhoods. As visible in figure 20, local business in the Vogelwijk has experienced the smallest relative growth (the sector retail has even shrunk), followed by the Sweelinckplein and the Statenkwartier. Emphasizing each individual sector which local business comprise, concluded can be that the sector regarding food courts and beverage establishments (no. 56) relatively passed through the largest growth. However, this growth is far from the average of each individual neighbourhood in which it is located. Eventually, with an average index number of 25, local business has developed four times less compared to its neighbourhood in which it operates.

To summarize, commercial gentrification is partly occurring in The Hague. Comparing sectoral differences during different stages, high-grade business services become more represented in stage three neighbourhoods. Besides, local businesses are less present when gentrification increases. The latter paragraph endorses this finding, showing local business (no. 47, no. 56 and no. 96) generally augments four times less compared to its individual neighbourhood during the last twenty years in The

Hague. Concerning the average amount of employees per company, no conclusions can be drawn as no explainable differences have appeared among the four stages.

Utrecht

Selection of neighbourhoods

Utrecht contains a total of 110 neighbourhoods in its municipality. Also for Utrecht an adjustment in its indicators has been used in order to generate a workable database. Since the city of Utrecht includes less railway possibilities (just two main tramlines, no subway) compared to the other three cities in the research, multiple gentrification-receptive
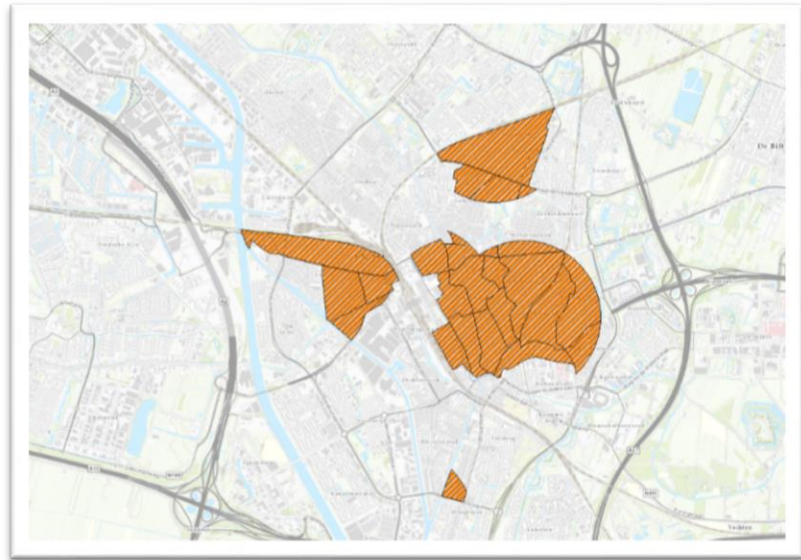

Figure 21: Selection of gentrification-receptive neighbourhoods in Utrecht

neighbourhoods were filtered out due to the proximity-to-railway indicator (which had been set on a maximum of 500 metres). Since the railway amenity is on this low level for the city of Utrecht, the relevancy of this indicator comes at stake. Because of this, the buffer has been expanded by 500 metres, in order to create a relevant and practicable database regarding gentrification-receptive neighbourhoods. Another hindrance concerning the selection of cases for Utrecht can be found analysis of the qualitative report. Since almost no reports focused on the amount of gentrification among neighbourhoods in Utrecht were provided by the municipality, another approach was necessary for this qualitative analysis. Utilizing the only available report (Gemeente Utrecht, 2016) with concise descriptions for every district in the municipality, a succinct form of the analysis became possible. Combining the valuations for every district with each inherent neighbourhoods, a view regarding the receptiveness of gentrification among neighbourhoods in Utrecht could be obtained. Eventually, 26 neighbourhoods were filtered out as gentrification-receptive for the city of Utrecht (see figure 21).
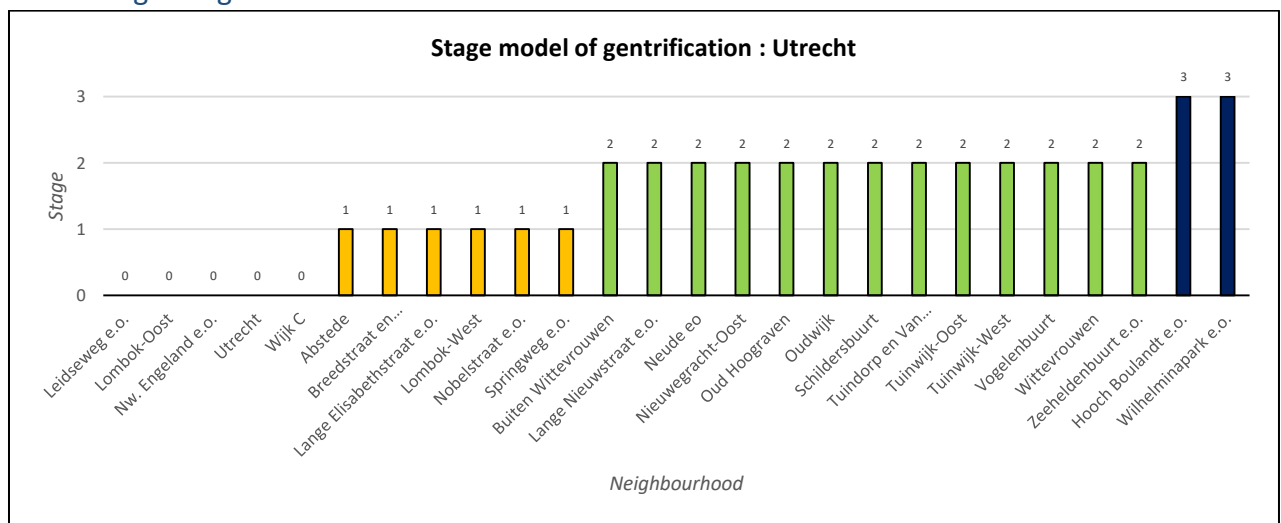
Combining a stage model

Figure 22: Stage model of gentrification for Utrecht

Comparing the average number on all five indicators, Utrecht has the highest city average. Except four neighbourhoods, every neighbourhoods has a higher score related to the city average, which is (absolutely and relatively) higher than all other cities. However, just two neighbourhoods have been labelled as stage three in the stage model. Relative high averages of the city itself on each indicator are the cause for this observation. Each neighbourhood has to score very consistent on every single indicator in order to be labelled as stage three. This is harder to achieve for a neighbourhood in Utrecht compared to, for example, a neighbourhood in Rotterdam (where the general city averages are very low). In order to create this model as reliable as possible, eventually three outliers had to be filtered out of the housing-values indicator (see figure 22).

Commercial gentrification

The following eight neighbourhoods were selected for the research of commercial gentrification in Utrecht: Nieuw Engeland (and around) and Leidseweg (and around) for stage zero, the Springweg (and around) and Abstede for stage one, Buiten Wittevrouwen and Oudwijk for stage two and Hooch Boulandt and Wilhelminapark (and soround) for stage three (see figure 23).
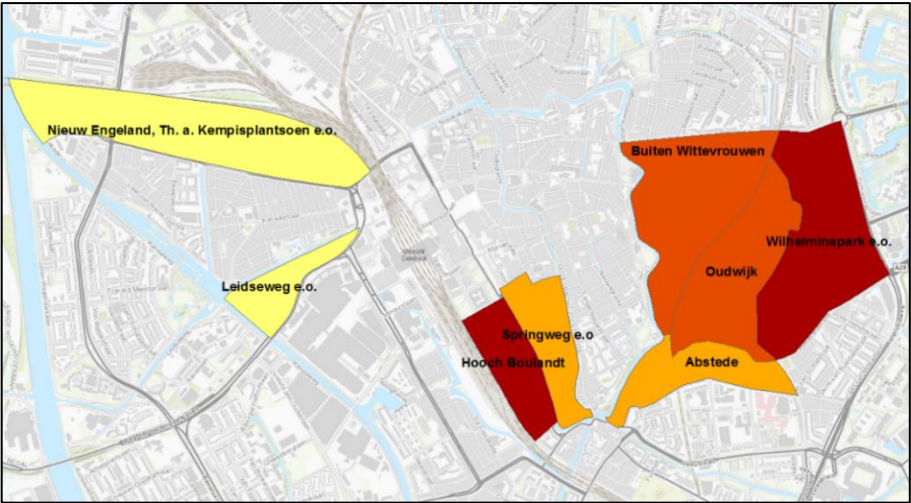

Figure 23: Selection of the eight most 'stereotype' neighbourhoods for every stage in Utrecht
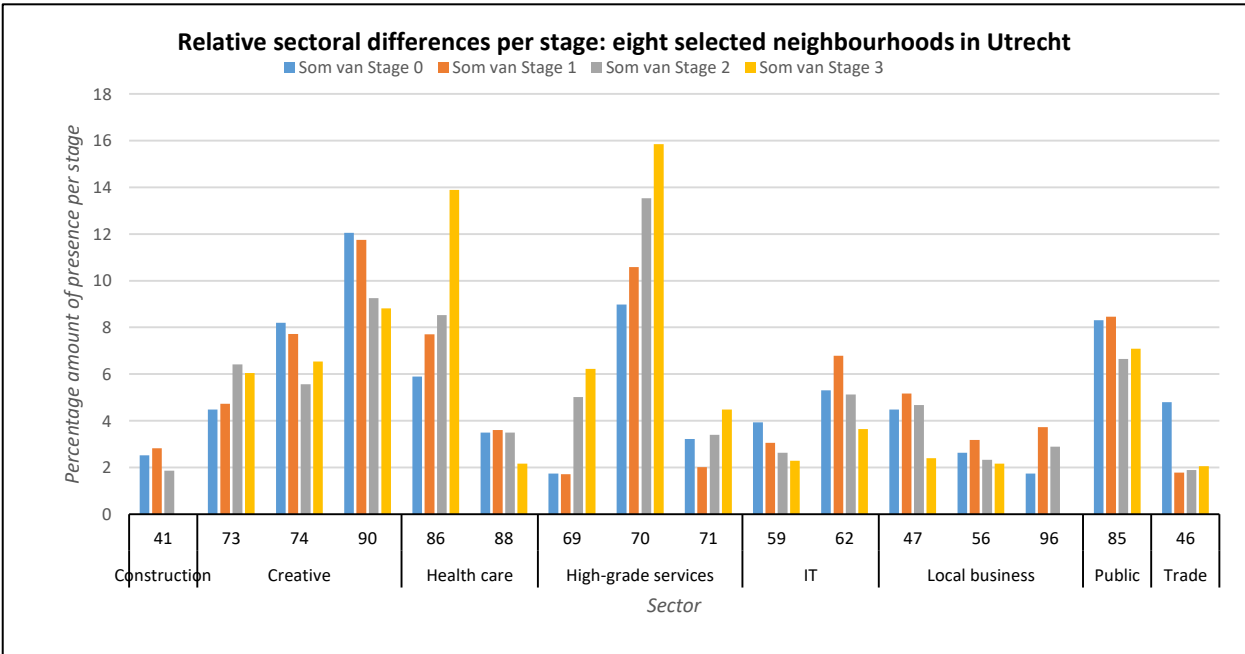
Sectoral differences per stage

Figure 24: Relative sectoral differences per stage for the eight selected neighbourhoods in Utrecht

Taking a look to sectoral differences per stage, almost the same pattern is visible like in the previous discussed cities. The biggest sectors in all four stages is the health-care, creative sector, high-grade business services and education. Like before, the largest shift is noticeable in the holding (no. 70) sector. With an increase of 6,2% between stage zero (9,0%) and stage three (15,8%), this sector gains in dominance during the process of gentrification in Utrecht. The same pattern is visible in the health-services sector. This sector takes almost follows a linear development: 5,9% in stage zero, 7,7% in stage one, 8,5% in stage two and a relative outlier of 13, 9% in stage three. Again, the other way around is visible for most creative sub-sectors. Art-related (no. 90) companies becomes less familiar when neighbourhoods in Utrecht tend to gentrify more, witnessing the decrease from 12,0% in stage zero to 8,8% in stage three. The other sectors which have been remarked as dominant, health-care and education, show other patterns. Regarding the health-care sub-sectors, different trends are visible. The general health-care services (no. 86) tend to grow in gentrifying areas, while social services without caruncle (no. 88) decrease in case of gentrification. This is also the case for educational services (no. 85) in neighbourhoods, as the graph of the public sector shows. A final remarkable finding is the decline in IT related business activity in case of rising gentrification (see figure 24).

Mean size of companies per stage

The average size of an entrepreneurship remains quite stable during the different stages. With an average of 3.1 employees per company for all eight neighbourhoods together, each stage flicks a number which is near this average. Stage zero (Leidseweg and Nieuw Engeland) has a mean of 2.5 people working for a company, stage one (Abstede and Springweg) an average of 3.0 employees, stage two (Buiten Wittevrouwen and Oudwijk) an average of 3.8 persons per company and stage three (Hooch Boulandt and Wilhelminapark) completes the row with a mean size of 2.9 people per enterprise. As said, regarding average size of employee database per company, several differences are noticeable (see figure 25).
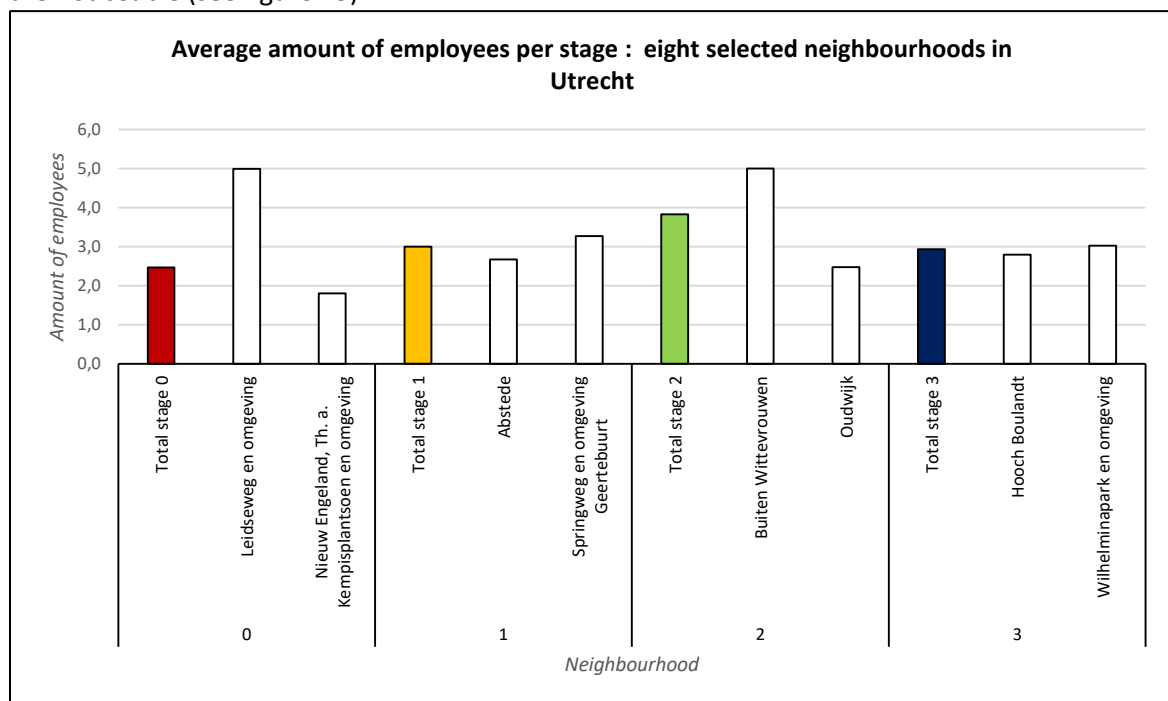

Figure 25: Average amount of employees per stage for eight neighbourhoods in Utrecht

Local business dynamics

Regarding shift in local business in Utrecht, similar problems arise like the case of The Hague. Since the neighbourhoods Hooch Boulandt and Wilhelminapark provide a tiny entrepreneurial

database (respectively 146 and 216 entrepreneurships in year 2014), the threshold of a minimum 5 companies in order to include a sector in the research could not be achieved. By this, just the neighbourhoods of Buiten Wittevrouwen and Oudwijk (both stage two neighbourhoods) were included in this part.

Following figure 26, every sector in the two neighbourhoods has experienced growth during time according to the positive index numbers. However, this figure also shows the rise of differences regarding local business dynamics during the period of 1996 until 2014. Taking the relative growth of business inside each neighbourhood into consideration, just the food courts and beverage establishments (no. 56) sector in Buiten Wittevrouwen has experienced the same amount of growth during the research period. Considering Oudwijk, the same sector has grown with about 20% of its relative neighbourhood growth. In particular retail (no. 47) did not develop by the same amount of its neighbourhoods, with index numbers of 26 (in Buiten Wittevrouwen) and 3 (Oudwijk). Finally, wellness and other services (no. 96) augmented with approximately 60% of the growth of its neighbourhoods. Eventually, induced can be local business hasn't developed with the same standards as its neighbourhood in which its located. With an average index number of 46, the average amount of business growth in the selected neighbourhoods of Utrecht was almost twice as high. However, since two neighbourhoods were filtered out of this part, it is hard to generate conclusions by just these results.
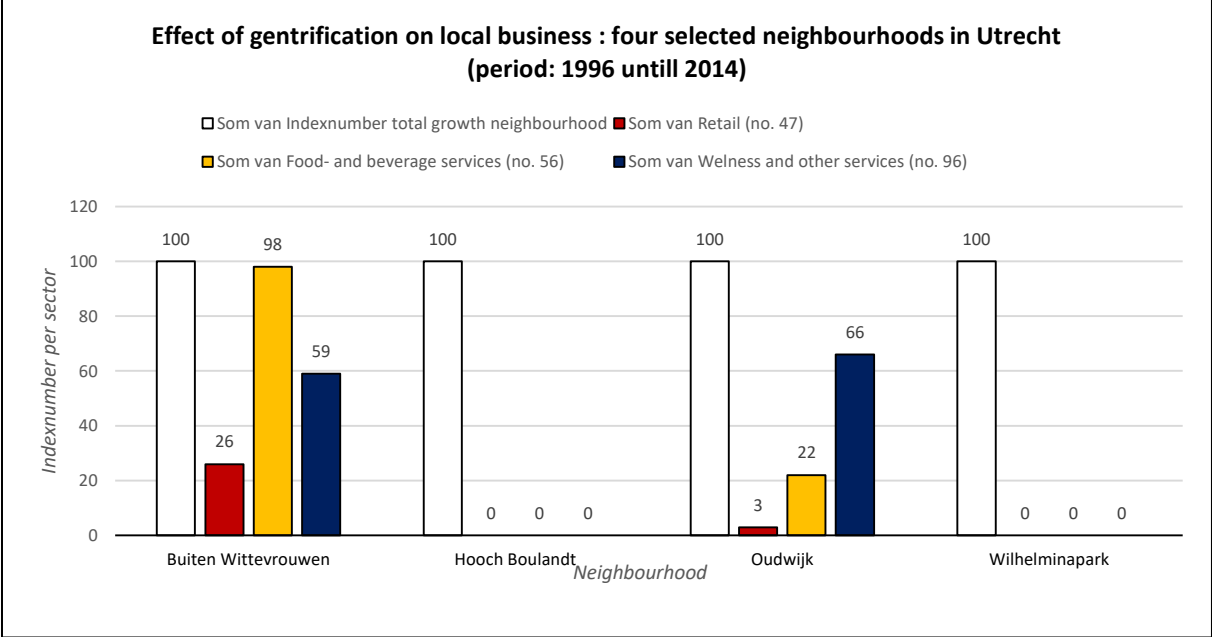
Figure 26: Effect of gentrification on local business for the four selected neighbourhoods in Utrecht

Concluded can be that commercial gentrification is visible in Utrecht. The three subjects show almost the same pattern as earlier discussed cities. First, the sectors regarding holdings (no. 70), health-services and arts (no. 90) show a pattern which can be related to the process of increasing gentrification. Besides, also local business dynamics show an diminished activity in these sectors when gentrification is occurring. Eventually, no big differences are visible between the average number of employees of neighbourhoods from different stages.

Analysis

Before continuing with the analysis, it is important to explain the relationship between the results for both the selected neighbourhoods and all gentrification-receptive neighbourhoods once more. As said, by generating a link between neighbourhoods which are the most representative for each stage with all gentrification-receptive neighbourhoods of the city (the 'control factor'), a higher amount of certainty for the generated results will be created. In almost every case both results show the same pattern, which strengthens the stated arguments. Just in the section focused on local business a small contradiction has been observed, which will be discussed later.

The generated results regarding gentrification-receptive neighbourhoods for each sub question are visible at the end of each paragraph, after the discussed results of the selected neighbourhoods. All results for the gentrification-receptive neighbourhoods of each separate city can be found in the appendix.

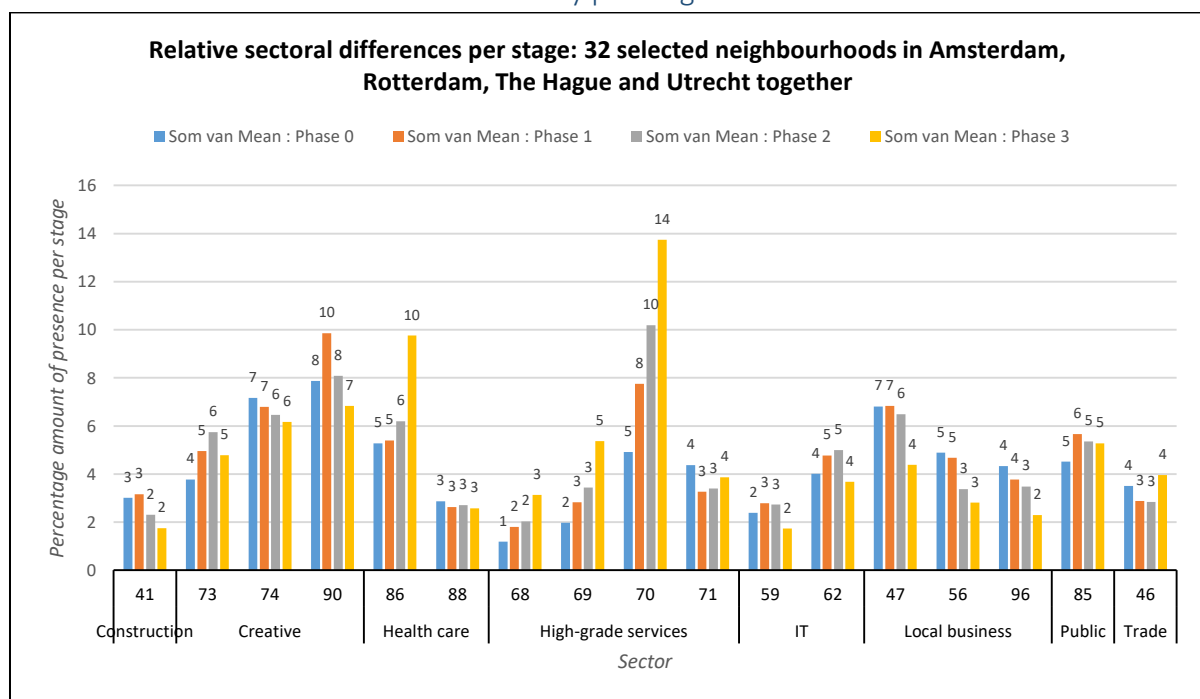### Sectoral shift : differences in sectoral activity per stage

Figure 27: Relative sectoral differences per stage of all 32 selected neighbourhoods in all four cities together. Dataset contains 3.172 companies in stage zero, 6.003 in stage one, 3.186 in stage two and 4.585 in stage three.

In order to compare the theoretical framework with obtained results, it may be valuable to take a look at the earlier formulated hypothesis. Related to the sectoral shift (as a consequence of gentrification), "a shift in entrepreneurial activity will be very likely, since most parcels will not be affordable for a small, local oriented entrepreneur. The presence of chain stores will be very common in gentrifying neighbourhoods, since they are able to pay higher rents and serve a local exceeding audience." In other words, due to the process of increasing gentrification, sectoral change may be visible since new economic opportunities arise, different cultural groups are dominant in neighbourhoods and media attention for the neighbourhood increases (Lees et al. 2008, p.31).

Taking a look at figure 27, immediately sector 70 (holdings and management advising) leaps out. This sector deals primarily with administrative parts of businesses, exerting the so-called 'white collar' expertise. With a percentage of 4,9 of the total amount of enterprises in phase zero, this sector proportionally grows to an amount of 13,7% in phase three. Zukin (1987) clarifies the intertwined relationship between these 'white collar' workers, who are more represented in high gentrified areas,

and corporate headquarters. As she stresses, 'this capital presence draws new investors and consumers (p.138)'. Since the correlation between increasing income levels with increasing stage-levels has been advocated by the stage model of gentrification, it seems as well there exists a reciprocity between increasing income levels and high-level business activity. This high-level, globally competing corporate activity (headquarters of large companies), tends to locate near city centres (Robinson, 1995). However, mostly these neighbourhoods are also the gentrifying locations of a city, since gentrification is driven by a desire to live in the inner part of the city (Bounds & Morris, 2006). These intertwined trends are noticeable in the research, given the intersperse results of raising activity in the holdings-sector with relatively more educated and richer people in the higher stages of the stage model. Besides, taking a look to the high-grade business service activity dynamics in general, it seems there is more activity in neighbourhoods located in higher stages. First, real estate agencies (no. 68) tend to be more active in higher stages. Two indicators may be the cause of this effect. Firstly, gentrifying neighbourhoods bear a shift from social housing/tenement houses to homeownership (Kennedy & Leonard, 2001). Subsequently, generally seen mean income level increase when neighbourhoods gentrify. The combination of increasing housing supply with increasing income level in a neighbourhood, implies a bigger market for companies active in this sector. Regarding the legal services and accountancy activity (no. 69) in a neighbourhood, a similar shift is visible during the four stages. As Yoon and Currid-Halkett (2014) stress, this development is correlated with the shift from manufacturing industries to service-related industries and, among this process, the shift from 'blue-collar' to 'white collar' residents in the city. When gentrification increases, the average income level of a neighbourhood increases as well. Eventually, this causes the effect of an increasing amount of industries related with this sector.

Also the sector of health services (no. 86) tends to grow as a result of gentrification. Focussing on the inherent subsectors (a.o. hospitals, dentists, abortion clinics and psychiatrists), it becomes clear all these subsectors are dealing with health care for all ages (instead of health care focused just on elderly). This relationship between increasing gentrification and raise in health-care services is accountable, since health-care activity and education levels are positively related with each other. As education level rises, generally seen people become more prosperous. By this, more opportunities arise to invest in health-related services. As Groot and Maassen van den Brink (2006) stress, "… (well-educated) are more likely to seek medical help sooner. Higher educated people are also more informed and more assertive about the opportunities and the possibilities to obtain medical help … (p.361)". Since the other subsector (no. 88; social services without caruncle) in the health-care sector focuses more on elderly and youth in particular, the previous argument can be used as well to explain its relative constant graph during the four stages.

Besides the increase in business activity for certain sectors, also a reciprocal view is visible in the graph. Regarding declining business activity as a result of gentrification, the most outstanding sector can be found in the creative sector. Most of the business activity in the creative sector tends to increase when the process of gentrification starts, but diminishes exceedingly when gentrification becomes very prominent in neighbourhoods. Zukin et al. (2009) clarify this process, stating that art- and cultural related shops increase with the start of gentrification. Since stage zero neighbourhoods generally are considered as authentic by these kind of entrepreneurs, this generates higher amounts of activity in this sector. Besides, rents are relative low during this process of gentrification. However, eventually those companies fall on their own sword. With the start of this development, media attention for the neighbourhood grows (Lees et al., 2008). Subsequently, rents will rise, which finally causes displacement of most of these companies (Snepeger et al., 2003). Given the rise in the art subsector (no. 90) between stage zero and stage one (from 7,9% to 9,9%), succeeded by a large decline (eventually to 6,8%) in the higher stages, this process is clearly visible in the graph.

A last clear decline is visible in the 'local business' activity during the process of gentrification.

This term has been defined as the combination of the retail sector (no. 47), the food courts and beverage establishments (no. 56) and the wellness and other services sector (no. 96). Experiencing a loss in all sectors during the ongoing process of gentrification, this sector tends to decline when gentrification increases. Two main reasons establish this finding. First, local demands shifts during the process of gentrification (Meltzer, 2016). Subsequently, displacement occurs as a process of rising property rents (Ferm, 2016). Since the difference between relative amount of companies in stage zero and stage three is minimum two percent-points for all three sectors, local business and gentrification seem to have a negative correlation.

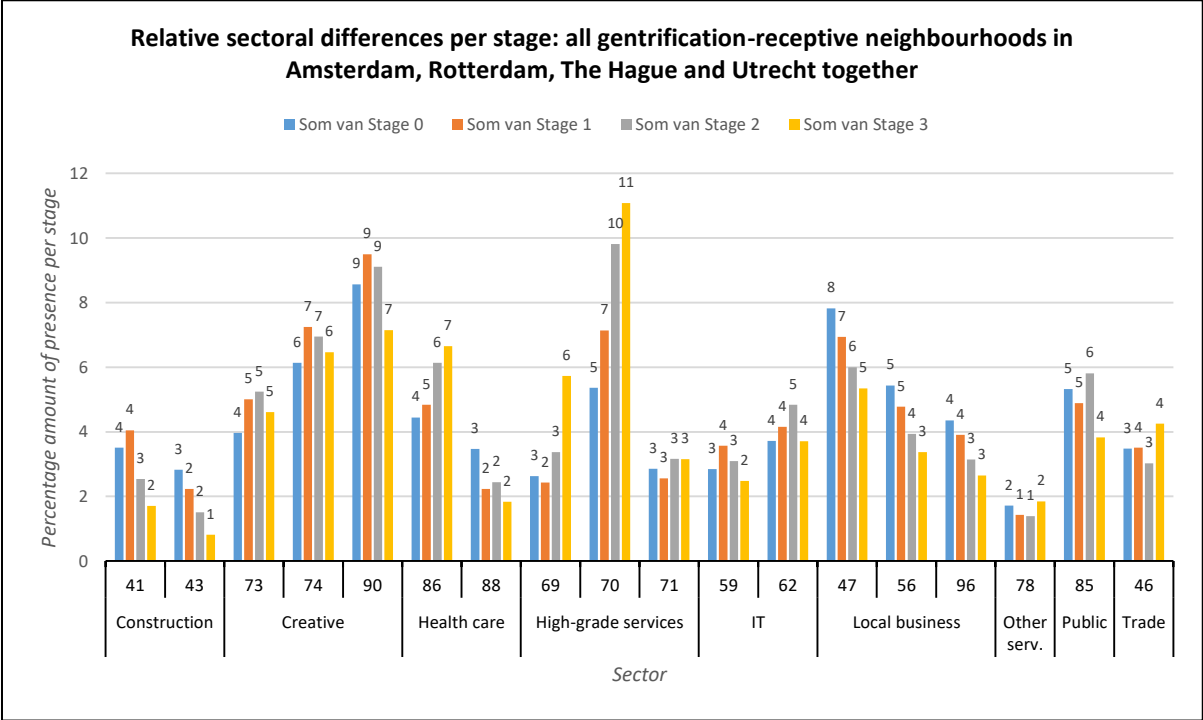Figure 28: Relative sectoral differences per stage of all gentrification-receptive neighbourhoods in all cities.

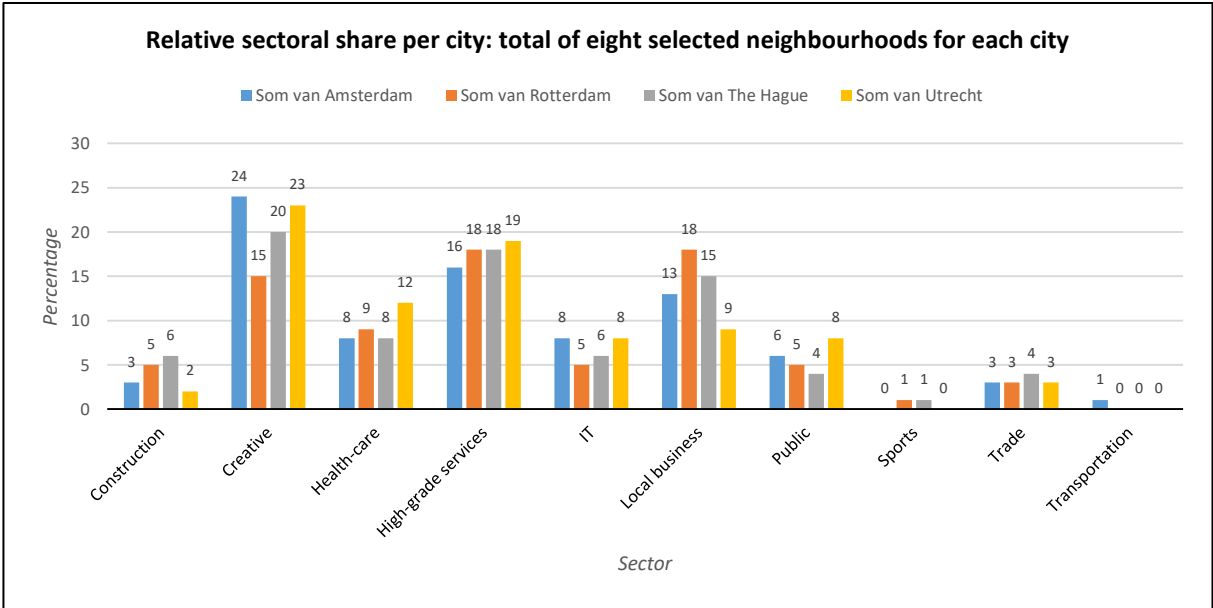## Sectoral shift: differences in sectoral activity between cities

Figure 29: Relative sectoral share per city the eight selected neighbourhoods per city. Note: all sectors labelled as '0' did not generate the minimum amount of 1% of the total business activity in the city and thus have been filtered out.

Taking a look to the differences in sectoral activity between cities (figure 29), remarkable outcomes can be noticed. The first branch which displays considerable differences concerning business activity between the four cities, is the construction sector. Relatively, this sector is more representative in The Hague and Rotterdam. The main reason for this difference may be the consequence of the Rotterdam harbour area, which effects in plenty of offshore-related companies in both cities. The report written by Maritime by Holland (2015) agrees with this argument, showing most of the offshore related companies are located in- or around the Rotterdam harbour area. Furthermore, a relative big difference is located in the sector related to creative industries. In general, companies in this sector are more representative in the most gentrifying areas. Since Utrecht and Amsterdam are assigned as the gentrifying hotspots of the four researched cities (see figure 30), these numbers can be understood. A third deviation between sectoral activity can be found in the IT sector: companies in this sector tend to be more active in Amsterdam and Utrecht. Following an earlier performed research of Atzema (2001), these intensive
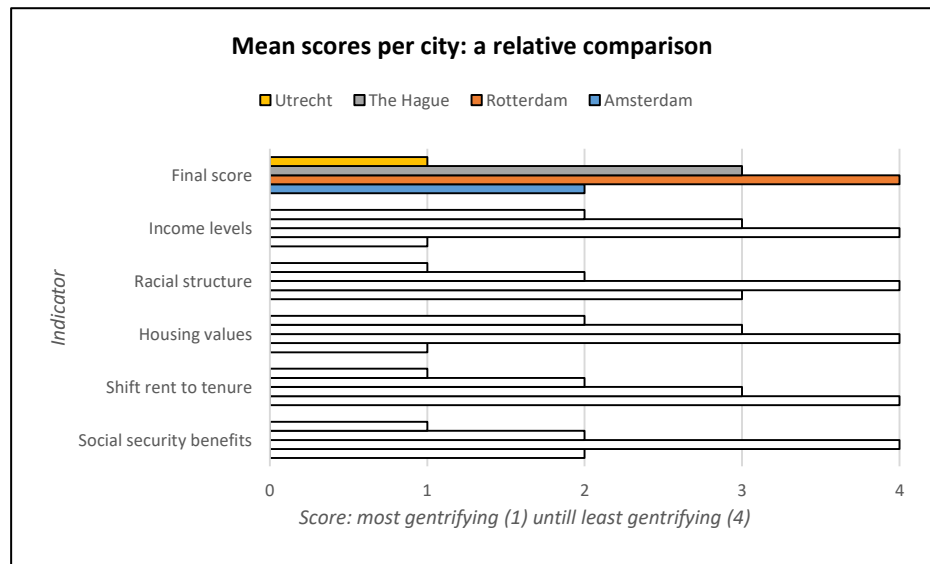

Figure 30: Mean scores per city for each indicator. The final score implies that Utrecht tends to gentrify most, followed by Amsterdam, The Hague and Rotterdam.

networks are the consequence of 'the local richness of ideas, information and knowledge and the localized broad spectre of specialized service industries (p.374)'. Since Amsterdam and Utrecht contain more of this, these cities become more attractive for these kind of industries. Another difference in sectoral activity between the four cities is the relative amount of local business active. The graph primarily shows a considerable increase for Rotterdam regarding this subject. The main reason for this can be assigned to the amount of multiculturalism in a city. In general, a neighbourhood with a lot of racial diversity contains more small- and medium sized enterprises. Of all four cities, Rotterdam is the city with the highest amount of racial diversity, Utrecht by far the lowest. Taking a look to both graphs, this distribution becomes as well clearly visible. A last remark has to be made for the educational sector, which is labelled as the public sector in the graph. Regarding this sector, Utrecht tends to contain most companies. A plausible argument for this distribution lies in the role of the city for its environment. Compared to Amsterdam, Rotterdam and The Hague, which are all surrounded by relative big cities, Utrecht tends to be a more focal point of growth for people from around the city regarding education. This may be the reason for the higher number of educational activity in the city, since it attracts more people from the rural areas.
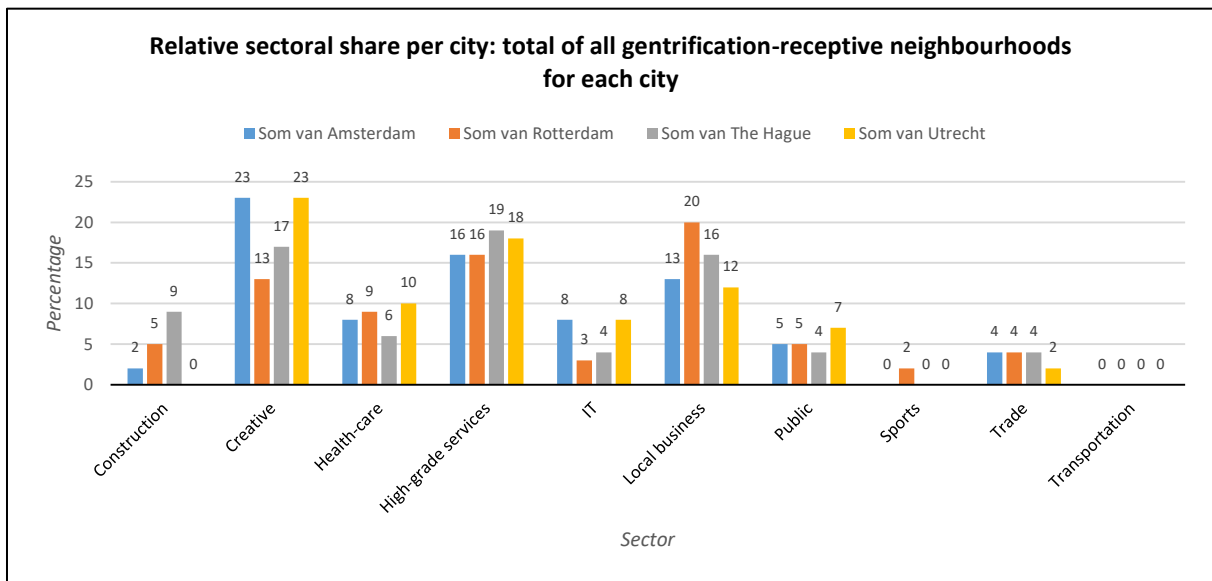
Figure 31: Relative sectoral share per city for all gentrification-receptive neighbourhoods. Note: all sectors labelled as '0' did not generate the minimum amount of 1% of the total business activity in the city and thus have been filtered out.

Shift in size
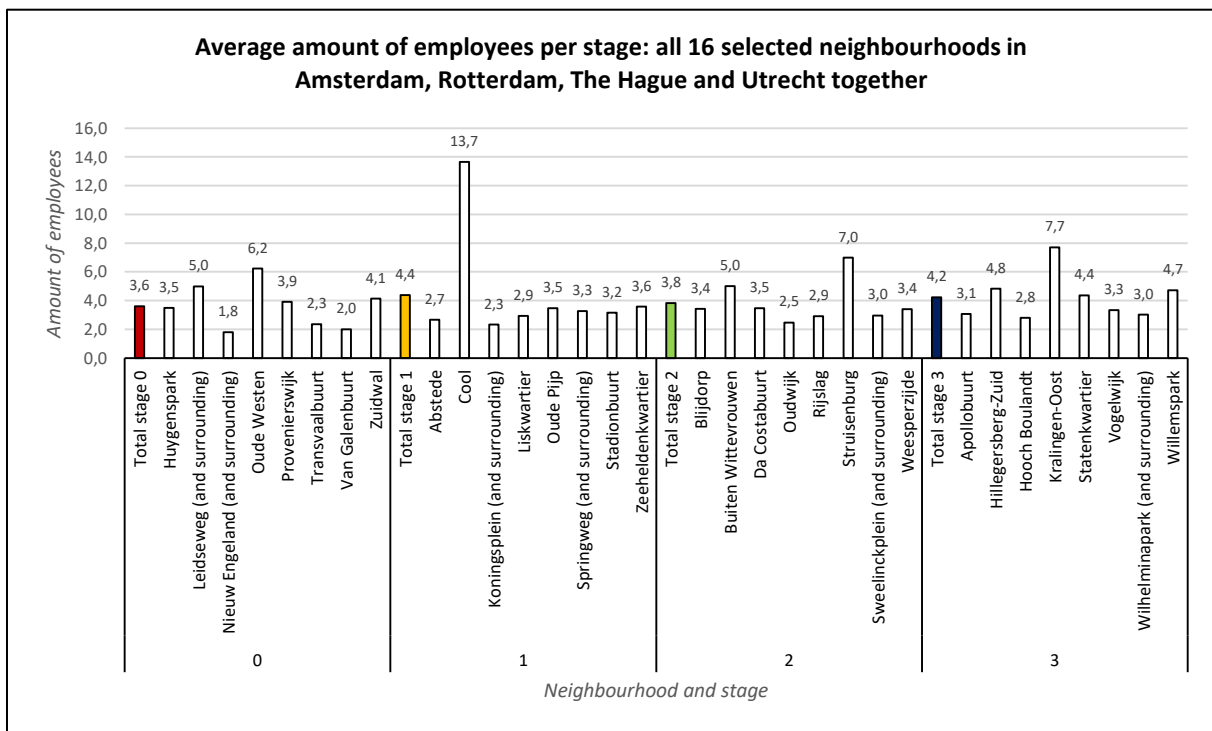
Figure 32: Average amount of employees per stage of all 16 selected neighbourhoods together

Also regarding variances in size during the process of gentrification, it is valuable to look at the stated hypothesis. As stated in the theoretical framework, a paradoxical vision was distinct regarding this subject. Local business tends to become displaced by gentrification, but is substituted by chain stores in wealthier areas. As this research has pointed out, the average amount of employees per stage remains approximately the same during the four stages (see figure 32). The average amount of employees per company shifts from 3,6 in stage zero to a mean of 4,4 in stage one, 3,8 in stage two and 4,2 in stage three. This doesn't fit with the finding of Schuetz et al. (2012), which stress employment density is the highest in the city centre. The reason for this result can be found in the

earlier mentioned 'paradox of rising rents'. When rents rise, property becomes too expensive for a small entrepreneur. In the prior stages of ongoing gentrification, this property is still relatively affordable for a small entrepreneur. However, as gentrification develops, property rents develop by the same path. Since rising rents generally imply a wealthier neighbourhoods, larger companies become attracted. These, mainly chain stores, generally locate into the neighbourhood when rents are not at its highest level (Meltzer and Capperis, 2016). As Zukin et al. (2009) state, this in-movement of chain stores gives a boost to rent values in neighbourhoods, since these companies are more capitalized and are more resistant for external shocks. Since average numbers of employees are relative stable during all four stages, this may be the best reason for this result.
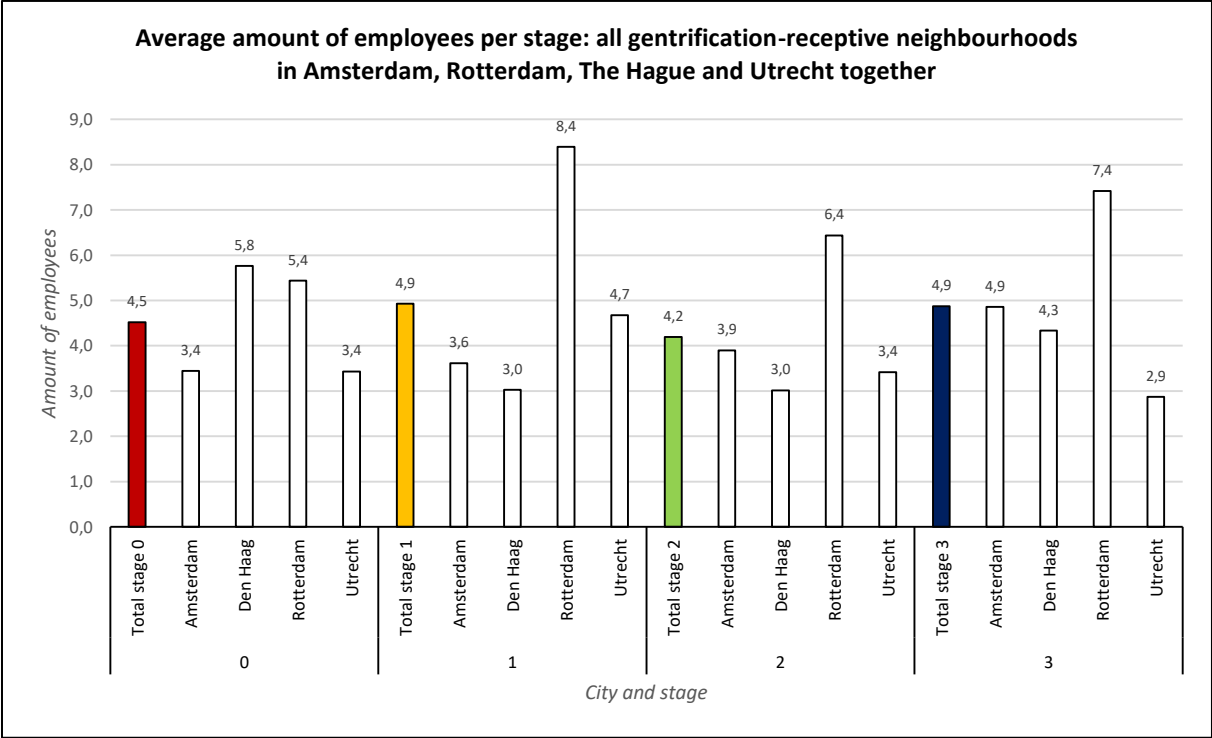

Figure 33: Average amount of employees per stage of all gentrification-receptive neighbourhoods together

Local business dynamics

Looking at local business dynamics, the priory stated hypothesis was: "chain stores are generally located in bigger locations, which means a higher average size of an entrepreneurship. Due to this presence, the last expectation is that local business will be gradually displaced by bigger companies." Taking a look to figure 34, this statement was confirmed. The average amount of companies in the retail sector (no. 47) has declined in absolute and relative proportions, since the index number of this sector is negative. For the other sectors a positive number is noticeable, which means the sector had grown in absolute numbers between the period of 1996 and 2014. However, both other sectors show as well consistency regarding the relative amount of growth compared with its neighbourhood. The food courts and beverage establishments (no. 56) sector grows with about 30% of the total amount of business growth in the neighbourhood, the wellness and other services (no. 96) scores worse with an relative score of almost 25% of its speed. All sectors together result in an index number of 14, which can be expressed as a growth level of 14% of the total amount of business growth in the neighbourhood.
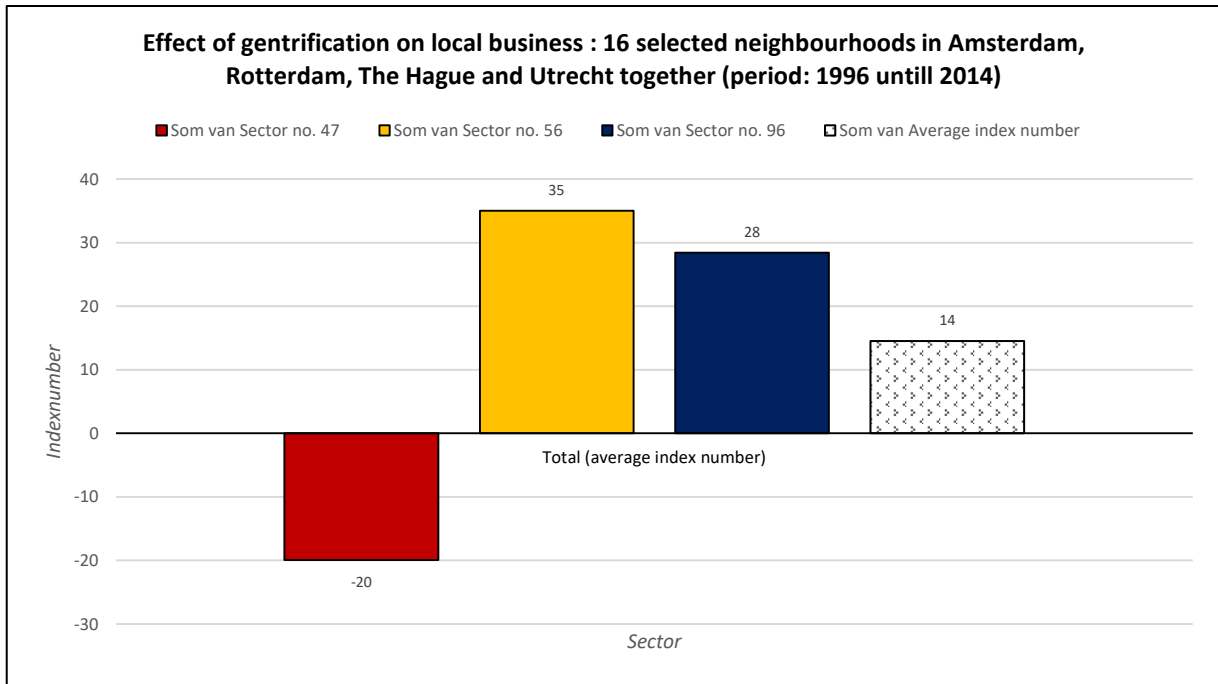
Figure 34: Effect of gentrification on local business for all 16 selected neighbourhoods in all four cities together

Reasons for this development vary among the three sectors, but all face one major reason for decrease: rising property rents. Regarding retail (no. 47) development in gentrifying areas, the loss of social ties in the neighbourhood are also of big importance for its downgrading (Ferm, 2016). Besides, among the process of gentrification boutiques arise, which are more focused on the new dwellers of the neighbourhood (Zukin et. al., 2009). The food courts and beverage establishments sector (no. 56) experiences a similar development. As Waldfogel (2008) states, the type of restaurants and cafes which are active in a neighbourhood depend heavily on the dominating race and education level. Since both indicators shift during the process of gentrification, also (the amount of) companies related with this sector vary during the stages. Finally, the amount of stores which sell highly standardized and frequently consumed products generally are more prominent in densely populated areas (Schuetz, Kolko & Meltzer, 2012). Consumers do not want to travel far purchasing this kind of goods, which is the main reason for this shift. As the sector wellness and other services (no. 96) tends to grow slower compared to its neighbourhood, rising rents are probably the main reason for a relative loss in amount of companies. Another reason regarding this downgrade can be found by more practical reasons. Since laundries and laundrettes are less represented in the society of 2014 compared to 1996, this number becomes lower during time.

Subsequently, taking a look to the relationship between local business dynamics and the degree of gentrification, remarkable differences become apparent. Both stages use a sample of in total six neighbourhoods (the neighbourhoods Struisenburg, Rijslag, Hooch Boulandt and Wilhelminapark have been filtered out).
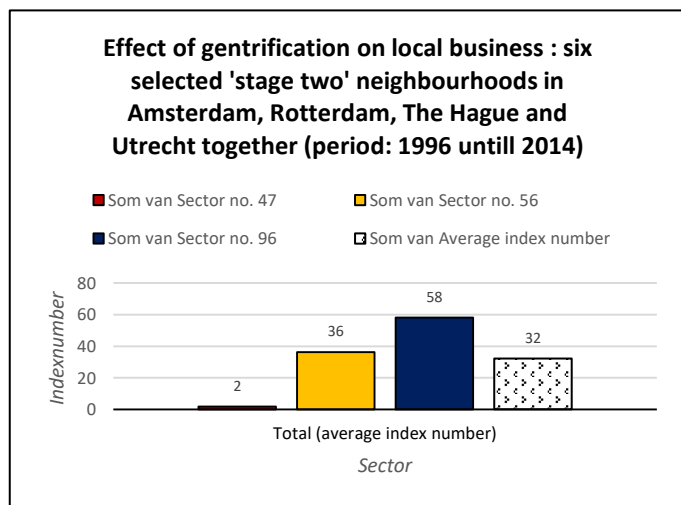

Figure 35: Effect of gentrification on local business for the six selected stage two neighbourhoods

Considering figure 35 and figure 36, stage two neighbourhoods score a higher index number in every sub-sector of local business compared to stage three neighbourhoods. This implies that, as gentrification increases, local business disappears in the selected areas. As Meltzer (2016) describes: "..if the new consumers also have different tastes and usher in higher rents, then the incumbent businesses could suffer (p.2)". Most likely, this clarifies the difference in local business dynamics between stage two- and stage three neighbourhoods. On the other hand, concluded can be as well that local business generally grows in absolute terms
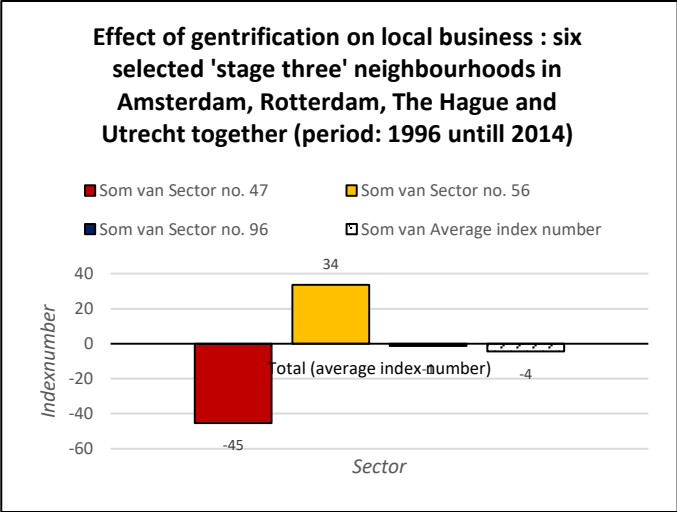
Figure 36: Effect of gentrification on local business for the six selected stage three neighbourhoods

in most of the gentrifying neighbourhoods. Small-business tends to generate enough market share, even in gentrified neighbourhoods (Zukin et al., 2009). This has been underlined by Meltzer (2016), describing displacement of small-business does not differ largely between gentrified and non-gentrified neighbourhoods. Given the findings of this research, the total amount of local business inside gentrifying areas (between the period of 1996 and 2014) relatively increased a lot slower compared to the neighbourhood it is located in, but absolutely seen the total amount of local business has even grown in gentrifying areas. Hence, the exclamations of Zukin et al. (2009) and Meltzer (2016) can partly be confirmed, according to this research.
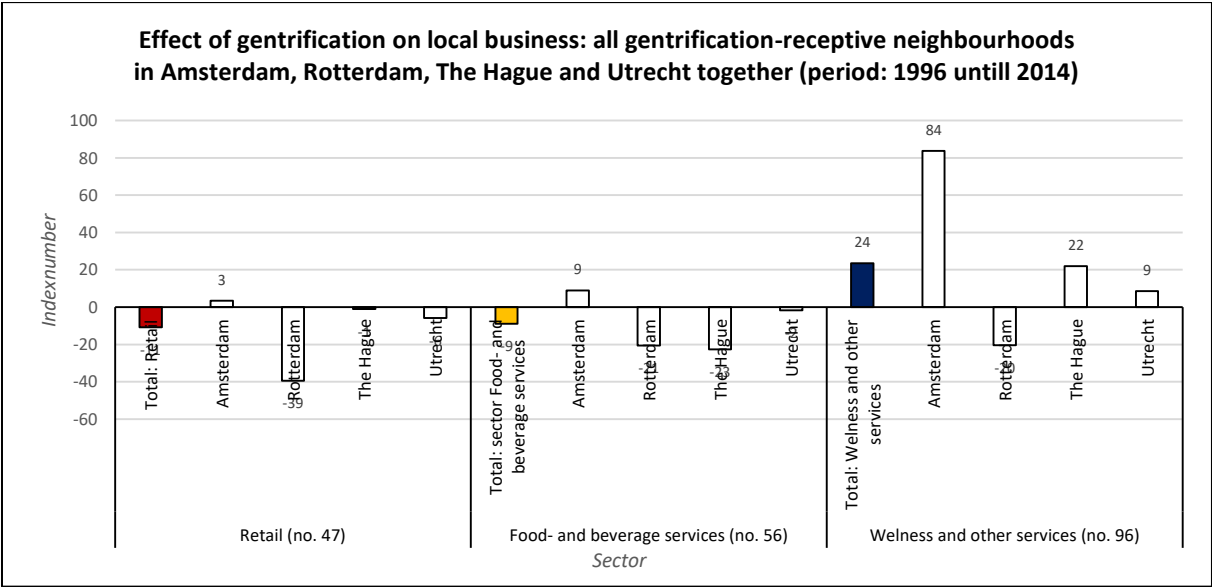
Figure 37: Effect of gentrification on local business for all gentrification-receptive neighbourhoods in all four cities

Taking a look to all gentrification-receptive neighbourhoods for all cities together (figure 37), the biggest contradiction can be found in the sector regarding food- and beverage services (no. 56). This sector scores an index number of -9, compared to a positive index number for the selected neighbourhoods. Since this is a negative index number, this sector has (averagely) declined during time in absolute numbers as well. Eventually, this is the only large contradiction between the results of the selected neighbourhoods and all gentrification-receptive neighbourhoods.

Chapter 5: Conclusion and limitations

Gentrification is a process which can be construed by several interpretations, influenced by many factors and measured by several ways. This study focuses on the process of commercial gentrification, generating an insight on the quantitative (amount) and qualitative (variety) dynamics regarding business activity in a gentrifying neighbourhood for the four main cities of the Netherlands (Amsterdam, Rotterdam, The Hague and Utrecht). By using five indicators to construct a 'stage model of gentrification' in which every possible gentrifying neighbourhood has been positioned, a difference could be made between the least- and most gentrifying neighbourhoods of each city. Eventually, a greater understanding has been generated for the subject of business dynamics in neighbourhoods which gentrify in different amounts, by researching two 'representative' neighbourhoods per city for every stage in the 'stage model of gentrification'. Besides, all gentrification-receptive neighbourhoods (every neighbourhood which is classified in the stage model of gentrification) for each city have been used as a control variable, in order to strengthen formulated arguments.

During the process of gentrification, the type of business activity shifts. Firstly, more gentrifying neighbourhoods contain a higher amount of high-scale corporate business activity. Besides, health-care business activity tends to grow when gentrification increases as well. The main reason for this are increasing income levels, since businesses in these sectors are generally focused on the rich. Otherwise, local oriented businesses and creative entrepreneurial activity decrease during the process of increasing gentrification. Existing literature points out these particular sector dynamics are common for gentrifying neighbourhoods (Zukin 1987, Groot and Maassen van den Brink 2006, Zukin et al. 2009, Meltzer 2016). Generally, both types of businesses become displaced as a result of gentrification, since they cannot afford rising rents. Besides, the research showed as well that the amount of sectoral activity is strongly related to local context. For instance, the IT sector is more representative in the cities of Amsterdam and Utrecht, since it is more central located in the Netherlands. Besides, the construction sector is bigger in both Rotterdam and The Hague, mainly driven by offshore related activities in the harbour of Rotterdam.

The average amount of employees per company remains approximately the same during each stage. Since there seems to be a paradox between rising rents and average size per company, this result can be better positioned. A rise in rents causes smaller companies with less employees, but also attracts more chain-business activity with more employees per company. Besides, lower valued neighbourhood generally don't attract large companies, but higher valued companies mostly attract smaller boutiques (Meltzer and Schuetz 2011, Zukin et al. 2009). This results in a comparatively stable distribution regarding average amount of employees per stage.

Taking a look to local business dynamics as a result of the process of gentrification between 1996 and 2014, three observations were generated. Firstly, local business tends to grow relatively slower compared to its neighbourhood its located in. The main reason behind this can be found in increasing rents, which cause a decrease of local oriented business activity (Meltzer 2016). However, taking a look at all gentrifying neighbourhoods, local business still grows in absolute numbers. Probably this is the consequence of a large time frame, in which total business activity in all four cities have grown in general. Finally, focusing on the degree of gentrification in a neighbourhood, large differences become extrapolated. In both absolute and relative numbers, local business in less gentrifying neighbourhoods tend to grows faster compared to heavily gentrified neighbourhoods. Again, the most feasible reason for this are lower rents in less gentrifying neighbourhoods which cause a higher amount of growth (Meltzer 2016, Ferm 2016).

Eventually, this research may be a valuable addition to existing literature by discussing the process of commercial gentrification in the Netherlands. Firstly, possible gentrification-receptive neighbourhoods in the four major cities have been identified. These findings can be used by creating

insights for possible new 'hotspots' in the city. Subsequently, by creating a stage model of gentrification, the amount of gentrification has been defined for each of the neighbourhoods. This stage model tended to be very suitable, since the most representative neighbourhoods in this model showed almost in every sub question the same pattern as the pattern of all gentrification-receptive neighbourhoods. Because of this, this model can be as well be very applicable for similar researches regarding commercial gentrification. Finally, the amount of commercial gentrification has been defined for each stage on three different subjects. These findings can be valuable for researches especially focused on the variety in business activity during stages. This research has proved several sectors become more active during the process of gentrification, but also some sectors decreased in further stages of the process. Generating conclusions with large amounts of data and using several approaches, this research has proved these assumptions and attributed a substantial amount of knowledge for the field of commercial gentrification in the four main cities of the Netherlands.

Eventually, this research showed that commercial gentrification is the result of a number of indicators. This could give a valuable insight in possible market-led gentrifying areas in the future. Hence, further research could focus on a more in-detail approach regarding this subject. Besides, also focusing more on street-based data instead of neighbourhood data could be used in further research, creating micro-level view for the process of (commercial) gentrification. Finally, also the influence of Dutch policy on the remarked gentrifying neighbourhoods could be investigated, researching the intertwined relationship between state-led and market-led gentrification.

Limitations of the research

One of the main limitations of the research is the non-linear process of gentrification. Since no specific starting point can be stated for the start of gentrification in a city, an effect regarding this shortage becomes visible in the stage model of gentrification when relative numbers are used in the calculations. However, using just the numbers of the year 2014 for the stage model, an absolute condition of each neighbourhood becomes apparent. Since this number does not deal with estimating possible starting points of gentrification in a city, this approach is more suitable for this research compared to the relative approach (differences between 1996 and 2014). Another point of critique may be the distribution of this stage model, using proportionally created bunches of numbers. However, since these linear increasing groups are created by taking the city average of its indicator into account, a relative reliable view can be given for every indicator for every separate neighbourhood. A last limitation, related to the design of the research, is grounded in the indicators regarding the selection of neighbourhoods. Since little scientific literature exist regarding these thresholds, both numbers can be disputed.

Also the last part of the research, concerning the research about average size and local business dynamics, contains some limitations. Regarding the average size of company, one of the points of critique is the exclusion of companies with at least 100 employees of the database. Since the inclusion of (for example) the Erasmus Hospital in Kralingen-Oost and public prosecutor's office (Openbaar Ministerie) in Hooch Boulandt don't show a representative image about the general kind of business size in a neighbourhood, the choice has been to filter this of the database in order to avoid a heavily stretched graph. In addition to this, another constraint regarding this is the issue that measuring an average size by just the amount of employees per company seems somewhat concise. This point of critique is legit, since (due to data limitations in the LISA file) the indicator 'square metres per company' has been filtered out of this sub-question. Finally, also the subject regarding local business dynamics faced some constraints, of which the most considerable has to deal with the exact meaning of local business. This research used the approach of sectoral numbers (given by the LISA file), in which similar companies are divided in the same sectors. However, also few of the companies which have been subdivided in local business sectors (no. 47, 56 and 96 were used, no. 55 and 59 scored

consistently below the minimum amount of companies in order to include both results in the research) didn't have specific characteristics of being local business. Yet this approach was necessary, as the approach of following each individual company (by postal codes) during time appeared to be impossible. Besides, hard conclusions cannot be drawn regarding this topic, since just a quantitative measure was used. By not focusing on each individual entrepreneurship, a difference between a 'original' local shop and a new 'boutique' can be extrapolated. Lastly, the period of measuring (1996 – 2014) local business dynamics is questionable. However, keeping in mind that gentrification has started around this year in Europe (Smith, 2010) and the year of 1996 was the first year extensive measurements were executed by CBS Statline, this choice has been justified. This has also been the reason for the choice of just taking stage two – and stage three neighbourhoods for this sub-question into account. Since the amount of gentrification had been questionable in stage zero – and stage one neighbourhoods during the period of research, this became the only representative database to measure the impacts of gentrification on local business dynamics. However, eventually most limitations tended to be subordinate in the research, whereby the business activity in gentrification-receptive areas in the four main cities of the Netherlands could be researched extensively.

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Appendix

Description SBI codes (sectors)

SBI-code	Description	Clustered sector
A	**Agriculture and related service activities**	
01	Growing of non-perennial crops	*Not applicable*
02	Growing of perennial crops	*Not applicable*
03	Growing of plants for ornamental purposes	*Not applicable*
B	**Mining and quarrying**	
06	Extraction of crude petroleum and natural gas	*Not applicable*
08	Mining and quarrying (no oil and gas)	*Not applicable*
09	Mining support activities	*Not applicable*
C	**Manufacturing**	
10	Manufacture of food products	*Not applicable*
11	Manufacture of beverages	*Not applicable*
12	Manufacture of tobacco products	*Not applicable*
13	Manufacture of textiles	*Not applicable*
14	Manufacture of wearing apparel	*Not applicable*
15	Manufacture of leather, products of leather and footwear	*Not applicable*
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	*Not applicable*
17	Manufacture of paper and paper products	*Not applicable*
18	Printing and reproduction of recorded media	*Not applicable*
19	Manufacture of coke and refined petroleum products	*Not applicable*
20	Manufacture of chemicals and chemical products	*Not applicable*
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	*Not applicable*
22	Manufacture of rubber and plastic products	*Not applicable*
23	Manufacture of other non-metallic mineral products	*Not applicable*
24	Manufacture of basic metals	*Not applicable*
25	Manufacture of fabricated metal products, except machinery and equipment	*Not applicable*
26	Manufacture of computers, electronic and optical products	*Not applicable*
27	Manufacture of electrical equipment	*Not applicable*
28	Manufacture of machinery and equipment n.e.c.	*Not applicable*
29	Manufacture of motor vehicles, trailers and semi-trailers	*Not applicable*
30	Manufacture of other transport equipment	*Not applicable*
31	Manufacture of furniture	*Not applicable*
32	Manufacture of other products n.e.c.	*Not applicable*
33	Repair and installation of machinery and equipment	*Not applicable*
D	**Electricity, gas, steam and air conditioning supply**	

SBI-code	Description	Clustered sector
35	Electricity, gas, steam and air conditioning supply	*Not applicable*
E	**Water supply; sewerage, waste management and remediation activities**	
36	Collection, purification and distribution of water	*Not applicable*
37	Sewerage	*Not applicable*
38	Waste collection, treatment and disposal activities; materials recovery	*Not applicable*
39	Remediation activities and other waste management	*Not applicable*
F	**Construction**	
41	Construction of buildings and development of building projects	*Construction*
42	Civil engineering	*Not applicable*
43	Specialised construction activities	*Construction*
G	**Wholesale and retail trade; repair of motor vehicles and motorcycles**	
45	Sale and repair of motor vehicles, motorcycles and trailers	*Not applicable*
46	Wholesale trade (no motor vehicles and motorcycles)	*Trade*
47	Retail trade (not in motor vehicles)	*Local business*
H	**Transportation and storage**	
49	Land transport	*Transport*
50	Water transport	*Not applicable*
51	Air transport	*Not applicable*
52	Warehousing and support activities for transportation	*Not applicable*
53	Postal and courier activities	*Not applicable*
I	**Accommodation and food service activities**	
55	Accommodation	*Not applicable*
56	Food and beverage service activities	*Local business*
J	**Information and communication**	
58	Publishing	*Not applicable*
59	Motion picture and television programme production and distribution; sound recording and music publishing	*Information & Communication*
60	Programming and broadcasting	*Not applicable*
61	Telecommunications	*Not applicable*
62	Support activities in the field of information technology	*Information & Communication*
63	Information service activities	*Not applicable*
K	**Financial institutions**	
64	Financial institutions, except insurance and pension funding	*Not applicable*
65	Insurance and pension funding (no compulsory social security)	*Not applicable*
66	Other financial services	*Not applicable*
L	**Renting, buying and selling of real estate**	

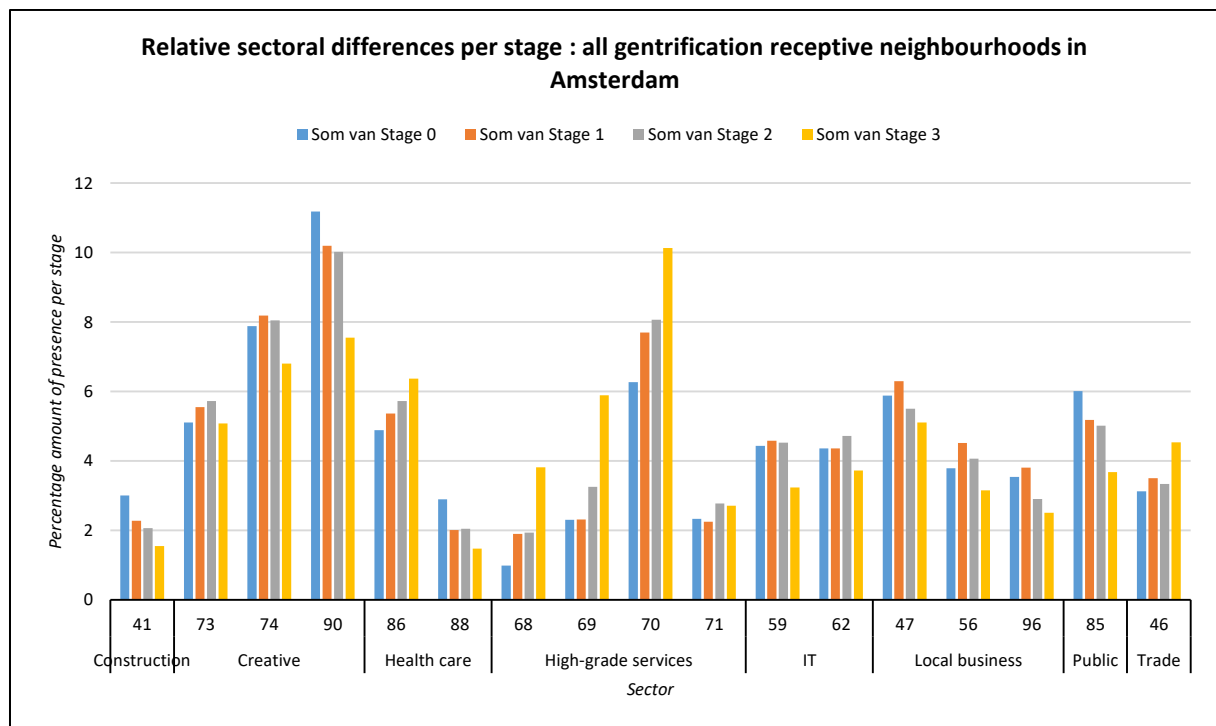| SBI-code	Description	Clustered sector
68	Renting and buying and selling of real estate	*High-grade services*
M	**Consultancy, research and other specialised business services**	
69	Legal services, accounting, tax consultancy, administration	*High-grade services*
70	Holding companies (not financial)	*High-grade services*
71	Architects, engineers and technical design and consultancy; testing and analysis	*High-grade services*
72	Research and development	*Not applicable*
73	Advertising and market research	*Creative*
74	Industrial design, photography, translation and other consultancy	*Creative*
75	Veterinary activities	*Not applicable*
N	**Renting and leasing of tangible goods and other business support services**	
77	Renting and leasing of motor vehicles, consumer goods, machines and other tangible goods	*Not applicable*
78	Employment placement, provision of temporary employment and payrolling	*Other services*
79	Travel agencies, tour operators, tourist information and reservation services	*Not applicable*
80	Security and investigation	*Not applicable*
81	Facility management	*Not applicable*
82	Other business services	*Other services*
O	**Public administration, public services and compulsory social security**	
84	Public administration, public services and compulsory social security	*Not applicable*
P	**Education**	
85	Education	*Public*
Q	**Human health and social work activities**	
86	Human health activities	*Health-care*
87	Residential care and guidance	*Not applicable*
88	Social work activities without accommodation	*Health-care*
R	**Culture, sports and recreation**	
90	Arts	*Creative*
91	Lending of cultural goods, public archives, museums, botanical and zoological gardens and nature reserves activities	*Not applicable*
92	Lotteries and betting	*Not applicable*
93	Sports and recreation	*Sports and recreation*
S	**Other service activities**	
94	World view and political organizations, interest and ideological organizations, hobby clubs	*Not applicable*
95	Repair of computers and consumer goods	*Not applicable*
96	Wellness and other services; funeral activities	*Local business*
T	**Activities of households as employers; undifferentiated goods- and service-producing activities of households for own use**	

SBI-code	Description	Clustered sector
97	Activities of households as employers of domestic personnel	*Not applicable*
98	Undifferentiated goods- and services-producing activities of private households for own use	*Not applicable*
U	**Extraterritorial organisations and bodies**	
99	Extraterritorial organisations and bodies	*Not applicable*

Note: many sectors are labelled as 'not applicable' in the last column, since they weren't involved in this research as a result of not-covering a minimum amount of 2% of all business activity in all neighbourhoods. Since this is a too small result upon drawing statements, these sectors have been not included in the dataset.

Source: https://www.amsterdam.nl/stelselpedia/hr-index/catalogus/domeinen/sbi-code/

Results : All gentrification-receptive neighbourhoods

Amsterdam

Average amount of employees per stage: all gentrification receptive neighbourhoods in Amsterdam

A bar chart with the y-axis labeled "Employees" ranging from 0 to 6, and the x-axis labeled "Stage" with values 0, 1, 2, 3.
- Stage 0 (red): ~3.4
- Stage 1 (yellow): ~3.6
- Stage 2 (green): ~3.9
- Stage 3 (dark blue): ~4.85

Effect of gentrification on local business: all stage two- and three neighbourhoods in Amsterdam (period: 1996 untill 2014)

A bar chart with the y-axis labeled "Indexnumber" ranging from 0 to 120, and the x-axis labeled "Sector".
- Retail (no. 47): 2 and 100
- Food- and beverages services (no. 56): 6 and 100
- Welness and other services (no. 96): 55 and 100

Rotterdam

Relative sectoral differences per stage : all gentrification receptive neighbourhoods in Rotterdam

■ Som van Stage 0   ■ Som van Stage 1   ■ Som van Stage 2   ■ Som van Stage 3

Percentage amount of presence per stage

| 41 | 43 | 73 | 74 | 90 | 86 | 88 | 68 | 69 | 70 | 71 | 62 | 47 | 56 | 96 | 78 | 85 | 93 | 46 |
| Construction | | Creative | | | Health care | | High-grade services | | | | IT | Local business | | | Other serv. | Public | Sports | Trade |

Sector

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Average amount of employees per stage: all gentrification receptive neighbourhoods in Rotterdam

Amount of employees

Stage

Effect of gentrification on local business: all stage two- and three neighbourhoods in Rotterdam (period: 1996 untill 2014)

The Hague

Relative sectoral differences per stage: all gentrification receptive neighbourhoods in The Hague

Average amount of employees per stage: all gentrification receptive neighbourhoods in The Hague

Effect of gentrification on local business: all stage two- and three neighbourhoods in The Hague (period: 1996 untill 2014)

Utrecht

Relative sectoral differences per stage: all gentrification receptive neighbourhoods in Utrecht

■ Som van Stage 0   ■ Som van Stage 1   ■ Som van Stage 2   ■ Som van Stage 3

Percentage amount of presence per stage

| 73 | 74 | 90 | 86 | 88 | 69 | 70 | 71 | 59 | 62 | 47 | 56 | 96 | 78 | 85 | 46 |
| Creative | | | Health care | | High-grade services | | | IT | | Local business | | | Other serv. | Public | Trade |

Sector

Average amount of employees per stage: all gentrification receptive neighbourhoods in Utrecht

Amount of employees

Stage

Effect of gentrification on local business: all stage two- and three neighbourhoods in Utrecht (period: 1996 untill 2014)
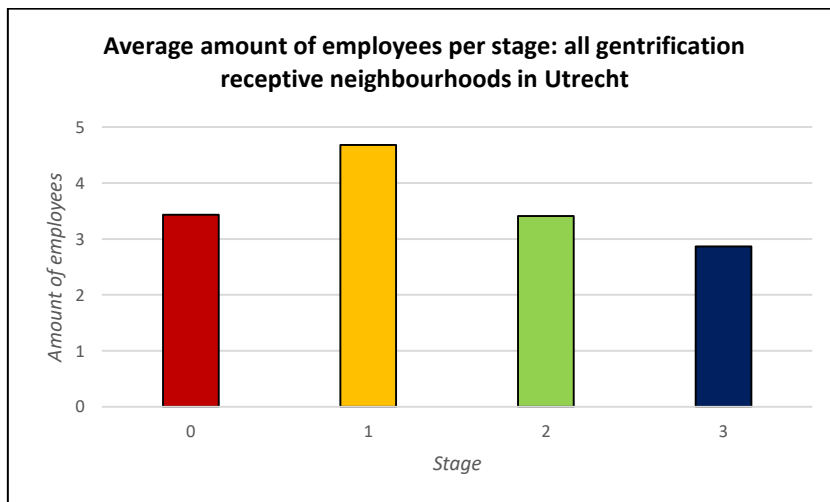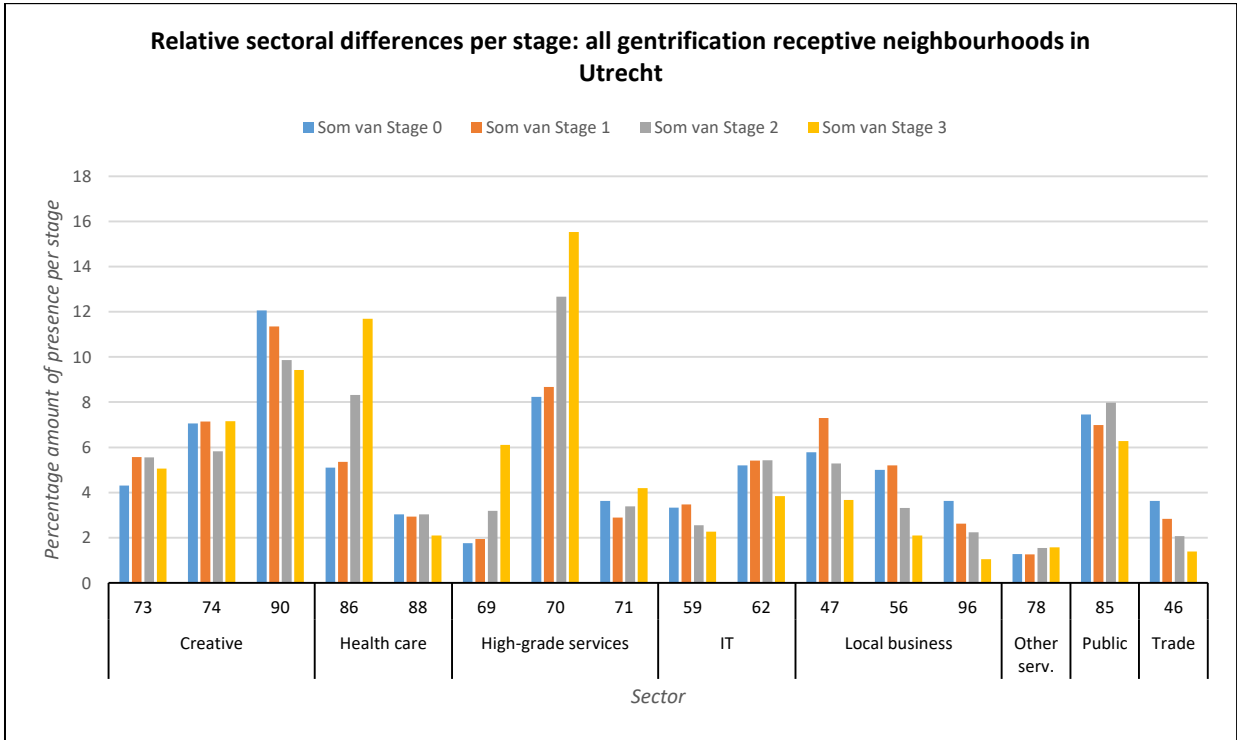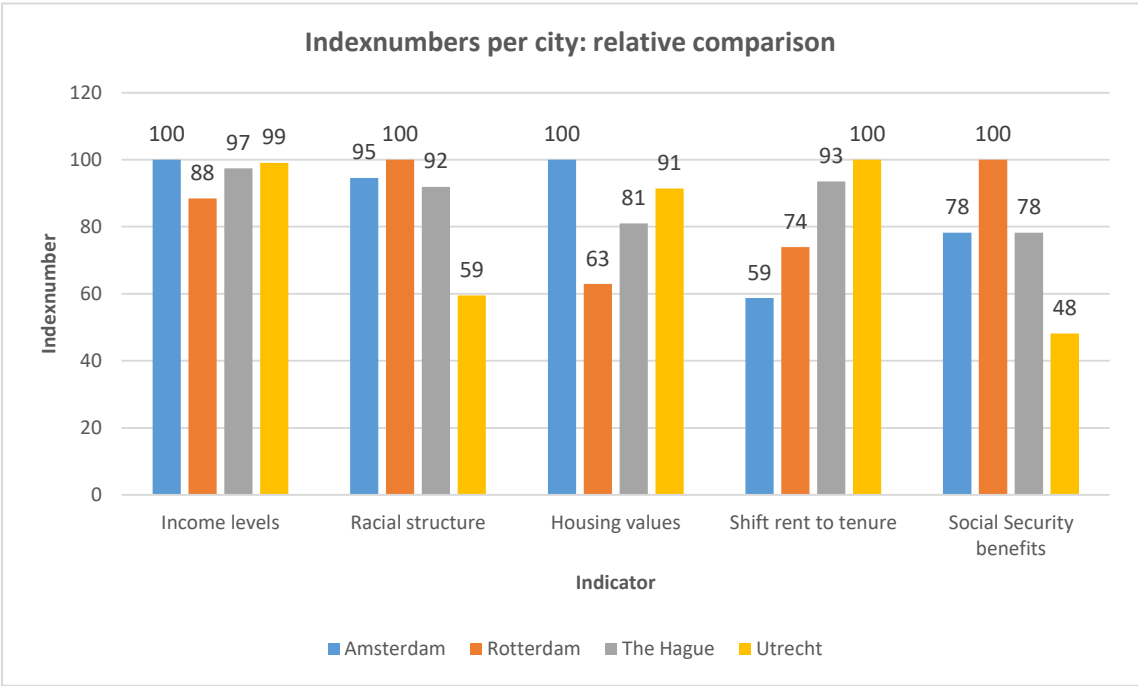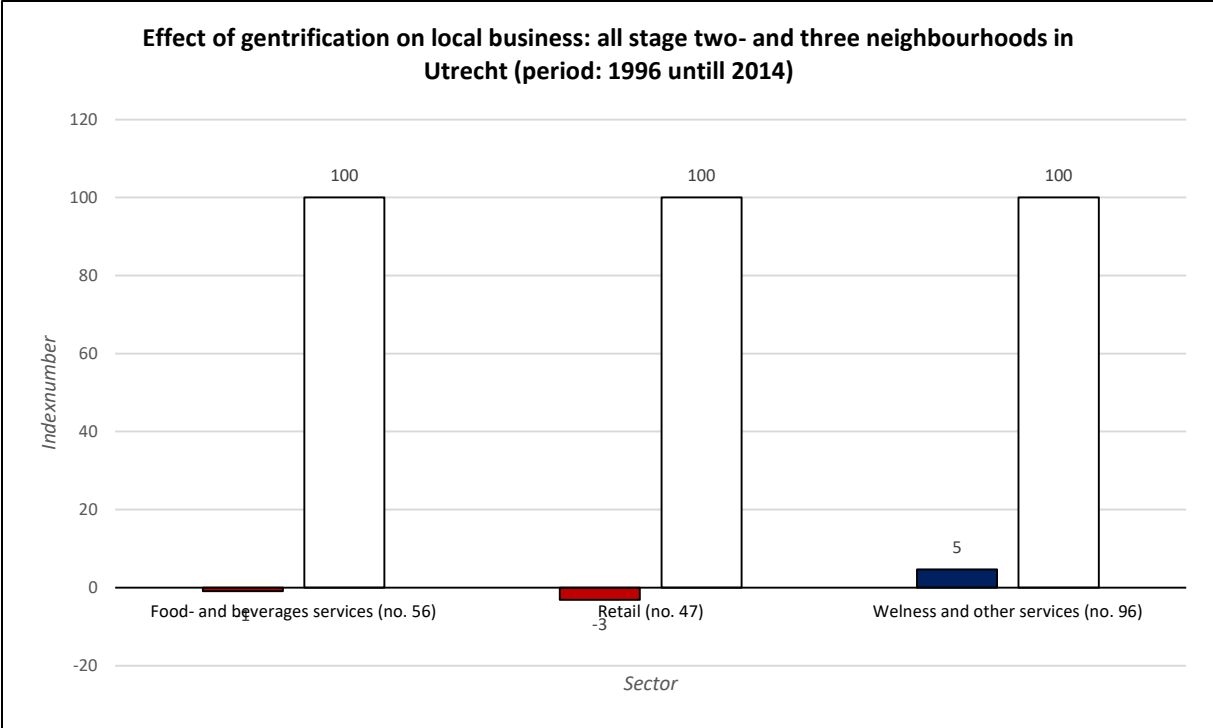

Indexnumbers per city: relative comparison

Relative comparison of gentrification among Amsterdam, Rotterdam, The Hague and Utrecht. In order to create an manageable overview, index numbers have been used. Regarding income levels, housing values and shift from rent to homeownership, the index number of 100 indicates the sign of most gentrifying city. Concerning racial structure and social security benefits per person, the number of 100 indicates the least gentrifying city.