'Entrepreneurship in the neighborhood. Shifting patterns of economic activities in residential neighborhoods in five Dutch cities'

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Abstract

Cities are oftentimes seen as undergoing a process of 'emergence' in the 'new economy'. However, this process has largely remained empirically underdetermined. This article examines the intra-city geography of emerging businesses in newly dominant sectors of the urban economy. The change in dominant sectors coincides with a shift towards small and medium sized businesses, creating new economic opportunities for urban residential areas. The residential neighborhood is introduced as a place where supply and demand side drivers operate to attract or limit such new economic activity. Allen Scott's (2008, 2011) perspective of the cognitive-cultural economy is used to analyze which neighborhoods are flourishing sites of the cognitive-cultural sectors. His perspective on industries that are on the rise in urban environments and their growth potential proves very valuable. Social demographic characteristics on the level of the neighborhood are used as predictors of the composition of the local economy. The analyses show that in particular wealthy, gentrified neighborhoods are more prone than others to becoming 'hubs' of the cognitive-cultural economy. However, disadvantaged neighborhoods may under certain conditions serve as incubators for business start-ups as they offer low-rent office spaces. This has important consequences for their future economic growth potential as well as the distribution of successful businesses in the city.

Keywords: Urban economy, neighborhood, cognitive-cultural economy

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1. Introduction[1]

Imagine a web designer working from home, using an internet connection and getting assignments from both local and international patrons. We might think of this person as exemplary of the so called 'new' or 'cognitive-cultural' economy (Scott, 2011). We can also think of it as part of a process of 'urban resurgence' that is often discussed but whose underlying mechanisms need additional explanation. We do not know much about the kind of neighborhood this web designer operates from and whether the general composition of the local economy is tilting towards these kinds of businesses. Moreover, how is the 'cognitive-cultural' economy geographically dispersed over the city? This article looks at the spatial distribution of economic activities in residential neighborhoods, and disentangles the complex interplay between production and entrepreneurship, consumption and local markets. It is argued that macro-economic changes have altered the micro-economy of the neighborhood and the opportunities for small firms in residential districts. Firm location patterns in neighborhoods in five Dutch cities are analyzed with a focus on concentrations and types of economic activity.

Many accounts have been given of the role that cities are playing in a globalizing, post-industrial economy. The focus is on 'emergent' industries in a process of 'urban resurgence' (see for instance Storper & Manville, 2006; Hutton, 2004). However, the mechanisms and the intra-city geography that lie at the basis of this regained importance of urban economies have remained empirically under-determined (Kloosterman, 2010b). Moreover, I argue that we need to examine the geographical distribution of emerging industries since cities are not uniform, static entities (Amin & Thrift, 2002). If high value-added and innovative businesses with high growth potential are concentrating in specific urban districts this means other areas are 'missing out' on this growth and this might have important economic consequences for businesses located there as well as the neighborhood residents. In order to understand the economic resurgence of the city we need to shed light on local economic processes to

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see what industries are 'resurging' in the city and what areas are benefiting from this process. The 71 Dutch neighborhoods in this study have very divergent outcomes in terms of economic performance. It is interesting to see which neighborhoods are doing well and which ones are performing poor in economic terms. Moreover, I aim to identify neighborhood characteristics that could explain these divergent patterns. An assumption often made by Dutch policy makers, is that neighborhoods that are less attractive for the so called 'new urban dwellers', are also failing to attract business and potential new start-ups (from home). Policies are implemented to improve the business environment in these neighborhoods and ideally, transform them into economic incubators (Sleutjes et al., 2012). This is done by investing in business accommodation, public space and improving skills of (starting) entrepreneurs. A popular approach for attracting starting entrepreneurs is to provide low-cost business space in former factories, schools, or other public buildings as well as housing designated for renovation or demolition. Does it make sense to invest heavily in the business environment of these areas and not in others? Are deprived urban areas also deprived of economic activity? (That is, viable and formally registered economic activity). The counterfactual could also be thought of. These neighborhoods might prove adequate sites for starting entrepreneurs because they offer low-cost accommodation close to the city center.

The main research question of this article is: What is the relationship between neighborhood characteristics and level, growth and type of entrepreneurial activity? The purpose of this article is to contribute to unpacking the process of urban resurgence and adding to the debate on the importance of the local context for economic development trajectories. The perspective of Allen Scott's cognitive-cultural economy is used as a point of departure in locating emergent industries in the city. A rigorously empirical approach to these topics is offered by using data on the scale level of the neighborhood. First, it shows how macro-economic restructuring and social-demographic developments have altered the economic potential of residential neighborhoods: turning them into local markets as well suppliers of entrepreneurs. It therefore considers a 'new' economic space in the debates on the urban environment as a place of production and consumption. Second, the application of 'traditional' entrepreneurship approaches to residential neighborhoods is questioned and a

synthesis between this literature and the mixed embeddedness approach (Kloosterman, 2010a) is made. The results section presents several models of the neighborhood economy and identifies what type of neighborhoods are 'winning' sites of cognitive-cultural economic activity.

2. The cognitive-cultural economy in the neighborhood

In urban economies of many Western countries, we see a twofold development: an increase in small and medium sized enterprises (SME's) and a shift in dominant industries (Hutton, 2004; Mason, Carter, & Tagg, 2011). Processes of externalization of production and vertical disintegration as well as a decrease in minimum efficient scales have contributed to the viability and survival chances of small- and medium sized businesses on both the high and the low-end of the market (Kloosterman, 2010a). Leading economic sectors are services, design- and technology intensive products as well as cultural products. All of these are dominated by transfers of knowledge and information and make use of digital technology. The geographer Allen Scott (2008, 2011) has effectively labeled this capitalistic order as 'cognitive-cultural'. In his seminal work on the cognitive cultural economy, Scott explains that we can observe growth in sectors that appeal to 'destandardized' consumer demands and consequently observe decline in sectors that are dominated by routine and standardized work. He points out that there are differences as to which urban centers are actually developing as focal points of this new economic order. I want to extend this notion to the differences that are occurring *within* cities, which has consequences for districts' economic potential and resilience to on-going structural economic changes.

Structural changes in the capitalist production system seem to have created a two-faced urban economy. On the one hand, there is a surge of economic activity that relies on technology- and information intensive modes of production and a high-skilled labor force. Important driving forces of these industries are creativity and innovation, embodied in creative or artistic professions as well as research & development activities. On the other hand, economic activities which are mainly service oriented, relying on low-qualified workers and mainly low in added value but labor -intensive. The latter mainly consist of retail, standardized consumer services (i.e. dry cleaning,

car-wash etc.) and catering & restaurants at the lower end of the market. Growth potential in these sectors is generally low as markets are virtually saturated (Kloosterman, van der Leun, & Rath, 1999). Although different in nature, the urban environment and the physical proximity to markets and other firms are essential for businesses on both ends. The geography of this economic capital *within* the city is influenced by what one could call 'traditional' location factors such as the availability of suitable business space, consumer markets, labor and the presence of other businesses. These factors are in turn influenced by the socioeconomic composition of a neighborhood which affects the purchasing power of local consumers, and the local property and rental prices for residential as well as commercial property. The residential population in a neighborhood is thus part of a complex dynamics of local economic activity. On the one hand, they color local demand with their tastes, preferences and purchasing power. On the other hand, they can become part of the supply side of entrepreneurship when they start up a business from home or in commercial property in their neighborhood.

It is this residential population in urban neighborhoods that has changed markedly in the last two decades. After a first influx of migrants, the city has increased in popularity for groups of affluent 'new city dwellers' from the 1980s onwards (Reijndorp, 2004). With the 'dirty' manufacturing industry removed and government investments in upgrading of deteriorated housing, the city became more attractive as a living environment for higher-income residents (Storper & Manville, 2006). They have come to live in what are now mostly gentrified neighborhoods, where housing prices are relatively high and the range of urban amenities is abundant. These sociodemographic changes together with structural economic shifts have created new dynamics of production and consumption in the urban environment. Increased opportunities for small-scale business and entrepreneurship, oftentimes taken up by the new population groups that have (re)entered the city, together with revitalized and diversified consumption markets, have led to very diverse economic outcomes for residential neighborhoods.

The geography of settlement of these new population groups plays an important role in the spatial distribution of entrepreneurship and it constitutes an important reason to examine residential neighborhoods: To investigate the proposition that local social-demographics are related to the size and composition of the local economy. Moreover, recent studies point towards the rising importance of home-based business internationally as well as in the Netherlands[2] (Mackloet, Schutjens, & Korteweg, 2006b). Home-based businesses are an important component of the rise of small and medium sized enterprise. In the UK for instance, home based businesses account for 36 percent of all businesses (Mason, Carter, & Tagg, 2008). Urban residential districts have been re-gaining ground as places of production after a period of decline in which much economic activity relocated to office and business parks (Musterd, Bontje, & Ostendorf, 2006). The Dutch Chamber of Commerce data of the five selected Dutch cities in this study show that on average, 44% of business establishments is located in urban residential districts[3]. International studies also show an increased tendency of businesses to settle in residential and suburban environments (Fong, Luk, & Ooka, 2005; Graham & Marvin, 2001). The increased economic potential of residential neighborhoods is thus connected to a shift in dominant sectors since many of the economic activities in the cognitive-cultural economy are especially suited to be performed from the home. The increasing share of home based business in residential neighborhoods adds another layer of complexity to local economic dynamics.

3. Divergent economic trajectories of neighborhoods

Some of the factors that explain differences in the economic success of neighborhoods come from more 'traditional' entrepreneurship literature. This body of literature mainly explains the prevalence of certain industries and divergence of levels of entrepreneurship between localities from the supply side of entrepreneurship. Unequal

[2] The Dutch central bureau of statistics keeps track of the number of businesses with 1employee. This can serve as an approximation of the number of self-employed in the Netherlands. This number has been on the rise: from 355.575 in 2006 to 495.215 in 2010, an increase of almost 40% (source: CBS).

[3] This is an average calculated from the share of all business establishments in the city that is located in urban residential districts in 5 Dutch cities: Amsterdam 56%, Utrecht 53%, Zoetermeer 61%, Dordrecht 31% and Leiden 21%. Urban residential districts are defined as neighborhoods that have more than 500 residential addresses and do not have a designated industrial estate within them nor are designated as 'city centre' (PBL 2010).

spatial distribution of entrepreneurial activity is explained by taking into account individual characteristics of (nascent) entrepreneurs and structural characteristics of localities. These studies show, for instance, that work experience and educational attainment are positively related to entrepreneurship (Evans & Leighton, 1989). The 'structural' explanations mainly focus on characteristics such as institutional arrangements and regulatory environment (Hindle, 2010) or transportation costs, industrial intensity and levels of immigration as determinants of a locality's economic success (Lee, Florida, & Acs, 2004). The 'disadvantage theory' that explains immigrant entrepreneurship through a lack of human capital and an excluding labor market is another structural explanation on the supply-side of entrepreneurship (Hackler & Mayer, 2008). From these studies we can derive the proposition that the highly educated and immigrants are more prone to become entrepreneurs. Considering the claim made by behavioral geographers that entrepreneurs are likely to start their business from the home or seek business space very close to where they live (see for instance Storey, 1994; Taylor & Asheim, 2001), we can expect neighborhoods with high shares of immigrants and highly educated residents to be more entrepreneurial. This indicates a bifurcation of (nascent) entrepreneurs that is likely to manifest itself geographically. However, an explanation of diverging outcomes of economic performance also needs to integrate the demand-side of entrepreneurship and firm establishment: The markets and local demands that entrepreneurs and firms are aiming to serve and the accessibility of these markets to various types of entrepreneurs.

In their 'mixed embeddedness' approach, Rath and Kloosterman (2001) attempted such integration by emphasizing that markets form the main ingredient of a local opportunity structure, that enable and underpin the viability of new business and firm growth. By studying the opportunities for entrepreneurs in local markets they identified which markets were (in)accessible for certain types of entrepreneurs. They argue that human capital is a determinant factor for market access. Consequently, in the two-faced urban economy outlined above, the human capital threshold to start a business in the information and technology-intensive sectors is high, while it is low in most consumer services and retail businesses. Kloosterman (2010a) argues that high-skilled entrepreneurs therefore will have access to the expanding markets characteristic of the

cognitive-cultural economy, and consequently, that many new businesses will be started in these sectors. Low-skilled entrepreneurs will have access to two kinds of markets: a market that is characterized by 'vacancy-chain' businesses, where established entrepreneurs leave highly competitive and stagnant sectors such as small-scale retailing and cheap restaurants. On the other hand, a market for consumer services that still has some growth potential, since it is catering to the (changing) needs of urban households. Consequently, the mixed embeddedness approach explains high business start-up rates in neighborhoods with a high share of immigrants from the local demand for immigrant-oriented business (Kloosterman et al., 1999). Beside the access to markets, the mere presence of a market can also be thought to be constituent of a neighborhood economy. Although consumer behavior is anything but a strictly local affair, the social-demographic composition of a neighborhood can still be seen as an important signifier of the type of local consumer demand.

Looking at both the supply and demand side of entrepreneurship will shed light on two important issues: First, on the workings of local markets, and second, on the importance of human capital as a factor determining the accessibility to these markets. In effect, human capital (or educational attainment) is conceptualized as a factor that operates on the supply-side of entrepreneurship. At the same time, the opposite is considered: human capital can also be conceptualized as a characteristic of the local market, indicating a demand for a specific kind of products and services. Also, the issue of migrant entrepreneurship is included in the models presented in this article since the literature puts this forward as an important element of advanced urban economies. Although institutional arrangements and regulatory environment are considered to be important for neighborhood economies, they are hard to quantify and therefore not included in the models presented here. The next section elaborates on the different demand and supply-side drivers that I investigate as underpinnings of the neighborhood economy.

4. Dynamics of neighborhood economy

The definition of neighborhood postulated by Galster (2001) shows that it is a theoretically complex construct: 'Neighborhood is the bundle of spatially based

attributes associated with clusters of residences, sometimes in conjunction with other land uses' (Galster, 2001:2112). These spatially based attributes can be thought of as structural, infrastructural, demographic, economic, environmental, political, sentimental and social-interactive in nature. The key to this conceptualization of the neighborhood is that all these attributes together constitute a neighborhood because they are 'spatially based' in a particular location (ibid: 2113). It also signals that it is undesirable to assign a single meaning to attributes of neighborhoods stating, for instance, that neighborhood residents are either producers *or* consumers. I use the level of analysis of the neighborhood by selecting some of its spatially based attributes and conceptualizing them as drivers of the economic activity in that neighborhood[4] . With regard to residential aspects, the debate has been focused on whether we can speak of 'neighborhood effects' (see for instance Massey & Denton, 1993; Musterd, Ostendorf, & De Vos, 2003). In this case, the neighborhood attributes are used to determine the formation of specific local markets and hubs of entrepreneurship and not to isolate a 'neighborhood effect'.

In terms of demand-side drivers, average income and average education levels are thought to influence local consumer purchasing power and purchasing preferences. With high average incomes and high average educational attainment levels, a local demand for upscale, high-end products is expected. Consequently, in these neighborhoods, a large share of firms that can be labeled as 'high value-added' is expected. A neighborhood with higher average disposable incomes is expected to be able to sustain more firms and have higher growth rates of firms. The effect of average income is not unambiguous, however, since it is assumed that at least part of the firms in a neighborhood will not cater to local markets, and instead produce for a national or even international market. The products and services of these businesses are not (only) sold to local markets but have a wider scope due to their specificity or unique nature. Business services, for instance, can be thought of as catering for both a local and a supra-local market. However, social-demographic neighborhood characteristics can

[4] I use the administrative boundaries of neighborhoods as used by the Dutch Central Bureau of Statistics, since the social demographic and economic data are also available on this level. This is the lowest scale level on which these census data are available.

influence the presence of these supra-local businesses in several indirect ways. First, real-estate and rental prices of office and business accommodation are related to the social-demographic and economic characteristics of neighborhoods. This is why the average growth in real estate value (1999-2008) is conceptualized as an indicator of long-term development of the neighborhood. Exorbitant growth in real-estate prices indicates increased popularity of a neighborhood and signals an upgrading of the social-economic status of its residents as well as a rise in prices for business space. A large portion of the high-end of the cognitive-cultural sectors is expected to prefer location in high-status neighborhoods since status, appearance and surroundings are of importance (Hutton, 2004). Moreover, the appeal and proximity of the business location to their desired workforce and other firms is also important. In turn, an often advanced claim within urban economy studies is that high-end, high value added firms are particularly prone to clustering with similar firms[5] (Hutton, 2004).

In terms of supply-side drivers it can be argued that a considerable number of firms are started from home. If the residential population exhibits high average education levels, businesses in that neighborhood will predominantly be started in sectors with high human capital thresholds. Creative and innovative firms are not necessarily located in the richest neighborhoods, but also in upcoming neighborhoods with lower real-estate values and lower average incomes. In line with Ley's theory of gentrification (Ley, 2003) we can expect artists and innovative entrepreneurs to settle in 'affordable and mundane' neighborhoods. Entrepreneurs in these industries might be looking for 'undiscovered' and inspiring surroundings and seek the road less travelled. In line with the entrepreneurship literature and the mixed embeddedness approach, the share of non-Western immigrants in a neighborhood is thought to be positively related to levels of entrepreneurship. Two assumptions are being made here: immigrants will either start a business in their own neighborhood of residence, or they will start a business in a neighborhood with a large share of immigrants due to the market they aim to serve, namely a market that for a large part consists of immigrants. Including the share of non-

[5] Although in this article I investigate whether we can signal 'hubs' of high-end, high-value added economic activity in certain neighborhoods, I do not investigate the specific statement that these firms attract other firms in related sectors.

Western immigrants in the neighborhood serves to test the proposition derived from the mixed embeddedness approach that immigrants start businesses in particular (mainly low-end) sectors. Summing up, the following propositions are stated:

1. Neighborhoods of high socioeconomic status can maintain more firms and have more firms at the high end of the market.
2. Neighborhoods with a high share of Non-Western immigrants will display higher rates of entrepreneurship as well as starting businesses & self-employed.
3. Neighborhoods of high socioeconomic status display higher growth rates of firms.
4. Neighborhoods with a high share of Non-Western immigrants will have a larger share of firms in low human capital threshold sectors (i.e. retail, personal services).
5. In line with Kloosterman (2010): a high share of highly educated, high skilled residents means more firms in high-end industries in the neighborhood.
6. Neighborhoods of high socioeconomic status do not display significantly higher levels of creative and innovative firms.

5. Data and method

For the analysis, detailed information on 71 residential neighborhoods located in five Dutch cities is used. Only urban neighborhoods that can be characterized as predominantly residential[6] are included in the analysis, because inner-city districts and neighborhoods with an industrial estate are assumed to have specific business dynamics of their own. The included neighborhoods display variation on the relevant variables, but there are no real 'extreme' cases included (i.e. In these five cities neighborhoods that can be characterized as either 'no-go areas' or 'gated communities' do not exist). The five cities are Amsterdam, Dordrecht, Leiden, Utrecht and Zoetermeer. Dordrecht, Leiden and Zoetermeer are medium-sized cities ranging between 117,000 and 121,000 inhabitants. Amsterdam and Utrecht are relatively large cities with respectively 779,000 and 311,000 inhabitants (CBS 2010). The Amsterdam and Utrecht populations are consistently growing, while the other three cities have more or less stable population numbers. All cities belong to the Randstad region, the conurbation in

[6] The selection of neighborhoods is made on the basis of postal code areas. First, only areas with more than 500 residential addresses are selected. This group is divided into 3 categories: neighborhoods with a city center function, neighborhoods that have an industrial site within them and the residue is categorized as 'purely' residential neighborhoods (PBL, 2010).

the West of the Netherlands, which is often considered to function as one regional economy. Although the number of cities included in the analysis is rather small, their diversity increases the robustness of the findings. Data on the businesses in the neighborhood consist of LISA-data[7] , listing all business establishments in these five cities for the period 1999-2008. The calculation excludes schools, hospitals and public sector activities that do not produce for a 'market'. Multiple OLS regression is used to estimate the effects of neighborhood attributes on the number and type of businesses in the neighborhood. Table 1 provides descriptive statistics for the variables used.

< Table 1 here>

The dependent variables are listed in the bottom half of the table. The models presented in the results section can best be understood as a stepwise analysis. The first step is to model the effect of neighborhood characteristics on the size and growth of the local economy. Main outcome of interest here is the number of firms in a neighborhood corrected for the number of inhabitants (FI_08: number of firms per 100 inhabitants in 2008). After that, the development of this index over the past decade is taken into account (FI_growth 1999-2008) to measure growth. In addition, new firm births are modeled as an indicator of dynamism of the neighborhood economy. The second step is to analyze the effect of neighborhood characteristics on the composition of the neighborhood economy. This second step can itself be divided in two steps. Firstly, a more 'traditional' sectoral classification of firms is applied, with a distinction between business-to-business, personal services (e.g. dry-cleaning and beauty salon) and retail (shops and take-away restaurants). Business-to-business ranges from business accountants to business cleaning services[8]. This conventional sectoral classification reflects standard industrial classification schemes. Secondly, a more fine-grained classification of firms is applied that aims to capture the nature of the work that is performed within these firms. These are the same firms, albeit classified according to

[7] This is data from the Dutch Chamber of Commerce, supplemented with employment information.

[8] All categorizations are made with the 'Standard Business Index' of 2008 (based on the UN international standard industrial classification of all economic activities, ISIC) See appendix A for a detailed overview of the categorization of businesses used for these variables.

whether they produce high value-added, innovative or creative products and services. High value added firms are characterized by knowledge-intensive activities that are still mainly standardized. They represent the part of the value-chain where most value is added and the products are placed on the high end of the market. Consequently, revenues are high. The high value-added category includes some business services supplemented with other sectors such as (for-profit) education and health services. The main criterion is that the human capital threshold for operating in these sectors is high. In addition to high human capital levels, the innovative firms are characterized by non-standardized activities that are likely to produce unique and innovative products ranging from new complex financial instruments to the latest in architectural design. Research & development firms are for example classified as innovative, as Scott (2008) sees this kind of economic activity as the 'innovative energy' that drives the cognitive-cultural economy since this type of firm is often concerned with development or some other form of 'progress'. The creative firms constitute a fairly narrowly defined group of firms whose main activity is artistic creation that can lead to unique products, but is not so much concerned with product development or improvement. Applying this categorization based on firms' main activities allows an understanding of the local economy from a cognitive-cultural perspective which states that it is particularly this kind of business that has the highest growth potential in urban economies. Using the more traditional as well as a more novel classification of firms allows us to observe what is gained by applying a cognitive-cultural economy approach. As a last step, the share of self-employed in a neighborhood is analyzed in order to see whether certain neighborhoods are more prone to accommodate home-based business. The dependent variables are measured for the year 2008 except for the growth in firms (FI_growth), change in high value-added and change in the share of self-employed that measure the change between 1999 and 2008[9]. The independent variables have been measured for the most recent year for which data was available[10] . Table 1 shows that there is quite some variation in the number of firms in a neighborhood. In some neighborhoods

[9] All the dependent variables that represent a share of the neighborhood economy (e.g the share of business-to-business firms in a neighborhood are log-transformations (ln) of the original variables to meet the assumption of unboundedness.

[10] See appendix A for an overview of the data availability of independent variables.

hardly any businesses can be found while in others there are as much as 22 firms per 100 neighborhood residents. Growth figures vary greatly with substantial growth numbers in some neighborhoods and decline in others[11]. The share of high value-added firms is characterized by a higher variation over neighborhoods than the share of innovative or creative firms. The table also suggests high average levels of self-employment and overall growth of this share with small deviations.

6. Results

Before turning to the OLS-models, table 2 and figure 1 offer a more descriptive overview of the economy in residential neighborhoods. Table 2 shows the average figures for firm size and self-employment: small firms with fewer than 5 employees dominate and there is a strong overall increase in the share of self-employed between 1999 and 2008. The share of large firms was not very substantial in 1999, and decreased even further in the past decade. The distribution of firms in the five cities as shown in figure 1 gives an overview of the share of firms labeled as service sectors (business + personal services), high-value added firms, innovative firms and creative firms. The share of services makes up half or more of the sectoral distribution in all five cities. In the larger cities (Amsterdam and Utrecht), the share of high value added firms is larger than in the other cities, but as we have seen in table 1, this share varies substantially across neighborhoods.

<Table 2 here>

<Figure 1 here>

Remarkably, the share of innovative firms in the new-town Zoetermeer is slightly larger (17.44 %) than in the capital city Amsterdam (15.61 %). The city of Zoetermeer explicitly aims to attract information and communication technology industries

[11] Arguably, a growing or declining population within a neighborhood also influences the F:I growth rates. Still, I believe that a declining population would lead to a smaller market, and more importantly, less potential for home based firms and entrepreneurs within the neighborhood. This in turn should imply a decrease in the number of firms. If this is not the case, it is assumed that a higher F:I rate caused by decline in numbers of inhabitants generally reflects strong local economic activity.

(Zoetermeer 2008[12]). The larger cities Amsterdam and Utrecht clearly attract more firms operating in the creative sector (this is in agreement with other studies. See for example: Deinema & Kloosterman, 2009; Marlet, 2009) . The share of 'other' represents mainly heavy industry and manufacturing sectors, and we see that in all cities, this share is very small. This distribution of economic activity across the various highlighted sectors as well as the strong presence of small firms is illustrative of the shift to the cognitive-cultural economy. A majority of firms operating in personal and business services, with especially in the bigger cities a large share of firms that can be categorized as high-value added. Although the sectoral distribution in Dordrecht (DORD) and Leiden (LEID) is similar to that of the other cities, they seem to be lagging behind somewhat. They show a slightly smaller share of service and high-value added firms, and also the creative sector seems underrepresented. Leiden is performing well in its share of innovative firms compared to Dordrecht. Presumably, this is related to Leiden being a University-city although it is losing part of its university educated residents to other cities in the Randstad (CBS 2010).

6.1 Explaining the size and growth of the neighborhood economy

Model 1 (table 3) shows that average income and educational attainment are good predictors of the number of firms in a neighborhood (FI_08[13]). The number of firms (related to the size of the population) increases as average incomes are higher and the average educational attainment is higher. A shared explanation for these two variables is that higher incomes and educational attainment[14] represent a powerful local market with high purchasing power and a demand of high-end products. This implies that the critical mass of consumers (for high-value added firms) is more easily attained in this type of neighborhood. This confirms the first proposition and indicates that local markets are indeed of great importance, as stated in section 3. Besides playing a role in shaping local markets, educational attainment can also point to a pattern of higher educated residents being more likely to become self-employed locally, maintaining the

[12] In 2003 Zoetermeer founded an ICT-Academy (Zoetermeer 2008 – Stadvisie Zoetermeer 2030)
[13] FI_08 is a log transformation of the original variable

[14] The bivariate correlation of these two variables is .47

assumption that businesses are started in or close to home. This statement is based on earlier studies that argue that the higher educated are more likely to start a business (Evans & Leighton 1998) as well as recent empirical evidence showing higher rates of self-employed in neighborhoods of high social economic status (Risselada & Folmer 2012). However, it is not possible to confirm this statement on basis of the current models and the available data. We cannot deny that we see higher levels of firms in neighborhoods with a high share of highly educated residents but since we have no data on the locality of ownership of the firms (i.e. home-based or office/retail space), statements concerning educational attainment as a supply side driver of local businesses remain tentative. If it were possible to statistically isolate home-based business we could make better estimations of the relation between educational attainment and the likelihood of starting a business (in high-end sectors). In this context, the rise in real-estate value most likely functions as an indirect driver signaling a process of gentrification that is related to high and rising average incomes. The share of non-Western immigrants does not significantly affect the number of firms in a neighborhood so this part of the second proposition cannot be confirmed.

<Table 3 here>

As a predictor of growth in firms over the period 1999-2008 (model 2) the model turns out to be less successful (with an explained variance of 20%). The only significant indicator is the percentage of higher educated residents in a neighborhood. This can provide additional support for the proposition that the highly educated are a driver of the local economy because they are more likely to start a business and hence fuel growth of firms in these neighborhoods. We will have to see how this parameter performs in explaining shares of self-employed in the neighborhood to draw more informed conclusions. There is no unambiguous prove that can confirm the third proposition. The reduced explanatory value of this model relates to the considerable growth in firms that has also been taking place in neighborhoods with lower average incomes and less steep increases in real-estate value. So although a higher number of firms are found in 'richer' neighborhoods (Model 1), these are not necessarily the neighborhoods where the largest growth in businesses has taken place over the last ten

years. This argument is supported by model 3. The share of non-Western immigrants is positively related to the number of new firm births[15]. Although the total explanatory power of the model is limited, it does indicate that the share of 'young' firms is large in neighborhoods with more non-Western immigrants. This at least partly explains the growth in firms in less advantaged neighborhoods and it confirms this part of the second proposition. It is not necessarily an indicator of a 'healthy' local economy since high start-up rates can also indicate high turnover rates of local firms. A high turnover rate of local firms in turn signals that a neighborhood is becoming less attractive as a place of entrepreneurship due to declining purchasing power of residents combined with negative effects of vacant business space. This first step of the analysis indicates that there are two types of neighborhoods that either accommodate high shares of firms or function as incubators: on the one hand neighborhoods that have experienced a trajectory of residential gentrification with an influx of higher educated, high income residents, creating new opportunities for neighborhood firms. On the other, neighborhoods with high shares of non-Western immigrants are a prominent site of start-ups although this is not necessarily durable economic activity.

6.2: Explaining the sectoral composition of the neighborhood economy

The second step in the analysis concerns the composition of the neighborhood economy. First, the more 'traditional' sectoral approach is applied. It shows us that business services are more likely to be located in 'richer' neighborhoods (model 4). It is likely that these businesses locate in these neighborhoods for reasons related to status and co-location with other business services, since they do not cater to a consumer market. Commercial and residential real-estate prices are usually higher in high-income neighborhoods, meaning that only firms and entrepreneurs with substantial capital can reside there. Note that educational attainment is not a successful predictor of the presence of business services. Personal services (model 5) tend to concentrate in socioeconomically weaker neighborhoods. Both average income and the share of higher educated residents are negatively related to the presence of personal services. This

[15] Dependent variables that represent a share of firms in the neighborhoods (% of firm births, % business to business, % personal services, % retail, % high value-added, % creative, % innovative, % self-employed) are logit transformations of the original variables to meet the assumption of unboundedness.

provides evidence for the proposition that it is important to take account of human capital thresholds for operating in particular industries. If we maintain the assumption that production is at least partly local, this means that these economic activities are also performed by, on average, lower educated entrepreneurs with considerably less venture capital. Locating in high-income neighborhoods is in most cases too expensive for this type of firm although it can be expected that they at least partly cater to high-income clients that are outsourcing household tasks. The traditional sectoral classification loses explanatory power if we look at the share of retail in a neighborhood (model 6). The explained variance is negligible, and the only significant predictor is the share of owner occupied housing in a neighborhood. The problem here is that retail is a very broad category – comprising consumer products from the very high to the very low end of the market. The building structure of a neighborhood is probably more important in determining the share of retail in a neighborhood. A retail business puts particular demands on its physical location. This makes sense in the Dutch context with its tightly controlled land-use plans and strict zoning regulations (Hajer & Zonneveld, 2000). There is no direct effect of the share of non-Western immigrants on the share of retail or personal services so the fourth proposition cannot be confirmed. Analyzing the firms that are present in a neighborhood from a cognitive-cultural perspective might provide additional hold on the neighborhood economy. This is done in the models shown in table 4.

<Table 4 here>

Average income level and the share of highly educated residents are important predictors of the share of high-value added firms in the neighborhood. In terms of demand-side drivers, it is an indication that neighborhoods with a high average income and high average education levels fuel a specific local demand for products and services of firms operating in high-end sectors. However, as was said earlier, it cannot be assumed that firms produce exclusively for a local market. High average incomes are also an indication of high prices for commercial real-estate and therefore these neighborhoods will show a less diverse neighborhood economy, lopsided to the high-end of the market. This is the same mechanism that operates in the location of business

services and personal services (model 4). Model 7 provides additional information over model 4 however: focusing on the nature of the activities that are actually performed within firms clarifies that those firms that require high human capital are actually located in neighborhoods with high shares of highly educated residents. This provides additional support for the claim that the 'new urban dwellers' often become local entrepreneurs themselves. This statement is in line with the proposition made by Kloosterman (2010a) that certain markets are only accessible for entrepreneurs with high levels of human capital[16]. Average income and educational attainment together explain 49% of the variation in the share of high value-added firms in the neighborhood. This supports the first and the fifth proposition. The largest growth in high value-added firms (model 8) takes place in neighborhoods where the share of high incomes has increased the most[17], representing final stages of residential gentrification in the neighborhood. Likewise, educational attainment of residents remains a significant predictor in this model. Distinguishing business services from high value added firms allows for going beyond the Standard Industrial Classification. It looks at the nature of productive activity that is actually going on in firms. When gauged in terms of human capital, firms that rely on high levels of human capital are more likely to be located in neighborhoods that have high shares of highly educated residents. This is prove, albeit partially, for the statement that firms do get started locally. However, it is important to keep the limitations of the data in mind that prevent us from determining the locality of ownership. Most likely, educational attainment plays a role on both the supply and the demand side of entrepreneurship. The decision of starting a firm in one's own neighborhood (often in the home) is influenced by an intertwined set of variables including education attainment, availability of capital, the local labor market and home ownership and last but certainly not least important, personal circumstances.

[16] In this case, one would have to again maintain the assumption that businesses are started from the home or close to the home in the own neighborhood. Based on earlier research (Mackloet, Schutjens, & Korteweg, 2006) this assumption is not very hard to make.

[17] This variable (increase in share of high incomes 1999-2007) was added as a predictor – The model was also run with the original variables, but for reasons of brevity left out of the table. It is available from the author.

More creative firms are located in neighborhoods with high shares of highly educated residents (model 9) whereas income levels are not determinant. Also, the upgrading of real-estate values plays a role here. This suggests that creative firms are locating in neighborhoods that have been 'upgraded' during the period 1999-2008 and those that are still in the middle of this process. Here lies its added value compared to the more traditional sectoral approach: it provides empirical support for the views on gentrification which state that it is artists and creative 'bohemians' who are pioneers in the gentrification process (see for instance Ley, 1996; Lloyd, 2004). Residential gentrification and the settlement of creative industries go hand in hand, although it remains difficult to assess whether the level of creative firms has played a causal role in the upgrading process. As for innovative firms (model 10), we see that average income is again very important in explaining the share of innovative firms in a neighborhood. Interestingly, neither the share of highly educated in the neighborhood nor the growth of real estate value influences the share of innovative firms. Contrary to creative firms, these firms are not predominantly settling in upcoming neighborhoods, but are rather located in the wealthier parts of the city. A substantial part of these innovative businesses are catering to a business market, so co-locating with 'traditional' business services in the wealthy neighborhoods is in their advantage. It is difficult to determine firms as innovative. Here, they consist of some more established innovative sectors (i.e. software development) as well as more upcoming innovative sectors (i.e. industrial design). More empirical research is needed to assess which firms are truly performing innovative work. For now, the sixth proposition is confirmed for creative firms yet not for innovative firms. This second step of the analysis shows that it is useful to conceptualize the neighborhood as both a supplier of entrepreneurs and as a local market. A cognitive-cultural perspective on the neighborhood economy acknowledges that to start a firm in these industries poses high human capital thresholds for (nascent) entrepreneurs. Modeling the share of high value added firms in a neighborhood and the change of this share over a ten year period is an innovative exercise. The results indicate that processes of residential and commercial gentrification go hand in hand and that a real qualitative transformation of economic activity occurs in these neighborhoods. Figure two presents a schematic outline of the discussed significant

positive relationships between neighborhood characteristics and type of entrepreneurial activity in the neighborhood as modeled in table 4.

<Figure 2 here>

6.3: explaining the share of self-employed in the neighborhood economy

Models 11 and 12 analyze the share of self-employed in the neighborhood. Available empirical data shows that a large part of the self-employed has established their business at home (Mason et al., 2011, Risselada & Folmer 2012). In terms of supply-side drivers, model 11 investigates whether non-Western immigrants are more likely to be self-employed. In terms of demand-side drivers, the proposition was made that more businesses in a neighborhood with a large share of immigrants are started due to a market these businesses aim to serve, namely a market that for a large part consists of immigrants. The parameter is negative (although not significantly so), and therefore, there is no support for this part of the second proposition. Educational level is a positive, yet not a significant predictor, of the share of self-employed in a neighborhood whereas the previous models did show a significant positive relationship between average educational attainment and the number of firms in a neighborhood. The poor explanatory power of the model is most likely due to the overall increase in self-employment in the studied neighborhoods. The average increase in the share of self-employed in the period 1999-2008 is 13% and only four neighborhoods have experienced decline in the share of self-employed[18]. An adjusted version of the model (model 12) performs slightly better and it tells us that in neighborhoods with more firm 'births', the share of self-employed is higher. Put differently: most new firm start-ups are 1-person firms. If assumed that most self-employed persons start from their own home, it would be likely that we would find more self-employed in neighborhoods where the share of owner-occupied housing is high. Owner-occupied houses are often bigger and have fewer restrictions when it comes to adjusting the interior to work-needs (OECD, 1998). Remarkably, the share of owner-occupied housing is not

[18] This argument is supported by modeling the effect of neighborhood characteristics on the change in self-employed (1999-2008) which yielded only non-significant results. The model is not shown here, but can be retrieved from the author.

significantly related to the share of self-employed or the change thereof in the neighborhood.

As was said, the poor performance of the models that analyze self-employment is probably due to an overall increase in the share of self-employed in residential neighborhoods. As we could already see in table 1, average growth in the share of self-employed is high overall with small standard deviations. This means that the rise in self-employment takes place everywhere and is not very locally determined. Nevertheless, there are variations in the rate of this growth but they are not explained by any of the selected neighborhood and population attributes. It is likely that self-employment is better explained by sectoral and individual factors. For instance, on an individual level, educational attainment or ethnic background might still prove valuable predictors of self-employment. Just as age might be a valuable predictor of self-employment. On the aggregate level of the neighborhood however, no such relationship can be observed.

7. Conclusion and discussion

In this article I aimed to capture the cognitive-cultural nature of economic activity in urban neighborhoods. This allows for more empirically informed statements about the neighborhood as a locus of entrepreneurship compared to a more 'traditional' sectoral approach. In doing so, the neighborhood is conceptualized as the nexus of economic activity: a place of both production and consumption. Processes that play out in a national or urban context such as economic restructuring, outsourcing, gentrification and migration have noticeable impacts on the local character and functioning of neighborhood economies. Building on Scott's (2008) proposition that the prevalence of the cognitive-cultural economy differs between cities, the data show significant intra-urban differences. We have seen that the high-end of the 'cognitive-cultural' economy tends to be located in socioeconomically upwardly neighborhoods, and that these firms can be said to be unevenly distributed across the city. Moreover, the data show an increase in the share of high value-added firms as the share of high incomes in a neighborhood goes up, signaling a coincidence of residential and commercial gentrification. Scott (2011) argues that there is a new *social* geography of the city; saying that we can no longer think in terms of blue- and white collar neighborhoods. Likewise, the *economic* geography of the city has changed profoundly, giving a face to

the cognitive-cultural economy on the very immediate every-day level of the neighborhood.

Urban residential neighborhoods are characterized by smaller firms which are arguably more affected by micro-economic conditions than large multinational firms. Residential neighborhoods can be conceptualized in terms of different drivers that attract or ward off economic activity. The presence of certain combinations of these drivers influences the trajectory of a neighborhood economy. Two initial types of neighborhoods can be identified from the data: neighborhoods that have experienced an inflow of high-income, highly educated residents, creating a local demand for high-end products as well as creating a supply of local entrepreneurship. On the other hand, neighborhoods with a high percentage of Non-Western immigrants that accommodate a considerable share of starting entrepreneurs, fomenting local ethnic economies. These neighborhoods offer a lower investment risk because real-estate prices are modest, but possibilities for growth are bounded by high competition as well as a lower effective demand. Neighborhoods that provide fertile grounds for (small) businesses can attract more (starting) businesses than other neighborhoods. If the start-ups do not last however, the local business environment is characterized by high turnover rates, vacant business space and foundered entrepreneurs. It might prove hard to recover from such a negative spiral, considerably backlogging a neighborhood in terms of economic competitiveness. This can be a reason for concern, since Scott states that the competitive advantage of places lies in the nature or production and work that resides there. Further growth is expected in cognitive-cultural economic activities, with generally high human-capital thresholds. The concentration of high value-added, innovative and to a lesser extent, creative economic activities in already prosperous parts of the city means that a 'lock-in effect' (Scott, 2008) for disadvantaged neighborhoods is looming. This increases the volatility of these neighborhoods to lower amenity levels or an abundance of low-end business, making them less attractive as places of residency and business. Admittedly, in terms of earnings, the cleavage between the elite work-force of the cognitive-cultural economy and its 'urban underclass' working in personal services and retail is starker in the US context than in the Netherlands.

To halt a downward spiral in local business climate one could offer additional support for starting entrepreneurs as well as finding creative solutions to prevent vacant business space. A diversified stock of local business spaces can help to retain successful entrepreneurs in the neighborhood by offering them local growth trajectories. In light of the findings of this study, policies allocating local resources to stimulate entrepreneurship in disadvantaged neighborhoods seem justifiable (see also Sleutjes et al. 2012). For instance, in order to stimulate innovative and creative entrepreneurship in disadvantaged neighborhoods, it might be well worth considering government intervention since we have seen that these types of firms are less likely to be present there[19]. It is fruitful to adopt a diversifying strategy for neighborhoods that are now lopsided to the lower end of the market, possibly creating an upward spiral as these neighborhoods become more attractive to other types of business. Also, although start-up rates may be high with non-Western immigrants, they might need additional (institutionally based) help to ensure that their firms become more secure and permanent[20]. In any case, if a local market is not capable of absorbing new businesses in terms of consumer power, policy efforts might turn out fruitless in the long term.

The overall upward trend of self-employment obfuscates differences between neighborhoods. In itself it is a valuable finding that entrepreneurship is finding its way into a broad stratum of neighborhoods and local residents. The emancipatory power of entrepreneurship can be substantial, if it can lead to a stable and durable source of income. Research on home-based business and the self-employed is still scarce, and we need to know more about the patterns of starting a business from home, growth patterns and possible relocation. This article identifies local drivers that can explain viability and make-up of neighborhood economies. In addition, it makes clear that it is useful to highlight both the supply-side and demand-side of the neighborhood in terms of entrepreneurship. Contrasted to a conventional sectoral approach, Scott's concept of the cognitive-cultural economy offers a better grip on the dynamics of local economies. The analyses presented in this article also indicate that some parts of the dynamics of

[19] For instance by attracting this type of firm to the neighborhood by providing affordable and suitable business space or by offering start-up subsidies for firms that settle in deprived areas.
[20] In disadvantaged neighborhoods in Utrecht, 'street managers' focus on assisting immigrant entrepreneurs in writing a business plan, making their shop safe and give management advice.

local economies cannot be brought to light with these models. We need additional research to extend and empirically found a typology of urban entrepreneurship climates, showing local strengths and pitfalls. In order to do this, in-depth research on the neighborhood as a local production 'milieu', the intra-urban geography of migrant entrepreneurship as well as localized (tacit) knowledge, would form great assets to understanding the neighborhood economy.

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Appendix A

Category 'other' (figure 1) consists of:
- Extraction of natural gas, minerals and oil, sand, gravel and clay.
- Industry: production of foodstuffs and food, tobacco, clothes, wood and paper
- Industry: manufacturing of chemicals, synthetic fibers, metals and electronics
- Industry: manufacturing of cars and furniture

Service sectors (figure 1) are all business-to-business and personal services (excluded are: logistics, transport, construction, retail & wholesale)

High value-added sectors are high value added in terms of human capital. Distributed in the following sub-sectors:

Construction:
- real estate development / project planning

Retail:
- pharmacies

Information and communication:
- Telecommunication
- Services related to information technology

Financial services (consumer & business oriented)
Consultancy, research and specialist business services
Other business service - consists mainly of firms providing specialist services
Education and education related services (for-profit)
Health services (for-profit)

Innovative sectors are selected sub-sectors of the high-value added sectors:
- publishing houses (of newspapers, journals, computer games and software)
- development of software , information technology consultancy
- specialist services related to accountancy, finance and legal services (consumer & business oriented)
- technical design, architecture and technical consultancy
- research & development
- industrial design

Creative sectors are selected sub-sectors of the high-value added sectors (except for fabrication of jewelry)
- processing of precious stones and fabrication of jewelry
- production of film and television programs
- advertising agencies
- arts (includes paint, photography, sculpture, literature, dance, music and theatre)
- education in arts

(Innovative and creative are mutually exclusive categories)

The Business to business category consists exclusively of business services that do not cater to a consumer market, without regard for human capital levels necessary to operate in these activities. Ranging from trade brokerage, business accounting and pay rolling services.

Standard Business Index no. 52.21 – 52.23, 58, 62, a sub selection of no. 64-66, a sub selection of no. 69 and 70, a sub selection of no. 72, 73.12, a sub selection of no. 74, 77, 78 and 80, 82.

A complete list can be retrieved from the author.

The personal services category consists of consumer services and includes dry-cleaning, hairdressing , beauty salons (sub selection of SBI 96), taxi services (49.32), event-catering (56.21) and gardening services (81.30).

Retail is the businesses that are defined in the 'Standard Business Index' of 2008 (International Standard Industrial Classification of all economic activities, ISIC) as 'shops' as well as snack bars and take-away food shops(SBI no. 47). Pharmacies are excluded from this group.

Data availability independent variables models 1-12:

- Average income: measured over the year 2007 for all 5 cities

- Share of high incomes is the share of incomes that exceeds the 80-percentage point of the national income distribution.

- % non-Western immigrants: measured over the year 2008 for all 5 cities

- % highly educated: Amsterdam, Leiden and Dordrecht measured over the year 2009, Utrecht and Zoetermeer measured over the year 2008. Highly educated refers to higher vocational training (HBO) and University degree.

- % owner occupied housing: All cities measured over the year 2009, except Utrecht: measured over the year 2008.

Tables 1-4

Table 1: descriptive statistics

Variable name	N	Minimum	Maximum	Mean	St. Deviation
Average income (x1000)	71	13.80	38.80	19.55	4.740
Growth real estate value (%) 99-08	71	92.00	494.00	185.52	78.089
Growth in average income (%) 99-07	71	9.00	90.00	26.33	13.907
Growth in high incomes (%)99-07	71	-36.00	107.00	7.12	28.528
% non-Western immigrants	71	2.00	65.00	18.73	14.354
% highly educated	71	12.00	72.70	39.06	16.155
% owner occupied housing	71	8.00	94.00	46.81	20.99
FI_08 (firms to inhabitants index)	71	1.00	22.24	4.56	4.083
FI_growth '99-'08	69	-2.19	4.69	1.05	1.151
% new firm births[21] as share of total firms	71	0.00	32.10	15.40	6.742
% business to business	70	0.00	54.50	26.27	9.821
% personal services	70	0.00	33.30	9.46	5.788
% retail	71	0.00	60.90	10.64	10.361
% high value-added	70	0.00	84.73	45.47	17.561
Change in % high value-added firms 99-08	70	-15.79	28.26	7.06	9.578
% creative	70	0.00	22.75	7.35	5.644
% innovative	70	0.00	31.82	13.50	6.314
% self-employed	67	42.90	88.00	68.54	10.458
Change in % self-employed 99-08	67	-0.60	38.40	12.70	9.017

[21] All % of firms variables represent the share of total number of firms in the neighbourhood that are categorized as business-to-business, personal services, retail etc.

Table 2: average firm size and self-employed 1999-2008

	Amsterdam	Dordrecht	Utrecht	Leiden	Zoetermeer
av. firm size* 1999	5.46	3.41	6.00	5.10	9.22
av. firm size 2008	4.49	3.01	4.44	4.18	4.99
av. share (%) of large firms** 1999#	2.75	1.54	5.21	3.46	4.85
av. share (%) of large firms 2008	2.33	0.71	2.29	2.89	3.33
av. share (%) of self-employed 1999#	59.16	49.04	61.99	49.83	54.69
av. share (%) of self-employed 2008	67.91	62.57	76.25	61.69	65.90

Source: LISA (calculations by the author)
* In no. of full time jobs
** Firms with 20 employees or more
# as percentage of total firms in the neighborhood

Table 3: Results of regression analysis for model 1-6

Model		1	2	3	4	5	6
Bèta-coefficients		*FI_08*	*FI_growth 1999-2008*	*% Firm births*	*% Business to business*	*% Personal services*	*% Retail*
	Constant	-0.380	-1.29	2.863	1.041	1.530	1.409
	Average income	.312*	.207	-.166	.640***	-.393**	-.130
	Growth real estate value (%) 99-08	.317**	.113	.079	-.042	-.005	
	% highly educated	.272*	.311*	-.087	.016	-.330**	.138
	% non-Western Immigrants	0.085	.139	.282*	.019	.092	-.151
	% Owner occupied housing						-.378*
	R^2	.42	.20	.19	.39	.44	.11
	Adjusted R^2	.39	.16	.14	.35	.41	.06
	N	71	69	67	66	67	71

Table 4: Regression results for model 7-12

Model		7	8	9	10	11	12
Bèta-coefficients		*% High value added*	*Change in % high value added*	*% Creative*	*% Innovative*	*Self-employed as % of total firms*	*Self-employed as % of total firms – model 2*
	Constant	2.476	1.314	.687	1.292	4.196	4.029
	Average income	.536***	-.066	.020	.511***	-.052	
	Growth real estate value (%) 99-08	-.020		.284*	-.044	-.024	-.043
	% highly educated	.327**	.283*	.273*	.078	.182	.214
	% non-Western Immigrants	.081	.080	.077	.048	-.040	
	Growth in share high incomes (%) 99-07		.339**				
	% Owner occupied housing						.013
	Firm births as % of total firms ‘08						.301*
	R^2	.49	.25	.20	.26	.030	.12
	Adjusted R^2	.46	.21	.15	.22	-.033	.058
	N	69	70	63	68	67	67

Figure 1-2

Figure 1: Type of Economic Activities across the Studied Neighborhoods (2008)

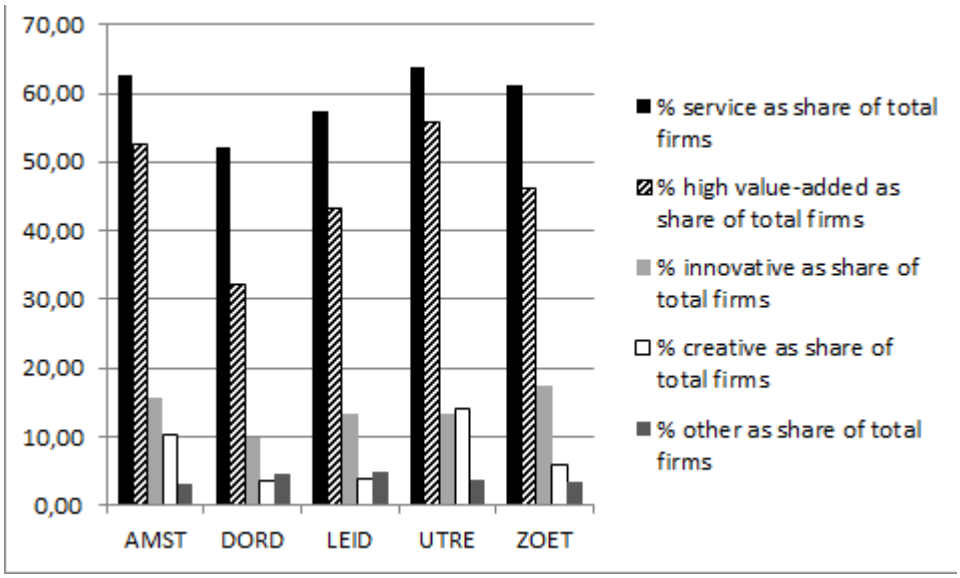

Figure 2: Schematic Representation of Determinants of Sectoral Composition of the Neighborhood Economy