Erasmus University Rotterdam

MSc in Urban, Port & Transport Economics

2019-2020

A spatial economic analysis of entrepreneurship in the Dutch craft beer brewing business

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Acknowledgements

I would like to express my gratitude to my supervisor Wouter Jacobs for his guidance which provided me a clear roadmap towards writing a well-structured thesis. His enthusiasm for the topic was also encouraging, I should have definitely chosen this topic in the first place. Also a big thanks to Jeroen van Haaren, whose efforts for retrieving the data that I needed were instrumental. Lastly, I would like to thank the survey respondents, their insights were crucial and I could not have done it without them.

Abstract

The craft beer revolution is a trend that can be spotted in most Western countries. The Netherlands is no exception, as it has seen a rapid increase in breweries over the last ten years. Most of these newly found breweries have in common that they produce craft beer, which has significantly gained in popularity over the last years. This thesis shines light on who the entrepreneurs are that are responsible for this high degree of entrepreneurship in the craft beer market, and what defines their locational choices. To answer these questions, firstly the current geographic distribution of breweries will be presented alongside visualizations that show geographic concentration. Next, survey results will be presented which provide a more comprehensive insight in the entrepreneurs' backgrounds, their intrinsic motivations, their locational considerations and lastly into operational information regarding their brewery. These results will be complemented with qualitative information retrieved from various interviews that have been conducted with entrepreneurs. Finally, a logistic model will be constructed designed to explain locational behavior. This thesis will find that the entrepreneurs are geographically scattered, originate from highly diversified backgrounds, generally started their own business due to an enthusiasm for brewing beer as opposed to commercial incentives, often have a second job to make ends meet and hardly ever leave their home region. The most important reason supportive of moving one's business is expansion, in the form of increasing production capacity. This is confirmed by the finding that production volume is significantly positively correlated to a future relocation, which is established through data analysis.

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Chapter 1: Introduction

1.1: Background information and problem description

It might be hard to imagine, that the total number of beer breweries located in the Netherlands has almost increased by 600% over the last 10 years. If quantity would at least equal quality, the Dutch beer industry would top the list of fastest growing industries worldwide by a wide margin, above rapidly growing industries such as renewable energy or cyber security which have a respective annual growth rate of approximately 10% (Angel, 2018).

However, this assumed equivalence of quantity and quality, is instantly rejected due to a tremendous lack of information regarding the Dutch beer industry. What is known, is that this increase in breweries entails almost exclusively craft breweries. There are hardly any bars left without craft alternatives to the traditional pilsners. Such developments are signs of a beer market that has changed fundamentally, and that the demand has shifted from an almost homogenous product to a heterogenous demand with a lot of possibilities for diversification from a brewers' perspective.

Causes for these comprehensive beer offerings could be internal, but it could also be a consequence of consumers' evolving preferences. This theory is underlined by Garavaglia & Swinnen (2017), who found that consumer associations stimulated the early craft brewers to continue brewing differently than their macro counterparts by sustaining the demand for craft beer at the expense of the mass-produced pilsners. These consumer associations and communities consist of craft beer enthusiasts, who united in these entities on their own initiative.

While it is established that the total amount of craft breweries and the beers on offer have increased immensely, the economic implications of these developments still remain unclear. One's reasons for starting their own craft brewery could range from commercial to seriously pursuing a hobby, in this case brewing craft beer. In the latter case, the economic magnitude related to this increased entrepreneurship is not likely to be considerable. For this reason, acquiring a better understanding of the breweries' operational information and the entrepreneurs' backgrounds help in providing a more comprehensive insight in this rapidly growing industry.

Besides presenting these general characteristics related to the breweries and brewers, this thesis will also show the geographic distribution and concentration of the craft breweries throughout the Netherlands. The craft beer revolution descends from California, USA, and up until this day there is still a high level of concentration in the American craft beer market. In other words, there are significant differences in craft beer demand between different states. Although the Netherlands is off a far less considerate size than the USA, it can not be assumed that all regions have embraced the popular craft beers equally. Nor can assumptions be made regarding the locational behavior of these relatively young businesses, since the actual locational

choices and considerations are unknown. Jointly, the geographical embeddedness and mobility provide a dynamic understanding of locational behavior in the craft beer industry.

1.2: Purpose of the Research

The purpose of this research is to provide a more complete insight into who the entrepreneurs are who are responsible for the craft beer revolution in the Netherlands, and what defines their locational choices. The mere numerical increase in craft breweries in the Netherlands reflect a market that is attractive to enter from an entrepreneurial perspective. However, still little is known about the economic relevance of this market. Answering these questions creates a deeper understanding of the economic magnitude and the underlying dynamics in a market that could arguably be labelled as a rising star. This thesis attempts to provide clarity where these new entrepreneurs originate from, and whether they share specific traits that characterize them. So ultimately, this thesis will shine a light on the people who are from an entrepreneurial perspective responsible for the sudden emergence of craft breweries all across the Netherlands.

After this has been established, a model will be constructed aimed at explaining the locational behavior of these relatively new entrepreneurs. Advantages of possessing this information are twofold, as it adds to the knowledge related to craft brewers that will be established earlier on in this thesis in the form of a deeper understanding of their economic and locational considerations, and secondly, knowledge regarding their locational considerations is valuable information for municipalities and other public institutes as these choices could affect regional development. Locational theories could namely prescribe firms to detach themselves from their home region, making them an unreliable source for regional development. Naturally, this does not have to be the case for craft brewers, so acquiring a better understanding to what extent these entrepreneurs are embedded in a particular region is one of this thesis' main objectives.

1.3: Research Questions

Based on the problem description and the purpose of the research, the following central research question has been formulated:

Who are the Entrepreneurs that are Responsible for the Rapid Emergence of Craft Breweries in the Netherlands, and what defines their Locational Choices?

In order to adequately answer the central research question, the following sub-questions have been formulated:

Sub-questions:

1. What determines the locational behavior of relatively new businesses?
2. Which methods and techniques are suitable for explaining the locational behavior of Dutch craft breweries?
3. How are breweries currently distributed across the Netherlands, and can certain geographic patterns be detected?
4. Who are the entrepreneurs that are currently active in the craft beer industry, and what determines their locational behavior?
5. Taking everything into account that has been established throughout this thesis, how can these entrepreneurs be regarded, and are there still subjects that remain unclear?

1.4: Relevance of the Research

Scientific relevance could either be achieved by filling a gap in the existing scientific knowledge, or by presenting new information altogether. Locational behavior of firms has been the subject of scientific research on many occasions, both from a general perspective as well when looking at specific countries, industries or a combination of both. Stam (2007) constructed a conceptual framework that explains the locational behavior of entrepreneurial firms in the Netherlands which are in the early growth phases. This blueprint is particularly suitable for this thesis, as the country of interest is similar, and most craft breweries are relatively young businesses.

Craft brewers' locational choices are unknown, as are explanations regarding their locational considerations. In order to formulate conclusions on these topics, one first has to acquire information on the geographical distribution of the current Dutch beer market. This information can be used to calculate geographical concentration, thereby showing regions which are under- or overrepresented in brewing activities when compared to the national average. This insight is novel, providing clear visualizations of how regions perform looking at various macro-economic performance indicators with respect to brewing activities. Combining these insights with a model that explains craft brewers' locational behavior, results in a better understanding of where these craft brewers are located and what factors influence their locational choices.

Additionally, a novel insight will be presented by establishing profiles of the entrepreneurs that are responsible for the craft beer revolution. Including among other things, educational backgrounds, career-path analyses and motivations for becoming an entrepreneur in the field of craft brewing help in sketching a more complete profile of who these entrepreneurs are. Outcomes could range from a dominant career path that took the current entrepreneurs along beer-related companies such as macrobrewers or bars, or the entrepreneurs could originate from

a wide variety of backgrounds and perceived entering the craft beer market as a promising business opportunity.

1.5: Structure

Chapter 2 reviews relevant literature with respect to the supply side as well as the demand side related to craft beer. Although this thesis focuses mainly on the supply side, the dependency between the two makes it valuable to obtain a basic understanding of how the dynamics on both sides of the spectrum function and possibly interrelate. Sub-question 1 will be answered in this section by discussing general locational theory that is applicable to Dutch firms. Chapter 3 will discuss which methods and techniques are deemed as appropriate in order to get to an answer in response to the research question, thereby answering sub-question 2. Chapter 4 will firstly show the current geographic distribution of breweries across the Netherlands. This data will later be used in combination with data that describes the total amount of entrepreneurial activity on a municipality level, making it possible to calculate location quotients which are a tool to represent geographical concentration. Sub-question 3 is answered after these steps have been undertaken and visualized correspondingly. Chapter 5 holds the answers to sub-question 4. Chapter 5 is divided into two main sections, namely a *"results"* and an *"analysis"* section. A more vivid profile of the craft brewers will be sketched in the results section on the basis of survey results, which are primarily presented making use of tables and figures to increase clarity. The survey results will be complemented with insights derived from various interviews with craft brewers. The analysis section will present a logistic model that explains craft brewers' locational behavior. Chapter 6 will serve as a section where the observations, results and limitations will be discussed all things considered. Lastly, Chapter 7 will provide a concluding answer to the main research question, and subsequently make recommendations for further research.

Chapter 2: Literature Review

2.1: Introduction

A market consists of a demand- and a supply side, the one cannot exist without the other. Up until now the emphasis laid upon the entrepreneur, thus the supply, but on the other hand, the demand side also holds valuable information for brewers. A company will not be successful if it fails to connect to a correspondent market, regardless of the intrinsic qualities of the entrepreneur. For this reason, a literature review will follow containing scientific sources that will firstly discuss the demand for craft beer. These studies identified certain factors which have the potential to significantly influence a craft beer related outcome, which could be the number of breweries, sales volume or sales value. All studies included in the following section made use of a database, strictly containing data covering the craft beer market in the US. Reason for this is the relative abundance of data relating to the US craft beer market when compared to other countries. The American craft beer market has been subject of research on many more occasions compared to for instance its European counterpart. Up until 2015, no studies have been conducted on consumer preferences determining craft beer choice and consumption in Europe, while Europe's value of craft beer sales is approximately 30% higher than the US' (Technavio, 2020. & Brewers Association, n.d.). Scientific research deemed several factors to be of importance with respect to craft beer consumption, of which the most prevalent ones will be discussed separately in line with the conclusions belonging to the relevant literature. After that, the supply side will be discussed along the lines of relevant scientific research. Entrepreneurial traits including backgrounds, career paths and learning sources will be discussed. Also, geographic concentration of US craft brewers will be shown in order to understand whether this trend has a primarily regional or national nature. At last, entrepreneurs' general locational behavior will be discussed, in this case with the Netherlands serving as region of interest.

2.2: Demand

2.2.1: Consumer income

Following from Hart and Alston's (2019) conclusions, namely that craft beer is categorized as a premium good with respect to the regular macro beer, consumer income is ought to be a significant determinant for craft beer demand. A 2009 survey of beer consumers found that high-income consumers are more likely to buy craft beer (Beer Marketer's Insights, 2010). They found that an increase in personal income would result in a stronger preference for craft beer. If total demand for craft beer and microbrewery founding rates are positively and significantly correlated, then

Swaminathan (1998) came to a similar conclusion. While investigating causes of entry into the brewing industry from 1939 to 1995, he found that: *"States with more affluent residents and higher beer consumption experience higher microbrewery founding rates"* (Swaminathan, 1998). A more recent research underlined this conclusion, Elzinga et al (2015) constructed a tobit model for the years 1979 to 2012 with among others *income* as a regressor for *craft beer volume*, and found the correlation to be significant on a 99% confidence interval.

Furthermore, Carroll and Swaminathan (2000) found that an increase in consumer income is correlated to a higher demand for locally produced products. This could partly explain why craft breweries often emphasize the fact that they are local, this way they try to reap the benefits from this competitive advantage. An excellent example of such a marketing strategy can be found in the city where I live in, Rotterdam, where one of the major craft breweries, *"Kaapse Brouwers"*, has a company slogan that goes: *"The best Rotterdam beer in the world"*. Additionally, Marsat et al (2015) found that tourists have a strong preference to buy local, therefore increased touristic popularity of a particular region could benefit craft brewers located there. This is in line with my own experience of working in a bar for over 3 years, tourists often request a local beer, regardless of what sort of beer it is.

Increased income by itself could also be depicted as a cause of increased consumer demand for variety (Silberberg, 1985), which also begs questions about the nature of the correlation between personal income and craft beer demand. This effect could be direct, or it could be absorbed by consumer's changing preferences in favour of different beers than the traditional ones. Fact is that before craft beer became popular, the beer market was dominated by reasonably homogenous beer in the form of pilsner, thereby creating opportunities for diversification.

2:2.2: Niche formation

These diversification opportunities are also considered to be of importance to the rapidly increased demand for craft beer. Swaminathan (1998) tested 2 hypotheses; whether niche formation and/or resource-partitioning have a significant effect on the entry of microbreweries into the brewing industry. The major difference between the two is that niche formation is primarily caused by exogenous developments, and resource-partitioning has a more internal nature. Niches can be created by discontinuities in a market, which could reflect underlying developments such as a changed consumer behaviour (Delacroix & Solt, 1988). Delacroix & Solt (1988) found that just that, the changed consumer behaviour, is responsible for the surge in vineyards to which the *"craft-beer revolution"* has been compared to in several scientific publications. Resource-partitioning is a an alternative way to enter a mature market. According to this theory, the supply of vital resources come to be dominated by larger companies over time, thereby creating centralized markets. This creates opportunities for entrepreneurs to exploit localized markets, because local companies

have a competitive advantage over larger firms due to the general consumer preference to buy local products (Carroll, 1985). Swaminathan (1998) found evidence for his hypothesis stating that niche formation has a positive, significant effect on microbreweries entering the brewing industry. This does not apply to the resource-partitioning hypothesis. Additionally, Garavaglia & Swinnen (2018) found that first movers do well in the field of survival and operating revenue. When controlling for causality between years since entry and survival, the first wave of entrants outscore entrepreneurs which entered the market in a later stage significantly in the areas just mentioned.

Briefly returning to one of the competitive advantages of a small brewery, Carroll and Swaminathan (2000) found that the quality of craft beer produced by mass producers is often higher than craft beer from the smaller breweries, but the public prefers local beer nonetheless. This is frustrating for mass producers, because years occurred where the demand for macro beer stagnated, while in that same year craft beer demand more than doubled. Obviously they are eager to compete in this fast growing market, but certain inherent features related to their corporate identity have thus far prevented them from becoming truly successful. Garavaglia & Swinnen (2018) revealed a corporate strategy to deal with this issue, namely the acquisitions of smaller breweries. Mass producers attempt to obtain a foothold in the craft beer market by merging with, but in most cases acquiring, smaller breweries. Consumers are generally not sufficiently informed about developments in these area's, therefore mass producers can bypass issues related to their magnitude. This lack of consumer knowledge is in no case due to a lack of informational sources regarding the subject; craft brewers value independency so much that a brewery can only be considered a craft brewery if no more than 25% of the company is owned by a macro brewer or other non-craft alcoholic beverage company. These designations are announced officially and subsequently archived by brewers associations, leaving no room for misinterpretation.

Clemons, Gao & Hitt (2014) tested a theory that is in a way comparable to the formation of niches as a business opportunity, namely hyper differentiation and resonance marketing. The key theory is: *"Hyper differentiation and resonance marketing predict that it is the most differentiated new offerings, whether in coffee and iced tea, beer, video games, or SUVs, that will generate the strongest positive responses among consumers for whom they are a perfect fit, leading to success in the marketplace"* (Clemons et al, 2014). A noteworthy difference between niche formation and hyper differentiation is that niche formation is facilitated by an apparent gap left by the market, hyper differentiation is a diversification strategy that is always applicable, no matter the current market situation.

The results supported the hyper differentiation theory with respect to the craft beer market; *"For craft brewers, although offering a better quality product is always beneficial, it is apparently more important to be the first choice of a significant segment than to be an acceptable substitute product for a large number of customers"* (Clemons et al, 2014). Moreover, they found that the benefits from

differentiation increase with the degree to which consumers are informed about the products. For craft brewers, this is a promising discovery, since craft beer knowledge in general is arguably at an all-time high (Lenker, 2020). Characteristic for this highly informed public are the emergence of apps which allows one to check in and rate beers, ultimately encouraging its users to check in as many beers as possible. Untappd is an example of such an app, it currently has 9 million users worldwide. Soon after lockdowns were announced in response to the corona pandemic, Untappd launched their *"Untappd at Home"* initiative, which currently generated over 25 million check-ins of beers (Avola, 2020).

2.2.3: Demographic composition

So, scientific publications have already established certain demographic traits such as income and product knowledge to be of importance to the craft beer industry. In general, one could expect that there are more correlations to be found when analysing the craft beer industry through a demographic perspective. Manuszak (2002) researched, quite like Swaminathan (1998), how certain market characteristics affected market structure and entry. What makes it unique, is the time of interest, which is the late 1800s in the US. This makes it the only paper conducting this kind of research for a period pre-Prohibition. There is also some form of resemblance between the market in the US back then and the current craft beer market in the Netherlands. *"Brewing in the 1800s was an emerging industry. Moreover, the local nature of the industry in that period permits clean definition of individual markets"* (Manuszak, 2002). Most Dutch craft brewers nowadays, do not serve a market beyond the market to which they are geographically embedded in, which is similar to the situation in the US in the late 1980s. There are however two key differences, first, Manuszak's (2002) paper speaks of high transportation costs, which is not typical for the Dutch business environment in general. Second, the beer market in the late 1800s was unfamiliar with product differentiation, which cannot be said about the current Dutch beer industry. Moving past these fundamental differences, the paper did find that the demographic composition of a market certainly affected market entry. Sales volume is significantly positively correlated to gender being male, and also to a German ethnicity.

Besides consumer income, Hart & Alston (2019) tested other variables' significance for total beer and wine demand. Their dataset contained sales figures exclusively for retail, of which only grocery sales are used due to differences across state law in the US. Beer and wine were both split up into 3 categories; for beer these were craft, macro and import. Firstly, political preferences were included in the model. They found that in states where the majority of the votes went to Donald J. Trump in the Presidential election of 2016, consumers have a higher demand for macro beer, but a lower demand for all other products. Furthermore, ancestral preferences are included in the model. If one's ancestors had a relatively high preference for beer, this would

mean that descendants are expected to have a higher demand for macro and craft beer, and a lower demand for imported beer ceteris paribus. Lastly, the research concluded that relatively, rural residents drink more than urban residents. More specifically, urban residents have a higher demand for high-priced wine and imported beer, but less for craft beer and low-priced wine. This conclusion is in line with their previous conclusion regarding ancestral preferences, but contradicts one of their other conclusions, namely that craft beer is categorized in a premium category for alcoholic beverages, in company with among others high-priced wine. However, consumed imported beer in urban area's could still be depicted as craft beer, but this distinction is not included in the research.

2.3: Supply

2.3.1: Entrepreneurs' backgrounds

Up until now, demographics of the consumer side have served as explanators of a certain craft beer related outcome. Swaminathan (1998) discovered that certain criteria have to be met from a brewer's perspective as well: *"entrepreneurs who start up micro breweries or brewpubs often require technical and brewing skills in addition to their business acumen".* This is also in line with the fact that on average, micro breweries have less to no employees, requiring more all-round knowledge from the entrepreneur in order to successfully run a business.

Furthermore, as will be unveiled later in this section, cooperation is more common in the craft beer industry than competition. The nature of the craft beer industry allows for creativity. This is among others expressed by unconventional marketing strategies or product differentiation, of which the latter can be observed through the wide offer of beers currently available. Vinodrai (2006) argues that the circulation of highly skilled creative professionals between projects or jobs, generates knowledge within a particular creative industry, which ultimately stimulates innovation. The economic significance of such practices is paramount, making the recruitment of creative personnel a priority for companies. Vinodrai's (2006) research looked at industrial- and graphic designers working in Toronto, which is of course not fully comparable to the craft beer industry, but their methodology is highly interesting. Career paths are included in the model, categorizing both industrial and graphic designers based on their educational and professional backgrounds. The corresponding methodology consisted of 60 in-depth interviews which could take up to three hours. Approximately 89% of the industrial designers have finished an industrial designers education, where for graphic designers this percentage is around 36%. Vinodrai (2006) states that this relatively large difference is due to higher entry barriers and a more formal working environment in the industrial designing industry, in contrast to the more creative graphic designing business. Furthermore, the career paths of around 67% of the interviewed graphic designers did not start at designing firms.

Their past working experiences range across many industries, and are characterized by short-term contracts and freelancing. These past jobs did however not take them outside of their home region often; 75% of the interviewees have never worked outside of Toronto. Therefore, one could speak of local labour market mobility, including circulation across various creative sectors.

Possessing relevant working experience compared to having none, can be a significant determinant for the survival rates of young companies in particular sectors. Jacobs et al (2016) researched how the presence of multinational enterprises (MNEs) affected the degree of entrepreneurship in knowledge-intensive business services (KIBS) in the Dutch Randstad. Where Toronto's designing industry is characterized by diversified previous working experience, entrepreneurship in KIBS firms in the Randstad often originates from MNEs. 63% of the founders of start-up KIBS firms have worked at an MNE in an earlier stage in their career. A similar correlation could be found in the craft beer market, where previous working experience in a bar or at a macrobrewer such as Heineken could be a frequently occurring part of craft brewers' career paths.

As mentioned before, short-term contracts and freelancing are very common in graphic designing. It was discovered that such employment conditions were often created involuntarily. Besides designers getting fired, which is common, the designers also have their own reasons to keep switching jobs or start for themselves. Firstly, opportunities for promotion are scarce at the local designing firms. A new job is therefore in many cases the only possibility for upward career mobility. Secondly, designers need to be sparked by new environments, projects or inspirations. The interviewees claim that staying at one firm for too long will eventually damage a designer's creativity. Lastly, the desire to have more family time has convinced many designers, mostly women, to become freelancer.

Particularly Vinodrai's (2006) methodology is interesting as a new perspective of how to analyse the wave of new craft brewers. Looking at one's educational and professional backgrounds provides a more comprehensive understanding of who these brewers are. Do they have previous working experience in a bar or at a brewery, or did they end up in the industry after a career path that took them across several industries? This knowledge helps sketching profiles of different brewers, whose intrinsic qualities could therefore range from technical to commercial or promotional. Furthermore, it is interesting whether brewers' location choices mimic those of designers. Designers' locational behaviour is characterized by a high degree of locality. One of the reasons for this cannot be disconnected from their desire to spend time with their family, which on its turn is an explanator of the large amount of freelancing in the designing industry. Most microbreweries operate independently, which is comparable to the freedom inherent to freelancing. This begs the question to what extent the designers' reasons for freelancing or short-term contracts are applicable to the craft brewers' decision to officially register their own brewery. Did people who have worked at breweries also sense lack of opportunities, did they feel

the need to move on to perfect their craft and/or did they decide to quit their current job because they felt restricted in their creativity?

2.3.2: The flying winemakers

A striking example to demonstrate Vinodrai's (2006) assumed importance of the circulation of highly skilled creative professionals, are the *"Flying Winemakers"* from Lagendijk's (2004) paper. This paper questions the validity of the relative autonomy of the *"systemworld",* which represents a system with its own codes and logic that dominates economic thinking. This is done on the basis that the systemworld is derived from the *"lifeworld",* which on its turn is defined by its own prevalent cultural characteristics, which serve as the foundation of a society. Previous thinking is quite binary, leaving no room for compromise between both ideologies. Lagendijk (2004) acknowledges that the systemworld is shaped by the lifeworld to a great extent, and therefore offers a new perspective to the *"global lifeworld versus local systemworld debate".* He presents an articulated perspective between both ideologies which includes space as a determinant of economic processes. Neo-classical analyses of economic processes are therefore rejected, instead he states that analyses should develop a much richer interpretation of the market, which should be perceived as a culturally and territorially-rooted institution.

The wine industry exemplifies the validity of this self-developed perspective. One could say that the wine industry is prone to threats and opportunities following from globalisation, which have led to increased global competition. Traditional French, Italian and Spanish wine regions used to be dominant on a global scale, while simultaneously preserving their local and historical identity. However, their competitive position is currently pressurized by new producers, mainly from Australia, the Americas and South Africa. Local lifeworlds are thus challenged by a systemworld, where innovation is changing the rules of the game in a once very traditional industry. The flying winemakers are facilitators of this development, since they fly around the world to consult local winemakers. Flying winemakers are highly qualified winemakers, who provide guidance to local winemakers in every aspect required to become successful. In the field of marketing, they *"commodify culture",* which means they artificially create an identity of being a traditional, local wine area, which is particularly painful for traditional wine makers.

Criticism on their practices is abundant, particularly from the traditional wine makers. The flying winemakers' response however, is that they are part of a natural process, to which non-compliance can become fatal for one's company. In other words, the wine industry is evolving, and if traditional wine makers do not change accordingly, they will lose their competitive position to the new generation of vineyards. To a certain extent, the same goes for traditional craft beer brewers. Traditional craft beers are primarily Belgian; often triples or doubles where there is little room for altering the recipe. Nowadays, the craft beer market is flooded with non-traditional IPA's, stouts,

fruity white beers and many more. Such modern interpretations of an existing style can become immensely popular as a result of, as Stam (2006) names it: *"hypes, trends and buzz"*. Those are not formed rationally by a systemworld, on the contrary, they can be regarded as a product of the lifeworld. *"To understand this world, one has to examine what happens in places where winemakers – flying or otherwise – are trained and work, in places where winemakers and traders meet to exchange information and contracts, in places where the wine journals are edited, etc."*

One should therefore view the trend of globalization, accommodated by the flying winemakers, as a more vibrant process instead of an abstract development. The underlying dynamics which shape the wine industry, are possibly present in the craft beer industry as well. Do Dutch craft brewers get inspiration from leading magazines in the field of craft beer, or do they visit gatherings focussed on craft beer to acquire new knowledge? Answers to such questions could explain the widely diversified portfolio's in the craft beer market today, and also how the craft beer locales are potentially interconnected.

2.3.3: Spatial effects

Assuming that brewers need specific skills to be successful, and also if cooperation instead of competition is the norm in the craft beer industry, then the clustering of breweries would be likely. On the one hand, knowledge spill overs can be regarded as mutual benefits following from the near locating of breweries. Additionally, Swaminathan (1998) found that: *"It is common for microbreweries and brewpubs in the same area to negotiate shared bulk purchasing agreements with suppliers of raw materials, to share distribution channels and to jointly fund promotional activities".* All in all, several reasons could explain the potential clustering of breweries. Enhancing the quality of the product through cooperation is achievable, but also cost advantages can be realized through cooperation.

Elzinga et al (2015) provided a historic perspective to the emergence and evolution of the craft beer industry in the US. They constructed a dataset which included all founding's of craft breweries in the US from 1979 up until 2012, according to the definition formulated by Brewers Association, the trade association for American craft brewers:

"Small, independent and traditional. Small means brewing less than 6 million barrels per year, the federal limit for the small brewers excise tax exemption. Independent means that less than 25% of the brewery is owned by a non-craft brewer. Traditional refers to a focus on beers that are made entirely or mostly from malt, and not diluted with adjuncts like corn or rice" (Brewers Association, N.d.).

There is also a craft beer association in the Netherlands, *"CRAFT Onafhankelijke Brouwers Nederland".* They incorporate four pillars in their craft beer definition: independent, traditional, transparent and a maximum production volume. The only

difference between the American and Dutch definition lies in the maximum production volume which is 1 million hectolitres for Dutch craft brewers (CRAFT, n.d.).

Back to the US, for Elzinga et al (2015) it was evident that the founding's of craft breweries were not random from a geographical perspective. It all started in San Francisco in 1965, when the *"Father of the Craft Beer Revolution"*, Fritz Maytag, bought a majority stake in *"Anchor Brewing".* They produced his favourite beer, so when they were on the verge of going bankrupt he bought a 51% equity stake to prevent this from happening. For 10 years the brewery was not profitable and had a market share of approximately 0,0% in California, but during this period Maytag experimented which among others led to the first American Porter after the Prohibition and the first ever American India Pale Ale, one of the most popular beer sorts today (Rotunno, 2015). Other breweries were successfully founded in close proximity to Anchor Brewing, making the San Francisco Bay Area the renaissance hub of the craft beer revolution (Patterson & Hoalst-Pullen, 2014). Below is a figure from Elzinga et al (2015), showing the geographical patterns of craft brewery founding's.

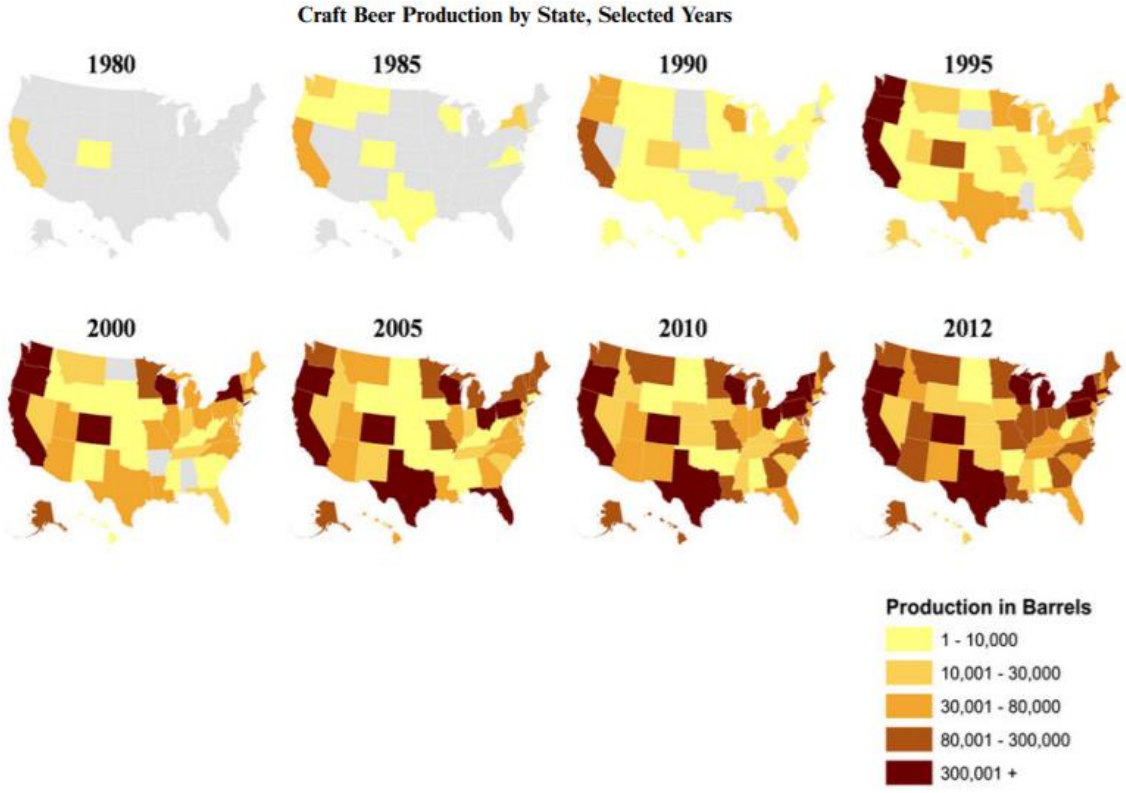

Figure 1: Craft beer production by state through the years (Elzinga et al, 2015)

Figure 1 shows clear geographical patterns, indicating particular regions where craft beer production is more prominent. Previously discussed papers related to market entry partly explain these patterns. Elzinga et al (2015) add to this that production nearby negatively impacts the amount of craft breweries while the amount of brewers nearby positively impacts the number of craft breweries. This reasoning suggests that

one might expect clusters containing micro breweries, which co-exist in harmony because they profit from each others' knowledge and are likely involved in shared agreements regarding supply of raw materials, distribution and promotional activities. As breweries realize higher production volumes, they are expected to become more competitive and thereby assume a less accommodating attitude towards smaller brewers. This reasoning does however ignore the possibility that management objectives are fundamentally different between breweries of various sizes in the first place. Production volume is anticipated to be positively correlated to competitive behaviour. Different objectives could therefore be formulated when looking at large and small breweries. On the one hand there is profit maximisation, and on the other hand are hobbyists which try to brew the best beer regardless of the economic implications.

2.3.4: Locational behavior of firms in the early growth phases

Factors contributing directly to the clustering of a particular economic activity are twofold; on the one hand it requires the founding's of new enterprises, and on the other hand a sufficient number of businesses should remain in the region of interest. Various studies have shown that most new businesses commence their operations in the home region of its founder. Stam (2005) found that just a small portion of the new firms are responsible for most of the positive effects in the field of employment and regional development following from this increased entrepreneurship. The locational behaviour of those few new, fast-growing businesses therefore has major implications for the regions they are located in. The main question is whether those businesses are a secure source for regional economic development. The unfavoured outcome for the region would be if those businesses mimic the behaviour of larger companies, which often includes the detachment of their ties with the home region.

Stam (2007) researched how the locational behaviour of Dutch firms develops during distinct phases in the early life course. Firstly, start-ups rarely locate outside the home region. They are mostly founded due to unhappiness of the owner about his/her current professional situation or a business opportunity is recognized. Reasons for staying in the home region include that the founder can reap the benefits from relevant professional relations, also a desire is present to stay close to personal relatives such as friends and family and at last due to limited access to financial resources. The next phase, *"initial survival"*, is not characterized by changes in firms' spatial organization. Most firms try to become more efficient in order to avoid a bankruptcy that is relatively common for young companies. In some cases, this is achieved by relocating. However, those relocations hardly take them outside of their home region.

Most firms that are able to continue their operations, do not manage to progress to the next phase; *"early growth".* This is where potential successful businesses separate themselves from businesses that are not projected to realize substantial

growth. These fast-growing firms face challenges in the form of additional required space, which follows from expansions in human resources or production facilities. In most cases, the entrepreneurs expand within the home region. When firms do expand outside of the region, these location choices are hardly ever random. Entrepreneurs' contacts in another region, or a market place that is already served from a distance, explain most of the location choices that drive firms away from their home region. Stam (2007) hereby finds that an entrepreneurs' background partly determines location choices. The latter case of serving an already familiar market from a closer proximity, has the purpose to gain a stronger foothold or improve the quality of the service they already provide. For the firms that do choose to pursue new territories, sunk costs are generally a significant constraint. Especially when firms have reached an appropriate size, the potential sunk costs in human resources are tremendous if employees choose not to move with the firm. Two factors that do cause firms to relocate outside of their home region are accumulated resources and the attraction of new employees who possess capabilities that can aid in establishing a multiregional or even multinational spatial organization.

Firms that encounter problems and are unable to solve them, enter a *"growth syndrome"* phase. The two main causes for these, mostly financial, problems lie in exogenous shocks or internal difficulties related to unsuccessfully managing a geographically scattered business. Disinvesting in establishments outside of the region is a common strategy to deal with these issues, as the home market is often a firm's safest candidate to secure a profitable future. At last, a very small proportion of new businesses manage to enter the final phase, *"accumulation".* The influence of previously mentioned pushing and pulling factors have become stronger in this stage. Potential sunk costs, excess resources and human capital have all increased. Furthermore, horizontally integrating into new markets became a possibility for these companies through mergers and acquisitions (M&A), which is also very common in the craft beer industry. Candidate companies for M&A also include companies that did not manage to reach the accumulation phase. Such practices present opportunities for both parties in the field of location choices. Additionally, an entrepreneur's connectedness with the home region generally fades away as time goes and with the firm getting more comprehensive. The spatial organization of a firm thereby becomes less constrained by an entrepreneurs' personal preferences, and more shaped by the firms' capabilities. Making predictions largely on the basis of this theory is however not reliable, as there are many firms that choose to stay in their home region nonetheless. Besides an entrepreneur's sentiment, potential sunk costs resulting from significant location-specific investments have the property to refrain firms from disinvesting in their home region.

All in all, Stam (2007) reinvigorates the confidence of regional governments that geographical embeddedness plays an important role in the location choices of fast-growing firms. This means that such firms can contribute to economic regional development in a sustainable way. The economic geography combined with collected

data of craft breweries in the Netherlands will further show to which extent this locational behaviour is applicable to craft breweries.

2.4: Conclusion

For the craft beer industry in the US, scientific research has certainly established correlations between various variables and craft beer related outcomes, depending on the paper in question. According to the general consensus, income positively affects craft beer demand. Income itself has a positive effect on consumer's desires to buy local and diversified products. Other demographic factors such as political preferences, ancestral preferences or population density were all found to have a significant influence on craft beer demand.

In the supply side section, interesting subjects arose with respect to the Dutch craft beer market. Firstly, it was discovered that brewers can possibly be differentiated on the basis of their respective backgrounds and interests. Also, the circulation of highly skilled creative professionals has contributed to the rapidly increased competitiveness and globalisation of the wine industry, which begs the question if Dutch brewers also undertake (international) trips in order to learn more about their craft. At last, new firms' locational behaviour in different life phases has been researched, which carries major implications for the development of the home regions. This is directly in line with the research question of this thesis, as ultimately an analysis of locational behavior for Dutch craft brewers will be presented.

Chapter 3: Data & Methodology

The dataset is obtained with the help of my supervisor Wouter Jacobs and his colleague Jeroen van Haaren. The source of the data is the *"Landelijk Informatiesysteem van Arbeidsplaatsen en Vestigingen"* (LISA). The most recent year where LISA had data on breweries is 2017, therefore 2017 is chosen alongside 1997, 2002, 2007 and 2012 to serve as research years in this thesis. The dataset not only contains information regarding breweries, but also on all other businesses on a municipality level for the research years. The number of jobs and establishments are included, making it possible to calculate location quotients in order to determine geographic concentration for all municipalities and research years. The next step is to map these location quotients in a Geographic Information System, in this case QGIS. Beforehand, the breweries are already shown in QGIS as dots for every research year to globally see the distribution of the breweries across the Netherlands.

The next step is obtaining empirical data on relevant subjects following from the literary review. This was done by creating a survey making use of Google Forms. Recipients include breweries that were active in the most recent research year, which had less or equal than 25 employees, thereby excluding the well known macro breweries. Additionally, the survey is sent to all breweries founded in 2018 – the present, with the exception of breweries of which I could not find their email address online. All in all, this left 430 recipients, of which approximately 75 email addresses were not recognized. Eventually, 120 responses were collected and used in this thesis, which translates to a response rate of approximately 34%.

The breweries that received and opened the survey, found that the survey was classified into three sections:

General information & founders' backgrounds

Generated revenue in euro's, volume sold in hectolitres and the number of employees attempt to assess the magnitude of a respondent's business. Next, a founders' employment history, current working activities and motivations for starting their own business aim at sketching a profile of the founders. Interesting observations can arise from information on whether founders have worked in a beer-related industry before, or whether running the company is a full-time or part-time job. Finally, motivations for starting a business can range from recreational to commercial, translated to for instance wanting to brew the best beer in the world versus profit maximization.

Operational information & learning sources

The first question in this section is where the respondents brew their beer, which might sound obvious but the contrary is true. A very large proportion of the breweries are so called *"rentbrewers",* which means their beers are brew at another brewery's vicinity. This phenomenon enables breweries to enter the market requiring less to no

capital investments. The question is twofold, a brewery could naturally rent out its brewing capacity to other breweries as well. Next, respondents are asked to declare whether they cooperate with other breweries on different aspects, of which the outcomes will be discussed later on in this thesis. So will the sources where the entrepreneurs obtained their knowledge from in three fields: brewing knowledge, marketing and distribution. At last, the respondents are asked to state which markets they serve, and how they arrange the corresponding distribution.

Location choices

The last category pertains to factors that were important for the decision-making process of where the business was going to be located. Spatial proximity of family & friends, the market or a supplier can turn out to be very influential regarding these location choices. Also, respondents declare the likelihood of an eventual relocation in the future, and mention various supportive or restraining factors. This likelihood is measured on a 5-point Likert scale, 1 being absolutely not, 2 likely not, 3 neutral, 4 likely and 5 absolutely.

Firstly in the Results & Analysis section, the results of the survey questions will be presented, mostly in the forms of tables and graphs for clarity's sake. These results are not always conclusive, or they can raise other questions. For these reasons, several interviews have been conducted with entrepreneurs active in the craft beer industry, of which valuable insights that arose during those interviews will complement the presented results. Then the Analysis section follows, where firstly cross tables will be presented in order to show how two different variables relate to each other, and whether their outcomes are co-dependent. Breweries' locational behaviour will be central here, which is plotted against several control variables. Lastly, logistic regressions are performed in order to show the statistic significance of particular correlations relevant to the research question regarding locational behaviour of breweries. Data transformations that were aimed at improving reliability occurred beforehand to facilitate data analysis.

Chapter 4: Economic Geography of beer breweries in the Netherlands

4.1: Introduction

In the following section, a deeper insight will be provided regarding the beer industry in the Netherlands, with an emphasis on the geographic distribution.

This thesis aims to answer a question that lies well in the field of economic geography. For this reason, firstly a definition will be attached to economic geography. Next, for each year included in the dataset, a map will be presented which shows the distribution of breweries in the Netherlands for that particular year. After that, location quotients (LQ's) will be calculated to measure geographical concentration on a municipality level, making use of both total employment and number of establishments. Finally, these LQ's will be mapped in order to get a clear visualization of geographical concentration concerning Dutch beer breweries.

4.2: Definition economic geography

Economic geography can be considered a subfield of either human geography or economics. Since the 1970s, neoclassical approaches were challenged by the Marxist political economy as well as the new economic geography, of which the latter added social, cultural and institutional factors to the analysis of spatial effects present in the economy. In *"Economic Geography" (2001)*, Edward J. Malecki formulated a definition of economic geography:

"Economic geography, the study of the geography of economic activities, developed from a focus on commercial activities and the exploitation of resources for economic gain. The focus of the field includes sectors of economic activity and numerous specialties. The central concerns of economic geography include understanding the capitalist world economy and, at the local, regional, national, and global scales, several other topics: firms in all sectors, uneven economic development and restructuring, and work and workers. While these topics overlap with other subtopics, economic geography retains a central, umbrella-like role with respect to all aspects of the geographical dimensions of economic activity. It has grown to encompass social, cultural, political, and institutional influences that affect the geography of economic activities."

4.3: Geographical distribution of Dutch breweries

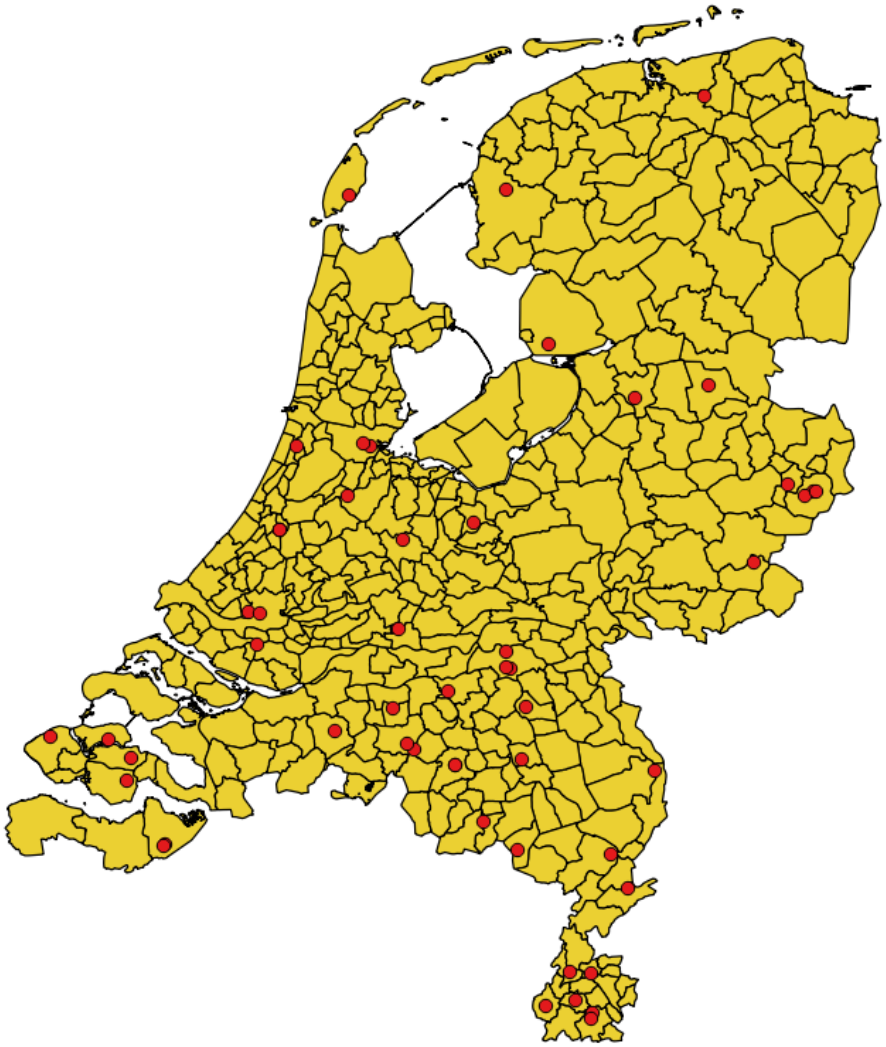

Figure 2: Locations of beer breweries in the Netherlands for the year 1997

Figure 3: Locations of beer breweries in the Netherlands for the year 2002

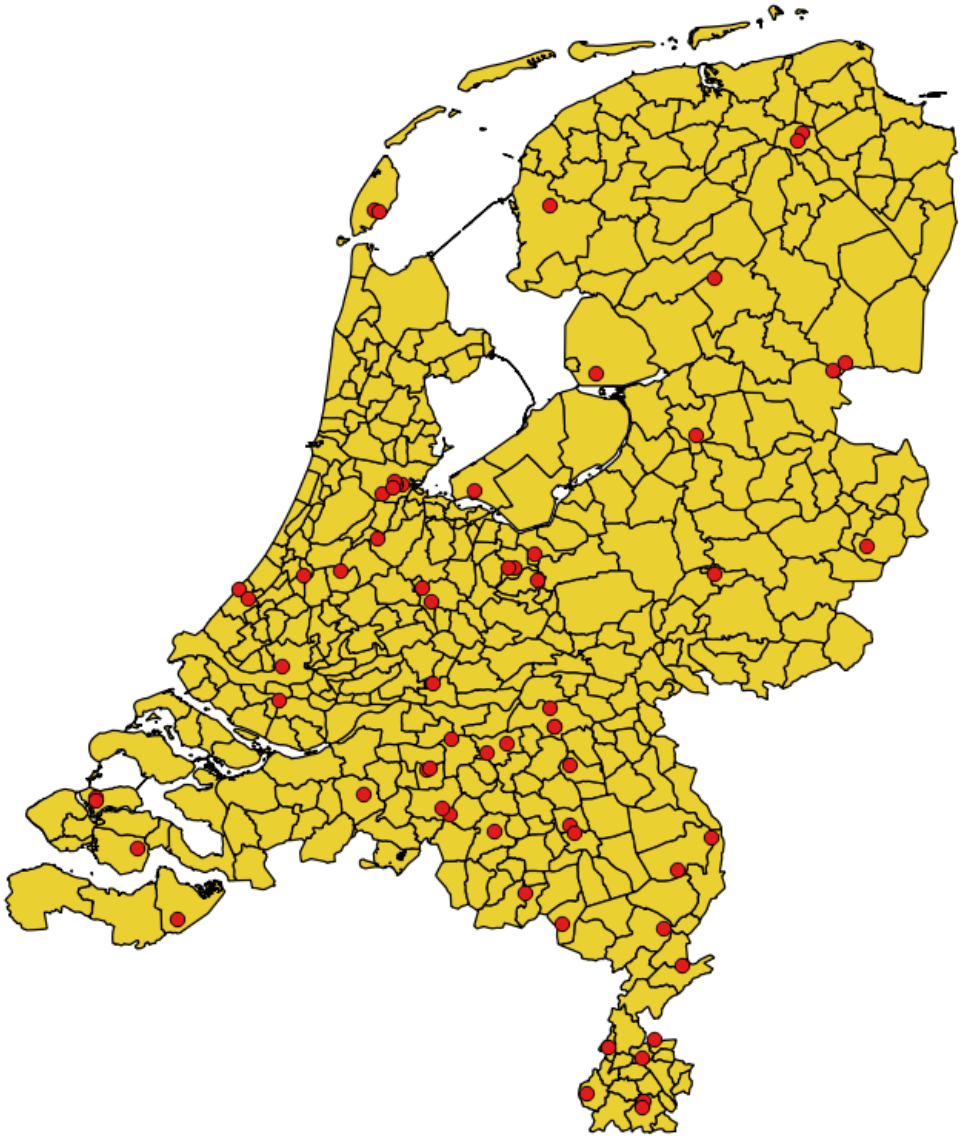

Figure 4: Locations of beer breweries in the Netherlands for the year 2007

Figure 5: Locations of beer breweries in the Netherlands for the year 2012

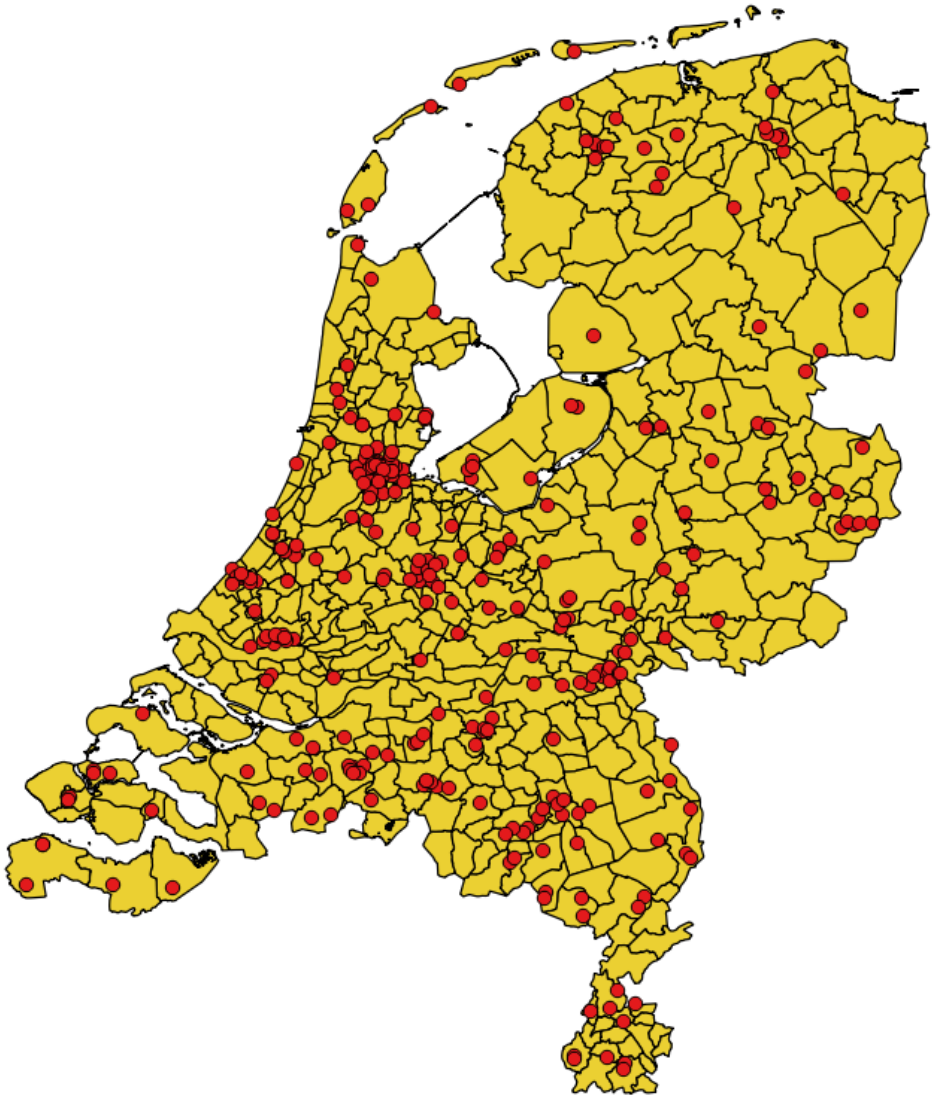

Figure 6: Locations of beer breweries in the Netherlands for the year 2017

Figures 2 - 6 are visualisations of beer breweries located in the Netherlands for the years 1997, 2002, 2007, 2012 and 2017, presented in a chronological order. What is striking right away, is the rapid increase of breweries when looking at a national level. Furthermore, the Northern part of the Netherlands seems to be relatively less active in the field of beer brewing compared to more Southern regions. It does however remain a mere visualization, to which little conclusions can be attached.

Year	Jobs	% Change	Establishments	% Change
1997	6662	n.a.	53	n.a.
2002	6588	-1,11%	53	0%
2007	4991	-24,24%	63	18,87%
2012	4595	-7,93%	101	60,32%
2017	5429	18,15%	318	214,85%

Table 1: Absolute numbers and relative changes for jobs and establishments involved in beer brewing in the Netherlands

Table 1 shows the amount of jobs and establishments through the years directly related to beer production, including the relative change with respect to the previous period. Where the number of establishments has been subject to, one might say, exponential growth, the number of jobs has been going up and down. Peak time for the total number of jobs was when the number of establishments was at its minimum in this research sample. An increase in number of establishments is clearly no guarantee for more jobs available. Whether this information is relevant will become clear later on in this thesis, as the focus lies on microbreweries, and the largest part of the employment numbers likely originate from macrobrewers instead of microbrewers.

4.4: Location quotients

In this section, LQ's will be presented in order to show geographical concentration. The definition of a LQ is the following:

$$LQi = ((ei/e))/\,(Ei/E) \text{ where,}$$

LQ = location quotient for beer brewing in municipality i

ei = employment/establishments in the sector of beer brewing in municipality i

e = total employment/establishments in municipality i

Ei = employments/establishments in the sector of beer brewing on a national level

E = total employment/establishments in the Netherlands

As the information above suggests, the LQ's will be calculating using employment as well as number of establishments. Using only 1 measure could yield one-dimensional results, as the number of employees at breweries can differ substantially. As a result, a particular municipality's LQ can be under- or overvalued significantly when only looking at employment or only looking at number of establishments. Ultimately, a value is obtained, of which the interpretation will be represented in table 2 below in line with the scientific work of Miller et al (1991):

Location quotient value	Interpretation
0 ≤ LQ ≤ 0.70	Very underrepresented
0.70 ≤ LQ ≤ 0.90	Moderately underrepresented
0.90 ≤ LQ ≤ 1.10	Averagely represented
1.10 ≤ LQ ≤ 1.30	Moderately overrepresented
LQ > 1.30	Very overrepresented

Table 2: Interpretations of ranges from location quotient values (Source: (Miller et al, 1991))

4.4.1: Employment based location quotients

Figures 7 – 11 below show the LQ's on a municipality level for all research years in a chronological order, using employment as measure. The assumed preference of Southern area's to brew beer as opposed to Northern parts of the country is confirmed by figures 7, 8 and 9. For the years 1997, 2002 and 2007, the majority of the jobs are found in the Southern area of the Netherlands and to a lesser extent in the Randstad. Furthermore, one can conclude that the relatively high number of jobs for the years 1997 and 2002, are highly concentrated. A plausible explanation for this is the presence of a few macrobrewers that employ many people. Afterwards, the ten municipalities with the highest LQ's will be presented for every research year.

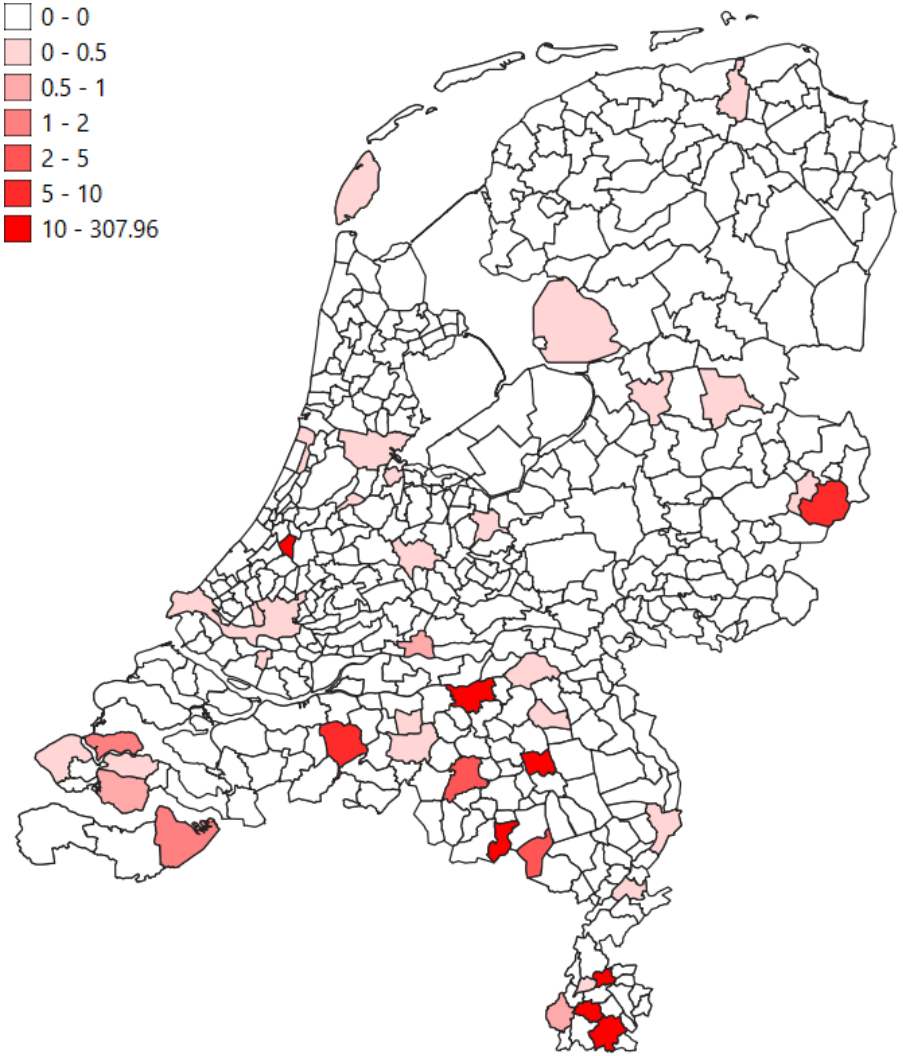

Figure 7: Employment based LQ's 1997

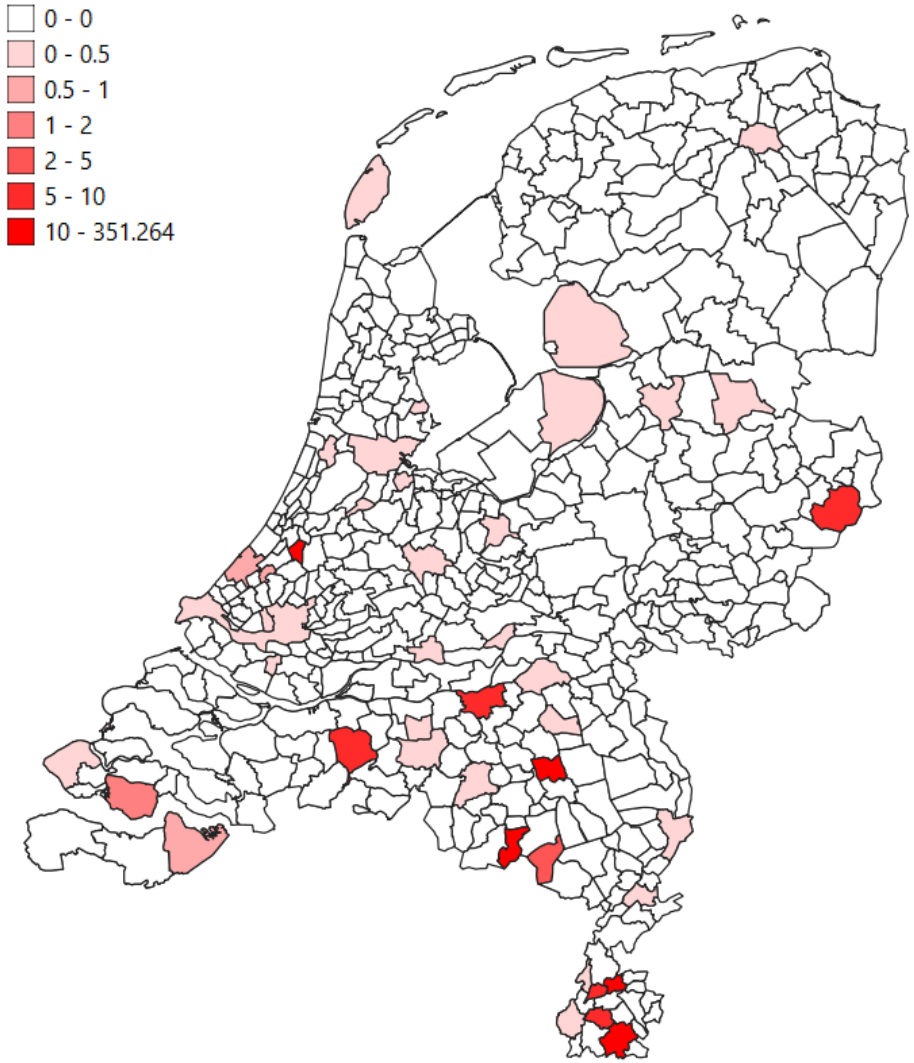

Figure 8: Employment based LQ's 2002

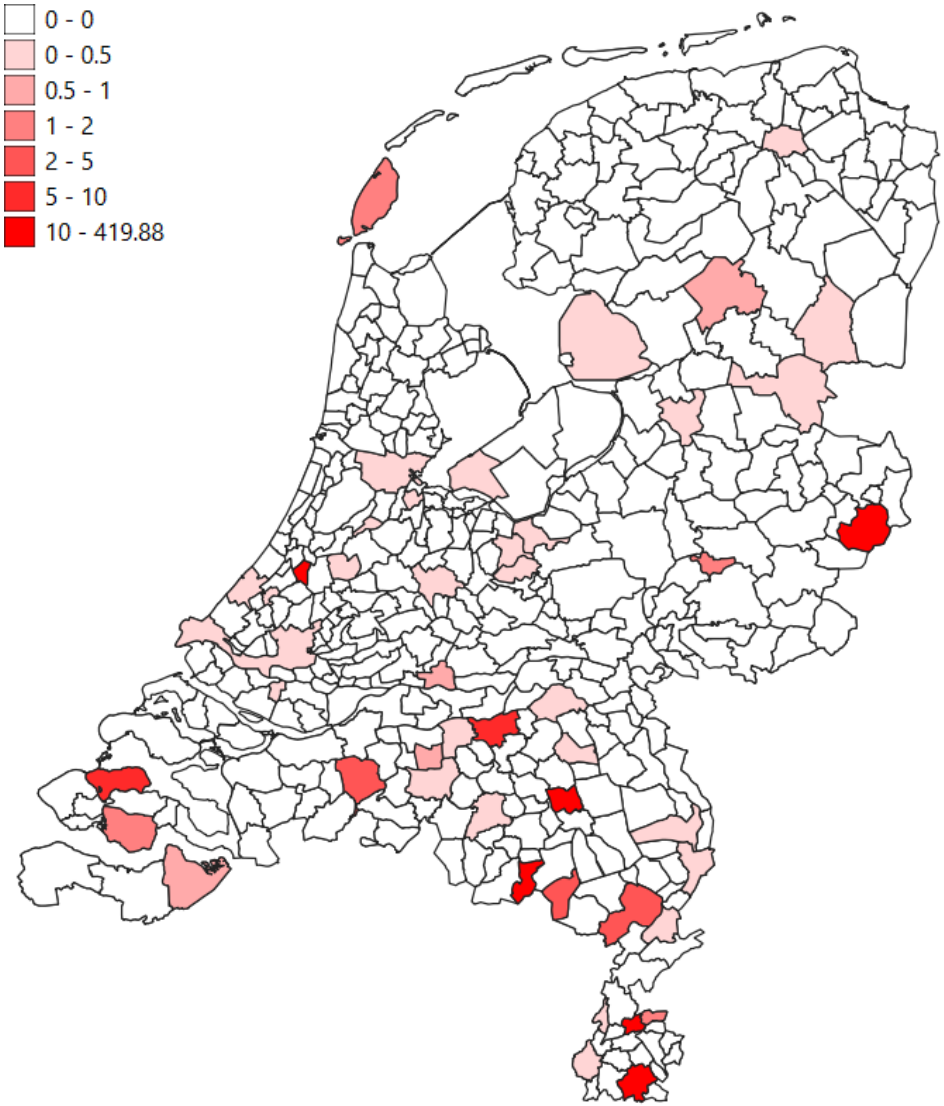

Figure 9: Employment based LQ's 2007

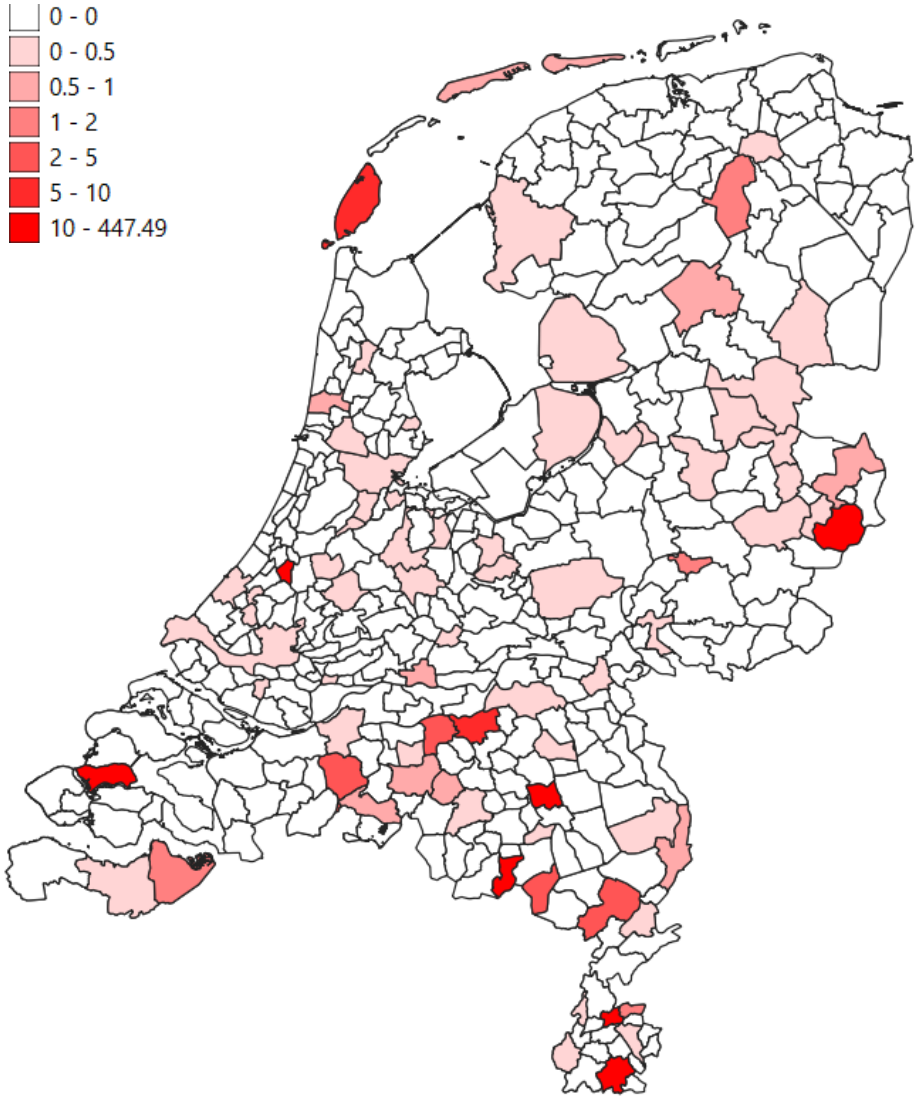

Figure 10: Employment based LQ's 2012

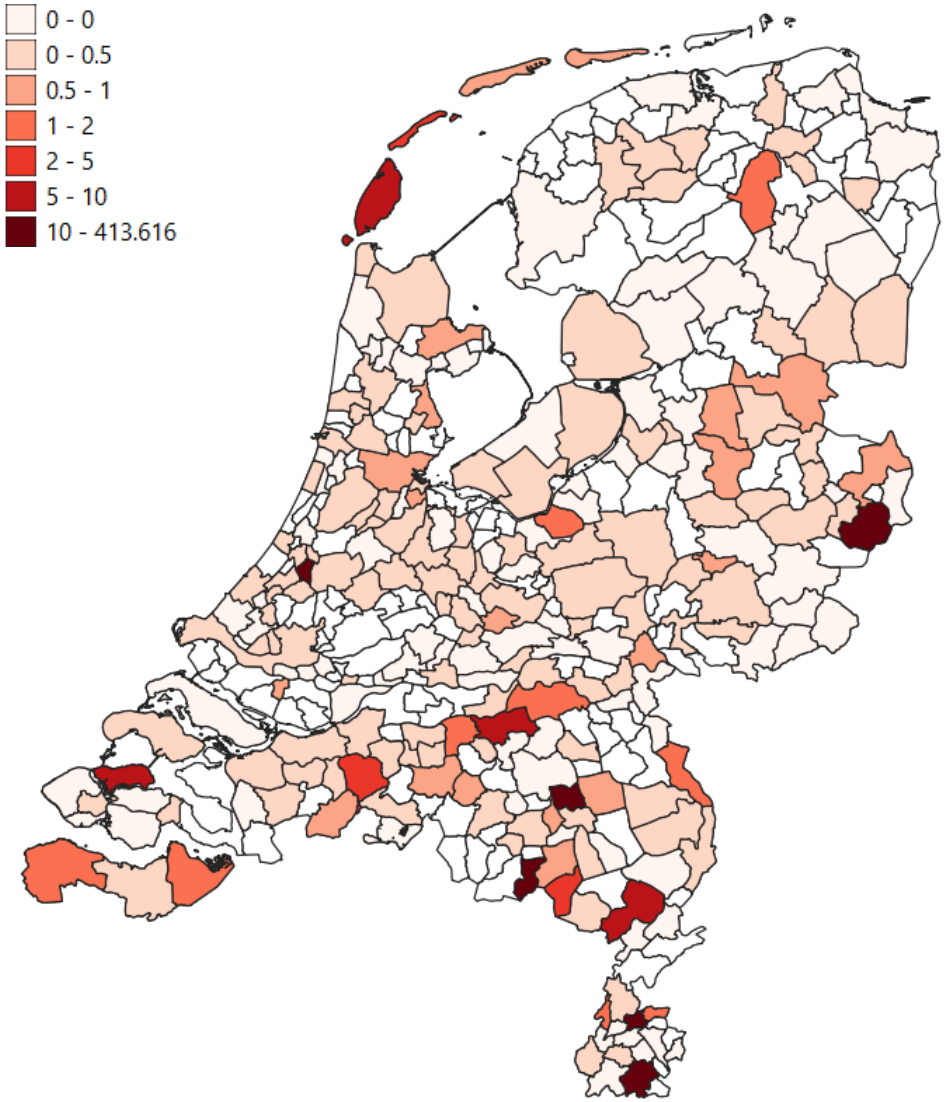

Figure 11: Employment based LQ's 2017

Municipality	Location Quotient
Zoeterwoude	307.96
Laarbeek	112.09
Gulpen-Wittem	61.85
Valkenswaard	20.61
Oost Gelre	17.66
Valkenburg aan de Geul	13.52
Schinnen	13.26
‘s-Hertogenbosch	12.39
Enschede	9.69
Breda	9.13

Table 3: Top ten municipalities with highest employment based location quotients for the year 1997

Municipality	Location Quotient
Zoeterwoude	351.26
Laarbeek	124.61
Gulpen-Wittem	73.34
Oost Gelre	18.52
Schinnen	18.22
Valkenswaard	16.79
Enschede	9.72
‘s-Hertogenbosch	9.60
Breda	9.12
Valkenburg aan de Geul	8.76

Table 4: Top ten municipalities with highest employment based location quotients for the year 2002

Municipality	Location Quotient
Zoeterwoude	419.88
Laarbeek	157.60
Gulpen-Wittem	45.46
Valkenswaard	21.73
Schinnen	19.16
Enschede	14.58
‘s-Hertogenbosch	9.66
Noord-Beveland	5.99
Leudal	4.78
Breda	4.06

Table 5: Top ten municipalities with highest employment based location quotients for the year 2007

Municipality	Location Quotient
Zoeterwoude	447.49
Laarbeek	163.95
Gulpen-Wittem	46.93
Valkenswaard	25.10
Enschede	15.48
Schinnen	14.44
Noord-Beveland	10.49
Texel	7.65
‘s-Hertogenbosch	7.14
Leudal	4.40

Table 6: Top ten municipalities with highest employment based location quotients for the year 2012

Municipality	Location Quotient
Zoeterwoude	413.62
Laarbeek	143.24
Gulpen-Wittem	41.76
Valkenswaard	26.21
Enschede	14.44
Schinnen	12.52
Texel	6.98
‘s-Hertogenbosch	6.42
Leudal	5.17
Noord-Beveland	5.15

Table 7: Top ten municipalities with highest employment based location quotients for the year 2017

The composition of the top ten over the years has not changed a lot. It should also be noted that these municipalities are in most cases relatively small, which partly accounts for the high LQ’s.

Diving a bit deeper into the results; the common denominator for most of the municipalities in the top ten is the presence of a macrobrewer. The Heineken brewery is located in Zoeterwoude, Bavaria/Swinckels is located in Laarbeek, Brand & Gulpener are located in Gulpen-Wittem, Inbev is located in Valkenswaard, Grolsch is located in Enschede and also in 1997 and 2002 in Oost Gelre which explains their sudden disappearance from the top ten after 2002, Alfa is located in Schinnen, Lindeboom is located in Leudal and Heineken Holding is located in ‘s-Hertogenbosch, which serves mostly administrative purposes. Texel is arguably the only listed municipality that thanks its position due to craft beer production. In the research period, a total of four breweries have been present there, with Texelse Bierbrouwerij B.V. being the largest, which is an acknowledged craft brewer, also up to today. Though it should be mentioned that Heineken acquired Texelse Bierbrouwerij B.V. on November 2nd 2020 (n.d., 2020).

4.4.2: Establishment based location quotients

The summary mentioned above illustrates the importance of also calculating LQ's based on establishments. For this reason, the ten municipalities with the highest establishment based LQ's will be displayed in tables 8 – 12. Figures 12 – 16 show these LQ's on the map. From the offspring one can tell that the highest scoring LQ is significantly lower for every research year compared to the employment based LQ's. Secondly, where in the employment based LQ visualizations only a few municipalities were "very overrepresented", much more were "very overrepresented" when looking at the establishment based LQ's. Now that every brewery counts as one, regardless of the number of employees, a municipality is more easily "overrepresented" in the beer brewing statistics. Lastly, the "exponential growth", illustrated by Table 1, can be seen in Figures 12 – 16. Figures 12 and 13 are quite similar, which is not surprising because of the fact that the total amount of breweries stagnated in that period. The exponential growth in the number of breweries can be seen in Figures 14 – 16. Afterwards, the corresponding top tens for each research year are shown.

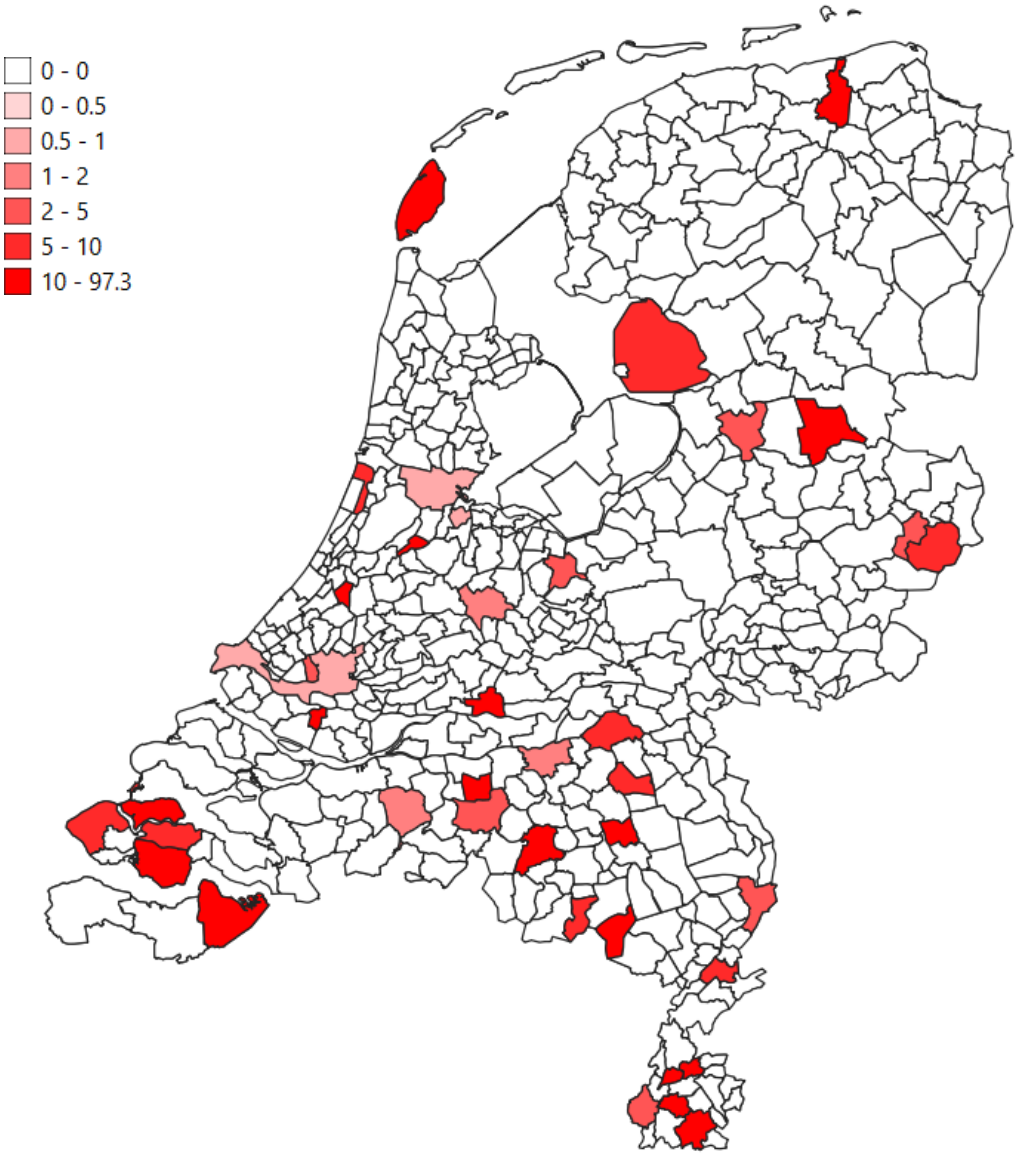

Figure 12: Establishment based LQ's 1997

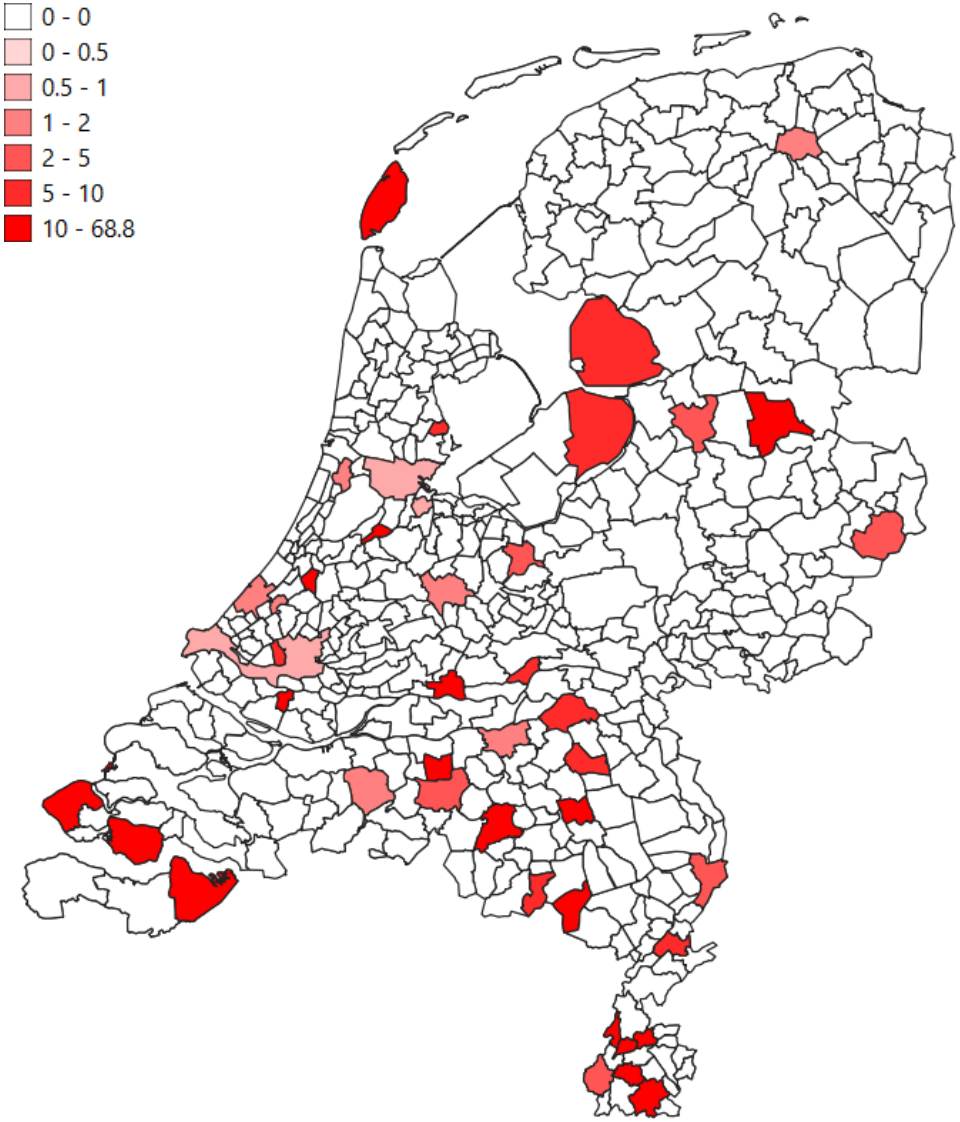

Figure 13: Establishment based LQ's 2002

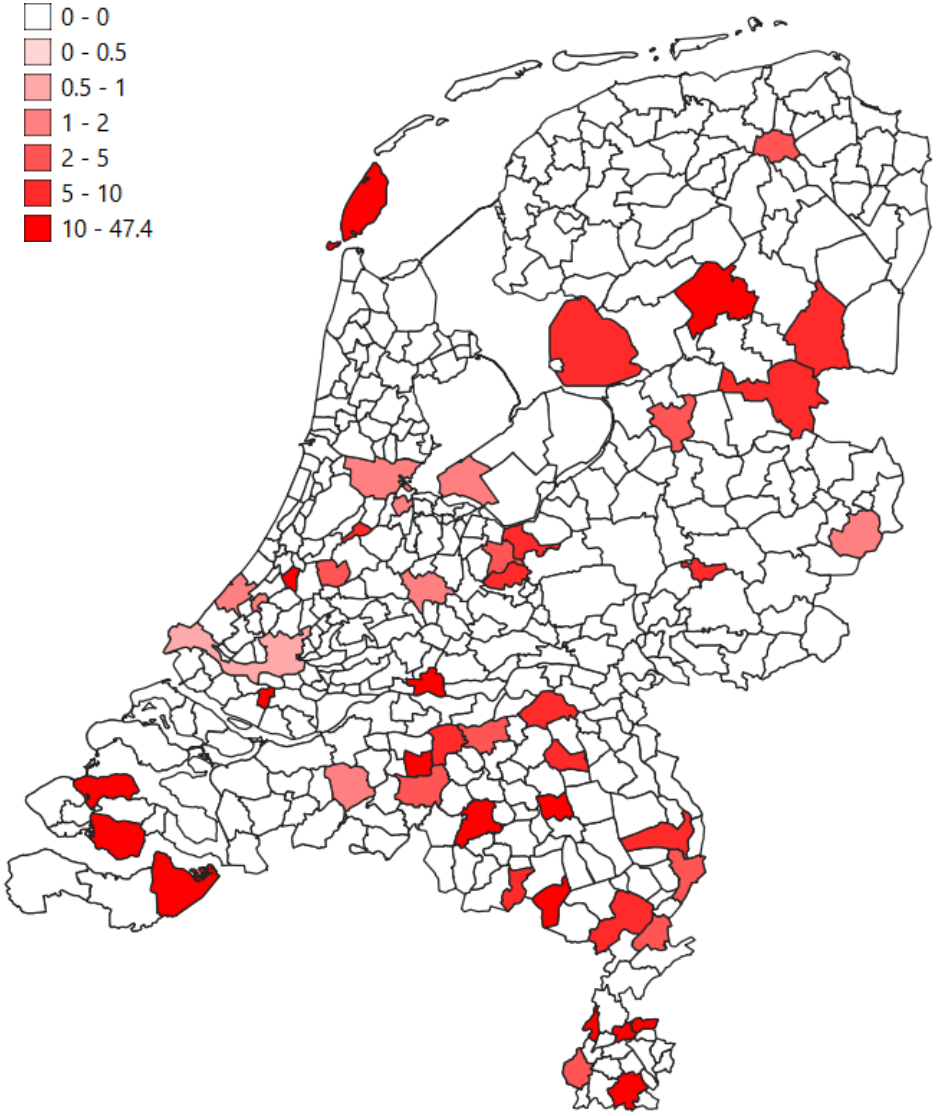

Figure 14: Establishment based LQ's 2007

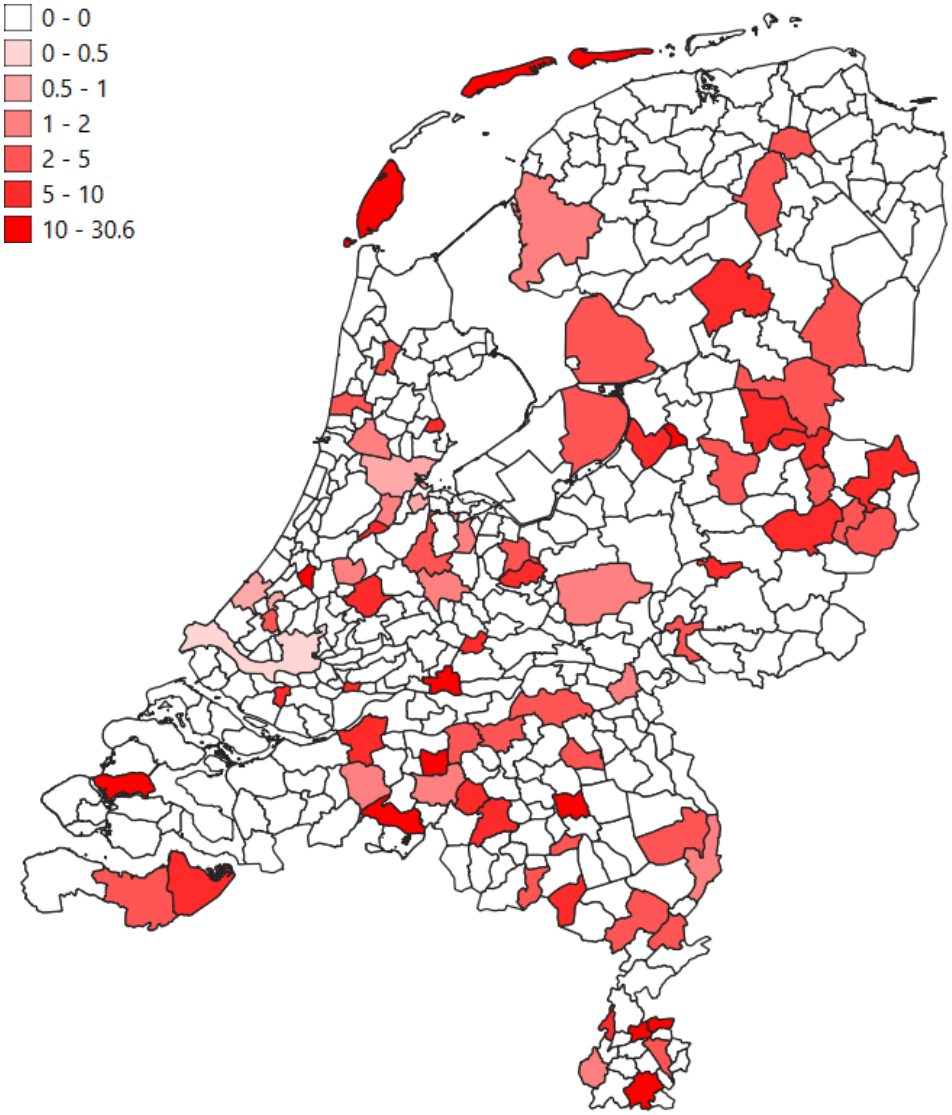

Figure 15: Establishment based LQ's 2012

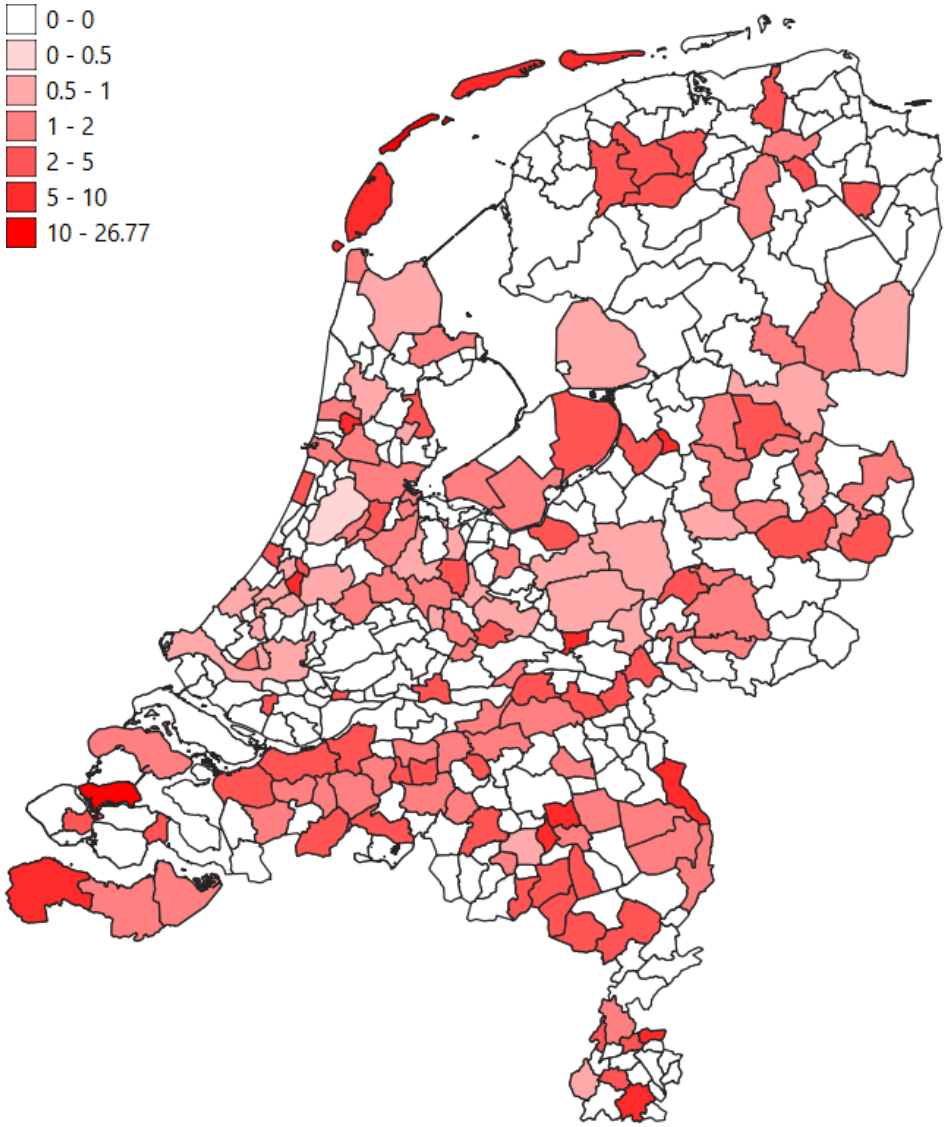

Figure 16: Establishment based LQ's 2017

Municipality	Location Quotient
Zoeterwoude	97.26
Gulpen-Wittem	35.24
Oirschot	32.78
Lingewaal	27.60
Schinnen	26.86
Noord-Beveland	26.09
Winsum	24.24
Hulst	20.57
Ommen	20.21
Uithoorn	19.82

Table 8: Top ten municipalities with highest establishment based location quotients for the year 1997

Municipality	Location Quotient
Zoeterwoude	68.81
Gulpen-Wittem	36.57
Lingewaal	28.08
Schinnen	26.25
Ommen	20.50
Beek	16.64
Oud-Beijerland	15.65
Oirschot	15.35
Stein	14.60
Loon op Zand	13.88

Table 9: Top ten municipalities with highest establishment based location quotients for the year 2002

Municipality	Location Quotient
Noord-Beveland	47.44
Onderbanken	38.09
Gulpen-Wittem	31.97
Zoeterwoude	31.31
Lingewaal	25.03
Laarbeek	21.90
Loon op Zand	21.89
Texel	21.82
Schinnen	20.68
Oud-Beijerland	13.06

Table 10: Top ten municipalities with highest establishment based location quotients for the year 2007

Municipality	Location Quotient
Noord-Beveland	30.60
Ameland	28.50
Onderbanken	24.52
Terschelling	21.45
Zoeterwoude	20.91
Gulpen-Wittem	20.34

Hattem	16.59
Lingewaal	14.92
Alphen-Chaam	14.42
Loon op Zand	14.15

Table 11: Top ten municipalities with highest establishment based location quotients for the year 2012

Municipality	Location Quotient
Vlieland	26.77
Noord-Beveland	14.90
Ameland	9.12
Bergen	8.81
Onderbanken	8.06
Terschelling	7.06
Gulpen-Wittem	6.87
Laarbeek	6.82
Nuenen, Gerwen en Nederwet	6.23
Zoeterwoude	5.95

Table 12: Top ten municipalities with highest establishment based location quotients for the year 2017

As anticipated, new municipalities have made their introduction in the top tens. The effect of a macrobrewer being located in a particular municipality is therefore less influential. Additionally, the values of the LQ's decrease as time progresses, which can be explained by the many new found breweries as illustrated in Table 1. Also noticeable is that the total economic activity in a municipality is still very determinative for calculating the LQ, as for instance in Vlieland, just one brewery was located there in 2017, and nonetheless it has the highest LQ of all municipalities. Amsterdam scored relatively high as well in 2017 with a score of 1.60, especially compared to Rotterdam which scored 0.77. This shows that the location quotients do effectively show differences between municipalities, only the outliers are hard to equal for municipalities of significant size.

4.5: Conclusion

All in all, Figures 2-16 show that beer breweries can currently be found all over the Netherlands. Some regions are represented above average, but there is no doubt that the trend of increasing beer breweries can be considered a national trend. The number of establishments has grown at a strictly positive rate, which is not the case for the amount of jobs originating from brewing activities. In certain years, one could even speak from a negative correlation ceteris paribus, probably unreliable however due to omitted variable bias. The LQ's have shown that macrobrewers are primarily responsible for this discrepancy. Since microbrewers are largely responsible for the rapidly increased number of breweries, it is not surprising that the number of jobs has grown at a slower relative rate than the number of establishments, as the average

personnel size of microbreweries is significantly lower than that of their macro counterparts.

Chapter 5: Results & Analysis

5.1: Introduction

First of all, the survey results will be briefly summarized in order to get an idea on where the respondents stand on various topics. Some of the questions that this thesis attempts to answer following from holes in the literature will be answered in the results section, and one question will be answered in the analysis section that follows as it requires a more thorough analysis. Below, one can find a short reminder on what these questions were again:

- Whether similarities can be detected based on entrepreneurial traits that respondents share, looking at their backgrounds and respective motives to start a business.
- Whether cooperation or competition is the norm in the craft beer industry.
- Whether breweries' locational behaviour changes during distinct phases in the early life course, in this case measured by founding year, revenue and production volume.

5.2: Results

5.2.1: General information & founders' backgrounds

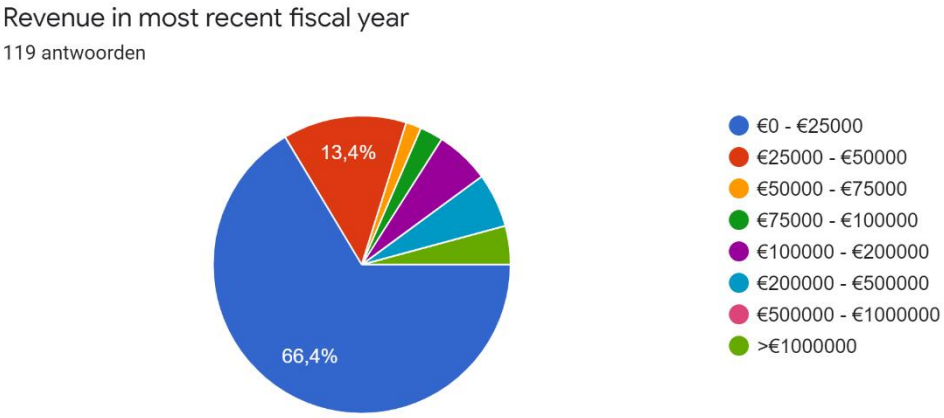

Figure 17: Respondents' indicated yearly revenue

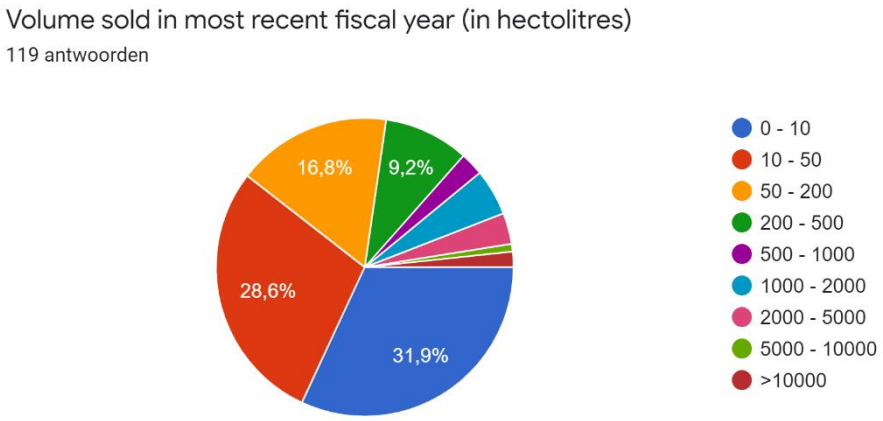

Figure 18: Respondents' indicated volume sold in hectolitres

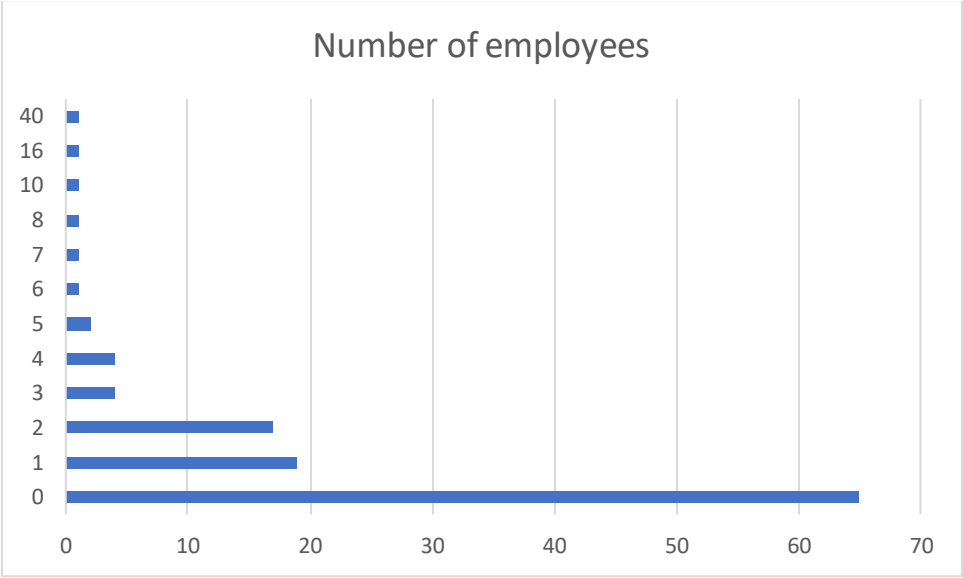

Figure 19: The number of employees, with on the y-axis the number of employees and on the x-axis the corresponding count of respondents that fall into that category

As figure 17 shows, a vast majority of the respondents can be considered microbrewers based on indicated revenue. 19 out of the 119 breweries generated a yearly revenue of at least €100.000,- of which 5 earned over €1.000.000,-. Figure 18 shows the production volume in the most recent fiscal year expressed in hectolitres, which equals 100 litres. Figure 19 makes clear that microbreweries are primarily run by the owner. In some cases one or two employees are hired, but other than that just a few breweries can be considered substantial sources of employment.

Motivations	Score
Brew the best beer	3,716
Acquiring brewing knowledge	3,248
Acquiring entrepreneurial knowledge	2,966
Generate revenue/recognize promising business opportunity	2,795
Unhappiness at former job	1,325
Impending firing/anticipated bankruptcy of old employer	1,252

Table 13: Respondents' average scores for motivations to start their own business, with 1 = not important to 5 = very important

Table 13 presents the average scores that respondents awarded to several factors that could have persuaded them to start their own businesses. Because *"Brew the best beer"* is topping the list, one can conclude that the entrepreneurial wave that entered the craft beer market mostly consists of enthusiasts. Vinodrai's (2006) conclusions based on career path analyses following designers in Toronto cannot be adopted for Dutch craft brewers. Where for designers, dissatisfaction at their previous jobs or impending firings were reasons to switch jobs or start for themselves, this is not the case for Dutch craft brewers. With scores of 1,325 and 1,252, these factors can almost be considered neglectable.

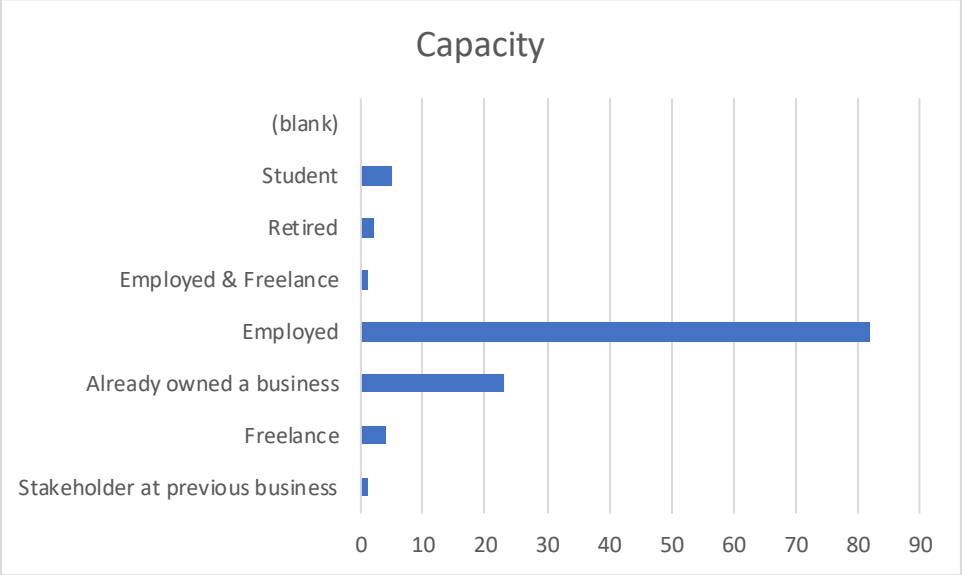

Figure 20: Respondents' indicated capacity at their previous job

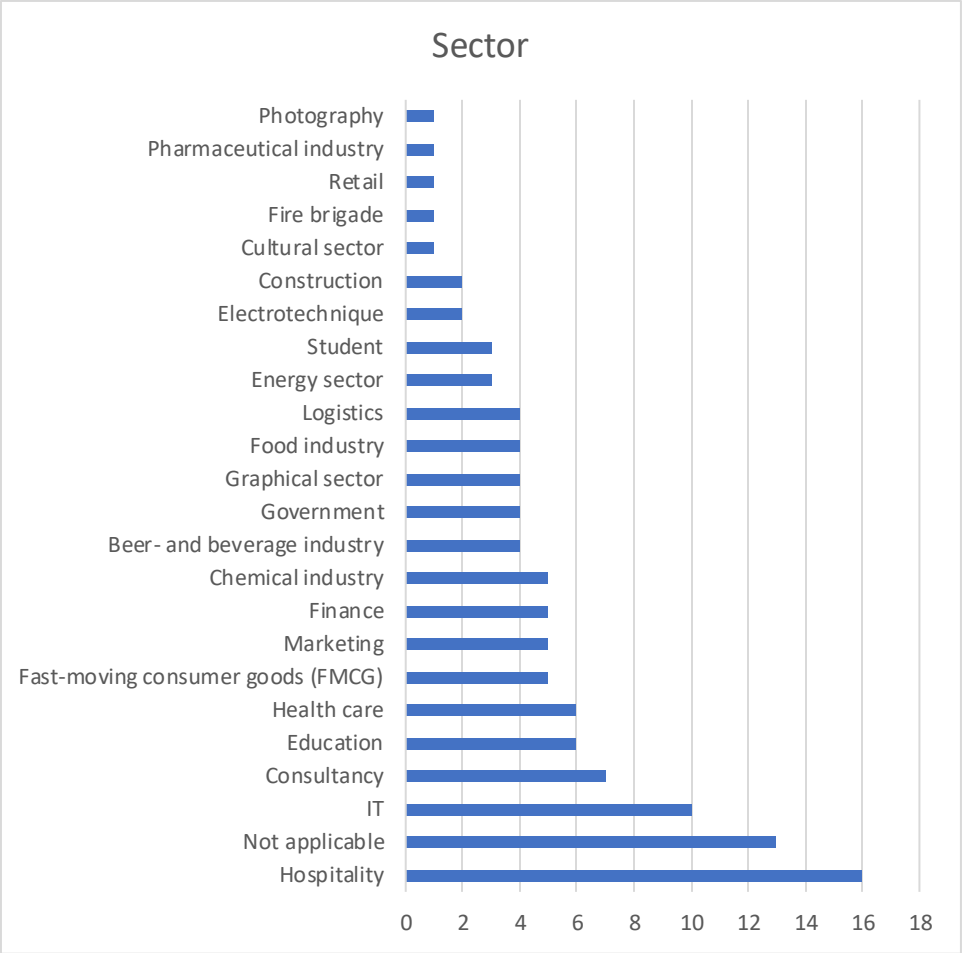

Figure 21: Sector in which respondents were active at their previous occupation

Figures 20 and 21 show in what capacity respondents were active at their previous occupation and in which sector. Figure 20 shows that most entrepreneurs were employed before starting their own business, which is not in line with Vinodrai's (2006) research regarding designers. Striking from Figure 21 is the wide variety of sectors where the respondents originate from. The hospitality business is the preferred sector of origin, although one can not speak of a dominant career-route as only 14% of the entrepreneurs worked in this sector before starting for themselves. Furthermore, 72,5% of the respondents currently have a second job next to running their business, opposed to 27,5% for who this is their full-time occupation. Similar to the former sectors in which the respondents were active as shown in Figure 21, these second jobs are very much varied sector-wise as well.

5.2.2: Operational information & learning sources

55% of the respondents are rentbrewers, meaning their beer is produced at another brewery's vicinity. The *"Stichting Ergoed Nederlandse Biercultuur"* is a foundation consisting of all major players in the Dutch beer industry including representatives of almost all breweries, and one of their main goals is to ensure an actual and updated

register concerning all relevant information for and about the Dutch beer industry (Stichting Ergoed Nederlandse Biercultuur, 2020). On their website they state that there are 7 official rentbreweries. The survey respondents named a total of 39 different breweries as their rentbrewery, of which 37 Dutch and 2 Belgian. In reality, there are probably even more rentbreweries since the survey results do not include responses from all Dutch breweries. This shows that the supply chains in the craft beer industry are un-transparent.

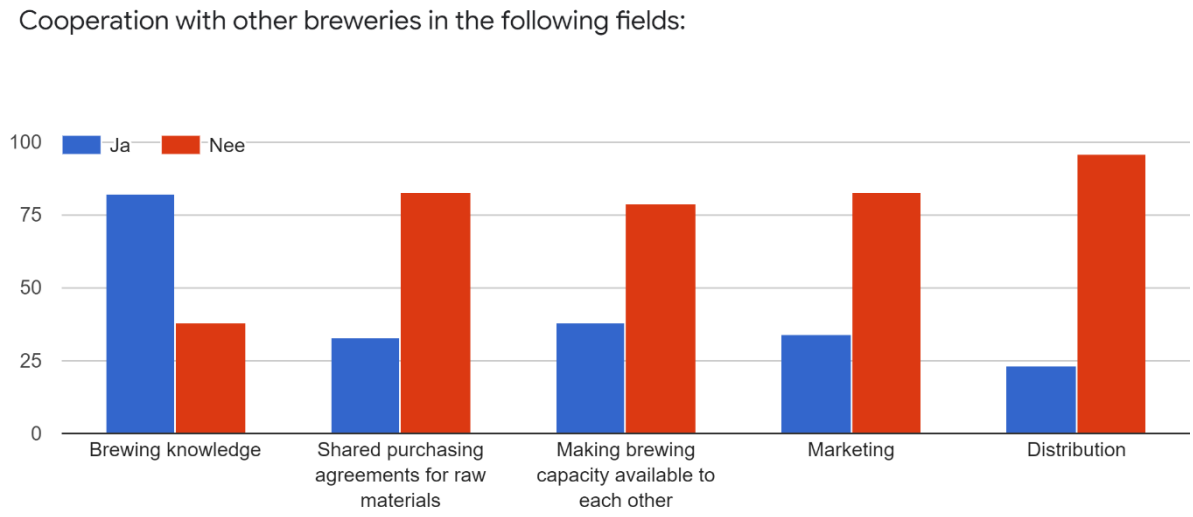

Figure 22: The accumulated declarations of breweries to whether they cooperate with other breweries in various fields

Swaminathan's (1998) conclusions that cooperation instead of competition is the norm in the craft beer industry is not confirmed by Figure 22. Cooperation is certainly not the norm in the fields of marketing, distribution and shared purchasing agreements for raw materials. Though it should be mentioned that Swaminathan's (1998) research period, the US craft beer market from 1939 – 1995, is not comparable to the current Dutch beer market, partly because rent brewing was nowhere near as prominently present as it is in the current craft beer industry. One can therefore not attach too much value to the outcomes for shared purchasing agreements, as rent brewing creates higher concentrations of craft beer production, thereby decreasing breweries' incentives to share purchasing agreements for raw materials. For the same reason, the chart belonging to *"making brewing capacity available to each other"* is not an accurate representation, because many "breweries" are rentbrewers which in many cases do not possess their own brewing vicinity and therefore cannot make it available to other brewers. All in all, to get a more accurate insight into this matter, one needs to further analyse the supply chains of Dutch craft brewers which are quite un-transparent due to the renting- and renting-out processes that take place on a large scale.

Adding to that, neither the *"marketing"* nor the *"distribution"* charts can be assumed to be fully representable, because not all breweries are active in these fields.

Distribution is often carried out by the entrepreneur himself, which will be shown further below. This does however not mean that there is nothing to gain with a higher degree of cooperation in the field of distribution. One interviewee described the challenges in this field:

"The major players in the market set up huge distribution channels, which provides them with significant competitive advantages. Every time when a relatively small brewery is acquired by a macro brewer, their beers become cheaper in the super markets. This is directly related to the benefits that being included in these distribution channels provide. If smaller breweries could jointly set up marketing- and distribution networks, they could become more competitive with respect to the supply chains controlled by the macro brewers."

On the other side, sharing brewing knowledge is clearly a common practice in the brewing industry. Swaminathan (1998) could therefore still be right after all, as sharing brewing knowledge is a clear sign of unselfishness. Such practices are also quite unique, as in many other industries sharing such confidential product-related information could severely affect one's competitivity (Huong Tran et al, 2016). Some interviewees pointed out that the shared information mostly pertains to basic information, which also includes information about the maintenance and cleaning of the brewing equipment. The actual tricks of the trade are not easily shared, this only occurs in highly exceptional cases such as collaborations, which means two or more breweries decide to team up and brew a beer together.

Other interviewees contradicted this statement. They mention the fact that general brewing knowledge is widely available, which makes the discussed issues mainly about more advanced problems that craft brewers may encounter. Such issues could relate to: *"a new way of dry hopping, the choosing and handling of specific yeast and much more".* They experience colleague craft brewers to be cooperative and unrestricted in their counsel dealing with such issues, especially in informal settings. One can therefore not assume a general level of cooperation that is applicable to all craft brewers, differences do exist between craft brewers' willingness to share brewing knowledge.

Next, respondents were asked how they acquired their knowledge in 3 fields: brewing knowledge, marketing and distribution. The results are listed below:

Brewing knowledge	
Autodidact	4,133
Internet	3,672
Professional literature	3,595
Brewers	3,336
Friends	1,917
Travelled to learn	1,699
Previous job(s)	1,528

Marketing	
Autodidact	3,815
Internet	2,921
Previous job(s)	2,735
Education	2,669
Friends	2,339
Professional literature	2,062
Brewers	1,974

Distribution	
Autodidact	3,856
Internet	2,328
Brewers	2,231
Previous job(s)	2,190
Friends	1,938
Education	1,826
Professional literature	1,531

Table 14: Respondents' average scores on how important the mentioned information sources were for 3 capabilities, with 1 = not important to 5 = very important

Table 14 shows that most of the categorized capabilities are self-taught. When autodidacticism fails, the internet is the next information source where the respondents turn to. Professional literature is a solid information source for brewing knowledge, but not for marketing or distribution. So are other brewers, which is in line with the findings of Figure 22 which show a high degree of cooperation in the field of sharing brewing knowledge. Previous employment hardly contributes to brewing knowledge, which can be explained by the fact that many of the current brewers have not worked in a related industry before as shown in Figure 21.

"Travelled to learn", does not have a high rating for acquiring brewing knowledge, but it should be noted that 56% of the respondents rated this with a 1, meaning they never went on such an educational trip. When looking at the average score of the remaining 44% of the respondents, they rated *"Travelled to learn"* with a value of 2,837. During interviews it became clear that international trips were not entirely aimed towards learning more about brewing, but that brewers did take into account where breweries are located in the region they intended to visit. Respondents' international trips or holidays did therefore include a day where they would visit a brewery in some cases. Nationally, interviewees did state that they planned trips specifically aimed at improving their knowledge. Increasing brewing knowledge was not the only intention for making such trips, also improving beer knowledge was frequently named. Beer tastings introduced the respondents to various beer styles and also served as inspiration for the production of new beers.

Markets served	Yes	No
Regional market	116	2
National market	52	60
International market	5	99

Table 15: Markets served by respondents

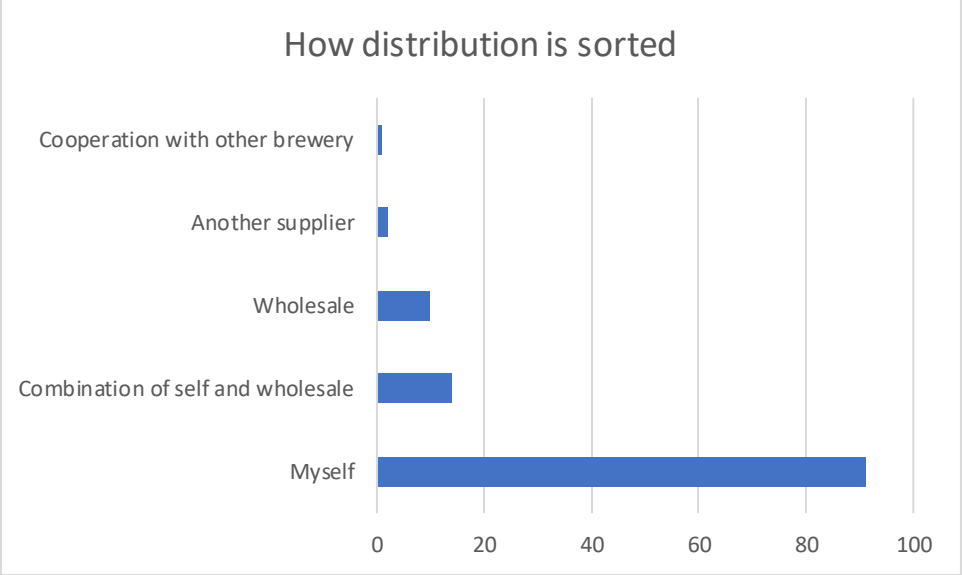

Figure 23: Aggregated count of how respondents sort their distribution

Table 15 shows that almost all breweries serve their regional markets, approximately half of them serve the national market and almost no one serves the international market. A respondent explained this relatively one-sided outcome:

"Serving the international market requires a new distribution channel, while most breweries only have a regional or if they are fortunate a national distribution partner. Most craft brewers therefore simply do not have the scope to arrange international orientated marketing and correspondent distribution. Additionally, the amount of competing craft brewers in the Netherlands is overwhelming. This makes it hard to compete in new geographical markets, where the affinity with the brand is lesser. Regional expansion is doable, because consumers mostly prefer local beer."

5.2.3: Location choices

Spatial proximity of:	Score
Residential address	4,256
Market/customers	2,983
Family & friends	2,339
Rent out brewery	1,465
Supplier	1,396

Table 16: Respondents' average scores on how important the listed factors' spatial proximity were on location choices, with 1 = not important to 5 = very important

Respondents were asked to rate how important the spatial proximity of particular factors were for their location choice for their company. Table 16 shows that one's residential address is clearly the most decisive in one's locational choices. Respondents declare that being close to their clientele is the second most influential factor. Family & friends' influence cannot be forgotten, but the spatial proximity of the rent out brewery and the supplier seem unimportant to the respondents. The next and final questions deal with the possibility of respondents moving their business to another location in the future, and what determinants are considered supportive of or restraining with respect to a future relocation.

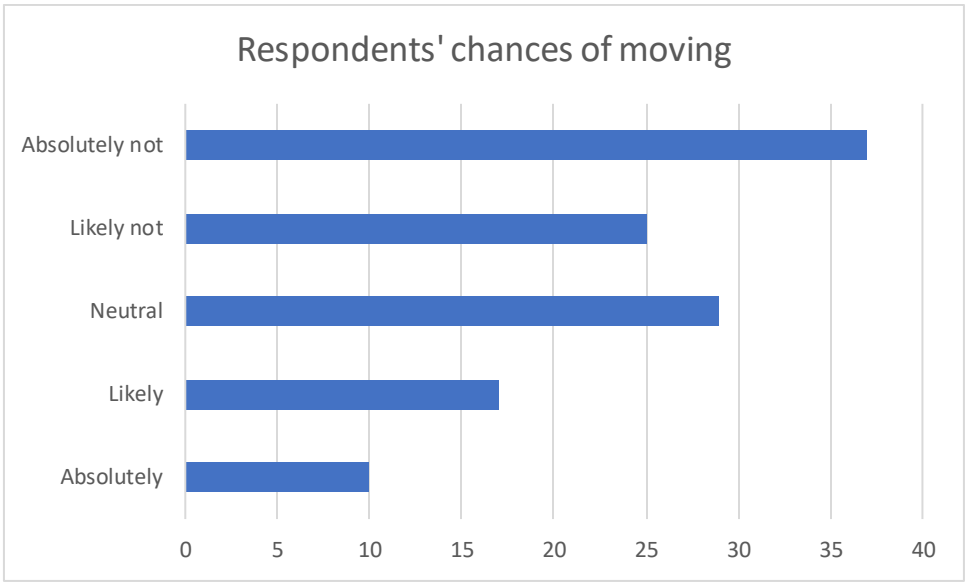

Figure 24: Accumulated count of responses to the question whether respondents deem a location change plausible in the future

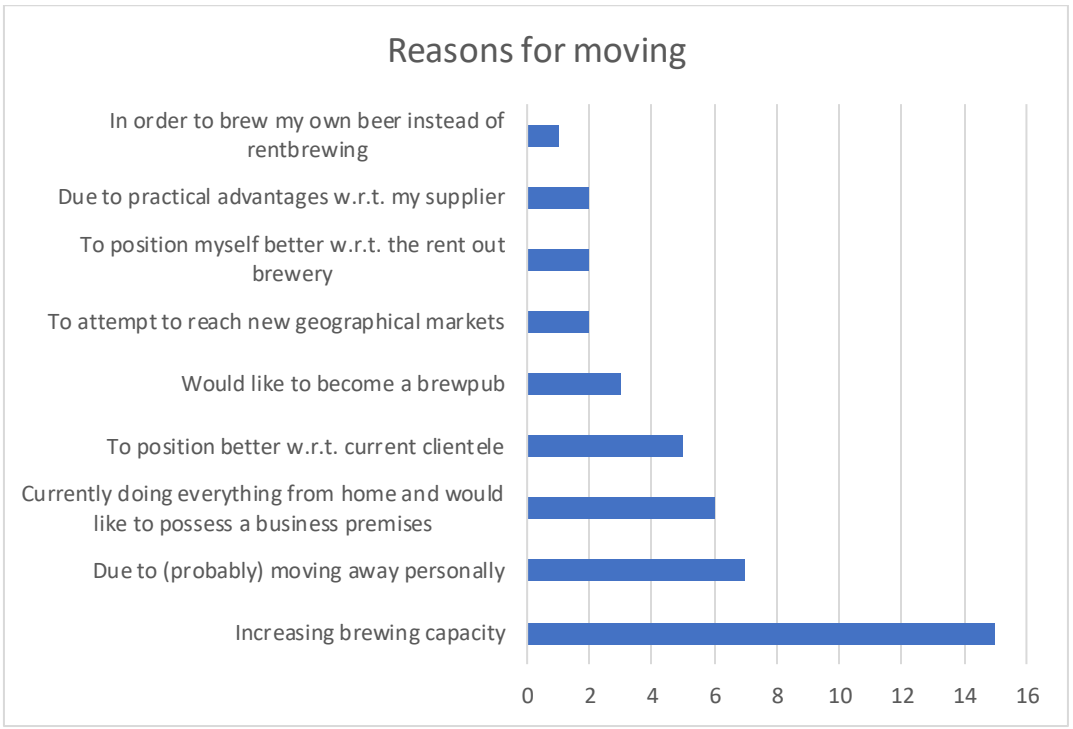

Figure 25: Accumulated count of reasons mentioned by respondents in favour of moving

As figure 25 shows, several reasons are mentioned in favour of moving, with *"increasing brewing capacity"* as most frequently named. Entrepreneurs that currently operate from their home and would like to possess a business premises can also be considered as willingly with respect to expansion, as this would most likely increase current brewing capacity. The considerable amount of entrepreneurs that operate from their home is telling for the low entry barriers that characterize the Dutch craft beer industry, especially when one adds to this observation the extensive possibilities for rent brewing.

Furthermore, attempting to compete in new geographical markets is hardly named, which is in line with Stam's (2007) statement that *"Butterflies don't leave"*. This could be explained by the nature of the current craft beer market, which is not sufficiently open in order to qualify for classical economic reasoning. Interviewees described the market as stiff, meaning it is difficult for breweries to alter the status quo, which consists of preferences by the hospitality business for particular breweries, and also legal contracts that are in place between many hospitality business and macro brewers. Such contracts follow from various ownership or collaboration models that are in place between macro brewers and hospitality businesses. Macro brewers such as Heineken, InBev or Swinckels are highly involved in various business models regarding hospitality real estate. These business models include ownership of real estate, functioning as a broker between owner and tenant of real estate and lastly many bar owners have arrangements with macro brewers regarding the product offer. These arrangements are present in all business models just mentioned, and independent craft brewers consider these arrangements as anti-competitive practices. One interviewee explained this:

"Finding new outlets to sell craft beer is difficult, especially since many bars and restaurants are bounded to macro brewers. One look at the beer menu in a bar often reveals the partnering brewery right away. If Heineken is the pilsner on draft, you often see various sub-brands of Heineken on the menu. Selling your products in such places is difficult, because by contract these hospitality businesses are entitled to offer just a few beers that are not included in the contract, which are often called "Beers of the moment".

Economies of scale thus seem to be relevant for the competitiveness of craft brewers, which is underlined by another interviewee:

"In recent years I noticed that primarily the hospitality business is fixated on purchase prices. They preferred the classics from the larger breweries over the craft beers from smaller breweries because of the lower purchase prices, which ultimately increases their margins. The retail criteria are well-known, they demand barcodes and large stocks. When you meet these requirements, you can sell your products at many stores, especially the craft beer stores. If you want to gain access to the larger super market chains, you will need certain certificates and meet various guidelines. This is a matter of grinding through."

Moving in closer proximity to one's rent-out brewery or supplier is also hardly named as a reason for a future relocation. An interviewee elaborated on why such benefits hardly determine locational behavior:

"For most brewers, the local identity is more important than locating in closer proximity to a rent-out brewery or a supplier. The transport costs hardly play a role in economic considerations, because the margins are quite high and the production volume is often not that substantial. Transport costs would be more important if the quantity increases and the margins drop. Additionally, there is much to gain with a

local identity. It is important for the connection with your target market and for the marketing strategy."

Reasons for not moving are less versatile; only 2 of the 110 respondents named a restriction that keeps them from moving, which are sunk costs in both cases. The remainder of the respondents declared to be satisfied with their current business location, and see no reason to move in the future.

5.3: Analysis

One of the leading questions of this paper is whether breweries' locational behaviour changes during distinct phases in the early life course, which is derived from Stam's (2006) estimation that *"Butterflies don't leave",* which means that companies do generally not leave their home region as they grow. The various phases in the early life course were in Stam's case characterized by several determinants, such as potential sunk costs, human resources and access to financial resources. Such information is hard to obtain, and additionally some of these questions are difficult to answer accurately, even for the entrepreneurs that form the research group in this thesis. Therefore, various variables have served as a proxy for phases of breweries' early life course.

But first, for the sake of reliability, certain adjustments have been made to various variables, at the expense of completeness. The number of observations belonging to several categories in categorical variables were insufficient for reliable data analysis, especially when cross-referenced with another categorical variable. The dependent variable of interest, one's locational behaviour, which is formulated as respondents' indicated probability that they will move their business in the future, was measured on a 5-point Likert scale. This has been converted to a dichotomous scale, or a binary variable if you will. Jeong & Lee (2016) analysed 34 questionnaires, and found that aggregating responses into a dichotomous scale originating from survey responses measured on a 5-point Likert scale exceeded a 0,9 correlation (Jeong & Lee, 2016). This correlation was found to be stronger for questions which referred to an action, as opposed to a question that measures one's opinion on a subject to which a respondent can agree or disagree. Moving one's brewery/company in the future is a comprehensive endeavour which involves many factors, therefore it requires a larger commitment than simply agreeing with a certain statement. For this reason, I found it justifiable to convert the variable that measures respondents' locational behaviour into a binary variable, also because it increases the reliability of the results that follow from the data analysis. Conclusively, values 1 through 3 are recoded into a value of 0, indicating that the probability of moving in the future is not likely. Values 4 and 5 have been recoded into a value of 1, which stands for a likely up until certain perception of relocating in the future.

As mentioned earlier, several variables have served as a proxy for phases of breweries' early life course, in this case founding year, revenue and volume. Founding year is chosen because it measures a company's period of activity, regardless of the economic activities that have transpired during that period. Revenue and volume are used because they account for a company's economic magnitude, regardless of the number of years a company has been active. These indicator variables have underwent transformations as well, which decreased the amount of categories and thereby increased the group sizes. Thereafter, the proxy's were inserted individually in a cross tabulation alongside locational behaviour.

Moving in the future * Revenue Crosstabulation

			Revenue			
			0-25000	25000-100000	>100000	Total
Moving in the future	Not likely	Count	63	14	14	91
		% within Revenue	79,7%	66,7%	70,0%	75,8%
	Likely/certainly	Count	16	7	6	29
		% within Revenue	20,3%	33,3%	30,0%	24,2%
Total		Count	79	21	20	120
		% within Revenue	100,0%	100,0%	100,0%	100,0%

Table 17a: Cross-tabulation "Moving" x "Revenue"

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1,994[a]	2	,369
Likelihood Ratio	1,935	2	,380
Linear-by-Linear Association	1,402	1	,236
N of Valid Cases	120		

a. 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,83.

Table 17b: Results statistic tests

Moving in the future * Founding year Crosstabulation

			Founding year			
			1997-2016	2017-2018	2019-2020	Total
Moving in the future	Not likely	Count	29	34	28	91
		% within Founding year	76,3%	85,0%	68,3%	76,5%
	Likely/certainly	Count	9	6	13	28
		% within Founding year	23,7%	15,0%	31,7%	23,5%
Total		Count	38	40	41	119
		% within Founding year	100,0%	100,0%	100,0%	100,0%

Table 18a: Cross-tabulation "Moving" x "Founding Year"

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3,142[a]	2	,208
Likelihood Ratio	3,211	2	,201
Linear-by-Linear Association	,758	1	,384
N of Valid Cases	119		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 8,94.

Table 18b: Results statistic tests

Moving in the future * Volume Crosstabulation

			Volume			
			0-10	10-50	>50	Total
Moving in the future	Not likely	Count	31	29	32	92
		% within Volume	81,6%	85,3%	66,7%	76,7%
	Likely/certainly	Count	7	5	16	28
		% within Volume	18,4%	14,7%	33,3%	23,3%
Total		Count	38	34	48	120
		% within Volume	100,0%	100,0%	100,0%	100,0%

Table 19a: Cross-tabulation "Moving" x "Production Volume"

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4,611[a]	2	,100
Likelihood Ratio	4,579	2	,101
Linear-by-Linear Association	2,893	1	,089
N of Valid Cases	120		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 7,93.

Table 19b: Results statistic tests

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,196	,100
	Cramer's V	,196	,100
N of Valid Cases		120	

Table 19c: Phi and Cramer's V values

As Tables 17b, 18b and 19b show, neither of the Pearson Chi-Square values are significant on a 95% confidence interval, although volume is significant on a 90% confidence interval with a value of 0,100. One can therefore not conclude that locational behaviour is dependent on founding year or revenue, but to a certain extent one can make predictions based on production volume. The likeliness of breweries moving in the future is thus positively correlated to production volume. This effect is strong, as indicated by the Phi and Cramer's V values of 0,196 shown in Table 19c (Akoglu, 2018).

The next stage of the analysis consists of logistic regressions, as logistic regressions use a logistic function to model a binary dependent variable, in this case locational behaviour (Peng et al, 2010). Various control variables have been added to the model alongside the previously discussed indicator variables, in order to account for potential confounding effects. Different variations of control and indicator variables were included in the logistic regression in a trial-and-error approach. Ultimately, an optimal variable set to explain locational behaviour is identified, of which the corresponding model will be shown below:

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Rentbrewer(1)	,384	,524	,537	1	,464	1,468
	Volume			7,858	2	,020	
	Volume(1)	-,134	,708	,036	1	,850	,875
	Volume(2)	1,442	,618	5,444	1	,020	4,230
	Founding year			5,491	2	,064	
	Founding year(1)	-,529	,652	,659	1	,417	,589
	Founding year(2)	,925	,627	2,175	1	,140	2,522
	Constant	-2,303	,696	10,957	1	,001	,100

a. Variable(s) entered on step 1: Rentbrewer, Volume, Founding year.

Table 20: Logistic regression 1

In logistic regression, categorical predictors are entered into the analysis as dummies, meaning that the first category serves as a reference group for the other categories (Peng et al, 2010). So in this case, the category that produces 0-10 hectolitres annually serves as reference group for the categories that produce 10-50 or >50 hectolitres. However, table 19a shows that production volume does not have a strictly positive effect on locational behaviour. Odds of moving decrease as breweries up their production volume to 10-50 hectolitres, but subsequently increase significantly if they produce over 50 hectolitres annually. Therefore in the next and final model regarding locational behaviour, in order to attempt to increase the significance of the correlations, the first two categories of production volume are switched around, which makes the 10-50 production volume category the reference group.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Rentbrewer(1)	,384	,524	,537	1	,464	1,468
	Volume			7,858	2	,020	
	Volume(1)	,134	,708	,036	1	,850	1,143
	Volume(2)	1,576	,670	5,540	1	,019	4,836
	Founding year			5,491	2	,064	
	Founding year(1)	-,529	,652	,659	1	,417	,589
	Founding year(2)	,925	,627	2,175	1	,140	2,522
	Constant	-2,437	,734	11,034	1	,001	,087

a. Variable(s) entered on step 1: Rentbrewer, Volume, Founding year.

Table 21: Logistic regression 2

Table 20 and 21 correct for founding year and rentbrewing. Rentbrewing is a binary variable, where a value of 0 indicates that a brewery produces their beer at their own vicinity, and a value of 1 means they are rentbrewers. The coefficients belonging to the groups that produce 10-50 or >50 hectolitres are significant on a 95% confidence interval, with p-values of 0,020 and 0,019. The equation that follows from this logistic model that tries to predict the outcome of our binary dependent variable is as follows:

$$\begin{aligned} Locational\ Behaviour \\ &= -2{,}437 + 0{,}384 \times Rentbrewer + 0{,}134 \times Volume(1) \\ &+ 1{,}576 \times Volume(2) - 0{,}529 \times Founding\ Year(1) \\ &+ 0{,}925 \times Founding\ Year(2) \end{aligned}$$

Included in the substantial negative constant are the reference groups for *"Volume"* and *"Founding Year"*. Being a rentbrewer increases the likeliness of moving in the future, although this correlation is not significant. Founding year seems to have the same prediction pattern with respect to locational behaviour as production volume, as the second group is negatively correlated with moving in the future, but the odds of moving for the third group do thereafter increase significantly. Odds of moving for breweries that produce >50 hectolitres are significantly higher than both other groups. The odds-ratios listed in tables 16 and 17 make those differences easier to quantify. Table 22 shows the correspondent odds-ratios, where the categories on the x-axis serve as base group. So a brewery that produces over 50 hectolitres a year compared to a brewery that produces 10-50 hectolitres, is 4,836 times more likely to move in the future.

Production volume	0-10	10-50	>50
0-10	x	1,143	0,236(*)
10-50	0,875	x	0,207(*)
>50	4,230(*)	4,836(*)	x

Table 22: odds-ratios of various combinations of different production volumes, with the categories on the x-axis serving as base group

5.4: Conclusion

Several conclusions can be derived from the previous section, but shortcomings have also been identified due to a lack of information. The entrepreneurial wave of craft brewers is characterized by diversified backgrounds and career-paths. The most common career-path towards starting a business in the craft beer industry follows from the hospitality with 14%. Furthermore, the entrepreneurs originate from many sectors, thus no dominant career-path has been detected. The most popular motive to start a business was to brew the best beer, which indicates an enthusiasm for brewing among the respondents. The effects of dissatisfaction at one's former job or an anticipated impending bankruptcy of one's former employer were neglectable.

Due to the un-transparency in the supply chains of craft beer, no reliable conclusions can be attached to several matters. Whether cooperation or competition is more common for several business aspects such as the shared purchasing of raw materials or distribution cannot be concluded, because these results are undoubtedly affected by whether breweries are rentbrewers or not. Therefore one needs a deeper understanding of how the various supply chains in the craft beer industry function in order to make sound conclusions in fields just mentioned.

Breweries' locational behaviour is positively correlated to production volume. Although no predictions can be made when comparing breweries with an annual production volume of 0-10 hectolitres as opposed to 10-50 hectolitres, odds of moving for breweries that produce over 50 hectolitres are significantly higher than for each of the other two groups.

Chapter 6: Discussion

Starting with the question whether the Dutch craft beer industry could be viewed as one of the fastest growing industries worldwide, together with among others the renewable energy and the cyber security sector, the answer is no. The significant increase in the amount of enlisted breweries over approximately the past 25 years, was not accompanied by economic gains that relatively parallel this growth. The vast majority of the breweries reported an annual revenue of less than €25.000,-, for this reason they can not be considered substantial drivers of economic growth. This conclusion is confirmed by the brewery-related employment data. As employment peaked in 1997, the amount of breweries was at its minimum. The fact that the amount of breweries increased by 600% in the next 20 years did not positively affect employment, on the contrary, employment decreased by 19% over a similar period.

This is in line with the indicated motives supportive of entering the craft beer market, which are non-commercial in most cases. The prevailing sentiment behind the increased entrepreneurship includes an enthusiasm for brewing beer, and subsequently perfecting this craft. The implication that brewing by itself does not qualify as a sufficient source of income, is underlined by the fact that 72,5% of the entrepreneurs have a second job next to running their business. The additional sectors in which the entrepreneurs are active in are very diversified, as are the sectors where they originate from. Thus, as opposed to Vinodrai's (2006) findings, no dominant career-path has been detected, creating heterogeneity in their backgrounds, and therefore also in entrepreneurial traits, motives and intrinsic qualities. These diversified origins are telling for the accessibility, as there do not seem to be many requirements one has to meet in order to become a craft brewer. One can additionally not underestimate the facilitating role of rent-brewing, which eliminates the necessity of significant capital investments in brewing space and equipment. Such practices lower entry barriers, and have therefore most likely played an accommodating role with respect to the explosive increase in entrepreneurship in the Dutch craft beer market.

The exact way how the supply chains function could therefore have caused the increased entrepreneurship within the craft beer market to a certain extent. Simultaneously, the un-transparency of the supply chains, primarily as a result of rent-brewing practices, could have a confounding effect on several matters related to breweries, of which in the case of this thesis it had a confounding effect on the cooperation vs competition debate which was tested with respect to the shared purchasing of raw materials, distribution, marketing and making brew capacity available to each other. An insufficient understanding of the supply chains has disabled the formulation of sound conclusions in fields just mentioned.

Breweries' locational behavior is in line with Stam's (2007) findings, which state that geographical embeddedness generally prevents firms in the early growth phases from leaving their home region. Additionally, odds that these potential relocations will take breweries outside their home region are low, based on the interviewees' indicated value of a local identity. Production volume is the only variable that leads to a positive attitude towards relocating, other correlations were found to be insignificant. No distinctions with respect to locational behavior could be made between breweries with a production volume of 0-10 hectolitres annually compared to breweries that produce 10-50 hectolitres. When the production volume exceeds 50 hectolitres, a brewery is more likely to relocate, which is reliable on a 90% confidence interval. It should be noted that respondents who indicated a production volume larger than 50 hectolitres were scattered across several categories, for this reason the data was clustered in order to enhance reliability. The differences in production volume within this highest group are substantial though, making the results unsuitable when comparing breweries with a moderate production volume to breweries with a high production volume.

The survey results were however able to present the most important motivations that shape entrepreneurs' locational considerations. For breweries that did deem relocation in the future plausible, expansion was the most important reason to do so. Entrepreneurs included in this group are either aspiring to increase their current production capacity, or are currently running their business from their home and wish to acquire a business premises. The second most important reason for relocating besides moving away personally, which shall not be discussed because economic considerations do not explain locational behavior in that case, is a more favourable positioning with respect to the current clientele with approximately 19%. Hardly any entrepreneurs strive for reaching new geographical markets, or practical advantages with respect to one's supplier or rent-out brewery as a result of relocating. Flying craft beer makers are therefore non-existent, as opposed to the *"Flying Winemakers"* discussed in Lagendijk's (2004) paper. For the entrepreneurs that considered a relocation in the future unlikely, the reasons were less diverse. Stam (2007) found that sunk costs were the major reason that refrained firms from relocating. Approximately 2% of the breweries indicated that sunk costs prevents them from relocating, while the remainder declared to be content with their current location or considered brewing a hobby which does not require moving or upscaling to be satisfactory.

Chapter 7: Conclusion

7.1: Concluding remarks

The initial question that this thesis attempts to answer is the following:

Who are the Entrepreneurs that are Responsible for the Rapid Emergence of Craft Breweries in the Netherlands, and what defines their Locational Choices?

Taking all the information previously discussed into account, one can conclude that the entrepreneurs who have entered the craft beer market originate from highly diversified backgrounds. The majority of the current entrepreneurs were previously employed, and active in a wide range of sectors before ending up in the craft beer industry. The hospitality business is preferred when considering career-paths that lead to becoming a craft brewer, but only slightly with 14%. The breweries are spread across the Netherlands, indicating that the increased demand for craft beer is a national trend. This increase in breweries over the past years does however not translate to economic benefits that match this growth, as employment decreased over a similar period and most craft breweries generate a yearly revenue that does not suffice as primary income for the owners, let alone providing enough financial breathing space to hire employees. Traditional economic rationale does however not apply to the majority of the craft brewers, as their motivations for entering the craft beer market were non-commercial in most cases. Most craft brewers indicated that an enthusiasm for brewing craft beer, along with perfecting this craft, was the primary reason for starting their own business. The implication that a second job is required to make ends meet is evidently acceptable to most brewers.

Craft brewers' locational choices are in correspondence with the non-commercial motives previously discussed, as one's residential address is clearly the most decisive factor in the selection process of a business premises. Possible supply chain optimizations by favourably relocating with respect to suppliers, rent-out breweries or new markets are hardly considered. Through data analysis, it was possible to establish that production volume is positively correlated to moving in the future. This correlation is in line with conducted survey findings, which state that expansion is the most important reason for an eventual future relocation. Expansion in this case, means a desire to increase production volume. Reasons that withhold craft brewers from relocating are neglectable, as almost all respondents declared to be content with their current business location.

7.2: Recommendations for further research

This thesis treated a novel topic within the scientific literature. Even though it contributes to a better understanding of the Dutch craft beer market and the underlying dynamics, new questions arose during the process. First of all, the geographic concentration of breweries has been established for the Netherlands, but no explanation is presented which explains geographical patterns or preferences. Such explanations can be formulated making use of data that has not been included in this thesis, like demand-side variables or area-specific information. Investigating how such variables could possibly correlate to the calculated location quotients, could result in newly found correlations which explain the locational distribution of breweries.

Secondly, a better understanding of how the supply chains function would enable researchers to make more substantiated claims on shared purchasing agreements for raw materials, how distribution is sorted and whether joint promotion activities have been organized. The design of the supply chain is unclear, for a large part due to rent-brewing practices. Acquiring a better insight and understanding of how the supply chains function is therefore a promising topic for further research, as it not only adds to existing knowledge regarding the supply chains itself, but it also enables the formulation of answers to questions regarding the purchase of raw materials, distribution and marketing with respect to Dutch craft brewers.

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