

Radboud University, Nijmegen School of Management

# A monopoly on municipal land?

A research into the prevalence of monopolies in the Dutch market for housing as a consequence of the building claim model

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8-4-2022

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## Preface

After having completed my Bachelor's degree at the Radboud University, I opted to stay in Nijmegen for my Master. Mainly due to the program that I deemed the best fit for the continuation of my education, but also due to the comfortable life I had built up in Nijmegen.

The masters program ended up being the biggest challenge I have ever faced. The master thesis, currently in front of you, being the absolute climax of this program. Having chosen an incredibly interesting, but unknown subject, the first stages were frustrating, demotivating and exhausting.

Firstly, I can not thank anyone more than my supervisor, Huub Ploegmakers, for his time. His help with my research, but also his informal approach to our meetings are the main reason I managed to stay motivated for my master thesis.

Secondly, I would like to thank all responding municipalities for their time, openness and willingness to help.

Lastly, I want to thank Simone, Teun and Huug for supporting me in this process, checking in on my mental well-being and keeping me motivated.

## Abstract

This research exhibits a number of problems on the Dutch housing market. In times of a housing crisis, plan capacity is not brought to fruition, leaving the Dutch market in a position of shortage in dwellings. For this gap between planned projects and actual realisation of projects – dubbed the *implementation gap* – are numerous reasons. Of these causes for the implementation gap, some are extensively researched, such as how site issues, contract issues or financial issues can cause a project to stall. However, one of the reasons is relative under-researched. This cause is developers leaving sites undeveloped intentionally in order to ensure higher profits when market conditions are better. Additionally, on the Dutch markets, some developers own building claims on municipal ground, enabling them to control housing on municipal land. Doing so is detrimental to the housing market, while the companies make a profit. This specific market structure has to be researched more extensively in order to adequately combat this problem, which is why this research aims to carry out surveys among as many Dutch municipalities as possible. Descriptive analysis as well as spatial analyses will be executed in an attempt to calculate what spatial factors influence the prevalence of building claims. By doing so, this research attempts to gain more insight in housing market structures and the extent to which building claims can be regarded as a form of market concentration and competition.

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## Problem statement

In the Netherlands, there currently is a housing crisis. Housing prices are rising at a concerning rate and there is a shortage of houses which accumulates to roughly 100.000 dwellings that need to be built yearly for the next 8 years. However, earlier results of the ability to build more houses has shown that this number is not being reached. The amount of houses needed at the moment lies around 279.000 (MinisterieBZK, 2021), adding the growth of the Dutch population over the next few years, there will be an estimated extra 800.000 dwellings needed in 2030. In order to reach this, the next 8 years are taken as a timeframe in order to solve this problem.

It is, however, not the question where and who will build. In the plan capacity on the Dutch housing market, a staggering 961.300 potential dwellings are projected. This means that 130% of the demand could potentially be taken care of (ABF Research, 2021). Plan capacity is the capacity of projects that have been approved by the governing body through land zoning plans and permissions. Plan capacity does not mean that the project has been finished, nor does it have to mean it has started. It merely is a indication of the amount of projects and/or dwellings that is being projected on locations that have been designated for housing (Scheele-Goedhart & Van der Reijden, 2008).

### 1.1 The low pace of the construction market

As stated earlier, plan capacity accounts for 130% of the national demand for housing in the years up until 2030. However, this does not mean that the housing crisis will be solved in the years to come. Part of it is explained by the specific structure of the housing market and its submarkets. The market for housing is not only the market where houses are being sold, but also a market for raw - undeveloped - land and building rights, meaning that housing developers not only act on the market for housing (and make their profits), but also have to strategically act on the market for land. The market for land and for housing are highly intertwined, which is why this research will regard them as one market. This makes for a market in which an analysis can not look at both aspects as individual, but as aspects that are heavily related to each other.

The reason that not all plan capacity is being used has multiple causes (Buitelaar, 2018). The fact that there are so many elements to the market for housing is also why fulfilling the plan capacity is such a daunting task. The process of developing raw land to actual housing projects is prone to delays from many potential causes at multiple stages of the process. Buitelaar & Van Schie (2018) explain that for example policy and regulations can be a delaying factor, as every admitted plan can be disputed through a legal construction that allows concerned parties to do so, or through problems in financial feasibility due to changing economic situations. Additionally, locational problems (soil pollution) or non-cooperative land-owners in the area (who, for example, do not want to sell their land to a developing party wishing to develop the entire area) can be a delaying factor.

This is, however, not the entire story. While the aforementioned causes for delay are of unintended nature there are also reasons and ways to deliberately delay developments. Buitelaar (2018) shows that owners of land on which plans have been approved can strategically leave land undeveloped, in order to increase financial gain on the eventual development. One of the methods developers can use for this is called *land banking*. This way, by acquiring large plots of land, the developer is focused on ensuring a developing position on the long run. The developer is not aiming for quick development of dwellings.

The choice for leaving land undeveloped sounds counter-intuitive, as one would assume that a developer makes its profits through developing land and selling or exploiting the developed land (c.q. real estate). However, the market is structured in such a way that developers can make profits by not constructing houses or by keeping the flow of housing production artificially low in order to profit of increase in real estate prices. Naturally, if one expects to be able to make more profit in the future, they will stall developments until higher prices are reached. Developers are able to do so if they are the owner of the piece of land. The developer is the only one who can develop that specific plot of land, so on their own land they can build whenever they seem fit. If large house building firms speculatively acquire large areas of – cheap - raw land in the hope that once the zoning-plans allow housebuilding, they possess a monopoly on that specific developing market. This means that pace of construction as well as the prices of houses can be decided on by the firms dominating that specific market. Buitelaar & Pouls (2009) argue that the high level of market concentration is one of the core causes of the housing market malfunctioning. The idea of a small number of large firms holding power of regional markets means that there is no competition in which the best product (housing) will be offered for the best price.

## 1.2 The problem of power dynamics

Having established the fact that delays on the housing market can deliberately be created by developers themselves as a means to increase profits, it is interesting to look at the ways these monopolies emerge and how the dynamic between developers and municipalities is shaped.

Normally, one can look at rights of ownership or development rights, but in the Netherlands, there is a more subtle way of holding power over certain land called the *building claim model*. This model is, like a joint-venture (JV) is, a Public-Private Partnership (PPP). However, the workings and the dynamics are different than a JV is.

In the *building claim model*, the developer sells his land (that he acquired through buying it from, for example, a farmer) to the municipality. Key condition in this sale is that “ that the developer sells to the municipality on condition that he will be able to buy back a certain amount of serviced land for a certain number of houses at a certain price and in certain locations” (Needham, 2014). This is different from a JV in the sense that there is not a shared company being set up in which shares are divided. A JV is – like the name says – a joint company. In the *building claim model*, the agencies are separate from each other.

This is where the dynamics of the *building claim model* become interesting for a real estate developer. Favoring the developer, the land that has been serviced by the municipality in the plan area is being redistributed in a way that also favors the municipality. Therefore, the land that the developer possessed in the first case might not have been a realistic plot of land to build on. Potentially, it may have been many plots of land dispersed within the plan location. Owning land does not mean that the developer was keen on developing that specific piece, but it meant that the developer wanted to develop somewhere in that plan area and needed to be involved through owning any piece of land (Needham, 2014).

Now, in the *building claim model*, the municipality does have the advantage that they, as one agency, are responsible for servicing the land and distributing amongst developers. However, they are not able to choose who they give the land to, as the developers were in on the model on condition that they would receive the building claim. Additionally, often times developers demand influence on the contents of the plan as well, meaning that this is something the municipality loses influence on as well.

In this situation, developers hold position that they would consider ideal. Not only because they find themselves in the rather comfortable position in which they receive serviced land on

which they know they can build, but mainly because they hold power over when they will start building.

What is essential to the distorted dynamic in the land and housing market, though, is the fact that the *building claim model* has allowed developers to settle in comfortable positions on municipal land where they – potentially – hold and exploit a monopoly position. If one were to look at ownership rights, it would be the municipality, but as developers hold a building claim, this is not for the municipality to build upon.

Especially on municipal land where municipalities could – under normal circumstances – be responsive towards lack in housing, this powerful position where developers hold some type of market control provides a market that is functioning at a sub-optimal level.



### 1.3 Research aim and question

This research will focus on the way the Dutch market for housing and land is structured. This means ownership rights, building rights and market shares of the parties involved in the land and housing market. Currently, the market is not working optimally as there is a large shortage in housing. While politicians see the urge to change the situation, it is not – always – possible to change the situation. Building claims have been agreed upon by municipalities and developers, meaning that developers hold power over municipal land.

This research has the objective to gain a better understanding of the impact the use of the building claim model has had on the market structure of the Dutch market for land and housing. It mainly focusses on the possible impact building claims have on the level of competition in the market. Competition on the housing market can be measured through two indicators: Market concentration and builder size. Firstly, market concentration refers to the degree of dominance exercised by a few firms on a certain market. Market concentration is mainly referred to when markets become too concentrated, meaning a small number of firms hold a significant market share. (Buitelaar & Pouls, 2009)

The scope of this research is to discover whether these indicators also affect the prevalence of building claims. By gaining more insight on the impact of the building claim on market structures, more knowledge on market powers and the potential exertion of this power will be gained. The sub questions, step by step, aim to provide a base on which the main research question will be answered.

The main question of this research is: *To what extent do building claims have a possible impact on the level of competition in the housing market?*

This question will be answered indirectly through a set of sub questions, which are:

*What is the share of building claims in the total plan capacity?*

*Does a relation exist between builder size and building claims?*

*Are the variables of impact on builder size and competition also of impact on building claims?*

The research first focusses on the actual size of the share of building claims and the extent to which building claims are still prevalent as a part of the plan capacity. This information is currently not available, and will be collected through carrying out surveys. Research done by Deloitte on behalf of the Dutch Ministry of Interior and Kingdom relations (BZK in Dutch) claims that the building claim model was and is a widely used construction, but that there is no indication of the number of building claims (Deloitte & MinisterieBZK, 2021). For this reason, the first sub question will attempt to tackle this problem.

Secondly, builder size can affect market competition within a market. Larger builders often possess larger financial resources – which for example explains why the London housing market is highly concentrated: it is a market with a high financial entry barrier (Ball, 2007), have a greater ability to innovate both product (Acs & Audretsch, 1987) and process (Damanpour, 2010) and enjoy economies of scale (Ball, 2007). The presumption exists that large builders associated with building claims more often than smaller builders, strengthening the position in which large builders can exert market power.

The final subquestion regards the characteristics of a plan in regards to the variables of impact on builder size and competition. Using a spatial analysis, spatial characteristics of a plan can be linked to the prevalence of building claims. This will be further elaborated upon in the data collection chapter.

The outcome of this research does not supply a solution to the current problems on the housing market (slow rate of construction, high prices) but aims to provide information that is currently lacking on the Dutch market.

#### 1.4 Scientific relevance

Looking at the current pool of literature regarding this implementation gap – the discrepancy between plan capacity and actual completion of projects – there is plenty written on the prevalence of this phenomenon in the United Kingdom.

Originally, the lack of implementation of policies was a concern amongst planners in the 1980's (Healey et al, 1985), consequently, implementation gap was coined by Bramley (1993) as an explanation of the workings of the housing market in the 1980's in the United Kingdom. In this situation, developers and landowners are the sole initiators of developments. Municipalities can only respond. McAllister et al. (2016) provide multiple potential causes for sites to be stalled, but only slightly point in the direction of developers holding out from building to exploit their dominance on the housing market.

While McAllister et al. (2016) suggest multiple causes for a gap between plan capacity and actual realization of real estate projects, the market structures are barely touched upon, land-banking is left rather undiscovered and mostly blame site, viability and planning issues for a lack in housing construction.

Who do – albeit lightly – touch upon an example of monopoly workings in the market for land and housing, are Ott, Hughen, & Read (2012). According to their analysis it can be rational for owners of large and/or multiple sites to phase the release of land over time. This is linked to a controversial strategy of "land hoarding". This land hoarding, however, is the only link to what could be a monopolistic market structure.

The current state of literature, then, does cover problems regarding implementing housing and the stalling of sites, but disregards a link to monopolies, let alone does it regard market structures. Additionally, it does not cover the Dutch *building claim model*, meaning that the existing literature is only to some low degree applicable to the Dutch situation.

It is therefore that this research aims to gain insight in the way that the use of the *building claim model* has led to monopolies on the market for land and housing, as this has not yet been researched and is of vital importance for research on the prevalence of monopolies on the housing market as well as research into structures of housing markets in general.

#### 1.5 Societal relevance

The housing crisis is one of the biggest problems that society is currently facing. In the Netherlands alone, nearly a million dwellings are needed before 2030. While enough planned capacity is being made, not enough is being built. In order to tackle problems such as lack of elasticity in supply, it is of value to know what effect previous housing policies have had on the current workings of the housing market. The societal relevance of this thesis builds further upon the scientific relevance. As people rely on – large scale - political changes to be made in order to increase supply of housing, they benefit from more knowledge on the effects of previous policies on the current workings of the housing market. If problems on the housing market can be tackled more effectively, housing can become a more accessible good of higher quality.

## Theoretical framework

In neoclassical economics, the main principle is that product allocation will happen in a perfect market. However, the perfect market is one that exists in theory and not in practice. The model of perfect competition is important as a foundation for neoclassical economics, but due to the unrealistic nature of this market structure other market structures have emerged. In this chapter an elaboration will be provided on these four market structures as a concept in itself as well as in relationship to housing.

Building further upon the neoclassical notion of looking at markets and their respective structure, certain elements are of deciding value in deciding what a market's structure is. Shepherd (1972) discusses that market structure can be studied by looking at the following elements: Market share, Leading-Firm Group, Entry Barriers, Firm Size, Advertising-intensity and growth rate. Neoclassical economics don't occupy with how a market came to be, but how a market is currently organized.

### 2.1 Industrial organization

The study of industrial organization delves into the various market structures that exist in the economy and their implications for firm behavior, market dynamics, and economic outcomes. This chapter focuses on four key market structures: perfect competition, monopoly, oligopoly, and monopolistic competition. Each of these structures presents distinct characteristics and influences how firms interact, prices are determined, and resources are allocated.

#### Perfect competition

As earlier mentioned, the structure of a perfect competition is mainly in line with the neoclassical school of economics. Key values are a market in which there are 1) many undifferentiated sellers who 2) act independently. On the other side of the market there are 3) many buyers all wanting to buy the goods who 4) know the sellers' prices. In addition to that, there must also be a lot of buyers that compete with each other. This ensures that there is no reason to sell anyone that will not pay the equilibrium price.

If the market has these characteristics, thus being perfectly competitive, the equilibrium will be a perfect equilibrium. This means that the equilibrium will have the following characteristics: 1) all transactions take place at a single price and at that price 2) supply will match demand with 3) no buyer or seller being able to benefit from altering the price they will demand or offer. Lastly, 4) all gains from trade are being realized.

However, as earlier stated, this is a theoretical - and heavily idealized - notion of a market. In some markets, such as the agricultural market where differences are small, a perfect competition can exist in some way. But, companies tend to desire differentiating their product rather than supplying a product similar to those of their competitors.

#### Monopoly

The opposite of a perfect competition is a market structure in which there is a monopoly. In this market structure, prices are not taken by both buyers and sellers through the market mechanism but are being set by one seller who controls the market (Lerner, 1934). As the market is dominated by one monopolistic power, the price is assumed to be set at a level at which the seller can make maximum profit.

Monopolistic market forces, according to Leland (1977) under provide quality given its output and “produce too little given their quality level. However, Lancaster (1975) and Stewart (1979) provide a more nuanced conclusion saying that:

*“A monopolist will charge a higher price for a good than would a competitive industry; but in some - though certainly not all - cases it will produce the same output quantity, and provide exactly the same bundle of product characteristics, as would a competitive industry (Lancaster, 1975)”* and

*‘If there are any gains to be made by the monopolist [under constant returns to scale], they will be by increasing prices and reducing quantities of the same goods which are produced at the [competitive] optimum, not by changing the number of goods or their characteristics’* (Stewart, 1979)

As both quotes take into account, the force that exercises the monopoly power can dictate the market and dictate what the product will look like. They will either raise prices, keeping the quality at a regular level or can keep the prices the same, while lowering production costs, thus providing a lower quality product.

Conclusion, nevertheless, is that in a monopolistic market structure, prices are higher than necessary due to the powerful position the seller is in. Quality of the product can potentially be lower, but this is not a given fact. Products in a competitive market and monopolistic market can thus be of similar characteristics, but will always be more expensive in a monopolistic market.

## Oligopoly

The word oligopoly comes from the Greek words for “few” and “selling”. An oligopolistic market structure, hence, is a very concentrated market at which only a few firms take up a certain share of the entire market. The market structure is somewhere between perfect competition and monopoly, depending on the level of concentration (Shapiro, 1989).

On the “spectrum” of market structures, where perfect competition and monopoly would be the extremes, oligopoly would be close to a monopoly. There is no case of perfect competition, as the market is ruled by a few selling firms.

Unlike perfect competition and monopolies, which can rather easily be reduced to *one* single correct theory, there is not *one* theory that correctly describes an oligopolistic market structure (Shapiro, 1989). The two main theories about oligopolistic systems are created by Cournot and Bertrand.

In Cournot’s theory, firms choose a quantity to produce simultaneously and independently. They produce a homogenous product. In producing this good, they wish to increase their market share by producing a higher quantity. However, this drives down prices.

In Bertrand’s theory, firms don’t choose a quantity, but choose prices in order to increase their market share as buyers desire a product at the lowest price. This theory ensures that prices are equal to marginal costs. Bertrand’s point of departure – price setting rather than quantity choosing – ensures a cutthroat market in which sellers have an incentive to undercut other sellers in order to capture more market share (Shapiro, 1989). Each theory is supported with mathematical models, but elaborating on these would be beyond the scope of this research.

While both Cournot and Bertrand are essential to understanding oligopolies, general characteristics of an oligopolistic market are as such:

- Companies will maximize profits
- Firms who have an oligopoly will set the prices rather than take them (Perloff, 2008)
- High barrier to entry and exit (Hirschey, 2000)

Chamberlin (1949) adds to this that in an oligopoly, in order to not end up in a monopoly, firms must be independent from each other in going about their business. However, due to the small number of sellers in an oligopoly, firms have - unlike in a perfect competition - the power to affect market dynamics.

### Monopolistic competition

If market structures position themselves on a spectrum where monopoly and perfect competition are the extremes, monopolistic competition is a combination of the two extremes (Chamberlin, 1949).

In monopolistic competition, just like in perfect competition, there are many sellers on the market. The products that they sell are, however, differentiated. According to Chamberlin (1949) this can be a real difference or a fancied one, as long as it is a difference big enough for the consumer to develop a preference for one product. Products are somewhat similar, but the many sellers on the market will - for example by branding - differentiate themselves, as to make the goods not perfectly substitutable. The difference between monopolistic competition and perfect competition is that in a perfect competition the buyer would not have a preference for a good, which is indeed the case in a monopolistic competition. Examples of ways in which goods can be differentiated are for example packaging, trademarks, brand names but also location, the character of the seller, courtesy or personal relationships from the seller to the buyer (Chamberlin, 1949).

Building further on Chamberlins work, Benassy (1991) emphasizes the four characteristics of a monopolistic competition being 1) a market with differentiated products with 2) firms setting the prices and 3) each firm disregarding the impact of their price decisions on the other firms on the market. Lastly, 4) entry is unrestricted until the profits are reduced to zero.

## 2.2 Industrial organization and real estate

In the industrial organization of real estate, concentration and builder size are important. Market structures (and market concentration) are mainly explained by these two factors. On the one hand, concentration refers to the market share owned by a (small) number of firms. When a large share of a market is held by a small number of firms, a market is concentrated. A highly concentrated market can be affected by the dominant firms in setting prices, influencing market condition and limiting entry of new firms. This results in a market where consumers have less choice and potentially pay too much.

On the other hand, builder size is also of impact on concentration, as larger firms often have significant resources. Additionally, economies of scale may come into play ensuring cost advantages for firms of larger size. Larger builders, due to their access to financial resources, can more easily innovate or differentiate their product.

In order to understand fully the implications of builder size and concentration on competition, it is important to understand the way the housing market is organized and what the key characteristics are.

The market, at first sight is a simply, straightforward market under the label competitive industry. A large number of housebuilders is active, each holding a small share of the market (Ball, 2003; Somerville, 1999). However, there are multiple characteristics that show this is not the case. For example, housebuilding takes on numerous institutional forms in different

(regions of) countries, affecting the market. Also, housing markets are never the “one” market. Employment, family, recreation and other considerations limit the spatial range one would search their new residential real estate. This means that multiple sub-markets exist that don’t compete with each other. (Coiacetto, 2009). This means that a house in, for example, Amsterdam does not compete with a house in Nijmegen. Consequently, the housing market around Nijmegen should be seen as its own market as opposed to part of the national housing market. This also segues to the point of the housing market not being one of perfect competition. Looking at this on a national scale would suggest, but sub-markets are more easily dominated or concentrated. Somerville also shows that once statistics are analysed on the scale of a metropolitan area, more oligopolic market structures prevail.

Furthermore, the housing market is unique because of the longevity of the product. Houses last a long time meaning that newly developed property is the sole source of extra supply, while being but a fraction of the total share of dwellings. This means that the market for newly developed housing is a submarket to the broader housing market, and can thus react differently (Coiacetto, 2009). With housing being a good that takes relatively long to be developed (as opposed to regular goods), demand for housing means prices shoot up as new demand is not instantly met (Ball, 2003).

Some causes of changes in housing demand are short-term, business cycle related factors, like rising income or interest rates. Other factors are more long term, like demographic and social changes, technologies of living (for example the car enabling people to commute into a larger area, effectively enlarging a submarket) and public policy towards matters such as subsidies and tax-breaks for certain types of housing.

After having discussed and explained the different industrial organization structures there are, as well as the effects of the organization of different markets on both firm and consumer this paragraph will now look at the factors of influence on the way the real estate industry is organized. Drawing on the work of Somerville (1999), three main factors are identified and discussed

### 2.3 Factors affecting industrial organization

Now, this only goes to prove that markets differ in certain areas. It still needs further elaboration what factors are at the cause for this variation. Three concepts prevails Supply, demand and cost (Somerville, 1999). These same three concepts are also regarded as important in other literature, with some hosting cost as a part of supply (Case & Shiller, 2003) In this chapter, the three concepts will be set out and elaborated upon, leading up to the conceptual model and operationalization. The three concepts are used to explain the organization of the housing industry. Demand, supply and cost are all of influence on the way a market is organized.

#### Demand

Having decided that demand is an influential factor on industrial organization, how does this explain more concretely what it does? Demand mainly explain how popular a location is. This means on the one side that a place is considered highly attractive to live in by those who are in the market for purchasing real estate, and on the other hand means that a location (due to the demand for it) is a strong investment for firms who are in the market for building and selling (residential) real estate.

Building further on this, it would mean that a location (this could be a general area or a specific few plan-locations) is an area where transactions quickly happen on multiple playing



fields. Houses that are available will be in high demand – by buyers, and land to build on (or land to *landbank* with) will be attractive to acquire – by builders.

In order to connect this to the way an industry is organized, a correlation must be assumed between builder size and market activity. With regards to proof of this correlation, Somerville shows empirical research that a relationship between aggregate demand and mean builder size exists, meaning that a place that is considered fit by a larger group would be one where larger building firms are active. In addition to this, Somerville poses that in places where income is higher, more people consider the same place to live due to a larger group being in the market for real estate. A larger group considering the same location, means that the builder can yield a larger development. In the situation presented, employment is assumed to be distributed throughout an urban area, allowing to ignore variations in land rent. Now, the premise is that builder size must correlate with development size in order for this concept to be true. Multiple researches prove a similar hypothesis (Gal-Or, 1986; Vives, 1990). If larger demand in a market means that builders become larger, this is where the market steers away from the assumed idea that a market is largely perfect competition, with a large number of small firms making up the playing field. Instead, highly active markets steer towards a market mostly dominated by building firms of a larger size. Larger builders, as stated earlier, don't necessarily mean that a market is highly concentrated. It is possible, but they do not mean the same thing. But it does mean that entry to the market is made more difficult for smaller companies, and larger firms control a large share of the submarket.

Demand for a certain location is not only based on the notion that places where income is higher are more popular. Steering away from the MSA-scale analysis, a plan-scale analysis would steer towards the desirability of a plan-location. Certain plan-locations are more ideal over others due to their nature. Earlier, it was explained that people choose a location based on work, family or recreation. These are all factors that can be linked to a place being more in demand. Locations in the "middle of nowhere" with poor connection to someone's recreational facilities or workplace, are less attractive. While this is highly personal, some locations could be in general demand. Locations close to greenery, amenities, or "good" parts of town are in bigger demand. It is expected that plans in these desirable locations are owned by larger builders, as presented by the aforementioned data. A location or sub-market can be attractive on the base of multiple factors. In order to calculate for this, a multitude of variables will be utilized to analyse the potential impact of these factors on concentration and builder size on the prevalence of building claims.

## Supply

Secondly, supply is of importance to the structure of a market. The supply of land is, other than regular goods, a scarce product. This means that supply of new land is organized differently than new supply of goods that can just be produced in higher numbers. There is a finite amount of land on earth, meaning that the supply of new land is not real, new land. In this case, one would speak of the supply of new land through zoning-plans, meaning that the governing body has decided that plots of land can be used for a different purpose (in this case, residential real estate development). Different types of land have a different level of desirability and ability to be converted into such building land. This has all to do with the ease of converting a plot into appropriate land for real estate (Somerville, 1999; Claassens et al., 2020). Certain types of land, namely those without any topological limitations (such as the presence of wetlands, bodies of water or other land use) are easier to use as land for residential building. This type of land commonly is agricultural land.

A factor making agricultural land extra desirable is the fact that agricultural land is often made up of large plots which are owned by a single body; meaning - relatively - easy land

assembly when being in the process of acquiring land (Somerville, 1999). Supporting this idea are Eckhart (1985) and Strange (1995), that show a downfall in optimal development size with an increase in parcels that must be assembled. The assembly of land should be kept as simple as possible. Any hurdle on the side of supply means a suboptimal outcome of development size. With land being dispersed among more owners, financial demands rise. Eckhart (1985) shows that land being owned by less owners, makes for a cheaper transaction.

The ideal land, then, is indeed agricultural land. It is clean, easy to assemble and – not something to overlook – cheap. The contrast to this type of land are brownfields. Brownfields are plots of land that are so polluted due to their original function that it's impossible to develop on this site without thorough soil remediation (Adams, Sousa and Tiesdell, 2010). The process of developing on these type of sites is costly, and thus suboptimal on the supply-side. Claassens et al. (2020) present data showcasing in which greenfield development is the most prevalent development pattern outside of the urban area as opposed to greyfield (combined with brownfield) development.

Building on the aforementioned characteristics of “raw” undeveloped land, it can be concluded that builders ideally would assemble land that is currently in agricultural use. However, agricultural land – as well as brownfield locations – are located mainly outside of the core of a town. Brownfield locations can be considered as potentially untapped resourceful spots, due to their size and location – once again fitting into the ideal characteristics (Somerville, 1999; Claassens et al., 2020). Residential development outside of urban area's often happens on greenfield locations, described as “clean agricultural or open land sites”(De Sousa, 2010). Brownfields, while big and thus easy to assemble, still prove too big a challenge – or financial risk – for developers, making it sub-optimal choices to settle upon through a building claim. Developers rank land remediation costs and liability concerns as the biggest obstacles, both of which would not be prevalent with a “clean” greenfield development.

In conclusion, the supply of land is currently decided by what agricultural land is approved by the local governing body. This is the case because of land-zoning policy and the advantages that agricultural land has over other types of land available. It is therefore expected that building firms attempt to settle on agricultural land in the hopes that their land gets approved for residential real estate, thus securing a financial gain.

### Cost

Lastly, costs can be a factor. While Somerville does state that this is not as relevant as the other two factors, it will be explained. Larger cities have markets in which construction costs are higher as a consequence of higher wages. Higher construction costs potentially correlate with larger firm size in a market. While not touching upon this variable in great detail, it is included in analysis-models of market-size. However, in the analysis presented in Somerville (1999), it is concluded that the data is not sufficiently adequate to reject the hypothesis of cost variables equaling zero. It could actually be argued against the aforementioned hypothesis that cost would decrease with builder size increase, due to economy of scales in larger developments. To make it all the more confusing, it is not shown through the research that larger builders build more high end homes, meaning there is no cost-developer size relationship. In final addition to that, results show that income per capita shows no correlation with builder size in a market.

However, in other literature cost is regarded as a variable of supply. Some of the variables used in this research partially regard cost in this sense. In this research cost of real estate will not be completely disregarded, but will be regarded along with other variables that could be shared under two concept-names.



## 2.3 Conceptual model

In the chapters above, the most important theories regarding this research have been defined and elaborated. The conceptual model is based on this information. The conceptual model, which can be seen in Figure 1, forms the base on which this research is built. The model also guides towards the following chapters in which the variables will be further operationalised.

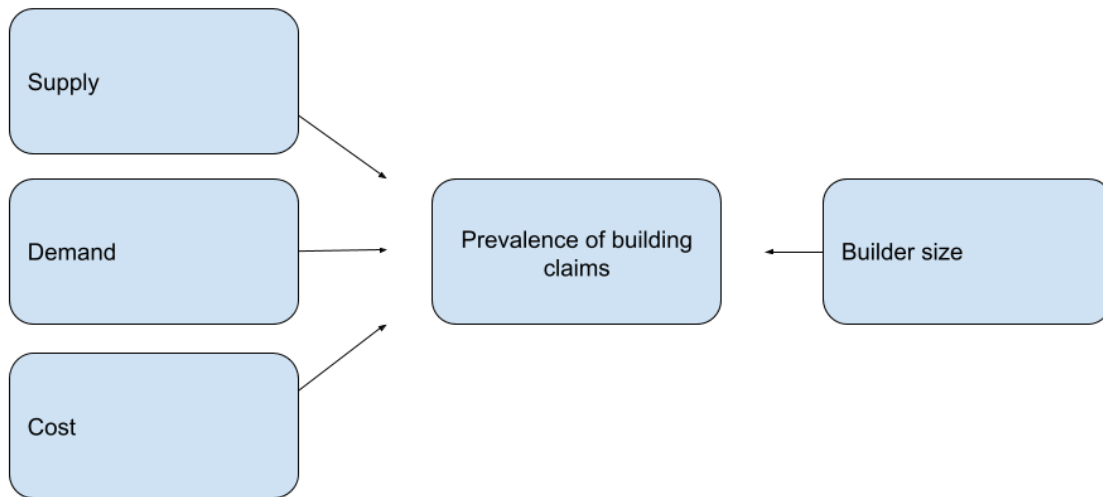


Figure 1: conceptual model

As displayed in the conceptual model, the prevalence of building claims is the core of this research. Theoretically speaking, the prevalence of building claims is on the one hand influenced by the supply of, demand for, and costs of land and real estate realisation. On the other hand, it is influenced by the size of a builder.

The hypotheses of this research are that prevalence of a building claim increases with builder size and that supply, demand and cost also impact the prevalence of a building claim. The variable "supply" consists of the land that is available for residential real estate development. The variable "demand" regards the demand there is for certain aspects or characteristics of a plan location. The variable "cost" regards the financial aspects of developing real estate. These three concepts are considered to be explaining factors for market competition. As the scope of this research is to gain insight into whether

The relationship between builder size and prevalence of building claims will be answered by the second sub-question. The relationship between the variables "supply", "demand" and "cost" will be explained by the third sub-question. In the following chapter, these concepts will be operationalized.

## 2.4 Operationalisation

### Measuring building claim

Building claims are, as earlier explained, contacts between developers and municipalities. They are not publicly available nor registered. However, building claims do shape the presence of, or more the lack of, larger building projects. As it would be impossible to receive all contracts between municipality and builder, the way building claims are measured in this research is through carrying out surveys in the shape of a fill-in form. Only asking about building claims does not give enough information. For every municipality, a selection of the

plan capacity had been made, in which a selection was made for plans that were “hard”, meaning the legal preparation had been completed. This means that in any case, the builder could, theoretically, start building when they desire. This selection was then sent out to a large share of municipalities, the exact numbers being presented in chapter 4.

Municipalities had the chance to fill in whether a land exploitation was municipal or private. When the option “municipal” was filled in, fill-in spots appeared with questions regarding the nature of this development. A plan being private is not the main scope of the research, as there is no chance of a building claim being present. Mainly the option “is this development covered by a building claim?” is of the utmost importance, as this is the key of the research-scope. If this question was answered by a “yes”, the respondent was given the possibility to answer more specific questions about the building claim, for example the name of the developer, the year in which the agreement was made, or the capacity of the plan.

Finding the distinction between municipal developments with and without building claims is the first step towards the insight sought after by this research.

#### Measuring builder size

Competition in the housing market can be measured, as earlier explained in chapter 1.3, by two core-aspects: builder size and concentration. Understanding the concept competition is requisite in order to come to an effective analysis of the spatial data. In this chapter, the way of measuring competition in a usable way for this research will be set forth.

Somerville (1999) exceed the four biggest companies owning 40% threshold typically associated with market power in industrial organization literature. However, segmentation of markets through geography or unit type does make for more oligopolistic outcomes. What, in contrast to concentration, is useful for this research is builder size. Somerville expresses concern regarding the way builder size can be measured. Number of single-family permits could be an indication, as this describes total activity. Unfortunately this does not prove useful among builders of all sizes. In this research, data on builder size gathered by PropertyNL will be used. This list consisting of the 50 largest builders of residential real estate shows information on units sold in 2020, 2021 and units still left to sell, and is an adequate indication of the nature of a builder and its size.

#### Measuring variables of impact on concentration

##### *Market activity*

Market activity will be regarded as a variable in order to explain the prevalence of large builders and market concentration. As mentioned through Somerville (1979), market activity correlates with builder size. Simultaneously, larger builders have shown to often possess building claims. It is therefore that the activity of a market will be analysed through numbers of houses sold. Somerville uses single house permits as a measurement for market activity, in addition to using single house permits, this research will also use numbers of houses sold in order to measure market activity. The Dutch Central Agency for Statistics collects this info on a COROP level. COROP divides the Netherlands in regions for statistical purposes. This division is the equivalent to a NUTS 3 division.

##### *Population forecast*

Not all areas in the Netherlands have sub-markets with similar characteristics. While the Netherlands in general is densely populated (Gallego, 2010), not all areas are currently as popular as others. The Randstad (urban) area is highly popular, as well as area’s surrounding the Randstad. Southern-Limburg, East-Gelderland and Groningen and Friesland face a population decrease as well as some regions in Zeeland and South-Holland.

It would be beyond the scope of this research to explain in full depth the causes and consequences of population decrease. However, it is important to be aware of the fact that due to a population decrease amenities disappear. This leaves a region less attractive for people to stay, or new people to settle. This leaves a unattractive market.

This research will look at the impact of the variable population rise or decrease in order to assess a relationship between this variable and building claim prevalence.

A potential correlation could indicate multiple things. It could indicate that a building claim has been agreed upon but not yet realised due to a negative market tendency. It could also indicate that the developer has waited for better times, which have not presented themselves due to the area becoming a decrease area.

#### *Accessibility*

This would indicate that attractive land is somewhat connected to some sort of infrastructural system. As different types of household value different types of transport differently, this research will look at the correlation between building claims and the close proximity of railway stations as well as motorway exits.

Somerville presents us with a certain triad (cost, supply and demand) that impacts location choice. Demand can be construed in multiple ways. Not only does demand exist in a general need for adequate housing, it also exists in demand for certain aspects of a location. Locations in a proximity to certain amenities are in higher demand, as earlier stated by Broitman and Koomen (2015). For this variable, proximity to railways stations and highway exits will be used.

#### *Land use*

Earlier in this research the importance of the current use of a plot of land was emphasized. In chapter 2.3 it was stated that land that is currently in agricultural use is deemed most fit for development by residential real estate developers. These plots are normally large and owned by few individual owners, meaning acquiring land is more easy than assembling small plots of land through a multitude of owners.

For this reason, the most recent data on land typology will be overlaid with the spatial data on plan-locations in order to calculate the buildup of a plan-location regarding land use. This gives insight in whether the assumption of agricultural land being more ideal is correct. This also gives the possibility to analyse land use – building claim relationships in a wider sense than only looking at agricultural land as it does not only contain information on agricultural land, but on multiple land uses. It could potentially provide new insights into location choice of developers in a building claim context.

#### *locational setting of development*

The location of a development is an important factor when it comes to the financial picture of a project. Developments on the outskirts of the city are more often easier, with developments in the inner city being more expensive. Acquiring, demolishing and cleaning the location are complex, costly processes that impact the overall profit to be made on a development (Claassens et al., 2020). Brownfield locations are regarded as sub-optimal, while greenfield are more favourable. This can also be seen in the way the Dutch national housing policy was mainly aimed at locations of this kind. A certain designation to these areas could mean that more peripheral locations, such as the outskirts of a city or town, are more favourable to developers as the chance of policy being in favour of a development is high. In this research, the position of a project (in the city, in the urban fringe, or outside of the city) will be analysed with regards to the prevalence of building claims to conclude whether this is of any impact.

In order to do this, a buffer will be cast around the city or town in ArcGIS Pro in order to calculate the position of each planlocation. This gives insight in whether more building claims exist in the urban fringe or other locations.

#### Cost

The theoretical section talks about cost as a potential influence on builder size and concentration. Developments in large cities could potentially be more costly. Developers of an urban nature (located in or close to the city centre) are proven to be more expensive. Mainly because the use of that location is already more valuable, as opposed to rather inexpensive agricultural land (PBL).

While Somerville dismisses the notion of cost being a significant explaining variable for competition and builder size, this research won't completely dismiss cost being an important factor. However, by analysing the location of plans as well as the current land use, the research will address the cost in an indirect way. There will be no variables used for the sole purpose of explaining the potential impact of cost

## Methodology

In any research, it is important that the researcher makes clear choices on the research strategy and design. Core decisions that the researcher has to make are whether the research will be breadth or in-depth, theory or practice oriented, of quantitative or qualitative nature and whether it will be empirical or non-empirical (Verschuren & Doorewaard, 2010).

In this chapter, the decisions made regarding research design will be explained, as well as the data collection and validity and reliability of this research.

Firstly, a researcher has to choose between breadth and depth of a research. Breadth research entails collecting large amounts of data through – most often – a survey (Verschuren & Doorewaard, 2010, p. 160) in order to make statements that are generalizable towards a larger public. In the case of this research, this would mean a large amount of municipalities. This method does indeed have the advantage of generalizability, but lacks depth and complexity. In in-depth interviews, more often associated with a case-study, a researcher studies a specific case in order to make statements about that specific case with high amounts of certainty, elaboration and complexity. However, as this research aims to make statements with a high level of generalizability among as much municipalities as possible – by using a survey – there will be chosen for breadth research. This research aims to be of high generalizability in order to show the extent of the problem amongst the entirety of the Dutch market for land and housing

Secondly, it is important to distinguish whether this research will be theory or practice oriented. In theory-oriented research, a researcher attempts to add to an existing gap in knowledge, whereas in practice-oriented research there is a practical problem in a public or private organization that the researcher attempts to solve. This research does not attempt to solve a practical problem, but does attempt to add to a hiatus in literature. It is for this reason that this research will be of theory-oriented nature.

Furthermore, a choice is to be made on the quantitative or qualitative nature of this research. As earlier stated, this research will consist of a survey through which large scale data collection will take place. Verschuren & Doorewaard (2010) state that if a researcher opts for breadth research – which in its turn is associated with carrying out a survey – it is essential that the researcher carries out quantitative processing and makes a quantitative analysis (Verschuren & Doorewaard, 2010). This research aims to make statements about levels of monopoly on the market, which would best be conducted as a product of a quantitative analysis. It is therefore that this research will be of quantitative nature.

The last consideration to be made is whether this research is empirical or non-empirical. In non-empirical research, the researcher does not add new data to an already existing body of knowledge. The researcher makes conclusions based on researching the existing literature and data. This is also called desk-research. In empirical research, the researcher goes into the field to conduct research and collect new data. As the intention of this research is to carry out a large-scale survey and thus collect new data, this research is of empirical nature.

In conclusion, this research will be of breadth, quantitative, theory focused and empirical nature. Based on the aforementioned conditions, the research method of choice will be a large scale survey.

### 3.1 Data collection

The data collected will concern the building claims that private developers hold on municipal land. In researching and analyzing *grondexploitaties* (budgetting related to future developments) more clarity on actual ownership of land will be gained. With building claims, the official ownership lies with the municipality. In practice, though, municipalities do not possess any real power as developers hold the first right to build.

It is through this construction that it is unclear who holds rights on what locations, which causes any research on ownership rights to provide a distorted image on market structure as it does not take into account potential building claims.

However, as information on the prevalence of building claims is rather under-researched, it is difficult to examine what information can and cannot be retrieved. In order to tackle this problem as rapidly as possible there will be a preliminary round of exploring interviews with a small number of municipalities. In these interviews, insight will be gained into what data can be accessed. As knowledge on what data can be accessed is gained, a more effective survey can be constructed.

In this research, four preliminary interviews have been executed. Plan-economists and staff of the department for land matters of the municipalities of Amsterdam, Diemen, Utrecht and Deventer have been interviewed. This interview was used not to gain data on the impact that building claims have on market structure, but was used to gain insight on the way building claims and land exploitations are registered on a municipal scale.

Based off of the preliminary interviews, the survey form has been created. By using an excel format with "interactive" question option (questions will pop up based on answers given) the form is kept as efficient as possible. This way, the respondent was asked to put in little effort.

The survey was sent out to all municipalities located in provinces with either a public monitor regarding plan capacity or willingness to share data. Data used for the spatial analysis was collected through PDOK, a governmental organization collection and hosting geo-data, or open source ArcGIS data libraries.

The data received by municipalities does not contain any spatial information. The spatial information of a plan is linked to the information available on province level. Due to the fact that plan names are unique, information received from municipalities could be linked to spatial data. This provided a shapefile of 5 provinces, of which 34 municipalities contained further information.

By using shapefiles regarding characteristics operationalized in chapter 2.4, information could be added for each individual plan. Distance to trainstation was calculated with the layer "Station\_NS" and the measuring distance tool.

Information on the land typology was collected with the layer "main.bestand\_bodemgebruik\_2017" (This roughly translates to: "main file land use 2017"). This layer contains a large variety of sub-types of land typology, which was later recoded to fit into a more usable division. The typology "serviced land" is a product of multiple categories. This typology contains: dump, wreck storage facility, graveyard, mineral extraction site, building site, semi-hardened undefined land, park, sport terrain, allotment and recreational land. The typology "rural land" contains "agrarian land" and "forest and open natural land". These two typologies are further categorized as greenhouse horticulture, undefined agrarian land, forest, open dry natural land, open wet natural land.

By using the Tabulate Intersect tool, the attribute table was enriched with information on the land typology of each respective plan. This information deriving from this spatial analysis will later be used in the binary logistic regression.

### 3.2 Validity and reliability

In literature on methodology, there is a multitude in forms of validity. Examples of these are: predictive validity, face validity, ecological validity, construct validity, statistical validity or congruent validity (Van Thiel, 2014). The core of all these forms of validity stems from two main types of validity: internal and external validity.

In Van Thiel (2014), internal validity is described as validity referring to the cogency of the study itself: has the researcher really measured the effect they intended to measure. For this, two things are important. Namely, whether a certain theoretical construct has been adequately operationalized and whether the presupposed (causal) relationship between the independent and the dependent variable actually does exist.

It is therefore that internal validity of this research is of low relevance. This research is of descriptive nature and does not aim to test a causal relation, it merely aims to describe an under researched phenomenon.

External validity of research is the degree to which the population that is analyzed is representative (Verschuren & Doorewaard, 2015). In the case of this research, municipalities are the only research object. Potentially, lack of external validity could occur in the case that municipalities with one specific characteristic (for example an overrepresentation of large municipalities). However, generally speaking, external validity will be high as this research is aimed at a group of municipalities as large as possible.

External validity, additionally, refers to the question of whether the findings are generalizable. To what other populations, settings, treatment variables and measurement variables can this research be applied? (Campbell & Stanley, 1967, p. 9). The external validity of this research is disputable. Findings of this research will be applicable for Dutch municipalities in several situations regarding housing policies. However, as the Dutch market is quite unique, the findings of this research might not be applicable outside of the Netherlands.

Lastly, reliability concerns itself with the extent to which a research is repeatable. (Farthing, 2015). In this research, assuming a reasonable amount of time between a repeat of a similar research (in which not all building claims have been used), answers would normally speaking be the same. Building claims, their location and their size are not of subjective nature meaning that different people within the same municipality would logically provide similar answers to a survey.

In addition to the two core concepts of validity, Bryman (2016) adds measurement validity as well as ecological validity to a group of core validities. Of these two concepts, measurement validity is a relevant concept to discuss. Ecological validity is, due to its social scientific nature, not relevant for this research. Measurement validity applies mostly to quantitative research and how social scientific concepts are measured. In the case of this research, building claims and market structure are concepts that are measurable. A building claim has no subjective nature. Market structures, albeit more diverse than a yes/no answer, are measurable through statistical analyses.



## Survey responses and analysis

In order to address the research question “*To what extent does the building claim model provide developers with a monopoly on the Dutch market for land and housing?*” a survey has been carried out among Dutch municipalities. Information was requested about land exploitations that are planned to happen. In order to maintain a focus on plans that have a strong likelihood of being carried out, only hard plans were selected.

The survey was sent out to municipalities located in 5 provinces. North-Holland, Zeeland, Utrecht, Overijssel and Flevoland. This selection is based on the fact that this covers municipalities located in provinces willing to share their data. The plan-capacity was either publicly accessible, through a monitor, or was sent upon request. The not participating provinces either experienced problems sharing data with external parties or did not have a registration of this kind of data on a province-wide scale.

### 4.1 Characteristics of respondents

In this research, a total of 106 municipalities have been contacted in an attempt to receive data. As of March 2022 the amount of municipalities in the Netherlands is 344. However, due to the abovementioned limitations on accessibility of data, the maximum amount of municipalities that were accessible was set at 106. This is due to the fact that the first foundation was the availability of data regarding the plan capacity. This was the case in 5 provinces, resulting in amount of 114 municipalities.

Thus, the 34 responding municipalities result in a response rate of roughly 10% of the total amount of municipalities in the Netherlands. A response of 34 results in a response rate of roughly 30% of the addressed municipalities.

In order to assess the type of municipalities – and to analyse whether a certain type of municipality is overrepresented in the data, data on the responding municipalities will be set forth.

The municipality can be put into four categories regarding size: small, medium small, medium big and big. This is based on inhabitants. Small municipalities have less than 25000 inhabitants, medium small have 25000 – 50000 inhabitants, medium big municipalities have 50000 – 100000 inhabitants and big municipalities are municipalities with more than 100000 inhabitants. Table 1 shows the response characteristics in terms of municipality size.

Size of municipality	Response	Share in %	Non response	Share in %	Total
Small	6	5,1	111	94,9	117
Medium small	18	13,1	119	86,9	137
medium big	5	8,6	53	91,4	58
Big	5	17,9	23	82,1	28
Total province	34	29,8	80	70,2	114
Total national	34	9,9	310	90,1	344

Tabel 1



## 4.2 Survey results

The response when divided into is presented in table 2 below. Flevoland, a province consisting of only 6 municipalities shows large response percentage, due to the large population size this is a number that is heavily sensitive to margins of error. Noord-Holland and Zeeland both have a slightly higher response rate, respectively 11,4% and 29,7%. Overijssel and Utrecht, both provinces with a publicly accessible monitor for plan capacity, show a high response rate. As data to these province-wide monitors is provided by municipalities, there could be a relationship between a well-organized monitor and good data organization on municipal scale. Specifically Utrecht shows a high response rate, this is mainly due to the city of Utrecht being one of the respondent, heavily increasing the plan capacity reported upon.

Province	non-response	Share in %	Response	Share in %
Flevoland	16	0,1	14.543	99,1
Noord-Holland	87.765	88,6	11.321	11,4
Overijssel	17.979	59,6	12.173	40,4
Utrecht	22.071	49,6	22.388	50,4
Zeeland	7.341	70,3	3.102	29,7
Total of provinces	135172	68,0	63.527	32
Total of Netherlands	277.661	81,4	63.527	18,6

Table 2

As there are (roughly) three types of developments, the response has been coded into fitting one of these three. In absolute numbers, so to say "a development" that don't account for the size of a development, the responses are as seen in table 3.

Province	Private development		Municipal development		Building claim		Total
	Amount	%	Amount	%	Amount	%	
Flevoland	4	13,8	25	86,2	0	0	29
Noord-Holland	51	68,9	9	12,2	14	18,9	74
Overijssel	89	54,3	51	31,1	24	14,6	164
Utrecht	75	44,6	66	39,3	27	16,07	168
Zeeland	19	57,6	11	33,3	3	9,1	33
Total	238	47,8	162	40,4	68	11,7	468

Table 3

The provinces with the most reported building claims are Overijssel and Utrecht. However, in relation to total amount of developments, North-Holland shows relatively more building claims. Flevoland has no reported building claims. Overijssel and Utrecht are also the provinces with the most municipal developments. Based on these numbers an average of 11,7% of all developments in these provinces is a building claim.

However, different types of development show a different average capacity. Table 4 shows the characteristics of planned capacity for the three types of developments. Private developments tend to be smaller, with an average capacity of 113. Municipal developments show an average capacity of 146. Building claims on average are the largest developments.

Type of development	Plan capacity		
	Minimum	Mean	Maximum
Private development	2	113	4200
Municipal development	1	146	4250
Building claim	3	192	3048

Table 4

It is therefore of great importance that the focus goes past numbers of developments. In order to assess the true capacity of each type of development, the capacity of the developments will be analysed. As building claims on average are of a larger size, few building claims could be bigger in capacity than a large number of private and municipal developments.

Response	Private development		Municipal development		Building claim		Total
Province	Capacity	%	Capacity	%	Capacity	%	
Flevoland	6745	46,4	7789	53,6	0	0	14534
Noord-Holland	5618	49,6	291	2,6	5412	47,8	11321
Overijssel	5117	42	2647	21,7	4409	36,2	12173
Utrecht	8871	39,6	12216	54,6	1301	5,81	22388
Zeeland	440	14,2	734	23,7	1928	62,2	3102
Total	26791	38,4	23677	30,7	13050	30,4	63518

Table 5

This way of organizing the responses show a different divide. Table 5 sets out the characteristics based on absolute capacity. Utrecht has relatively few building claims when accounting for capacity. This could be explained by the way Utrecht phases their building claims into small developments. This means that theoretically one development is spread over multiple, smaller, developments. North-Holland, a province with a relative small number of building claims, does show that a significant part of the plan capacity touched upon in this research is a building claim.

### 4.3 Analysis of survey results

To analyse the results of the survey, and subsequently answer the research question, the three types of developments will be examined. The response size is limited and can, therefore, potentially not account for certain distortion of numbers.

#### *Municipal developments*

Municipal developments are developments where the municipality holds all responsibility for the development. This type of development is high risk, high reward. Following the financial crisis as well as the subsequent housing market crisis this became unfavourable for municipalities. Following the ongoing housing crisis in the Netherlands as of 2023, this type of development has become more favourable. In Figure (X), it can be seen that around 25 to 50 percent of all developments are municipal, with North-Holland being an outlier. This is highly probable to be a consequence of small population size. The average shows that 30,7 percent of all developments in this survey is a municipal development.

#### *Private developments*

Private developers have, as mentioned in chapter 2.3, obtained a strong position on the housing market. With numerous incentives to await “better times” or to artificially keep the flow of houses being built low, power on the housing market is exerted, often resulting in high prices of real estate. In this research, numbers show that on average 38,4 percent of developments are private. Zeeland is an outlier in this table, which could be explained by this province being one where population decrease is prevalent. This makes developing in this region less favourable. Nevertheless, on average private developments are more prevalent than municipal developments.

#### *Building claims*

The divide of developments into the binary system of private – municipal is the core of the problem this thesis presents. It does not account for land ownership in relation to building rights. In this thesis, this divide was made. Where normally research touched upon land ownership as an indication for what party would develop, this survey account for who who has building rights. This thesis shows that on average 30,4 percent of developments are one with a building claim.

### 4.4 Building claims as the grey area

Building claims, as stated before, are building rights belonging to a private developer located on municipal land. Therefore, in a situation not accounting for building rights, this would mean that grossly two-thirds of developments were municipal. In not accounting for these building claims, a distorted image is presented regarding the structure of the housing market. Furthermore, a distorted image is presented on the likelihood of rapid developments. As developers – both in their building claims and private developments – cannot easily be forced to commence a project by for example, local governing bodies or political forces, a major share of planned capacity relies on the willingness of developers.

#### 4.5 Characteristics of building claims

With information about the characteristics of buildings claims, more can be said on the effect building claims have on the market structure. In the survey, both the year of the agreement and the name of the developing partner were asked. While not all municipalities were willing to grant this information, some interesting things can be seen.

##### *The age of a building claim*

In table 6, we can see the year that each agreement was made. Building claims with an agreement coming into place in the future are left out of this table.

A few notable things can be seen in this table. Firstly, we see that 5 building claims are from before the 2000s. Along with the other pre-2008 building claims, these fit perfectly in the concept of land-banking. For the past 20 to 30 years, these positions have not been used to actually develop real estate.

After 2008, the year in which the financial crisis started, an increase can be seen in the amount of building claims. This fits in the tendency of municipalities to find ways to reduce risk in their land exploitations after the housing market stagnated greatly. In the post-2014 era, more building claims were agreed upon, but this could also be distorted due to the building claims not being “used” yet.

Year of agreement	N
1996	2
1999	3
2000	2
2004	1
2005	1
2006	3
2008	2
2009	6
2010	3
2011	1
2012	2
2013	1
2014	8
2015	1
2016	4
2017	1
2018	2
2019	3
2020	2
2021	2
2022	1

Table 6

### *Developers involved in building claims*

When looking at the prevalence or extent of a monopoly taking place on a market, it is vital to look at the dominance of a single market force. While the extent of this research is not a spatial analysis of regional housing markets, it is possible to look at who the developers are involved with the building claims.

While some municipalities simply replied with “real estate developer”, some also replied with what companies are involved in the building claims. When looking at these building claims, it can be seen that some companies are involved in multiple developments across the country.

In table 7, it can be seen that a large group of developers is involved in one building claim. This does not mean that this company is the sole party involved in a building claim. These parties are mainly involved in bigger exploitations in which multiple parties are involved. In this list, some bigger companies are involved (such as Volker-Wessel and AM) as well as local developers such as Maarssens Bouwbedrijf, Stichting Kennemer Wonen and Stichting Woonwaard.

Developers involved in one building claim
Belle Vue
Pro6-Vastgoed
AM
Vano Vastgoed
Volker-Wessel
Aan der Stegge
Koopmans Projecten BV
Maarssens Bouwbedrijf
Nijhuis
Mega
OCB
Stichting Woonwaard
Stichting Kennemer Wonen
VBM Ontwikkeling
Scholtens Projecten
Ooms Ontwikkeling
Roelofs en Haase
Van Riemsdijk
Groothuis
VanWonen

Table 7

In table 8, the developers holding multiple building claims are shown. Companies such as Heijmans, Thunissen and BPD are good examples of big developers. They hold multiple building claims, potentially exerting a strong force on the market.

Outliers in this research are Oostveen and Van Wanrooij. These companies are involved in 24 building claims. This is explained by the fact that the city of Utrecht has agreed upon many building claims with this developer. Big developments are split into multiple phases, resulting in multiple building claims.

This, however, does ensure that Oostveen and Van Wanrooij hold a strong market force in this regional market. As they decide when the building claim will be used, they can control the flow of a major new construction housing project.

Developers involved in 2-10 building claims	Number of building claims
Esdégé-Reigersdaal	2
Hallokaties II BV	2
Homan	2
Ter Steege	2
MJ de Nijs	2
Ten brinke	2
Tijdhof Hobema	2
BCD	3
Heijmans	3
Thunissen	4
Hoorne BV	4
Roosdom-Tijhuis	5
BPD	10

Table 8

The list of developers involved in this research show an interesting trend. A significant share of the companies involved are major players on the market. Comparing this list with the Top-50 developers of residential real estate of 2021 show that 6 of the top 10 biggest developers own building claims. In total, of all the 34 developers in the results of this research, 12 qualify in the Top-50 real estate developers. The Top-10 is even better represented in the research, with 6 builders placing in this ranking. It fits the presumed notion that builder size and prevalence of building claims are correlated.

In addition to this notion, this research also states that building claims on average have a larger capacity than other types of developments. Somerville (1999) states that builder size increases with market size. This means that on markets with more transactions, more bigger developers will be active.



## Analysis and results

In previous stages of the research, a division was made between three types of developments: Municipal exploitations without a building claim, municipal exploitations with a building claim and private developments. For the binary logistic regression, these have been recoded to fit the binary scope of the analysis.

Firstly, table 1 presents the descriptive statistics of responses characteristics. Table 2 will show the binary logistical regression analysis. Following the division made in the operationalisation of the variables, regression analyses will be done in thematic blocks. This results in table 2 consisting of three models. The first model consists only of cost variables. The second one consists of both cost and supply variables. The third model uses cost, supply and demand.

This order is selected on the basis that cost, in essence, is expected to be the most important factor in determining whether a location is desirable. A developer will not settle on a location – even if the land typology is suboptimal – if the financial picture is not ideal. After that land typology, theoretically, is an important deciding factor in desirability of a plan location. Demand, theoretically is high, but is only a derivative of houses once they are built. These variables however, can be an indication of activity and thus of how desirable a place is.



**Table 1:** Descriptive statistics of responses characteristics.

	No building claim	Buiding claim	Total
<b>Cost</b>			
Outskirt	203	58	261*
Inner city	155	5	160*
<b>Supply of land per land typology</b>			
Serviced land (%)	,26	,18	,22
Rural land (%)	,15	,68	,42
<b>Demand</b>			
Transactions	1890	2091	2041
Average price of housing (in €)	419305	437961	428633
Distance to train station	2020	2141	2081

*Notes:* For variables “Outskirt” and “Inner city” number of respondents. Land typology is measured in percentage. \* values are an accumulation of responses

As a first means of presenting the data created through ArcGIS, table 1 describes the responses received through the survey, that have later been connected with spatial information. The division “no building claim” and “building claim” shows either the average value or an accumulation of responses, which is the case for the variable cost – subdivided by outskirts or inner city.

Table 1 shows the first signs that building claims are mostly prevalent in the outskirts of towns. For the cases with no building claim, the divide is less clear, but outskirts still are more prevalent. This creates the assumption building claims are potentially explained by their location in or outside of a town.

For the average percentage of land typology, building claims are strongly affiliated with rural land, table 1 shows. Projects without a building claim do not appear often on either serviced land or rural land, with the added averages only adding up to 41% of the “land mass” of planned capacity. This could be explained by the fact that this category also contains projects owned by municipalities – potentially less focused on maintaining a perfect business model.

In demand variables, small differences occur between transactions, average price and distance to train stations, with the category “building claims” showing slightly higher results. A higher price in houses in the category building claims can potentially be a first indication of real estate developers holding positions in “higher-end” locations (and not in, for example, area’s where prices are relatively low and – due to a decrease in population - housing is in low demand).

**Table 2:** Binary logistic regression model results.

	Model 1		Model 2		Model 3	
	Exp(B)	Wald	Exp(B)	Wald	Exp(B)	Wald
<b>Cost</b>						
Outskirt	,589**	3,854	-,129	,139	1,565	3,003
Inner city	-1,910***	14,595	-,773	1,756	,798	,671
<b>Supply of land per land typology</b>						
Serviced land			1,115	3,597	1,191**	3,997
Rural land			3,121***	33,042	3,546***	37,618
<b>Demand</b>						
Transactions					,000	,983
Average price of housing					,000	4,380
Distance to train station					,000	2,961
Constant	1,524***		3,012***		7,198***	

Notes: Significant at \*\* 95% level \*\*\* 99% level.

In Table 2, Model 1 shows that both variables to be significant in predicting the prevalence of a building claim. An increase of 1 percent point in the amount being located in the outskirts of a town, shows an increase of 0,589 in building claims. An increase of 1 percent point in the amount being located within the centre of a town, shows a decrease of 1,910 in building claims. This follows the literature regarding the costs related to developing in different locations. Inner city developments are financially less feasible due to a multitude of factors, as earlier described in the data. This makes these locations less favourable, which is reflected by the analysis of the survey data, it also reflects the assumptions made on the base of table 1.

Model 2 of table 2 incorporates both cost and supply of land per land typology. While this research contains data on a multitude of types of land, not all are used in this research. Certain types of land, such as industrial land or land where houses are already present, are deemed irrelevant for this analysis. For that reason two types of land are incorporated in this research: rural and serviced land. Rural land, due to its characteristic is, theoretically, regarded as ideal for real estate developments. Serviced land, without any limitations to build upon is logically regarded as a fit for purpose location.

In this model, only the rurality of a location is a significant variable (at a 99% level). For every percent point increase of rurality, the chance of a building claims increases 3,121. In contrast to model 1, the location of a plan does not show a significant influence on building claims. Rural land being a significant variable for building claims is an expected outcome, as the descriptive statistics of the responses strongly suggested such a connection.

In model 3, all three concepts and subsequent variables have been incorporated into the analysis. This means that in addition to model 2, demand has been added. Transactions and average prices have been elected as variables. In addition to this, distance to public transport amenities has been incorporated in the form of NS train stations.

Model 3 shows multiple interesting outcomes. Firstly: both serviced land and rural land are of significant influence on the prevalence of building claims. Serviced land, significant at a 95% level shows that for every percent point increase in serviced land, the chance of a building increased 1,191. Similar to model 2, rural land shows the biggest – even more so in model 3 – positive influence on building claims. Significant at a 99% level, a one percent point increase shows an increase of 3,546 in the chance of a building claim. The variables for demand show no influence, nor any significance, which is in line with the expectations created by table 1, showing practically no difference in average values. An explanation for the statistical insignificance shown in table 2 could be the fact that demand is shown for houses that are already developed, and is not a good measurement for demand for building claims.

## 5.1 Conclusion

In this chapter, the results of the previous chapter will be used to answer the main question of this research.

### Research question and subquestions

The main research question of this research is *“To what extent does the building claim model provide developers with a monopoly on the Dutch market for land and housing?”* This question is divided in three subquestions, with which the main research question will be answered indirectly. The three subquestions are:

- *What is the share of building claims in the total plan capacity?*
- *Does a relation exist between builder size and building claims?*
- *Are the variables of impact on builder size and competition also of impact on building claims?*

These subquestions will first be discussed individually, after which an answer to the main question will be given.

#### *What is the share of building claims in the total plan capacity?*

When looking at the share of building claims in the total plan capacity a distinction has been made in how to regard the results. When looking at plans (not accounting for the capacity of each plan), the data shows that 11.7% of the researched plans are a building claim.

When accounting for the capacity of each plan, the results are different. A total capacity of 13050 dwellings is part of a building claim, of a total researched capacity of 63518 dwellings. This, of course, is a small share of the national planned capacity. This means two things: The responses only being a small share, affects the generalizability. However, it does provide a strong idea that the national planned capacity is covered by building claims to a certain extent. Undisputed is the fact that a sizable share of the planned capacity that are registered as municipal developments are in hands of real estate builders, who hold the

#### *Does a relation exist between builder size and building claims?*

power in the process of house building.

The relationship between builder size and building claims is a question that can not be answered definitely. Not all municipalities have provided the names of the real estate developers that are involved with the building claim. However, as chapter 4.5.2 described, 6 of the 10 largest building companies are mentioned in the survey results, providing the idea that mainly big companies are involved with building claims. Almost half (12 of 34) are in the top-50 of builders. The survey data, unfortunately, does not provide a great deal of information on who owns the building claims. Names of developers are only sporadically provided by municipalities. In the current survey data, only 0,7% (4652 dwellings) of the capacity can be attributed to a specific developer. It can therefore only be concluded that a relationship exists between builder size and building claims. The extent of which remains to be further investigated. In conclusion, it is mainly large builders that participate in building claims. The survey data, additionally, shows that building claims on average have a higher capacity. This would fit the notion of big builders being involved with building claims, rather than small real estate developers.

### *Are the variables of impact on builder size and competition also of impact on building claims?*

After analyzing all involved variables in their respective influence on the prevalence of building claims, it can be concluded that land typology is the most impactful factor in predicting building claims. In answering the question, it can be concluded that supply is the most relevant factor. Market activity and accessibility – as a part of the concept “demand” – are not relevant, nor significant. It can be argued that land typology is not only a part of “supply”, but also partially regards costs. Land typology and characteristics, as earlier explained, heavily affect the effort and investments needed for servicing land for real estate developments.

This does provide a first look into the idea that rural, agricultural land is more likely to be covered by building claims. Especially these locations, where significant capacity could – and in the current situation should – be added, are ideal for building claims, survey data shows.

With regards to the question whether these factors are also of influence on competition, it can be said that these locations are more prone to real estate developers holding positions. Ergo, competition on these locations is affected. Especially on these – relatively cheap and easy – locations, positions are held by developers.

#### Main research question

For several reasons, it can not be concluded that a monopoly on the market has been created. Firstly, location is only taken into limited account in this research, meaning that it can not be concluded whether a regional market is dominated by one developer. Secondly, the general share of does not indicate that a developer holds full control over the market for housing.

It can however be concluded that the structure of the market is significantly different than currently being displayed. The results show that when accounted for building claims, a shift happens in what type of development is most prevalent. This means that a bigger share of the plan-capacity is in the hands of private, often larger developers.

When linking this to earlier mentioned theories on the market for land and housing, this could explain the low-pace of the market for housing. The low pace is not necessarily linked to the “accidental” delay described by Buitelaar & Van Schie (2018), but linked to the land-banking tactic in which land is intentionally left undeveloped in order to increase profits. Specifically looking at the age of some building claims, it can be concluded that this would not be a problem with policy or regulations. The age of some building claims extends the “normal” time a development would take, and even the period of time a delayed project would take. Building claims that are 20 years old exceed the timeframe for preparation of the land or soil remediation. Building claims that are younger, could potentially be prone to delay due to changing market circumstances, although this is highly debatable in a time where housing is in high demand and prices are high.

However, when looking at the extent to which building claims have a possible impact on the level of competition in the housing market, it is apparent that holding a building claim provides developers with a power that only the developer can exert. Building claims, some of old age, can be seen as types of land banking.

Building claims, thus, are a type of development that must be taken into account when making statements about the market structure or when presenting – political – plans combatting the housing crisis. Building claims cover a sizable part of the current plan

capacity, and is a factor to strongly take into account due to the power it gives to real estate developers.

### 5.3 Discussion

Since this thesis has limits regarding time and resources, the extent to which the research question can be answered is limited as well. In this chapter, a discussion about the performed research, and recommendations for further research are presented.

#### Performed research

Firstly, building claims are a relatively poorly-researched subject. Not being able to build upon existing knowledge presented numerous problems in the orientation phase of the research. Time was lost in trying to access correct data. Multiple times, data was promised to be accessible, while this ended up not being the case. This resulted in lack of speed in the research and time limitations.

Secondly, the surveys were carried out during the time when the majority of municipalities were on summer recess. This meant that responses were slow, or delayed. On this aspect, also, time was lost.

Furthermore, a certain sense of reluctance was prevalent amongst municipalities when presented with questions about municipalities. Carrying out the research while being an intern at the VNG provided a "way in", but as building claims are a contract between municipality and developer information is preferably kept private. This also resulted in only a part of building claims being provided with full transparency. Information on the parties involved in building claims was only sporadically provided, negatively affecting both the internal and external validity of this aspect.

Currently, limited information regarding parties involved is at hand. This influences the extent to which claims can be made regarding the relationship between builder size and building claims. With the current data it can only be concluded that a relationship exists, as a significant number of the largest builders are mentioned in the survey data. However, with more complete information regarding the capacity these developers hold, more conclusive statements could be made.

Great effort has been put into the spatial analysis, enriching the dataset with spatial information on land use, typology, distance to certain locations and area of a planned development. Compromises have been made due to the limitations of ArcGIS Pro in combination with data being not available. This research relied on readily available shapefiles and datasets, which limited the research. With datasets on for example bus stops or highway connections, accessibility as a potential explaining variable could have been researched more extensively. The shapefile on land typology dated from 2017, which is sub-optimal. This was the most recent workable shapefile.

#### Further research and recommendations

Since this thesis has limitations, there was no possibility to research the full extent to which building claims are prevalent on the Dutch market for land and housing. The research, as earlier mentioned, had to compromise on certain aspects. This chapter proposes improvements and recommendations of which further research could benefit.

The research strongly relied on retrieving existing data. Data collection proved to be a process that delayed the research. Limited data was received, in turn limiting the extent of the research. ABF Research possesses a great pool of data but was not willing to share data for this research. PBL hosts "The Atlas of the region". This public monitor hosted by PBL on for example land ownership hosted is not a workable file, with no options to export or

download data. PBL was not willing to share the data for this research. Having access to data on a nation wide scale could drastically change the results and would provide a full picture.

The research data was received through municipalities, putting a limitation on data representativeness. The survey was executed in a period where some municipalities were understaffed due to summer recess, which can be an explanation for the response rate. The method of this research (collecting information on plans, linking this to existing shapefiles of plans, adding spatial information to these plans) limited the data collection to municipalities in provinces that host a publicly accessible monitor. Only a limited number of provinces do this, while the assumption is that more provinces host this type of information internally. For example the province of South-Holland was not willing to share this kind of data.

Data collection in a standardized format would be beneficial to analysis of the data. If more information had been available on a national scale, the survey could potentially have been shortened. The current research involved a great deal of questions, as practically no information was available. As a consequence, the survey was prone to mistakes on behalf of the respondents as the format was rather "free". The questions were selected with care, but still left room for mistakes due to the open answers. A standardized, shortened survey would prove more practical in theory, but was not appropriate for this research.

## 6. References

- ABF Research. (2022, 8 februari). Inventarisatie Plancapaciteit Mei 2021. Retrieved April 5 2022, van <https://abfresearch.nl/publicaties/inventarisatie-plancapaciteit-mei-2021/>
- Acs, Z. J., & Audretsch, D. B. (1987). Innovation, Market Structure, and Firm Size. *The Review of Economics and Statistics*, 69(4), 567-574. <https://doi.org/10.2307/1935950>
- Adams, D., & Tiesdell, S. (2012). *Shaping Places: Urban Planning, Design and Development* (1st ed.). Routledge.
- Ball, M. (1983) *Housing Policy and Economic Power*. London: Methuen.
- Ball M. Markets and the Structure of the Housebuilding Industry: An International Perspective. *Urban Studies*. 2003;40(5-6):897-916. doi:[10.1080/0042098032000074236](https://doi.org/10.1080/0042098032000074236)
- Ball, M., Lizieri, C. and MacGregor, B. D. (1998) *The Economics of Commercial Property Markets*, London: Routledge.
- Benassy, J.-P. (1991). *Chapter 37 Monopolistic competition. Handbook of Mathematical Economics, 1997–2045*. doi:10.1016/s1573-4382(05)80012-8
- Bramley, G. (1993). The impact of land use planning and tax subsidies on the supply and price of housing in Britain. *Urban Studies*, 30(1): 5-30
- Broitman, D., & Koomen, E. (2015). Residential density change: Densification and urban expansion. *Computers, Environment and Urban Systems*, 54, 32-46.
- Bryman, A. (2016). *Social Research Methods*. Oxford University Press.
- Buitelaar, E. (2018). Bouwen niet verboden. <https://www.ruimteenwonen.nl/bouwen-niet-verboden>
- Campbell, D. T., & Stanley, J. C. (1967). Experimental and Quasi-Experimental Design for Research. *Handbook of Research on Teaching* (1963). <https://doi.org/10.1037/022808>
- Chamberlin, E. H. (1949). *The Theory of Monopolistic Competition* (6th edition). Oxford University Press.
- Christopher De Sousa (2000) *Brownfield Redevelopment versus Greenfield*



Development: A Private Sector Perspective on the Costs and Risks Associated with Brownfield Redevelopment in the Greater Toronto Area, *Journal of Environmental Planning and Management*, 43:6, 831-853, DOI: [10.1080/09640560020001719](https://doi.org/10.1080/09640560020001719)

Claassens J, Koomen E, Rouwendal J (2020) Urban density and spatial planning: The unforeseen impacts of Dutch devolution. *PLOS ONE* 15(10): e0240738. <https://doi.org/10.1371/journal.pone.0240738>

David Adams & Christopher De Sousa & Steven Tiesdell, 2010. "[Brownfield Development: A Comparison of North American and British Approaches](#)," [Urban Studies](#), Urban Studies Journal Limited, vol. 47(1), pages 75-104, January.

Eddo Coiaccetto (2009) Industry Structure in Real Estate Development: Is City Building Competitive?, *Urban Policy and Research*, 27:2, 117-135, DOI: [10.1080/08111140802499080](https://doi.org/10.1080/08111140802499080)

Damanpour, F. (2010). An Integration of Research Findings of Effects of Firm Size and Market Competition on Product and Process Innovations: Product and Process Innovations. *British Journal of Management*, 21(4), 996-1010. <https://doi.org/10.1111/j.1467-8551.2009.00628.x>

Deloitte & MinisterieBZK. (2021, juni). *Grond voor transitie: Verkenning grondbeleid ten behoeve van landbouw, energie en wonen*.

Doak, J. and Karadimitriou, N. (2007) (Re)development complexity and networks: a framework for research, *Urban Studies*, 44(2), pp. 209–229.

Dugger, W. M. (1977). *Social Economics: One Perspective*. *Review of Social Economy*, 35(3), 299–310. doi:10.1080/00346767700000037

Buitelaar, E., & Pouls, G. (2009). Marktconcentratie en woningbouw. *Real Estate Research Quarterly*, 45–51.

Eckhart, W. 1985. On the Land Assembly Problem. *Journal of Urban Economics* 18(3): 364-378.

Eggertsson, T. (1990). *Economic Behavior and Institutions: Principles of Neoinstitutional Economics (Cambridge Surveys of Economic Literature)*. Cambridge University Press.

Farthing, S. (2015). *Research Design in Urban Planning: A Student's guide*. Thousand Oaks, CA: SAGE Publications. Retrieved from <https://us.sagepub.com/en-us/nam/researchdesign-in-urban-planning/book242833#description>

Gal-Or, E. 1986. Information Transmission-Cournot and Bertrand Equilibria. *Review of Economic Studies* 53: 85-92.

Golland, A., & Boelhouwer, P. (2002). Speculative housing supply land and housing, markets: A comparison. *Journal of Property Research*, 19(3), 231–251.  
<https://doi.org/10.1080/09599910210151332>

Healey, P. (1985). The Professionalisation of Planning in Britain: Its Form and Consequences. *The Town Planning Review*, 56(4), 492-507.

Hirschey, M. *Managerial Economics*. Rev. Ed, page 451. Dryden 2000.

Hodgson, Geoffrey M., 2001, *How economics forgot history*. London, Routledge.

Janz, G. (2021, juli). *Openness To Degrowth Housing in Veendam (Centre)*:

King, Roger, 1976, *Farmers co-operatives in northern Nigeria*, PhD thesis. Reading, University of Reading.

Lancaster, K., 1975, Optimal product differentiation, *American Economic Review* 65, 567-585.

Langlois, Richard N., 1986, 'The New Institutional Economics: an introductory essay', in Richard N. Langlois (Ed.), *Economics as a process: essays in the New Institutional Economics*. Cambridge, Cambridge University Press.

Lawson, Tony. (2013). What is this 'school' called neoclassical economics?. *Cambridge Journal of Economics*. 37. 947-983. 10.1093/cje/bet027.

Leland, H.E., 1977, Quality choice and competition, *American Economic Review* 67, 127-135.

Lerner, A.P. (1934) The Concept of Monopoly and the Measurement of Monopoly Power. *The Review of Economic Studies*, 1, 157-175. <http://dx.doi.org/10.2307/2967480>

Maclennan, D., & Tu, Y. (1996). *Economic perspectives on the structure of local housing systems. Housing Studies*, 11(3), 387–406. doi:10.1080/02673039608720864  
*Measuring Openness to Degrowth Housing in Veendam.*

MinisterieBZK (2021). Staat van de Woningmarkt.

Nagelkerke, A.. (1994). De klassieke institutionele economie en de mainstream: Een passage langs oude en nieuwe thema's. *Journal of Stroke & Cerebrovascular Diseases - J STROKE CEREBROVASC DIS.* 21. 217-229.

Needham, B. (2014). *Dutch Land-use Planning*. Routledge.

Needham, B. and Kam, G. de (2004) Understanding how land is exchanged: co-ordination mechanisms and transaction costs, *Urban Studies*, 41, pp. 2061–2076.

North, D C., 1989, 'Institutions and economic growth: an historical introduction', *World Development*, 17 (9), 1319–32.

Onozaki, T., & Yanagita, T. (2003). *Monopoly, oligopoly and the Invisible Hand. Chaos, Solitons & Fractals*, 18(3), 537–547. doi:10.1016/s0960-0779(02)00675-6

Ott, S.H., Huguen, W.K. & Read, D.C. Optimal Phasing and Inventory Decisions for Large-Scale Residential Development Projects. *J Real Estate Finan Econ* **45**, 888–918 (2012). <https://doi.org/10.1007/s11146-011-9299-y>

Pat McAllister, Emma Street & Pete Wyatt (2016) An empirical investigation of stalled residential sites in England, *Planning Practice & Research*, 31:2, 132-153, DOI: 10.1080/02697459.2015.1115658

Perloff, J. *Microeconomics Theory & Applications with Calculus*. page 445. Pearson 2008

Scheele-Goedhart, J., & Van der Reijden, H. (2008). Plancapaciteit stedelijke regio's 2008 (99630). Amsterdam: RIGO Research en Advies BV. Opgehaald van <https://zoek.officielebekendmakingen.nl/kst-31700-XVIII-11-b1.pdf>

Segeren, A., Needham, D. B., Groen, J., & Noorman, N. (2005). *De markt doorgrond: Een institutionele analyse van grondmarkten in Nederland*. Rotterdam : Nai Uitgevers.

<https://repository.ubn.ru.nl/handle/2066/46991>

Shapiro, C. (1989). *Chapter 6 Theories of oligopoly behavior. Handbook of Industrial Organization Volume 1*, 329–414. doi:10.1016/s1573-448x(89)01009-5

Shepherd, W. G. (1972). The Elements of Market Structure. *The Review of Economics and Statistics*, 54(1), 25-37. <https://doi.org/10.2307/1927492>

Söderbaum, P. (1994). *Actors, ideology, markets. Neoclassical and institutional perspectives on environmental policy. Ecological Economics*, 10(1), 47–60.

doi:10.1016/0921-8009(94)90036-1

Somerville, C.T. (1999), The Industrial Organization of Housing Supply: Market Activity, Land Supply and the Size of Homebuilder Firms. *Real Estate Economics*, 27: 669-694. <https://doi.org/10.1111/1540-6229.00788>

Stewart, M. B. (1979). *Monopoly and the choice of product characteristics. Economics Letters*, 2(1), 79–84. doi:10.1016/0165-1765(79)90209-x

Strange, W.C. 1995. Information, Holdouts, and Land Assembly. *Journal of Urban Economic*. 38(3): 317-332.

Titman, S. (1985). Urban land prices under uncertainty. *The American Economic Review*, 75(3): 505-514.

Vargas Hernández, José G. (2006). Institutional Economics of Co-Operation and the Political Economy of Trust. *Revista Venezolana de Ciencias Sociales*, 10(2),308-322.[fecha de Consulta 28 de Abril de 2022]. ISSN: 1316-4090. Disponible en:

<https://www.redalyc.org/articulo.oa?id=30910203>

Verschuren, P., Doorewaard, H., & Mellion, M. J. (2010). *Designing a Research Project*. Van Haren Publishing.

Van der Krabben, E. (2021, oktober). *De werking van de grondmarkt: Gevolgen voor woningbouw en functioneren grondmarkt*.

Van Schie, M., Breedijk, M., & Buitelaar, E. (2018). De grote bouwspagaat. Publieke binnenstedelijke doelen en private buitenstedelijke belangen. *Ruimte + Wonen*, 1: 22-31.

van Thiel, S. (2014). *Research Methods in Public Administration and Public Management* (1st ed.). Taylor & Francis.

Veblen, T. (1908). *On the Nature of Capital*. *The Quarterly Journal of Economics*, 22(4), 517. doi:10.2307/1884915

Verschuren, P., & Doorewaard, H. (2015). *Het ontwerpen van een onderzoek* (5th ed.). Boom Lemma.

Vives, X. 1990. Trade Association Disclosure Rules, Incentives to Share Information, and Welfare. *Rand Journal of Economics* 21 (3): 409 410.

Wiggins, S., & Davis, J. (2006). *Economic Institutions*.