ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis [program Urban, Port, and Transport Economics]

A theoretical analysis of inherent inefficiencies in the current and three proposed Dutch social housing policies.

Name student: Jeffrey van Gils

Student ID number: 413059

Supervisor: Jeroen van Haaren

Second assessor: Giuliano Mingardo

Date final version: 27th of august 2019

Abstract

This paper examines inherent inefficiencies of Dutch social housing policy from an economic point of view. Using a systematic and theoretical approach, this paper analyzed the current policy, and three proposed policy changes. Building on basic Supply and Demand theory this paper found inherent inefficiencies when housing subsidies are not differentiated to individual household circumstances. This paper found that this inefficiency occurs in both the current social housing policy as well as in one of the proposed changes. The two other proposals do not suffer from this inherent inefficiency and can potentially result in an optimization of the Dutch social housing policy. This paper fills a void in current literature where recently made proposals for social housing policy changes have not been systematically compared on their economic fundamentals. The results of this paper should be used by researchers and policymakers aiming to improve Dutch social housing policy. Finally, this paper also discusses potential spillover effects when applying individually differentiated housing subsidies, such as social segregation and poverty traps.

Foreword

Writing this foreword denotes the end of my work on this thesis. After a period of two months, the final result is something I am proud of and something that I could not have done without the valuable and much appreciated help of my thesis supervisor; Jeroen van Haaren, Senior researcher Urban Economy and Real Estate at Erasmus University Rotterdam. Besides general advise on the thesis writing process, his advice and insights on the Dutch housing policy were very helpful in order to gain a full understanding of such a complex topic.

For this thesis I also conducted two interviews. These interviews have not been directly incorporated into the thesis but the information gathered from Peter Boelhouwer, Professor Housing Systems at TU Delft, and Hens Zoet, Senior Policy Advisor Housing at the municipality of The Hague, helped form a complete image of how the Dutch social housing sector operates. These interviews also proved incredibly valuable with the gathering of relevant literature and information. For their contributions, I would like to express a sincere “thankyou”.

Chapter 1: Introduction

This thesis is about Dutch social housing policies. Recently the Dutch social housing supply has decreased compared to demand, resulting in long queues for those requiring social housing. Evaluating the Dutch social housing sector and analysing suggestions to reducing the shortage of supply is this thesis its primary focus. Specifically its research question is:

To what degree can the Dutch social housing policy be made more efficient by moving from rent-controlled prices to market prices?

The topic is not new, but a systematic analysis is useful to identify common ground in approaches that have been developed these past decades. A specific approach is highlighted in this thesis, as it looks at one of the proposed future paths described by the Ministry of Finance in their 2016 report[1]. In this report the authors propose to have the social housing market operate at market price levels - combined with individual housing subsidies.

This thesis provides theoretical insight into how the Dutch social housing policy works currently, and what the consequences are of changing it to a different system. Furthermore, this thesis examines how the goals of the social housing policy, such as affordability can be ensured by using a more extensive form of individual housing subsidies. In addition to the path proposed by the Ministry of Finance, two other solutions have been examined, in order to benchmark the viability of the aforementioned policy. These solutions are brought forward by two groups of housing associations, the primary providers of social housing in the Netherlands.

In Chapter 2, previous contributions are discussed that propose different changes to the Dutch social housing market. By constructing theoretical models for both the current social housing system as well as the three proposals, this paper aims to provide an objective method of comparing the systems and highlighting both their strengths and weaknesses. This paper focuses primarily on economic market forces, it is worth noting that besides this focus there are numerous other relevant disciplines to evaluate social housing policy. Ethical, moral and political arguments can all influence which policy choices should be made. Nevertheless, this thesis considers social housing policies from an economic perspective. It should be noted that both the current Dutch social housing policies and the proposed policies can and most likely do contain inefficiencies that are outside the scope of the models discussed in this thesis.

To further define the research question of this thesis it is important to establish what constitutes as ‘a more efficient policy’, how the current system works, and what individual housing subsidies are.

[1] (Ministerie van Financiën, 2016)

Efficiency is used in this paper as 'achieving the same outcome with less government spending, or achieving more with the same level of government spending'. In other terms any new system or new policy should at the very least be budget-neutral. Both the current system and individual housing subsidies are explained in Chapter 2.

The first hypothesis is used to examine whether changing the social housing policy can contribute to reducing the shortage of supply: **Expanding individual housing subsidies can reduce the mismatch between supply and demand on the Dutch housing market.** Expanding individual housing subsidies should in the context of budget-neutrality be seen as increasing subsidies provided at the demand-side of the equation at the cost of supply-side subsidies.

Social housing in the Netherlands is provided via access to a rent controlled market segment for those that earn below a certain income threshold. Prices below this threshold are the same for all households, no matter if they earn 5% below the threshold or 50%[2] . This creates a system were some households are 'over-subsidized' and others are 'under-subsidized'. Under-subsidization is addressed through additional individual rental subsidies however over-subsidization is not addressed. To test if this inefficiency is present the second hypothesis is: **Rent-controlled social housing introduces an inherent inefficiency that can be prevented with individual subsidies.**

A short overview of the structure of this paper is as follows:

- Chapter 2 provides an overview of how the social housing market currently operates in the Netherlands as well as discusses previous contributions and suggestions to Dutch social housing policy
- Chapter 3 introduces economic models that are used to systematically assess the different policies.
- Chapter 4 discusses the results and findings from the models.
- Chapter 5 concludes the research by answering the hypotheses and research question. This chapter also discusses various limitations of the models, and gives suggestions for further research.

[2] In the context of the models discussed in this paper the prices can be seen as the same. In reality the social market segment offers more than a single housing product and thus provides some variety in price levels.

Chapter 2: Social housing: Mechanisms, actors and visions in a complex system

Housing associations as hybrid public-private companies

Housing associations are historically publicly-funded, private companies tasked with providing affordable housing to eligible households through the provision of rent controlled housing units.[3] These housing associations provide the vast majority of all Dutch social housing and in 2018 owned roughly 30% of all housing units in the Netherlands[4]

Housing with a rental price below a certain threshold (€720,42 per month for 2019[5]) is classified as social housing. This threshold is determined via a point scoring system (WoonWaarderingsStelsel) provided by the Dutch national government. The number of points is dependent on factors such as floorspace, energy efficiency rating, and quality of the appliances in the house. As of 2019 housing units up to a maximum of 141 points[6] are restricted to rules set for the Social housing market. Housing that for any reason has become worth more points after a rental agreement has been reached are still subject to the rules set for the social housing sector. This is noteworthy because since 2015 the real estate valuation has a larger impact on the amount of points, raising point values for many housing units.[7]

Social housing is subject to a set of special rules. These include: a limit on the maximum rental price, depending on the number of points as described above, a cap on the yearly increase of rental prices, depending on household income, and a household inhabiting social housing is eligible for rental subsidies, dependent on household income and rental prices.[8]

Target groups

Housing associations are by law required to rent out 90% of their freely available social housing units to the two target groups, the primary target group consists of households with a maximum income of €38.035, the secondary group consists of households between €38.035 and €42.436. At least 80% of the

[3] (Elsinga & Wassenberg, 2014)
[4] (Central Bureau for Statistics, 2019)
[5] (Rijksoverheid, n.d.-a)
[6] (Huurcommissie, 2019)
[7] (Blok, 2015)
[8] (Rijksoverheid, n.d.-b)

total rental units need to be rented to the primary group. The remaining 10% of the total housing units can be freely assigned, on the condition that certain groups are given priority.[9]

Further the rules state that a minimum of 95% of the households earning below the 'individual rental subsidies' (huurtoeslag) threshold should be housed in units costing a maximum of €607,46 (single person household) or €651,03 (multi-person household).[10]

Households looking to rent social housing need to sign up at the relevant organisation in the region. Depending on the municipality additional rules, such as requiring the individual to already live or work in the municipality, can apply. For those without mitigating circumstances waiting times for social housing can reach up to 10 years.[11]

Individual rental subsidies

In the Netherlands households earning below a certain threshold and living in social housing are eligible for rental subsidies, called 'huurtoeslag'. The income threshold differs for single- and multi-person households. The level of income and the price of the social rental unit determines the amount of subsidies a household gets.[12]

From 2020 and onward the threshold for this subsidy will be changed from a single hard threshold to a more gradual reduction. This change aims to reduce the instant fall-off that occurs when a household earns a little more. This way the 'poverty trap'[13] gets reduced.[14] It should be noted that a recent study[15] has found no correlation that the poverty trap resulting from the current policy is actually encouraging households to optimise their income around these income threshold. The study suggests that this lack of optimization is most likely due to a lack of knowledge (among households) surrounding the policy and it agrees that a gradual reduction of the individual rental subsidy can be seen as appropriate.

Besides the income level of a household the price of the rental unit plays a role in determining the height of the rental subsidy. The following example was calculated with the trial calculation tool of the Dutch Tax Agency.[16] Currently, a single person household older than 23 years old, earning €20.000 per year, and paying €520 per month in rent receives €161 per month in rental subsidies. If the same

---

[9] (Rijksoverheid, n.d.-c)
[10] (Rijksoverheid, n.d.-c)
[11] (Rijksoverheid, n.d.-d)
[12] (Rijksoverheid, n.d.-e)
[13] "...include institutional failure which can, by itself, perpetuate self-reinforcing poverty." (Azariadis & Stachurski, 2005)
[14] (Ollongren, 2018)
[15] (Bosch, Jongen, Leenders, & Möhlmann, 2019)
[16] (Belastingdienst, n.d.)

households lives in a home costing €620 per month the subsidy increases to €223 per month. The resulting situation is that although the price level of the housing unit increased by €100, the household only pays an extra €38 per month.

This method of granting rental subsidies has downsides as mentioned in the 2016 report by the Ministry of Finance.[17] They mention that resulting from the current system, households have little incentive to look critically at their rental expensenses, since moving into a cheaper rental unit has little effect on the total rental expense. Besides households, the housing corporations are also perversely incentivized as mentioned in a 2018 paper by a group of housing associations.[18] Since the inhabitants get the extra costs largely subsidized through the rental subsidy, housing associations can easily earn more money and provide higher levels of comfort by raising rental prices to just below the limit imposed by the previously mentioned rule, requiring 95% of households eligible for these subsidies to live in homes below a certain price. To combat this perverse incentive, a key point made in a vision on future social housing policy by a group of housing associations is to completely separate the amount of rental subsidies a household receives from the price of the rental unit.[19]

Financing Social housing - State aid

Social housing in the Netherlands is financed in a unique manner. Besides providing direct subsidies to low income households in the form described previously, the Dutch government does not provide any direct form of subsidies. Instead the housing associations are expected to bear the costs associated with providing housing units at below market prices.

The European Commission argued however that state aid was being provided that benefitted housing associations in their activities.[20] The measures have to do with state guaranteed borrowing and the sale of publicly owned land to housing associations at below market prices.[21]

The monetary value of the state-guaranteed loans is disputed. In the 2011 paper by Priemus and Gruis various arguments are highlighted that indicate that the state-guarantees disrupt market forces and stop commercial parties from entering the social housing market.[22] However in 2008 Hugo Priemus comments that the amount of state support the associations receive is in actuality fairly limited and that although the state-guarantees are psychologically of major importance, they don't significantly impact the

[17] (Ministerie van Financiën, 2016)
[18] (Zandstra, 2018)
[19] (Zandstra, 2018)
[20] (Dormal Marino, 2005; Secretary-General European Commission, 2009)
[21] (Priemus & Gruis, 2011)
[22] (Priemus & Gruis, 2011)

interest rates.[23] Aedes, the trade-association for Dutch housing associations, also mentions that although the state does guarantee loans, the social housing sector as a whole has never invoked these.[24] Rather they claim the sector solves financial problems within the sector itself and the state-guarantees should be seen as a last resort.

In 2012 the 'PBL Netherlands Environmental Assessment Agency' published a report on implicit subsidies in social housing projects.[25] Specifically on whether or not local municipalities subsidize social housing through lower land prices for the sale of public land. They noted that in general there is very little insight into whether or not this implicit subsidization happens and also note that, regardless of whether or not it happens, it is only relevant for roughly 15 percent of the land purchased by housing associations, as the rest was bought from private parties. For the 15 percent they found mixed results, depending on what type of valuation policy municipalities employed. Buitelaar and de Kam mentioned in 2011 that in practise the majority of municipalities do not employ any special rules for social housing and treat housing associations equally to other project developers.[26]

Although the Dutch state no longer provides any direct subsidies to housing associations, it should be noted that housing associations did receive significant subsidies in the past. As Priemus[27] mentioned in 1995, this system was abandoned in what was called "grossing-up" or "brutering" in Dutch. This essentially changed housing associations to be independent organisations with social goals, calling themselves 'social enterprises'. In his 2008 paper Priemus[28] argues that due to the fact that interest rates stayed very low for years after this "grossing-up", housing associations saw their capital grow rapidly.

The measures described above are important for this thesis its research question since, in order to create budget neutral policy advice, a goal this thesis has stated previously, additional subsidies or other financially costly policies need to be compensated in some form.

One such financially neutral option is to have housing associations bear the costs of any new policy. Individually differentiating social housing rents based on household income is an example of such a system. A system similar to this was experimented on in the Netherlands during 2008 and 2009 and was subsequently evaluated.[29] The actual experiment is discussed further down in greater detail, important here is that both various local municipalities and housing associations think that the national government

[23] (Hugo Priemus, 2008)
[24] (Aedes, n.d.)
[25] (Matthijsse, Buitelaar, & Eskinasi, 2012)
[26] (Buitelaar & de Kam, 2011)
[27] (Priemus, 1995)
[28] (Priemus, 2008)
[29] (Kromhout, Burger, Cozijnsen, & Zeelenberg, 2011)

should determine how much housing benefits, in this case through rent reductions, households should get and that this is not a primary task of the housing associations.

The Ministry of Finance in their 2016 report,[30] note that the method via which budget neutral social housing policy can be achieved is through increasing tax rates on providers of social housing. The ministry states that if social housing units move from controlled rental prices to market prices, a number of households would need financial compensation in order to ensure that housing stays affordable for them. The ministry proposes it can compensate the households via a tax discount for lower income households and ensure budget neutrality by simultaneously increasing the 'verhuurdersheffing' or 'renters tax'. The effects of such a suggestion have been worked out in a joint report by the CPB and PBL[31]

Identifying the problems

According to the report by the Ministry of Finance[32] and two visions presented independently by separate groups of Dutch housing associations,[33] four categories of problems or mismatches can be defined. The first two are spatial mismatches and last two are financial mismatches.

1. Overcrowding: Households living in houses that are too small for the number of inhabitants.
2. Too spacious: Households living in houses that are too large for the number of inhabitants.
3. Too expensive: Households living in housing that costs too much, households face financial trouble and increased risks in times of financial turmoil.
4. Too cheap: Households living in housing that is too cheap compared to their income, if they would apply for social housing now they would not be allowed in.

Combined these categories account for a misallocation of roughly 50% of the social housing supply.[34] Appendix A shows these four mismatches graphically.

During 2008 and 2009 the Dutch government experimented with various forms of active and individual price differentiation. An evaluation of these experiments was conducted by Rigo Research[35]. One of the expectations was that the price differentiation would encourage people to move more quickly if their financial or household situation changes. Although the experimental period was too short to draw definitive conclusions the researchers did find that individuals partaking in the experimental rental

[30] (Ministerie van Financiën, 2016)
[31] (CPB Netherlands Bureau for Economic Policy Analysis & PBL Netherlands Environmental Assessment Agency, 2016)
[32] (Ministerie van Financiën, 2016)
[33] (Hoogvliet, Hoetjes, & Vos, 2018; Zandstra, 2018)
[34] (Ministerie van Financiën, 2016)
[35] (Kromhout et al., 2011)

contracts were more susceptible to price changes. Suggesting that a current lack of financial incentives might contribute to the problems mentioned above.

It should be noted that two of the four problems described, renting too cheaply or too spaciously, are not directly negative for the current occupants. These households do however prevent other households, to whose needs the unit might be better suited, from moving in. This can in turn inhibit the flow on the housing market and result in compounded problems.[36]

A vision on social housing

The two visions mentioned previously are, for the sake of readability, referred to as 'the Manifest' [37] and 'the Plea'[38].

The biggest difference between the two papers is the fact that in the Manifest[39] it is proposed that corporations and local governments should actively encourage households to occupy 'fitting' housing units. The proposed method of achieving this is by differentiating rental prices on an individual level. Such that if individuals belong to a problem group as illustrated by appendix A, rental prices are either raised or lowered to provide the proper incentives for them to move. The Manifest[40] also mentions that this can increase social security in times when the household faces financial struggles, as rental price reductions are not an option in the current system.

The system proposed in the Manifest is similar to the experiments on price differentiated rents conducted in 2008 and 2009. As previously mentioned this method of encouraging households to move into 'fitting' categories was expected to be successful.[41]

In contrast to the Manifest, in the Plea[42] various social housing corporations make a case for the sector to be left free of government intervention as much as possible. They ask that the social housing sector is treated as a non-profit housing sector that provides housing at maintenance costs. They claim that social housing can be provided at below market costs, because housing associations are willing to forfeit their profit margins in the social renters their favor.

The described vision further proposes that individuals should decide for themselves whether they should live in social housing. Currently, such a system is impossible in the Netherlands due to the

---

[36] (Deskundigen, 2010)
[37] (Hoogvliet et al., 2018)
[38] (Zandstra, 2018)
[39] (Hoogvliet et al., 2018)
[40] (Hoogvliet et al., 2018)
[41] (Kromhout et al., 2011)
[42] (Zandstra, 2018)

government demanding at least 90% of social housing is rented out to the target group. This rule was the outcome of clarity provided by the European Commission in 2009 stating that Dutch state aid to housing associations can continue as long as 90% of housing units were rented to the target group.[43] As such it seems unlikely that this vision can become reality. Nevertheless, in the next chapter of this thesis this vision, is for the sake of comparison, also systematically analyzed.

Both visions described in the Manifest and the Plea suggest household welfare and social housing should be separated from each other. The visions give it different names but are essentially both calling for a form of housing-voucher or housing-credits to provide less fortunate households in their welfare needs, whilst simultaneously the perverse incentives for social housing corporations are prevented.[44] This is similar to the proposed future path by the Ministry of Finance, only instead of a voucher or credits they propose tax discounts for lower income households.[45]

Disconnecting welfare policy from the social rental market opens up another avenue of possibilities. Namely, property-neutral housing policy. Currently the individual rental subsidies stimulate renting for lower income households, since without occupying a social rental home a household is not eligible for rental subsidies. The idea behind property-neutral housing policy is that households get to individually choose between options without facing disrupting incentives[46], in this case the choices are; social-rental, private-rental, and home-ownership. When property-neutral policy is in place, market forces will lead to an optimization of these choices.[47]

As a side note, it should be mentioned that rental subsidies are not the only non-property-neutral housing policy currently affecting the Dutch housing market.

---

[43] (Priemus & Gruis, 2011)

[44] (Hoogvliet et al., 2018; Zandstra, 2018)

[45] (Ministerie van Financiën, 2016)

[46] (CPB Netherlands Bureau for Economic Policy Analysis & PBL Netherlands Environmental Assessment Agency, 2016)

[47] (Marshall, 1890)

Chapter 3: Supply and Demand for social housing, a model

Defining the goal of social housing, a model

The goal of many social housing markets is to combat the free-market problems that appear on the housing market in a system without any government intervention.[48] This thesis focuses on one of those problems, namely, ensuring accessibility to the housing market.

Following a very basic form of supply and demand theory[49]in a completely free market without any form of intervention we would expect a supply and demand curve that looks like Figure 1. Note that for graphical clarity's sake linear functions are presented, in reality the curves for housing are unlikely to be perfectly linear.

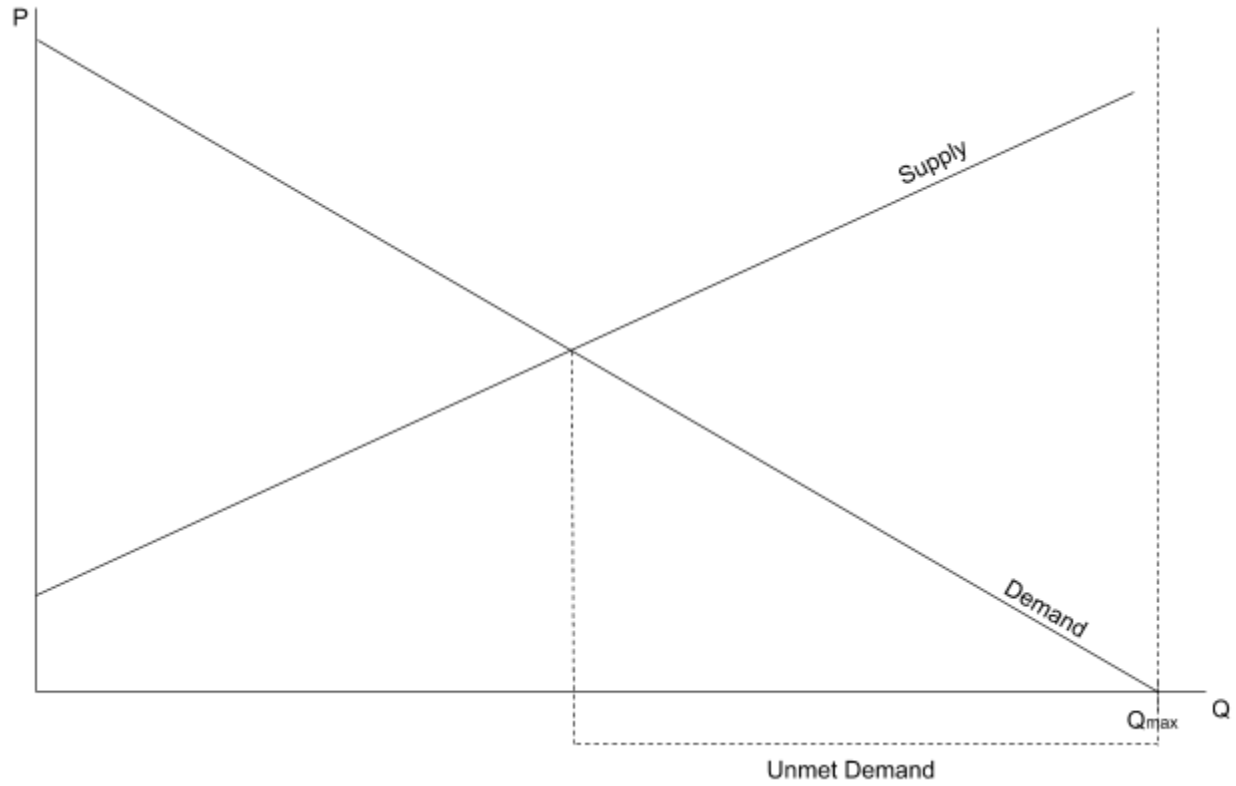


Figure 1. Housing market segment, luxury level = 0 (lowest)

[48] (Elsinga et al., 2008)
[49] (Frank & Cartwright, 2013)

In order to create a workable model this thesis makes the following assumptions about the Supply- and Demand-curve:

1. *The supply-curve is a function of building costs (among others, land and construction prices).*
2. *The demand-curve is a function of household income.*
3. *Total demand is limited (Q_{max}) and does not increase or decrease, demand only differs per price-level, at price=0 demand is at a maximum.*

In the model described above the quantity of demand unmet by the market is given by subtracting the quantity at the free market equilibrium between supply and demand from Qmax. In a market for non-essential products this is not a problem, since not partaking in the market would not result in any major negative effects on society as a whole. However when assessing a market for essential goods such as housing, not partaking by certain households would result in socially unwanted situations, such as homelessness and overcrowding.

The model in Figure 1 represents the housing market at the bottom segment, or cheapest segment, measured in terms of luxury. Meaning that individuals that are unable to buy housing in this segment do not have the option to purchase a cheaper housing product. The real world implication of this is that families in this segment probably can not afford to be very price elastic. As such the Demand-curve should be seen as a representation of what a household is ought to be paid given a certain income level, in the theoretical scenario in which they are able to choose between a cheaper alternative. This concept is later in this paper referred to as ‘willingness to pay’.

This chapter talks about the housing market as if housing products differ only in level of luxury. In reality the housing market offers a variety of housing options. The models discussed later in this paper can be applied to all of these products individually, but to avoid confusion and unnecessary complications, this chapter talks about the housing market as if the only product sold is a home that provides housing to two adults and two children which can only differ in their level of luxury. From this the following assumption follows: *Housing products differ only in their level of luxury.* Similarly this chapter assumes that households are homogenous and always consists of two adults and two children. The resulting implications of the assumption are illustrated in Figure 2.

Figure 2 illustrates households unable to fill their demand in the market for ‘luxury level = 2 houses’ as ‘Unmet Demand A’. In order for this group to satisfy its demand, these households will have to move ‘downwards’ into the market for ‘luxury level = 1 houses’. This market has a group denoted by ‘Unmet Demand B’ that can still not fulfill their demand. This group will move ‘downwards’ once again into the market for ‘luxury level = 0 houses’ and another group denoted by ‘Unmet Demand C’ is unable

to fill their demand. This group C is unable to move any further ‘down’ as the lowest luxury level has already been reached.

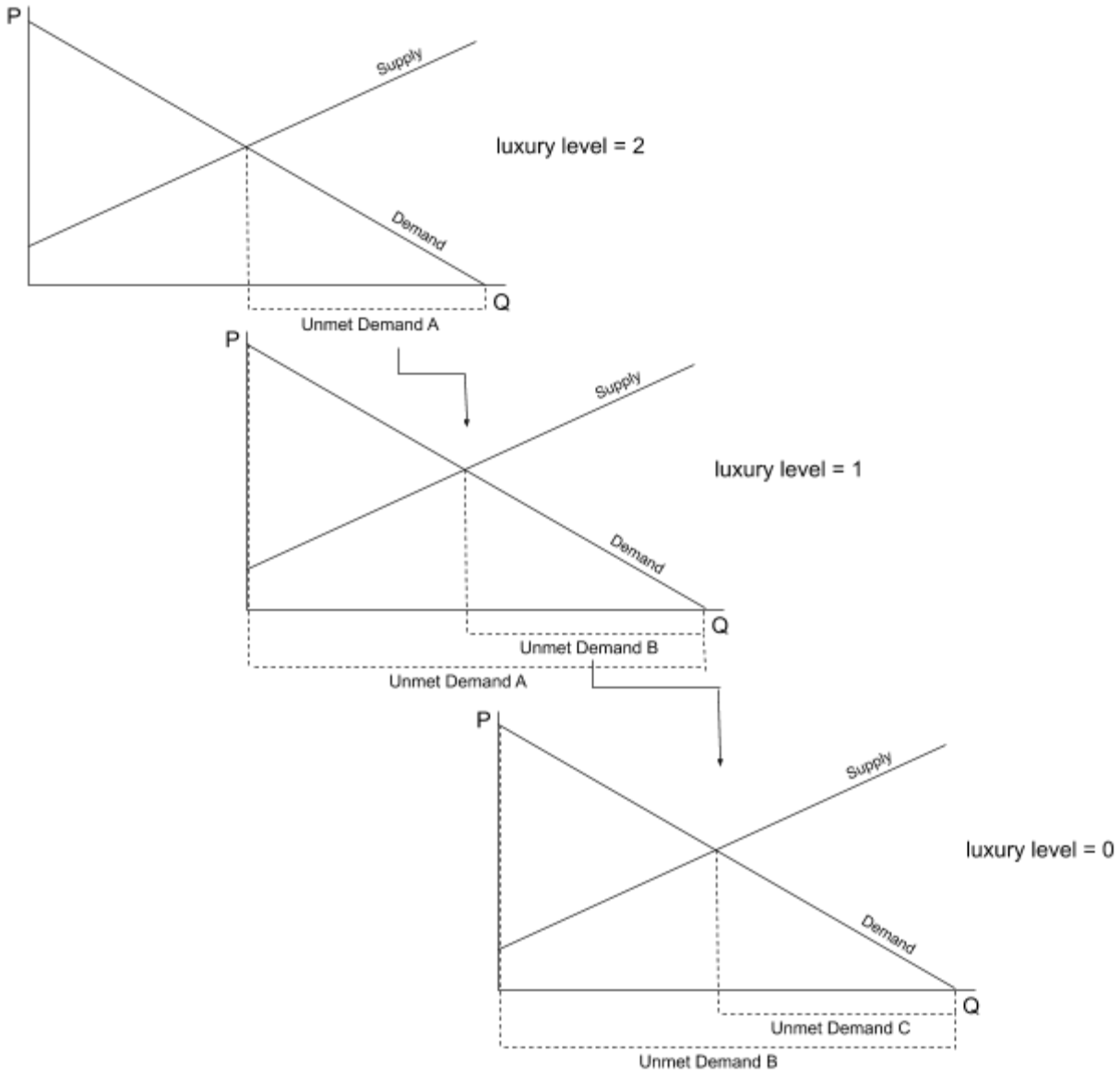


Figure 2. Supply and Demand on the housing market among different luxury levels

Reformulating the goal of social housing policy based on Figure 1 & 2 results in the following goal: *Enable all households to fulfill their demand on at least the lowest market segment.*

Recalling back to the problems described in Chapter 2 (Appendix A), the model in Figure 2 seems to solely represent the financial mismatches, with the given assumption that the housing product is uniform this would indeed be the case. Nevertheless, the model can be used to represent and explain the spatial mismatches as well. By classifying living in a too spacious or overcrowded home as contributing

to the ‘luxury level’. Such that when a housing unit is too small for a given household, it is rated with a lower luxury level and similarly when it is too large, it is rated with a higher luxury level.

Achieving the social housing goal, a model

The goal defined in the previous chapter; “*Enable all households to fulfill their demand on at least the lowest market segment*.” This can be accomplished if supply and demand are in equilibrium and demand is completely satisfied (Q_{max}). There are three different means of government intervention by which this can be achieved. These are:[50]

1. Lower the supply-curve.
2. Raise the demand-curve.
3. A combination of 1 and 2.

Intervention 1: Lowering the supply-curve

Lowering the supply-curve can, according to the assumptions given previously, be influenced by reducing, or subsidizing, the building costs. This method is from here on out referred to as ‘supply-side subsidies’. To achieve full market saturation, equilibrium between supply and demand has to be reached so that it results in everybody having their housing demand met.

The Dutch government has, as described in the previous chapter, a system in place that provides access to social housing based on household income. This chapter focuses government intervention on the same target groups that exist for the current policy. For supply-side subsidies this means that housing is only subsidized and accessible below a certain cut-off based on household income.

In Figure 3, the chosen cut-off is the old equilibrium, in an effort to focus government intervention on the problem, pictured in Figure 1. To achieve full market saturation the price of ‘social housing’ should be set at €0, so that the household with the lowest income level can still have access to housing. Providing housing at €0 is quite unrealistic however, if the only tool used was broadly applied supply-side subsidies than this would be the result. In reality and discussed later in this chapter is a mix that provides a more realistic picture of this measure.

[50] (Frank & Cartwright, 2013)

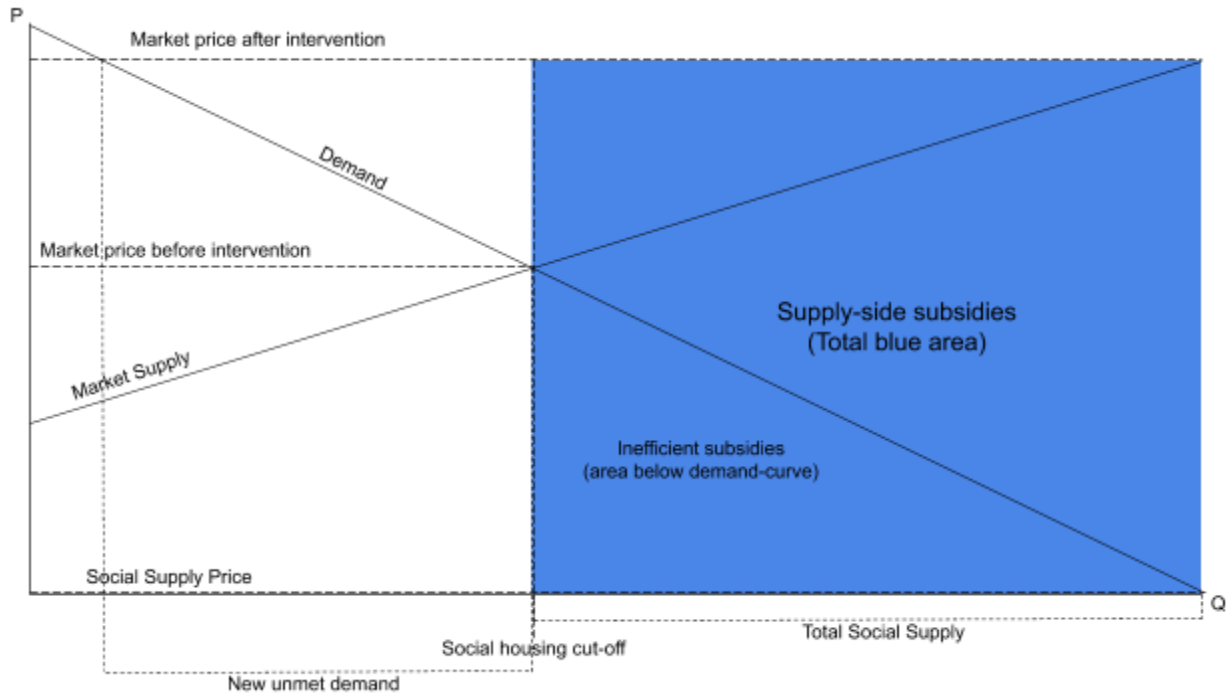


Figure 3. Intervention method 1: Supply and Demand model for luxury level=0

The model pictured in Figure 3 further assumes that a housing product supplied at the 'Social Supply Price' has the same building costs to a housing product on the free market at 'luxury level = 0', simply because a housing product below 'luxury level = 0' does not exist given the stated assumptions. The resulting effect of this is that any supply-side intervention has to subsidize the difference between the 'Market price after intervention' and the 'Social supply price'. The area pictured in blue in figure 3 shows the total costs of the government intervention with supply-side subsidies. It should be noted that the 'supply-side subsidies' includes all explicit and implicit forms of subsidies in this area, this includes all money spent by housing associations on unprofitable business cases as well. This blue area is quite large and notable is that the government is subsidizing every household below the 'cut-off' by the same amount. These 'inefficient subsidies' are pictured by the blue area below the demand curve.

The quantity denoted by 'New unmet demand' highlights a potential problem with picking the 'Social housing cut-off'. Namely, by picking a cut-off different than the intersection of the 'demand-curve' and the 'market price after intervention'-line, an inefficiency in the system is introduced. To illustrate, with the cut-off chosen in Figure 3, individuals 'above' the cut-off and below the intersection of the 'Market price after intervention' and demand-curve are priced out of the market. Ironically, by subsidizing the problem, a new problem is created.

This new problem group would end up not consuming the expected housing and the actual 'Market price after intervention' ends up being lower, because fulfilled demand is lower. Cycling the results as shown in appendix B leads to the corrected equilibrium shown in Figure 4.

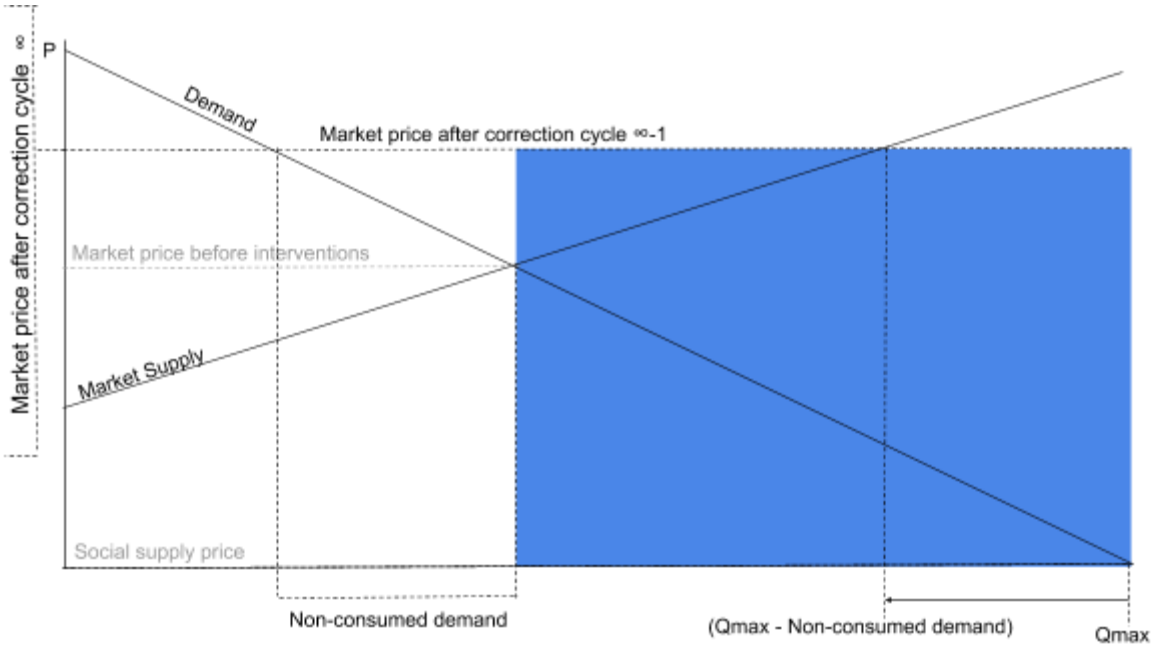


Figure 4. Intervention method 1 (Corrected): Supply and Demand model for luxury level=0

Optimizing supply side intervention.

As stated before and shown in figure 3, intervening on the supply side of the housing market yields a significant amount of inefficient subsidies. These 'inefficient subsidies' are classified as such because the theoretical willingness to pay for many of the households exceeds the price they are currently paying. Whether it is bad or good that more subsidies than required end up at lower income levels is a discussion better held in the political arena. Nevertheless, if the primary goal is to provide housing at the most efficient costs then the 'supply-side subsidies' needs to be further optimized.

The inefficient subsidies could be eliminated entirely by having social housing prices be dependent on the income level of the household occupying it. In such a system every household pays exactly as much as their 'willingness to pay'[51] and no subsidies are wasted. A less extreme example is

[51] Willingness to pay is the price which the household is willing to pay in the case of a free market. This definition assumes that when willingness to pay is above the actual price, households will move 'up' in luxury level, and if willingness to pay is below the actual price, households will move 'down' a luxury level. It is thus explicitly **not** the self-reported answers to the question; 'how much are you willing to contribute to social housing?'

pictured in Figure 5. By narrowing the bands of the ‘Social Supply Price’ further to the individual level a situation can be created where no subsidies are inefficiently allocated.

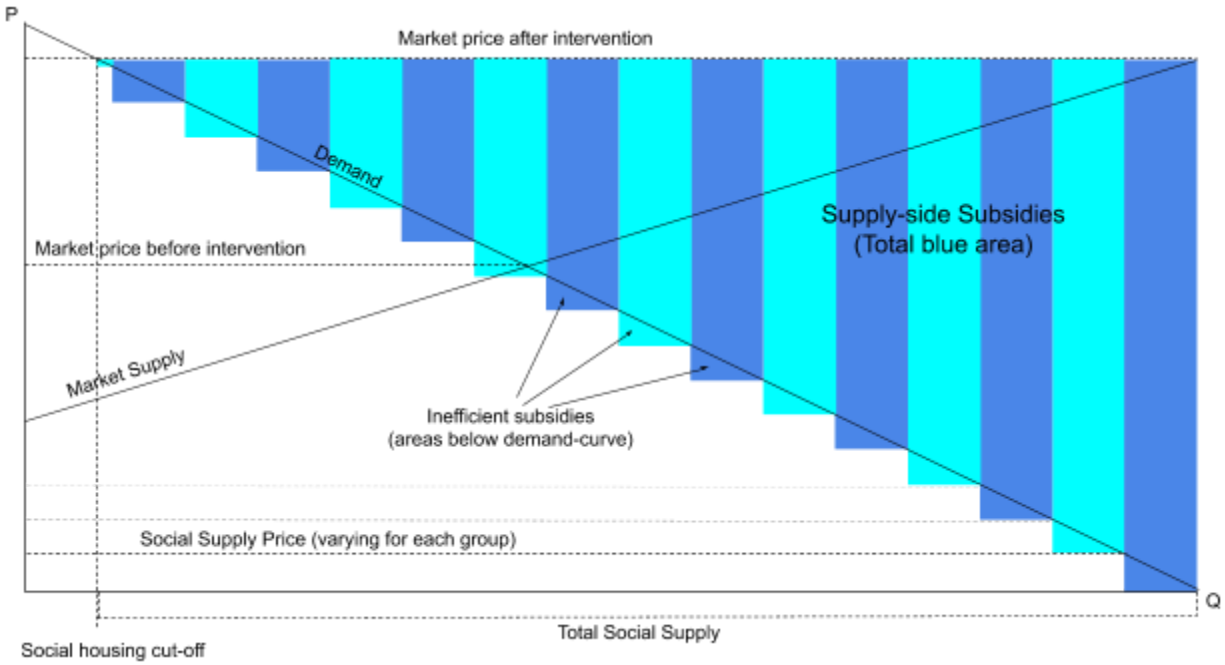


Figure 5. Intervention method 1 (Optimized): Supply and Demand model for luxury level=0

Intervention 2: Raising the demand-curve

The demand-curve can, given the assumptions, only be raised by increasing the income of a household. In Figure 6 the effect of increasing ‘income’ via individual subsidies is shown, bringing it in equilibrium with supply at full market saturation (Q_{max}).

Note that the amount of individual subsidies is different based on the income level and is just enough to bring demand of a certain household to the level of the ‘Market price after intervention’. Also note that demand has a steep cliff as market saturation is reached at ‘Qmax’. In contrast to the supply-side interventions in Figure 3 & 5, this method does not introduce an inherent inefficiency when providing subsidies.

It should be noted that similar to intervention method 1, if only the problem indicated by Figure 1 is targeted with this option, a new problem similar to the one pictured in Figure 4 is created. This is currently a problem in Dutch social housing policy. As subsidies drop steeply when households earn

above a certain threshold. However, as mentioned previously, this problem has been addressed and will be gone from 2020 onward.[52] Therefore, it has not been modeled in this thesis.

In the next subchapter the system as described in the report by the Ministry of Finance[53] is notably absent. This is the case because their proposal does not include any supply-side subsidies. Rather they propose a system that in a model would look similar to Figure 6. Although instead of individual subsidies they propose an income dependent tax discount.

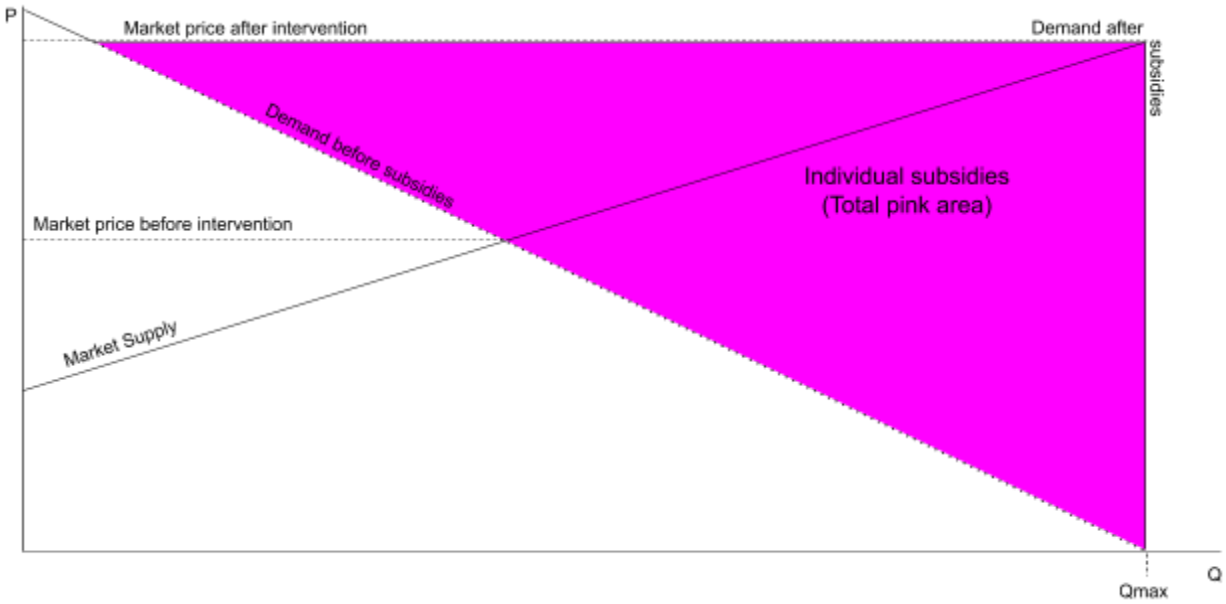


Figure 6. Intervention method 2: Supply and Demand model for luxury level=0

Intervention 3: Raising the demand-curve & lowering the supply-curve

Combining intervention methods 1 and 2 can be done in different ways. In this subchapter the 'Dutch' system is modelled, followed by the two systems as suggested in the Manifest[54] and the plea[55].

The current Dutch system

The model in Figure 7 represents the system as it is implemented in the Netherlands. Below a certain income 'cut-off' households are able to rent from the 'social housing supply'. Furthermore, for incomes below another income threshold additional rental subsidies are available. Note that in reality the amount of individual subsides differs also based on the price of a rental unit. The model in Figure 7 only

[52] (Ollongren, 2018)
[53] (Ministerie van Financiën, 2016)
[54] (Hoogvliet et al., 2018)
[55] (Zandstra, 2018)

shows a single housing product and the individual subsidies are thus only affected by income levels. This figure also shows that if the social supply cut-off is chosen 'incorrectly', as described under intervention method 1, a 'New unmet demand' can arise.

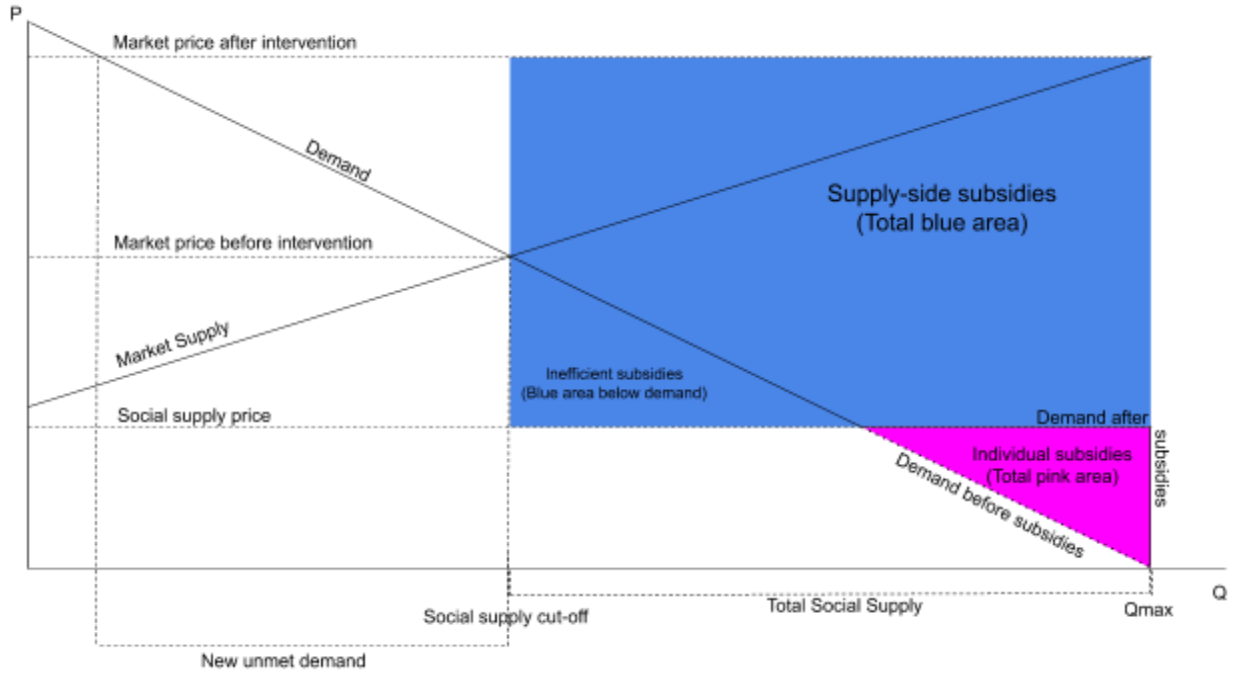


Figure 7. Intervention method 3 (Dutch system): Supply and Demand model for luxury level=0

System proposed in the Manifest

As discussed in chapter 2 in the Manifest[56] it is proposed that social rental prices are differentiated per household based on household income.[57] Additionally households below a certain income thresholds receive rental subsidies. Graphically and simplified this system is shown in Figure 8. The model combines the perfectly optimized individual price differentiation shown in Figure 5 with rental subsidies based on income levels shown in Figure 6.

[56] (Hoogvliet et al., 2018)
[57] And household size, although this is not incorporated in this model

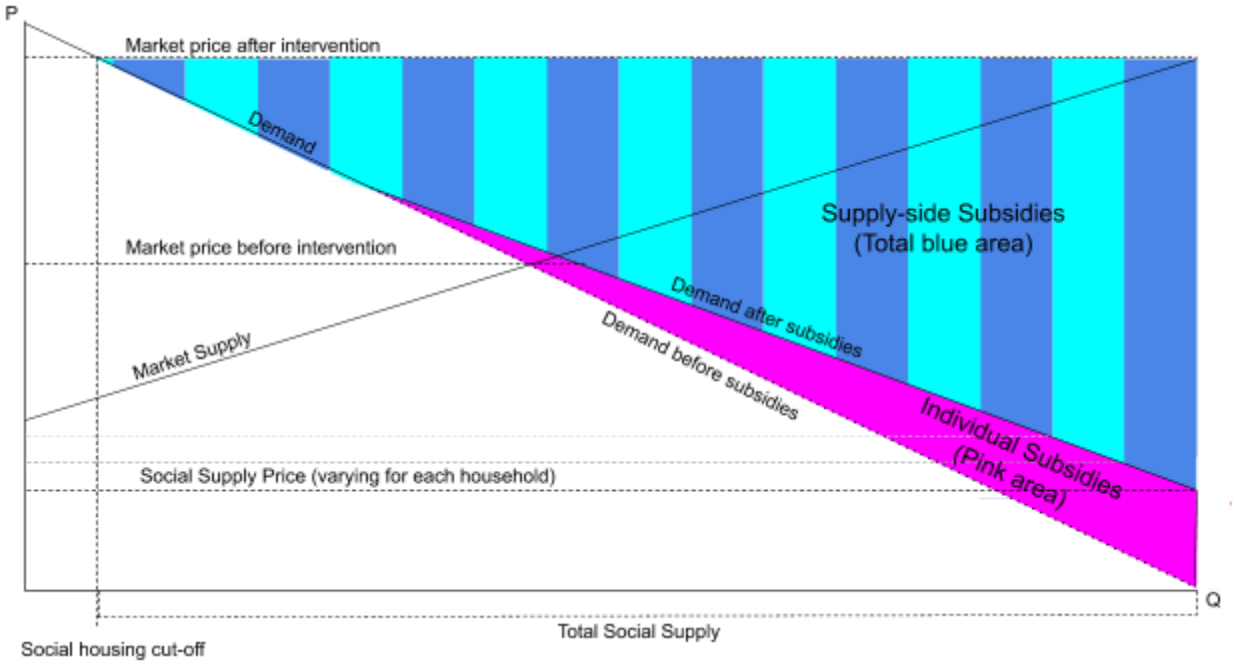


Figure 8. Intervention method 3 (Manifest system): Supply and Demand model for luxury level=0

System proposed in the Plea

In the Plea[58], as discussed in Chapter 2, a larger focus is put on the non-profit aspect of the housing corporation. They claim that, through their internal policies and willingness to forfeit profit-margins, they are able to provide housing at prices lower than the market rates. To illustrate this in the model an alternative 'Social Supply-curve' is shown in Figure 9.

Note that in Figure 9 the supply curve for the social housing corporations lies lower than the market supply-curve, resulting in fewer overall spending on supply-side subsidies. The argumentation given in the Plea[59] for this 'competitive advantage' is the result of not needing to make any profits.

Furthermore, in the Plea[60] the government is explicitly asked to drop the social housing cut-off, instead letting individuals choose whether they want to live in a 'social housing unit'. This is represented in Figure 9 by the absence of a social supply cut-off. It should however be noted that this model assumes households will move up a luxury level when they can afford this. This is not necessarily true in practise and a significant reduction in price could entice households previously content on higher luxury levels to forfeit luxury in favor of cheaper prices, increasing demand.

[58] (Zandstra, 2018)
[59] (Zandstra, 2018)
[60] (Zandstra, 2018)

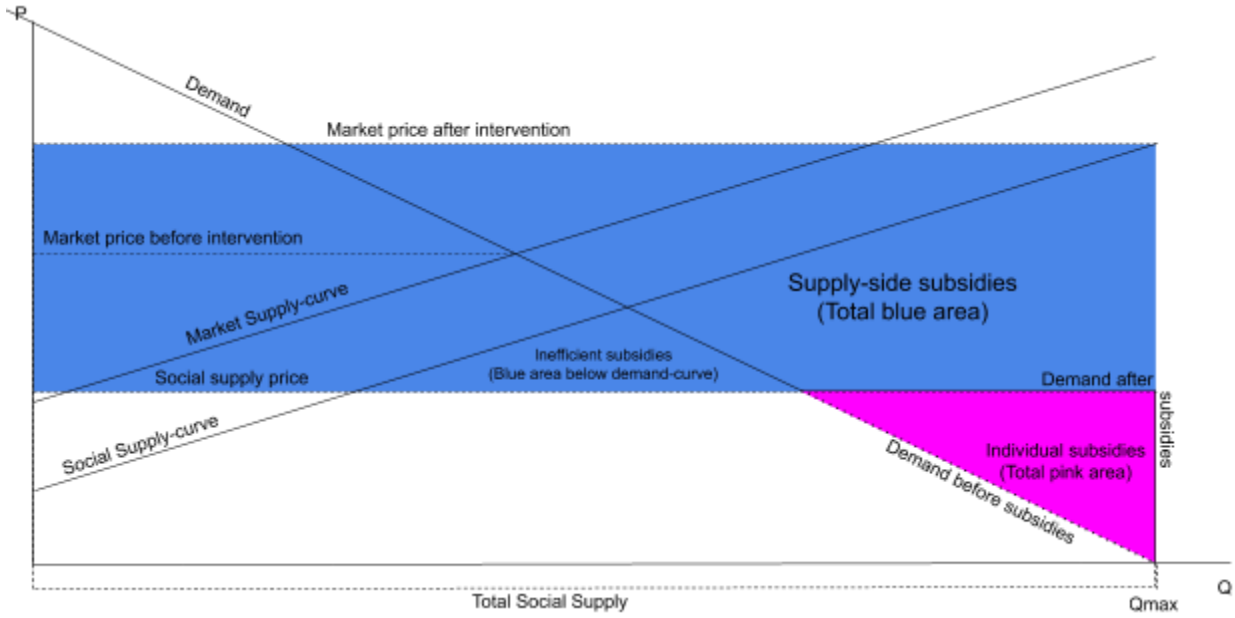


Figure 9. Intervention method 3 (Plea system): Supply and Demand model for luxury level=0

Chapter 4: Results

The previous chapter introduced a model that can be used to describe (theoretically) why market failure on the housing market occurs. The different proposals for future policy as discussed in Chapter 2 have been modelled in order to allow examination of their effects on the housing market.

The model visualizing the current 'Dutch system' depicted in Figure 7, shows that inherent inefficiencies occur when a singular 'Social supply price' level is set for a group containing households with varying income levels. These inefficiencies are the result of subsidizing all households equally based on the lowest denominator. Providing households earning more than is associated with the income level required to pay the 'Social supply price' with 'too much' subsidies.

The proposed changes in the Plea[61] result in a system that is very similar to the current social housing system in the Netherlands. Except that individual subsidies would be disconnected from the price of the housing units. The model shown in Figure 9 does however not show the effects of this change, as in a market with only a single type of housing product, and by extension a single social rental price, this problem can not exist. The proposed change to remove the cut-off is, as discussed in Chapter 2, unlikely to be realised, as this would go against the outcome of the dispute the Dutch government had with the European Commission. The effects of removing the cut-off have also been more positively pictured in Figure 9. It would likely have an effect on other luxury levels as well because, households could be tempted to forfeit an increase to luxury in favor of the much cheaper social supply price level.

In contrast to the current system and the system proposed by the Plea[62], both the system described in the Manifest[63] and in the report by the Ministry of Finance[64] show that it is theoretically possible to eliminate all inherently inefficient subsidies.

In Figure 8, which shows the proposed changes in the Manifest,[65] the inefficiencies of the system are removed by differentiating the price level for each household depending on income. This way households are only subsidized to the point where they can provide in their housing needs and nothing more. Although not mentioned in the Manifest, the 'cut-off' for social housing could in this system in theory be removed. Provided that social housing, when provided to households with incomes higher than the old cut-off, is priced at market rates.

---

[61] (Zandstra, 2018)
[62] (Zandstra, 2018)
[63] (Hoogvliet et al., 2018)
[64] (Ministerie van Financiën, 2016)
[65] (Hoogvliet et al., 2018)

Figure 6 shows the effects on the housing market when government intervention is limited solely to demand-side interventions. Although the name given to the method in the figure is 'individual subsidies', the proposal by the Ministry of Finance,[66] which is an income dependent tax discount, has in essence the same effect. The extra costs of this subsidization are expected to be less-than or equal-to the reduction in previously granted supply-side subsidies, as described in Chapter 2. With the added benefit that this system would promote property-neutral decisions in the 'social sector'.

Finally, it is noteworthy that the proposal by the Ministry of Finance is the only one that ensures property neutral-housing policy. The three other systems all anchor part of the social housing subsidies to the social rental sector.

[66] (Ministerie van Financiën, 2016)

Chapter 5: Conclusion

Combining the information from chapters 2, 3 and 4, conclusions are drawn in order to answer the primary research question.

Hypothesis 1

Expanding individual housing subsidies can reduce the mismatch between supply and demand on the Dutch housing market.

The models and theoretical framework provided in Chapter 3 do not provide a clear answer as to whether the mismatch on the social housing market would be reduced if the current social housing system was replaced by a system with greater focus on individual rental subsidies. The model is useful in showing what would happen on a market where information is perfect, which is not the case in reality.

The model does show that none of the systems for social housing examined are inherently incapable of fixing a mismatch or shortage of social housing. Indeed, if a current mismatch of supply and demand exists, the model suggests that either supply- and/or demand-side subsidies are simply not high enough. This means that if expanding individual housing subsidies is indeed more efficient than the current system, with budget neutral policy changes, the mismatch between supply and demand on the social housing market can indeed be reduced.

As such the hypothesis is not rejected.

Hypothesis 2

Rent-controlled social housing introduces an inherent inefficiency that can be prevented with individual subsidies.

As shown in Figure 3 & 7, when a singular housing price is introduced for individuals of varying income levels an inherent mismatch between willingness to pay and asking price arises. Pictured by the blue area of supply-side subsidies below the demand-curve. Figure 6 shows that these inefficient subsidies are not present when subsidies are given on the demand-side of the equation, since the amount of individual subsidies is directly linked to income levels.

In addition to simply not rejecting the hypothesis, it is important to note that in contrast to what the hypothesis suggests, individual subsidies or individual demand-side interventions, are not the only method to eliminate the ‘inefficient subsidies’. As shown in Figure 5 & 8 individually differentiated

pricing, by which the same housing unit is rented at a different price depending on the income level of the occupant, also solved the inefficiency.

Research Question

To what degree can the Dutch social housing policy be made more efficient by moving from rent-controlled prices to market prices?

As evidenced by the existing literature in Chapter 2, models in Chapter 3 and results in Chapter 4 the current social housing system in the Netherlands can be improved. Changing the system from a rent-controlled social housing price to market price levels is however not the only method by which an increase in efficiency can be achieved. Concluding from the theoretical models constructed in this thesis the Dutch system can be improved by designing it in such a way that as little as possible is inefficiently spent on subsidies, by linking the amount of subsidies as closely as possible to the willingness to pay of households. This paper has shown that two of the three discussed proposals can contribute to this increase in efficiency.

The method described in the report by the ministry of finance[67] does this by eliminating the controlled rental prices and moving to market price levels. To offset the welfare-loss resulting from the increased price levels for households in the social sector, a supply-side subsidy is introduced via a tax discount dependent on household income and size. In the Manifest,[68] the method by which, increased efficiency is achieved, is via an individually differentiated price level, based on household income and size. Effectively charging different prices for the same rental unit.

Although both systems would in theory improve efficiency, it should be mentioned that the method described in the Manifest[69] is far more similar to the current system than the method described by the Ministry of Finance.[70] They essentially abandon the current structure of social housing sector entirely and move to solely free market prices levels. As such the proposal in the Manifest could potentially serve as a stepping stone towards further changes. If the Dutch government in the future decides it prefers market price rates after all, the change to this system would then be much smaller than is currently the case.

[67] (Ministerie van Financiën, 2016)
[68] (Hoogvliet et al., 2018)
[69] (Hoogvliet et al., 2018)
[70] (Ministerie van Financiën, 2016)

Discussion

In addition to the answers found regarding the research question and hypotheses some additional important findings should be mentioned.

New unmet demand

This paper established in Chapter 3 that a problem group exists on the free housing market, pictured in Figure 1. Whilst working on the models to answer the hypotheses a theoretical group of households was identified that could in theory suffer from welfare policies aimed at the original problem group. In Figure 4 this was denoted by the quantity called 'New unmet demand'. Whether this group currently exists in practise is unclear from this thesis. Nevertheless, policy should be constructed carefully to prevent well intentioned solutions, aimed at the original problem group, from creating new problems for others, whom would not be part of a problem group without government intervention.

Poverty trap and individual subsidies

Individual subsidies linked to income create a form of 'extra' tax for households when they stop receiving it. In addition to progressive income taxes, which increase as income rises, these households additionally face a reduction in rental subsidies, as income rises. This essentially means that as gross-income increases, net-income does not increase as significantly, which can have a tempering effect on the incentive to work. Economic theory then suggests that people will optimise their income and they will be discouraged from earning more, essentially creating a 'poverty trap'.[71] The announced changes to the rental subsidies from 2020 onward, indicate that the Dutch government is aware of these 'poverty traps' and is trying to alleviate existing ones. Any expansion of the rental subsidies in whatever form, should be established with this problem in mind to ensure that no new poverty traps are created.

Segregation and individual subsidies

For this thesis an interview was held with Peter Boelhouwer. He mentioned that introducing market price levels for social housing, in combination with individual subsidies, could create a situation where relatively expensive social housing, such as in city centers or other highly sought after locations,

[71] (Azariadis & Stachurski, 2005)

can become unreachable for a certain part of the population. He warned that this could result in segregation of the population into poor and rich neighborhoods. The Ministry of Finance[72] also warns that implementing their proposed system could cause segregation to increase in certain sought after neighborhoods. During the experimentation with individually differentiated social rental prices the effects of segregation were also studied, but proved insignificant as the experiment was both too small and too short to draw definitive conclusions.[73] However, some experts mentioned in the evaluation of that experiment that areas which currently contain relatively many 'social' homes and house relatively many poor households could benefit from an increase of relatively well-off households paying market level prices, without any government subsidies, for the homes. Increasing diversity in these neighborhoods.

Limitations

Perfect information

The limitations of this paper are numerous. As mentioned in previous chapters the models assume perfect information on all levels. This is something that does not (yet) exist on the Dutch (social) housing market. These include variables such as construction costs and willingness to pay. Other assumptions introduced in the model such as the relationship between willingness to pay and income level might make sense on a macro-level, but could potentially cause issues when taken as the basis for individually differentiated subsidies or price levels.

Empirical evidence

Due to the scope of this paper the models have not been tested on empirical data. As such it is not currently clear whether the models have any predictive power in real world scenarios.

Households are not static

The problems on the social housing system has in this paper been examined from a theoretical point of view, assuming all households remain static. One of the real world practical problems that the Netherlands faces right now, is the fact that people who would no longer qualify for a social rental unit are still occupying them.[74] In a sense the Dutch social housing system suffers from appointing households

[72] (Ministerie van Financiën, 2016)
[73] (Kromhout et al., 2011)
[74] (Ministerie van Financiën, 2016)

their homes based on a single point in time, where in reality households their circumstances change. The models discussed in this thesis would only accurately represent the situation on the social housing market if every year the entire housing supply was reassigned. As such the current system and the system described in the Plea[75] might seem more positive or efficient then is the case in reality. One of the proposed changes not incorporated in both the systems presented in the manifest[76] and by the Ministry of Finance[77] is to reevaluate social rental contracts more often, either through changing individual price levels or changing the amount of subsidies.

Further research

Variety of housing products

The models provided in this thesis are fairly limited in scope due to the time constraints of this thesis. Further research could expand on these models by incorporating work from Wheaton and Dipasquale their four-quadrant-model[78]. Using that model, the effects of both the financial markets as well as the construction costs could be more accurately taken into account.

The models in this paper could also be expanded to not only show the vertical movements a single type of household can make, but also the horizontal movements that can be made. Such a model could more accurately visualize the spatial problems encountered on the Dutch social housing market.

How much supply-side subsidies?

During the research for this thesis into previous contributions to social housing policy in the Netherlands, it proved very difficult to find data on how much supply-side subsidies are granted. The reason for this lack of transparent data is likely caused by the sheer number of actors on the Dutch social housing market. Municipalities can make deals with housing association to trade favourable conditions for lower land prices. In contrast to national policy, Matthijsse et al.[79] note that there is very little transparency in regards to these deals.

---

[75] (Zandstra, 2018)
[76] (Hoogvliet et al., 2018)
[77] (Ministerie van Financiën, 2016)
[78] (DiPasquale & Wheaton, 1992)
[79] (Matthijsse et al., 2012)

The inherent inefficiencies found in this thesis are all caused by supply-side subsidies. Without knowing how much money is being spent on this side of the equation, it is hard to quantify how big the effects of the proposed policy changes will be.

Environmental sustainability

A big task for social housing associations, set out by the Dutch government, is transforming the existing social housing stock to become more environmentally sustainable.[80] As of 2018 14% of owner-occupied single-family homes had solar panels installed, in contrast to only 9% of single-family social housing homes.[81] The paper does not go into detail as to why this difference exists, although it does mention that cost reduction and increased comfort are driving factors for energy saving investments in the owner-occupied sector.

In regards to this thesis and future research it could be interesting to examine the effects of property-neutral housing policy on the desirability of sustainable social homes. Currently the benefits of improved energy efficiency in the existing social housing stock ends up primarily in the pockets of the social renter, providing little incentive for housing associations to make their homes more sustainable. However if rental prices for social homes are put at market levels, housing associations could cover their investments with higher prices. Social renters would be able to determine whether these higher rents weigh up to the reduction in energy prices and increase in comfort these sustainable homes offer.

[80] (Rijksoverheid, n.d.-f)
[81] (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2019)

References

Aedes. (n.d.) Hoe financieren woningcorporaties de sociale woningbouw? [How do housing associations finance social housing?]. Retrieved 26 july 2019, from https://www.aedes.nl/feiten-en-cijfers/geld-en-investeringen/hoe-financieren-woningcorporaties-de-sociale-wonin/hoe-financieren-woningcorporaties-de-sociale-woningbouw.html

Azariadis, C., & Stachurski, J. (2005). Chapter 5 Poverty Traps. Handbook Of Economic Growth, 1, 295-384. doi: 10.1016/s1574-0684(05)01005-1

Belastingdienst. (n.d.). Proefberekening toeslagen [Trial calculation for subsidies]. Retrieved 24 july 2019, from https://www.belastingdienst.nl/rekenhulpen/toeslagen/

Blok, S.A. (2015) Besluit van 8 juli 2015 tot wijziging van het Besluit huurprijzen woonruimte (aanpassing woningwaarderingsstelsel in verband met de introductie van de waarde op grond van de Wet waardering onroerende zaken) [Decree of 8 July 2015 amending the Decree on rental prices for living space (adaptation of the home valuation system in connection with the introduction of the value on the basis of the Real Estate Valuation Act)] [Letter of government]. Retrieved 26 july from https://zoek.officielebekendmakingen.nl/stb-2015-290

Bosch, N., Jongen, E., Leenders, W,. Möhlmann, J. (2019). Non-Bunching at Kinks and Notches in Cash Transfers [PDF]. CPB Netherlands Bureau for Economic Policy Analysis. Retrieved from https://www.cpb.nl/en/non-bunching-kinks-and-notches-cash-transfers

Buitelaar, E., & de Kam, G. (2011). Resultaatgerichtheid van prestatieafspraken met corporaties:een Catch 22 voor gemeenten? [Result orientation of performance agreements with associations: a Catch 22 for municipalities?]. Bank & Gemeente, vol. maart/(0166-8528), 19-21. Retrieved from http://hdl.handle.net/2066/95399

Central Bureau for Statistics. (2019). Voorraad woningen; eigendom, type verhuurder, bewoning, regio [Data set]. Retrieved 28 july 2019, from https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82900NED/table?dl=23858

CPB Netherlands Bureau for Economic Policy Analysis & PBL Netherlands Environmental Assessment Agency. (2016). Kansrijk woonbeleid [Promising housing policy] [PDF]. Retrieved from https://www.cpb.nl/publicatie/kansrijk-woonbeleid

Deskundigen, C. S. E. (2010). Naar een integrale hervorming van de woningmarkt. Social and Economic Council, Den Haag. Retrieved from http://www.fairhuurvoorverhuurders.nl/files/literatuur/naar-een-integrale-hervorming-van-de-woningmarkt-april-2010.pdf

Dormal Marino, L. (2005). "Brief van 14 Juli aan de Permanente Vertegenwoordiging van Nederland bij de EU, met een voorlopig standpunt van de EC over de financiering van woningcorporaties in Nederland [Letter containing the provisional judgment of the European Commission on the financing of Dutch housing associations]". Brussels: (European Commission, Directorate-General for Competition).

Elsinga, M., & Wassenberg, F. (2014). Social housing in the Netherlands. Social housing in Europe, 25-40.

Elsinga, M., Kleinhans, RJ., Blokland, TV., van Bortel, GA., Klaufus, CJ., & Zijlstra, S. (2008). Idealen van woonbeleid: legitimatie & financiering [Ideals of housing policy: legitimacy & financing]. Rotterdam: Stichting Experimenten Volkshuisvesting. Retrieved from http://www.devernieuwdestad.nl/uploads/tx_news/idealen_van_woonbeleid_def_02.pdf

Frank, R., & Cartwright, E. (2013). Microeconomics and Behaviour. London, United States: McGraw-Hill Education.

Hoogvliet, A., Hoetjes, P., Vos, M. (2018). Manifest Passend Wonen: 'Van foto naar film' [Manifest Suitable Housing: 'From photo to film'] [PDF] Retrieved from http://resolver.tudelft.nl/uuid:6bf2212b-0c86-4e0d-aac2-e208532e416b

Huurcommissie. (2019) Huurprijzen zelfstandige woonruimte per 1 juli 2019 [Rental prices independent living space as of July 1, 2019] [PDF]. Retrieved 24 july 2019, from https://www.huurcommissie.nl/onderwerpen/huurprijs-en-punten/huurprijscheck-en-puntentellin/

Kromhout, S., Burger, P., Cozijnsen, E., & Zeelenberg, S. (2011). Eindevaluatie Huur op Maat [Final evaluation Customized Rent] [PDF]. Rotterdam: SEV. Retrieved from https://zoek.officielebekendmakingen.nl/blg-60031.pdf

Marshall, A. (1890). Principles of economics (8th ed.). London: Macmillan and Co. Retrieved from https://eet.pixel-online.org/files/etranslation/original/Marshall,%20Principles%20of%20Economics.pdf

Matthijsse, J., Buitelaar, E., & Eskinasi, M. (2012). Grondprijzen voor sociale woningbouw; tussen impliciete subsidie en belasting [Land prices for social housing; between implicit subsidy and tax] [PDF]. Planbureau voor de Leefomgeving. Retrieved from https://www.pbl.nl/publicaties/2012/grondprijzen-voor-sociale-woningbouw-tussen-impliciete-subsidie-en-belasting

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2019). Ruimte voor wonen: De resultaten van het WoonOnderzoek Nederland 2018 [Space for housing: The results of 'WoonOnderzoek Nederland 2018'] [PDF] The Hague: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. Retrieved from https://www.woononderzoek.nl/document/Ruimte-voor-wonen--de-resultaten-van-het-WoON2018-(interactief)-/174

Ministerie van Financiën. (2016). IBO Sociale Huur. De prijs voor betaalbaarheid [Internal policy review Social Rent. The price of affordability] [PDF]. Ministerie van Financiën. Retrieved 24 july from https://www.rijksoverheid.nl/documenten/rapporten/2016/10/01/eindrapport-de-prijs-voor-betaalbaarheid

Ollongren, K. H. (2018). Wijzing van de Wet op de huurtoeslag in verband met het laten vervallen van de bepaling dat de eigen bijdrage in de huurtoeslag wordt geïndexeerd met het percentage van de netto-bijstandsontwikkeling indien dat percentage lager is dan het percentage van de huurprijsontwikkeling en van de maximale inkomensgrenzen vanaf welke geen huurtoeslag wordt toegekend (Wet aanpassing indexering eigen bijdrage huurtoeslag en het vervallen van de maximale inkomensgrenzen); Memorie van toelichting; Memorie van toelichting [Amendment of the Rent Allowance Act in connection with the cancellation of the provision that the own contribution to the rent allowance is indexed with the percentage of the net assistance development if that percentage is lower than the percentage of the rent development and of the maximum income limits from which no housing allowance is granted (Law on the adjustment of the own contribution to housing allowance and the expiry of the maximum income limits); Explanation notes; Explanation notes] [Letter of government]. Retrieved 27 july 2019, from https://zoek.officielebekendmakingen.nl/kst-34940-3.html

Priemus, H. (1995). How to abolish social housing? The Dutch case. International Journal Of Urban And Regional Research, 19(1), 145-155. doi: 10.1111/j.1468-2427.1995.tb00495.x

Priemus, H. (2008). Real Estate Investors and Housing Associations: A Level Playing Field? The Dutch Case. European Journal Of Housing Policy, 8(1), 81-96. doi: 10.1080/14616710701817174

Priemus, H., & Gruis, V. (2011). Social Housing and Illegal State Aid: The Agreement between European Commission and Dutch Government. International Journal Of Housing Policy, 11(1), 89-104. doi: 10.1080/14616718.2011.548588

Rijksoverheid. (n.d.-a). Wat is de huurliberalisatiegrens? [What is the rent liberalization limit?]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/onderwerpen/huurverhoging/vraag-en-antwoord/huurliberalisatiegrens

Rijksoverheid. (n.d.-b). Wat is het verschil tussen een sociale-huurwoning en een huurwoning in de vrije sector? [What is the difference between a social rental home and a rental home in the free sector?]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/onderwerpen/huurwoning/vraag-en-antwoord/verschil-sociale-huurwoning-woning-vrije-sector

Rijksoverheid. (n.d.-c). Toewijzen van betaalbare woningen [Allocating affordable housing]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/onderwerpen/woningcorporaties/toewijzen-betaalbare-woningen

Rijksoverheid. (n.d.-d). Woning huren: wat moet ik regelen? [Renting a house: what should I arrange?]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/onderwerpen/huurwoning/vraag-en-antwoord/wat-moet-ik-regelen-als-ik-een-woning-ga-huren

Rijksoverheid. (n.d.-e). Kan ik huurtoeslag krijgen? [Am I eligible for rental subsidies?]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/onderwerpen/huurwoning/vraag-en-antwoord/huurtoeslag-krijgen

Rijksoverheid. (n.d.-f). Regeerakkoord ‘Vertrouwen in de toekomst’: 2.3 Wonen [Coalition agreement "Trust in the future": 2.3 Housing]. Retrieved 24 july 2019, from https://www.rijksoverheid.nl/regering/regeerakkoord-vertrouwen-in-de-toekomst/2.-zekerheid-en-kansen-in-een-nieuwe-economie/2.3-wonen

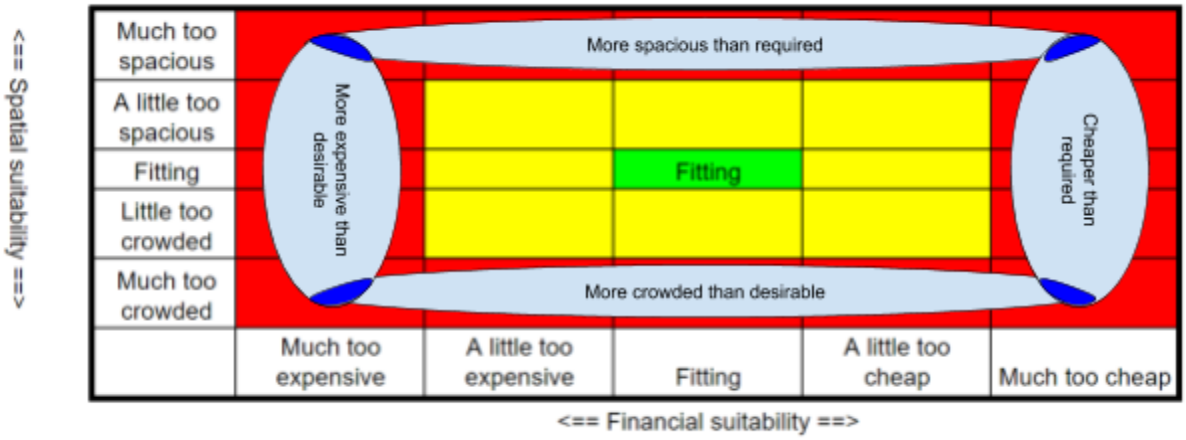
Secretary-General European Commission. (2009). “State aid No. E2/2005 and N 642/2009. The Netherlands existing and special project aid to housing corporations”. Brussels: European Commission. Retrieved 26 july from http://ec.europa.eu/competition/state_aid/cases/197757/197757_1155868_173_2.pdf

DiPasquale, D., & Wheaton, W. C. (1992). The markets for real estate assets and space: A conceptual framework. Real Estate Economics, 20(2), 181-198. doi: 10.1111/1540-6229.00579

Zandstra, A. (2018). Pleidooi - Een huurwoning: geen voorziening maar een thuis [Plea - A rental home: not a facility but a home] [PDF]. Retrieved from http://resolver.tudelft.nl/uuid:352724f9-4fa8-4715-a080-cebb9e6dc3a0

Appendices

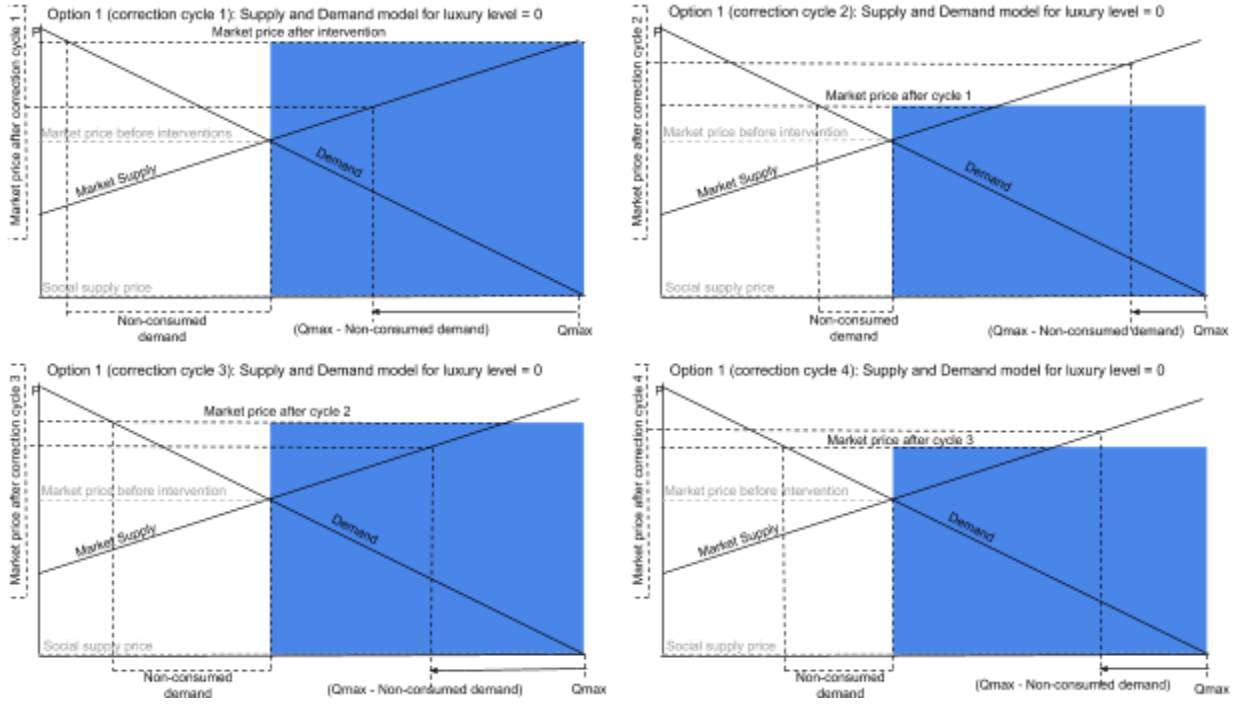
Appendix A:



Appendix A. Problems on the Dutch social housing market visualized[82]

[82] (Hoogvliet et al., 2018)

Appendix B:



Appendix B. Cycling process used to find the equilibrium for 'Non-consumed demand'.

The cycling process in the figure above is done by subtracting the expected 'non-consumed demand' from the maximum demand (Q_{max}). From this a new expected 'Market price after intervention' follows which yields a different amount of 'non-consumed demand'. The process is repeated for this new amount of 'non-consumed demand' until the 'non-consumed demand' in cycle N is equal to the 'non-consumed demand' in cycle (N+1).