

HOUSING MARKET ANALYSIS OF GREATER COPENHAGEN

Housing shortage, urban development potentials and strategies

English translation of the executive summary of the Danish report:
Boligmarkedsanalyse for hovedstaden - Boligbehov, udviklingspotentialer og -strategier

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EXECUTIVE SUMMARY

Executive summary, part I

The current situation

PRICE HIKES IN THE GREATER COPENHAGEN AREA

Prices of owner-occupied dwellings in the Greater Copenhagen area are skyrocketing, especially in central Copenhagen. In Copenhagen alone, real prices of owner-occupied dwellings have increased by nearly 50% since the beginning of 2013, whereas prices have been relatively stable in the rest of Denmark; see the top figure. The upward pressure on housing prices in Copenhagen is ascribable to a number of factors. Firstly, macroeconomic developments have been favourable in several areas. In particular, low interest rate levels have had a relatively big positive impact on housing prices in metropolitan areas. As a more structural trend, since 2006, Copenhagen has seen strong growth in housing demand because of an increase in the number of families. The sector for residential new builds has to some extent responded to this trend, but not nearly at the same pace as the increasing housing demand.

The ensuing gap between supply and demand has widened over a number of years, not least due to supply restrictions resulting from the coastal location of Copenhagen and its many protected green areas. Municipal plans and legislation have, however, also had a certain effect.

HIGH EXCESS DEMAND FOR DWELLINGS FOR YOUNG PEOPLE AND YOUNG FAMILIES WITH SMALL CHILDREN

In the current situation, we find excess demand for dwellings in general in Copenhagen. However, not all dwelling sizes and types have seen the same increases in prices and in demand; see the bottom figure. For example, in Copenhagen, the demand is particularly

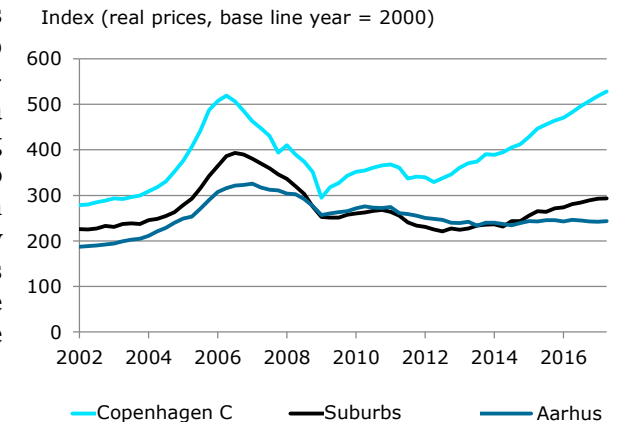
high for small flats under 60 square metres for young people and for medium-sized flats. The extraordinary demand for small flats is reflected in an excess demand/shortfall supply today of at least 4,000 dwellings; see the bottom figure. The lack of medium-sized flats for families with children corresponds to a shortfall of about 3,000 dwellings. The housing shortage for these family segments has been built up over a number of years. This is, for example, seen in the demographic development and family compositions, where the number of single persons and cohabitants has increased significantly since 2010, while the number of dwellings for young people has not grown nearly as much.

SOCIOECONOMIC CONSEQUENCES

Rising housing prices and rents in urban areas may result in a segregation in the composition of residents, with low-income groups being squeezed out of the cities. This trend may ultimately have consequences for the urban environment, the labour market and political objectives of equal opportunities for all.

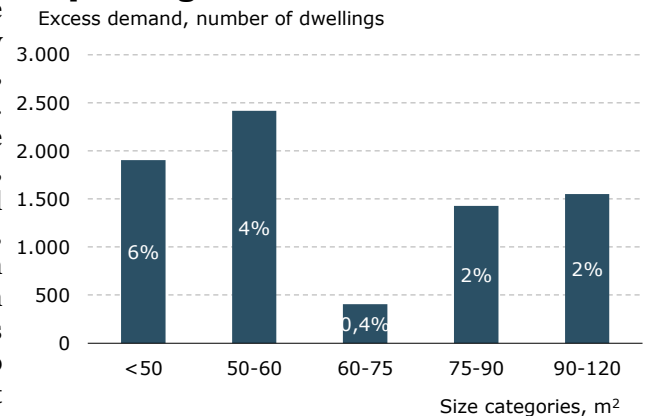
Furthermore, the housing market becomes more unstable with a risk of housing bubbles and heavy price fluctuations in step with, for example, developments in interest rates, economic trends etc. Who wins and who loses in the housing market in the Greater Copenhagen area will be far more random, and there is a risk of knock-on effects in the financial markets – as seen during the financial crisis. Finally, certain knock-on effects on the real economy and on other areas of Denmark can be expected – not least in the form of price knock-on effects. Copenhagen plays a special role in the Danish economy as a driver of job creation. If a sufficient number of dwellings is not built where the growth is, we risk a loss of growth.

Price development on owner occupied dwellings



Note: The indexes are calculated on the basis of owner-occupied dwellings for different types in different municipalities, weighted by the total stock of dwellings in 2012 and deflated with the consumer price index.
Source: FinansDanmark's price index and Statistics Denmark.

Excess demand for dwelling in Copenhagen



Note: The figure shows how much the housing stock (number of apartments) in Copenhagen and Frederiksberg municipalities is expected to rise to achieve a market equilibrium, where differences in m² prices reflect differences in construction costs. The percentages show how much the stock of apartments of the segment should rise as compared to the current housing stock. Based on data from 2006 to 2015.

Source: Copenhagen Economics' microeconomic model for housing prices and housing requirements, as well as register data from Statistics Denmark. See. calculations in section 1.2 of the full report (in Danish)

The expected housing demand going forward

THE CURRENT HIGH LEVEL OF NEW CONSTRUCTIONS MUST BE MAINTAINED TO ENSURE STABLE PRICE DEVELOPMENT

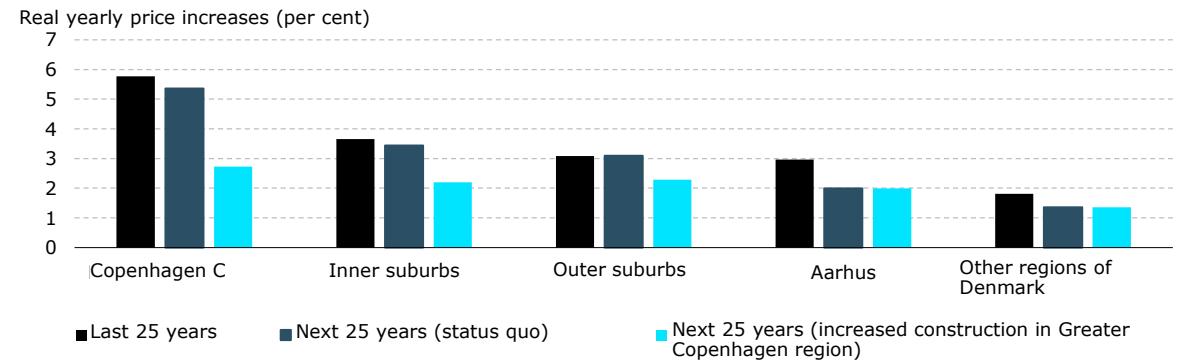
The housing need will not diminish in the coming years. Our macroeconomic analysis shows that if housing construction 'only' grows at the average rate for the past 10 years, housing prices in the Danish capital will increase at nearly the same rate in the next 25 years as in the past 25 years (approximately 5.5% a year); see the status quo scenario in the top figure.

Conversely, our analysis shows that if the high increase in new dwellings over the past 2-3 years can be maintained, it will be possible to limit price increases in Copenhagen and the suburbs considerably, bringing them largely in line with levels in the rest of Denmark. However, for this to happen the housing supply in the Greater Copenhagen area must grow by 5,000-9,000 dwellings a year (most in the first couple of years), which includes approximately 110,000 dwellings up to 2035 and just over 150,000 dwellings up to 2045, the majority of which are located in Copenhagen.

A MORE DETAILED MAPPING OF THE HOUSING NEED

With continued strong growth in the housing stock in Copenhagen and the suburbs, real housing prices can be stabilised. There is a particular need to increase the housing supply in the next 7-10 years by the equivalent of nearly 50,000 dwellings in Copenhagen up to 2025, and by nearly 23,000 dwellings in the suburbs. Towards 2035, we find that there is a further need for approximately 30,000 dwellings in Copenhagen and 14,000 dwellings in the suburbs. The housing demand can be alleviated through a different distribution of dwellings in the city centre and the suburbs; building more dwellings in the centre generally brings more relief than dwellings in the suburbs. Much of the demand is for small flats for young people, and to some extent also for other types of flats. The demand for detached and terraced houses is primarily in the suburbs.

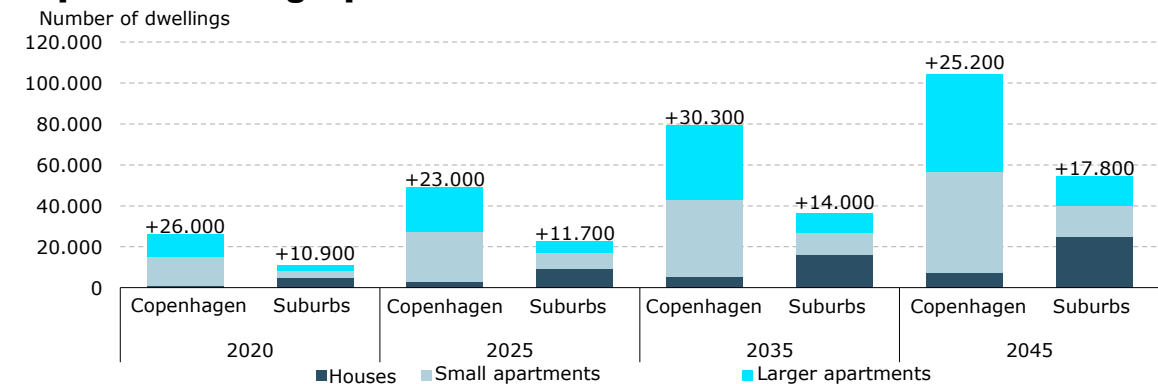
Annual price increases during the last 25 years and price forecasts of the next 25 years depending on the housing stock



Note: Copenhagen C includes Copenhagen and Frederiksberg municipality, Inner and Outer suburbs correspond to "Københavns omegn" and the rest of the Greater Copenhagen regional excl. Bornholm, respectively. The forecasts are based on a regional housing price model and a number of assumptions about developments in the real economy, etc., see Appendix A in the full report (in Danish). Focus is on development in housing stock: In the status quo scenario, the housing stock rises at the same rate as it has done over the last 10 years. In the scenario "increased construction", the housing stock in Greater Copenhagen rise at the same high rate as it has done since 2014.

Source: Copenhagen Economics' macroeconomic model for housing prices, cf. Appendix A in the full report (in Danish)

Estimates of future housing demand in the capital based on expected demographic movements



Note: Small apartments include apartments of less than 74 sqm. and colleges. The figures above the columns indicate the total change compared to the previous period. For the first period, for example, the figure shows that housing demand is expected to increase by approximately 26,000 homes in Copenhagen from mid 2017 through 2020. These numbers are calculated from a different approach than the calculations from the macro model (figure above), and the results are therefore not exactly the same (but relatively close).

Source: Register data from Statistics Denmark and demographic forecast from DREAM, cf. calculations at the end of Appendix B in the full report (in Danish).

Executive summary, part II

Strategies for urban development

VARIOUS STRATEGIES FOR INCREASING HOUSING SUPPLY

In order to meet the growing housing demand, in the second part of this analysis, we have set up a framework which distinguishes between three different strategies for increasing the housing supply in the Danish capital; see the figure on the right.

For each strategy, calculations have been made of the potential that can be expected to be realised towards 2035 if the strategies are implemented. For each strategy, we have broken down the figures on Copenhagen and the suburbs, and in some cases on inner and outer suburbs.

Strategy 1 focuses on identifying areas which have not yet undergone urban development, but which hold considerable future potential which can be developed without compromising the other values of the city 'to any significant extent'. These values pertain especially to green areas, demands for increased infrastructure, new schools, institutions etc., and the balancing of the compromises is obviously a political question.

Strategy 2 entails urban densification by building more dwellings in areas that have already seen urban development. This may be done by demolishing existing buildings and building new, by filling the gaps between existing buildings or through extensions to the existing building stock and building higher. Here, the strategies for Copenhagen and the suburbs differ greatly. Copenhagen holds some general potential in the form of, for example, unused roof spaces and lofts, as well as relatively sparsely built central areas, unused plots etc. In the suburbs, the main emphasis will be on densification and on

urbanisation and increased attractiveness around stations. Improved infrastructure is a decisive factor when it comes to assessing the potential in the suburbs.

Strategy 3 focuses on the more efficient use of the existing building stock for the purpose of making room for more people and meeting any existing and new needs brought about by demographic developments. This may be achieved either by converting non-residential buildings into dwellings or through increased mobility between existing dwellings, especially dwellings on the social housing and regulated rental property market. Higher mobility means that families move out and into new smaller dwellings as their need for space falls. In this way, the same dwellings can house more people and larger families.

ADVANTAGES / DISADVANTAGES OF THE STRATEGIES

The second part of the analysis also shows that the individual strategies are associated with both advantages and disadvantages, which will always be the case with an increased housing supply.

The obvious advantage of increasing the housing supply is that it becomes possible for larger and more diverse population groups to settle in the capital. Furthermore, the more or less random redistribution of wealth caused by property price hikes is reduced.

Another advantage of urban densification is that pollution as well as time and energy waste are reduced with shorter transport distances. At the same time, an increased housing supply can lead to a livelier urban scene for the benefit of citizens and

businesses alike. This applies both centrally and in the suburbs, where densification near stations can bring new life to small railway towns and increase the use of public transport, which also has environmental advantages.

However, there are also potential drawbacks to increasing the housing supply. Urban densification will often be associated with negative externalities, i.e. costs affecting persons other than those directly involved in the construction and use of new dwellings. Negative externalities include, for example, fewer green areas and less open space per inhabitant, loss of privacy/overlooking, loss of light/overshadowing and noise. Unless scaled to accommodate the larger population, infrastructures will also be put under pressure. Finally, an increased supply will reduce the price of and/or limit price increases for existing dwellings. This negative externality for existing homeowners is, however, offset by a lower purchase price for new/future homeowners.

It should be mentioned that we have deliberately chosen not to consider the possibility of building new housing in conservation areas such as the common Amager Fælled etc., nor have we considered urban development through land reclamation.

The three strategies for increased housing supply

- 1 Make use of new areas
 - 2 Densification of the existing urban areas
 - 3 Better utilization of existing building stock
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Potential for urban development

LARGE POTENTIAL FOR INCREASING HOUSING SUPPLY IN COPENHAGEN

Our analysis of the potentials of the three strategies shows significant potential for increasing the housing supply in the Danish capital. The aggregate potential of the three strategies is an estimated maximum of almost 270,000 dwellings in the period up to 2035. On the other hand, an estimated housing need of approximately 110,000 dwellings has been identified for the period up to 2035.

The overall conclusion is therefore that the proposed strategies should be able to increase the housing supply sufficiently for the accelerating housing price and rent increases in the capital to be halted. The strategy as a whole is, however, quite ambitious and will require major changes to existing legislation and political processes as well as substantial private and public investments. The problem of meeting the demand for dwellings may therefore not go away, especially if political support cannot be mustered for the individual strategies and substrategies, or if the related barriers that exist at present cannot be overcome.

TIMING, LOCATION OF DWELLINGS AND THE VARIOUS STRATEGIES

However, it is important to look at the details, such as the timing of new housing projects, the location of the dwellings and the potentials of the strategies. If the increase in the housing supply comes ‘too late’ relative to the housing demand, it will, for example, create a short-term risk of housing bubbles. Furthermore, if too many new dwellings are built in the suburbs (and not enough in Copenhagen), this may result in a further widening of the gap between

price developments in Copenhagen and in the suburbs.

The table on the right shows the estimated potentials over time, areas and the various strategies. This may be compared with our estimate of the future housing need below. Looking first at the timing, we do not find that timing is an actual problem – despite the fact that the housing demand will increase the most in the first part of the period up to 2025.

If we then look at the individual strategies, the first strategy clearly holds the greatest potential. This is, in fact, the strategy that will enable the Danish capital to increase its housing supply dramatically in the coming ten years. This applies, in particular, to the many unbuilt areas in Copenhagen, many of which could, in our opinion, be brought into play relatively soon – under the right conditions.

The second strategy generally holds less potential and potential which lies further into the future, and to a greater extent, in the suburbs. The reason for this is that urban densification often presupposes a certain level of urban development and depends on existing owners being prepared to sell their homes and plots. Finally, the land-to-building ratio is low in many areas near stations in the suburbs.

The third strategy is more theoretical, requires major changes in the regulation of the public and private rental property market and has significantly less potential. Finally, the potential of this strategy has relatively long prospects, as it is unlikely that rules and the duration of tenancy agreements can be changed for existing tenants.

Estimated potentials

Number of dwellings	2017-2025	2025-2035
#1 Make use of new areas		
Copenhagen C	73.300	13.700
Suburbs	11.400	23.000
#2 Densification of the existing urban areas		
Copenhagen C	13.000	40.000
Suburbs	24.000	48.000
#3 Better utilisation of existing building stock		
Copenhagen C	6.500	7.000
Suburbs	6.000	3.300
Total		
Copenhagen C	92.800	60.700
Suburbs	41.400	74.300
Total potential	134.200	135.000

Expected housing demand (from earlier)

Number of dwellings	2017-2025	2025-2035
Copenhagen C	50.000	30.000
Suburbs	23.000	14.000
Behov totalt	73.000	44.000

Note: The estimated potentials are the sum of all identified potentials in this analysis. We do take in to account that different strategies do not cover the same potentials, but at the same time it may be difficult to maximize the potential of all strategies at the same time. On average there are approximately 2 residents per. dwelling in Copenhagen and approx. 2.3 residents per. dwelling in the suburbs (Statistics Denmark, incl. children, 2017). If this distribution is maintained going forward, the figures in the bottom table correspond to demand for housing for approx. 120,000 residents in the Greater Copenhagen region until 2035 and another 92,000 residents until 2035.

Executive summary, part III

Barrierer for byudvikling

OVERALL BARRIERS AND COMPLEX CHALLENGES

Through interviews with municipal planners, governmental stakeholders, special interest organisations and market players, we have identified a number of barriers and incentive-related challenges to achieving the necessary increase in the housing supply in the capital. Furthermore, a large number of elements must be considered before the housing potentials estimated in part 2 of the analysis can be realised.

However, the barriers are generally relatively complex. We have divided them into four areas, where each area contains barriers and incentives of a legal, financial and political nature. In the bottom right table, we have outlined the different areas and barriers.

DIFFERENT INTERESTS

For the first two areas, the financial and political incentives are the two principal problems: Expectations of increasing housing and land prices may act as an incentive for private and public landowners to postpone the sale of land for urban development. Municipalities have economic incentives for attracting only specific residents, for example by primarily zoning new areas for single-family houses and urban sprawl, while the political focus of both municipalities and other public-sector stakeholders may be on areas other than urban and housing development. Finally, ownership issues and the Danish Planning Act etc. make up the legal framework.

According to the stakeholders involved, it is,

however, important to see housing development as part of holistic urban development, across sectors etc. For while the municipalities may have a strong interest in creating urban and housing development in a given place, other private, public or semi-public players (possibly landowners) may have completely different interests.

Finally, it is difficult to support holistic regional development, when the municipalities are competing with each other to attract the same groups of newcomers.

MARKET CAPACITY AND IMPORTANT PLAYERS

The last two areas concern the capacity for urban development among municipalities and market players. Here, the legal framework is primarily provided by the ceiling on construction spending by the municipalities, the Danish Planning Act, public

procurement rules and regulations. Together with substantial associated investments and costs incidental to urban development in certain areas, the legislation may provide municipalities and developers with incentives that conflict with the objective of more urban development in Copenhagen. Every time areas are zoned for urban development, the municipalities also face costs associated with new infrastructure and development of the area, and these costs must be covered by the existing construction budget.

Market capacity may also be challenged on the supply side, also for public developers. This applies, in particular, in the short and medium terms, where the demand for housing is expected to increase strongly, or, if investments in new dwellings become very varied over the coming years, at the same level seen in the past 20 years

Overall barriers for increased housing supply

	Challenges	Legal frameworks and barriers	Economic incentives	Political purposes and barriers
Incentives	# 1 Special interests and incentives among different actors	Ownership	Housing and land prices	Functionality of the city and buildings
	# 2 Special interests among the municipalities	Danish Planning Act	Residents composition and tax base	Local anchoring
Capacity	# 3 Capacity constraints in the municipalities	Fixed cost ceilings	Follow-up costs of urban development	Political uncertainty
	# 4 Market capacity constraints	Tender rules and regulations	Higher construction costs in certain areas, as well as cyclical fluctuations	Political uncertainty

Proposal for breaking down barriers etc.

PROPOSAL FOR BREAKING DOWN BARRIERS AND ADDRESSING INCENTIVE-RELATED PROBLEMS

In the report, we have suggested a number of ways in which the challenges associated with the increasing housing demand in Copenhagen may be addressed and put on the agenda. Furthermore, we have provided some general ideas on how barriers and problems with incentives may be overcome (these are contained in the summary in the Danish version of the report, see Copenhagen Economics website).

The proposals primarily involve an increased level of governmental involvement and coordination in connection with urban development in Copenhagen. Furthermore, we propose a review of the municipalities' incentive structures, scope for action and capacity challenges as well as a review of regulation etc. of the building sector.