DREAM

Household Formation and Housing Demand Forecasts

- English summary

Jonas Zangenberg Hansen,
Peter Stephensen &
Joachim Borg Kristensen

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Household Formation and Housing Demand Forecasts

The current business cycle has brought housing markets firmly into the macroeconomic mainstream. In this project we build a detailed model of housing demand and use it to forecast key aggregate and compositional features of Danish housing demand until 2040.

Individual housing demand is determined by a number of economic factors. Empirical studies show disposable income to have a very large effect on a household's choice of housing. Additional variables affecting the choice of housing include the interest rate, the price of existing housing, household wealth and the level of inflation.

Aggregate housing demand is to a larger extent determined by demographics. The size and age distribution of the population, the pattern of family types and the educational background of the population are examples of factors with a large influence on the long-run demand for housing. As an example, an increase in the number of elderly people will result in an increase in demand for types of housing suitable for the elderly. Likewise, an increase in the number of students will cause an increase in demand for housing suitable for students, this demand typically being for smaller apartments in larger urban areas.

In the very short run, the supply of housing is fixed at the level of the existing housing stock. Consequently, a change in demand will reveal itself through price changes in the market for privately owned housing and through the length of waiting lists or the level of rents in the market for rented housing. In the longer run, the supply of housing will adjust to demand through construction of new housing or demolition of existing housing.

The long-term evolution of housing demand will ultimately affect the size of the housing stock and hence yield an indication of the future need for construction of new housing. Forecasting the evolution of demand for different types of housing is very useful as the supply side in this market is slow moving since planning and building are lengthy processes.

To forecast the demand for housing we develop a model based on detailed demographic information. The model describes both the evolution of cohabitation patterns and family formation and dissolution, as well as the movements of households between various types of housing over time. Based on this, we are able to forecast the number of dwellings required so that each household has one unit of housing. This number is referred to as *the potential housing demand*.

The next section gives a short introduction to the method used to forecast household patterns and housing demand. The method is based on microsimulation by which an initial population is projected one year at a time through the realization of one or more possible events. These events include, among other things, births, deaths, the formation and break-up of couples, and the movements of households across different types of dwellings.

The last section summarizes the main results of our work. The initial population of approximately 5.5 million individuals is projected to increase to approximately 6.0 million individuals in 2040. In addition we forecast that an increasingly larger share of the population will be living in single-adult households. As a result, the demand for dwellings is forecasted to increase from 2.59 million in 2010 to 2.94 million in 2040. This corresponds to a net increase of 11,775 dwellings a year if the increasing demand is to be met.

The projection method

Dwellings are occupied by households. Consequently, the forecast of housing demand is based on a forecast of the household structure with each household being associated with a unique dwelling. The household structure is forecasted using a microsimulation model. A defining feature of such models is that they are based on individual “entities” which can be either individual persons or families.

The microsimulation in the present work is based on an initial population where each individual is described by a number of characteristics including gender, age, education, family type, etc. It is also registered which family an individual belongs to, and which type of dwelling the family occupies. The simulation forecasts the initial population from period to period where each period corresponds to one year. In the process the characteristics of each individual are updated each period. The updating is achieved by ”exposing” individuals and households to a number of possible events. For an individual, possible events include to begin or finish an education, and of course to die. For a family, examples of events include marriage, divorce, and to move to another dwelling. In order to determine whether or not a specific event is realized, each person is “asked” a question to which the answer is either ”yes” or ”no”. The questions depend on the characteristics of the person. A typical question would be to ask a 30 year old male in a single-adult household whether he will find a partner during the following year.

Answers to these questions are randomly determined using transitional probabilities which depend on the characteristics of the individual. This is the probability that a specific event takes place during the following year. In the example given above, this is the probability that a single 30 year old male finds a partner during the following year. Transitional probabilities are calculated based on historical observations. If the event is found to take place, the effects of it will be implemented in the model. To continue the example, this requires that a single female also has answered “yes” to the question of whether she will find a partner, and in this case the two individuals will form a couple. In the following period, the male (and the female) will not be asked whether he (or she) will find a partner. However, if the event does not take place, the individuals will be asked the same question in the following period. In this way, it is possible to simulate the remaining life cycle for all individuals in the initial population and thereby form long-run projections.

Box 1 gives an example of a simple microsimulation model used to project the total population based on individual births and deaths.

Box 1. An illustrative microsimulation model.

To illustrate the principles and dynamics of microsimulation, a simple model is presented below where only births and deaths affect the population.

The model begins in period *t* where the initial population is known and consists of a number of individuals that are divided into families. Figure B.1 below illustrates a population consisting of 8 individuals divided into 5 families. Specifically, the population consists of a single female without children, a couple (two adults) with one child, an elderly male, a couple without children and a single male without children. The age of each individual is registered, and by noting whether a family contains one or two adults it is possible to determine whether an individual is single or part of a couple.

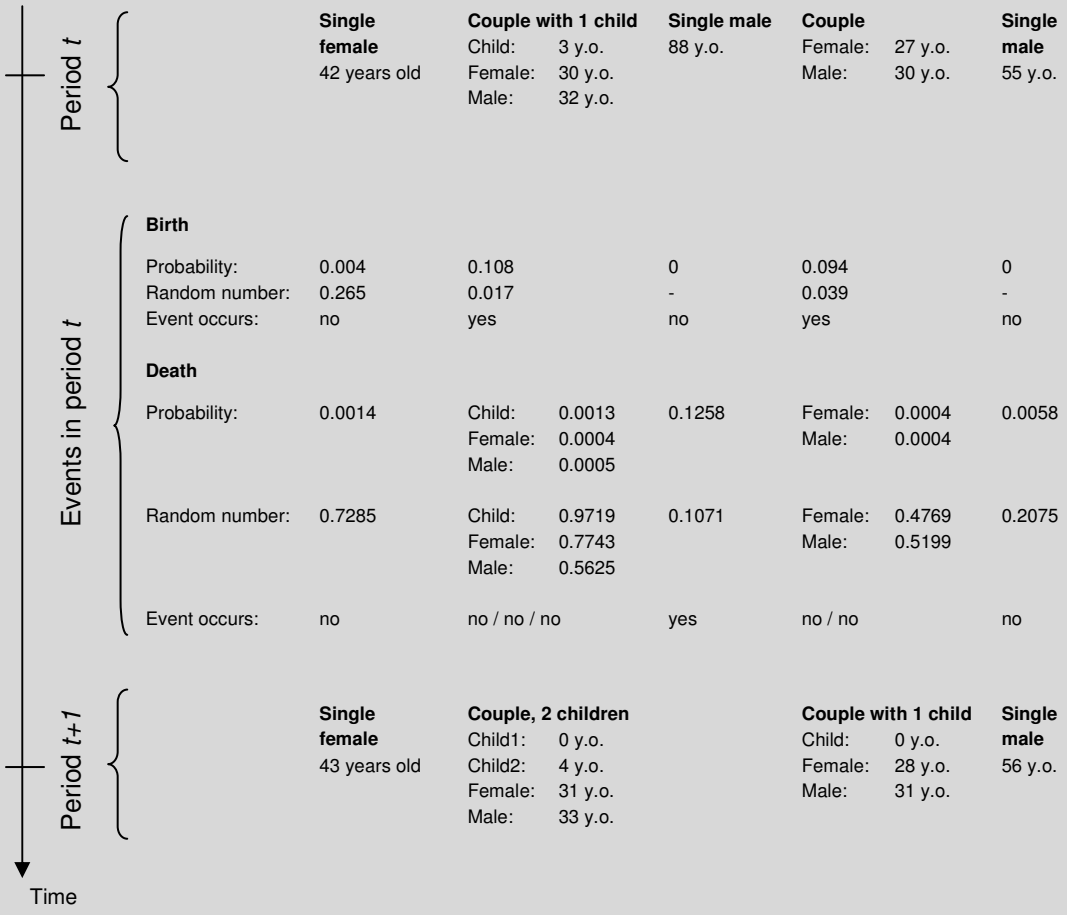
Next, we want to simulate the evolution of the population from period *t* to period *t + 1*. This is done by asking each individual or each family a number of questions to which the answers are either “yes” or “no”. It is then determined whether or not an event occurs by using

Box 1 (cont.). An illustrative microsimulation model.

transitional probabilities based on historical data.

In this example, we use two transitional probabilities denoting the likelihood that a female gives birth and the likelihood that an individual dies respectively. The probability of giving birth depends on the age of the female and on whether or not she is part of a couple. The probability of death depends only on the individual's age. The respective probabilities are shown in the figure below and are calculated based on data for the period 2008–10. As an example, it is seen from the data that there are 43,961 individuals aged 88 during the three historical years. Of these, 5,485 die before reaching their 89th year. Consequently, the probability of death for an 88 year old individual is calculated to be 5,485 / 43,961 = 0.1258.

Figure B.1. Illustration of the simple microsimulation model.



The event "birth" is modeled at the family level, meaning that the family is asked if the female gives birth to a child which, if affirmative, is then added to the family during period *t*. First, the family including the single female is asked whether she gives birth to a child during period *t*. The probability associated with this is shown in the figure and equals 0.004. In other words, is not very likely that the female will give birth to a child. This is due to the fact that she is single and at the end of her fertile period of life (fertility is assumed to depend on these two factors). In order to determine whether a child is born, a random number between 0 and 1 is drawn. The realization of this turns out to be 0.265 as shown in the figure. Since the randomly drawn number is larger than the probability of birth, the single female does not give birth during period *t*.

Box 1 (cont.). Simple illustrative microsimulation model.

In a similar way, it is simulated whether the remaining four families have a child during period *t*. The probabilities that the two families involving couples (two adults) have a child are relatively high due to the fact that they involve couples and that the females are of an age where fertility is high. A male cannot give birth and therefore the probability of birth is zero for both single males. After simulating births, it is seen that the two families involving couples have a child during period *t*. This is due to the fact that the two randomly drawn numbers are lower than the respective probabilities of birth. As a consequence, a child is added to each of these families at the end of period *t* (or at the beginning of period *t + 1*). In total, two births have taken place during period *t* while the remaining three families have not increased in size.

The event ”death” is modeled at the personal level, meaning that each individual person is asked whether he or she dies during period *t*. This is done with the same method used to simulate births. The figure below shows the probabilities of death for all individuals. The probability is relatively low for individuals below the age of 50 while it is 0.6 percent for the single male aged 55 and 12.6 percent for the single male aged 88. For each individual, a random number is then drawn which determines whether the person in question dies in period *t*. Only in the case of the single male aged 88 is the randomly drawn number lower than the probability of death, and hence this person is the only one to die during the period. All other individuals continue to be alive in period *t + 1*.

By asking every family whether the female gives birth to a child and each person whether he or she dies during the period, the evolution of the total population from period *t* to *t + 1* has been simulated. The number of deaths and births can be found by counting the total number of occurrences of events during period *t*. In the example, this amounts to 2 births and 1 death.

By adding newborns to the relevant families and by removing individuals who have died, the total population has been simulated one period ahead. Similarly, the age of all individuals is increased by 1 as the length of the period is assumed to be one year. It is now possible to establish the population in period *t + 1* and it consists of 9 individuals divided into 4 families.

By applying the same method to the population in period *t + 1*, the total population can be projected into period *t + 2*, and through repeated application the population may be forecasted for as long as required.

The model in Box 1 is a simplified microsimulation model containing only the events of birth and death. In our forecast of housing demand a considerably larger number of events are modeled. As in the simplified model, a distinction is made between events at the individual level and the family level. More specifically, a distinction is made between three types of events. Demographic events include birth, death, immigration, emigration and change of citizenship. Socioeconomic events include changes in labour market status and educational status, specifically to begin an education, to drop out of an education, to continue and to finish an education. Finally, household-specific events include the formation of a couple, the break-up of a couple, the event of a child leaving the parental home, and a family moving to a new dwelling. Each of these events is modeled based on transitional probabilities calculated from historical data. The demographic events determine the evolution of the total population while the household-specific events determine the evolution of the number of households. Probabilities associated with moving and

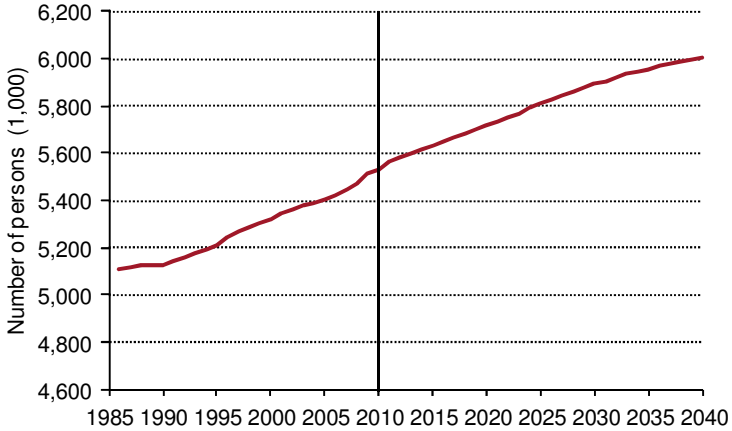
with the choice of dwelling determine the pattern of household movements between dwellings and therefore the evolution of the aggregate demand for different types of housing.

Based on the events mentioned above, a projection can be made regarding the total size of the population as well as the age composition and pattern of cohabitation. The result is a projection of the number of households in Denmark, i.e. a projection of the number of single-individual households, the number of households involving couples, and for each household the number of children living at home. In the model, each household is associated with one dwelling that depends on the size of the household, the age composition of its members, their educational background, etc. Households move between existing dwellings based on historically observed moving patterns, and by projecting the number of households associated with each type of dwelling an estimate of the future housing demand is obtained.

The main results of the projection

The Danish population has increased from 2.4 million individuals around 1900 to 5.53 million in 2010. There has been positive population growth in all years except for a short period in the beginning of the 1980s. The observed tendency of an increasing population is expected to continue in the years to come, cf. Figure 1 which shows our model's forecast of the Danish population. Total population is predicted to reach around 6 million individuals in 2040. Until 2030 the population is expected to exhibit a constant growth of approximately 17,000 individuals per year. After 2030 population growth is expected to gradually decrease, so that in 2040 the total population will increase by around 8,000 individuals relative to the previous year. Total population increases due to positive net immigration (meaning that total immigration is expected to be higher than total emigration) as well as a positive surplus of births over deaths.

Figure 1. Total Danish population, 1986–2040.



Sources: *Statistics Denmark and own calculations.*

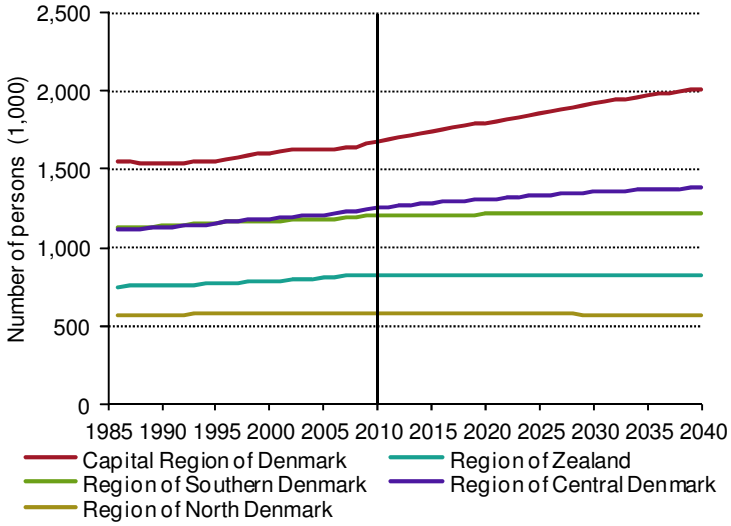
Note: *The vertical line indicates the shift between historical data and forecast.*

In the forecast period the age composition of the population changes so that a larger share of the population consists of elderly people. This is caused by a continuation of the increasing life expectancy that has been observed historically, implying that future generations of elderly are expected to live considerably longer than current ones. As the large cohorts born after WW2 reach retirement age in the years to come, the increase in population until 2040 is expected to be caused almost exclusively by an increasing number of individuals above the age of 65. The number of individuals in this age group is expected to increase by more than 550,000 during the

period 2010–40 while the number of individuals aged 21–64 is expected to decrease by 120,000. Individuals aged 65 and above are consequently expected to make up an increasing share of the total population in coming years, increasing from 16.3 percent in 2010 to 24.3 percent in 2040.

There is also geographical variation in the evolution of population. The last few years have shown a tendency for a larger part of the population to locate near large urban areas, in particular the area surrounding Copenhagen and in Eastern Jutland (which includes Aarhus). The tendency is expected to continue in coming years, cf. Figure 2 which shows population forecasts for each of the five Danish regions[1]. Specifically, the population in the capital region of Denmark is expected to grow by 335,000 individuals until 2040, corresponding to an increase of slightly more than 11,000 individuals a year during the next 30 years. This population growth is higher than during the historical period in which the population in the capital region on average grew by 8,200 individuals per year from 1995 to 2010. In the region of Central Denmark, population is expected to grow by close to 130,000 individuals from 2010 to 2040. Until 2020 population growth in the region of Central Denmark is roughly at the level of the historical period of around 5,500 individuals per year. After that, population growth decreases in this region. In the regions of Zealand, Southern Denmark and Northern Denmark, only a modest change in population is expected.

Figure 2. Total Danish population by regions, 1986–2040.



Sources: *Statistics Denmark and own calculations.*

Note: *The vertical line indicates the shift between historical data and forecast.*

The growing population until 2040 will increase the total number of families in Denmark, cf. Figure 3 which shows the number of households with one adult (singles) and two adults (couples) respectively. The number of families is, however, also affected by the pattern of cohabitation.

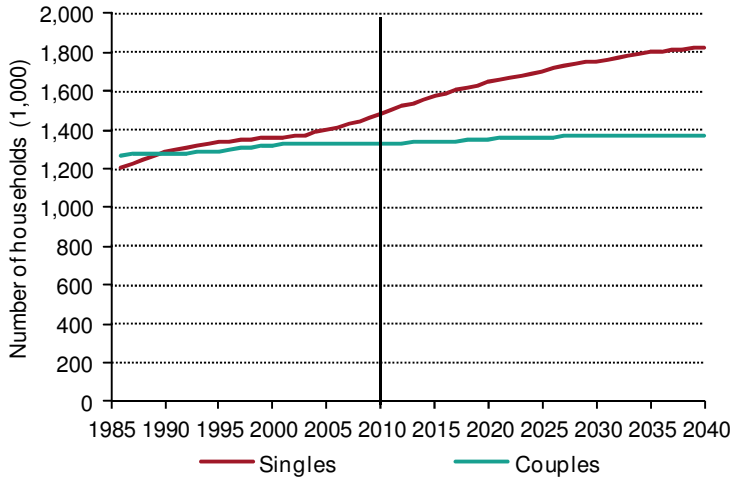
Historically, the evolution in the number of singles and couples has been dominated mainly by two counteracting effects: Firstly, an increasing share of individuals below the age of 65 live as singles. A number of explanations may be given for this. Young individuals tend to spend longer time on education today than previously so that they are older when they move in with a partner

[1] Denmark is divided into five regions and 98 municipalities. The five regions are the Capital Region of Denmark ("Region Hovedstaden"), the region of Zealand ("Region Sjælland"), the region of Southern Denmark ("Region Sydjylland"), the region of Central Denmark ("Region Midtjylland") and the region of Northern Denmark ("Region Nordjylland"). The regions have between 0.6 and 1.6 million inhabitants. In terms of acreage, the smallest region is the Capital Region of Denmark covering 2,561 square kilometers while the largest region, the region of Central Denmark, covers 13,142 square kilometers.

and form a family. But even after having finished their education, an increasing share of individuals live as singles. This is often explained by increasing wealth which makes life as a single financially feasible. Secondly, an increasing share of individuals above the age of 65 live as couples. This effect appears because individuals on average live longer. As longevity increases, fewer individuals live as singles because the time of death of the partner is postponed until higher ages. Historically, women have a higher average longevity than men, but the historical period shows a tendency for the longevity of males and females to converge. This also implies that individuals on average live fewer years after the death of their partner than previously.

The change in the aggregate composition of family structure is a reflection of the fact that the period 1986–2010 exhibits a higher growth in the number of singles than in the number of couples. The last part of the 1990s and the beginning of the new millennium show a temporary tendency for the number of couples to increase while the number of singles stagnates. This is caused by the mortality of the elderly starting to decrease from the mid-1990s. As a consequence, some of those who would otherwise have become single following the death of their partner will instead continue to live as part of a couple. This effect temporarily dominates the effect of changing family structure in which an increasing share of the population live as singles.

Figure 3. Number of households in Denmark divided by couples and singles, 1986–2040.



Sources: *Statistics Denmark and own calculations.*

Note: *The vertical line indicates the shift between historical data and forecast.*

The tendency for a changing family structure is continued in the forecast and leads, along with an increasing population, to a larger total number of families. As in the historical period, the number of single-adult families grows at a relatively higher rate than the number of families involving couples. The number of single adults is thus expected to increase by nearly 350,000 individuals during the period 2010–40. In the same period, the number of adults who live as couples increases by a little less than 70,000. This implies that a larger part of the population will consist of single adults as the share of singles, excluding children living at home, will grow from 35.8 percent of the population in 2010 to 40.1 percent in 2040.

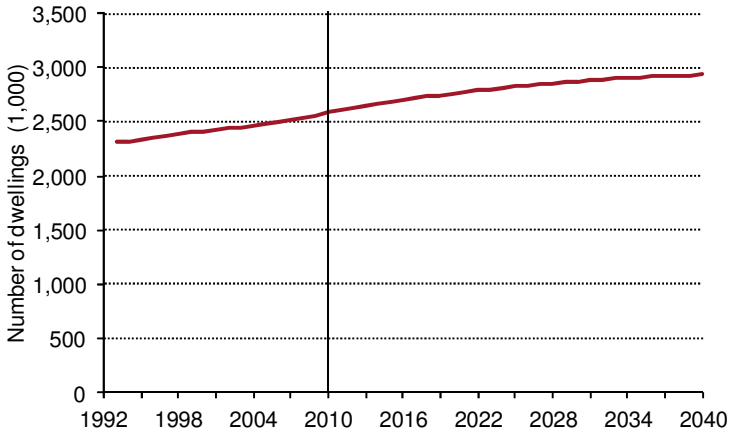
The increase in the number of households causes an increase in the demand for dwellings. Figure 4 shows housing demand for the period 1993–2040. Housing demand is defined here as the number of dwellings needed if there is to be one dwelling for each household. In total, the

increasing population and the change in the pattern of cohabitation increase the demand for dwellings from 2.59 million in 2010 to 2.94 million in 2040.

During the period 1993–2010, housing demand has seen an annual increase in the range of 10,000 to 27,000 with an average of 15,250 dwellings per year. In the beginning of our forecast, the annual increase in housing demand is maintained at the historical level; however, the growth rate of demand diminishes over time. Around 2040 housing demand is thus expected to increase with approximately 5,000 dwellings a year. In total, housing demand is expected to increase by 350,000 dwellings during the period 2010–40. This corresponds to an annual net increase of 11,775 dwellings per year if demand is to be met. With depreciation of existing dwellings at a level of 5,000 per year, this requires the construction of new dwellings to be around 16,775 per year during the next three decades.

Approximately two thirds of the increase in total housing demand is explained by the overall increase in population. The remaining third is caused by the changing pattern of cohabitation whereby an increasing share of the population lives in households with only one adult.

Figure 4. Total Danish housing demand, 1993–2040.



Sources: *Statistics Denmark and own calculations.*

Note: *The vertical line indicates the shift between historical data and forecast.*

Figure 5 shows housing demand until 2040 by types of dwelling. The model distinguishes between owner-occupied housing[2] and rented housing which in turn is further subdivided into social housing[3], cooperative housing[4], publicly owned rented housing[5] and privately owned rented housing[6]. Owner-occupied housing is the most common type of housing accounting for a little more than half of all dwellings.

[2] Owner-occupied housing ("ejerboliger") consists of dwellings occupied by the owner himself.

[3] Social housing ("almene boliger") is constructed and run by social housing organizations. The term "social housing" is a collective designation for three different types of housing: social family dwellings, social dwellings for the elderly and social dwellings for the young. Social housing for the elderly may, however, also be constructed and run by the Danish municipalities or regions (these two types are categorized as publicly owned rented housing) and by independent organizations (categorized as privately owned rented housing).

[4] Cooperative housing ("andelsboliger") consists of apartments or houses in a cooperative housing society. A member buys a share of the society thus causing occupancy of a dwelling in the association. Cooperative housing is to some degree similar to owner-occupied housing; however, pricing of cooperative housing is not free (as it is for owner-occupied housing).

[5] Publicly owned rented housing ("offentlige udlejningsboliger") consists of housing owned by the municipalities, regions or the state that are rented out to individuals. These dwellings are typically targeted at certain groups of individuals, e.g. young people, disabled individuals or the elderly.

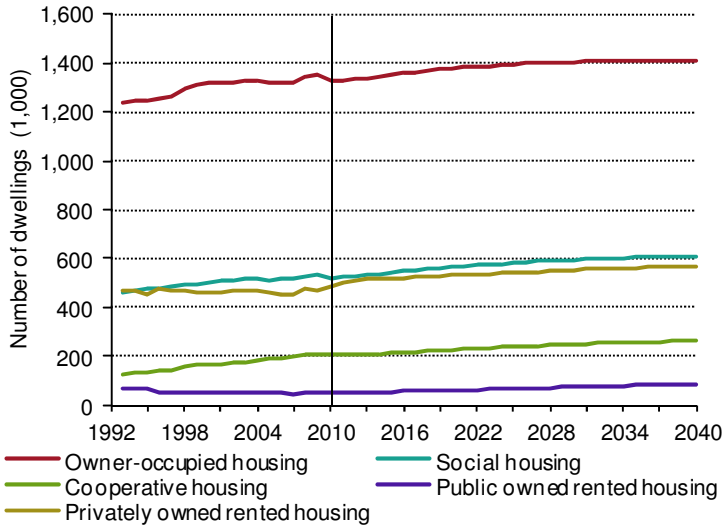
[6] Privately owned rented housing ("private udlejningsboliger") consists of housing owned by private individuals, companies or independent institutions that are rented out. This includes e.g. dwellings in traditional rental properties and sublet owner-occupied housing.

After 2010 demand for each of the five types of housing is expected to grow. Demand for owner-occupied housing, social housing and privately owned rented housing is expected to grow with approximately 85,000 units in total for these three types of dwellings between 2010 and 2040. During the same period, demand for cooperative housing is expected to grow by slightly less than 58,000 dwellings and publicly owned rented housing by slightly more than 38,000 dwellings. Our model thus predicts that the increase in demand for rented housing will be larger than that for owner-occupied housing. Owner-occupied housing will experience a decrease in its share of total housing, going from 51.9 percent in 2010 to 48.0 percent in 2040.

The fact that owner-occupied housing is expected to exhibit a decreasing share of overall housing is primarily caused by three factors that explain future changes in the demand for specific types of housing. Firstly, a considerable ageing of the population is expected, thereby causing a larger share of the population to consist of elderly people. Secondly, a larger share of the population will be living as singles due to the changing pattern of cohabitation. Thirdly, the model predicts that a larger share of the population will be living in the larger urban areas surrounding Copenhagen and in Eastern Jutland. These factors all point to an increasing demand for rented housing during the next three decades.

The ageing of the population mainly causes an increase in demand for publicly owned rented housing and social housing as these housing types mostly consist of senior homes. The changing pattern of cohabitation and the gravitation towards urban areas increase demand mainly for privately owned rented housing and cooperative housing since these housing types are the most common among singe-adult households and in urban areas.

Figure 5. Number of dwellings by type, 1993–2040.



Sources: *Statistics Denmark and own calculations.*

Note: *The vertical line indicates the shift between historical data and forecast.*

In a further division of housing demand, dwellings are defined according to their physical use. The most common housing categories are detached houses[7], terraced houses[8] (including linked

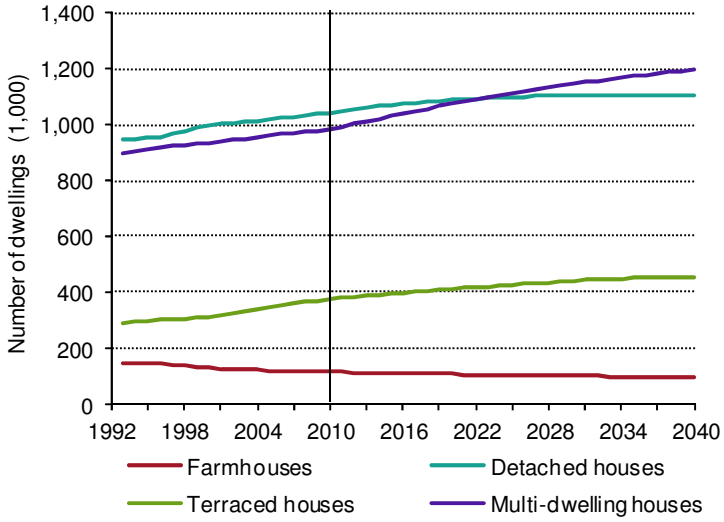
[7] A detached house ("parcelhus") is built independently from other houses and has its own garden. A detached house is intended for housing one family and typically has one or two floors.

[8] A terraced house, linked house or double house ("række-, kæde- eller dobbelthus") is a house in a property consisting of several independent housing units. Typically, such a property contains a row of identical or mirror-image houses that share side walls. Terraced houses are therefore characterized by a horizontal separation between housing units. There will typically be a smaller garden associated with each dwelling, and each unit is intended for housing one family.

houses and double houses), multi-dwelling houses[9] and farmhouses[10]. In total, these four categories comprise more than 97 percent of all dwellings in 2010. The remaining stock of dwellings consists of student housing, other residential buildings, properties for commercial use, residential institutions[11] and holiday houses[12].

Figure 6 displays housing demand until 2040 by category where we see an increasing demand for detached houses, terraced houses and multi-dwelling houses while the demand for farmhouses decreases. This continues the tendency observed during the historical period. In the period 2010–2040, the demand for detached houses is expected to grow by 62,500. This is caused by an increase in overall housing demand along with the expectation that households will live in detached houses for a longer period of their life as longevity increases. Between 2010 and 2040 the demand for multi-dwelling houses and terraced houses is expected to grow by approximately 215,000 and 80,000, respectively. This is the result of an increasing concentration in larger urban areas where these categories are predominant. In addition, population growth is especially pronounced among individuals aged 65 and older where a disproportionately large share of households live in housing in these categories. As in the historical period, the demand for farmhouses is expected to decrease in future years, exhibiting an overall decrease of approximately 19,000 over the period 2010–40.

Figure 6. Number of dwellings divided by category, 1993–2040.



Sources: *Statistics Denmark and own calculations.*

Note: *The figure shows the four most common types of dwellings which in total formed approximately 97 percent of the total stock of dwellings in 2010. Student housing, other residential buildings, properties for commercial use, residential institutions and holiday houses are omitted from the figure. The vertical line indicates the shift between historical data and forecast.*

In summary, our model predicts the demand for detached houses to increase by less than the increase in demand for terraced houses and multi-dwelling houses. The share of the total stock of dwellings consisting of detached houses is therefore expected to decrease from 40.7 percent in

[9] A multi-dwelling house ("etagebolig") is a dwelling in a property where multiple separate housing units are contained within one building. Each unit is intended for housing one family. A common form is a flat in an apartment building. A multi-dwelling house is characterized by a vertical separation between housing units. There can be multiple housing units on each floor and there are often multiple floors.

[10] A farmhouse ("stuehus til landbrugsejendom") is a general term for the main residential building of a farm. It is intended for housing one family and typically has one floor. It can either be connected to one or more barns to form a courtyard or be a separate building.

[11] A residential institution ("døgninstitution") is a home targeted at e.g. children or young people, weak or mentally ill people, or the elderly. In 2010, 19 percent of residents at residential institutions were 0–20 years old and 39 percent were older than the retirement age (65 years).

[12] A holiday house ("fritidshus") is a house built as a summer home that has been approved for permanent habitation.

2010 to 37.6 percent in 2040 while multi-dwelling houses will account for an increasing share of the total stock of dwellings. Until 2040 farmhouses' share of the total stock of dwellings will fall by 1.1 percentage points. This is matched by a corresponding increase of terraced share of the total housing stock.

Table 1. Number of persons, families and households, selected years 1995–2040.

	1995	2000	2005	2010	2020	2030	2040
Danish population by age							
Total	5,209,169	5,323,418	5,405,651	5,534,738	5,716,918	5,892,817	6,002,964
Children living at home	1,289,379	1,320,537	1,355,062	1,386,578	1,367,168	1,399,666	1,443,102
Adults up to 34 years old	1,116,461	1,074,350	985,608	956,542	1,020,741	1,036,128	1,013,252
Adults 35–64 years old	2,004,968	2,138,332	2,252,620	2,288,759	2,190,769	2,135,185	2,087,885
Adults 65–79 years old	593,493	581,402	591,522	675,349	876,643	918,625	995,317
Adults 80 years old or older	204,868	208,797	220,839	227,510	261,597	403,213	463,408
Danish population by region							
Total	5,209,169	5,323,418	5,405,651	5,534,738	5,716,918	5,892,817	6,002,964
Capital Region of Denmark	1,557,069	1,605,944	1,628,574	1,680,271	1,799,400	1,919,574	2,016,283
Region of Zealand	768,302	785,167	805,540	820,564	822,208	825,830	823,135
Region of Southern Denmark	1,155,216	1,170,481	1,181,518	1,200,277	1,212,053	1,220,632	1,217,178
Region of Central Denmark	1,154,415	1,182,129	1,210,721	1,253,998	1,308,574	1,354,530	1,382,412
Region of North Denmark	574,167	579,697	579,298	579,628	574,683	572,251	563,956
Number of families divided by couples and singles							
Total	2,628,447	2,679,966	2,725,849	2,815,778	2,997,186	3,125,212	3,193,669
Single men	592,484	609,046	637,570	684,342	774,722	830,040	863,943
Single women	744,620	748,005	763,539	799,054	869,900	927,233	963,533
Couples without children	671,532	707,758	722,269	729,557	763,396	768,118	752,948
Couples with children	619,811	615,157	602,471	602,825	589,168	599,821	613,245
Number of families divided by family size							
Total	2,628,447	2,679,966	2,725,849	2,815,778	2,997,186	3,125,212	3,193,669
1 person	1,193,154	1,216,190	1,246,207	1,312,195	1,470,959	1,579,962	1,645,358
2 persons	764,434	794,884	813,262	829,702	853,732	859,883	845,271
3 persons	304,769	285,760	271,729	272,548	285,332	287,453	288,970
4 persons	277,912	280,766	283,516	287,538	278,611	285,532	297,574
5 persons	72,288	82,820	89,739	93,053	88,968	91,943	95,419
6 or more persons	15,890	19,546	21,396	20,742	19,584	20,439	21,077
Number of families divided by couples and singles and number of children							
Total	2,628,447	2,679,966	2,725,849	2,815,778	2,997,186	3,125,212	3,193,669
Singles without children	1,193,154	1,216,190	1,246,207	1,312,195	1,470,959	1,579,962	1,645,358
Singles with 1 child	92,902	87,126	90,993	100,145	90,336	91,765	92,323
Singles with 2 children	40,955	42,015	49,213	54,835	62,046	64,271	67,316
Singles with 3 children	8,198	9,304	11,499	12,776	17,080	17,196	18,312
Singles with 4 or more children	1,895	2,416	3,197	3,445	3,222	3,184	3,239
Couples without children	671,532	707,758	722,269	729,557	764,375	769,013	753,876
Couples with 1 child	263,814	243,745	222,516	217,713	223,286	223,182	221,654
Couples with 2 children	269,714	271,462	272,017	274,762	261,531	268,336	279,262
Couples with 3 children	70,795	80,980	87,312	90,503	85,746	88,759	92,180
Couples with 4 or more children	15,488	18,970	20,626	19,847	18,605	19,544	20,149
Number of households							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
Number of families per household	1.123	1.110	1.096	1.100	1.086	1.086	1.087

Sources: Statistics Denmark and own calculations.

Note: Data for 1995–2010 is historical data while data for 2020–2040 is projected.

Table 2. Number of dwellings divided by characteristics, selected years 1995–2040

	1995	2000	2005	2010	2020	2030	2040
Dwellings divided by type							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
Owner-occupied housing	1,219,335	1,285,673	1,287,558	1,294,306	1,376,973	1,405,218	1,409,679
Social housing	450,533	474,955	484,549	494,333	564,439	594,122	610,664
Cooperative housing	125,240	156,009	177,461	191,885	227,064	249,421	262,755
Publicly owned rented housing	61,045	43,170	41,823	41,721	61,025	74,148	85,915
Privately owned rented housing	442,137	447,134	449,966	471,943	530,896	553,908	569,383
Unknown	41,480	7,280	46,474	66,770	-	-	-
Dwelling divided by category							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
Farmhouses	140,441	124,615	116,471	110,450	106,339	100,448	94,958
Detached houses	947,228	989,585	1,012,594	1,036,086	1,087,855	1,105,405	1,104,343
Terraced houses	291,329	306,205	338,899	368,289	410,729	440,221	454,760
Multi-dwelling houses	893,433	918,682	944,862	966,357	1,075,164	1,146,129	1,196,435
Student housing	26,910	28,689	28,458	29,816	33,260	33,693	33,868
Other residential buildings	7,538	7,481	7,300	6,199	8,593	8,885	9,113
Properties for commercial use	7,870	6,896	6,661	6,485	8,176	8,398	8,515
Residential institutions	13,006	16,091	8,351	7,704	9,266	10,845	12,948
Holiday houses	11,825	15,745	14,288	17,004	21,015	22,793	23,454
Unknown	190	232	9,947	12,568	-	-	-
Dwellings divided by size							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
0–59 m^2	319,568	325,446	319,226	306,310	342,511	363,270	378,384
60–99 m^2	888,993	907,643	929,163	944,311	1,030,054	1,092,541	1,133,220
100–119 m^2	333,508	330,913	336,137	346,089	383,238	404,207	414,723
120–159 m^2	490,113	512,611	528,118	544,375	574,033	583,955	582,892
At least 160 m^2	307,588	337,608	365,397	407,516	430,562	432,844	429,176
Unknown	0	0	9,790	12,357	-	-	-
Dwellings divided by regions							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
Capital Region of Denmark	757,423	776,143	785,048	803,568	883,579	946,698	996,340
Region of Zealand	332,936	345,204	359,287	371,046	393,807	402,844	402,668
Region of Southern Denmark	502,623	519,035	537,570	551,285	585,128	598,035	599,113
Region of Central Denmark	496,864	517,332	541,635	565,600	617,804	646,986	661,369
Region of North Denmark	249,924	256,507	264,291	269,459	280,080	282,254	278,905
Dwellings divided by size of town							
Total	2,339,770	2,414,221	2,487,831	2,560,958	2,760,398	2,876,817	2,938,396
Metropolitan area	669,137	551,998	536,427	588,790	648,723	700,319	741,967
City with at least 50,000 residents	317,467	326,802	342,997	403,166	428,093	442,627	450,459
City with 10,000–49,999 residents	424,714	532,606	567,036	562,714	619,411	648,255	662,725
City with 1,000–9,999 residents	460,506	520,439	517,555	543,857	586,606	605,347	610,600
City with less than 1,000 residents	467,946	482,376	469,902	462,430	477,564	480,269	472,644
Unknown	0	0	53,914	1	-	-	-

Sources: Statistics Denmark and own calculations.

Note: Data for 1995–2010 is historical data while data for 2020–2040 is projected.