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# Housing Taxation Agreement Stabilises House Prices

Housing taxation agreement will dampen house price fluctuations

From 2021 housing taxes will again dampen house price fluctuations and hence business cycle developments in general.

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Agreement reduces regional price differences

The housing taxation agreement stimulates house prices outside the cities, while dampening prices for e.g. flats in Copenhagen, towards 2021.

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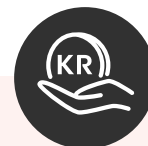
No clear gain from buying a home to obtain tax rebate

Most home buyers have no financial incentive to buy a home before 2021 merely in order to obtain the rebate.

Read more

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ECONOMICS AND MONETARY POLICY

What are the elements of the housing taxation agreement?

In November 2016, an agreement on a new property and land valuation system was concluded.[1] For some homes, including many owner-occupied flats, this will lead to substantially higher valuations.

In early May 2017, the Danish government and a broad majority in the Folketing (parliament) reached agreement on housing taxation from 2021.

Housing taxation consists of two separate taxes: property value tax and property tax (land tax). Both taxes will be adjusted under the agreement.[2] Homeowners whose aggregate housing taxes increase when the taxation agreement and the new valuation system is implemented will be compensated by receiving a tax rebate. This rebate will be calculated so as to ensure that the aggregate housing taxes for the individual homeowner do not rise when the new agreement is implemented. The rebate will lapse when the home is sold.

Furthermore, a freezing option will be introduced. This will allow homeowners to postpone payment of increases in housing taxes, i.e. the share that exceeds the taxes at the time of purchase.[3] This option is not expected to have any significant impact on house prices.[4] Finally, it is envisaged that if there is a sustained rise in future proceeds from housing taxes relative to GDP, housing taxes will be lowered so that the proceeds as a percentage of GDP remain unchanged. Such a reduction of housing taxes will typically be introduced in a situation where house prices have risen strongly. Hence, it could reduce the positive stabilising effects of the agreement.

Property value tax

When the tax freeze was introduced in 2001, property value taxes were frozen in nominal terms. As a result, the effective tax rate, i.e. the tax paid relative to the market value of the home, has fallen for homes that have risen in price. This has led to large regional differences in the effective tax rate so that areas with expensive housing now benefit from the lowest rate. The new agreement introduces a flat rate, except for very expensive homes.[5] This means that property value taxes will be reduced for some homes, while they will be increased for others.

Land tax

Today, land tax mirrors the official land valuations, but the year-on-year increase is capped. Consequently, the land tax rate paid in a number of municipalities is currently lower than the tax rate set by the municipality. The housing taxation agreement removes the cap, but the municipal land tax rate will be fixed in 2020 so that proceeds to the municipality do not rise from 2010 to 2021. Consequently, deferred increases in land tax are cancelled.[6]

Housing taxes will dampen house price fluctuations from 2021

From 2021, housing taxes will mirror the value of the home. If house prices rise, tax payments will also increase. That will reduce home buyers' willingness

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1   The new valuation system was agreed in November 2016, so it is not a formal part of the housing taxation agreement. However, the effects of the new valuations on house prices are included in the calculations.

2   See Ministry of Taxation for further details about the housing taxation agreement (in Danish only).

3   Until 2021, a compulsory freeze on land tax increases has also been agreed.

4   The freeze may result in minor lock-in effects, but the price effect is assessed to be very small.

5   There will be an element of progression in the property value tax. The part of the value that exceeds the progression limit will be taxed at 1.4 per cent. The limit is expected to be a market value of kr. 7.5 million.

6   This applies to municipalities where the payable land tax rate in 2020 is lower than the tax rate set by the municipality.

The housing taxation agreement dampens house price fluctuations

Chart 1

Kr. million

Frozen
(current system)

Housing taxation
agreement rates

Years
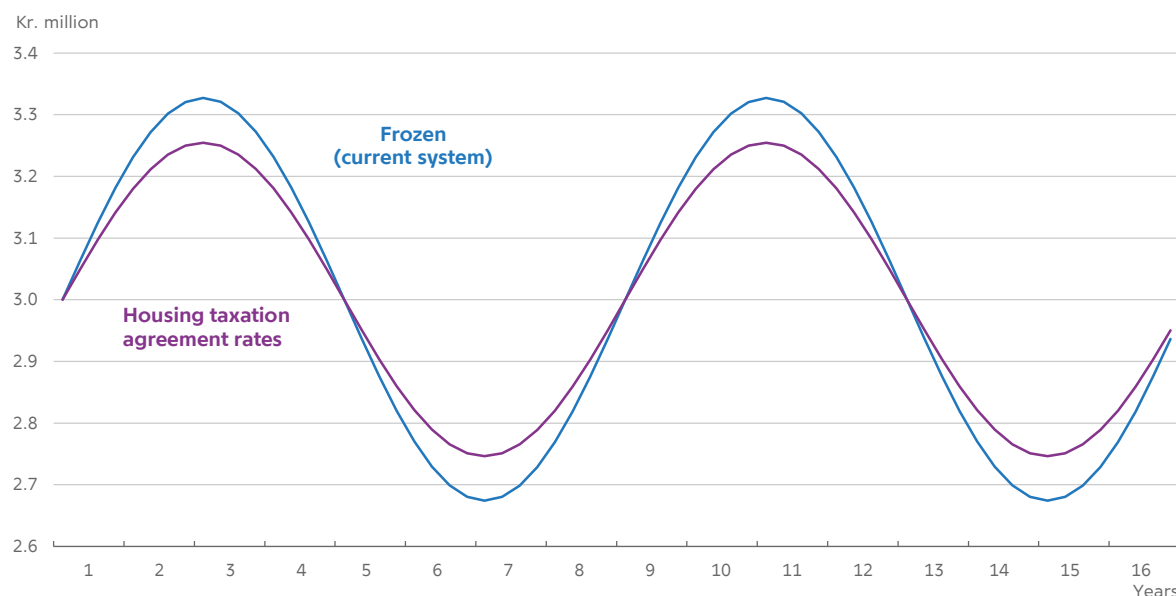
Note: The point of departure is a house costing kr. 3 million, with a land value of kr. 300,000. The land tax rate is the national average. In
         the calculations on the agreement, 20 per cent has been deducted from the valuation. The cycle has been matched with the standard
         deviation in the rate of price increase for single-family homes over the period 2002-15 and has a period of 32 quarters. The calculations
         assume that changes in housing taxes are fully capitalised in the prices, entailing that there is no adjustment of the housing stock,
         and that housing consumption remain unchanged for buyers.
Source: Own calculations.

to pay. The opposite applies if house prices fall. This will stabilise developments in house prices, thereby dampening macroeconomic fluctuations and the risk of financial instability.[7]

After the implementation of the new housing taxation, fluctuations are expected to dampen by around one fifth relative to the current system, cf. Chart 1. The dampening effect is smaller than was the case before 2001 when the property value tax was frozen, as the rate at that time was around twice the rate expected from 2021. However, there are differences across homes, depending on property-specific factors and the municipal land tax rate.

The housing taxation agreement will stimulate price developments for some homes and have a price-dampening effect on others

According to the calculations below, the agreement will support prices for homes outside the cities, while prices for e.g. flats in Copenhagen will rise less, or even fall, towards 2021. That will apply even though owners of homes taxed more heavily will be given tax rebate.

7   For a more detailed description of how housing taxes stabilise house
     prices and the advantages of this, see Asbjørn Klein, Simon Juul Hviid,
     Tina Saaby Hvolbøl, Paul Lassenius Kramp and Erik Haller Pedersen,
     House price bubbles and the advantages of stabilising housing tax-
     ation, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2016.

Computational approach

The price effects are calculated based on a cash-flow approach. More specifically, this means that the present value of the housing taxes payable is calculated before the housing taxation agreement, i.e. the baseline scenario, and compared with the present value of the housing taxes payable given the agreement.[8] So the price effect relative to the baseline scenario is calculated as the difference in the discounted expected future taxes. If indicates changes in connection with the housing taxation agreement, then the price effect will be

$$\Delta P_t = \sum_{\tau=0}^{\infty} \frac{E_t S_{t+\tau}^{baseline}}{(1+\gamma)^\tau} - \sum_{\tau=0}^{\infty} \frac{E_t S_{t+\tau}^{agreement}}{(1+\gamma)^\tau}$$

where ΔP_t is the price change at time t, $S_{t+\tau}^{baseline}$ is housing taxes in the baseline scenario, $S_{t+\tau}^{agreement}$ is housing taxes given the housing taxation agreement and γ is the discount rate. E_t is the expectations operator today and includes home buyers' expectations.

Since the price effect is determined as the differences in the expected tax payments, it is highly significant how home buyers' expectations are formed. If home buyers are payments-focused, i.e. only reacting to their housing tax payments today, the agreement will not have any price effect until the taxes change.[9] If, on the other hand, home buyers look ahead, i.e. have read and understood all elements of the agreement, house prices will be affected immediately.

Baseline scenario

The price effects of the housing taxation agreement will also to a large extent reflect the assumed development in housing taxes, had the agreement not been concluded, i.e. the baseline scenario. Determination of the baseline scenario is a major uncertainty factor in the calculations.

The baseline scenario is as follows:
- Nominal property value taxes have been frozen until 2020, and after that they will mirror house

prices at a rate corresponding to the effective tax rate in 2020. This means that the effective rate will vary from one home to another, but that the aggregate tax proceeds will develop in line with house prices.
- Land tax is assumed to follow the current rules and valuations until and including 2020 and then to mirror house price developments. So it is assumed that the current house prices reflect expectations that the current rules on land tax will not apply after 2020.
- House prices are assumed to rise by 3 per cent a year in nominal terms, and hence the discount rate is set at 5 per cent. The calculations are sensitive to the assumptions regarding price increases and discount rate.

Our baseline scenario yields proceeds from housing taxes that more or less follow GDP. This is in line with the Danish government's medium-term projections before the adoption of the housing taxation agreement.

Price effect from current to new equilibrium

First, the aggregate expected price change from now to a new equilibrium is described, i.e. when the new housing tax rules have been phased-in in 2021, followed by a description of the price process towards the new equilibrium.

According to the agreement, housing taxes will be based on new valuations and tax rates (land tax and property value tax) in 2021. This will affect the housing taxes payable and hence also prices. For homes where taxes are reduced, prices will rise relative to the baseline scenario, and vice versa for homes where taxes are raised.[10] The tax rebate will not affect the new equilibrium prices, only the intermediate price devel-

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8 An implicit assumption in this approach is that housing consumption remains unchanged (in volume terms). Hence, households are assumed not to change their demand for housing in response to changes in house prices. Easing this assumption would require a fully specified model with a utility function for households and estimation of risk premia, etc.
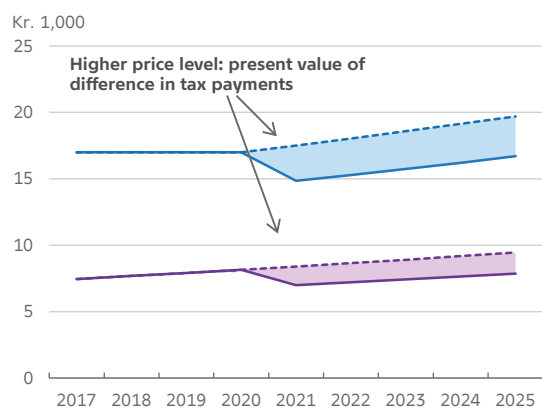
9 In the calculations, a purely payments-focused home buyer is assumed to expect taxes today to be the best indicator of taxes tomorrow.

10 The tax rates to be fixed in 2021 will be affected by the general development in prices until then. The calculations do not take this into account.
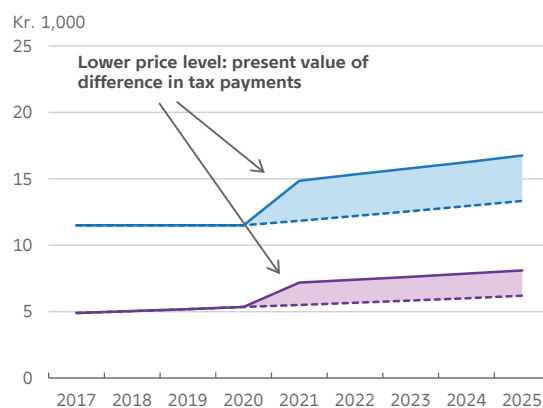
The effect of the taxation agreement on house prices in 2021 is calculated as the present value of changed housing taxes

Chart 2

Lower housing taxes

Kr. 1,000

Higher price level: present value of difference in tax payments

Higher housing taxes

Kr. 1,000

Lower price level: present value of difference in tax payments

Property value tax ——— Baseline ------ Land tax ——— Baseline ------

Note: Based on two homes with a market value of kr. 3 million and a land value of kr. 300,000 after the introduction of the new housing taxation rules. The present value of the shaded areas reflects price developments from the current level to the new equilibrium. Until 2021, the present value of the tax relief should be added for homes with an aggregate increase in housing taxes. Price developments are based on the calculations described in Chart 3.

Source: Own calculations.

opments. This is because people who buy a home after 2020 will not be entitled to any rebate.

The price effect from the current to the new equilibrium is the present value of the difference in the taxes payable in all future years, cf. Chart 2.

Changes in the assumptions concerning house price increases and discount rate have a substantial impact on the results.

House prices today and towards a new equilibrium
Developments in house prices towards the new equi-librium are subject to considerable uncertainty. This reflects a number of factors, including psychology, liquidity contraints and how forward-looking home buyers are. The tax rebate is another source of uncertainty.

Price falls and price increases are mentioned below. This means price changes that are solely attributable to the housing taxation agreement, i.e. price changes relative to the baseline scenario. In other words, a price fall relative to the baseline scenario

could mean a nominal price increase. Only if the price fall relative to the baseline scenario exceeds 10 per cent or so (growth in baseline scenario until 2021) will there be an actual nominal price fall from now until 2021.
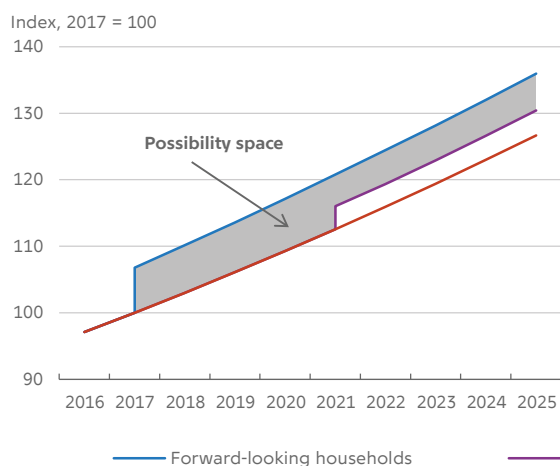
Value of the tax rebate
Homeowners incurring higher housing taxes as a result of the housing taxation agreement will be granted a nominal fixed annual amount in tax rebate until they sell their homes. This rebate will be calculated so as to ensure that the housing taxes paid do not rise from 2020 to 2021. In 2021, housing taxes will be based on the new tax rates and valuations from 2020, i.e. valuations based on the new valuation system. Owners of homes bought after 2020 will not be entitled to any tax rebate.

The value of the tax rebate can be calculated as the present value of a fixed nominal amount that runs until the home is sold. So the value of the rebate increases, the longer people plan to stay in their homes. For single-family houses, this is assumed to be 25 years, while it is 15 years for flats.
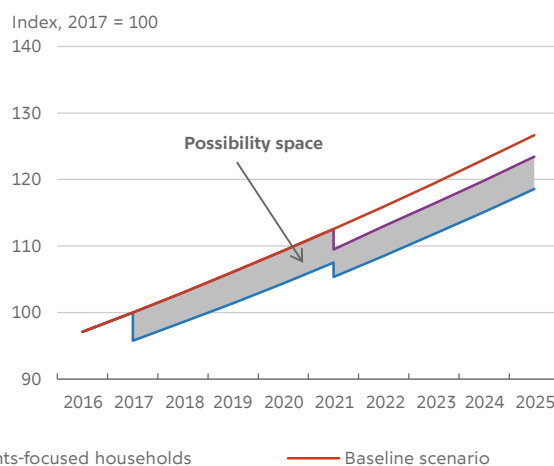
Consequences of the housing taxation agreement for developments in house prices Chart 3

Lower housing taxes

Index, 2017 = 100

Higher housing taxes

Index, 2017 = 100

——— Forward-looking households   ——— Payments-focused households   ——— Baseline scenario

Note: The point of departure is a house with a market value of kr. 3 million and a land value of kr. 300,000 after the agreement has taken effect. The land tax rate is the national average. In the calculations, 20 per cent has been deducted from the valuation. The calculations assume that changes in tax payments are fully capitalised in the prices. This means that there is no adjustment of the housing stock and that housing consumption remains unchanged during the period under review. Growth has been set at 3 per cent in the baseline scenario, and the discount rate is a marginal interest rate of 5 per cent. The pass-through to land value has been determined on the basis of the relationship between land value and house value after implementation of the new valuations. Prices are expected to lie within the areas shaded in grey.

Source: Own calculations.

Unlike the rebate, housing taxes rise with house prices, and they are also payable by a new owner, i.e. they are perpetual. Hence, the present value of the rebate will always be lower than the present value of the tax increase triggering the rebate. This applies regardless of the assumptions made regarding baseline scenario, interest rate levels and house price developments.

Price developments in the period until 2021
Price developments in the period until implementation of the new housing taxation rules are described below. In most of Denmark, homeowners will see housing taxes fall from 2021, although the reduction is generally small. For payments-focused home buyers, who only react to tax adjustments when they occur, there is no price effect in the period until 2021. For forward-looking home buyers, the prices of their homes will rise towards the new equilibrium level, i.e. the increase in 2017 in Chart 3 (left). This provides a span of potential price developments, which is shown in grey, cf. Chart 3.

For some homes, housing taxes will increase, but the owners will be compensated by way of tax rebate. If home buyers are payments-focused, the whole adjustment will come in 2021, cf. Chart 3 (right). If, on the other hand, home buyers are forward-looking, they will know that the present value of the higher taxes exceeds the present value of the tax rebate. This means that prices will be lower relative to the baseline scenario towards 2021 – especially for flats, as the value of the tax rebate is limited by the relatively short period that people typically live in a flat. The price change today purely reflects the difference between the present value of higher future housing taxes relative to the baseline scenario and the value of the tax rebate. This is seen as the fall in 2017 in Chart 3 (right).

Price developments around the implementation of the new housing taxation rules (January 2021)
For homes where tax payments will fall, the equilibrium price will rise. Part of the increase in price can be expected to materialise before 2021, depending

on how forward-looking home buyers are, cf. the section above and Chart 3 (left).

For homes where tax payments will increase, the option of tax rebate will not be available to new buyers from 2021. That will lead to price falls corresponding to the value of the tax rebate if the home buyers are forward-looking. If home buyers are payments-focused, the fall will be larger in 2021 as the whole adjustment will come then, cf. Chart 3 (right).

Assuming that home buyers are partly payments-focused, the calculations show that in 2021 house prices will fall more strongly than the value of the tax rebate. Hence, there will typically be no financial gain from bringing forward home purchases merely to obtain tax rebate.[11] For home buyers who expect to stay in their homes for a very long time, the value of the tax rebate may be higher than the price fall in 2021. However, this entails that a large part of the price adjustment occurs before 2021. The advantage will lapse if the buyers bid up the price of the home. In addition, sluggishness in in house prices changes could prevent an outright price fall if the value of the tax rebate is small. This may entail a small gain from buying before 2021, but again, the advantage will lapse if the buyers bid up the price of the home.

How does the housing taxation agreement affect various types of homes?

The homes with the smallest price increases since 2001 have the highest effective property value taxes today.[12] These homes are typically located outside the cities and their housing taxes will fall after 2020

under the agreement. The housing taxation agreement thus supports house prices outside the cities.

The opposite applies to effective tax rates in the cities with the highest price increases since 2001 and with the strongest pressures on the housing market today. At the same time, land values are under-estimated for e.g. flats in these areas, cf. Ministry of Taxation.[13] As a result of the agreement and the property valuation system, aggregate housing taxes will increase from 2021 for many homes in these areas. Prices for e.g. flats in Copenhagen are there-fore expected to rise less towards 2021 than in the baseline scenario of effective tax rates.

What is the effect on construction?

As a result of the tax agreement and the new valu-ation system, some of the housing units currently be-ing constructed in Copenhagen will be more heavily taxed. So if they are completed and sold before Jan-uary 1, 2021, the buyers will obtain tax rebate. This means that the housing units can be sold at a higher price than if they are completed later. So there is a financial incentive for the developer to bring forward completion of housing units eligible for tax rebate.

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11 An implicit assumption in the cash-flow approach is that housing sellers have the full bargaining power. If this assumption is eased, an equilibrium price can be reached that in 2017-21 lies below the price outlined, so that home buyers obtain a share of the tax rebate. In that case, home buyers may benefit from buying before 2021. Note that this requires a downward adjustment of house prices before 2021 and that the effect is reduced if the tax rebate does not increase buyers' willingness to pay.

12 Cf. Asbjørn Klein, Simon Juul Hviid, Tina Saaby Hvolbøl, Paul Lasse-nius Kramp and Erik Haller Pedersen, House price bubbles and the advantages of stabilising housing taxation, Danmarks Nationalbank, *Monetary Review,* 3rd Quarter 2016.

13 See. Implementeringscenter for Ejendomsvurderinger, Nye og mere retvisende ejendomsvurderinger (New and fairer property valuations – in Danish only), 2016.

ABOUT
ANALYSIS

As a consequence of Danmarks National-bank's role in society we conduct analysis of economic and financial conditions.

Analysis are published ongoing and assess i.a. the current cyclical position and structural conditions.

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