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High and rising household indebtedness poses the greatest risk to the Swedish economy. This Economic Commentary presents updated statistics on household indebtedness. The commentary describes the distribution of household debt-to-income ratios over time and between income and age groups and across regions. We show that debt is continuing to increase faster than incomes and that indebtedness is highest amongst young and urban households. At the same time, the share of households decreasing their mortgage debt has increased over the last year.

SVERIGES RIKSBANK

Economic Commentaries

The indebtedness of Swedish households – Update for 2017

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High and rising household indebtedness poses the greatest risk to the Swedish economy. Household indebtedness has been increasing in Sweden since the mid-1990s. Home ownership financed by high levels of mortgage debt with variable interest rates makes households vulnerable to falling house prices and increasing interest rates.

In order to better understand the risks linked to increasingly indebted households, the Riksbank started gathering credit information on all borrowers from the eight largest banks in Sweden[2] in 2013. This data has enabled the Riksbank to study how indebtedness has changed over time and how it varies across income and age groups as well as regions. Analyses of this credit data have been published in a number of Riksbank Economic Commentaries.[3]

In the present Economic Commentary, we extend the earlier analysis by using updated data covering the period up to September 2017. As in the previous Economic Commentaries on household debt, we mainly use the debt-to-income ratio (or DTI ratio) to measure indebtedness. This ratio is calculated as total debt (mortgage, credit card and consumer loans but excluding student loans) divided by after-tax income.[4] [5]

Our main findings can be summarised as follows:

1. Household debt continues to increase faster than income. The average DTI ratio increased from 326 per cent in September 2016 to 338 per cent in September 2017.
2. More households have high debts relative to their income. In 2017, 260 000 households had a DTI ratio exceeding 600 per cent. This is an increase of 27 000 households compared to 2016.
3. Household indebtedness is increasing for all income groups and age groups.
4. The proportion of households amortising is increasing. 59 per cent of households with mortgages decreased their mortgage debt between 2016 and 2017. This proportion has increased by around 5 percentage points compared to earlier years.

[1] The authors thank Johan Almenberg, Johan Eng Larsson and Annika Svensson for useful comments.

[2] The 8 largest banks are Danske Bank, Handelsbanken, Länsförsäkringar Bank, Nordea, SBAB, SEB, Skandiabanken and Swedbank.

[3] See Ölcer and van Santen (2016), and references therein.

[4] For the small minority of loans where multiple households appear as loan takers, we split the debts equally between households. After-tax income is calculated as gross income minus taxes. These variables come from the Swedish Tax Authority (Skatteverket). Winsorising the DTI ratio at the 1st and 99th percentile in every year reduces the risk that outliers will bias the estimates.

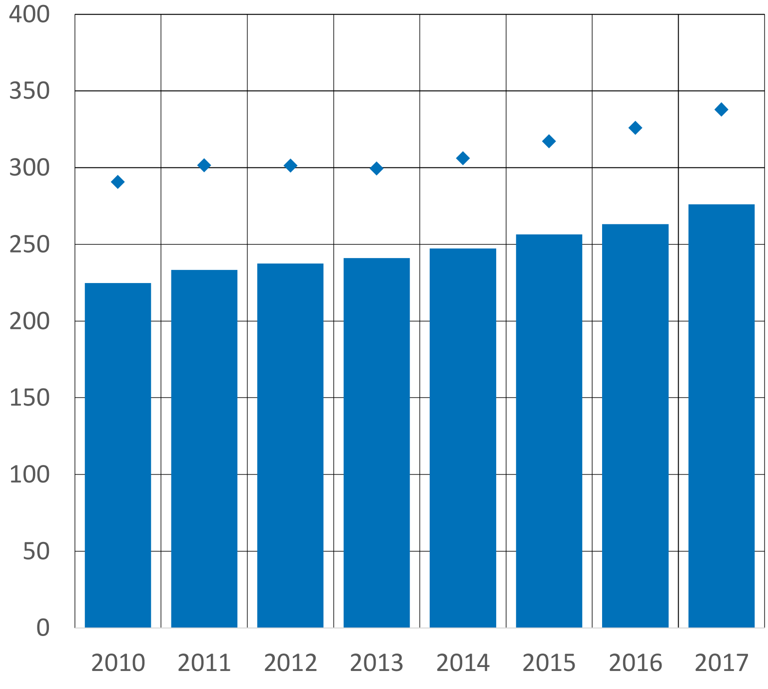
[5] The methodology used to compute household DTI ratios has been improved along several dimensions. This new method results in somewhat lower debt ratios, but the trend (with increasing indebtedness over a longer period) is the same as before. More details are presented in an Appendix

Household indebtedness is increasing

Debt-to-income ratios for Swedish households have been increasing in recent years. Figure 1 shows household debt-to-income ratios per year, measured by the median (columns) and average (diamonds). Figure 1 shows that the median debt ratio increased from 225 per cent to 276 per cent between 2010 and 2017, an increase of 51 percentage points. The trend is the same when the debt ratio is measured using an average. The average debt ratio has increased from 291 per cent to 338 per cent over the same period. Between 2016 and 2017, the average debt-to-income ratio increased by 12 percentage points. The increases in DTI ratios in 2017 are stronger compared to earlier years, regardless of whether the median or mean is used.

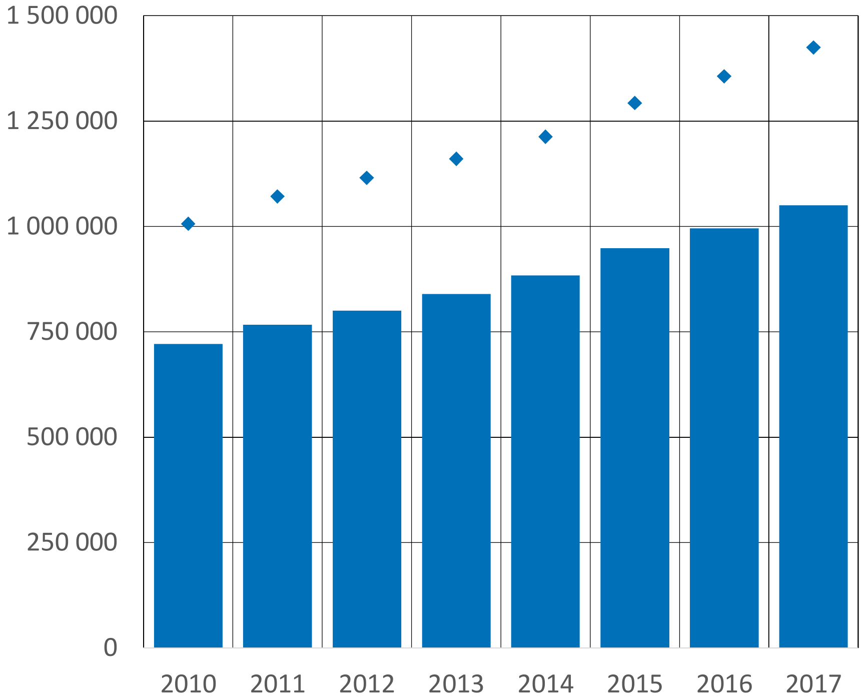
Figure 2 shows a similar trend, as median total debt for households with mortgages increased from SEK 720 000 to just above SEK 1 million between 2010 and 2017, an increase of around SEK 330 000. Average debt for households with mortgages increased to more than SEK 1.4 million in 2017. This is an increase of SEK 420 000 or 41 per cent. The number of households with mortgages has also increased, from 1 760 000 million households in 2010 to 2 050 000 million households in 2017.

Figure 1. Debt-to-income ratios for households with mortgages over time
Per cent



Note. Data is from September of each year. The columns represent the medians, while the diamonds denote the averages.
Source: The Riksbank.

Figure 2. Total debt for households with mortgages over time
SEK



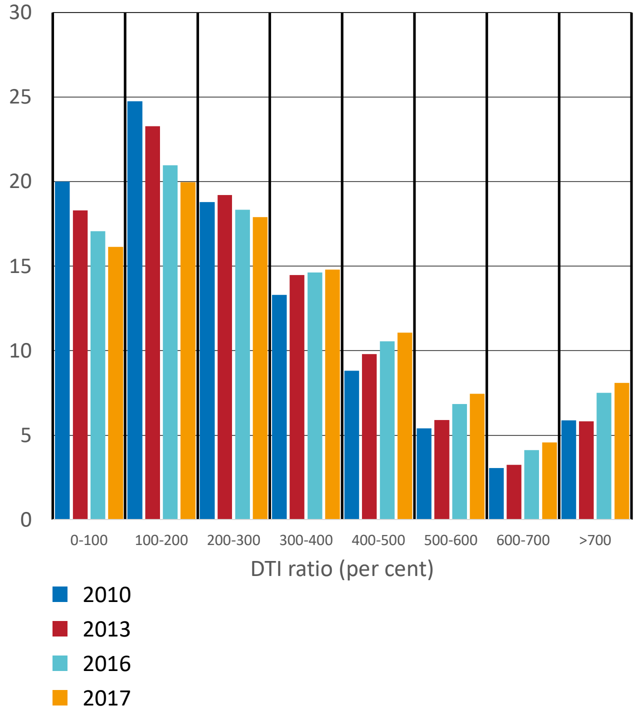
Note. Data is from September of each year. The columns represent the medians, while the diamonds denote the averages.
Source: The Riksbank.

More highly-indebted households

An increasingly large share of households with mortgages have high DTI ratios. Figure 3 shows the distribution of debt ratios, or what fraction of households fall in a given interval for their DTI ratios in selected years. The figure shows that the share of households with higher debt ratios has increased. 31 per cent of households with mortgages (640 000 households) had DTI ratios exceeding 400 per cent in 2017, while 13 per cent (260 000 households) had a DTI ratio exceeding 600 per cent, which can be compared with around 29 per cent and 12 per cent, respectively, in 2016.

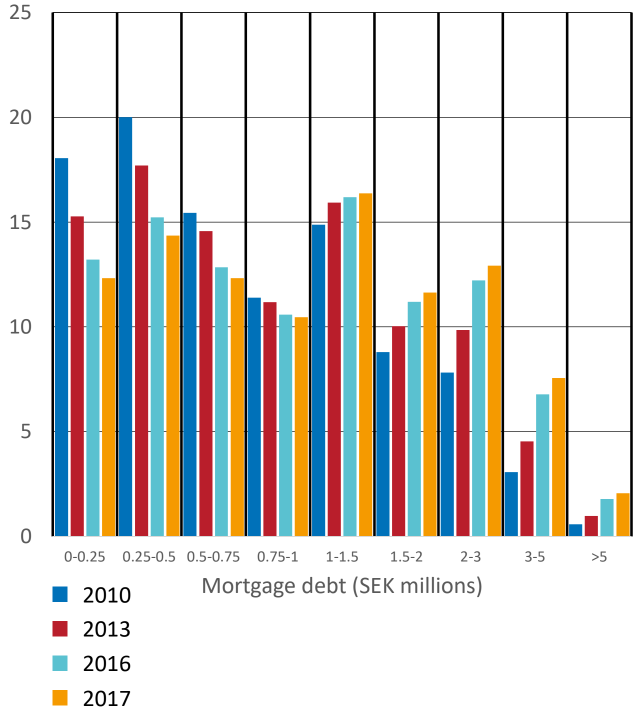
Figure 4 shows the share of households with mortgages in various intervals based on their nominal mortgage debt. It clearly shows that more households have large mortgage loans in 2017 compared to earlier years. In 2010, 64 per cent of households had a mortgage debt below 1 million. By 2017, this fraction had decreased to 47 per cent. 8 per cent of households have mortgage debts exceeding 3 million in 2017, which is an increase of 4 percentage points since 2010.

Figure 3. Debt-to-income distributions over time
Per cent of households with mortgages



Note. Data is from September every year.
Source: The Riksbank.

Figure 4. Mortgage debt distributions over time
Per cent of households with mortgages



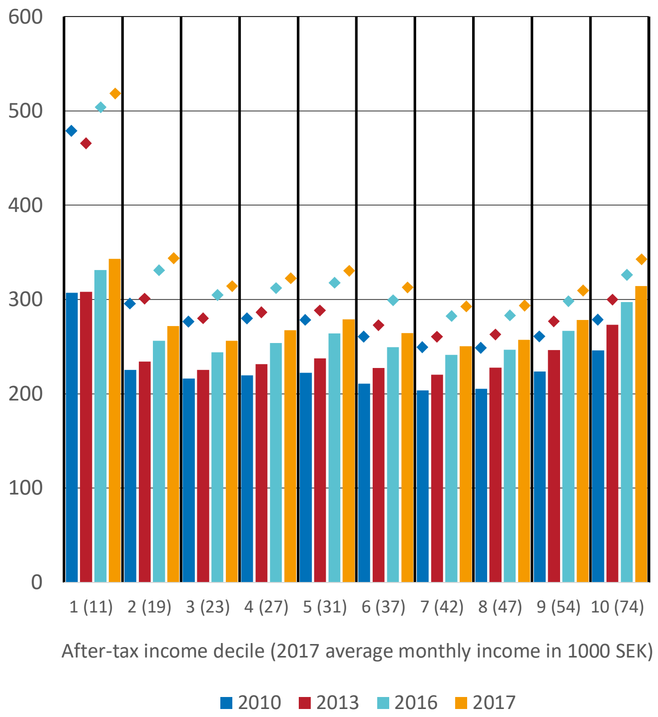
Note. Data is from September every year.
Source: The Riksbank.

Indebtedness is increasing for all income and age groups

Household debt continues to increase faster than incomes. To assess the risks related to rising household indebtedness, it is important to know how the debts are distributed between households. Some households are likely to be in a better position to fulfil their loan obligations than others. Figure 5 therefore presents DTI ratios for households with mortgages in different income groups. The results for the first income decile should be interpreted with caution, amongst other reasons as the Riksbank's data does not include tax-exempt income sources such as child and housing support, which which probably represent a larger share of the income for low income households. The findings for this group will therefore not be commented on further.

Figure 5 shows that the DTI ratio has been increasing for all income groups compared to earlier years. For example, in the second income decile, where a typical household has a monthly after-tax income of SEK 19 000, the median debt ratio is 272 per cent and the average debt ratio equals 344 per cent. Both the median and average debt ratio in the second income decile have increased by around 15 percentage points since last year. In the ninth income decile, where the typical household has a net income of SEK 54 000 per month, the median debt ratio is 278 per cent and the average equals 310 per cent, around 12 percentage points higher than in 2016.

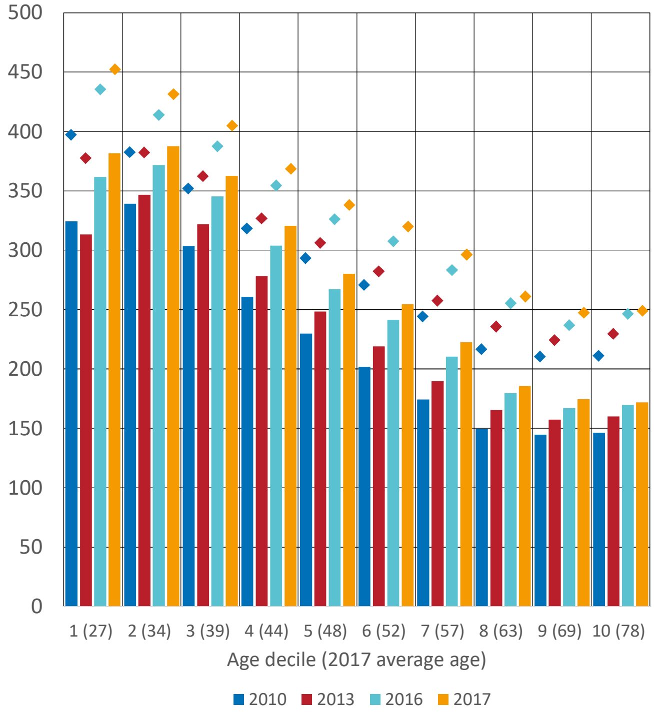
Figure 5. Debt-to-income ratios for households with mortgages by income decile and over time
Per cent



Note. Data is from September of each year. The columns represent the medians, while the diamonds denote the averages. Average monthly income levels by income decile (in 1000 SEK) in parentheses. The results for the first income decile should be interpreted with caution, as tax-exempt income sources such as child and housing support are not observed. These are probably a more important income source for low income households.
Source: The Riksbank.

DTI ratios have also increased for all age groups. This is clear from Figure 6, which shows the mean and median DTI ratios by age deciles. Households in the first and second age groups are most indebted, and their DTI ratio has also increased the most in 2017. Older households typically have lower debt ratios than younger households and the oldest households have debt ratios about half as high as the youngest households.

Figure 6. Debt-to-income ratios for households with mortgages by age decile and over time
Per cent

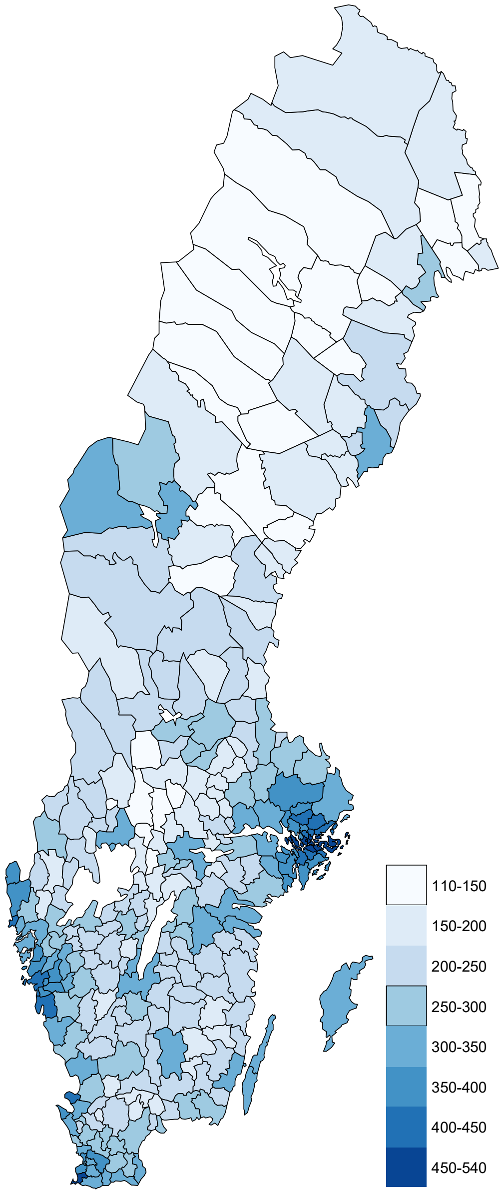


Note. Data is from September of each year. The columns represent the medians, while the diamonds denote the averages. Average age levels in parentheses.
Source: The Riksbank.

Indebtedness is largest around big cities

Household indebtedness is unevenly distributed geographically in Sweden. Figure 7 shows the average DTI ratio per municipality in 2017. The Stockholm region stands out in this comparison with several municipalities where the average debt ratio exceeds 450 per cent. But DTI ratios are generally high in and around big cities and are typically above 400 per cent around Malmö and Göteborg as well. Further north, there are few municipalities with average DTI ratios exceeding 250 per cent, with the exception of university towns.

Figure 7. Average debt-to-income ratio for households with mortgages by municipality
Per cent

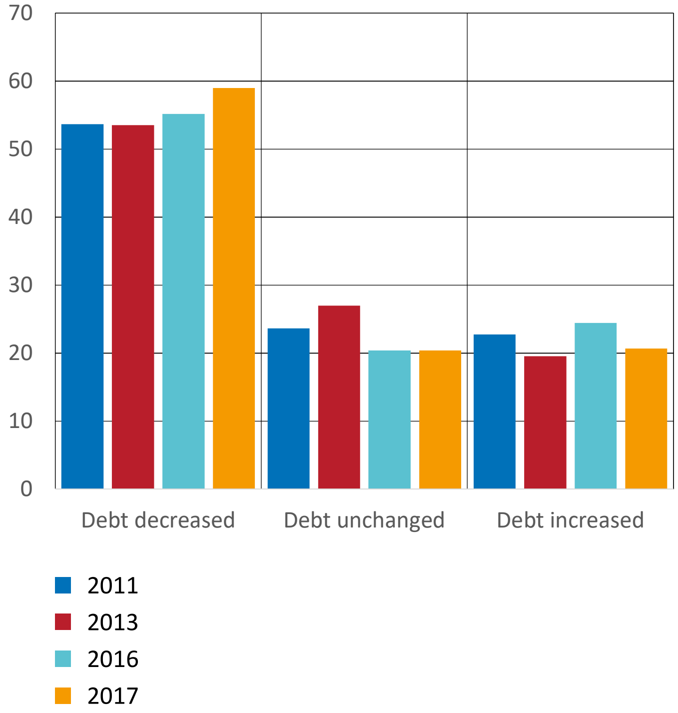


Note. Data is from September2017.
Source: The Riksbank.

More households are decreasing their mortgage debt

More households have decreased their mortgage debt over the last year. Figure 8 shows the share of households that have increased or decreased their mortgage debt per year since 2010. This figure shows that 59 per cent of households decreased their mortgage debt between September 2016 and September 2017. The share of households with unchanged or increased debt is around 20 per cent for both of these categories. More households decreased their mortgage debt during 2017, compared to earlier years, and the fraction of households with increased mortgage debt has decreased. This could indicate that the amortisation requirement is having the desired effect[6], even though there remain many households which are not decreasing their debt. The fact that a larger share of households decreases their mortgage debt is a positive development. However, this is counteracted by the trend shown in Figure 3, which illustrates that the share of households with high debt ratios is increasing. This explains why debt ratios in Figure 1 continue to increase.

Figure 8. Changes in mortgage debt over time
Per cent of households with mortgages



Note. Data is from September every year.
Source: The Riksbank.

[6] For a detailed evaluation of the effects of the amortisation requirement, see Finansinspektionen (2017).

Appendix: Data processing and changes compared to earlier publications

The Riksbank collects loan-level data from the 8 largest credit institutions in Sweden. This data includes information on the loan amount, the type of credit (loans collateralised by tenant-owned apartments or single-family homes, credit cards, instalments and consumption loans) and a serial number[7] to identify loan takers, for every loan. The credit bureau UC AB adds borrower characteristics, such as taxable income and taxes paid (from the Swedish Tax Authority, Skatteverket), age, gender, municipality, a serial number replacing the address, property data, payment remarks and debt at the Swedish Enforcement Authority (Kronofogden).[8]

In this delivery, information on borrowers' husbands and wives has been included, which allows the analysis to build on an improved definition of who belongs to a given household. The current household definition therefore differs from that used in previous Economic Commentaries and Riksbank publications.[9] The updated household definition is now constructed using

1) marital status (for married individuals)
2) shared address and loans.

In practice, this new definition differs only slightly from the definition used in previous publications.

The latest data update also includes information for persons that are themselves not registered as loan takers amongst the banks included in the sample, but who are married to registered loan takers. With this information, fewer households are discarded from the analysis on the basis of incomplete information (for example, 1 observed income for a households with 2 persons).

Another change compared to previous publications is that the Riksbank now collects data up to and including September of every year, instead of July. The Swedish Tax Authority (Skatteverket) updates a large share of individuals' incomes from the previous year in August. This gives a better match between current incomes and debts and thereby a more accurate view of a household's debt-to-income ratio. As households' incomes tend to increase over time, this implies that debt ratios are being revised downward somewhat compared with previous publications. For example, the average debt ratio equals 343 per cent in 2016 when using data from July, but 326 per cent when using September data.

The data is processed the same way as in previous publications. In step 1, households' total debt for September in every year is computed by summing all loan amounts for a given household. For a small share of loans, multiple households are registered as loan takers. These loans are split up and shared evenly between registered households.

In the second step, household total after-tax income is computed, by first computing individuals' gross income (förvärvsinkomst) minus taxes not related to capital gains or losses, and summing over all household members. The debt ratio is computed as the ratio between total debt and total after-tax income.

Step 3 excludes all households lacking information, households with negative incomes (or which contain members with negative incomes), and households without mortgage debt. Finally, the computed debt ratios are winsorised at the 1st and 99th percentile in every year, to decrease the chance that extreme values will distort the estimates

[7] This serial number is a de-identified version of the personal number. The key between the serial number and the personal number belongs to UC AB, and actual personal numbers are not known to Riksbank staff members.
[8] See https://www.minuc.se/kallor/ for a list of UC's sources.
[9] The old household definition was constructed such that persons sharing both address and loan were included in the same household.

References

Finansinspektionen (2017), Amortisation requirement reduced household debt, FI analysis No. 10, 6 April 2017.

Ölcer, D. and van Santen, P. (2016), The indebtedness of Swedish households – Update for 2016. Economic Commentaries No. 5, 22 November 2016, Sveriges Riksbank.