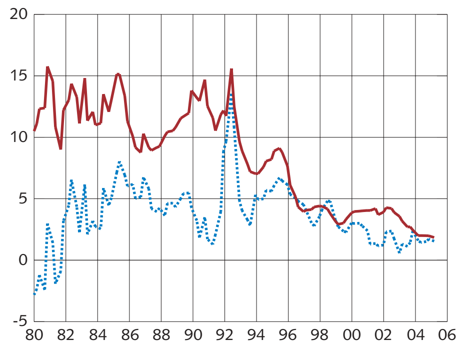
Households' consumption, debt and saving

In recent years households have saved a comparatively high share of their disposable incomes. One important explanation for this is likely the sharp drop in the value of household wealth in connection with the equity market decline at the start of the current decade. At the same time as households have had high saving in financial assets, they have taken on new loans at a rapid rate. That their borrowing has increased at the same time as interest rates in the economy have dropped and house prices have risen is in itself nothing remarkable. However, there are some risks associated with these developments, related to house prices and possible elements of exaggerated interest rate optimism.

The beginning of the current decade saw a steep rise in household saving. Even though interest rates have been cut gradually since 2002 and now stand at very low levels in both nominal and real terms, household saving has remained high in recent years, which has resulted in relatively weak growth in consumption. Consumption does appear to have picked up during 2005, but households are still consuming a relatively low share of their incomes. At the same time, they have continued to take on new loans at a fast rate. Whether households have increased their debt levels too much and why they are continuing to borrow so much while their saving is so high has been discussed in various contexts recently.

This box has two aims. The first is to discuss conceivable causes of the comparatively low consumption, in relation to incomes, in recent years. To what extent does the consumption appear to be accounted for by standard explanations such as developments in household wealth? The other aim is to illustrate the relationship between households' consumption and debt. This has been weaker in recent years than before. What is the implication of this? A central issue is whether households' high indebtedness is an indication of some kind of imbalance that might have to be corrected in the period ahead. That is a very difficult question to answer, though. What follows in this box can mainly be seen as a point of departure for further analyses and discussions.

Figure B3. Nominal and real three-month interest rate. Per cent

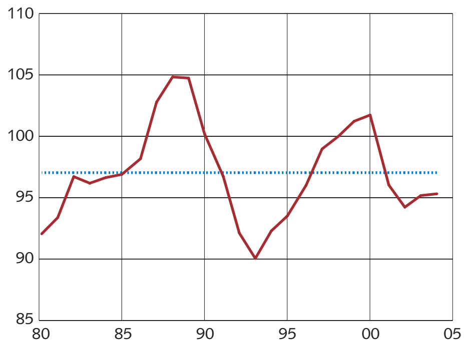


Nominal interest rate
Real interest rate

Note. Real interest rate is the nominal interest rate minus the current inflation rate (CPI).

Sources: Statistics Sweden and the Riksbank.

Figure B4. Households' consumption as a share of their disposable incomes. Per cent



Consumption ratio

Note. The blue dotted line shows the average consumption ratio between 1980 and 2004.

Sources: Statistics Sweden.

Theory explains consumption by developments in incomes and wealth

The prevalent theory for explaining household consumption is the life cycle hypothesis. This says that households make their consumption decisions on the basis of their total expected income over their lives.

$$C_t = \beta W_t$$

where C is households' consumption and W their total income over their lives. Total income consists of households' current financial net wealth, real wealth (mainly housing) and human capital. Human capital is the present value of current and future incomes. In practice, the value of future incomes is not easy to estimate. One way of dealing with this is to assume that human capital grows in line with households' other wealth. Another is to allow today's incomes to be approximations of the entire stock of human capital. Measures of current incomes exist, of course, and can be estimated on the basis of households' disposable incomes.[13] If households are credit rationed or if they for some reason have a short-term planning horizon, current incomes become more important than prescribed by the basic theory. Since the propensity to consume with respect to income changes and wealth changes in that case no longer has to be the same, the consumption function can instead be written as

$$C_t = \alpha Yd_t + ßW_t$$

where C is household consumption, Yd is households' disposable incomes and W now denotes the sum of households' financial and real net wealth.

If consumption instead is expressed in relation to incomes we get

$$C_t/Yd_t = \alpha + ßW_t/Yd_t$$

This simplified theory shows that variations in the consumption ratio (consumption in relation to disposable incomes) can be explained by developments in wealth. A faster rate of growth in wealth creates, for instance, an opportunity for households to boost their consumption more than what is given by income growth.

Consumption in relation to incomes

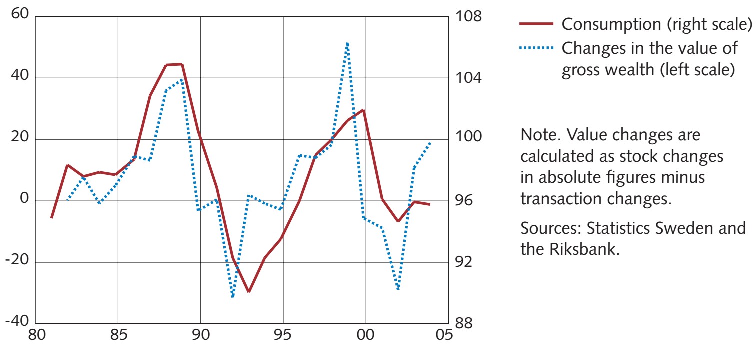
How then has consumption developed in relation to incomes in recent years? Figure B4 shows that consumption grew quicker than incomes over the greater part of the 1990s; the consumption ratio rose in other words. After 2000, however, this changed, and growth in consumption was much weaker than income growth in the following two years.[14] In 2003 and 2004 consumption once more increased somewhat faster than incomes. Consumption's share of incomes was still relatively low in 2004, though. In other words, in a historical perspective households saved a relatively high share of their incomes.

It follows from the above relationships that one of the causes of the low consumption in relation to incomes might be developments in wealth. That is discussed in the next section. It should be pointed out, though, that the simple theory above does not take account of the fact that the sensitivity of consumption to changes in income (α) can vary depending on the factors that drive income developments and on how limited households' liquidity is. These reasons why consumption can fluctuate in relation to incomes have not been accounted for in the below discussion.

Consumption in relation to wealth

Historically, households' consumption ratio and changes in the value of their wealth have exhibited fairly clear co-variation (see Figure B5). In the 1990s household wealth

Figure B5. Consumption and changes in the value of household wealth. Shares of households' disposable incomes.
Per cent

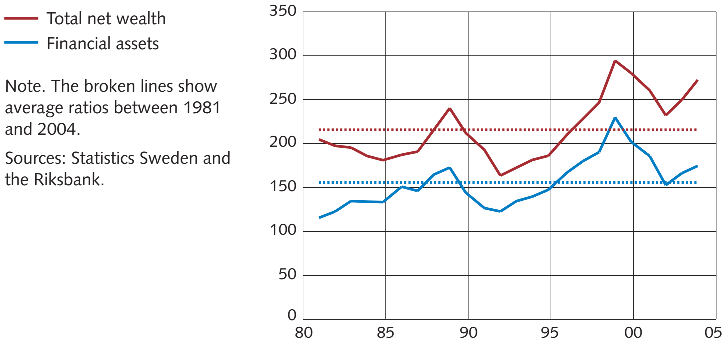


Note. Value changes are calculated as stock changes in absolute figures minus transaction changes.

Sources: Statistics Sweden and the Riksbank.

13 Strictly speaking, in this context household income should exclude all income that derives from the wealth stock. In practice, the common measure of household disposable income includes changes in households' net interest income and capital gains taxes.
14 Some of the fall in the consumption ratio between 2000 and 2001 is primarily of a statistical nature, however. Due to the weak equity market developments, households' capital gains taxes decreased, contributing to a comparatively strong rise in incomes 2001.

Figure B6. Total household net wealth and financial assets in relation to disposable incomes.
Per cent



Note. The broken lines show average ratios between 1981 and 2004.

Sources: Statistics Sweden and the Riksbank.

increased steadily in value and at the same time consumption rose faster than incomes. When equity prices began to decline in 2000, causing a sharp fall in the value of household wealth, the consumption ratio also dropped. In the following two years the total value of household wealth continued to decrease, as did the consumption ratio.

Figure B5 also shows that developments in consumption in recent years have followed developments in wealth to a lesser extent than before. The drop in the consumption ratio between 2000 and 2002 was comparatively small in relation to the change in wealth. After 2002 equity prices rebounded. Coupled with continued rises in house prices, this meant that total household wealth started to increase in value again. Since 2002 the consumption ratio has not risen with the increasing wealth either in the same way as before.

In other words it seems that recently households have been slower than before to adjust their consumption in line with changes in wealth. One interpretation is that the sharp fluctuations in equity prices in recent years, coupled with the fact that equities have comprised a growing share of households' financial portfolios, has played a part in households' consumption propensity with respect to changes in wealth. Households may have perceived the changes in their wealth to be temporary to a greater extent than before. (Previously it was changes in real wealth that contributed most to changes in the value of households' total wealth).

If it is the case that households have kept their saving high for a long period to rebuild their wealth after the equity market decline, one central (but difficult) question is how far they have come in this process. Figure B6 may give an indication. It shows that the value of total household net wealth in relation to disposable incomes was still considerably lower last year than in 1999. However, the elevated equity prices at the time just before the stock market downturn meant that the value of total household net wealth was historically high then. If households assumed at least to some extent that the equity price levels at the time were not sustainable, the wealth level in 1999 may be less relevant as a comparison for households. Compared with a historical average for the level of household net wealth in relation to incomes, the wealth ratio was not low in 2004.

However, it is not evident that it is enough to study developments in total household wealth since, as mentioned above, households' consumption propensity with respect to changes in wealth can vary depending on the kind of assets that change in value.[15] Households that are approaching retirement age may, for instance, have an ambition to restore the value of their financial wealth. Nevertheless, households' financial assets, too, were still lower in 2004 in relation to their incomes than prior to the equity market decline. But compared with a historical average the level of financial assets was not low either in 2004. It is possible, though, that structural change in the economy, concerning the pension system for example, has meant that households today are aiming for a higher value of financial assets in relation to incomes. (This is discussed in more detail below). But this saving should also decrease in the future as the value of household financial wealth rises.

15 This is less important for the interpretation of developments up to 2000 since at that time it was changes in residential property prices that accounted for most of the changes in the value of total household wealth. It is significant for interpreting the developments after 2000, however, since it has mainly been changes in financial prices that have accounted for the value changes in this period.

Other possible explanations for the weak consumption

The above discussion shows that the low consumption ratio in recent years seems, to a relatively high degree, to be explainable by developments in household wealth. The consumption ratio has, however, been less sensitive to changes in wealth in recent years than before. That might be because equities to a higher degree than before have been causing the variations in household wealth and because households have been slower to respond to these than to changes in the value of their real wealth.

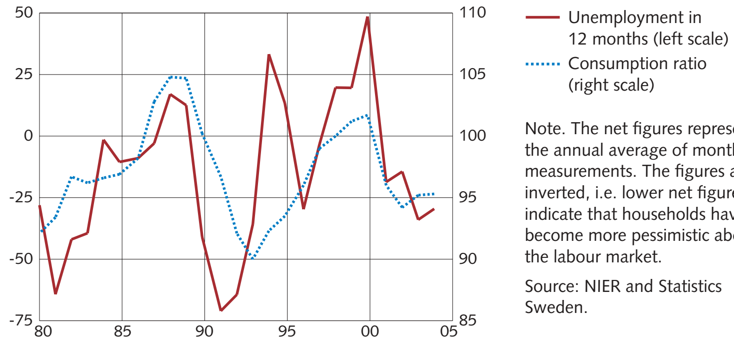
At the same time it is of course conceivable that wealth developments are being attributed greater significance for consumption than has actually been the case. For example, it is possible that other factors that have developed in a similar way to household wealth also have played a significant part in households' consumption decisions.

One factor that can be assumed to have significance for households when they make their consumption decisions, in addition to expected income over their lives, is how uncertain their expectations about the future are. If households are very unsure about their future incomes they may want to have a high rate of saving for precautionary reasons. In recent years the labour market has been very weak in spite of high growth in output. Figure B7 shows that households in 2004 were still strongly pessimistic regarding labour market conditions. That could support the argument that the weak labour market may have played a part in the weak consumption growth over and above the direct effect from the weak growth in incomes. In other words households' uncertainty over the labour market may have contributed to the low consumption ratio.[16]

Another conceivable explanation for the low consumption ratio is that changes in the social security system have meant that households want to save more than before. The new pension system, for example, may have increased the perceived need for households to save with a view to ensuring reasonable pension levels.

In addition, the steep drop in equity prices that began in 2000 meant that the value of households' stock of pension savings fell sharply. As mentioned earlier, that may have prompted households to boost their saving with the aim of restoring the value of their financial assets. The fact that an unusually large share of the population is approaching retirement age may have reinforced this tendency. In that case, though, household saving in personal pension schemes should reasonably have risen. The increase in saving between 2000 and 2001 was not channelled mainly into equities or mutual funds but rather was invested in interest-bearing securities and liquid assets. However, this

Figure B7. Households' expectations regarding unemployment in 12 months (net figures) and consumption ratio. Per cent



Note. The net figures represent the annual average of monthly measurements. The figures are inverted, i.e. lower net figures indicate that households have become more pessimistic about the labour market.

Source: NIER and Statistics Sweden.

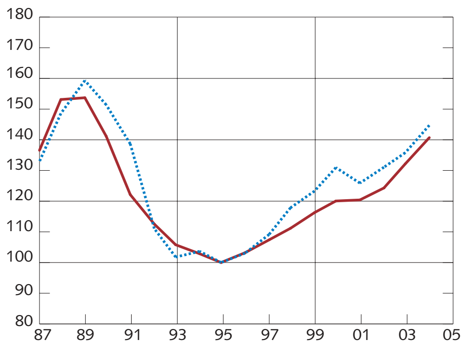
16 However, empirical studies have often found it difficult to prove that precautionary motives are more significant than other possible explanations for changes in households' saving behaviour. See, for example, Phillip Merrigan and Michel Normandin, "Precautionary Saving Motives: An Assessment from UK Time Series of Cross-Sections", *The Economic Journal*, Vol. 106, No. 438, 1193 – 1208.

may have been due to a lack of confidence in equities as an appropriate form of investment for pension capital, at least in the short term.

Relationship between household borrowing and consumption

At the same time as consumption has grown weakly in recent years, households have been taking out new loans at a fast rate. Households' debt stocks have risen considerably faster than their incomes. House prices have shown a similar increase. A central question in the assessment of households' future consumption is what the relationship is between borrowing and consumption and whether households' high levels of debt are an indication of some kind of imbalance that might have to be corrected in the period ahead.

Figure B8. House prices and households' debt stocks as a share of disposable incomes.
Index

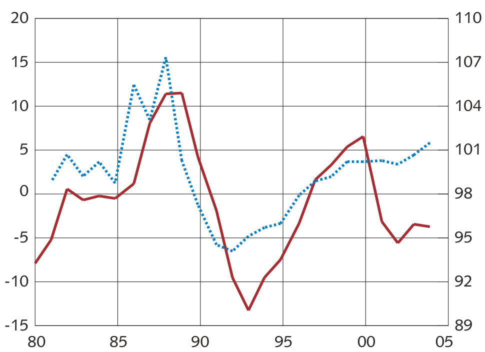


Debt stocks
House prices

Note. Index: 1995 =100

Sources: Statistics Sweden and the Riksbank.

Figure B9. Household consumption and household debt (excluding those loans that have financed new investment* in housing). Shares of households' disposable incomes.
Per cent



Consumption (right scale)
Debt-investment (left scale)

Note. The loans are calculated as transaction changes in households' debt stocks.
* Investment includes new acquisitions of houses and tenant-owned apartments.

Sources: Statistics Sweden and the Riksbank.

To begin with, the new loans have mainly been secured on residential property. However, new investment in houses and tenant-owned apartments cannot explain the rise in debt since residential construction has been low for a long period. That means that at aggregate level households have borrowed money to a high extent against the old housing stock. The degree of leverage has not changed appreciably, however, indicating that at aggregate level households have realised some of the value gains on their housing.[17] This can be interpreted to mean that capital gains have been realised via loans, which in turn has created liquidity that potentially could be used to finance increased consumption. It is true that most of the loans have been taken to finance housing purchases but the cash flows that are created when households increase their loans to buy houses and tenant-owned apartments in the secondary market creates scope for consumption or saving in financial assets.

At micro level it could be a question of two different kinds of housing transaction. The first is a transaction whereby a homeowner sells his home in order to either buy a cheaper one or to leave the housing market. The seller receives a payment that includes a realised capital gain. The second kind of transaction is when a homeowner uses the higher property value to increase the mortgage on his home or when a household that buys a new home borrows more than necessary to finance the purchase.[18]

During the 1990s there was a clear relationship between the rate of increase in loans and the consumption ratio in Sweden (see Figure B9). That suggests that in practice loans have been an important source of financing

17 Known as mortgage equity withdrawal.
18 However, if the property is a house and the purpose of the increased mortgage is to improve the standard of the house through conversion or renovation this will boost residential investment and not household consumption. Homeowners' purchases of, for example, white goods are also considered as investment. On the other hand, purchases of white goods by owners of tenant-owned apartments and tenants in rental housing are treated as consumption in the National Accounts.

when households have wanted to boost consumption following capital gains.[19]

As Figure B9 shows, though, this relationship has not been valid in the current decade. At aggregate level, the loans have continued to build up in line with rising house prices but they have not been channelled into consumption to the same extent as before (and not as stated above into new investment in residential property either). At aggregate level the realised capital gains have, as noted earlier, instead been converted into financial investments. However, it is unlikely that it is the same households that are borrowing and saving. Low interest rates have bolstered demand for loans and housing among some households, whereas households that have been hit by falls in equity prices or felt greater uncertainty over the future have saved more.

In terms of transactions the relationship between debt and household consumption may have weakened because homeowners, who have increased the mortgages on their homes, have done so for consumption purposes to a smaller extent than before. It is also possible that homeowners who have left the housing market or moved to cheaper housing have saved the proceeds on the sale to a greater extent than before. But it could also be that households who have neither moved nor sold their property have sharply increased their saving in financial assets while those who have borrowed have used the funds for consumption roughly as before.

Potential risks associated with high debt levels and high housing prices

It is genuinely difficult to ascertain whether household debt and house prices have risen exaggeratedly much, and to what extent this entails risks of sharp corrections in the future. Provided that households have acted rationally and that markets function efficiently the fact that households' balance sheets have been inflated by high debt levels and high property prices should in itself not have any significance.

Were house price inflation to become more subdued in the period ahead, which is reasonable to expect, it should, via the wealth effect, depress the consumption ratio and therefore also consumption growth (all other things being equal). But were house price inflation to be dampened due to higher interest rates in response to the economic upswing and an improvement in the labour market, lower precautionary saving should have the opposite effect. These are normal cyclical developments to some degree.

If house prices for some reason are overvalued, though, the moderation of consumption growth could prove particularly sharp if and when house prices normalise. However, the Riksbank's assessment is that the fast rate of increase in house prices is largely explained by developments in household incomes and by the low interest rates. The low residential investment in recent years in combination with high demand from a growing share of the population of working age has probably also played a part in the price developments. When interest rates are raised property prices can indeed be expected to rise at a slower rate, but there is little at present to point to abrupt adjustments in the property market.

One uncertain factor is the possibility that households have not fully taken into account the prospect of rising interest rates and that they therefore have taken on too much debt. There are several reasons to believe that this may have had some significance. Both short-term and long-term interest rates have been unusually low in recent years. That may have created the impression that interest rates should remain at a lower level in the long term than what might prove to be the case. The low bond yields have depressed fixed mortgage rates. A historically low credit risk premium between mortgage rates

19 It is interesting to note, though, that this does not appear to have been the case in, for example, the UK to the same extent. See, for example, "Practical Issues in UK Monetary Policy, 2000 – 2005", speech by Stephen Nickell., Bank of England Monetary Policy Committee, 20 September 2005.

and government bond yields (essentially no premium at all) has further held down lending rates.

The Riksbank's assessment is that households in general have adequate margins to cope with rises in lending rates. The risk that a higher level of interest rates would lead to such substantial liquidity problems in the household sector as to threaten financial stability is judged to be small.[20] But the contracting effect on consumption that may arise when interest rates increase and households are forced to use a larger portion than expected of their incomes for housing could nonetheless be considerable. Smaller margins than households have counted on could in turn result in an increased turnover in the housing market and downward pressure on housing prices. That could lead to a further moderation of consumption growth.

Summary and outlook

That households at present are consuming a comparatively low share of their incomes has most likely several explanations. Changes in the social security system and a high share of the population at those ages when pension saving can be assumed to be high have probably contributed for a long period to a higher saving rate than before. In the period ahead these factors should affect the saving ratio in the opposite direction. Demographic factors point to a declining saving ratio in the future while an increased need among households to save towards, for instance, their pensions may contribute to a high saving ratio.

The weak growth in total household net wealth following the equity market decline is likely an important reason why the consumption ratio fell sharply at the beginning of the current decade and thereafter has remained low. Many households probably have a high rate of saving in financial assets with a view to restoring the value of their assets to the level that prevailed before the stock market decline. That may include the large group of households that are approaching retirement age and that have had a portion of their pension capital invested in equities or housing.

This saving should decrease in the future as the value of household wealth is restored to previous levels. Moreover, some of households' high saving at present is judged to be precautionary saving that should also decrease as labour market conditions improve. At the same time, higher interest rates and a slower rate of increase in the prices of houses and tenant-owned apartments should have the opposite effect, i.e. entail higher saving in relation to incomes. In the coming years, however, the Riksbank expects the influences that are causing a reduction in saving to dominate. The saving ratio therefore is estimated to drop a number of years ahead.

The fact that households' balance sheets have been inflated by high credit demand and high housing prices can probably be explained in large measure by income developments and the low interest rate environment. However, it is not possible to disregard the risk that household debt levels and the prices in the housing market have been driven up too much. One cause may be that households have been overly optimistic about their future interest burden. That in turn risks dampening consumption growth unexpectedly much at a later stage.

20 See, for example, Financial Stability Report, 2005:1