



# Household Debt and Macroeconomic Risk

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- Three questions

1. Are Swedish housing prices too high?
2. Is Swedish households’ debt too high?
3. Does Swedish household indebtedness imply an “elevated macroeconomic risk”?

- Answers?

- FI (Finansinspektionen, the Swedish FSA):  
**Yes** on all three
- Me: **No** on all three (“no evidence of...”)

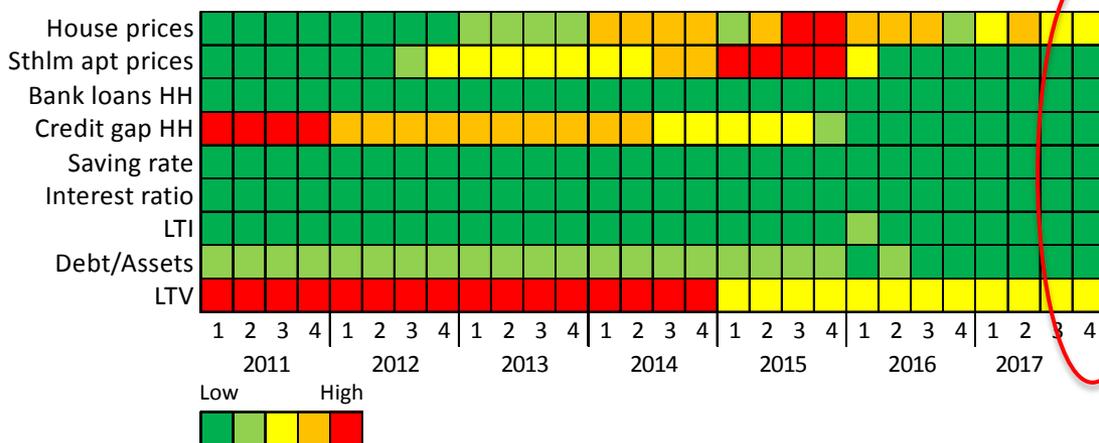
# FI: Risks to financial stability from household debt “relatively small”

- “FI’s judgment is **that the financial-stability risks associated with households’ debt are relatively small.**
- ... This is because the mortgage holders generally have good possibilities to continue to pay their interest and amortization also if interest rates rise or incomes fall.
- ...The households have also on average good margins to manage a fall in housing prices.
- ...In addition, the Swedish banks are judged to have satisfactory capital buffers if credit losses nevertheless would materialize.”

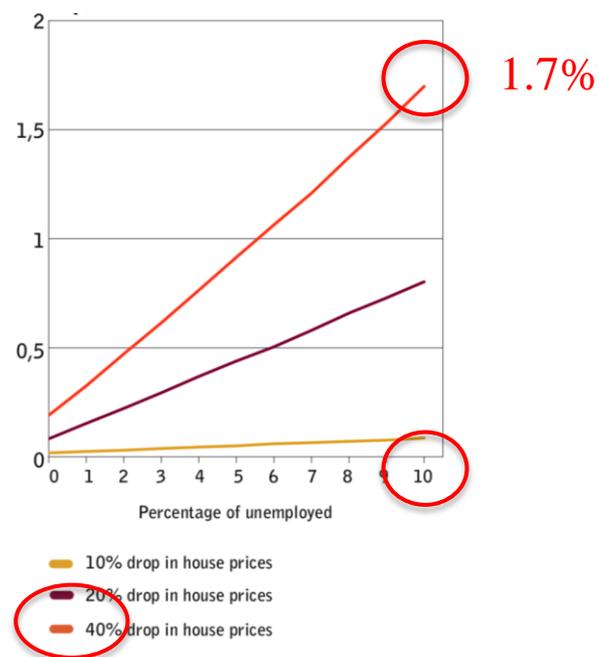
# FI: Risks to financial stability from household debt

## “relatively small”

Vulnerability indicators for the household sector



Share of households with “double trigger” at housing-price fall and unemployment increase



- Stress tests on households
- “Double trigger”: Both being underwater and having cash-flow problem due to income fall.

### 3. Does Swedish household indebtedness pose an “elevated macro risk”?

- FI: “The risks presently associated with households’ debt mainly concern that highly indebted households may reduce their consumption substantially if (1) interest rates rise or (2) incomes fall, and that this might in turn reinforce a future economic downturn.
- ... [H]igh and rising debt-to-income ratios among many borrowers therefore pose an elevated macroeconomic risk.”
- FI believes in causality between high DTI ratios and subsequent consumption falls in a recession or crisis

# FI policy to reduce household indebtedness:

## Tighter lending standards

- New mandatory amortization requirements: **3%** of mortgage at origination ( $LTV > 70\%$ ,  $LTI > 4.5$ ), corresponding to  $3/(1-0.3) = 4.3$  pp pre-tax mortgage-rate increase (30% capital-income tax)
- FI recommending tighter affordability interest-rate stress test: **7%** instead of **6%**
- Welcomed/encouraged tighter banks' internal LTI limits (average 5.5)
- **Before** tightening:  
**6%** affordability interest-rate stress test on **interest-only loan**
- **After** tightening:  
Equivalent to  $7 + 4.3 = 11.3\%$  on interest-only loan

## (1) Interest sensitivity of consumption 1

- Hold cash-flow more interest-sensitive with more debt
- But interest rates are **endogenous**, not exogenous
- **In bad times, interest rates are lower**, cash-flow better (different from 90s crisis and fixed exchange rates)
- **High debt and variable interest rates provide insurance against bad times: An automatic stabilizer**

## (1) Interest sensitivity of consumption 2

- Stronger cash-flow channel in monetary policy (Flodén et al., Hughson et al., Gustafsson et al., Cumming)
- Easier for Riksbank to stabilize consumption, aggregate demand (smaller policy-rate changes needed)
- If mortgage rate-policy rate spread would rise (investor doubts), lender liquidity problem, not solvency problem: Lending of last resort (NDO and Riksbank)
- Risk for recession may actually fall, not rise

## (2) **Income sensitivity** of consumption 1

- FI for support refers to **three studies** of the **experience in Denmark** (Andersen et al. 2016), the **U.K.** (Bunn & Rostom 2014, [2015]), and the **U.S.** (Baker 2018)
- But **these studies contradict FI**:
- Andersen: “our results **do not support** any interpretation of the data that involves a negative causal effect of a high debt level on subsequent consumption growth”
- BR15: “[We] take care **not to interpret** the observed relationships [between the level of household indebtedness and subsequent spending adjustment] as being proved to be causal.”

## (2) **Income sensitivity** of consumption 2

- Baker: “debt has **little or no independent relationship** with the [income] elasticity of spending when controlling for liquidity and the ability of households to access credit. ... Overall, these results indicate that **the primary reasons consumption responses are higher among highly indebted households are credit and liquidity constraints.**”
- Note: Amortization requirements **increase** fixed payments and **liquidity constraints**, **increase income sensitivity**, **reduce resilience**:  
They may cause the problem they are supposed to solve!

# What is going on? Correlation vs. causality!

- **Correlation** between pre-crisis household DTI ratios and consumption fall during crisis (ADJ, BR, Baker, Mian & Sufi, Dynan, ...)
- Correlation does not imply **causality**
- High DTI and subsequent consumption fall may be caused by **common factor**
- The evidence is that the common factor is **the housing collateral channel**, which allows **HEW-financed overconsumption** (Housing-Equity Withdrawal, a.k.a. Mortgage Equity Withdrawal)

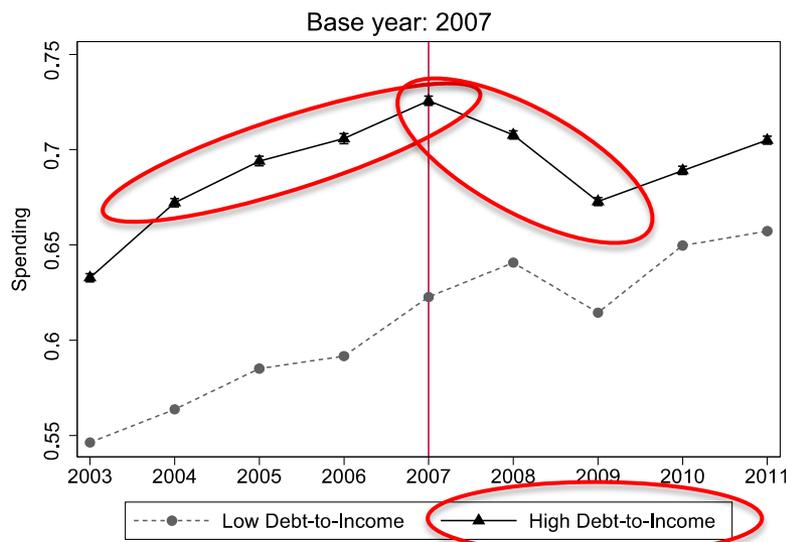
# The housing collateral channel (Duca et al., Muellbauer, M&S credit-driven household demand ch1)

- Rising housing prices increases value of collateral
- Allows overconsumption financed by HEW
- Debt-financed overconsumption increases DTI
- Crisis: Falling housing prices, tighter lending standards, debt-financed overconsumption stops, consumption falls
- Debt-financed overconsumption causes both high pre-crisis DTI and crisis fall in consumption
- The strength of the housing collateral channel **very different across countries** (Muellbauer)

# Denmark: Andersen, Duus, and Jensen 2016

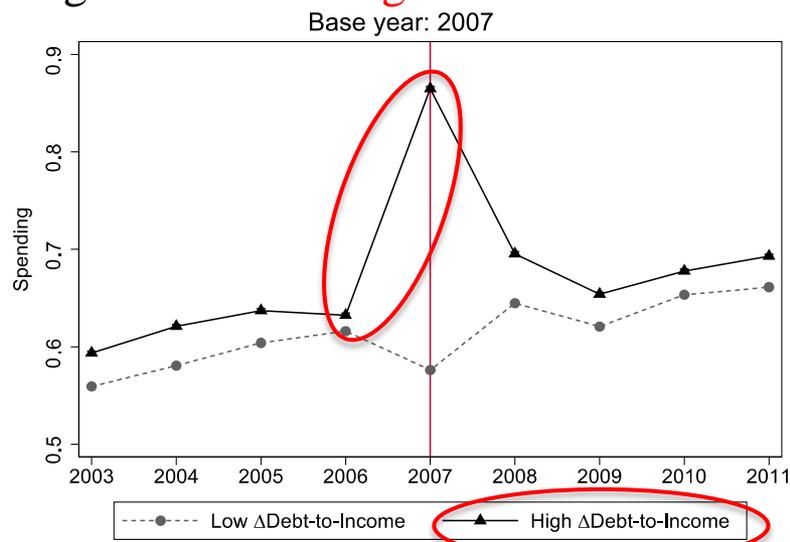
## (individual registry data, 0.5 mn home-owning Danes)

Spending relative to 2007 pre-tax income for households with **high and low DTI**



- Highly indebted households spent more pre-crisis
- Highly indebted households reduced their spending more
- **Correlation DTI – spending fall**

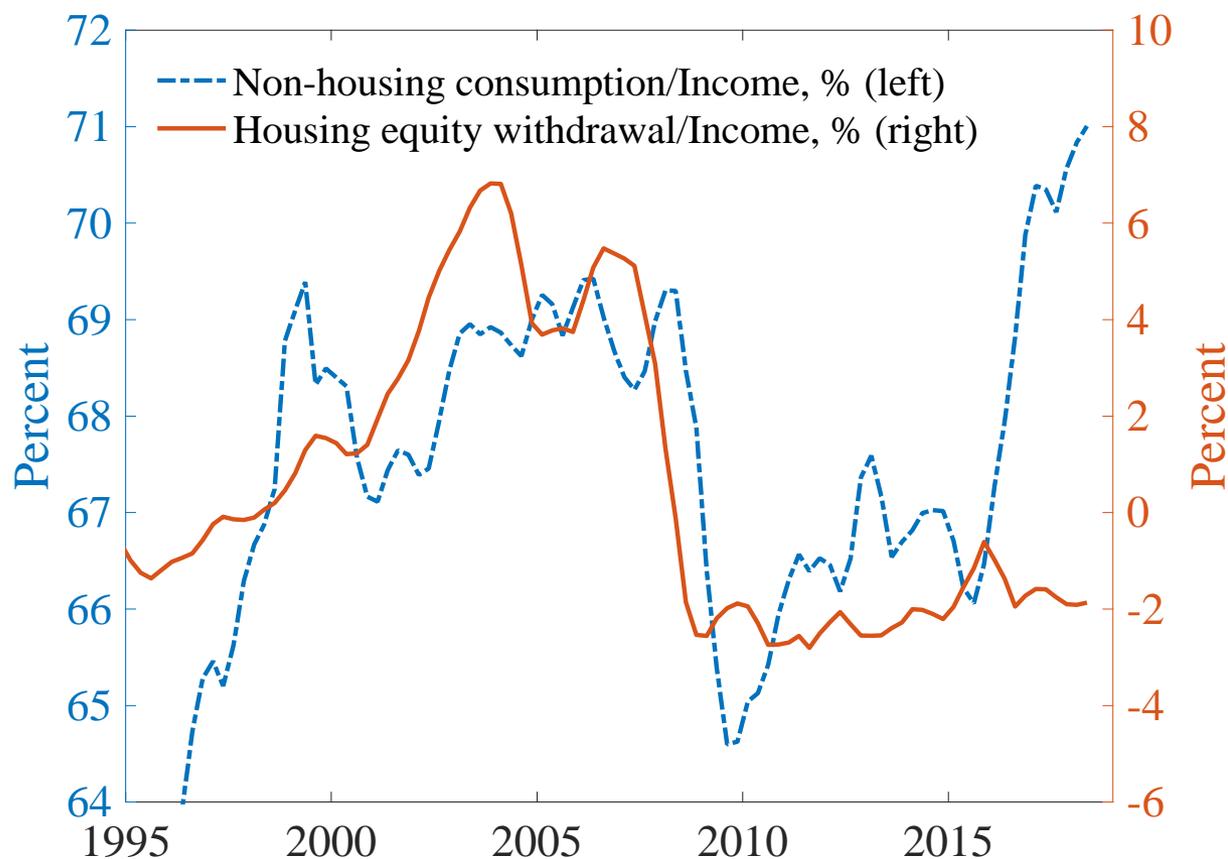
Spending relative to 2007 pre-tax income for households with high and low **change in DTI 2006-2007**



- High consumption explained by previous DTI increase
- **When DTI change included in regression, crisis spending fall correlated with pre-crisis DTI increase, not with DTI level (indicating HEW!)**

UK:

# HEW and non-housing consumption to income

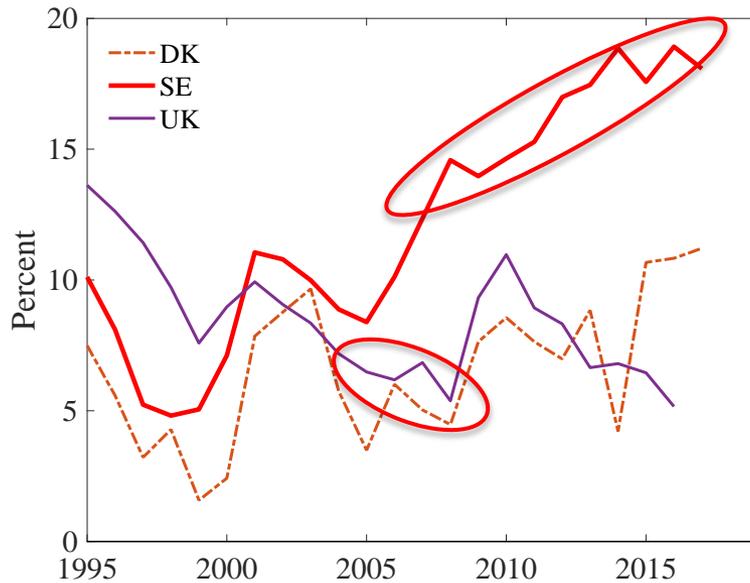


## Correlation between pre-crisis DTI and crisis consumption fall due to overconsumption financed by HEW

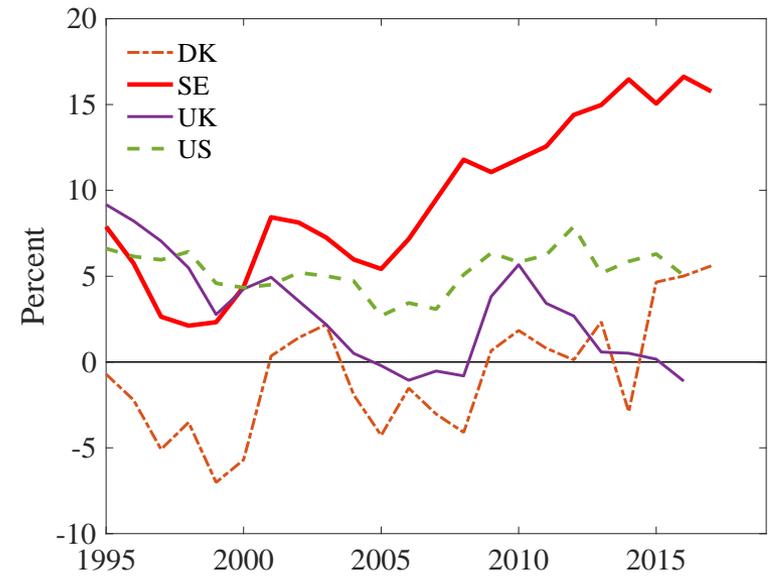
- The evidence is that consumption that fell in Denmark, the U.K., and the U.S. was mainly **unsustainable overconsumption** financed by **debt increases** (HEW), which could not continue when the crisis came
- Shows up in **low savings rate** (undersaving)
- **If** indication of unsustainable overconsumption financed by HEW: Risk of future consumption adjustment!
- **But no evidence of unsustainable HEW-financed overconsumption in Sweden**

# Saving rates in Denmark, Sweden, the UK, and the US

## Gross saving rates (Eurostat)



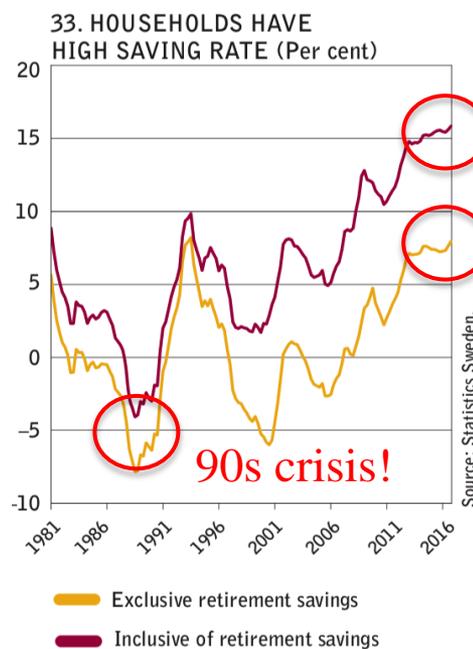
## Net saving rates (OECD)



# FI agrees: No evidence of unsustainable overconsumption in Sweden

- FI: “Despite optimistic expectations and high margins between income and expenses, households are currently being **relatively cautious**.

The total household **saving rate is high and has increased** even more over the past few quarters (see Diagram 33). Household **consumption of durable goods**, which is an indicator of household optimism, is **in line with the historical average** (see Diagram 34).”



Note. Savings as share of disposable income. Calculated as four quarters of moving average.

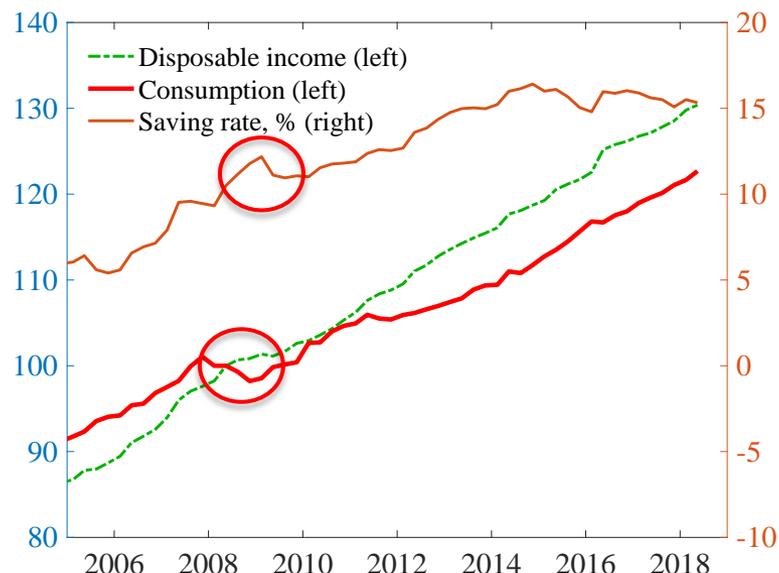
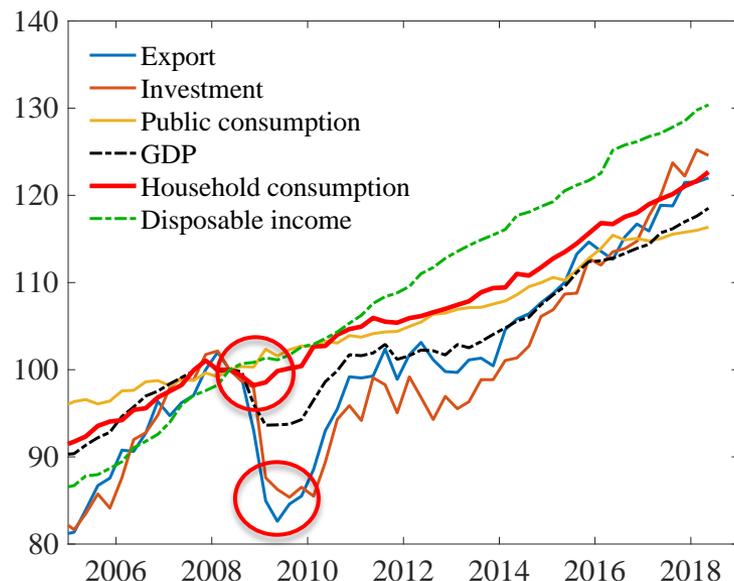


Note. Household consumption of durable and partly durable goods. Annual growth, fixed prices, seasonally adjusted.

## Microdata evidence on HEW in Sweden 1

- Li & Zhang: Some HEW, used to pay off high-interest-rate unsecured consumer debt, not for new consumption. Thus to improve debt composition. Also to finance startup businesses.
- Sodini et al.: Random conversion of public to tenant-owned housing; substantial capital gains. HEW used to smooth consumption when negative income shocks. Movers realized capital gains and consumed more, stayers did not.
- HEW used to increase resilience and reduce income-sensitivity of consumption:  
More efficient debt composition, consumption smoothing
- No evidence of unsustainable overconsumption

# Real-time stress test 2008-2009: How did household consumption adjust?



- 2008–2009 crisis: Housing prices fell 13%, unemployment rose 3.5 pp
- Export and investment collapsed
- Consumption fell only by 2%
- Saving rate rose only 1.5 pp
- Disposable income did not fall (cash-flow channel)
- Real-time stress test does not support “elevated macroeconomic risk”

# Conclusions 1

- There is no evidence that Swedish housing prices and household debt are too high relative to their fundamental determinants
- There is no evidence that Swedish household indebtedness poses an “elevated macroeconomic risk”
- The correlation in several countries between pre-crisis household indebtedness and consumption falls during the crisis is best explained by HEW-financed overconsumption that stopped when the crisis came
- There is no evidence of HEW-financed overconsumption in Sweden
- Microdata studies of HEW in Sweden indicate that HEW increases resilience by allowing a more efficient debt composition and some consumption smoothing for negative income shocks

## Conclusions 2

- No evidence that Swedish household indebtedness poses an “elevated macroeconomic risk” means **no rationale for FI’s tightening of lending standards**
- **Few or no benefits** of tightening, but **substantial welfare costs**

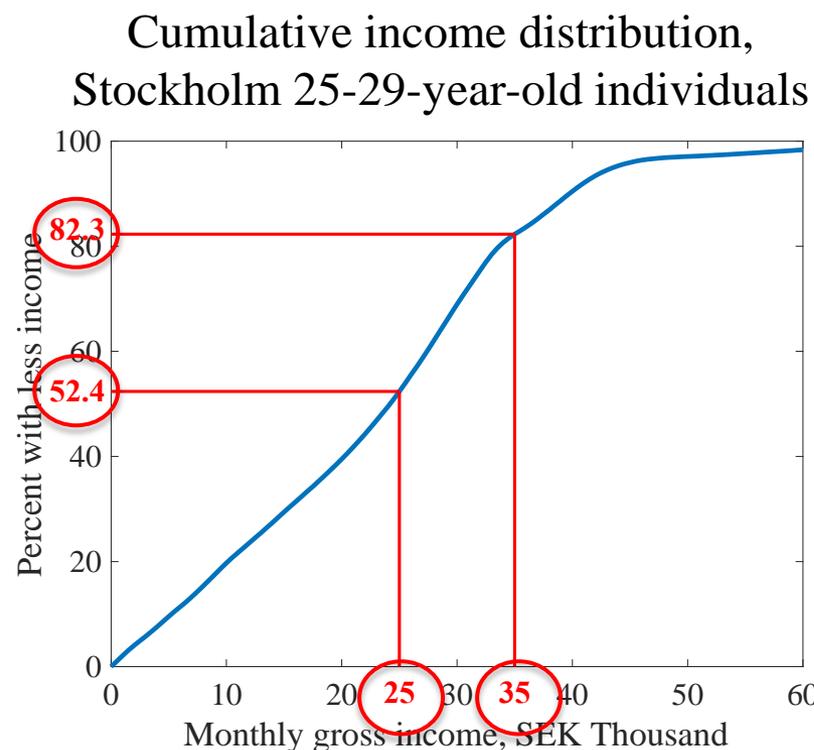
- Share of 25-29-year-olds with sufficient income to get a loan to buy an average Stockholm studio

- **Before** (EUR 2,500/m): **48%**

- **After** (EUR 3,500/m): **18%**

- **Share excluded**  
(48 – 18)/48 = **62%**

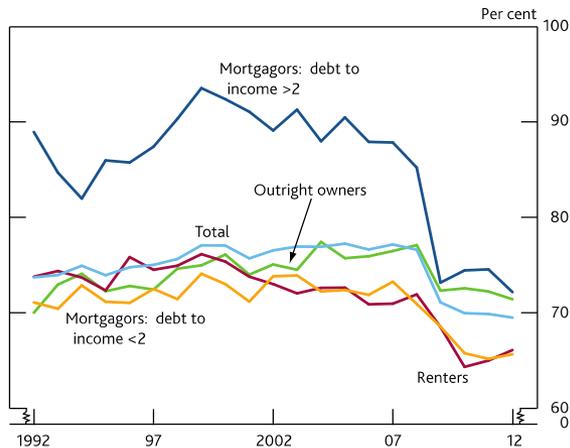
- More about consequences in companion paper





# UK: Bunn & Rostom 2014 (QB), 2015 (SWP) (synthetic panel of LCF survey, not individual data)

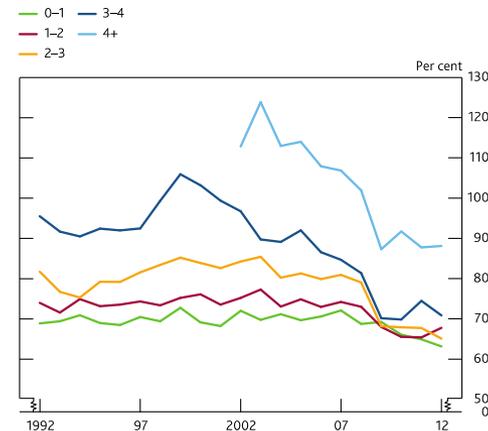
Chart 6 UK non-housing consumption as a share of income<sup>(a)</sup>



Sources: Living Costs and Food (LCF) Survey, ONS and Bank calculations.

(a) Non-housing consumption as a share of income net of mortgage interest payments. Data are scaled so that the total matches the National Accounts. Debt to income ratio is calculated using secured debt only.

Chart 7 UK mortgagors non-housing consumption as a share of income by debt to income ratio group<sup>(a)</sup>



Sources: Department for Communities and Local Government (DCLG), LCF Survey, ONS and Bank calculations.

(a) Data for 4+ not shown before 2002 as they are erratic and are based on a small sample. Non-housing consumption as a share of income net of mortgage interest payments. Data are scaled so that the total matches the National Accounts. Debt to income ratio is calculated using secured debt only.

- Similarity to ADJ figures
- Highly indebted households spent more pre-crisis and reduced their spending more during the crisis
- Correlation pre-crisis DTI – crisis spending fall (regression in BR 2015)
- BR do not examine the role of the **change** in the DTI
- Most likely to get the same result as ADJ: **When DTI change included in regression, crisis spending fall correlated with pre-crisis DTI increase, not with DTI level (indicating HEW)**

## Microdata evidence on HEW in Sweden 2

- Emanuelsson, Katnic & Spector 2018
- Decompose increase in household debt 2011-2017: (1) Turnover at higher housing prices. (2) Homeowners' debt increase. (3) New construction
- Uses of (2): Pay unsecured consumer debt, finance start-ups, do home improvements, buy second homes, help family members buy home, anticipate tighter credit conditions, borrow for amortization (Svensson 2016), invest in financial assets, build up liquidity buffer...
- Finance consumption?
- Overconsumption (undersaving) of macroeconomic importance?
- 2010-2017: Household **net saving rate increased** almost 4 pp
- **No evidence of debt-financed overconsumption of macroeconomic importance**