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Household Debt and Spending During the Financial Crisis

Evidence from Danish Micro Data

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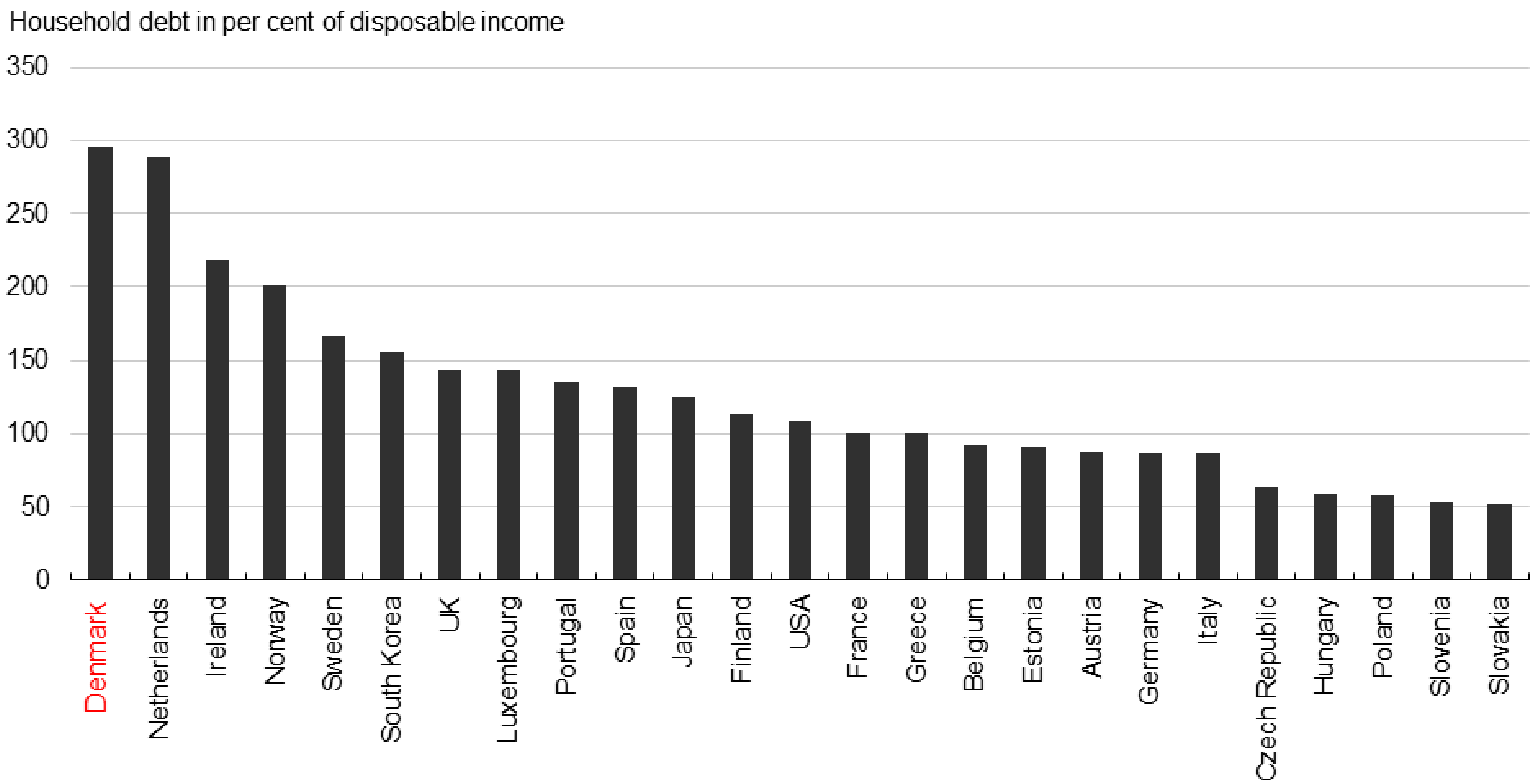
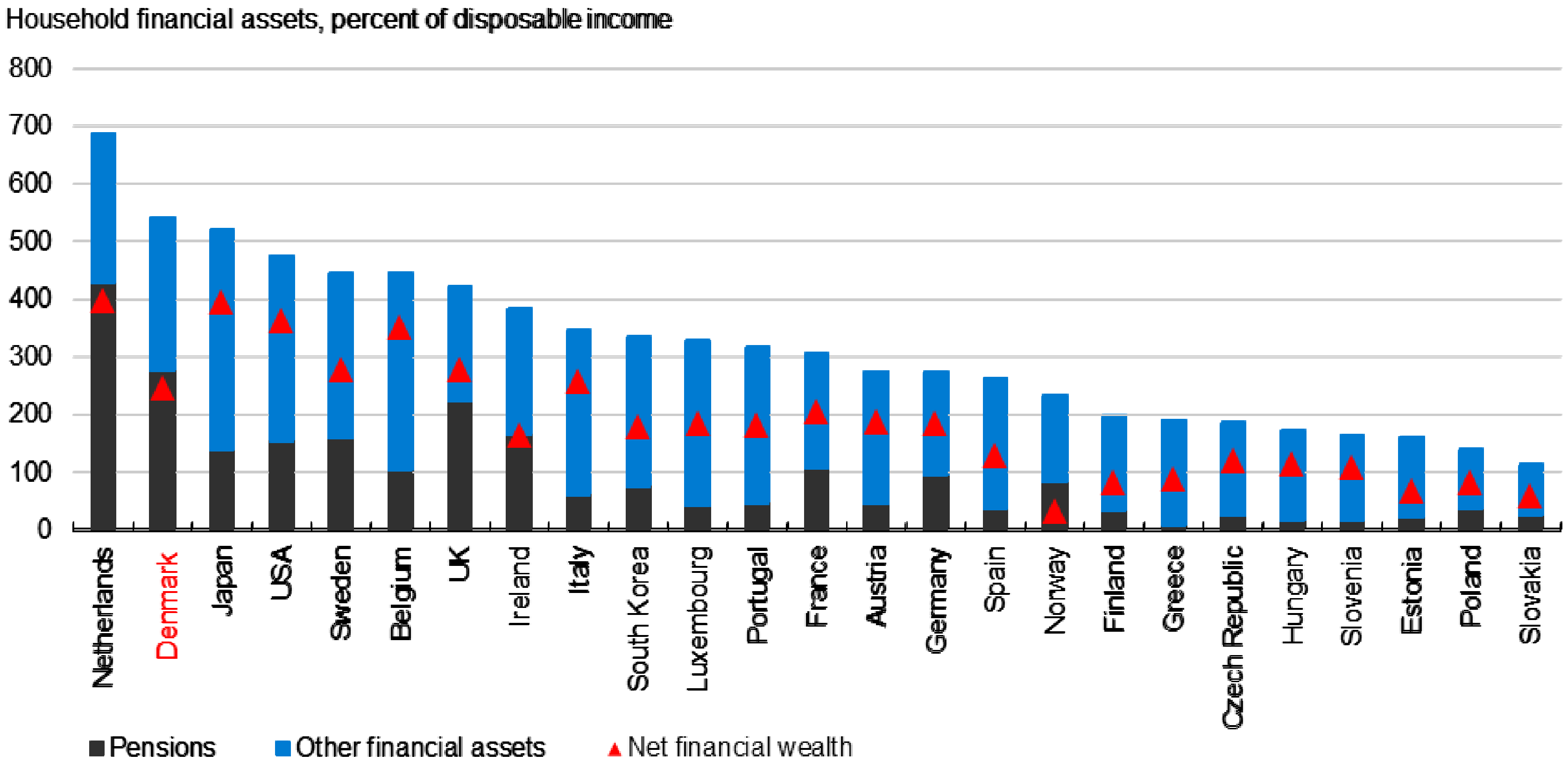
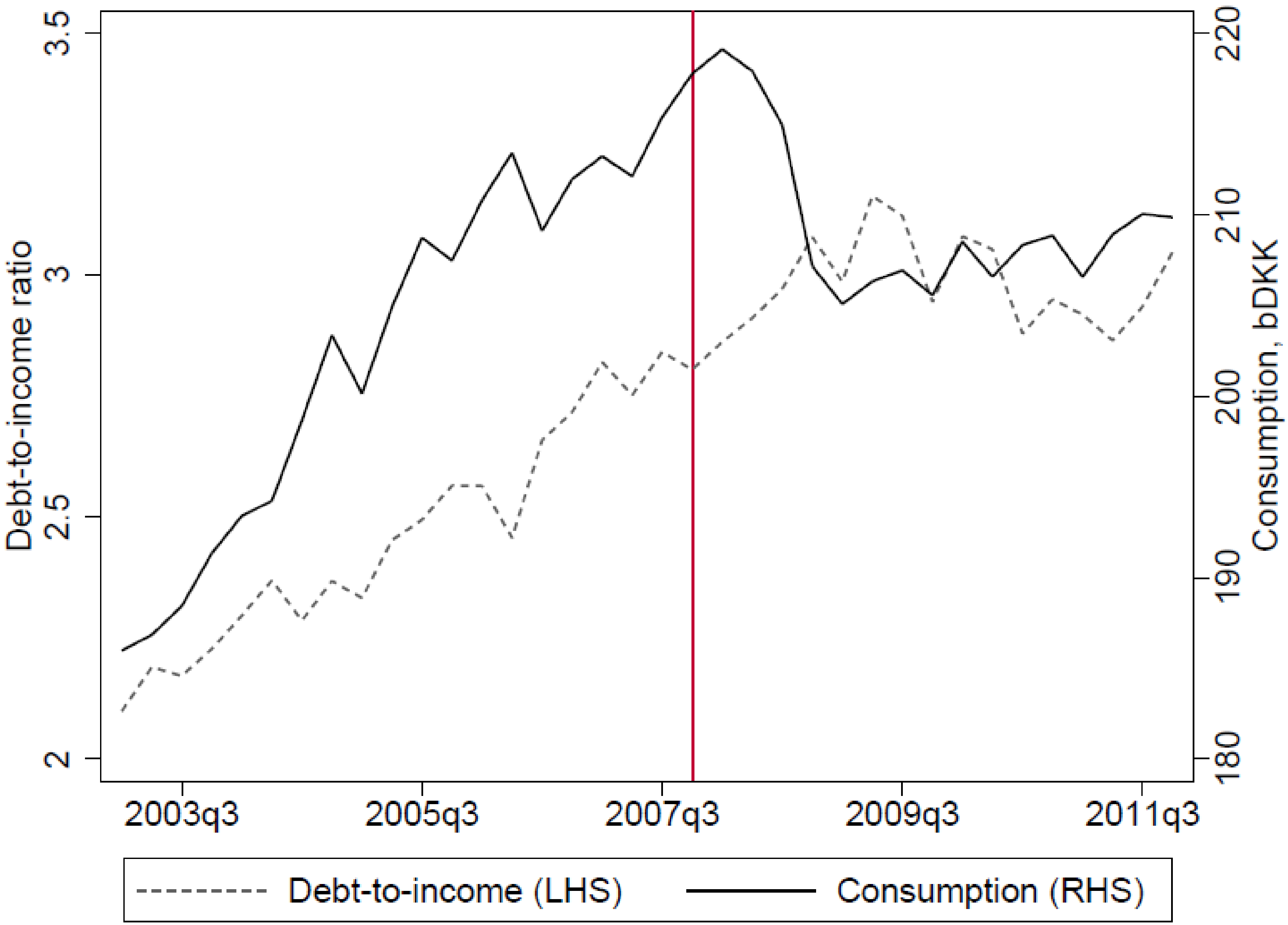
Household balance sheets across countries



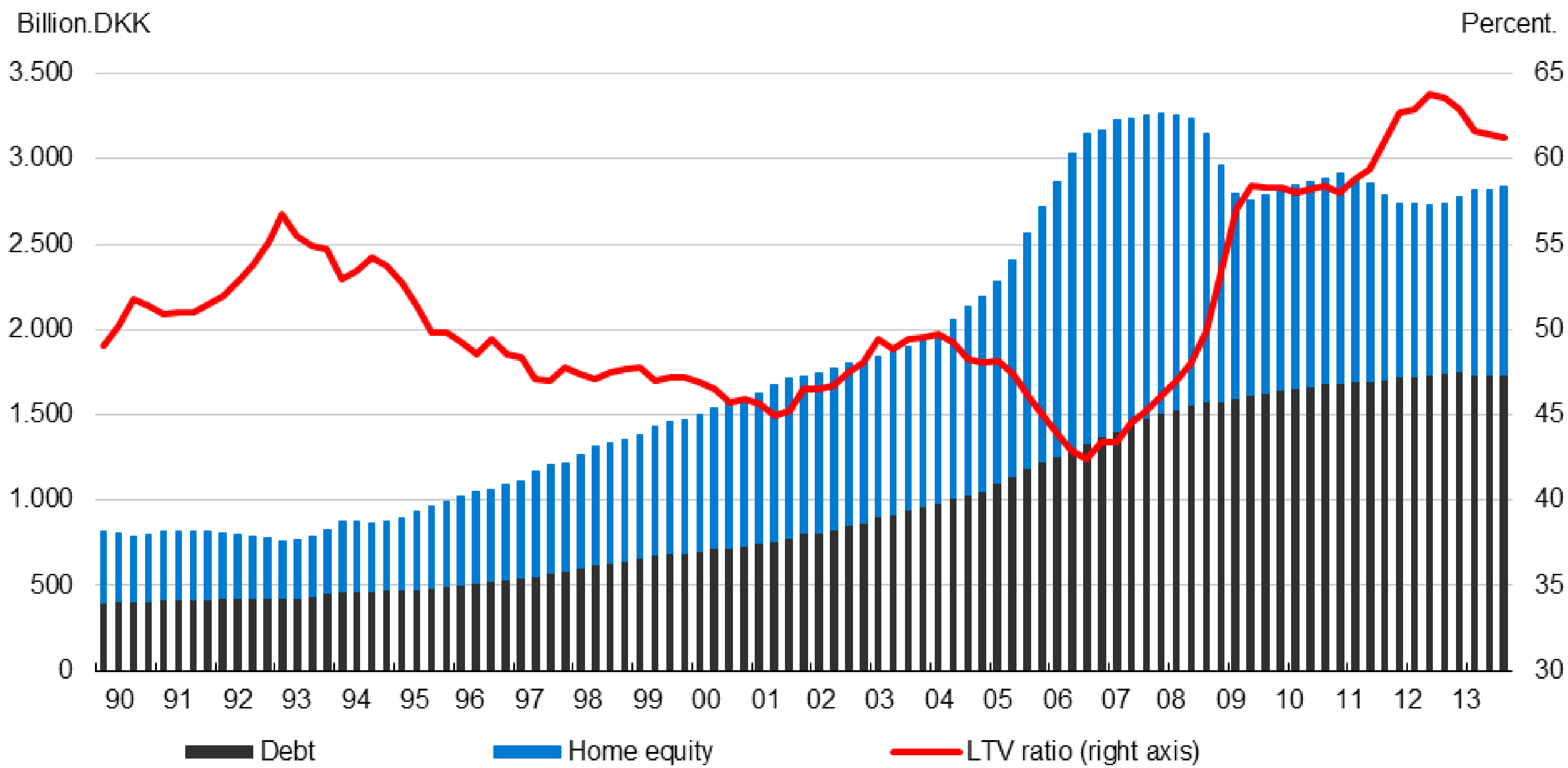
Household balance sheets across countries



Household debt and consumption in Denmark, 2003-11



Debt, house prices and the aggregate LTV ratio



The big question

Did the high level of household debt in Denmark amplify the drop in consumption when the financial crisis hit, thus deepening the impact on the real economy?

Approach this question using micro data on Danish homeowners:

- Did households that had a lot of debt prior to the crisis reduce their spending more than those with little debt?
- If so, what can explain this correlation between pre-crisis debt levels and spending cuts during the crisis?

Danish micro data on household finances

- Administrative registers covering the entire Danish population (~5.6 million), linked via personal civil registration number.
- Information from all registers is collected, organized and made available to researchers in anonymized form by Statistics Denmark.
- Highly detailed data on income, wealth and debt. Source is tax returns from Danish tax authorities (95% third-party reported).
- Background information from other registers: Age, education, address, home ownership, workplace, labor market history…
- Possible to link couples, relatives $\Rightarrow$ can aggregate income and wealth data to the household level.

How to get a household-level measure of spending

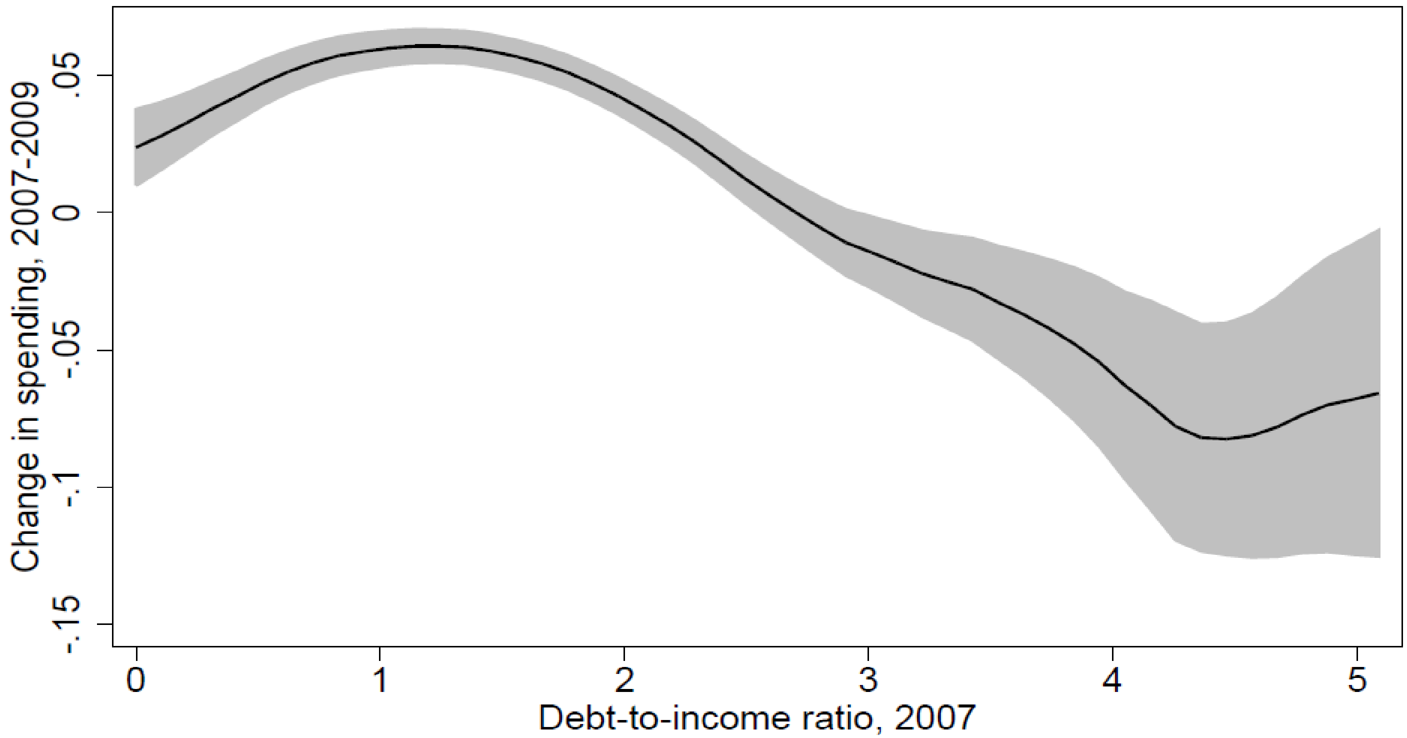
- Challenge: No register-based data on consumption or spending at the household level

- But high-quality data on income, assets and debt $\Rightarrow$ can construct imputed measure:

  Spending = Disposable income – change in net wealth

- How does this measure of spending develop over the course of the crisis for households with different levels of debt prior to the crisis?

The basic correlation between pre-crisis leverage and change in spending during the crisis



The figure is drawn for households in which the oldest member was 45 years old in 2007.

The change in spending is measured relative to household income in 2007.

What can explain this pattern?

Similar correlations have been documented in other countries (Mian and Sufi 2010, Dynan 2012, Bunn and Rostom 2014).

But what is the underlying mechanism?

1. Borrowing constraints?

   High debt level $\Rightarrow$ closer to upper limit $\Rightarrow$ more likely to become constrained and forced to cut spending.

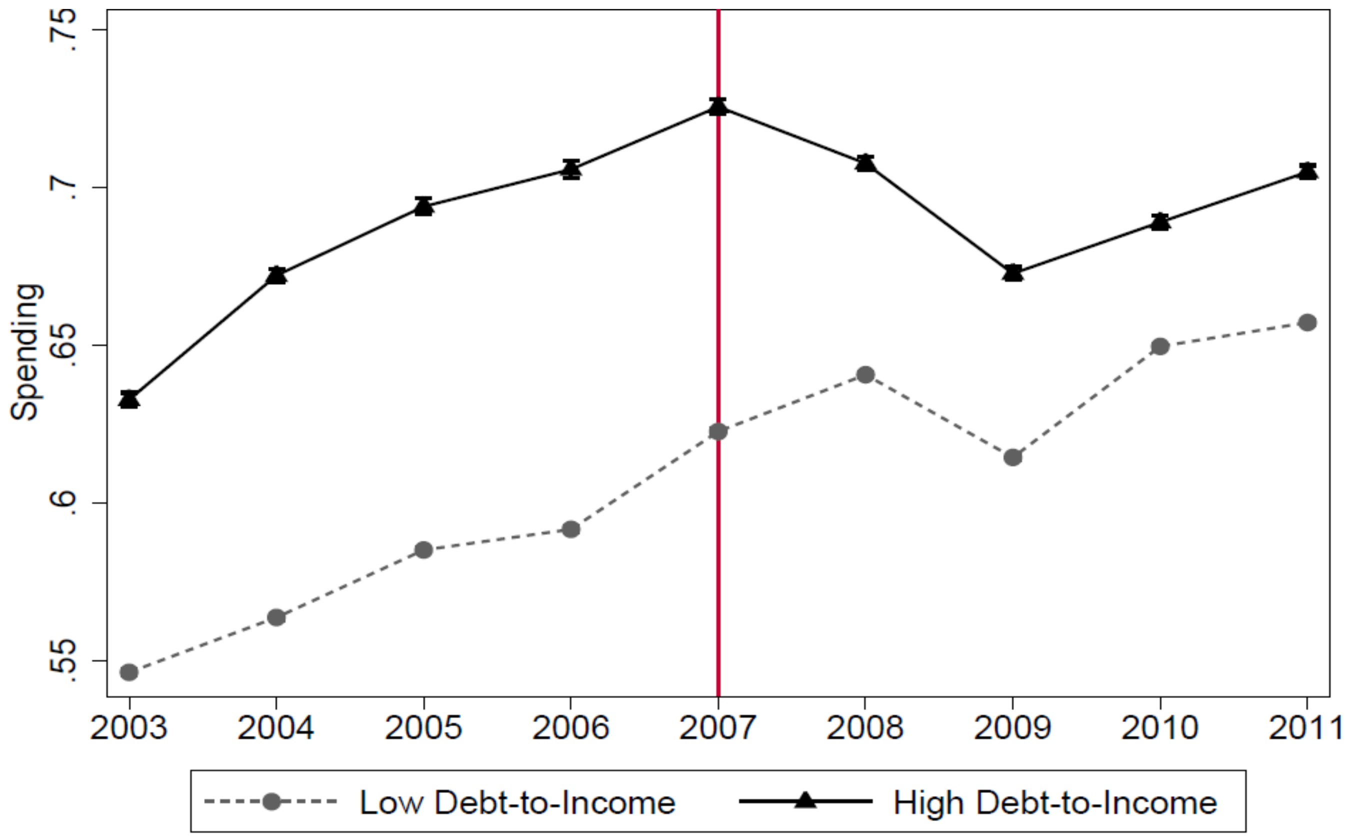
   Note: *Causal effect* of high debt level on spending growth.

2. Spending ”normalization”?

   Unusually high spending in previous years $\Rightarrow$ high debt level and large subsequent drop in spending.

   Note: *No causal effect* of high debt on spending growth.

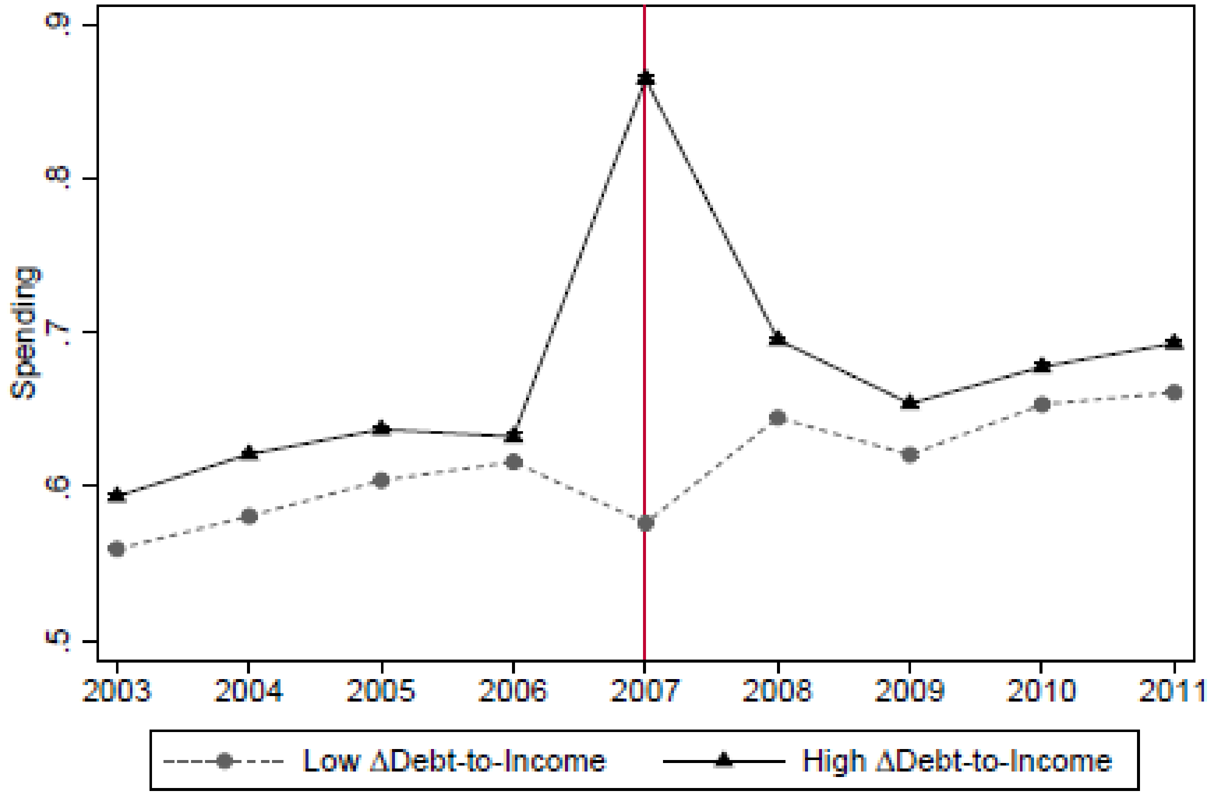
Spending levels before, during and after the crisis: High leverage households vs. low leverage households.



- Spending is measured relative to household income in 2007.
- High-leverage households are those with a DTI ratio above the 75th percentile in 2007.
- Comparisons between high- and low-leverage households are conditional on a long range of observable household charachteristics.

Levels of debt vs. changes in debt?

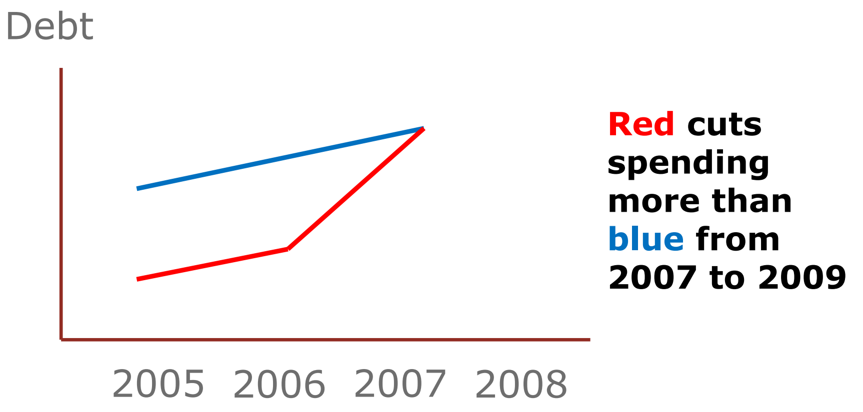
- Is it really the high *level* of debt that makes high-leverage families cut spending?
- Or is the correlation driven by the fact that they *increased* debt a lot in the years leading up to the financial crisis?



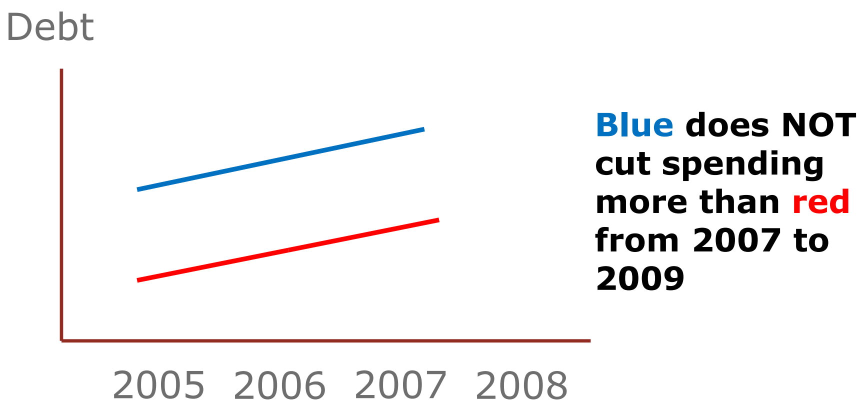
Levels of debt vs. changes in debt?

Econometric results show that

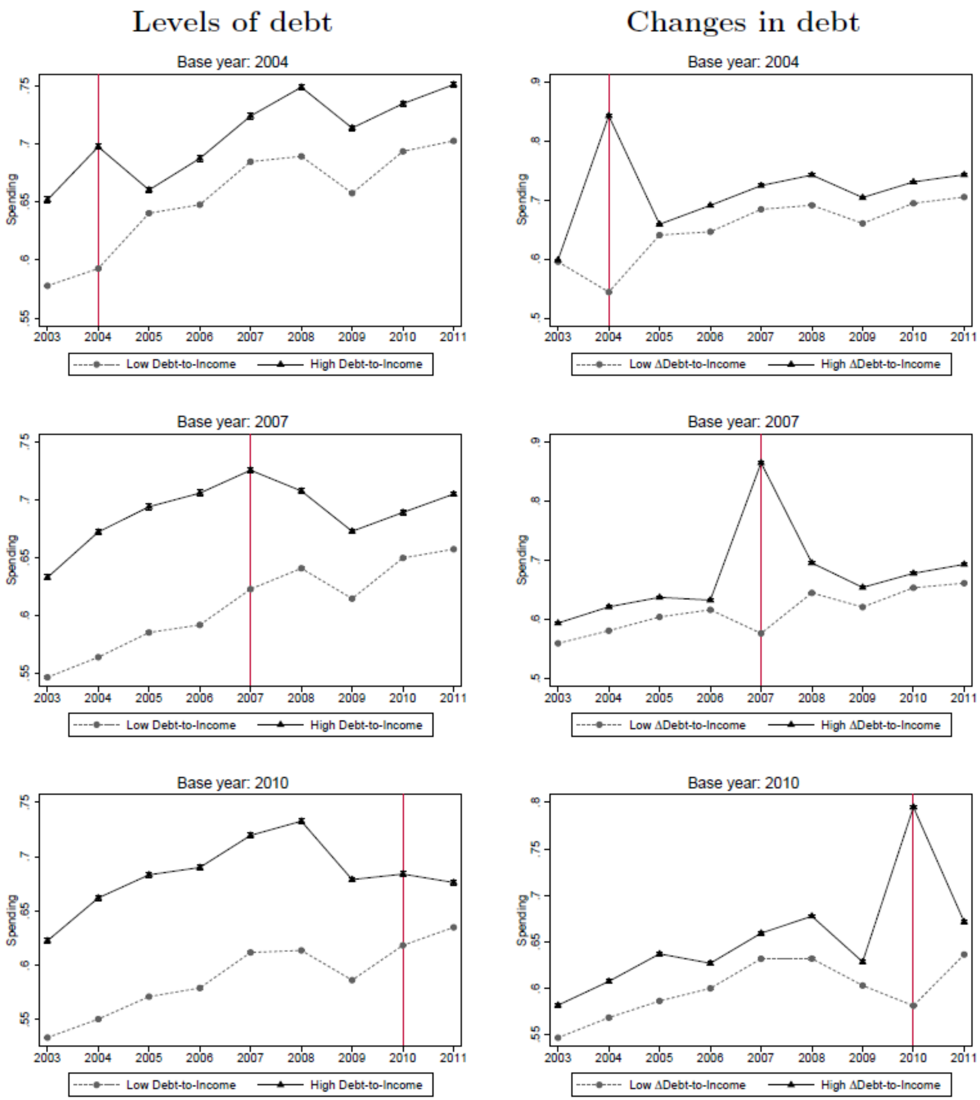
1. A high *increase* in debt from 2006 to 2007 is correlated with subsequent spending cuts, given the level of debt in 2007.



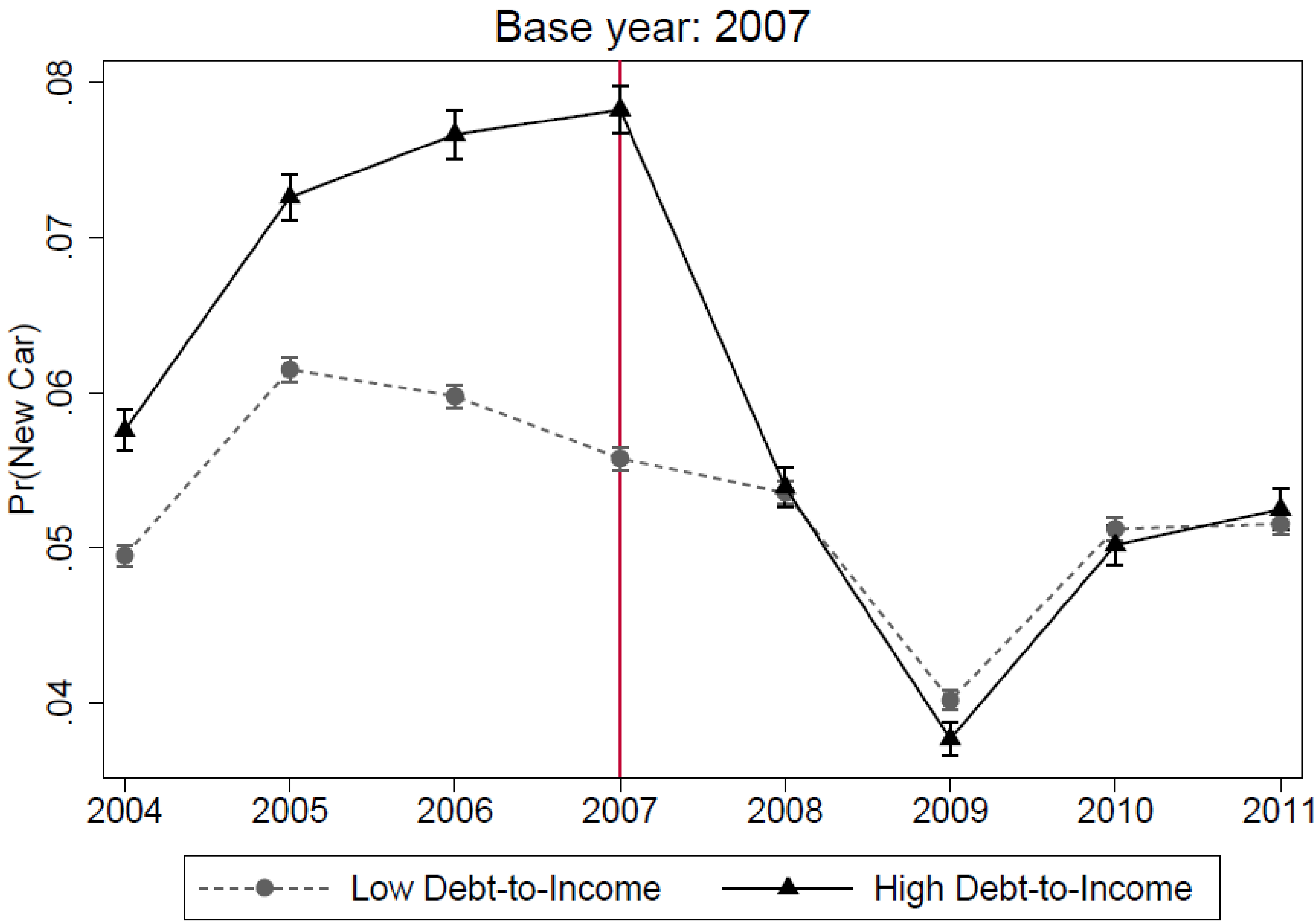
2. No negative correlation between a level of debt in 2007 and subsequent spending cuts, given the size of the change in debt from 2006-07.



Same pattern in other years



What's behind this? Using car purchases as an indicator of spending



Interpreting the results #1

The correlation between high debt in 2007 and weak subsequent spending growth is due to a *spending normalization pattern*:

- Some households had an unusually high spending level in 2007, driven by e.g. purchases of large durable goods, such as cars.
- Many of them financed this by borrowing, thus leading to large increases in debt.
- The subsequent return to a ”normal” spending level generated a large drop in spending between 2007 and 2009 among this group.
- Exactly the same pattern in other years – the difference is that the group of high-spending households was larger in 2007 than in other years.

Interpreting the results #2

No support for borrowing constraints as main explanation of the debt-spending cuts correlation:

- Conditional on the size of the *increase* in debt, a high *level* of debt is not associated with larger subsequent spending cuts.
- Same pattern found in years in which credit conditions were loose (rising house prices, financial liberalizations etc).

Nor support for ”deleveraging-as-the-cause-of-the-slump” interpretation:

- Not much sign of any serious deleveraging efforts taking place, even among the highly indebted.
- High-leverage households still spent a larger fraction of their income during and after the crisis than otherwise-comparable low-leverage households, not less.

Implications for policy – lessons from the Danish experience

Policymakers concerned about macroeconomic stability should pay attention to *changes* in household debt, not just levels

- Rapid increases in debt can signify debt-financed overspending among households.
- Such overspending can trigger subsequent relapse in consumption, compromising macroeconomic stability.

Debt-relief policies targeted at under-water borrowers could be ineffective and expensive as a stabilization tool

- Highly indebted households did reduce spending more than others during the crisis, but no evidence that the high debt was in fact the cause of the spending cuts.

Final words

"I fancy that over-confidence seldom does any great harm except when, as, and if, it beguiles its victims into debt."

- Irving Fisher, 1933

*"I fancy that **debt** seldom does any great harm except when, as, and if, its victims are beguiled into it by overspending."*

- Me, 2015