

# The future of macroeconomics: why central bank models failed and how to repair them

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- Buiter (2009) [voxeu.org/article/macroeconomics-crisis-irrelevance](http://voxeu.org/article/macroeconomics-crisis-irrelevance)
- “Research tended to be motivated by the internal logic, intellectual sunk capital and aesthetic puzzles of established research programmes **rather than by a powerful desire to understand how the economy works** - let alone how the economy works during times of stress and financial instability. So the economics profession was caught unprepared when the crisis struck.”
- “Both the New Classical and New Keynesian complete markets macroeconomic theories not only did not allow questions about insolvency and illiquidity to be answered. They did not allow such questions to be asked.”
- “Markets are inherently and hopelessly incomplete. Live with it and start from that fact.”

- “Underlying conceptual reasons for the failure of central bank models of the DSGE type include their typical assumptions about representative agents, perfect information, zero transactions costs, and of efficient markets.
- For most of these models.... it is as if the information economics revolution, for which George Akerlof, Michael Spence and Joe Stiglitz shared the Nobel Prize in 2001, had not occurred.
- The combination of assumptions, when coupled with the trivialisation of risk and uncertainty in these supposedly stochastic models, and the linearisation techniques used in their solution, render money, credit and asset prices largely irrelevant.
- The calibration/estimation methods currently used to apply these models to the data typically ignore inconvenient truths. “

- Paul Romer (2016) complains that ‘For more than three decades, macroeconomics has gone backwards’. He focuses on calibration/identification. But three serious problems, see <http://voxeu.org/article/why-central-bank-models-failed-and-how-repair-them>, were *not* raised by him:
- the choice of the **wrong micro-foundations** ignoring the asymmetric information revolution of the 1970s and Deaton-Carroll research on buffer-stock saving when households face idiosyncratic uncertainty and liquidity constraints.
- the flawed basis of inter-temporal optimization when **structural breaks and radical uncertainty** are endemic, Hendry & Mizon, VOXEU 2015;
- and the **failure to allow for the major changes in financial architecture and to link balance sheets and flow of funds to spending** in the real economy.
- In the fashionable New Keynesian ‘science of monetary policy’ (Clarida, Gali and Gertler, 1999) credit sectors, money and asset prices were thought irrelevant.

- Blanchard (2016, 2018) acknowledges that current DSGE models make ‘simplifying assumptions, as any model must, but assumptions profoundly at odds with what we know about consumers and firms’. He also questions calibration and estimation methods, normative implications and their effectiveness as communication devices.
- He favours major repairs and a less imperialistic attitude so that alternative GE models, closer to the data, can flourish.
- Many (BOC, DNB, **ECB**, even BOE) have realised the need for non-DSGE macro models.

- Post crisis, central banks have studied the flow of funds and financial balance sheets much more carefully.
- New attention to old ideas of Tobin, resurrected in **stock flow consistent** (SCF) approaches of Godley and Lavoie (2012), Burgess et al (2016), BOE, Staff Working Paper No. 614.
- But **behavioural links** with spending and hence the real economy are as yet **weak** in all these models, **including FRB/US**. So miss business cycle feedback loops and understanding of risks to financial stability.
- FRB/US failed acid test in crisis: in 2007 Jackson Hole symposium, Mishkin reported FRB/US simulations of a 20% decline in real house prices over 2007-2008: GDP lower than baseline by at most ONLY 0.25% in early 2009!

## New Keynesian Dynamic Stochastic General Equilibrium models

- **Not new**, based on outdated ideas made redundant by the asymmetric information revolution of Stiglitz, Akerlof, Spence.
- **Not Keynesian**, ignoring co-ordination failures, especially between real economy and finance.
- **Not dynamic** enough, misleading on real world lag structures.
- **Hardly stochastic** (statistical distributions), missing both radical uncertainty (time dimension) and heterogeneity (cross-section dimension) of distributions.
- **Hardly GE**, missing most of system feedbacks.
- Rational expectations and inter-temporal optimization need reformulation when **structural breaks and radical uncertainty** are endemic, Hendry & Mizon, VOXEU 2014;

- The end of the representative agent model
- Asymmetric information, liquidity constraints, income uncertainty.
- The implications of the revolution in credit market architecture and why debt matters.
- A consumption function relevant for understanding the financial accelerator.
- Modelling joint consumption and portfolio decisions – towards better econometric macro models. Evidence from UK, France and Germany.
- This talk draws on paper with David Hendry, forthcoming OXREP special issue on the future of macroeconomics including papers by Blanchard and Stiglitz

<https://ideas.repec.org/p/oxf/wpaper/832.html>



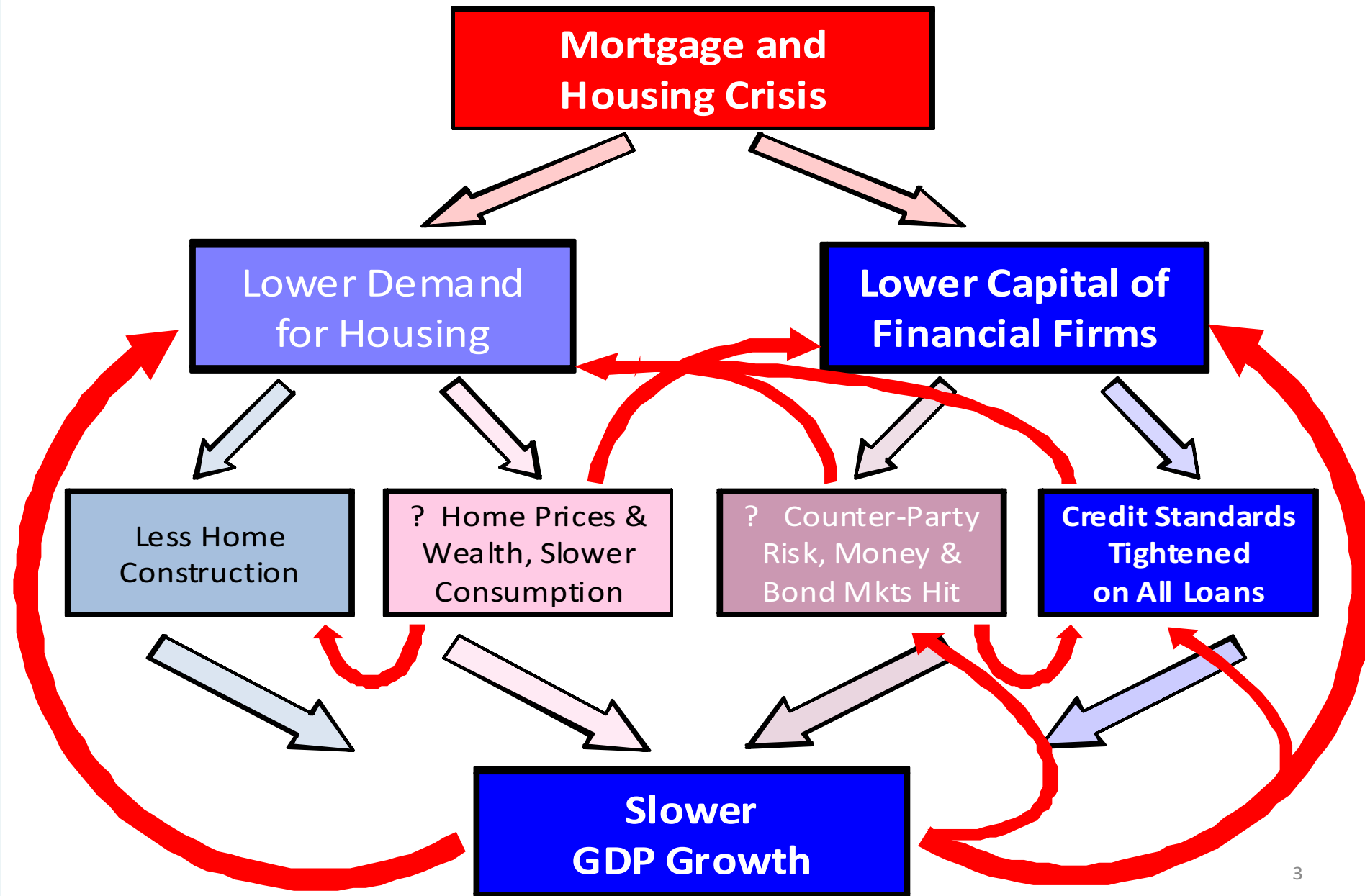
- Unemployment risk varies greatly by occupation and education, making nonsense of RBC representative agent model of unemployment.
- Credit constraints, mortgage defaults, negative equity vary hugely across households: no representative agent.
- Stochastic aggregation - working with means and other distributional parameters- suggests we can still make great progress with aggregate data, including unemployment rate.
- Houthakker (1956) showed fixed coefficient technology (no substitution) at the micro-level implied high degree of capital-labour substitution for macro, given Pareto coefficient distribution.
- Aron & Muellbauer (J. Urb. Econ. *July 2016*) track aggregate incidence of UK negative equity given stable distribution of mortgage debt/equity. Driver of arrears and repossessions.

- One area of Angus Deaton's work highlighted by Nobel committee:
- 1991 *Econometrica* paper:
  - laid the micro-foundations, implying buffer stock saving and shorter time horizons, i.e. much higher discounts on future income than in canonical permanent income.
- 1992 book, last 10 pages:
- summary of the massive micro- & macro-data evidence against the simple permanent income theory.
- Chris Carroll (1992, 2001, 2014) has taken the buffer stock theory to new levels, even without credit constraints.
- Studying stochastic income processes empirically, he calibrates consumption responses under plausible preference assumptions, at different cash-on-hand/income ratios.

- Deaton(1992) says that since consumers' balance sheets include illiquid assets such as pensions, stocks and bonds, and houses:
  - “the presence of these illiquid and sometimes high-yielding assets needs to be integrated into the model of credit-constrained consumers”.
- Recent literature on heterogeneous agent models is doing this: Kaplan and Violante (Econometrica 2014) and Kaplan, Moll & Violante HANK wp 2016, forthcoming AER); Hedlund, Karahan, Mitman & Ozcan, 2017 with better treatment of housing and liquidity.

- UK abandoned exchange controls in 1979; eliminated ‘corset’ on bank lending;
- Banks invaded mortgage market;
- Building societies responded, new liberties in 1986 BS Act.
- Centralised mortgage lenders invaded in 1986-1990.
- Mortgage crisis led to credit crunch.
- After 1996, credit liberalisation for buy-to-let market; increased securitisation; new breed of centralised lenders.
- Fernandez-Corugedo and Muellbauer (BOE WP 2006) track mortgage credit conditions index consistent with above.
- From 2008, credit crunch and re-regulation, partial relaxed.

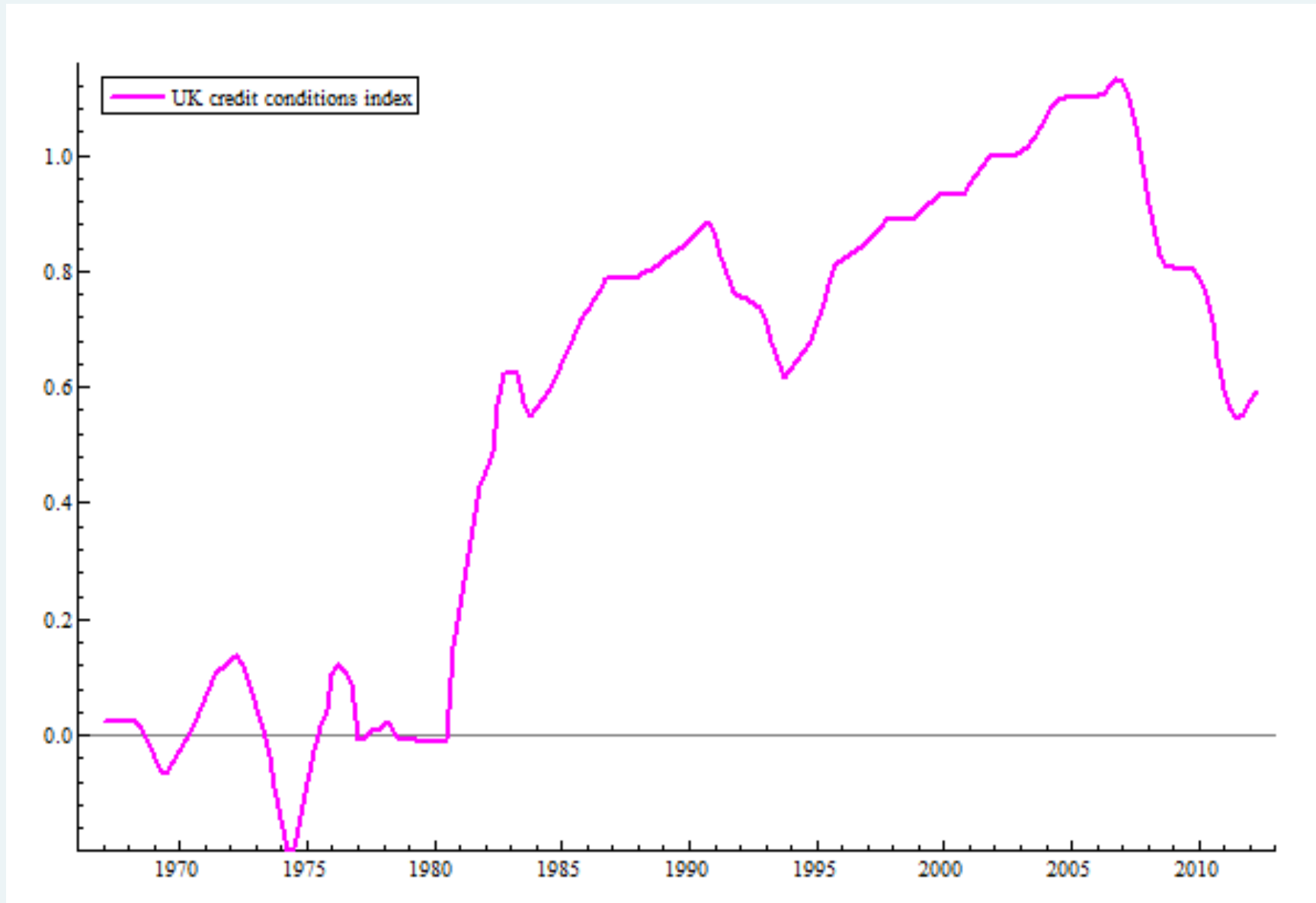
- Irving Fisher's 1933 debt-deflation theory of great depressions and book on Booms and Depressions:
  - credit availability expands, pushes up spending, debt and asset prices, irrational exuberance raises prices to vulnerable levels, negative shocks can then cause falls in asset prices, bad debt, credit crunch, rise in unemployment, deflation.
- Explaining the collapse in UK personal saving (Muellbauer and Murphy, 1990):
  - (unsustainable) credit-liberalisation-driven house price boom: evidence that debt had far more negative effect on spending than previously thought
  - Hence crucial to control for the shift in credit conditions!
- Adair Turner (2015) *Between Debt and the Devil: Money, Credit and Fixing Global Finance*
- Mian and Sufi (2014) *House of Debt*.
- Jorda, Schularick and Taylor *Economic Policy* Jan 2016 on role of real estate collateral.



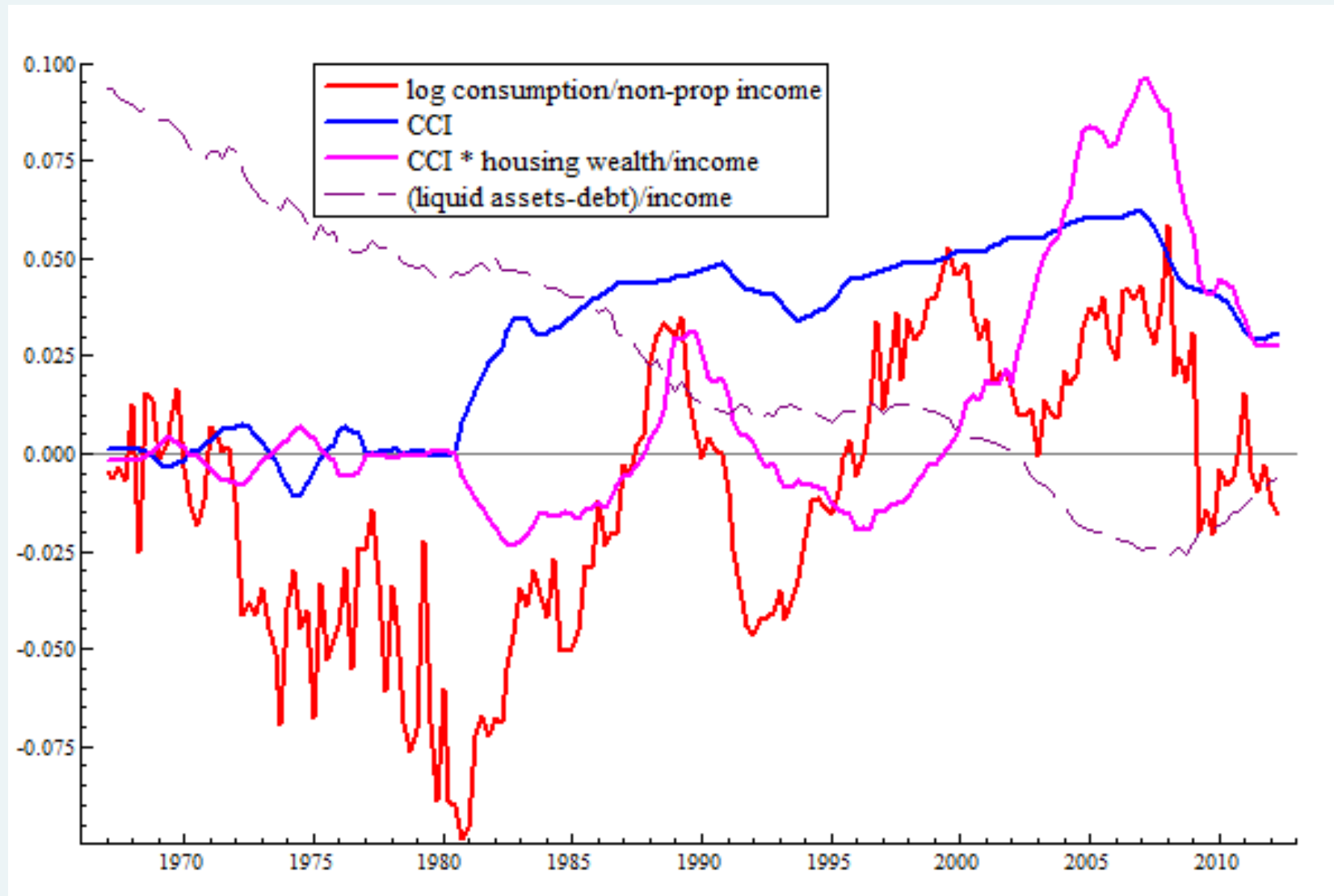
- We need a more general consumption function & income forecasting model to capture the consumption channel in the financial accelerator.
- Unlike Euler equation, the basis of NK-DSGE, *do not throw away* long-run information on income and assets.
- Net worth=liquid assets – debt (mortgage and other) + illiquid financial assets (pensions+ stock market) + housing wealth.
- Absurd to assume effect on aggregate spending is the same for each element and to assume no shifts in credit access also in non-DSGE policy models, e.g. FRB/US, new ECB-MC, old MTMM & OBR.
- Consumption function is conditional on end of previous period portfolios, on asset prices and on access to credit, so need to explain these in a full macro model.

- *Restrictive (conservative) credit markets* suggest aggregate consumption falls when house prices rise:
  - (e.g. Germany or Japan)
  - future first time buyers (and renters) save more for a deposit (or higher future rents), though aggregate negative effect should be lower where proportion of owner-occupiers is high (Italy).
  - home-owners have limited access to home equity loans.
- *Liberal mortgage markets* imply the opposite:
  - a lower ratio of down-payments to value applies, so future first time buyers will save little and not respond much to higher house prices;
  - Greater access to home equity loans *raises response of spending to housing collateral.*

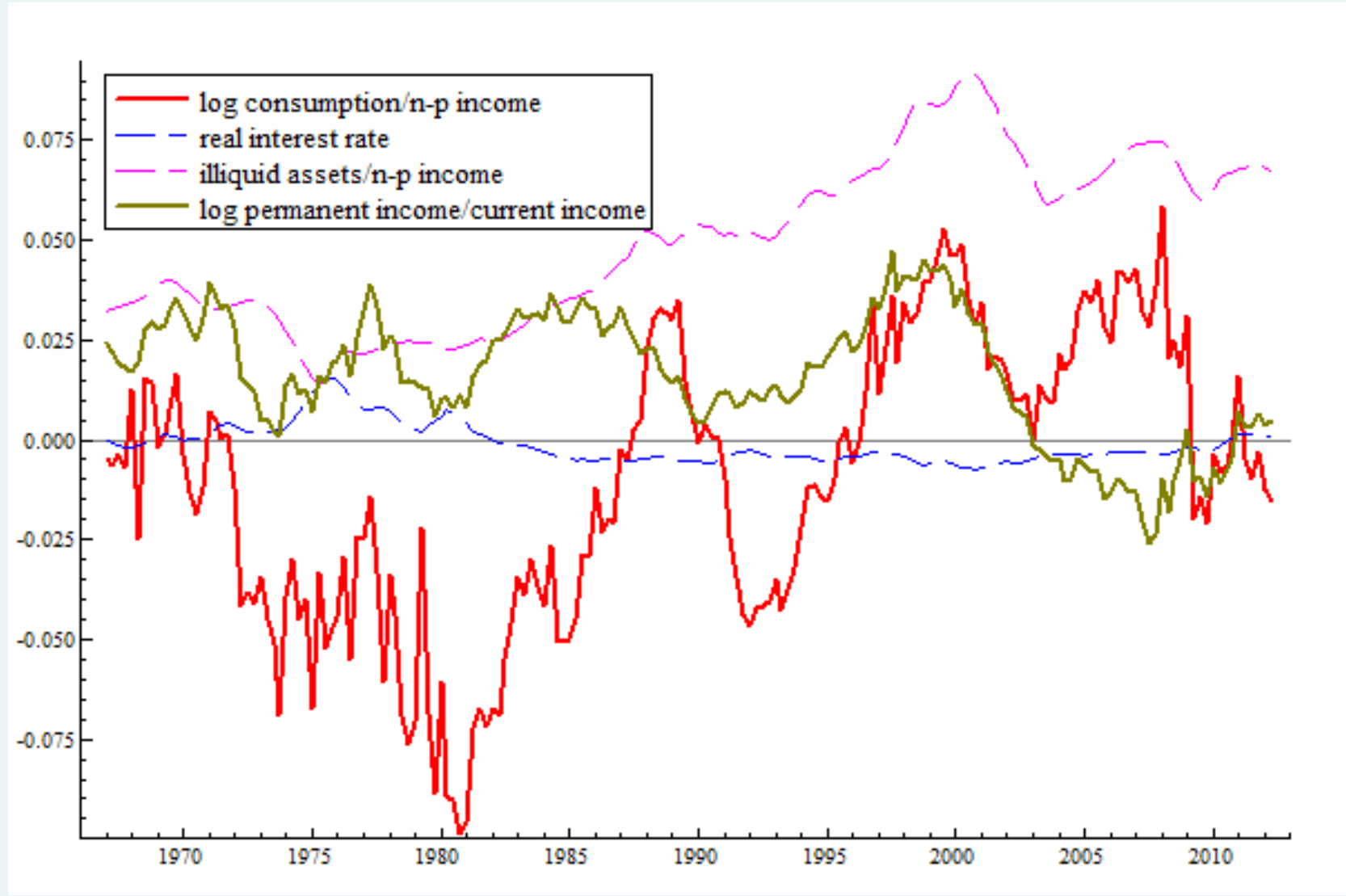




# Decompose UK long-run soln (a)



# Decompose UK long-run soln (b)



- On how consumption/income behaved over the long-run, in the build-up to the financial crisis and during the crisis.
- Note build up of debt obligation during long period of credit liberalisation and rises in asset prices.
- Insights into role of debt and shifting correlations with economic growth: negative role for level of debt, positive for growth of debt noticed by many observers.
- Reconciled by shifts in credit supply and continuous negative implications of level of debt for consumption. i.e. omitted credit supply explains shifting bivariate correlations of debt with growth.
- Short-run role for change in the unemployment rate - proxy for income insecurity, and in UK, cash-flow effects of changes in nominal interest rates.

Need consumption-portfolio-asset price system.

- To plug consumption function with disaggregation of wealth into a macro model, we need equations for assets and debt.
- Extract credit conditions as latent variables from same system (Latent Interactive Variable Equation System).
- *ECB w. paper 1904 on Germany* with Felix Geiger and Manuel Rupperecht of BuBa; draft paper with Valerie Chauvin, BdeFrance
  - estimate 6-equation sub-system for consumption, unsecured debt, mortgage debt, liquid assets, house prices and ‘permanent income’.
- Estimated unsecured and mortgage CCIs imply small effects on German consumption compared to UK or France.
- Solves puzzle of divergent real house prices and hh saving rates.

- Monetary transmission in Germany is very different from the US and UK, and somewhat different from France.
- Changing demography is much more important for changing composition for aggregate hh portfolios than for consumption, conditional on those portfolios.
- Will slowly feed through, via portfolios, to consumption – relevant for secular stagnation hypothesis.
- Empirical evidence on negative spending implications of household debt casts doubt on post-crisis monetary policy.
- Micro-evidence IS important: test behaviour hypotheses, help calibrate effects of demography and distributional changes.
- Macro-shifts in credit conditions and asset prices have macro effects that should not be ignored.

- Some remarkable empirical insights not available from micro-cross-sections or short panels:
- Contrary to text-book view, major role for NOMINAL interest rate in driving house prices (and mortgage stock); role of user cost increases where leverage is higher (high LTV).
- Increased access to unsecured credit reduces demand for liquid assets – ignored by previous research on hh demand for money.

- that model is flexible
- need model to tell ‘economic stories’ built on micro-foundations and to incorporate expectations.

Au contraire:

- Euler equation is straitjacket strongly rejected by the data.
- The claimed micro-foundations are sand: there is no representative agent; information-economics revolution implies heterogeneity and, on average, short horizons in the face of liquidity constraints and income uncertainty.
- Key economic stories cannot be told in NK-DSGE but **can** be told with new formulation of household behaviour.
- NK-DSGE is not stochastic enough, not dynamic enough and not general equilibrium enough: fails to capture system feedbacks. Moreover, not new and not Keynesian.