

Discussion of

“Balance Sheet Recessions”

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MACROECONOMIC DYNAMICS WITH HETEROGENEOUS AGENTS
WORKSHOP IN LONDON

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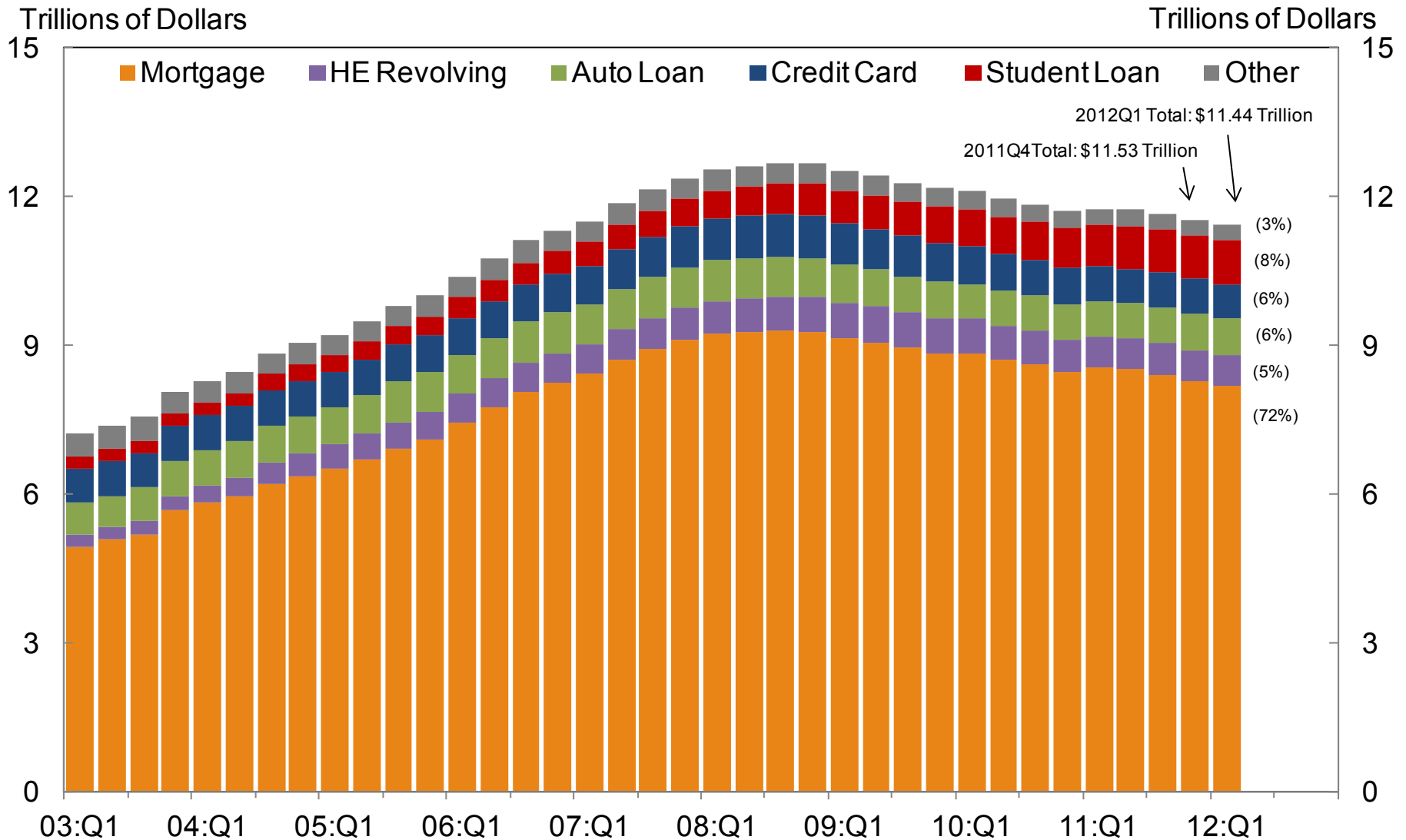
Objective and Approach of the Paper

- Model-based, quantitatively accurate picture of the great recession.
- View taken here: great recession
 - is caused by an exogenous financial shock, modeled as sudden tightening of housing collateral constraints
 - is amplified through an endogenous fall in house prices (negative wealth effect, further tightening of collateral constraints)
 - is propagated through decline in aggregate demand in frictional consumption and labor markets (potentially with sticky wages).

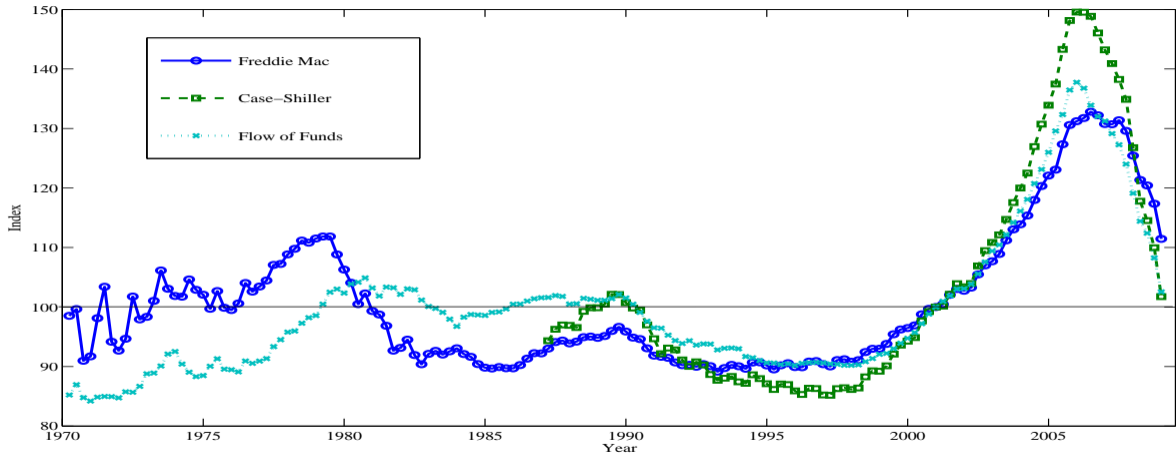
Motivating Macro Facts

- Big increase in debt/income ratio prior to great recession. Dramatic de-leveraging thereafter.
- Big increase in house prices (and house price-rent-ratio) prior to great recession. Big fall thereafter.
- UE rate rose \uparrow 4% to 10% in great recession, then “jobless recovery”.
- Significant decline in (durable) consumption during great recession.

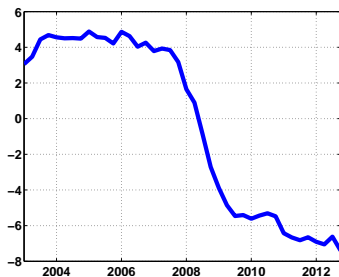
Total Debt Balance and its Composition



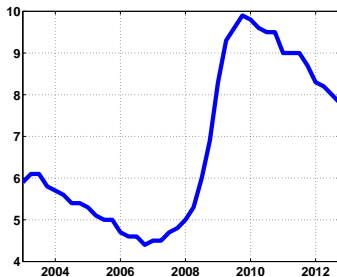
Source: FRBNY Consumer Credit Panel/Equifax



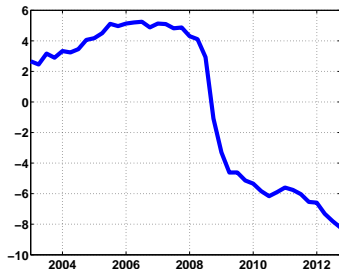
Facts on the last recession: I



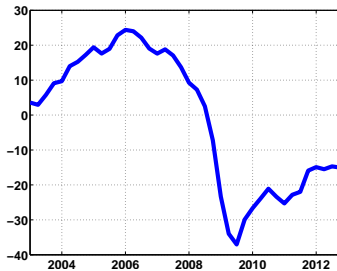
Real output



Unemployment



Consumption



Investment

The Model in a Nutshell

- Krusell-Smith economy with aggregate risk $(\theta, \pi(\theta'|\theta))$, frictionless housing, and goods and labor markets with search/matching frictions.
- Household problem: aggregate state (θ, S) , individual state $s = (\epsilon, e, a)$.
Dynamic programming problem:

$$V(s, \theta, S) = \max_{c_N, c_T, h, d, b, k, I_N \geq 0} \left\{ u(c_N, I_N, c_T, h, d) + \beta E_{\epsilon, e, \theta} V(s', \theta', S') \right\}$$

$$\begin{aligned} p(S)c_N I_N + c_T + p_h(S)h + k + \varsigma(\theta)b &= a + \mathbf{1}_1 w(S)\epsilon + \mathbf{1}_0 \bar{w} + q^*b \\ a' &= p_h(S')h + R(S, S')k - b \\ b &\leq \lambda(\theta)p_h(S)h/q(\theta, b) \\ I_N &= d\Psi^d(D) \end{aligned}$$

Thought Experiments (I Think!?)

- One time (unexpected?):
 - tightening of credit constraint: from $\lambda = 0.85$ to $\lambda = 0.75$
 - increase in mortgage rate: from $\varsigma = 0$ to $\varsigma = 30bp$
- Immediate vs. 4 period gradual change
- Flexible vs. fixed wages

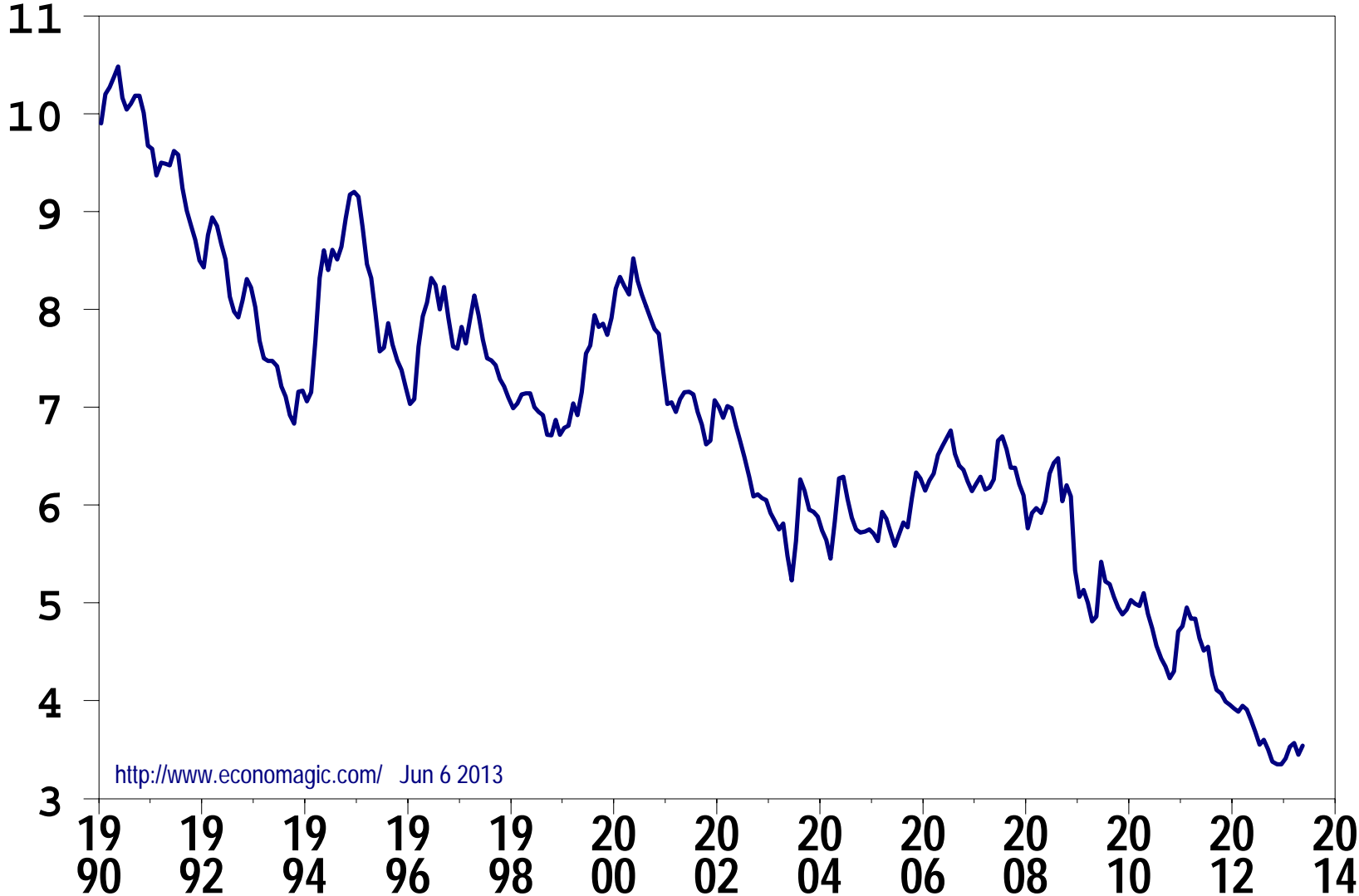
Key Results

- De-leveraging?
- Movement in house prices?
- (Un-)employment dynamics?
- Real output and consumption?
- Dynamics of trade balance?

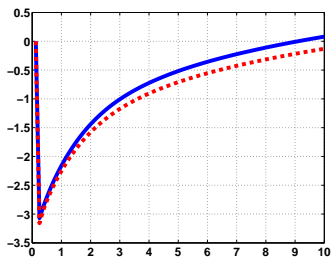
Comments I:

- Right thought experiment? Want to tell the "story" of great recession:
 - tightening of credit constraints: Yes
 - increase in interest rates? Not so much
- Right results? Mostly promising, but
 - I don't see a strong difference in dynamics of TFP and Y/L in data. Paper wants to get $Y/L \uparrow$ and succeeds in model. But it's not in their data!

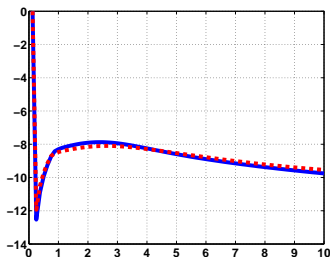
30-year Fixed Rate Conventional Mortgages



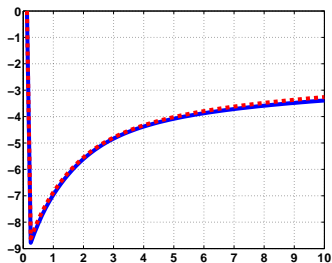
1 Sudden change of λ , — Flex. w - - - Fixed w



Wealth

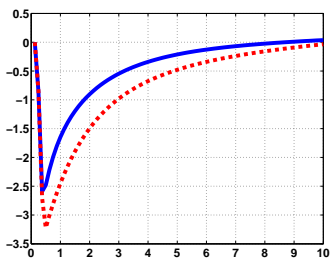


Debt

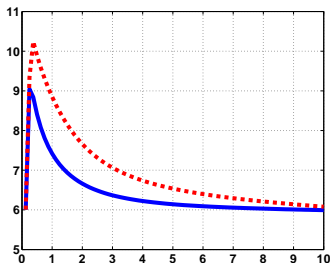


Housing price

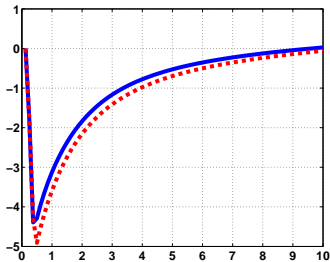
1: Sudden change of λ . — Flex. w - - Fixed w



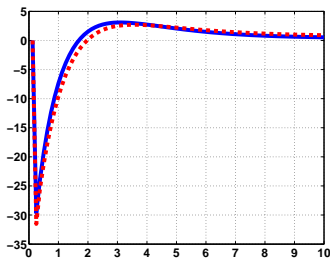
Real output



Unemployment

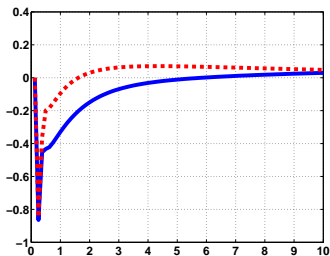


Consumption

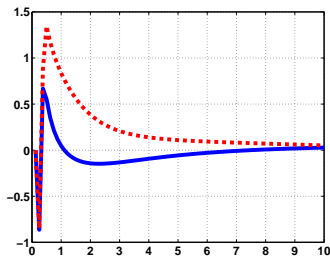


Investment

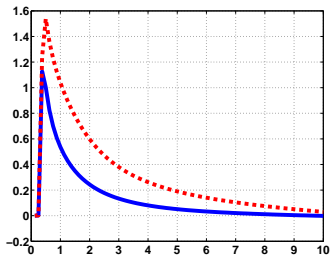
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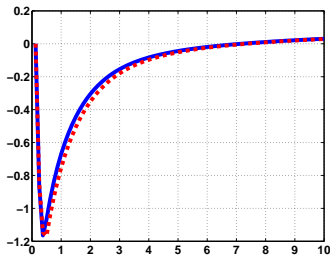
TFP with total hours



Labor Productivity

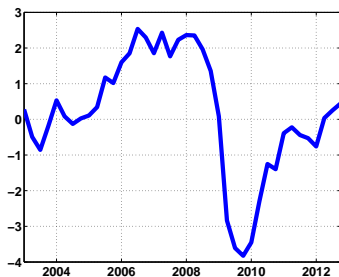


Labor quality

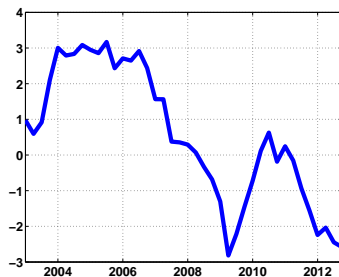


TFP with total labor inputs

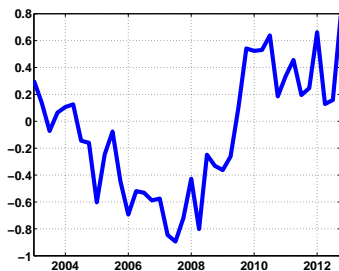
Facts on the last recession: III



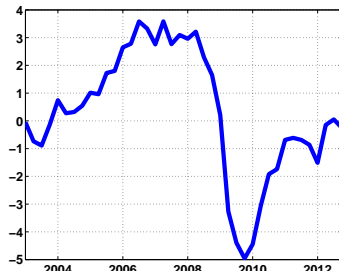
TFP with total hours



Labor productivity



Labor quality



TFP with total labor inputs

Comments II: Modeling of Housing

- Note: h is not a state variable.
- In presence of rental markets complete separation of housing as financial asset and housing as consumption good.
- Convenient formulation (avoids nonconvexity in controls, additional state variable). But it is plausible?
- Also: houses in fixed supply! Helps making P_h move a lot (and it does not move nearly as much as in data).

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Comments III: Modeling Collateral Constraint

- Collateral constraint can be written as

$$\begin{aligned} q(\theta, b)b &\leq \lambda(\theta)p_h(S)h \\ b &\leq \frac{(1 + r^*)\lambda(\theta)p_h(S)h}{1 + r^* - \varsigma(\theta)}. \end{aligned}$$

- Seems right for new mortgages, not quite right for households with existing mortgages. "Margin call" if $p_h \downarrow$?
- Makes credit (and thus consumption smoothing possibilities) too sensitive to financial shocks $\lambda(\theta), \varsigma(\theta)$. Seems crucial for the potency of the mechanism.

Concluding Remarks

- Physics: in search of the great unifying theory of everything.

A theory of everything (ToE) or final theory is a putative theory of theoretical physics that fully explains and links together all known physical phenomena, and predicts the outcome of any experiment that could be carried out in principle...The central issue is how to combine general relativity and quantum mechanics.
[Wikipedia]

Concluding Remarks

- This paper is equally ambitious and has the same flavor.
- Lots (!) of facts to be explained within unified theory (that combines RBC theory with demand-driven business cycles).
- Lots (!) of moving pieces. All necessary qualitatively? All useful quantitatively?
- Success? Given the results so far perhaps!?