

# Discussion of “Why Has Consumption Remained Moderate after the Great Recession?”



Federal Reserve Bank of Boston  
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Notes for the slides can be found at the end of the presentation.

# Economists have cited a number of factors that may have held back aggregate consumption growth during the recovery

Slow **income** growth

The drop in household **wealth** resulting from the crisis

High household **leverage/debt**

**Credit** constraints

Greater desire for **precautionary savings**

Lower **expected future income** growth

“Scarring,” financial frictions, higher inequality and other factors that may have **muted the response** of consumption to positive innovations in its traditional determinants

# The paper draws from a truly impressive array of different data sources to try to shed light on the roles played by different factors

**Current Population Survey** (BLS)

**Home Mortgage Disclosure Act**  
(FFIEC)

**Senior Loan Officer Opinion Survey**  
(FRB)

**Survey of Consumer Finances** (FRB)

**Survey of Consumer Expectations**  
(FRB-NY)

**Income Concentration Statistics**  
(Piketty and Saez)

**Cash-out Refinance Mortgages**  
(Freddie Mac)

**Foreclosures** (Zillow.com)

**Household Debt Service Ratio** (FRB)

**Wharton Residential Land Use**

**Regulation Index** (Gyourko, Saiz, and Summers, 2008)

**National Income and Product Accounts**  
(BEA)

**American Time Use Survey** (BLS)

**Housing Affordability Index** (California Association of Realtors)

**Surveys of Consumers** (University of Michigan)

**Panel Study of Income Dynamics**  
(University of Michigan)

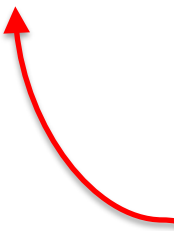
**Homeownership** (Census)

**Financial Accounts of the United States**  
(FRB)

# What is this paper asking?

Has consumption growth been weak in some **absolute** sense?

Has consumption growth been weak **relative** to what traditional macro consumption models would suggest?



The paper explores both but this is the more interesting question from a policy perspective because of the reliance of policymakers on traditional macro models.

# Summary of findings

The paper offers a 2-part **qualitative** answer:

Early recovery: consumption growth was held back by “financial frictions” (**wealth** and **leverage** effects).

More recently: consumption growth has been held back by “low consumer confidence” (**low expected income growth**) and “**heightened uncertainty**” ... and perhaps **higher income inequality**.

My view: The paper provides a **useful tour** of the candidate explanations and offers many **tantalizing clues** about the possible roles of different factors, but the evidence is **far from conclusive**.

## Early Recovery:

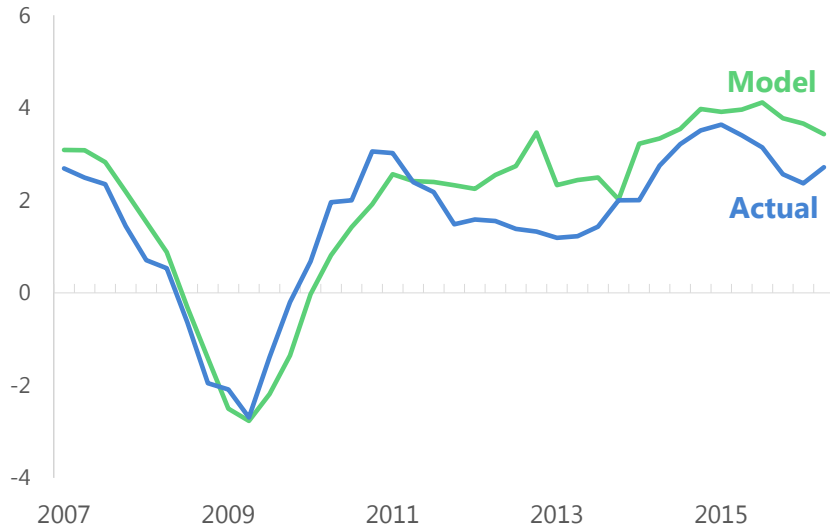
**Agree that the lagged effects of the drop in wealth were important, but how big of an *independent* role did leverage/debt play?**

# Evidence from macro models: not clear that you need to appeal to factors beyond the weakness in the usual RHS variables (income, wealth)

## Simulations from Macro PCE Model

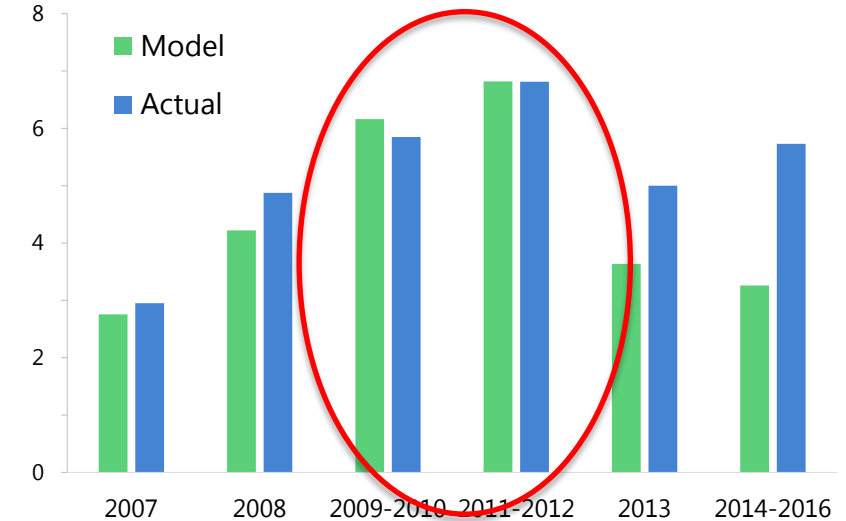
### Consumer Spending Growth

4-quarter real percent change



### Personal Saving Rate

Percent of disposable income, average in period



Traditional determinants alone appear to be able to explain the early recovery period.

# Does regional data support the idea that leverage played a big role?

Consumption growth **was indeed weaker** in states that had higher debt and leverage going into the crisis.

**But** those states also saw larger home price declines and more job losses.

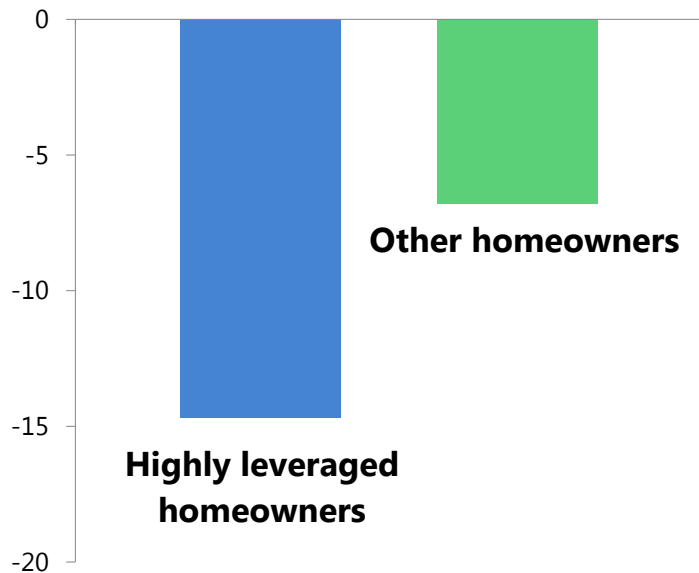
So the regional correlation between leverage and consumption alone **does not identify** an independent role for leverage.



# Does micro data support the idea that leverage played a big role?

Evidence from this paper and Dynan (2012) supports the idea that leverage held back the consumption of **some households**.

Median percent change in non-housing consumption, 2007-2009



Households with more mortgage leverage in 2007 saw a larger decline in consumption from 2007 to 2009.

And the difference holds up even after controlling for income and wealth.

Source: Dynan (2012) based on PSID with sample restricted to housing boom states.

# But the aggregate effect of leverage implied by micro data is fairly modest ...

At **the individual level**, the Dynan (2012) estimates imply that an increase in a household's mortgage LTV from 1.0 to 1.1 would have reduced its consumption growth by  $\frac{1}{2}$  to  $\frac{3}{4}$  percentage point between 2007 and 2009.

Calibration of the **aggregate effect** based on these estimates + aggregate leverage data + information about share of households with mortgages:

The debt overhang might have held back aggregate consumption growth by  **$\frac{1}{4}$  to  $\frac{1}{2}$  percentage point per year** and *presumably the effect waned as we entered the early recovery.*

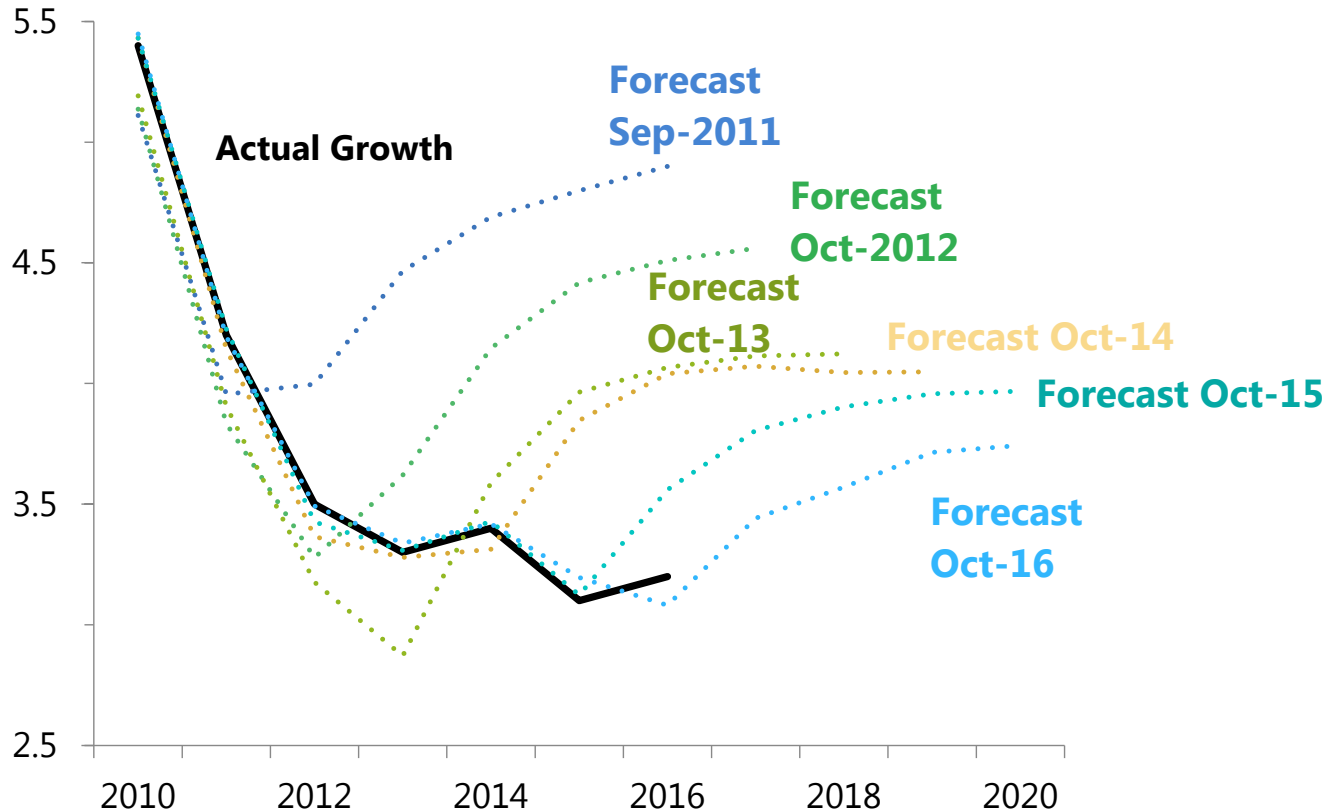
**More recently:**

**The paper's argument that people have revised down their expectations of future income growth and perceive income as more uncertain seems plausible.**

# The story is consistent with revisions to macro forecasts

## IMF World Real GDP Growth Forecast

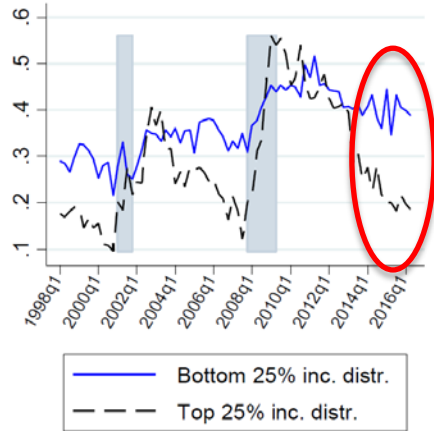
Percent change, year-over-year



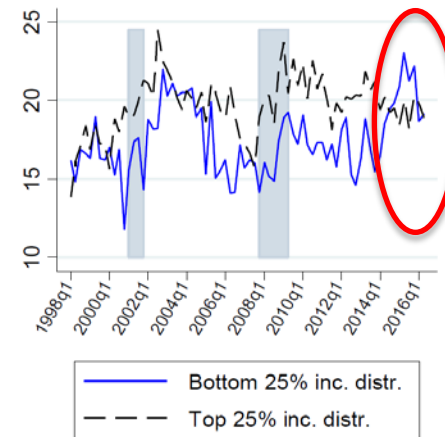
# The paper shows that there is some evidence from surveys as well, but the data also raise questions

Have we really seen a lasting change? These measures seem to be recovering.

Fraction expecting less comfortable retirement

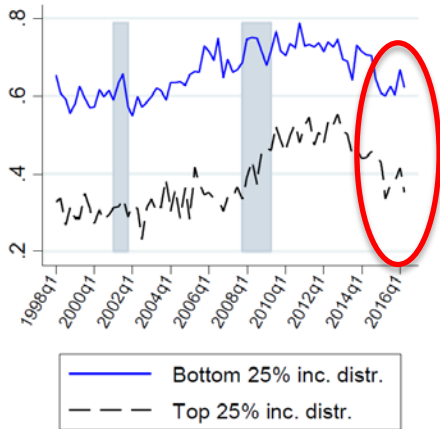


Average probability of job loss

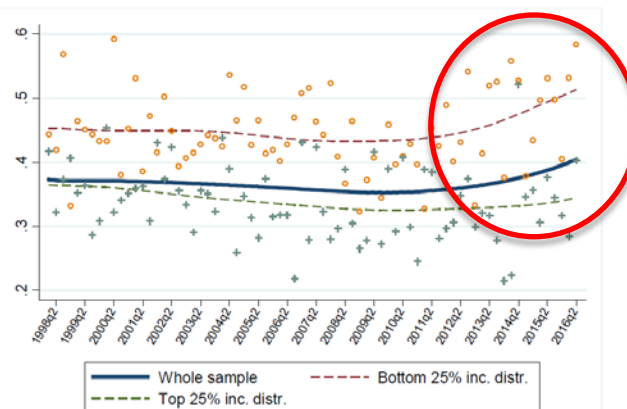


What do we make of the fact that these measures deteriorated right when job growth picked up?

Fraction who see >50% chance of a real income decline



Standard deviation of permanent innovation in income process



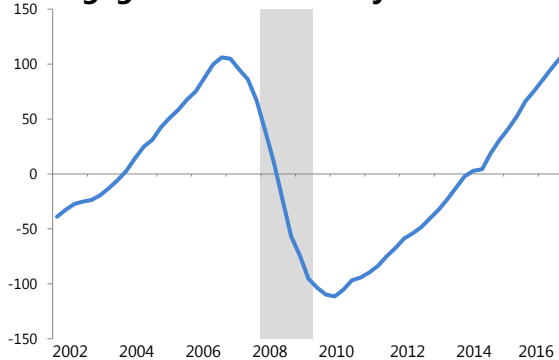
More recently (continued):

**And, are financial frictions really behind us?**

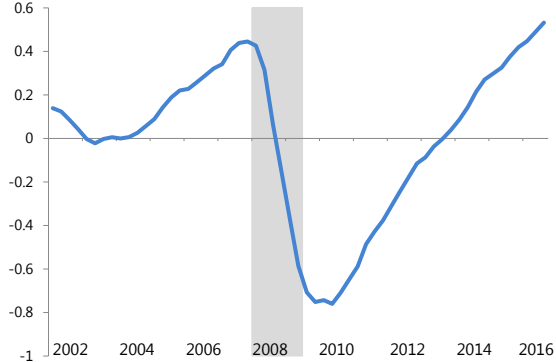
# Don't agree with paper's conclusion that bank senior loan officers are saying credit conditions for mortgages and credit cards have recovered

Paper integrates reported changes and takes out a linear trend

**Mortgage Loan Availability**

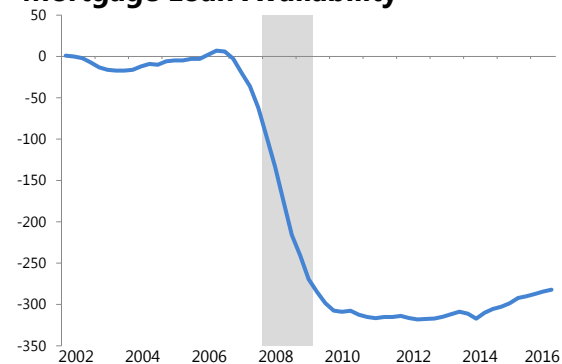


**Credit Card Availability**

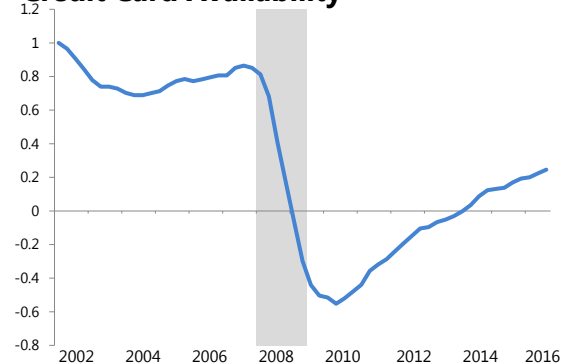


Here's what you get if you don't take out linear trend

**Mortgage Loan Availability**

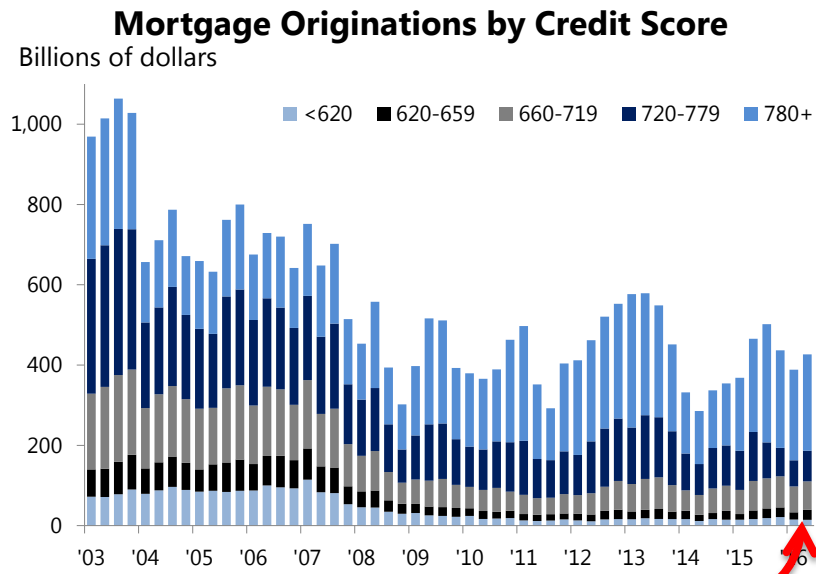


**Credit Card Availability**



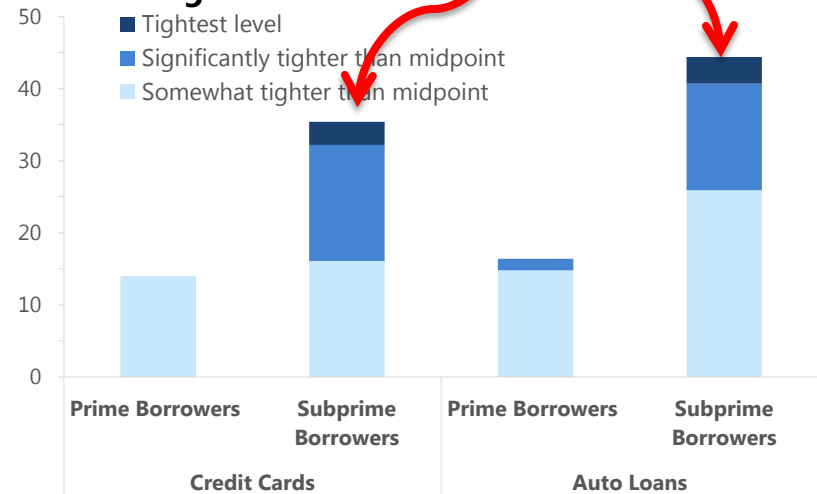
# And there is other evidence that household credit remains tight for some people

Standards remain at the tight end of the range for subprime borrowers at many banks.



Still almost no mortgages going to people with credit scores below 660.

## Tighter than Average Lending Standards Relative to the Range since 2005



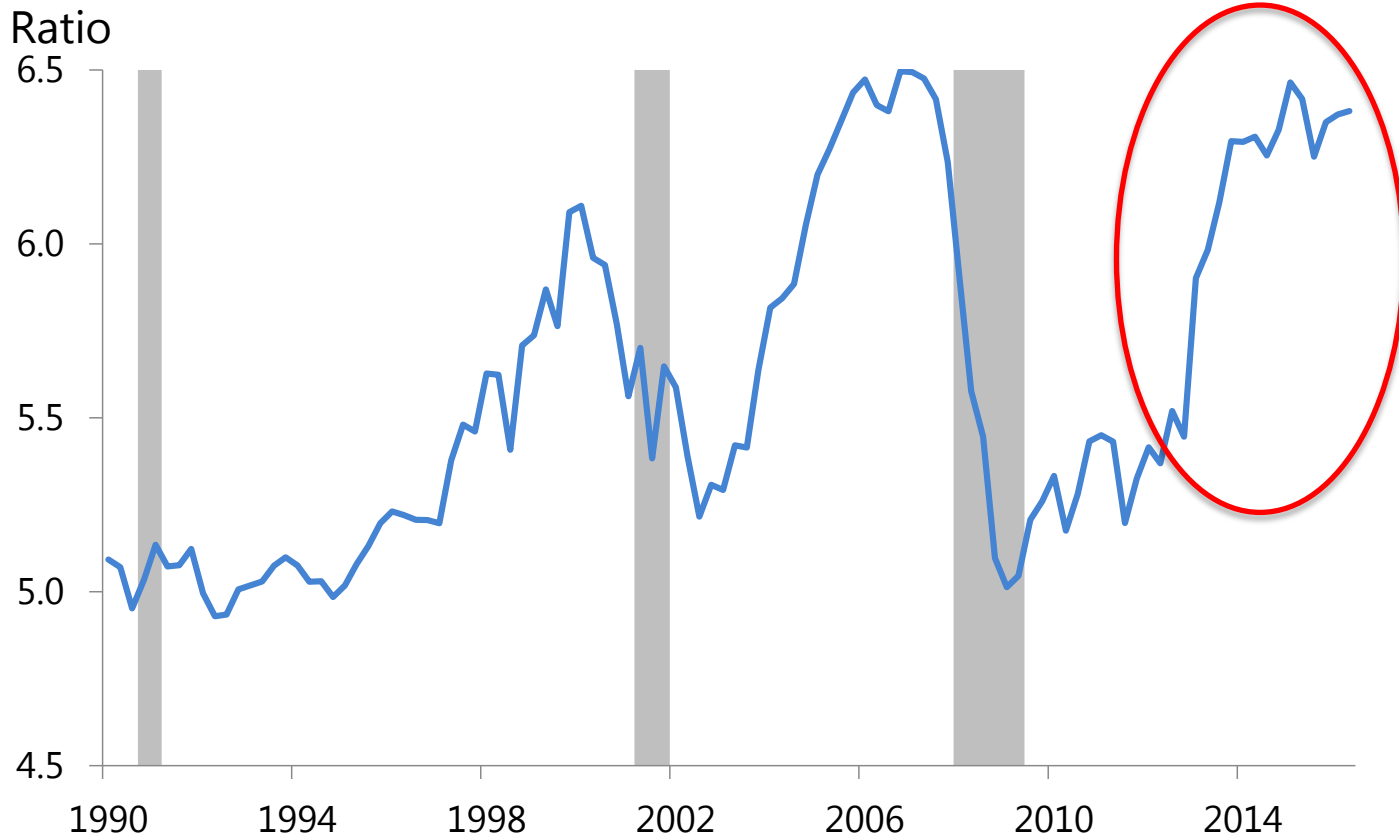


More recently (continued):

**Perhaps relatedly, has the response of consumption to wealth increases declined?**

# There has been a considerable rebound in household wealth

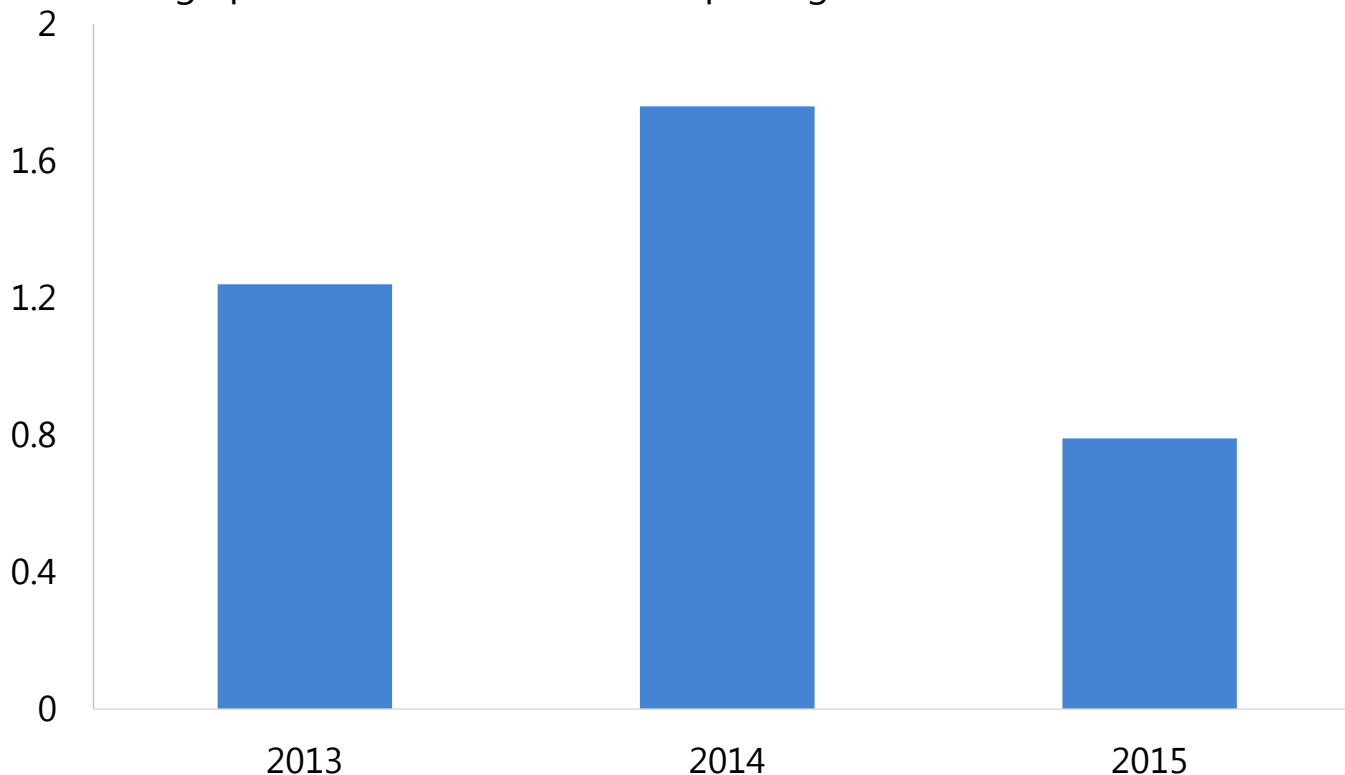
## Household Wealth Relative to Disposable Personal Income



# Wealth effects from the recovery in stock and home prices should have been considerable

## Back-of-the-Envelope Estimates of Wealth Effects

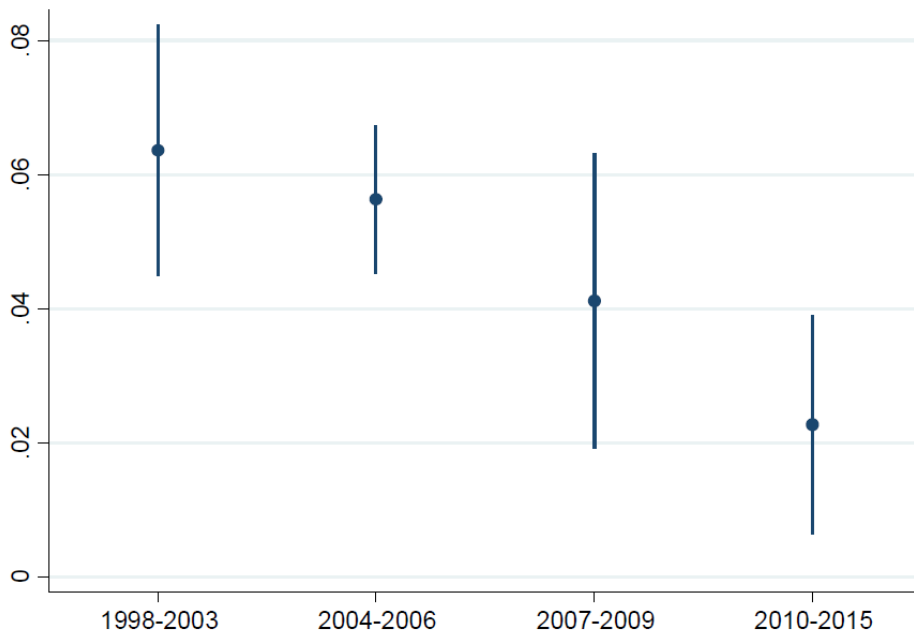
Percentage point boost to real consumption growth



Assumes a MPC of 0.035 and effects phased in over 3 years with 60 percent in the first year.

# This graph from the paper suggests the MPC out of wealth has declined

Change in MPCs Out of Housing Wealth  
Implied by State-level Regressions



Source: BEA, NIPA PCE by state

This **fits with intuition**:

Greater difficulty extracting home equity to finance consumption.

Wealth gains may seem smaller or less permanent post crisis.

Wealth gains may be going to people with lower MPCs.

# But the state-level analysis is problematic because we do not actually have state-level *data* on consumption

BEA provides *estimates*:

Annual estimates of consumption of goods and many services categories based on state-level **retail wage** data.

Annual estimates of owner-occupied housing consumption based on **value of owner-occupied housing** stock, but that is also the key RHS variable.

**More work needed** to figure out what the regressions are telling us; and work needed with other sources to confirm the result.

More recently (continued):

**What might be the role of growing income inequality?**

# Seems plausible that growing inequality is holding down consumption

There has been a **big increase in inequality** over the last several decades.

The **rich have lower MPCs** (at least when you are looking at our standard definition of consumption).

Alichi et al estimates that growing inequality might have lowered consumption by 3.5 percent from 1998 to 2013.

## But it's a **longer-term** story

Alichi estimates translate into a reduction in consumption growth of 0.1 to 0.2 percentage point per year.

And it's not clear how much inequality has risen in recent years.

# Conclusion



This paper makes **impressive use of micro data** to explore a number of theories about what has been driving consumption growth in recent years.

The creative use of data and the questions raised by the results **will spawn many further papers** on these issues.

But it only represents a **first step**: Much more work to be done to definitively identify and quantify the factors that have shaped the trajectory of consumption during the recovery:

**Uncertainty / income expectations**

Reduced **wealth effects**

**Credit** constraints

# Endnotes

**Slide 6:** Source - Model similar to Davis and Palumbo (2001). A Primer on the Economics and Time Series Econometrics of Wealth Effects. FEDS Working Paper.

**Slides 8 and 9:** Source – Dynan (2012). “Is a Household Debt Overhang Holding Back Consumption?” *Brookings Papers on Economic Activity*. Highly leveraged households defined as those in the top quintile of the mortgage leverage distribution. Graph is based on analysis of data from the Panel Study of Income Dynamics, with the sample restricted to states that experienced a housing boom.

**Slide 11:** Source – International Monetary Fund World Economic Outlook.

**Slide 12:** Source – Pistaferri (2016).

**Slide 14:** Source – Federal Reserve Board, Senior Loan Officer Opinion Survey.

**Slide 15:** Source – Federal Reserve Bank of New York Consumer Credit Panel; Federal Reserve Board, July 2016 Senior Loan Officer Opinion Survey.

**Slide 17:** Source – Financial Accounts of the United States.

**Slide 18:** Source – Calculations based on data from the National Income and Product Accounts and the Financial Accounts of the United States. Estimates correspond to a Q4/Q4 percent change.

**Slide 19:** Source – Pistaferri (2016).

**Slide 22:** Alich, Kantenga, and Sole (2016). Income Polarization in the United States. IMF Working Paper WP/16/121.