

# Boom-Busts and the Rich: Saving, Wealth and Inequality



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**INTERNATIONAL MONETARY FUND**

**VIEWS ARE PERSONAL**

# Re-examining the US crisis

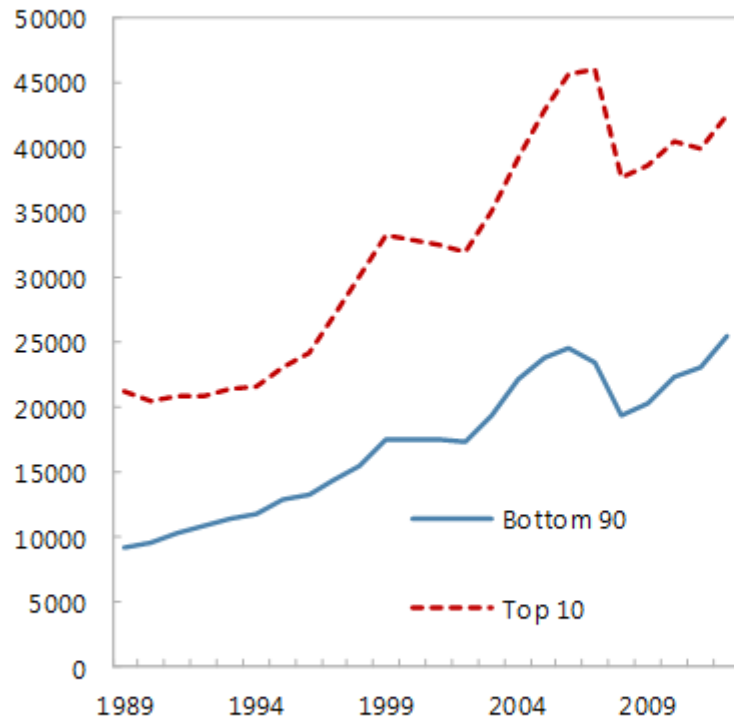


- Do we really understand what caused the crisis and slow recovery?
- Conventional narrative: Leverage cycle of the middle class

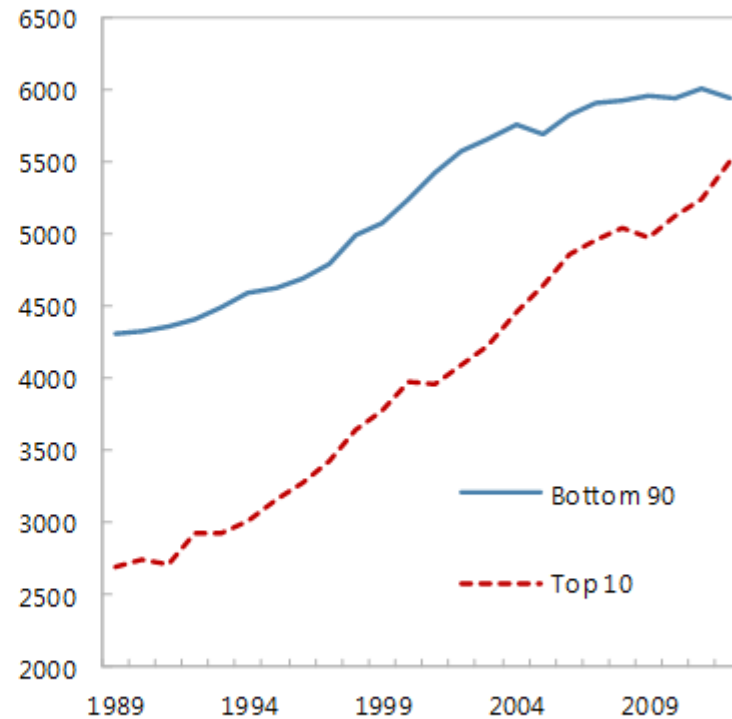
# Growing Inequality



**Net Worth of US households**  
(Billions of US 2009 dollars)



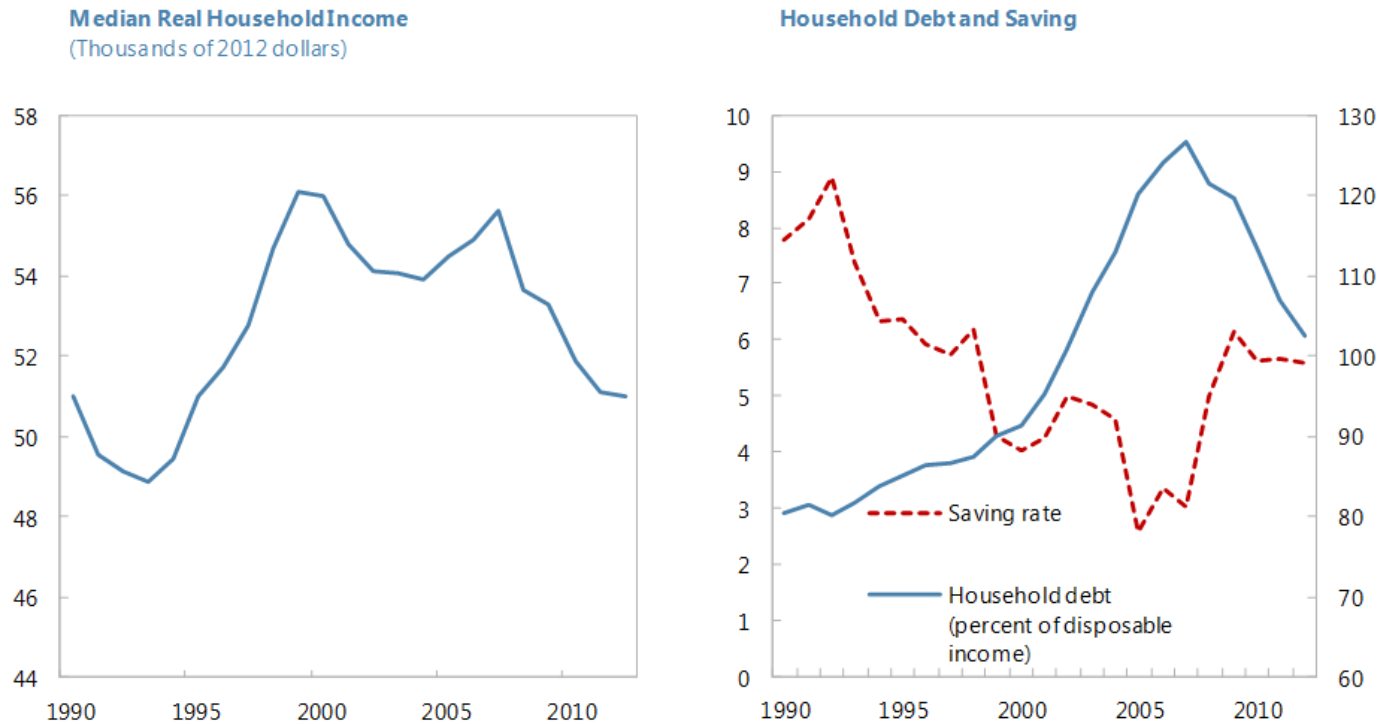
**Disposable household income**  
(Billions of 2009 US dollars)



# Middle-class Borrowing



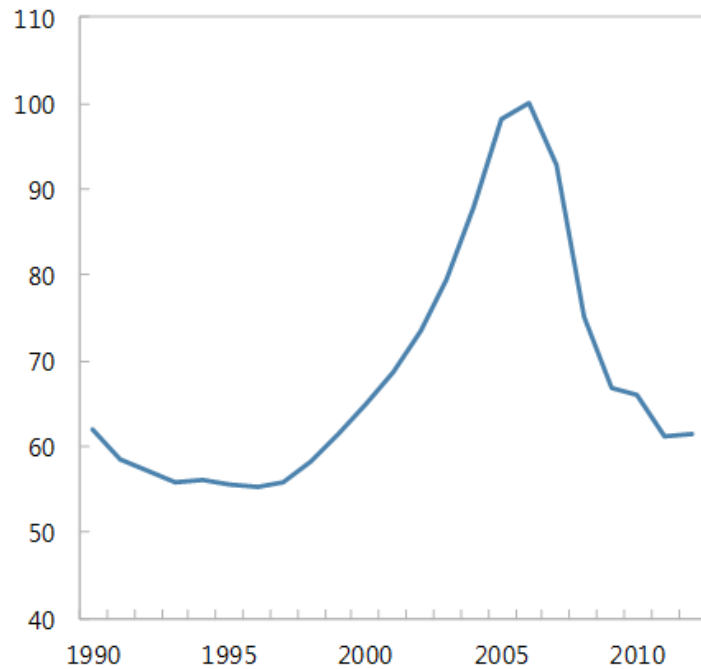
**Figure 1.1. United States: The Boom-Bust and the Household Saving Rate, 1990-2012**



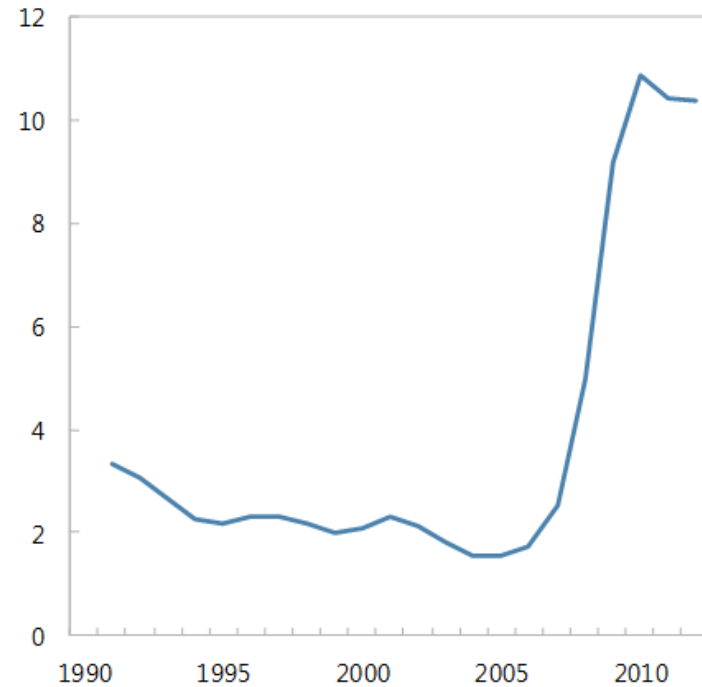
# Real Estate Boom and Bust



**Real Housing Prices**  
(2006=100)



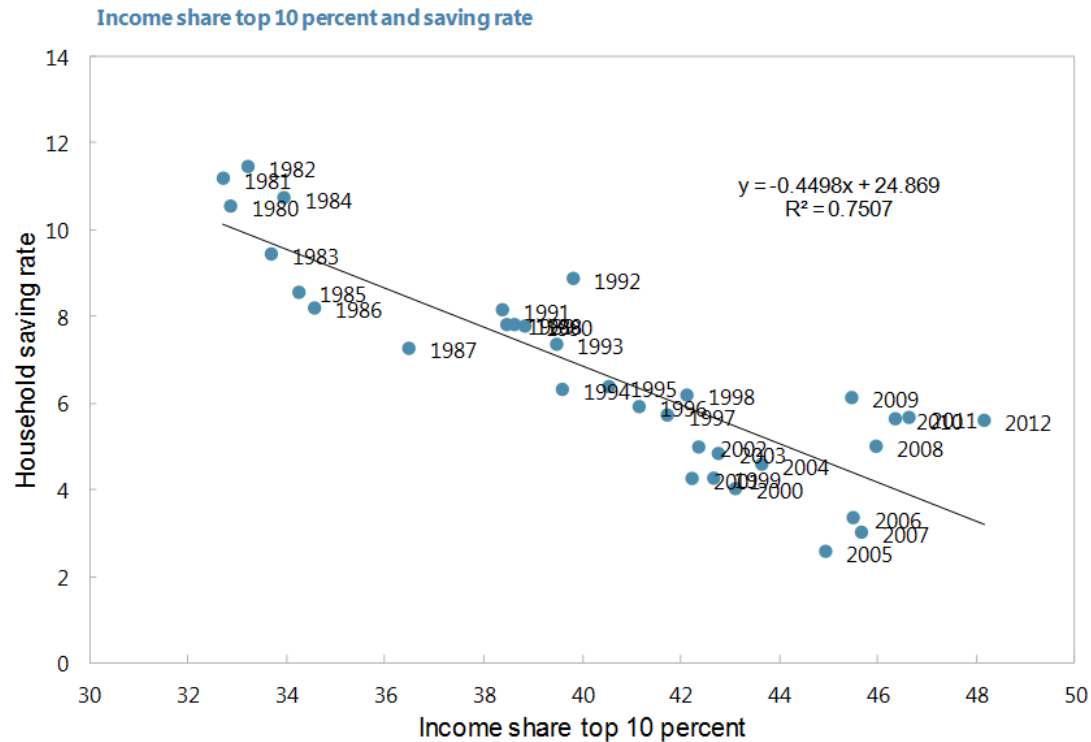
**Loan Delinquency Rate: Residential Real Estate Loans**



# Puzzle 1: Growing Inequality, Falling Saving

8

Figure 1.2 . US: Puzzles about the Saving Rate

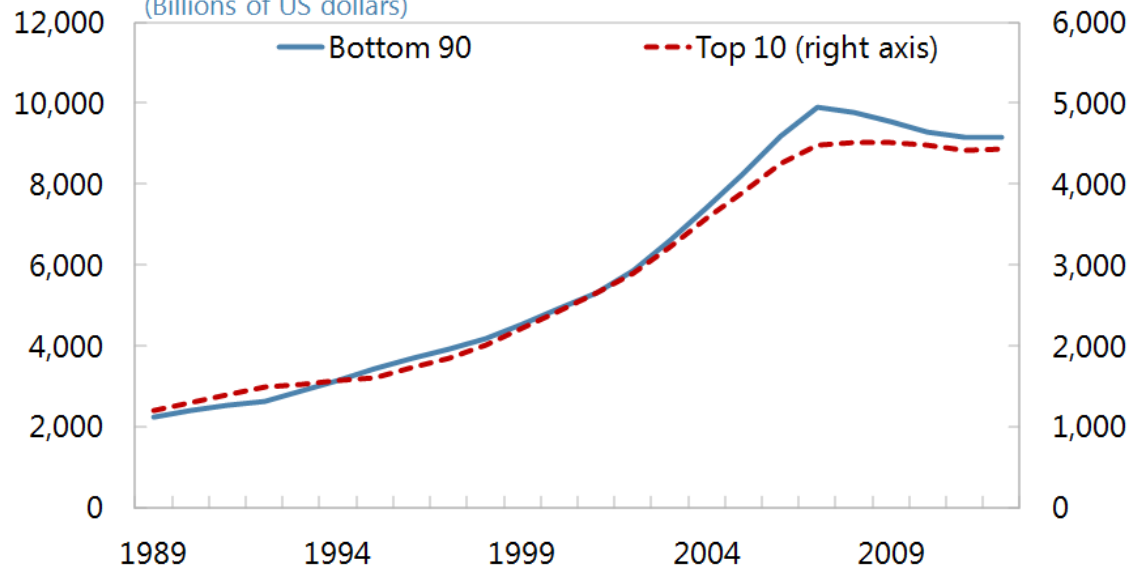


# Puzzle 2: Borrowing by the Rich



**Figure 2.2. Household Debt by Income Level, 1989-2012**

(Billions of US dollars)

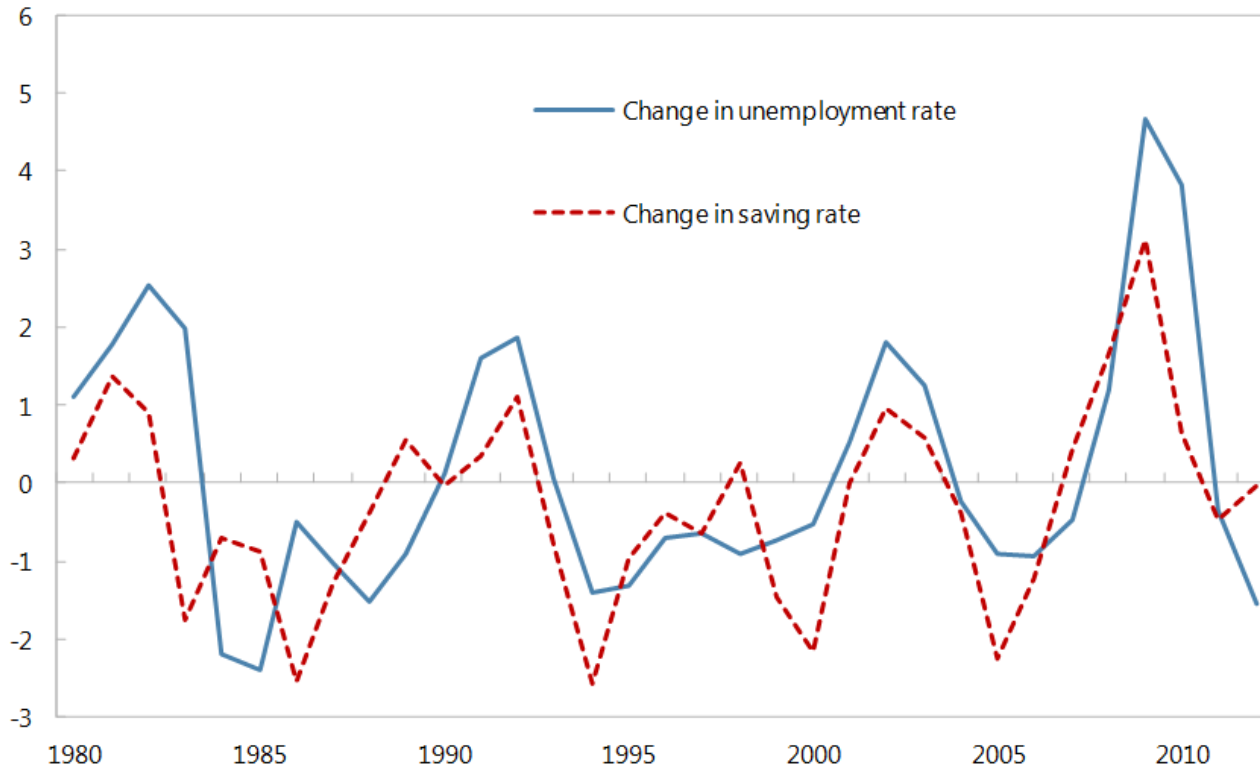


Sources: We calculated the share of debt held by the top 10 and bottom 90 percent for the years 1989, 1992, 1995, 1998, 2001, 2004, 2007 and 2010, using the 2010 version of Federal Reserve Board's triennial "Survey of Consumer Finances" ([http://www.federalreserve.gov/econresdata/scf/scf\\_2010.htm](http://www.federalreserve.gov/econresdata/scf/scf_2010.htm)). We interpolated the shares for intermediate years. We applied these shares to the liabilities in the "Balance Sheet of Households and Nonprofit Organizations" (Table B100) from the Federal Reserve "Financial Accounts of the United States" (<http://www.federalreserve.gov/RELEASES/z1/Current/>)

# Puzzle 3: Counter-cyclical Saving



Two year change in unemployment rate and household saving rate



Source: Federal Reserve Board (saving rate); BLS (unemployment);



# Two questions

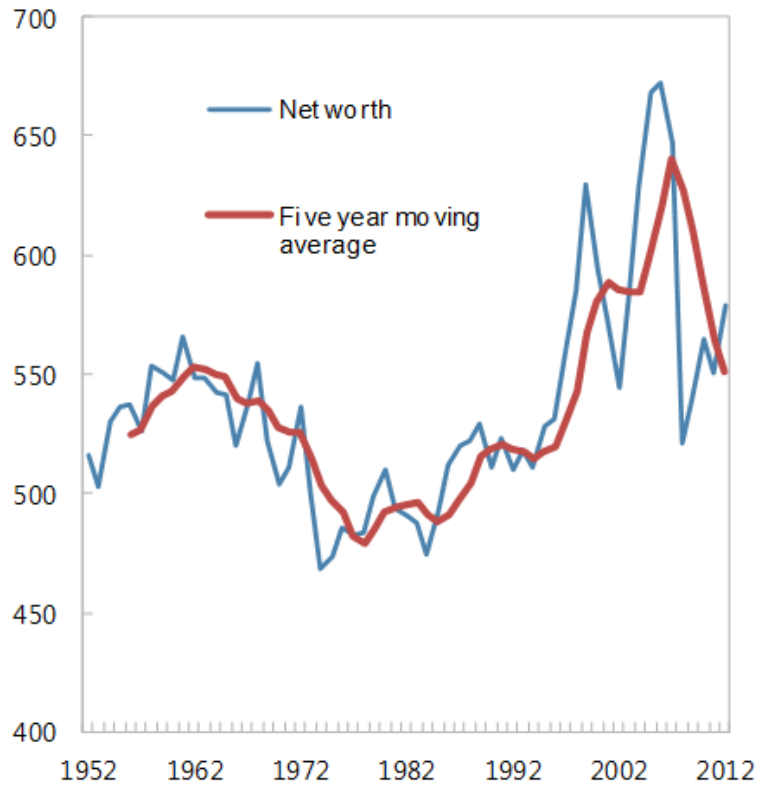


- Why just focus on debt, ignoring assets purchased?
- Why focus on middle class, when bulk of income and wealth gains accrued to rich?
- Perhaps these are the missing keys...

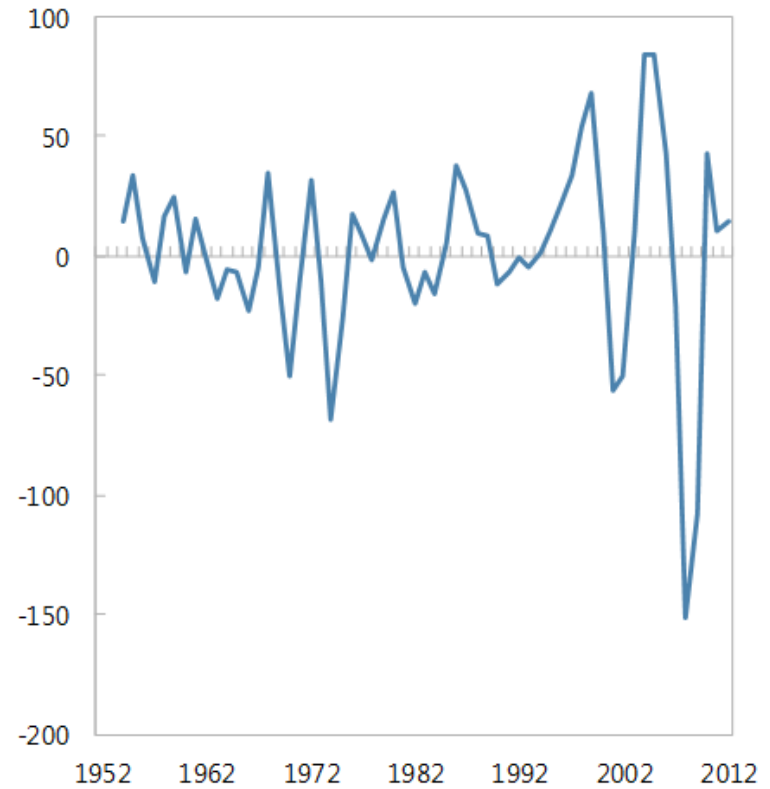
# The Rise of Wealth



Household Net Worth: A longer-time perspective



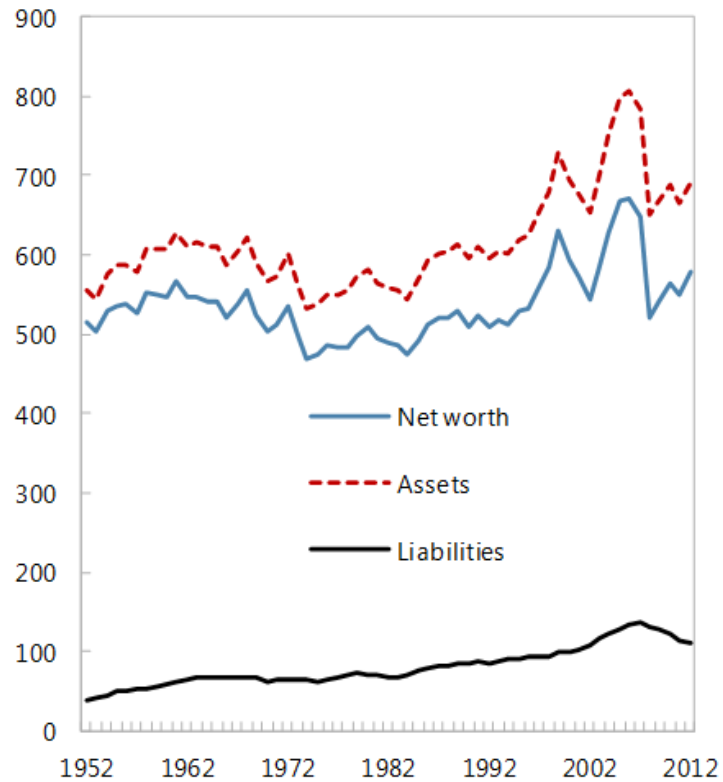
Two year changes in Net Worth To Disposable Income Ratio



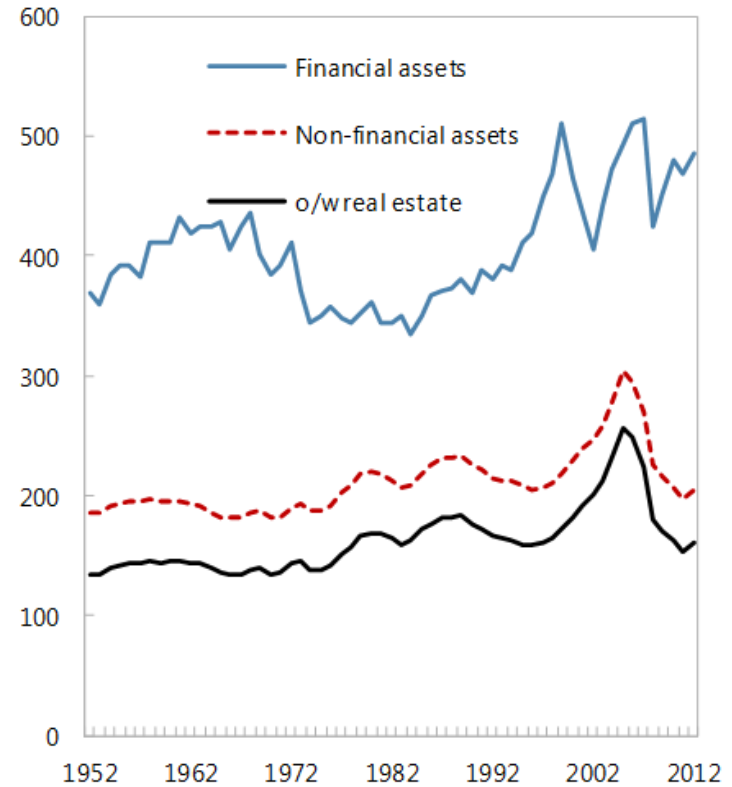
# Role of Assets



### Assets and Liabilities



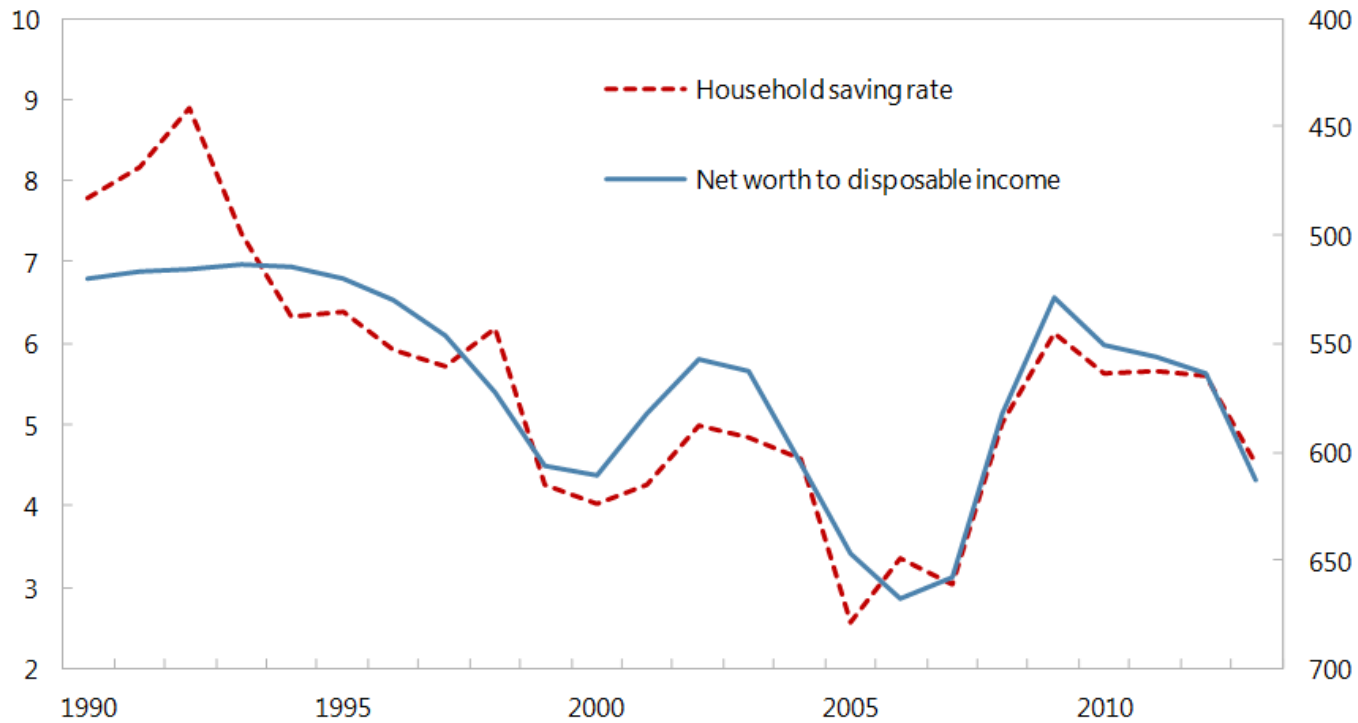
### Breakdown of Assets



# Return of the Wealth Effect?



Household Net Worth and Saving Rate



# Wealth Effect



$$C = \alpha + \beta Y + \gamma W \quad (1)$$

$$\frac{C}{Y} = \frac{\alpha}{Y} + \beta + \gamma \frac{W}{Y} \quad (4)$$

Rearranging yields an equation for the saving rate:

$$\frac{S}{Y} = (1 - \beta) - \gamma \frac{W}{Y} - \frac{\alpha}{Y} \quad (3)$$

# Theory to Empirics



## Estimating the consumption rate function

$$\frac{C}{Y} = \frac{\alpha}{Y} + \beta + \gamma \frac{W}{Y} \quad (4)$$

35. We dropped the  $\frac{\alpha}{Y}$  part as the coefficient turned out to be statistically insignificant, and finally estimated the following equation:

$$\frac{C}{Y} = \beta + \gamma \frac{W}{Y} \quad (5)$$

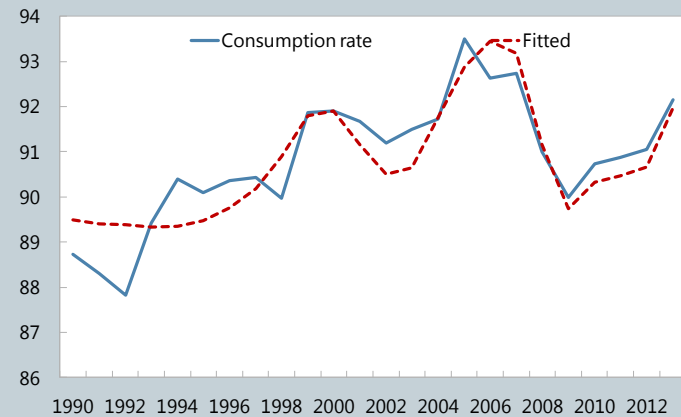
# Simple Model, Good Fit



**Table 1. Estimation Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	76.11907	1.723420	44.16744	0.0000
W/Y	0.025889	0.003022	8.566469	0.0000
R-squared	0.769354	Mean dependent var		90.83434
Adjusted R-squared	0.758870	S.D. dependent var		1.390433
S.E. of regression	0.682771	Akaike info criterion		2.154342
Sum squared resid	10.25589	Schwarz criterion		2.252513
Log likelihood	-23.85210	Hannan-Quinn criter.		2.180387
F-statistic	73.38439	Durbin-Watson stat		1.042050
Prob(F-statistic)	0.000000			

**Figure 2.7. Consumption rate: actual and fitted**

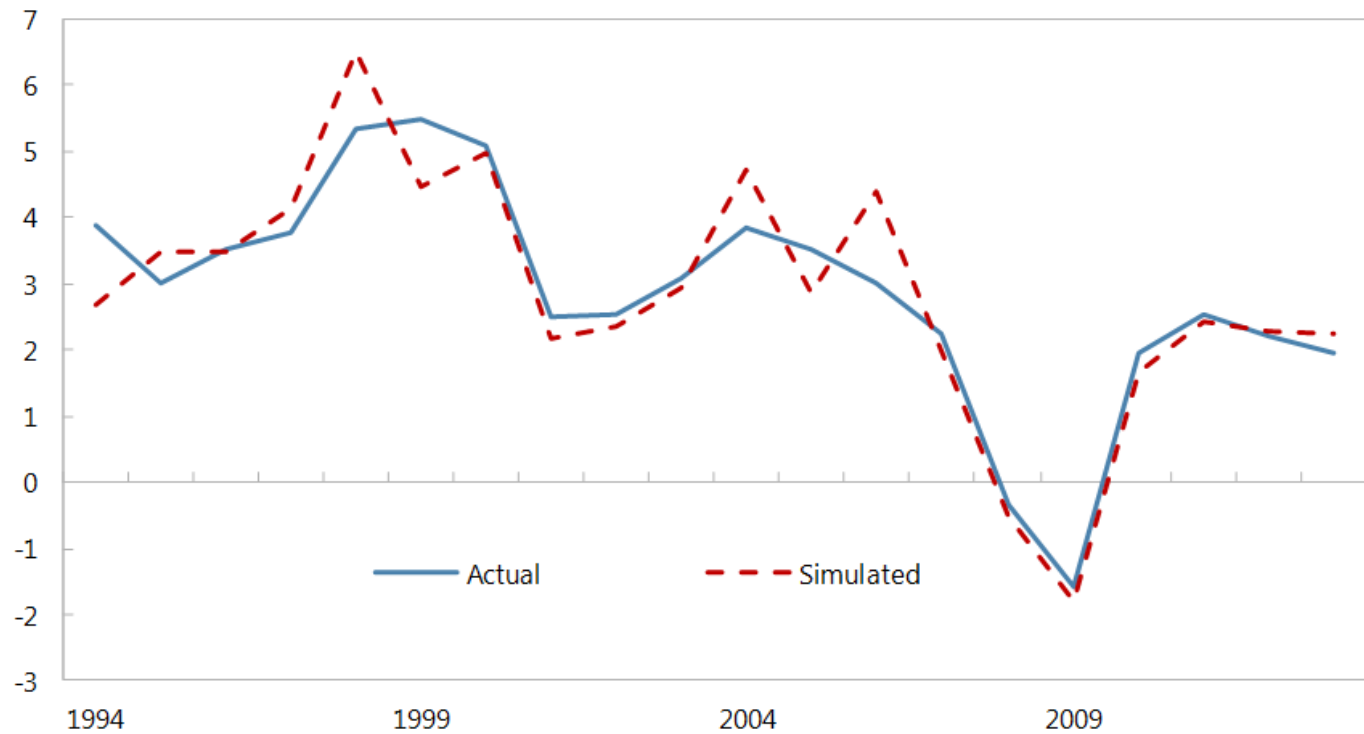


Sources:

# Simulated Consumption Growth



**Actual and simulated consumption growth**  
(Percent)

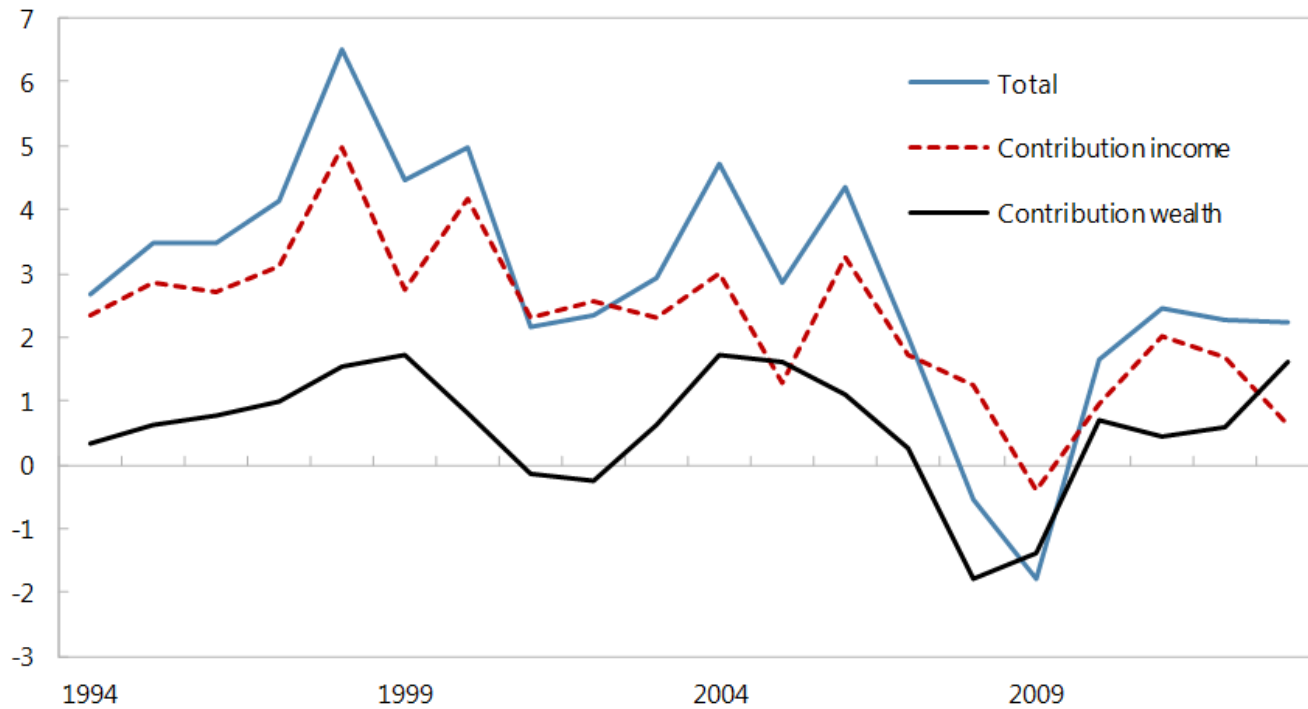




# Consumption: Key Role of Wealth



**Contribution to simulated consumption growth**  
(Percentage points)



# Role of the Rich



$$\frac{C^R}{Y^R} = \beta^R + \gamma^R \frac{W^R}{Y^R} \quad (6A)$$

$$\frac{C^M}{Y^M} = \beta^M + \gamma^M \frac{W^M}{Y^M} \quad (6B)$$

49. As we do not have separate consumption data for the rich and the middle class, we cannot estimate the coefficients directly. We can however calibrate them, and see whether they fit the data. We impose the following restrictions on the coefficients

$$\theta_Y^R \beta^R + (1 - \theta_Y^R) \beta^M = \beta \quad (7A)$$

$$\theta_W^R \gamma^R + (1 - \theta_W^R) \gamma^M = \gamma \quad (7B)$$

where  $\theta_W^R$  is the wealth share of the rich;  $\theta_Y^R$  the income share. These restrictions ensure that the overall behavior of the consumption rate mimics that of equation 5. We assume that  $\theta_W^R = 2/3$  and  $\theta_Y^R = 1/2$ .

# Calibration

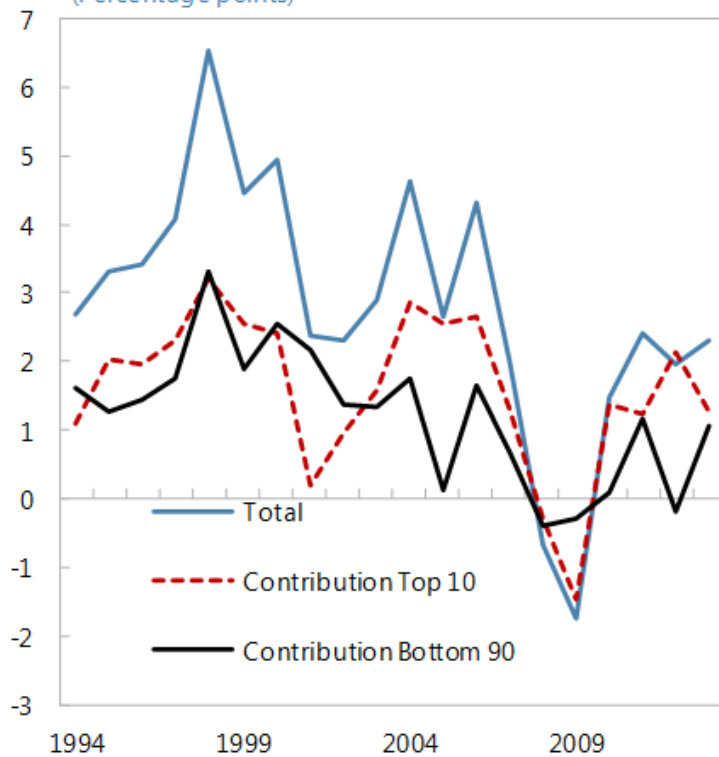


- MPC out of income: 0.65 (rich); 0.85 (middle class)
- MPC out of wealth: 0.027

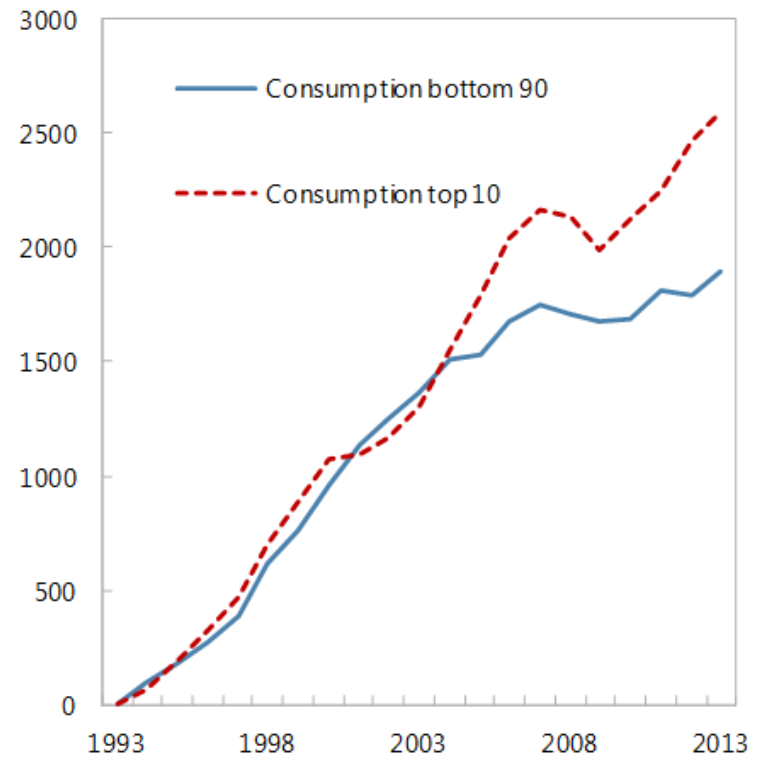
# Consumption: Key Role of Rich



**Contribution Top 10 and Bottom 90 to Simulated Consumption Growth**  
(Percentage points)



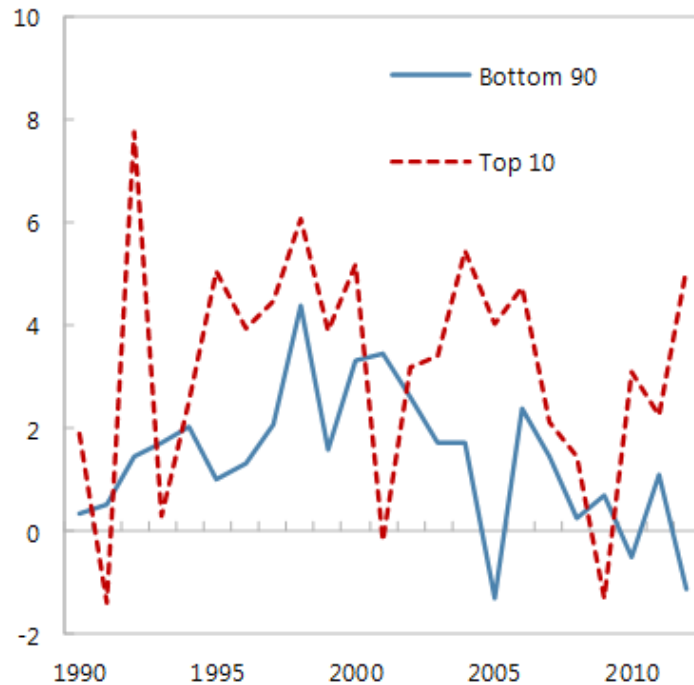
**Change in Consumption from 1993**  
(Billions of US 2009 dollars)



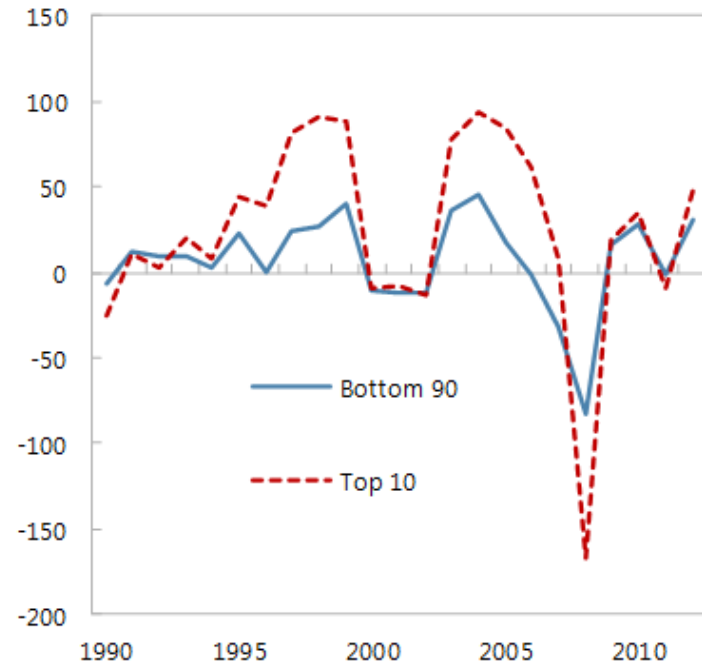
# Explaining Role of the Rich



**Real income growth**  
(Percent)



**Real net wealth gains and losses**  
(percent of previous year income)



# What just happened?



- Used textbook model, reasonable calibration
- We reversed the conventional narrative!
- Real story of the boom and bust lies not with middle class and its debt but rather in the rich, and their net assets!

# Resolving the Puzzles



- Why did saving fall as income distribution shifted toward high-saving rich?
  - Because the wealth of the rich boomed, reducing their incentive to save
- How did households increase saving when their incomes were falling?
  - Because it was the rich who scaled back consumption when wealth fell; it was easy for them

# Implications of Two Narratives



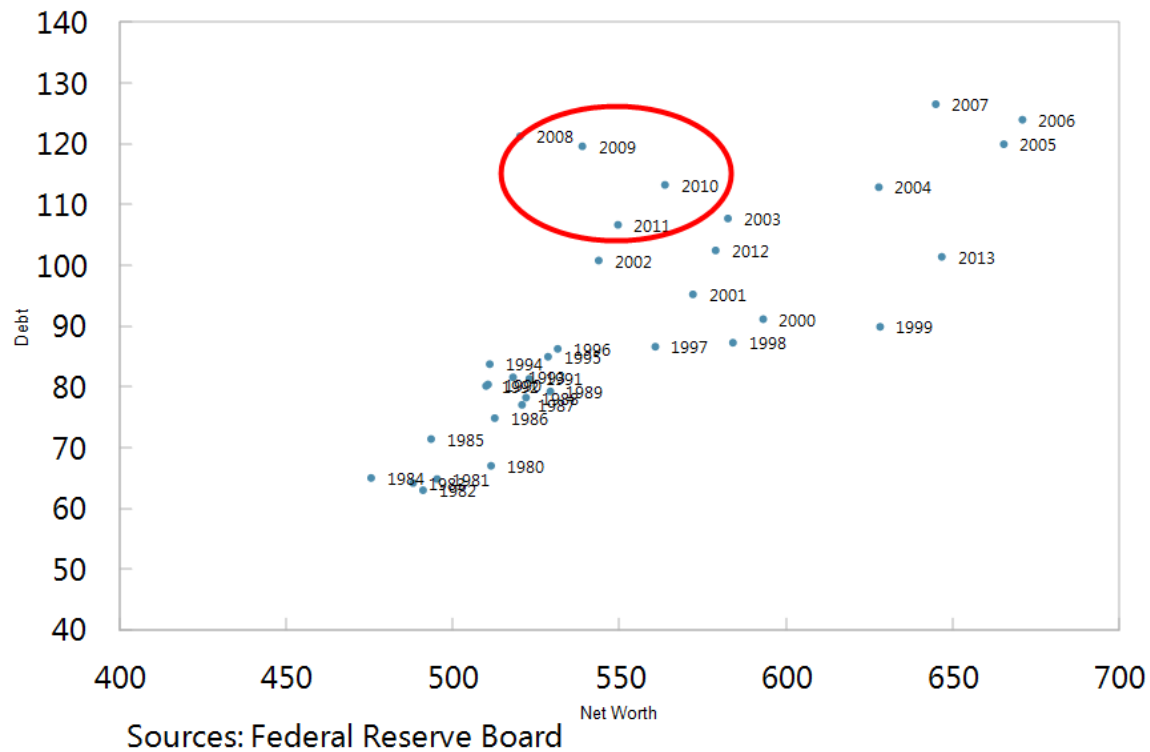
- **How busts end**
  - Debt narrative: when households pay down debts or housing prices recover
  - Wealth narrative: when wealth is restored, perhaps because stock prices recover
- **Role of monetary policy**
  - Debt narrative: largely ineffective .
  - Wealth narrative: important, because it can affect asset prices



# A Portent?



**Figure 2.1 US: Household Net Worth and Debt**  
(Percent of disposable income)





- **THANK YOU!**