The Dynamics of US Household Debt, 1929-2013

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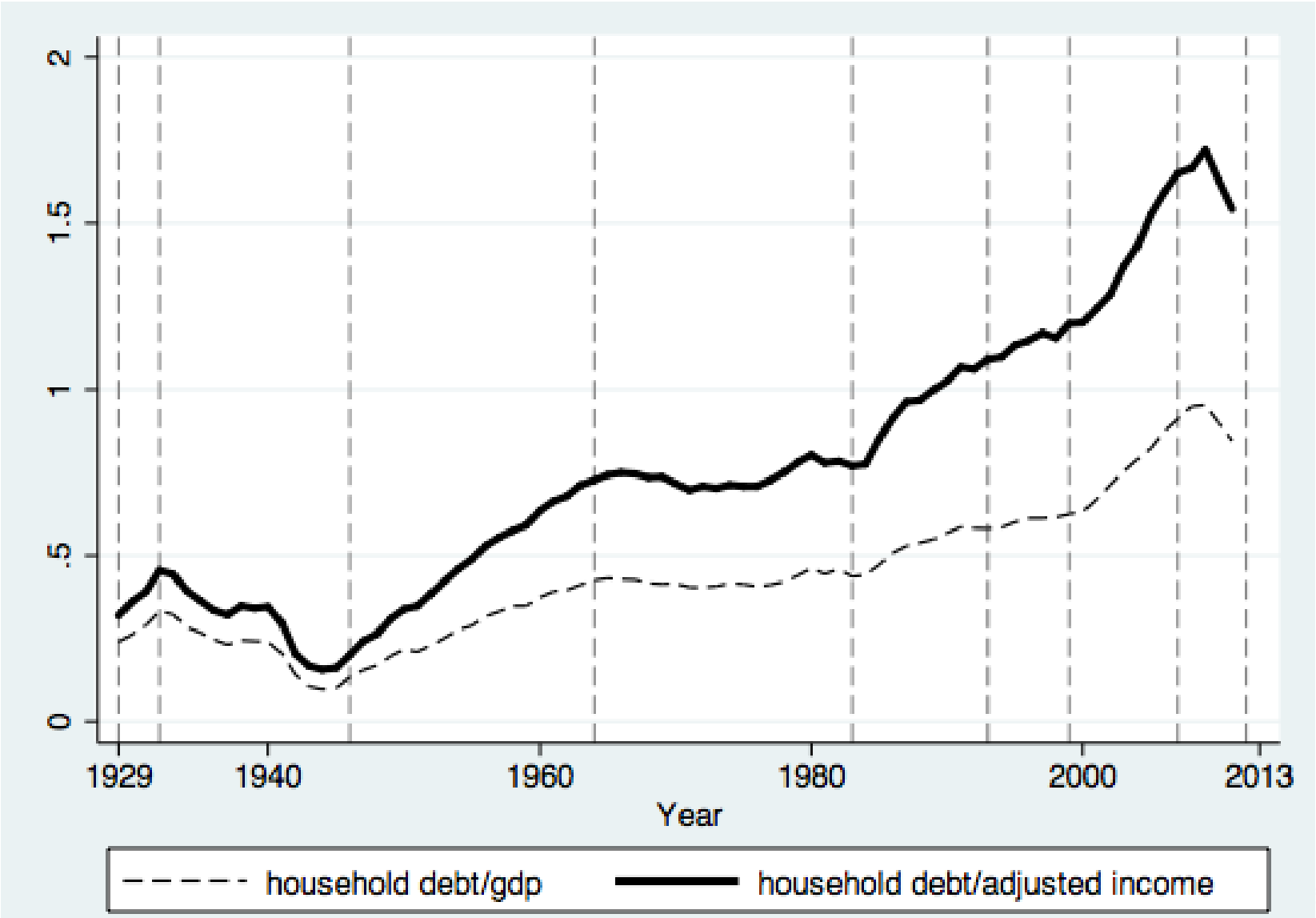
Overview

- Goal: consistent accounting framework to describe historical evolution of private debt-income ratios
- Motivation: Private debt is macroeconomically important.
  - Independent driver of inequality
- "Fisher dynamics" = generalization of debt deflation process of 1930s.
  - Changes in debt-income ratios attributable to income growth, inflation, interest payments & default, rather than to new credit-market transactions

Overview

- Main results:
  - Except for housing booms of 1950s and 2000s, changes in new borrowing play little role in changes in household debt-income ratios.
  - Increase in household debt ratios since 1980 fully explained by slower nominal income growth and higher interest rates on existing debt
  - Deleveraging since 2007 involves lower borrowing, but also higher default rates.
  - No systematic relationship between changes in household debt and aggregate demand
- Policy implications:
  - Reducing leverage requires higher inflation, faster income growth, financial repression and/or further writedowns.

Household Leverage 1929 - 2012



Why Debt Matters

- Focus on "saving" implicitly assumes a unit's or sectors' assets and liabilities net out. But debt matters even with offsetting assets.
- Rising debt associated with rising expenditure relative to income, but high levels of debt depress expenditure.
- High debt levels make financial crises more likely
- Debt service payments contribute to upward shifts in income distribution.
- Debt important economic outcome in own right
  - High debt limits economic freedom, contributes to insecurity
  - Form of power (increasing use of credit scores, etc.)
  - Focus of political activity

Getting the Accounting Right

- Borrowing $\neq$ dissaving
  - The cash flows counted as saving are different from those that determine change in gross liabilities
  - Borrowing depends on difference between cash income and total cash expenditures, including net acquisition of assets
- Impossible to tell meaningful story about changes in debt ratios if we don't have precise description of all the cash flows that contribute to them
- Leverage is a ratio; has denominator as well as numerator
  - Slower growth of nominal income = higher debt-income ratio

The law of motion of sectoral debt

"The least controversial equation in macroeconomics" (Hall and Sargent 2011):

$$b_{t+1} = d_t + (\frac{1+i}{1+g+\pi})b_t + sfa_t \tag{1}$$

$$\Delta b_t = b_{t+1} - b_t = d_t + (\frac{i-g-\pi}{1+g+\pi})b_t + sfa_t \tag{2}$$

$$\Delta b_t \approx d_t + (i_t - g_t - \pi_t)b_{t-1} + sfa_t \tag{3}$$

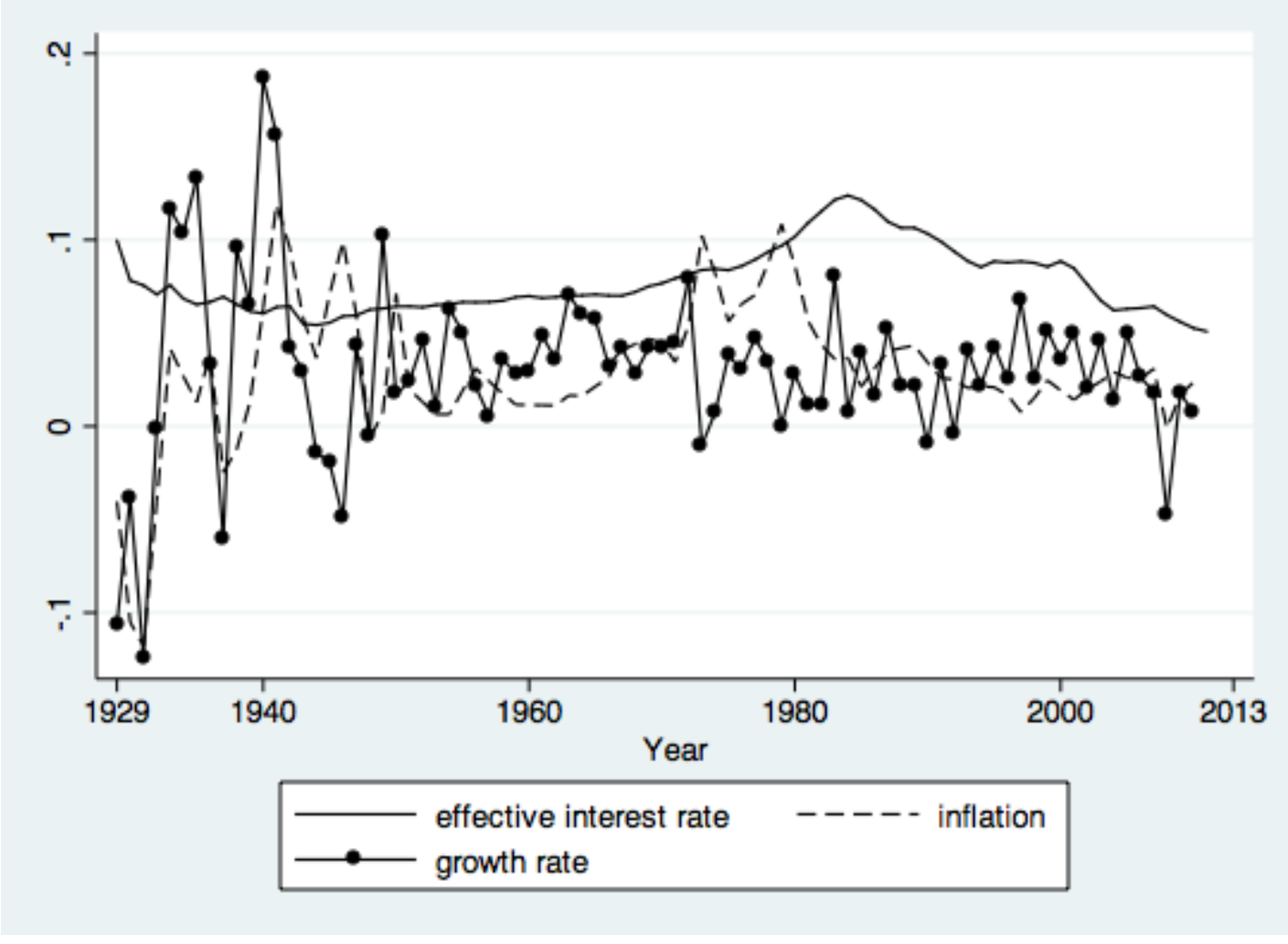
b_t is the debt-GDP ratio, d_t is primary borrowing, i is the nominal effective interest rate, g is income growth less inflation, and π is the inflation rate. sfa_t is a stock-flow adjustment term; in this case, defaults.

- Has been used to decompose evolution of government debt into the contributions of primary balance, interest rates, growth and inflation.
- Common finding: Debt dynamics play a large role in changes in debt ratios. Primary surpluses contributed essentially nothing to the postwar fall in debt-GDP ratio in most rich countries.

To translate this into household debt:

- Replace GDP with personal income, removing imputed noncash components.
- Need to calculate primary balance for household sector, different from conventional savings rate.
- Relevant interest rate is the average effective interest rate, computed as total interest payments divided by the start-of-period debt stock.
- Inflation rate currently used is change in personal consumption deflator; GDP deflator arguably more appropriate, but difference is slight.

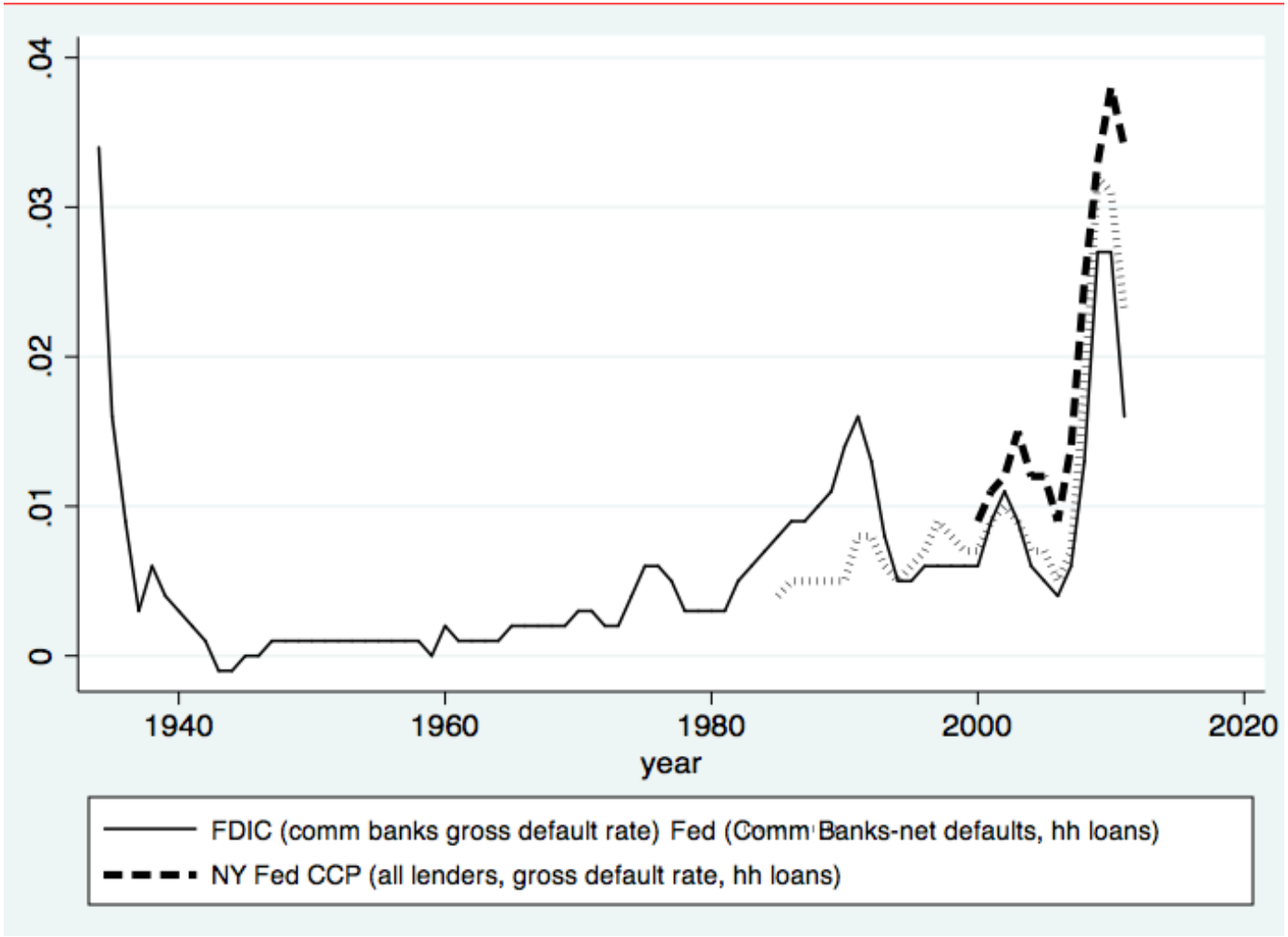
Effective Interest Rates, Growth and Inflation, 1929-2012



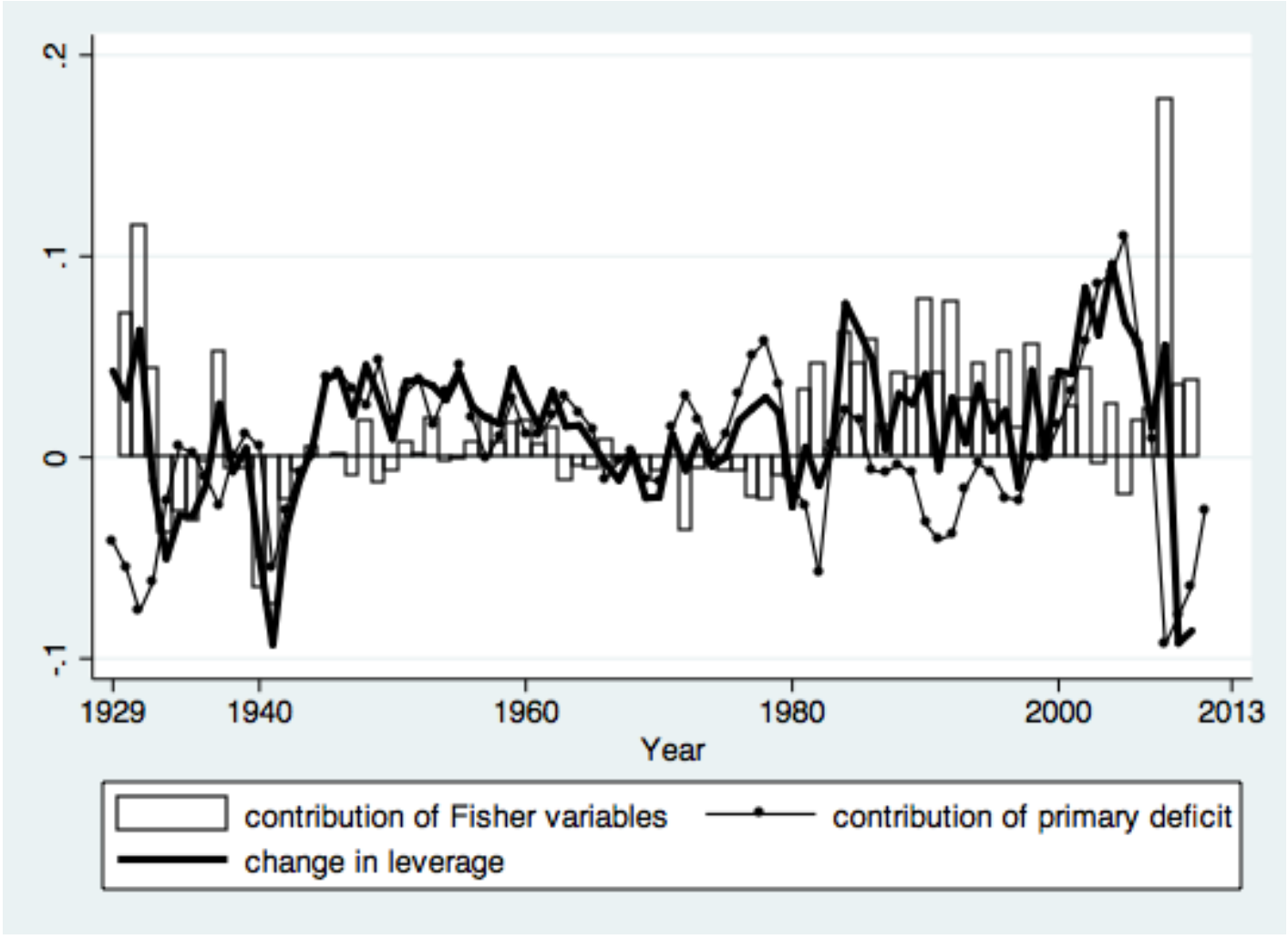
The Role of Defaults

- Flow of Funds calculates borrowing from change in debt levels, so treats debt writeoffs as reduced borrowing.
- Defaults observed at the household level only for recent period.
- Some measures available back to 1930s; not perfect but sufficient to establish that defaults played a minor role in household debt changes for most of this period
- Default rates have been quantitively significant (over 3% of household debt annually) since 2007.

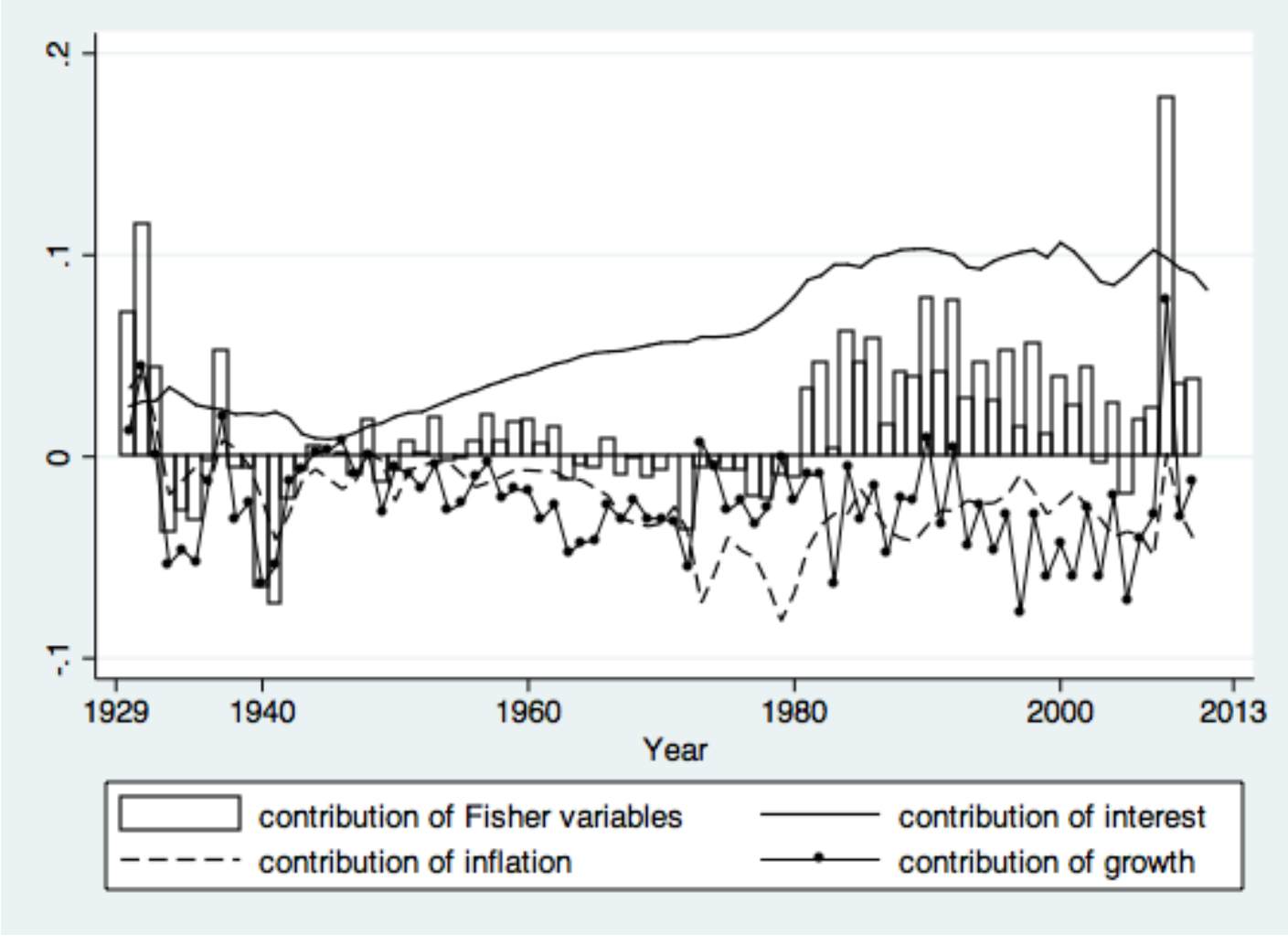
Annual Share of Household Debt Written Off, Alternative Measures



Primary Balance and Change in Household Leverage



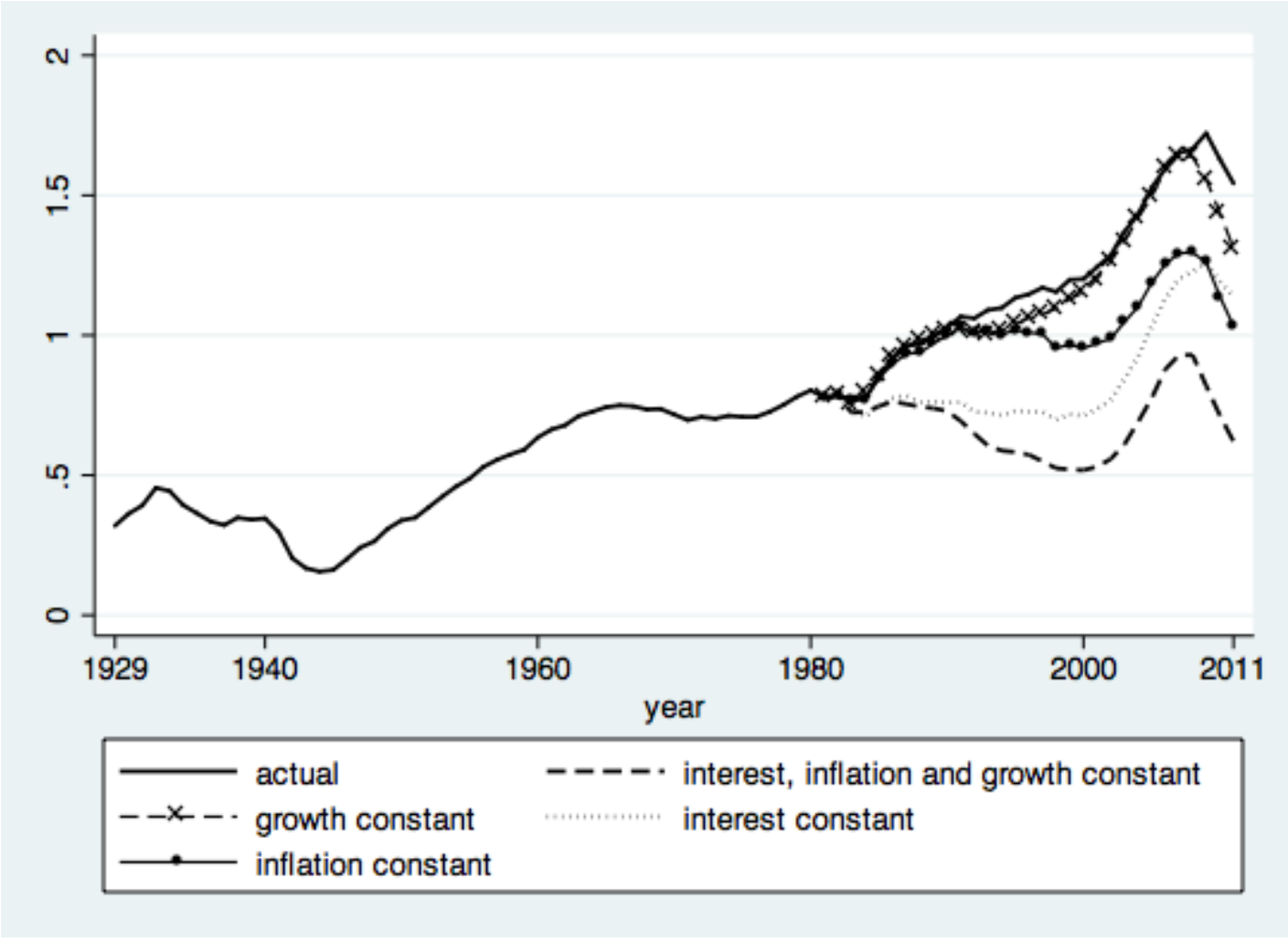
"Fisher Variables" and Change in Household Leverage



Contributions to Changes in Household Debt

	Δ b	Attributable to:				
		Primary Deficit	Interest	Growth	Inflation	Default
1929 to 1932	3.1	-5.9 *	2.7	1.9	3.1	n/a
1933 to 1945	-1.9	-0.6	2.1	-2.5	-1.2	-0.3
1946 to 1963	2.9	2.6	2.9	-1.5	-0.8	-0.0
1964 to 1983	0.2	0.8	6.4	-2.6	-4.1	-0.2
1984 to 1993	3.2	-1.1	9.9	-2.0	-3.0	-0.5
1994 to 1999	1.7	-0.9	9.9	-4.4	-2.0	-0.8
2000 to 2007	5.8	5.7	9.5	-4.3	-3.3	-1.5
2008 to 2012	-4.1	-6.6	9.1	1.2	-2.2	-5.1
1946 to 1983	1.5	1.7	4.7	-2.1	-2.6	-0.1
1984 to 2012	2.8	0.1	9.7	-2.9	-2.8	-1.5

Counterfactual Leverage Scenarios



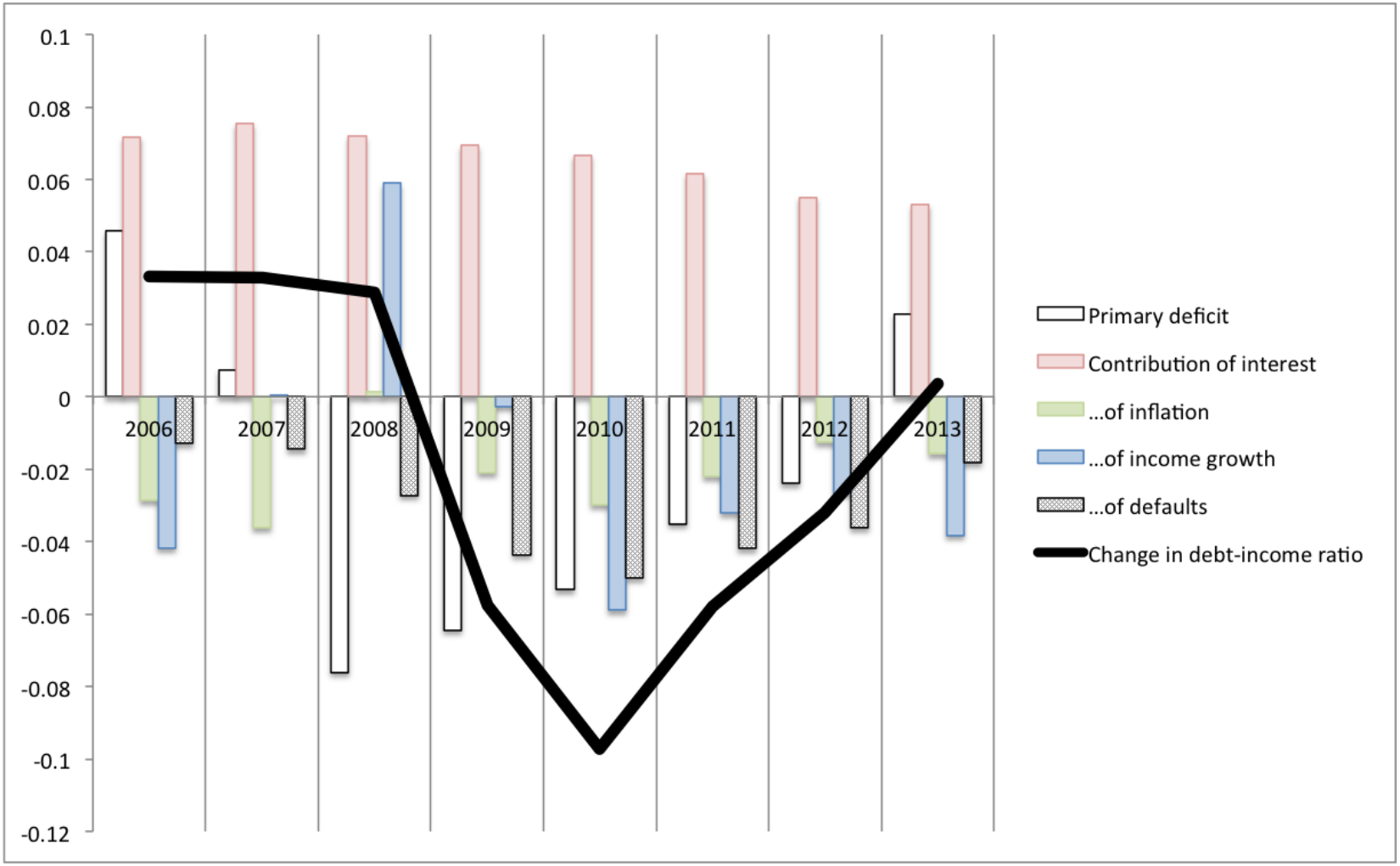
Annual Household Borrowing and Uses of Funds, in Percent of Adjusted Income

	Borrowing	Demand	Non-Demand		*Memo:* Δb
			Interest	Other Non-Demand	
1948 to 1963	5.8	95.4	3.3	7.0	2.9
1964 to 1983	7.3	90.9	6.4	9.9	0.2
1984 to 1993	9.2	93	10.3	5.9	3.2
1994 to 1999	9.2	96.4	10.0	2.7	1.7
2000 to 2007	15.7	96.2	9.9	9.5	5.8
2008 to 2012	2.0	84.8	8.7	7.0	-4.8
1948 to 1983	6.7	92.8	5.2	8.7	1.3
1984 to 2012	10.1	94.1	9.9	6.1	2.8

Change from Previous Period

	Borrowing	Demand	Non-Demand		*Memo:* Δb
			Interest	Other Non-Demand	
1964 to 1983	1.5	-4.5	3.1	2.9	-2.7
1984 to 1993	1.5	2.1	3.9	-4.0	3.0
1994 to 1999	0.0	3.4	-0.2	-3.2	-1.5
2000 to 2007	6.5	-0.2	-0.1	6.8	4.1
2008 to 2012	-13.2	-7.4	-0.9	-4.9	-9.9
1984 to 2012	3.4	1.2	4.8	-2.6	1.5

Debt Dynamics in the Great Recession Period



Conclusions

- Main driver of long-term increase in household leverage is higher interest rates relative to nominal income
  - ... NOT increased borrowing by households
- Household debt does not just reflect distribution, is independent driver of inequality
- Focus on inflation and interest rate facing households as central distributive variables
  - ... as well as terms on which debt can be discharged
- Return to Keynes-Sraffa tradition in which interest rate is key barometer & terrain of class conflict