DISCUSSION OF "INSPECTING THE MECHANISM: LEVERAGE AND THE GREAT RECESSION IN THE EUROZONE" BY MARTIN AND PHILIPPON

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THEORIES FOR EUROZONE (AND US) BOOM & BUST

1. **Bank Lending Theories:** Banking crises led to tightening of credit constraints
   - "Sudden stops" of capital inflows in Europe
2. **Aggregate Demand Theories**
   - Reduction in consumer demand due to collapse in household wealth or credit availability
3. **Government Spending Theories:** Profligate government spending (e.g., Greece) was reversed
4. **Productivity decline**

HOUSEHOLD DEBT GROWTH STRONGLY CORRELATED WITH OUTPUT GROWTH ACROSS EURO ZONE COUNTRIES
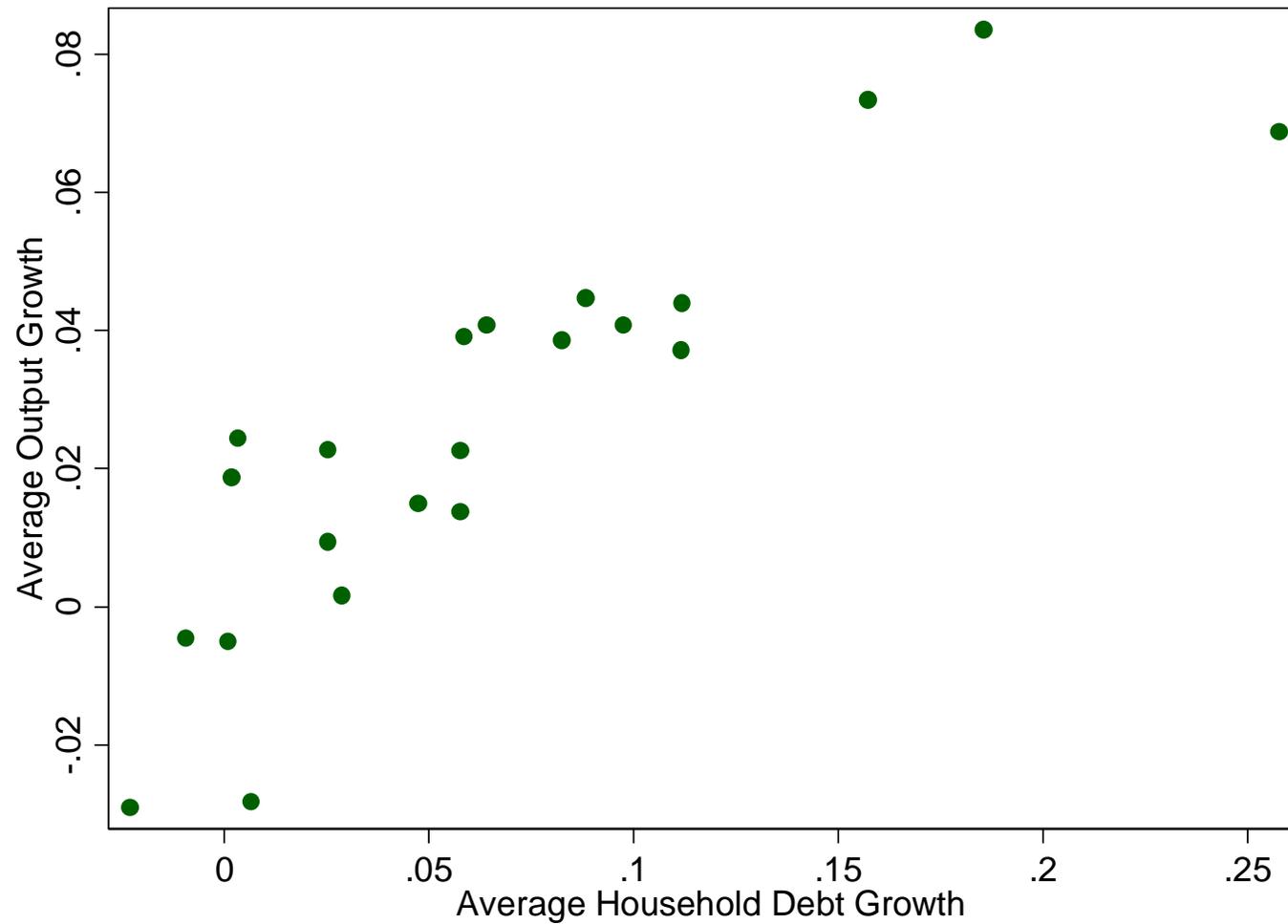
# DOES THIS PROVE THAT SHOCKS TO CREDIT CONSTRAINTS WERE IMPORTANT?

- Not necessarily: Borrowing could have been a *reaction* to boom/recession caused by bank lending channel

- Possible Instrument: Countries that had biggest 2001-2007 household debt increases also had largest 2008-2012 household debt declines

- If the run-up in debt was exogenous then can use 2001-2007 debt increase as an "instrument" for 2008-2012 debt decline
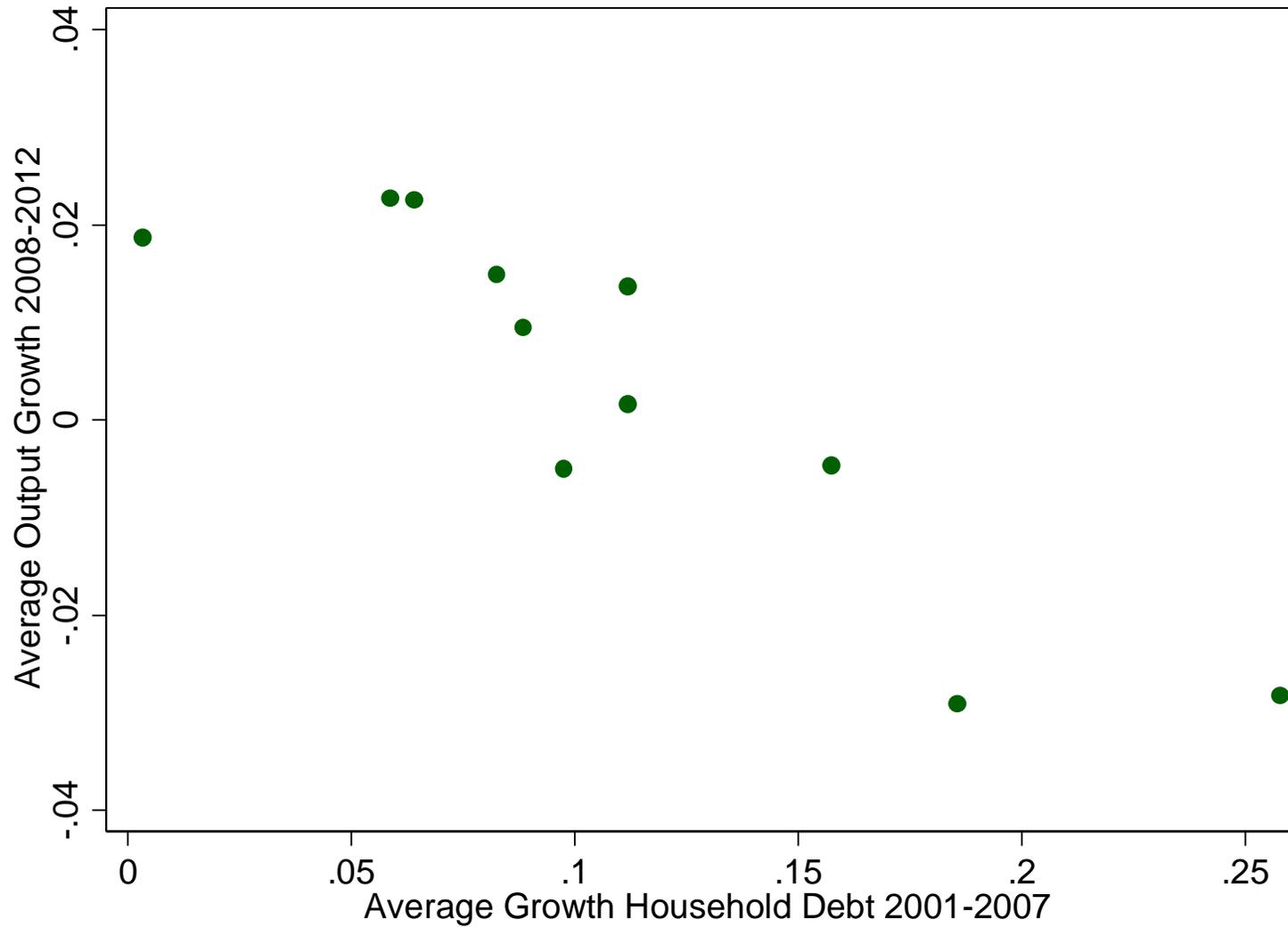
STRONG NEGATIVE CORRELATION BETWEEN HOUSEHOLD DEBT GROWTH 2001-2007 AND OUTPUT GROWTH 2008-2012
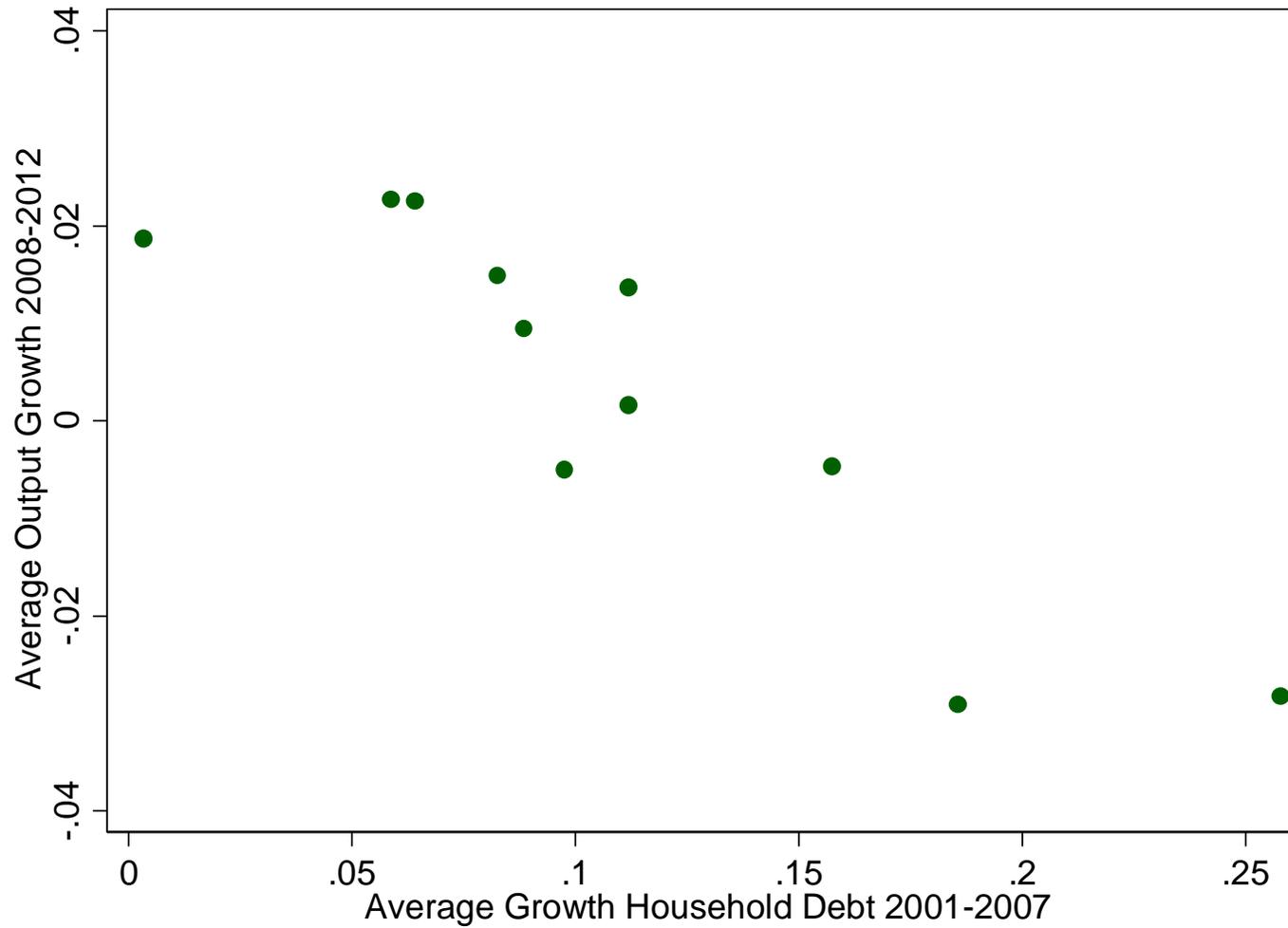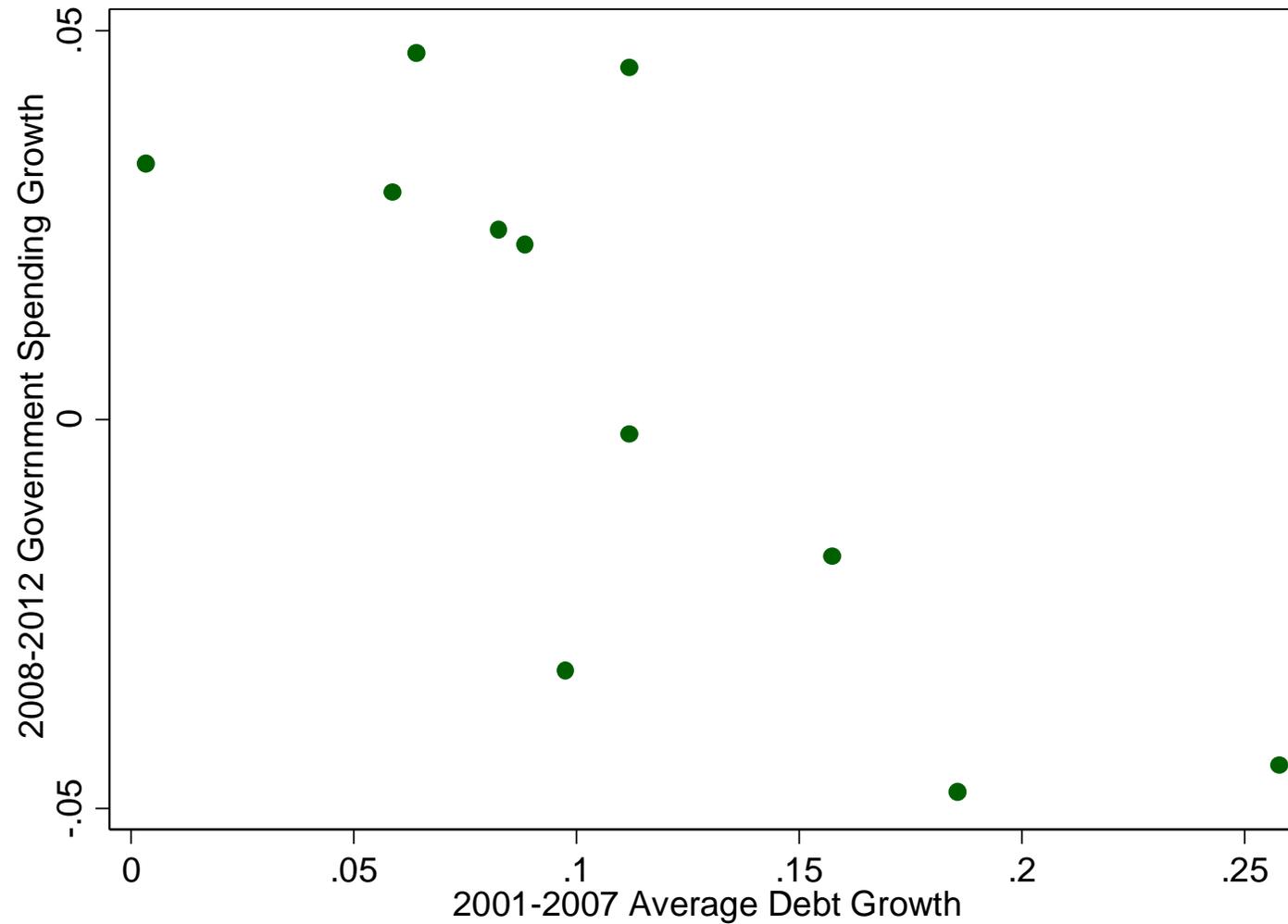
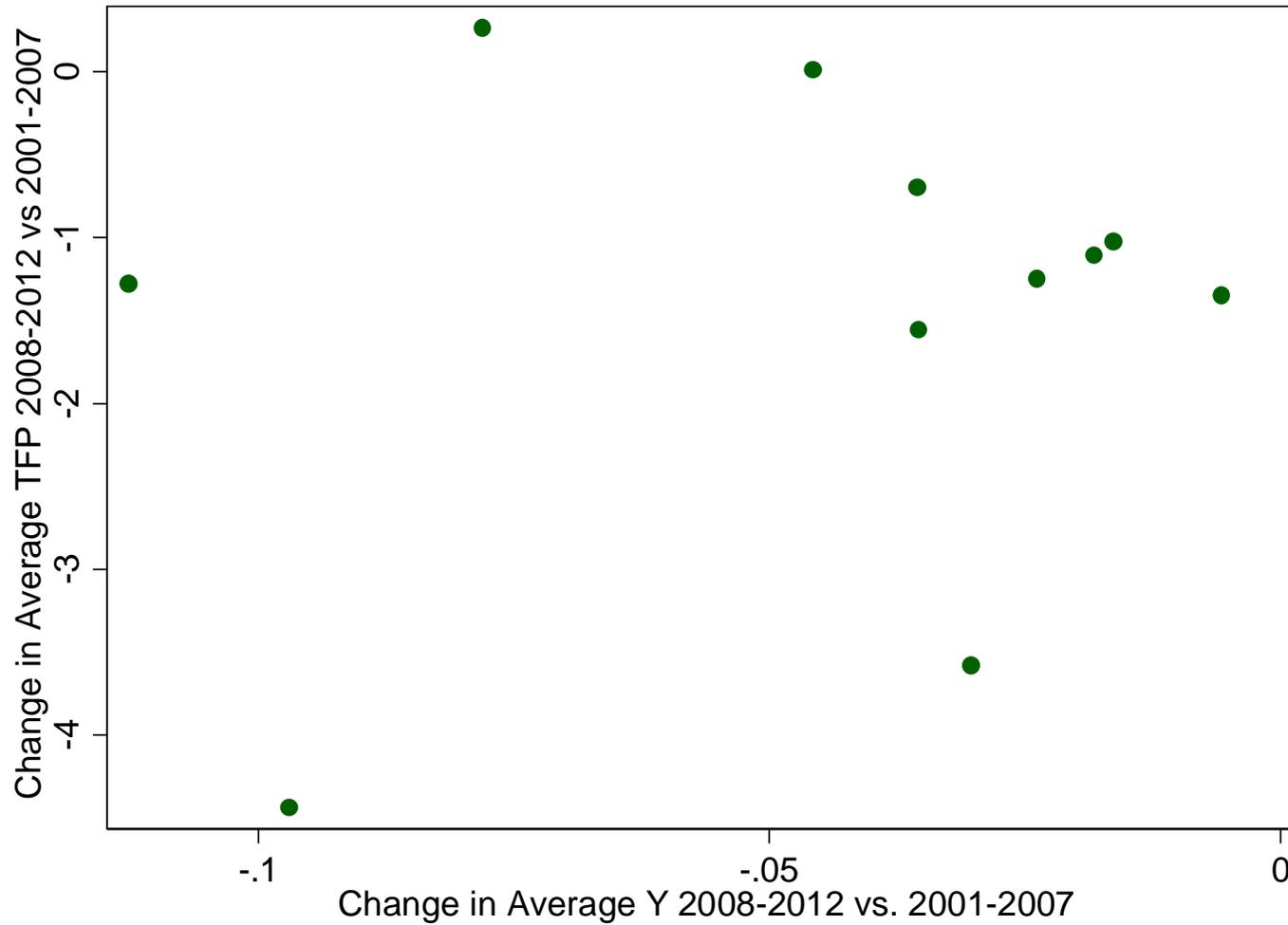# BUT MUCH WEAKER CORRELATION BETWEEN 2001-2007 DEBT RUN-UP AND 2008-2012 DELEVERAGING
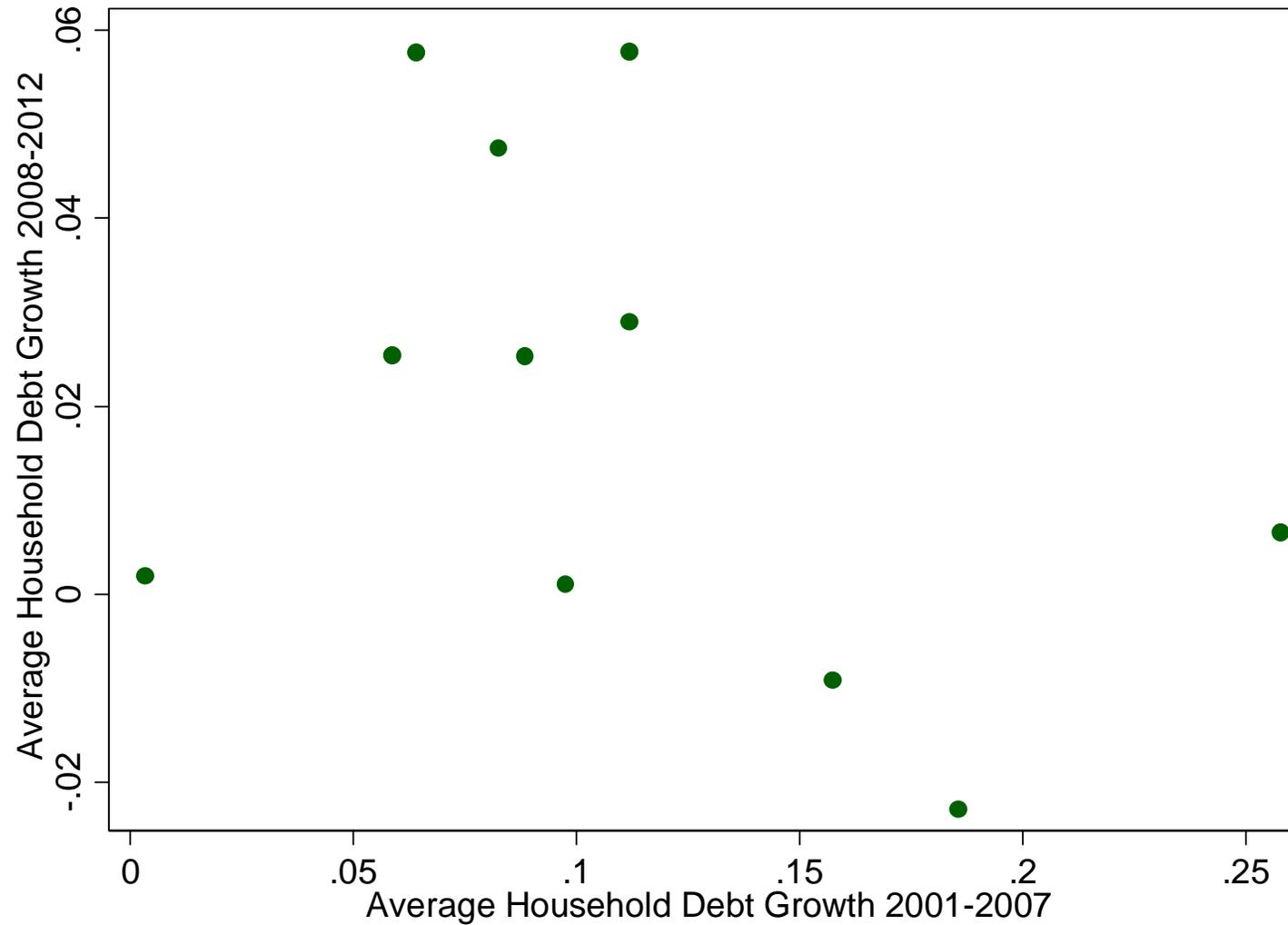
COULD THERE BE ANOTHER CHANNEL?

Countries with Greater 2001-2007 Household Debt Run-Up Also Had Lower 2008-2012 Government Spending Growth

CHANGE IN AVERAGE TFP VS. AVERAGE OUTPUT GROWTH

MARTIN-PHILIPPON MODEL

- Extension of Eggertsson-Krugman and Midrigan-Philippon to small open economy monetary union

- Model implications:
  - Strong output response to relaxation of credit constraints
  - Large government spending multiplier

SIMULATIONS

- Feed in "actual" time series of:
  - Household debt
  - Taxes, Transfers, Nominal government spending
  - Interest rate spreads

- Compare model to data in terms of:
 - Output, labor, wages, government debt etc.

AN ASIDE: THE DATA ARE "REBASED"

- Calculate "potential" output for each country using the following approach:
  - Assume average Eurozone output per capita growth rate 2001-2007
  - Assume 1.5% growth rate post 2008

- Analyze everything in relative terms relative to this definition of potential output
- Seems arbitrary!

SUCCESS! GDP: MODEL VS. DATA
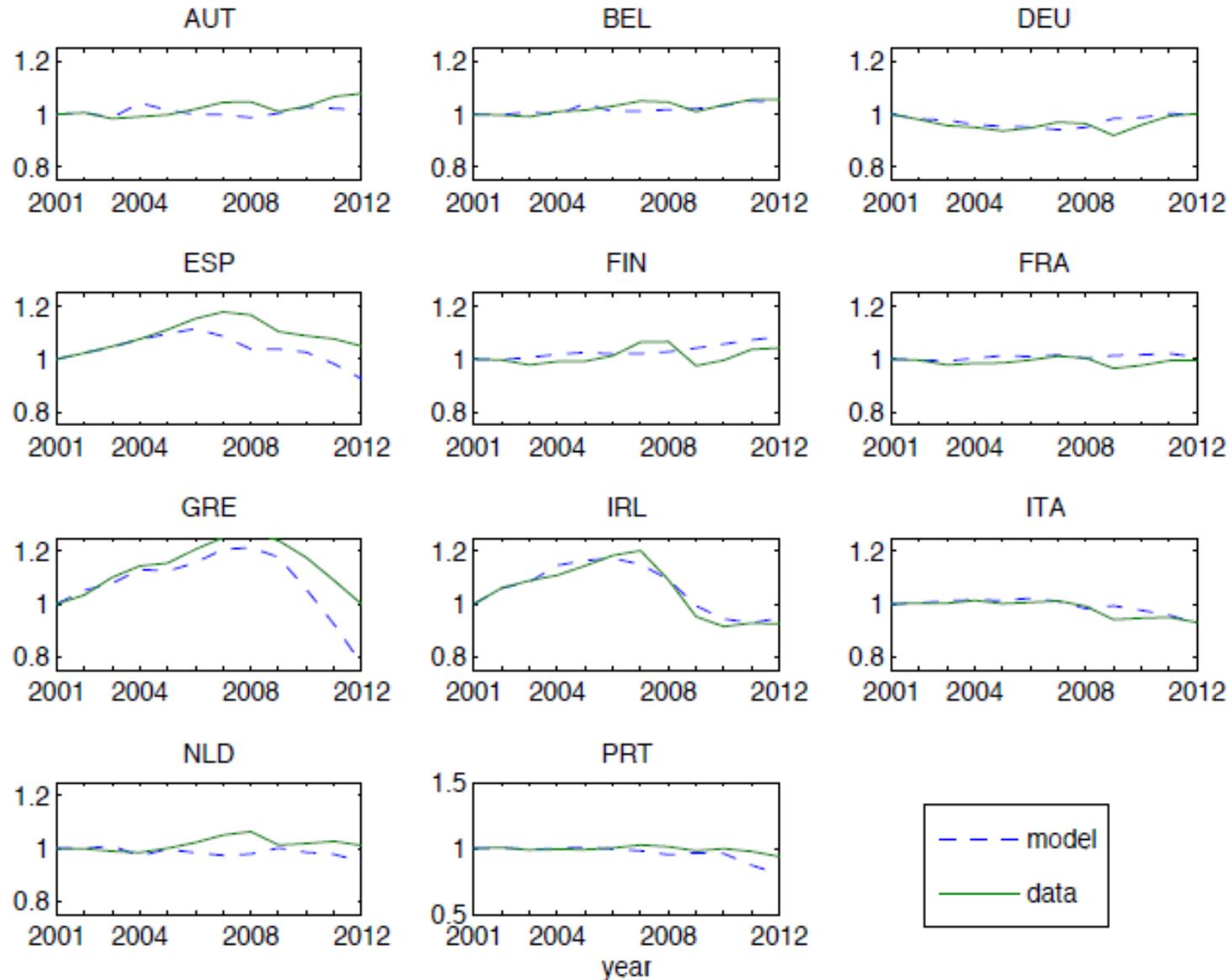
KITCHEN SINK REGRESSION

$$\Delta y_{it} = \beta_1 \Delta household\ debt_{it} + \beta_2 \Delta gov\ debt_{it}$$
$$+ \beta_3 \Delta\ gov\ spending_{it} + \beta_4 \Delta transfers_{it}$$
$$+ \beta_5 \Delta interest\ payments_{it}$$
$$+ \beta_6 \Delta bank\ recapitalization\ dummy_{it}$$
$$+ year\ fixed\ effects$$

- Year fixed effects "soak up" Euro level variation
- Subtract year fixed effects from predicted and observed Δy_{it} to obtain country-specific variation
- Analogous to Martin-Philippon "rebasing" approach
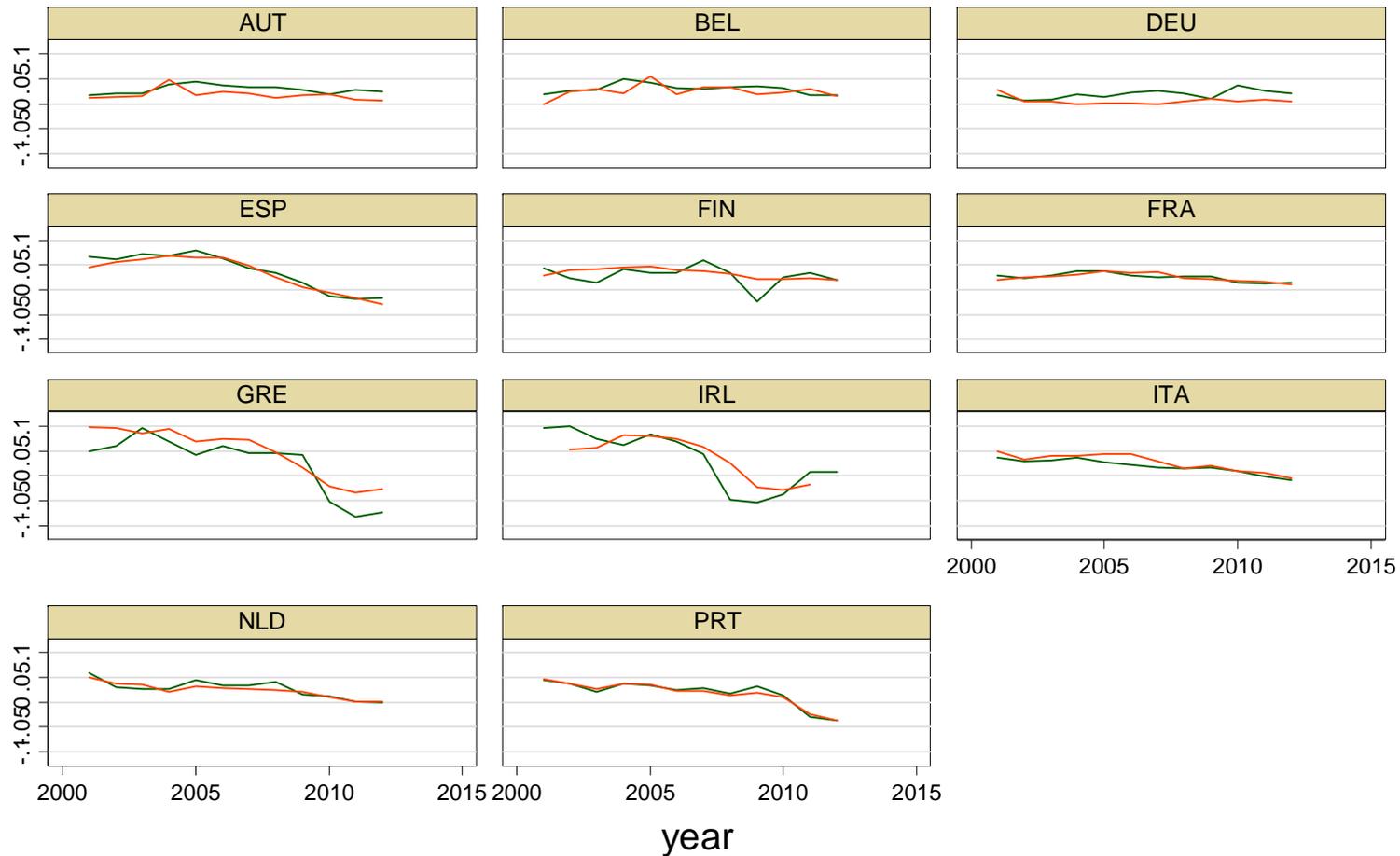
PREDICTIONS OF KITCHEN SINK REGRESSION
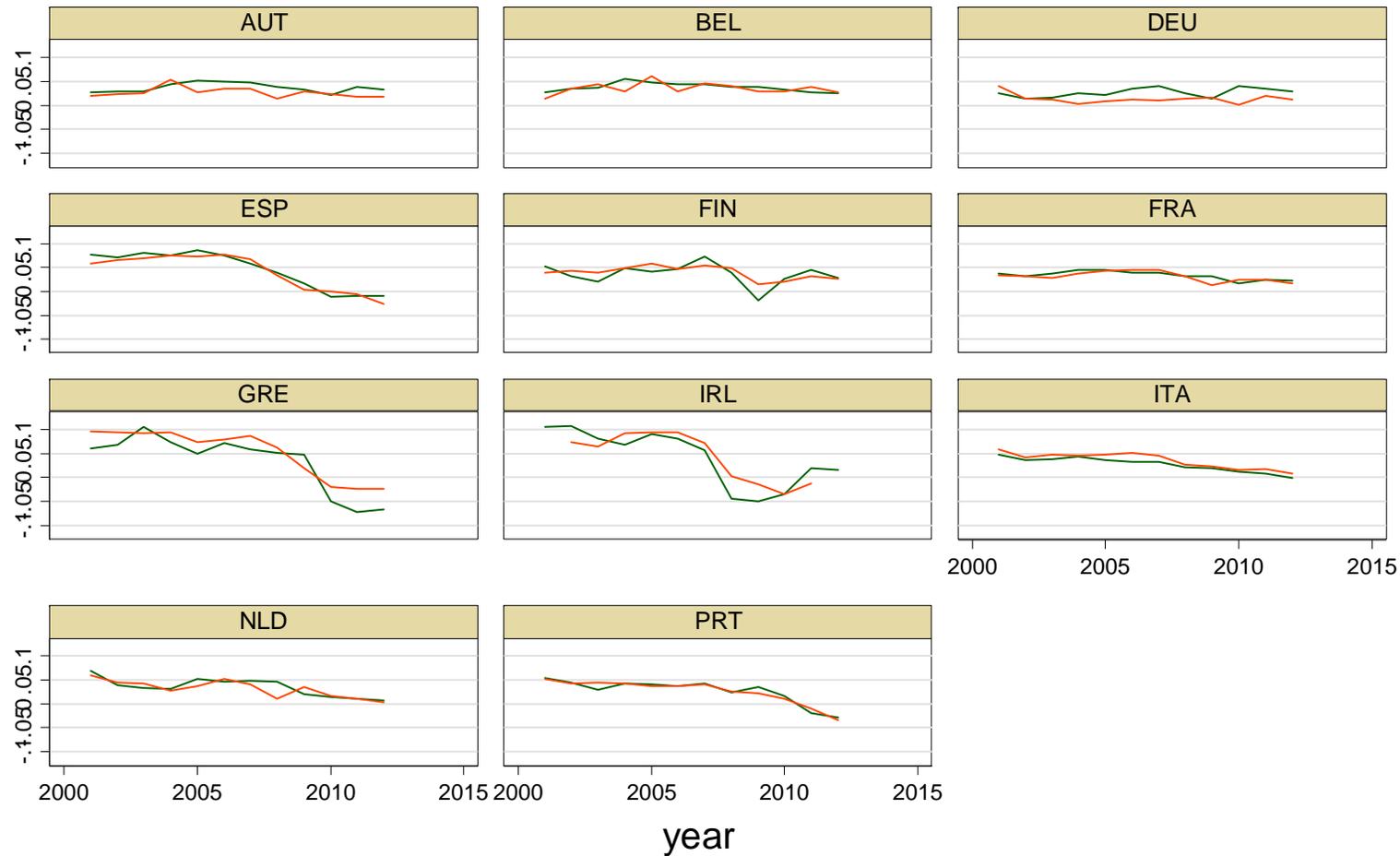
Output Growth (Demeaned) — Predicted Output Growth (Demeaned)

Graphs by country

MODEL WITH ONLY HOUSEHOLD DEBT AND GOV SPENDING WORKS ALMOST AS WELL

Graphs by country

Output Growth (Demeaned) — Predicted Output Growth (Demeaned)

REGRESSION WITH CREDIT CONSTRAINT INTERACTIONS

$$\Delta y_{it} = \beta_1 \Delta household\ debt_{it} + \beta_{\varphi} \varphi \times \Delta household\ debt_{it} + \beta_4 \Delta\ gov\ spending_{it} + year\ fixed\ effects$$

- φ is fraction of credit constrained households
- If $\beta_{\varphi} > 0$ then correlation with household debt is stronger in countries with more credit constrained consumers

- Result: β_{φ} is positive and essentially drives out β_1, though not statistically significant

CONCLUSIONS

- Eurozone growth deviations from average can be largely explained by:
  - Household debt (Some evidence for interaction w/ fraction of credit constrained consumers)
  - Government spending
- Martin-Philippon model generates these patterns
  - Quantitative magnitude of credit and government spending effects are "about right"
- Question of causality remains
  - Banking crises, construction bust etc. could cause reduction in household leverage
  - Matters for policy analysis