

State Government Response to  
Income Fluctuations:  
Consumption, Insurance, and  
Capital Expenses

Steven G. Craig<sup>1</sup>

Edward Hoang<sup>2</sup>

<sup>1</sup>U of Houston <sup>2</sup>U of Memphis

# Possible State Government Responses to Downturn

- “Follow Revenue”
  - Rule of thumb consumers
- PIH- as agents of forward looking residents
  - Smooth consumption
- “Waste no Crisis”
  - Max expend, use ‘crisis’ to raise taxes
- “Follow the Institutions” (ROT and PIH)
  - Institutional constraints dictate behavior

# Research Objective

- Describe state government responses relative to the four possibilities
- Implies 3 characteristics
  - Long panel dataset of 48 states: 1963-2007
  - Sensitive to institutional characteristics
    - Income insurance: UI and welfare
    - Capital Spending- possibility of smoothing
    - Current consumption spending=all else
  - Use VAR to show response to GSP shocks

## Estimated VAR- Reduced form

For each variable J (expend or rev set):

$$Y_{J t} = \sum_{J=1}^n \{ c_J + \sum_{i=1}^3 \beta_{Ji} Y_{J t-i} + u_{it} \}$$

### 2 Sets

Expenditure: GSP, Welfare, UI, Capital, Cons.

Revenue: GSP, ST debt, LT debt, fed aid, taxes  
-income taxes

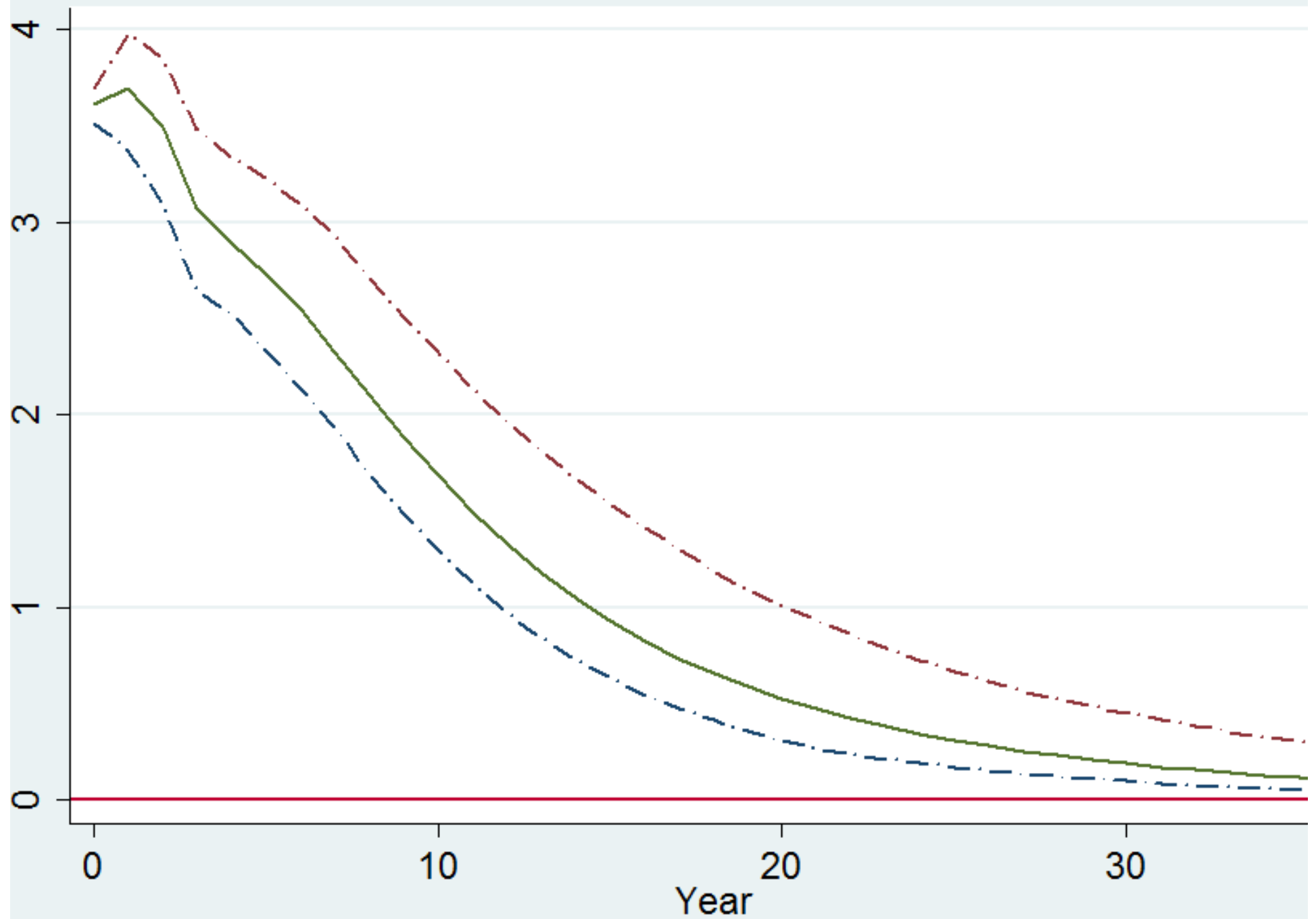
# Data

- Panel VAR- using 48 mainland states
- 1963-2007
- Est Expenditures together, graph results using IRF
- Est Revenue together- IRF
- All expenditure and revenue data is real, per capita (1997 \$)

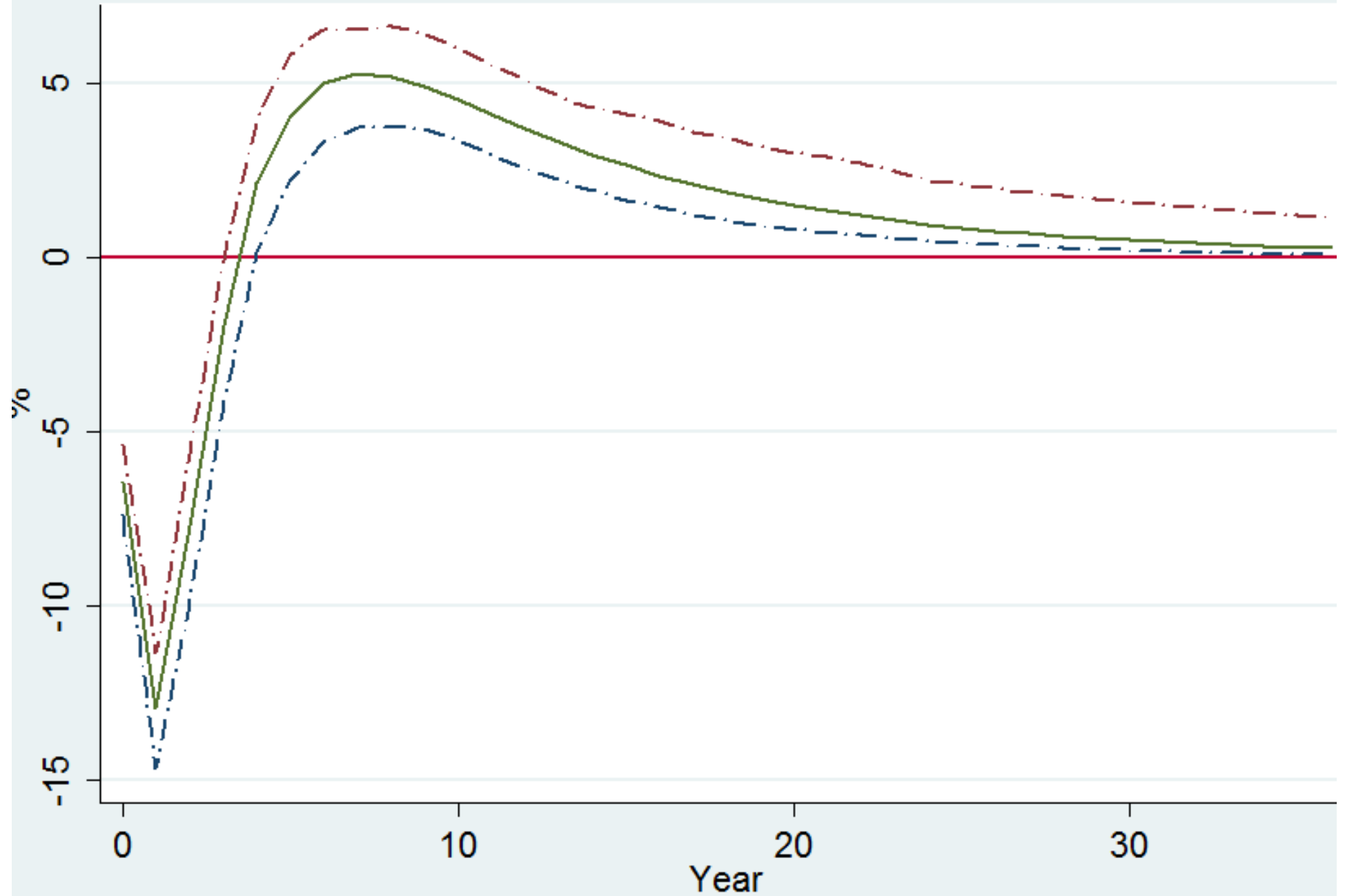
# Impulse Response Functions

- The expenditure categories are estimated together
- IRFs show the response to a one standard deviation change in GSP
- IRFs show pattern of change over time assuming no further shocks, but allowing for all the variables to interact
- Error bands generated by Monte Carlo (200 iterations)

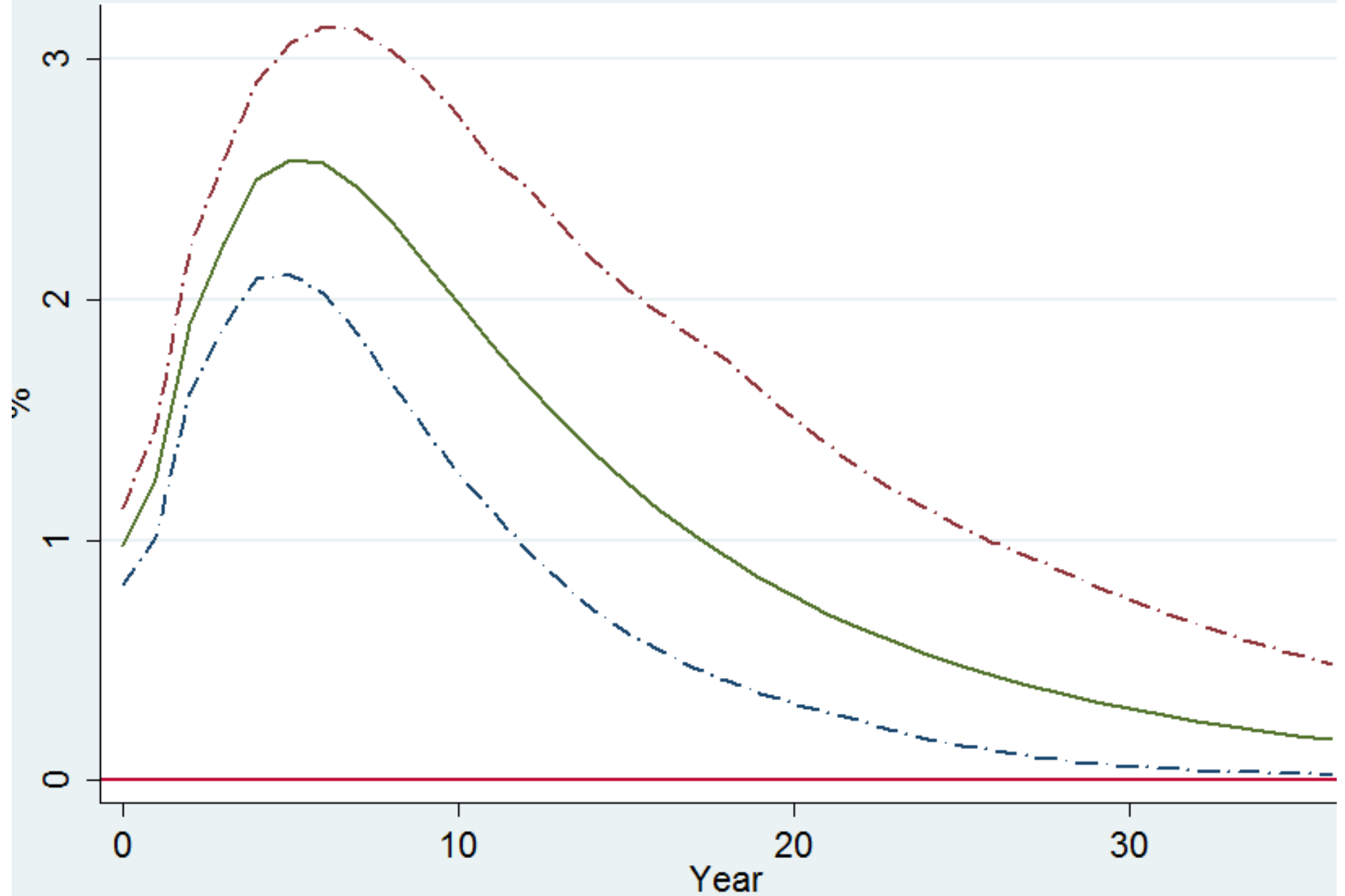
# Response of GSP to GSP Shock



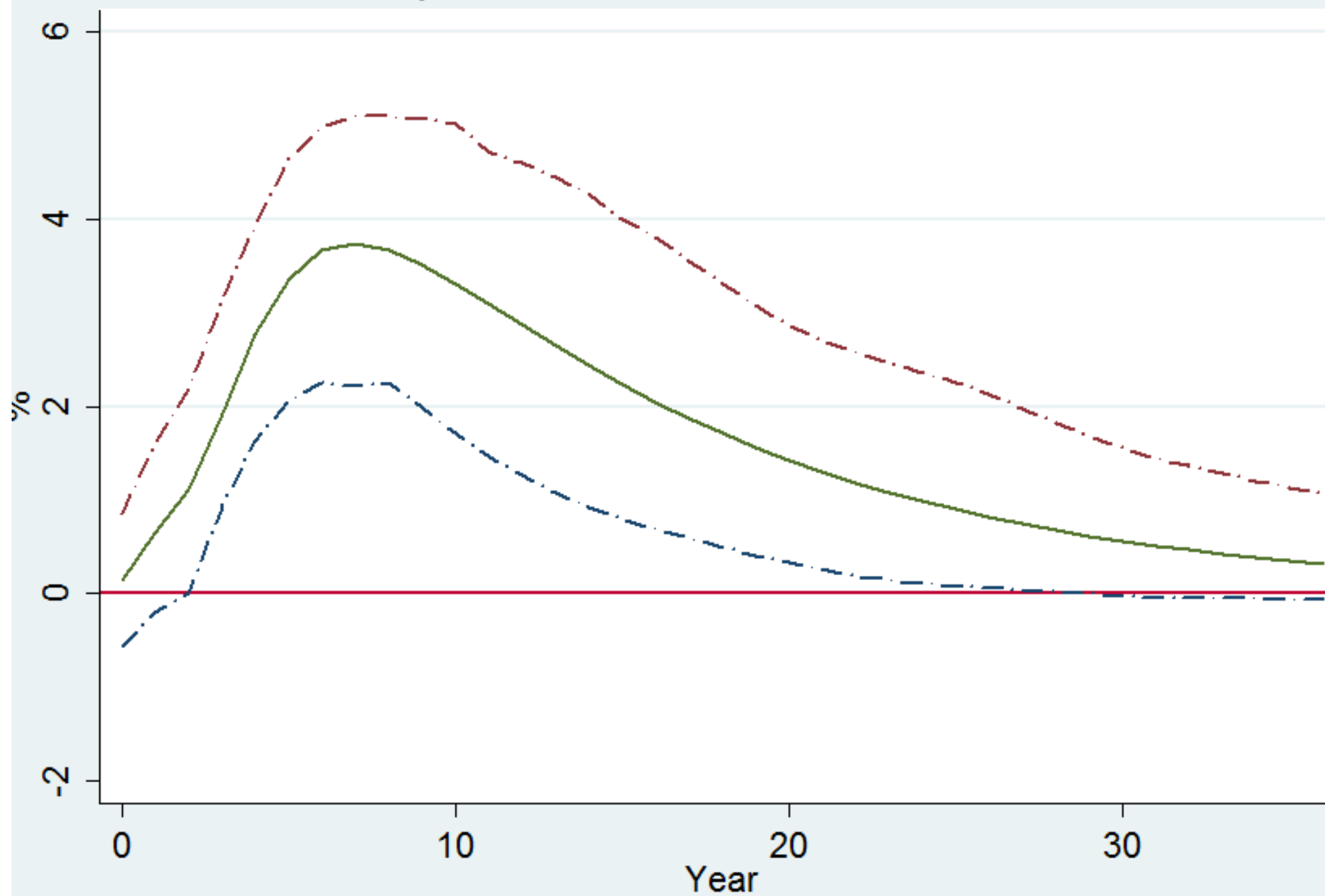
# Response of UI to GSP Shock



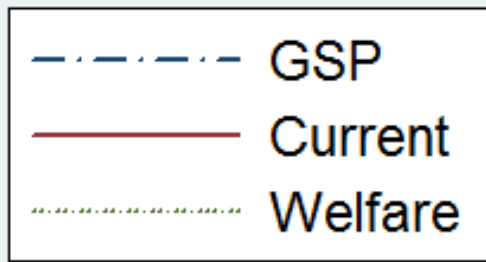
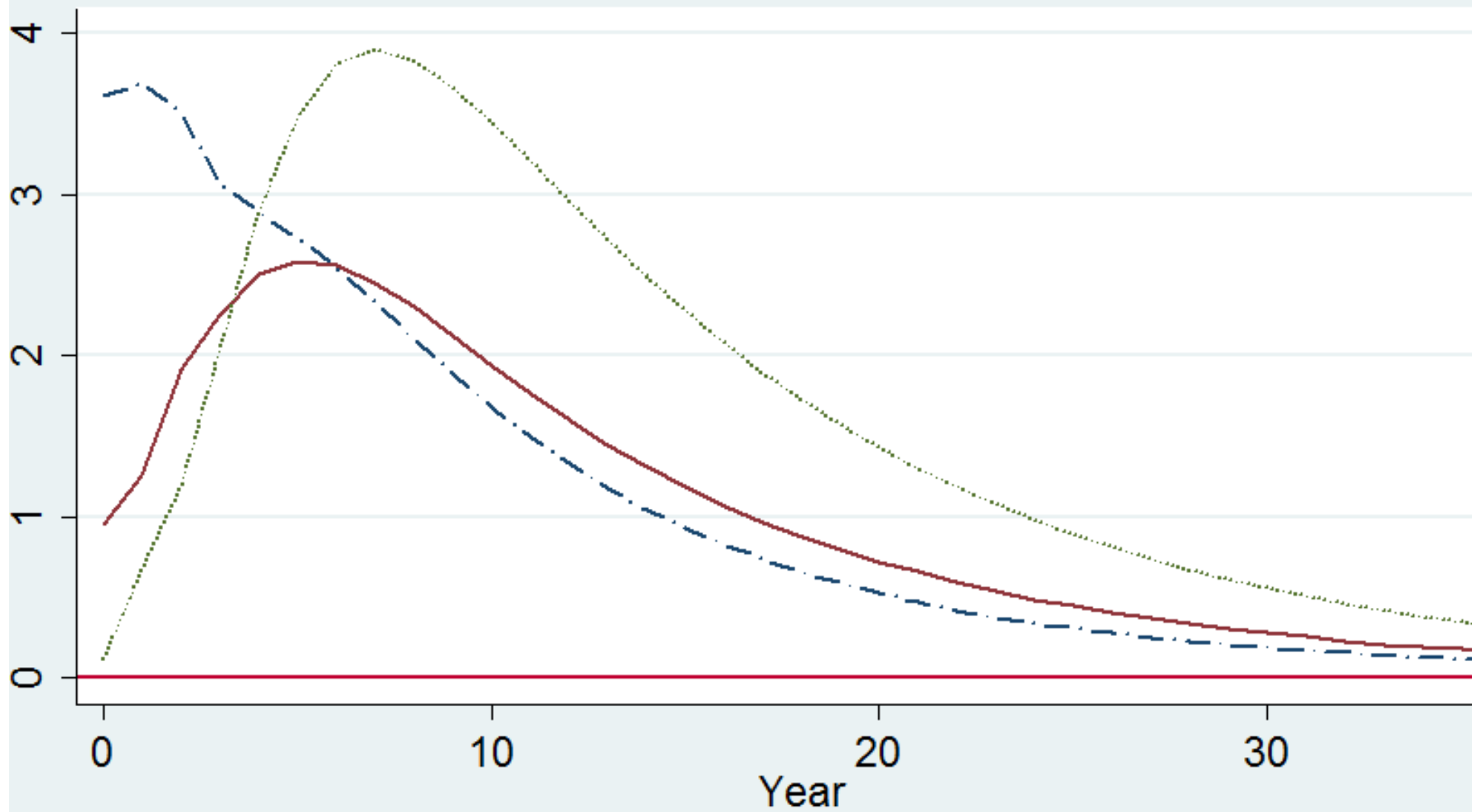
## Response of Current to GSP Shock



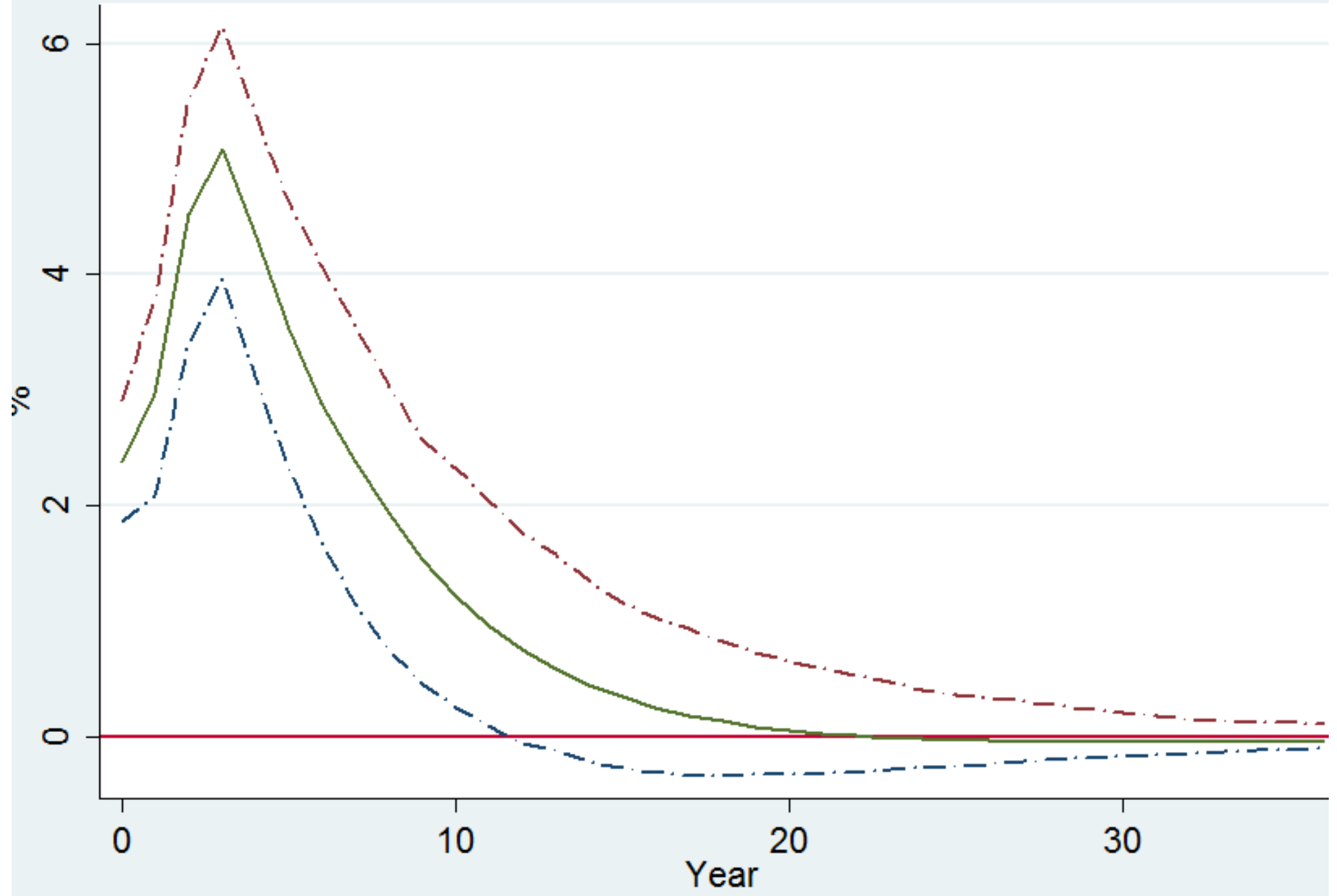
## Response of Welfare to GSP Shock



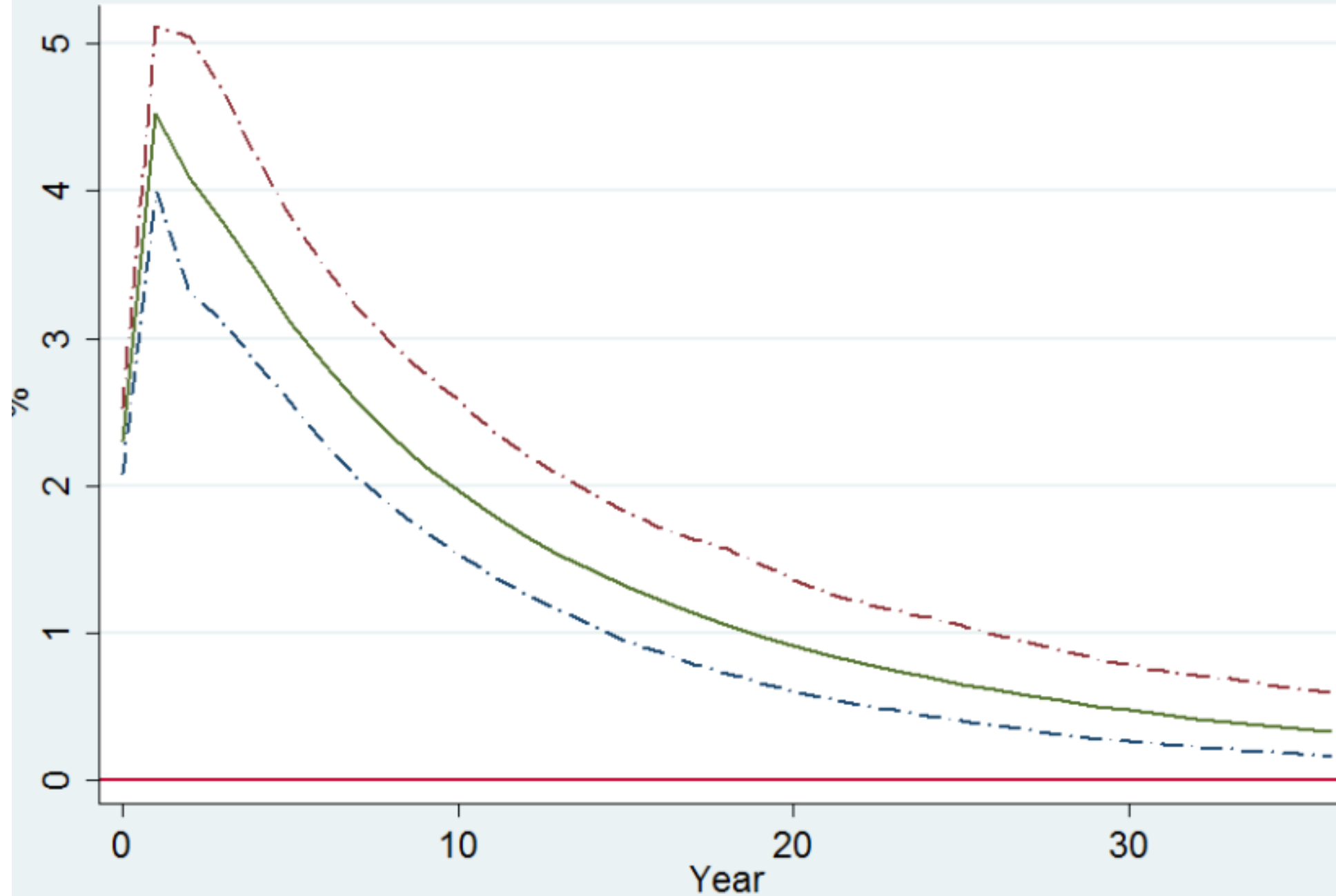
# Response to GSP Shock



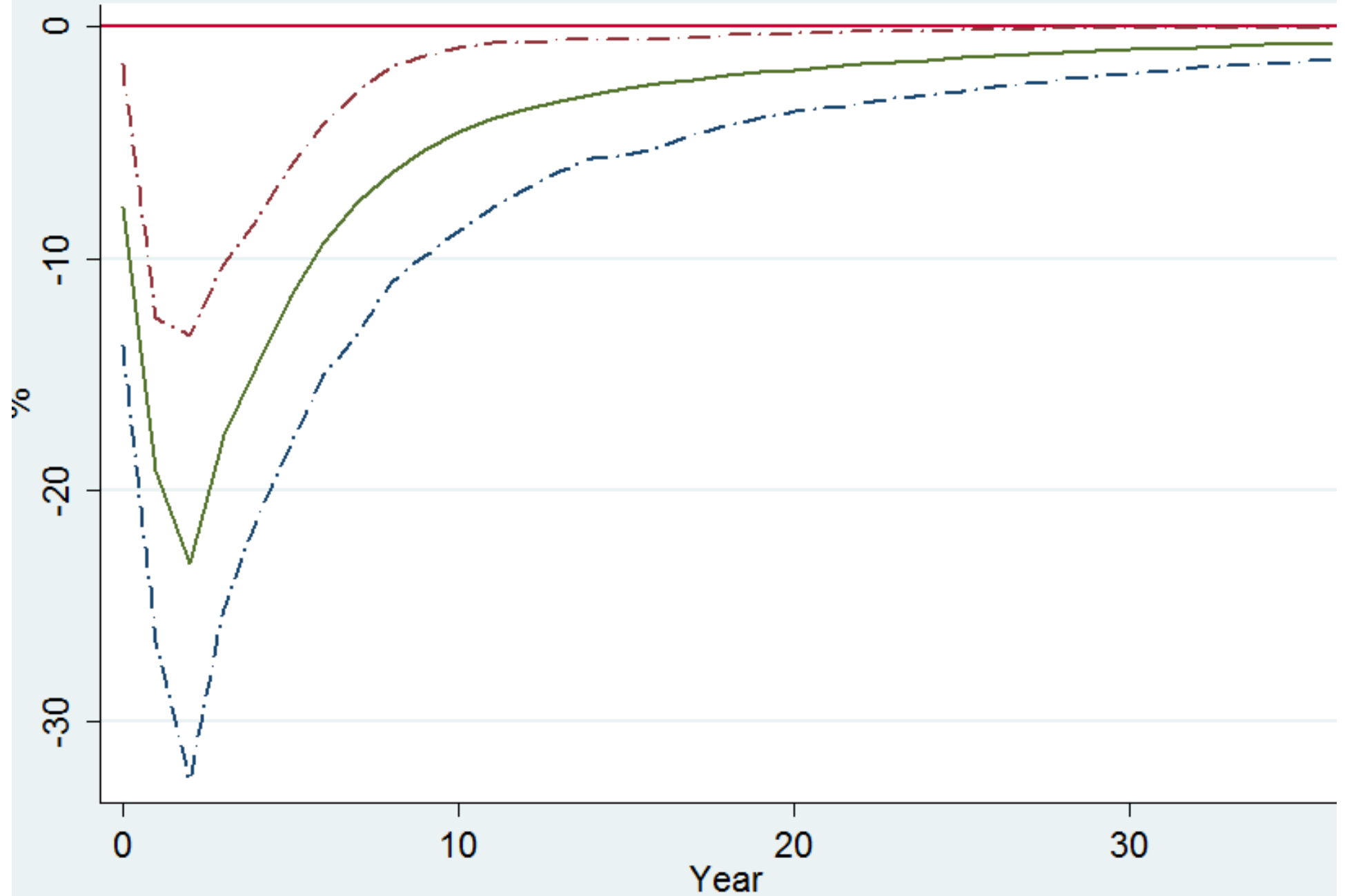
# Response of Capital to GSP Shock



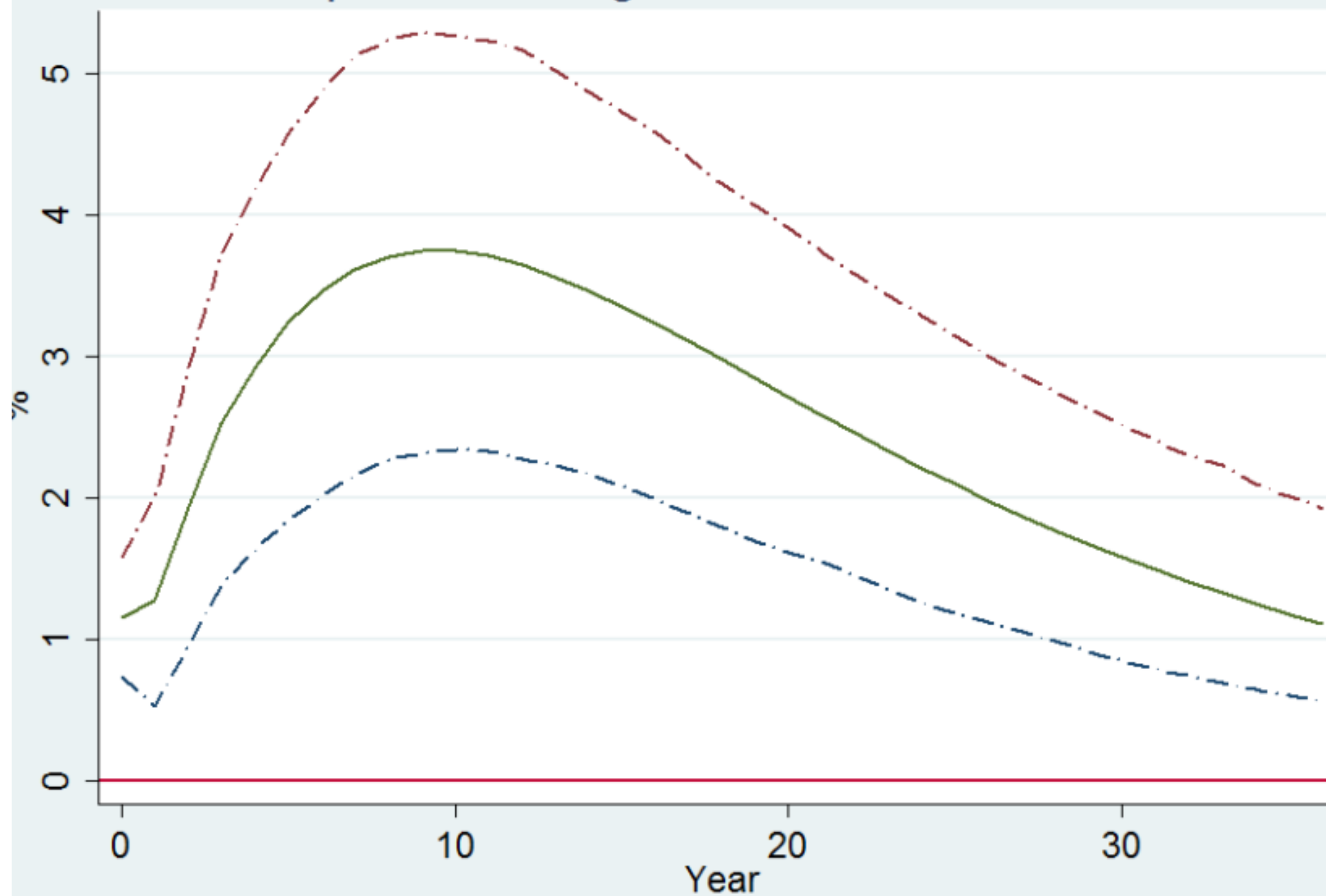
## Response of Taxes to GSP Shock



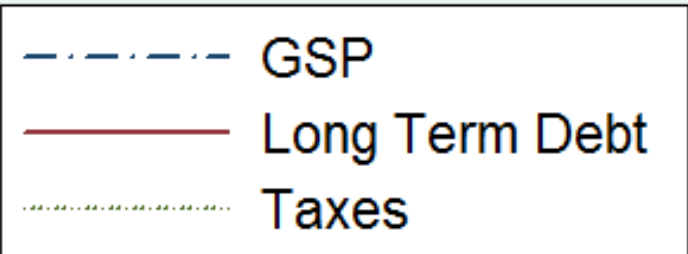
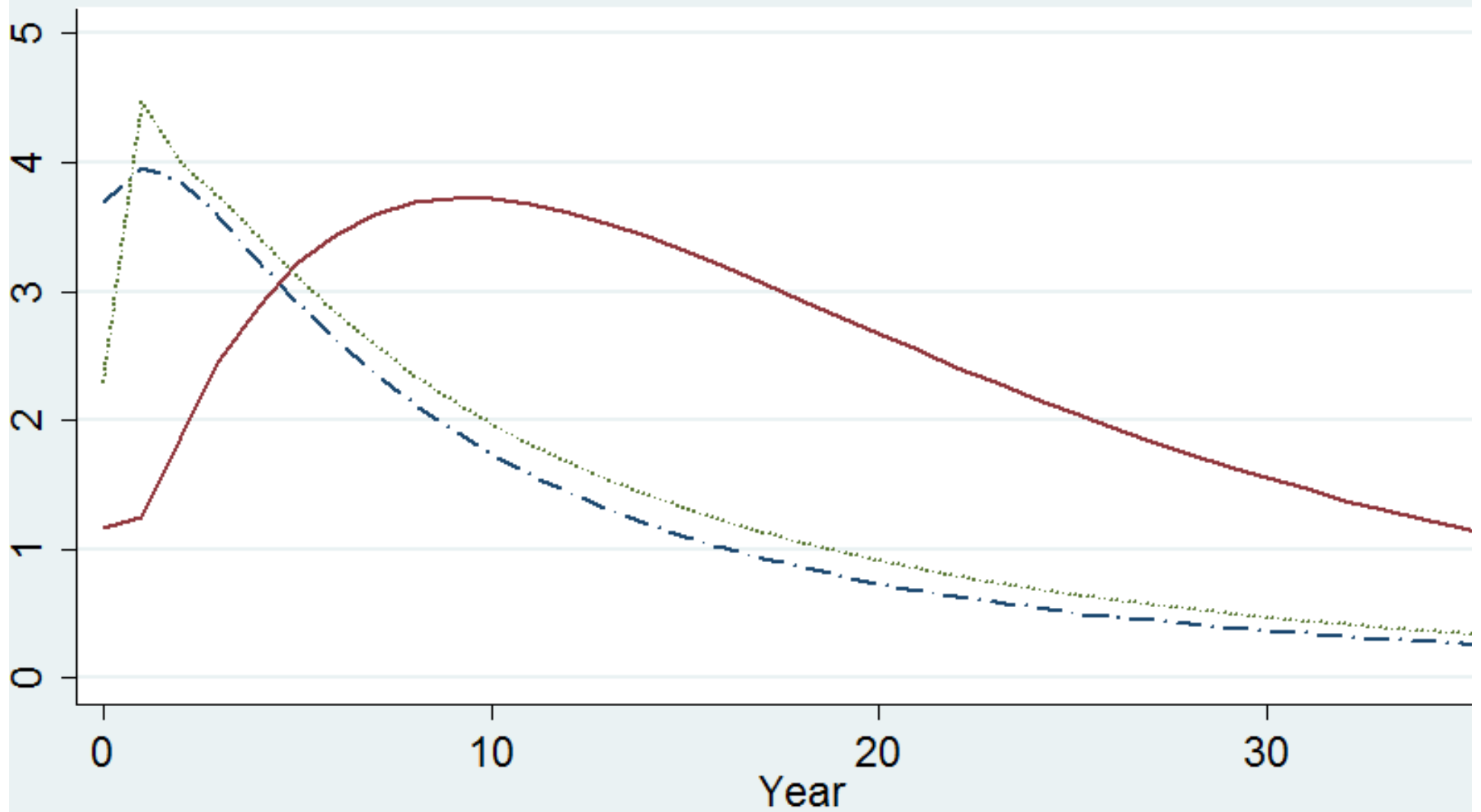
# Response of Short Term Debt to GSP Shock



## Response of Long Term Debt to GSP Shock



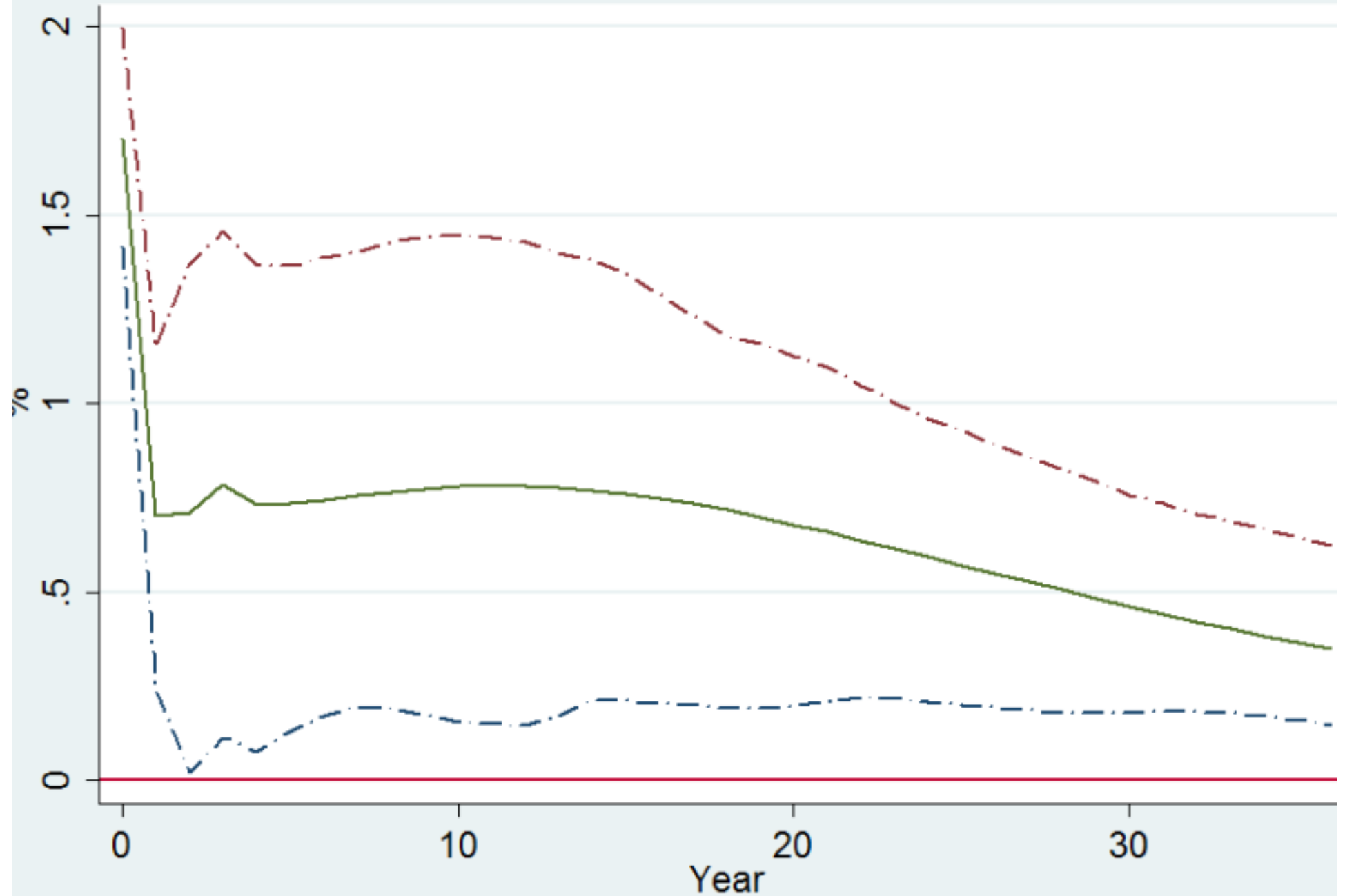
# Response to GSP Shock



# Federal Aid

- Might be expected to help states income smooth
  - If this is the goal
- On the other hand, federal aid may require local contributions (explicit or implicit match)
  - “automatic” response may be different than discretionary response

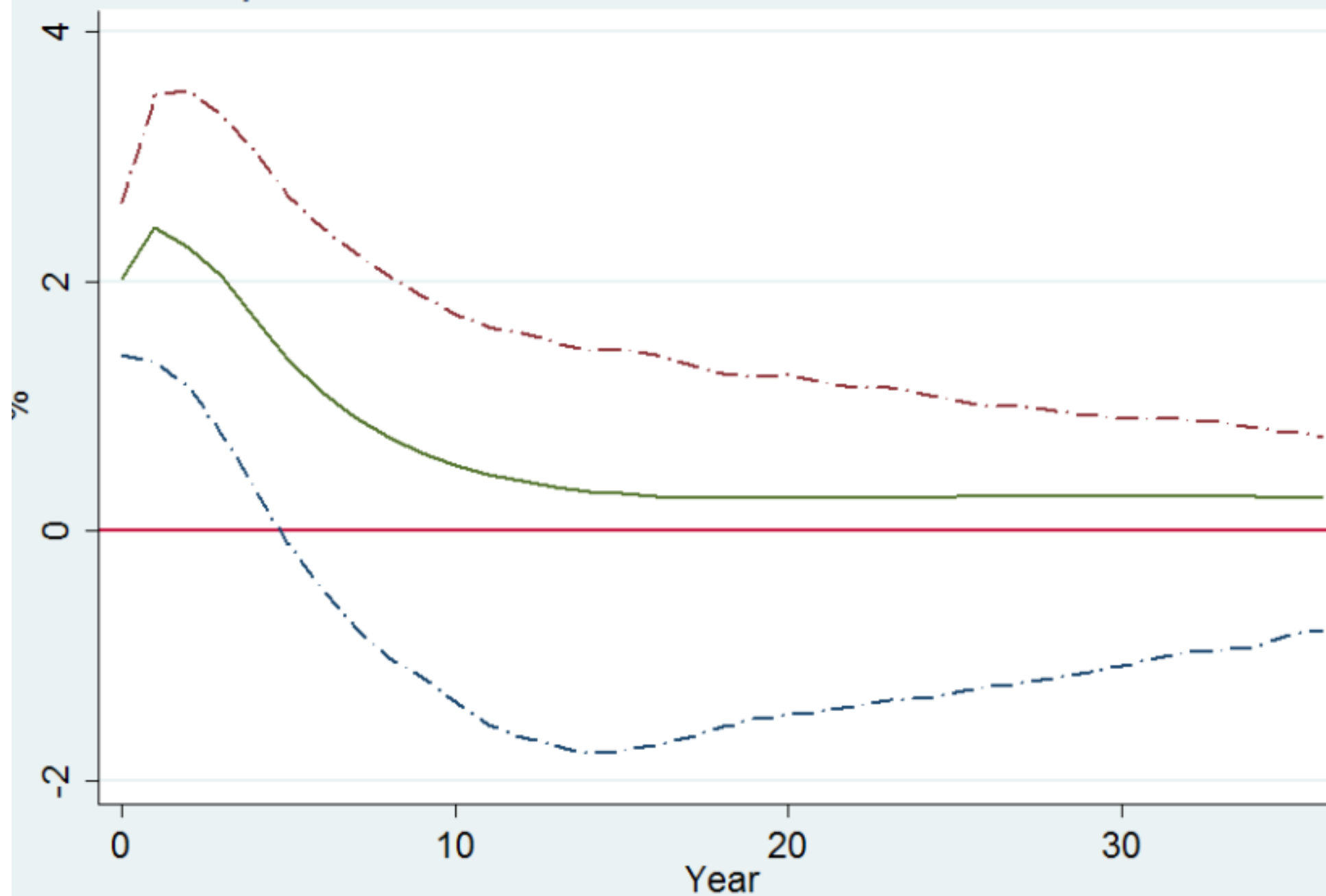
## Response of Federal Aid to GSP Shock



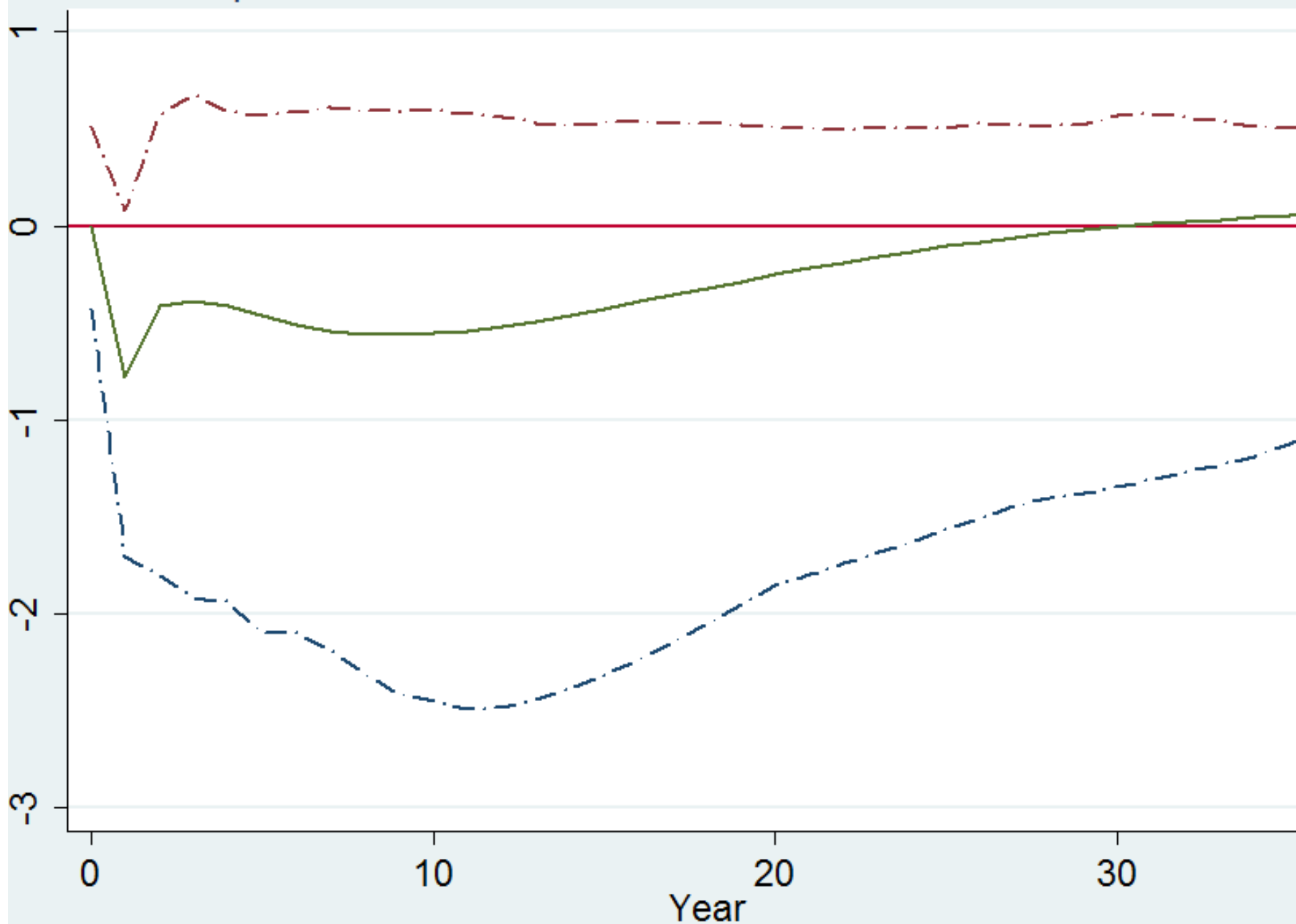
# Income Taxes

- In theory, most are progressive (nominally)
- So, should help consumption smoothing for residents
  - Expect income taxes to be more income elastic than other taxes
- Data in following graph is only for 36 states with income taxes the whole period

# Response of Individual Income Taxes to GSP Shock



Response of Share of Individual Income Taxes to GSP Shock



# Conclusion

- States are not good smoothers
- Expenditure
  - Consumption expend falls with a neg. GSP shock, and falls for several years
  - Capital spending (could be smooth w/ debt), does the same thing.
  - Welfare spending follows the same path (no smoothing here!)
  - Only UI looks to be counter-cyclical
    - But- it overshoots

# Conclusion (cont.)

- Revenue
  - Taxes fall in response to a negative GSP shock, but start to recover rather quickly
  - But general taxation is more elastic than income taxes!
  - Long term debt follows income, and returns to its long run slowly (like federal aid)
  - Short term debt is elastic wrt income- and is counter-cyclical

# Speculation

- Why don't state governments smooth better?
  - Persistence of GSP shocks
  - Politics (residents), instruments (debt, trust funds)
- Should welfare be financed with a Trust Fund (like UI)?
- Our thinking may under-estimate cost to current budget of capital projects
  - Fed Aid and Long term debt



GSP

	Coeff	Std Err
GSP <sub>(t-1)</sub>	0.06	0.02
Long Term Debt <sub>(t-1)</sub>	-0.01	0.01
Short Term Debt <sub>(t-1)</sub>	0.00	0.00
Taxes <sub>(t-1)</sub>	0.09	0.03
Fed. Aid <sub>(t-1)</sub>	-0.18	0.02
GSP <sub>(t-2)</sub>	0.01	0.03
Long Term Debt <sub>(t-2)</sub>	-0.01	0.02
Short Term Debt <sub>(t-2)</sub>	0.00	0.00
Taxes <sub>(t-2)</sub>	0.01	0.03
Fed. Aid <sub>(t-2)</sub>	-0.02	0.02
GSP <sub>(t-3)</sub>	-0.03	0.02