QSPS Conference

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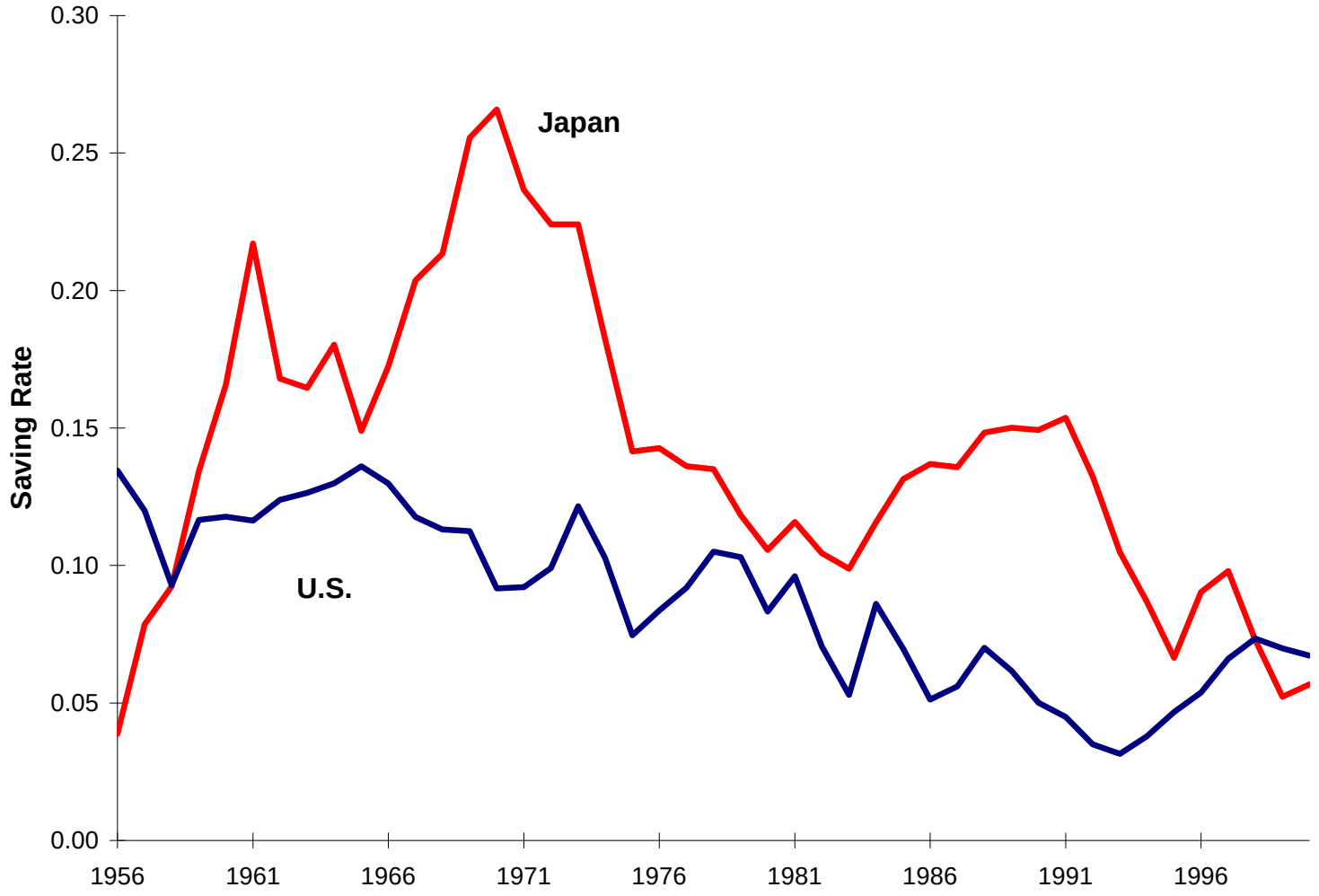
Long-run

Japanese Saving Rate



Net national saving rates

Japanese Saving Rate

Perhaps we need:

Demographics

Borrowing constraints

Social Security

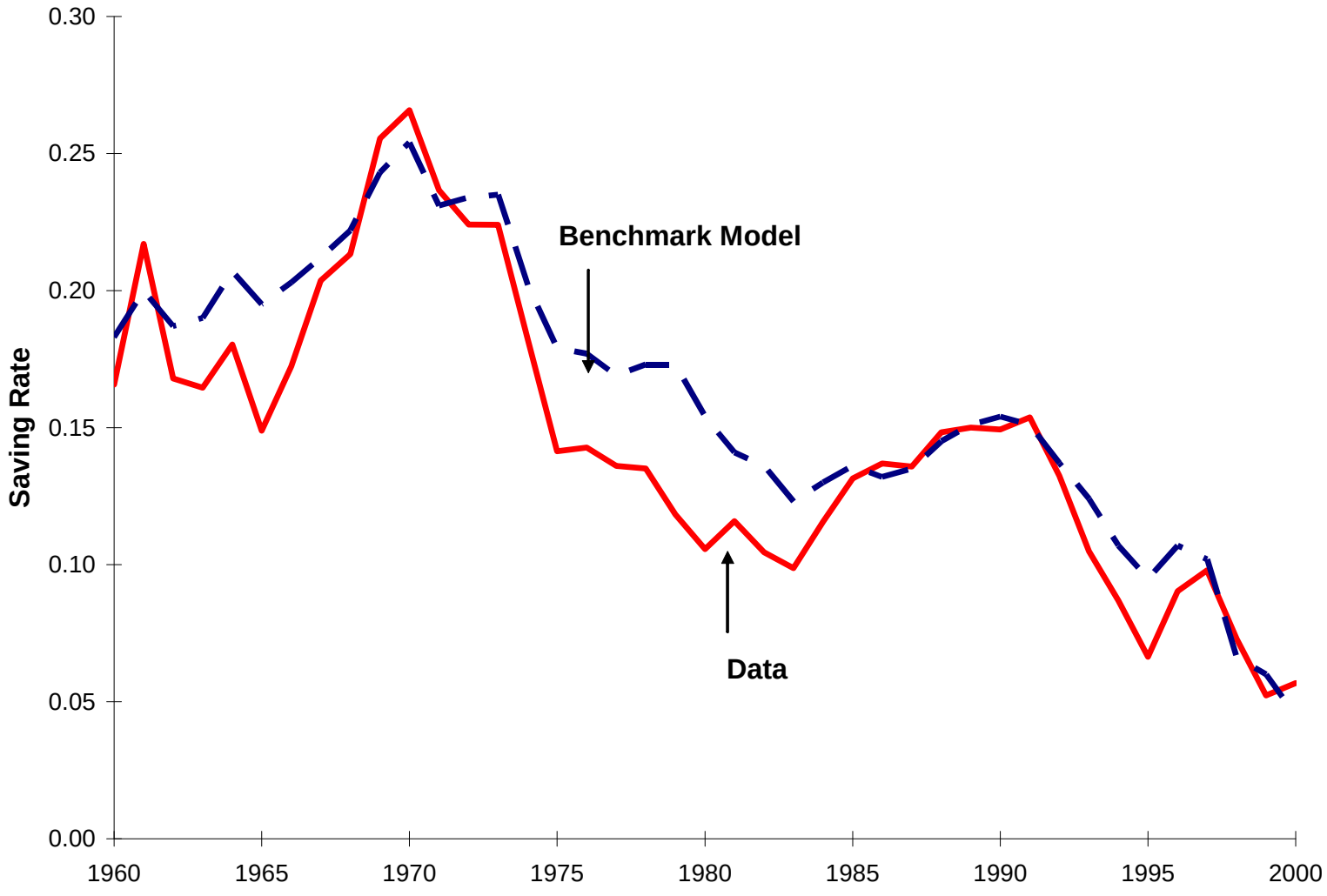
Taxes

Low initial capital stock

OLG?

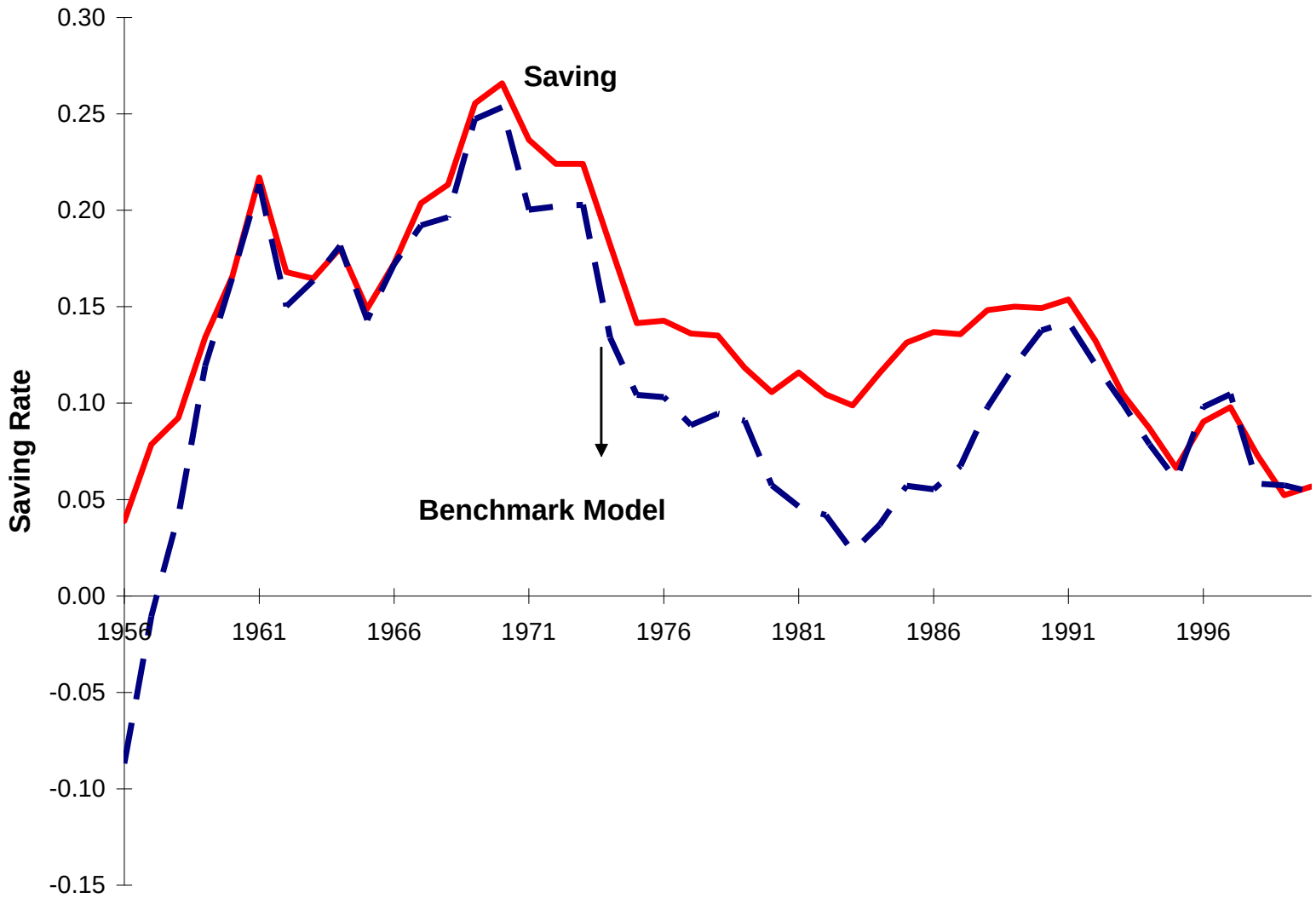
Infinite Horizon?

Japanese Saving Rate



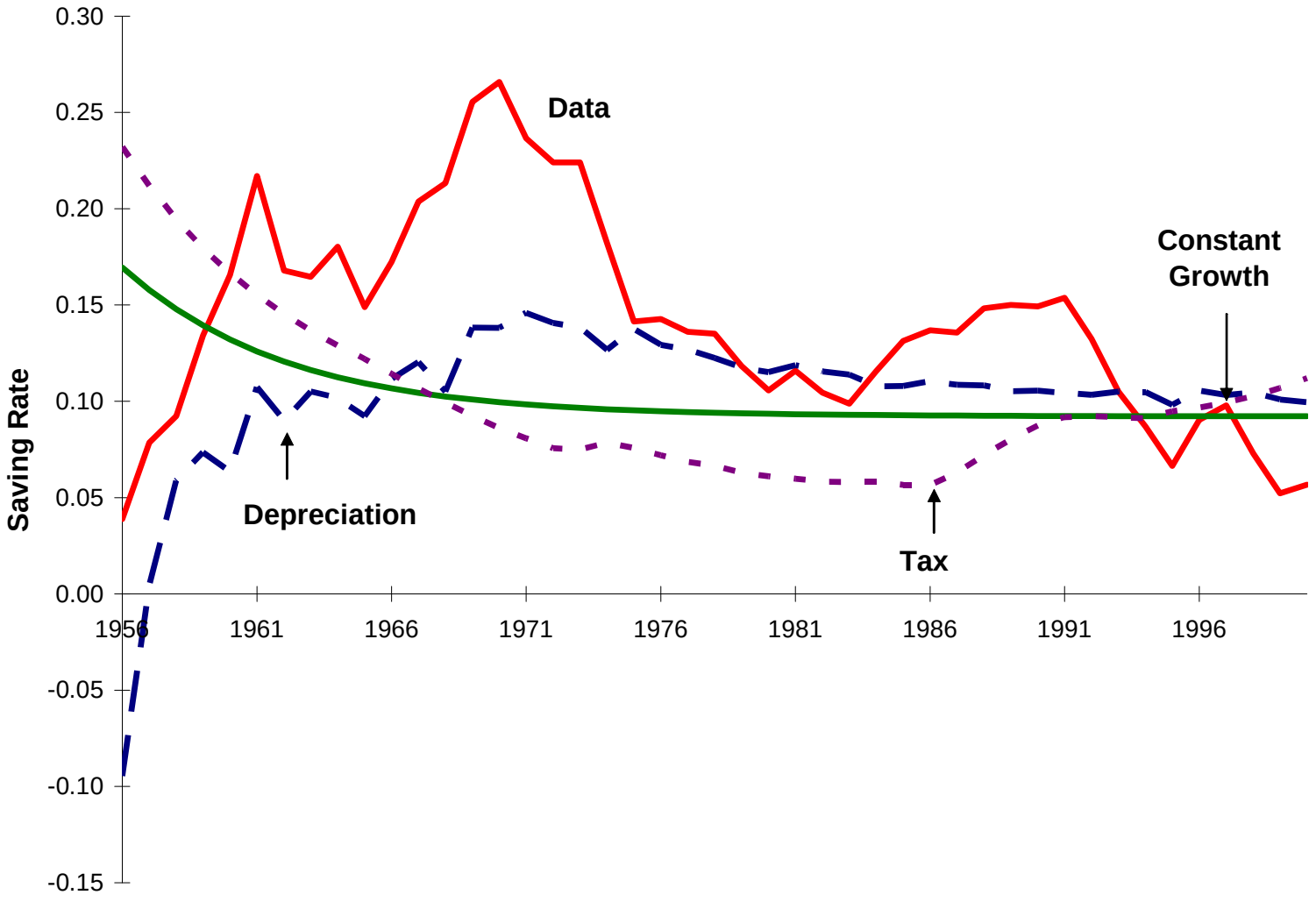
OLG

Japanese Saving Rate



Infinite Horizon

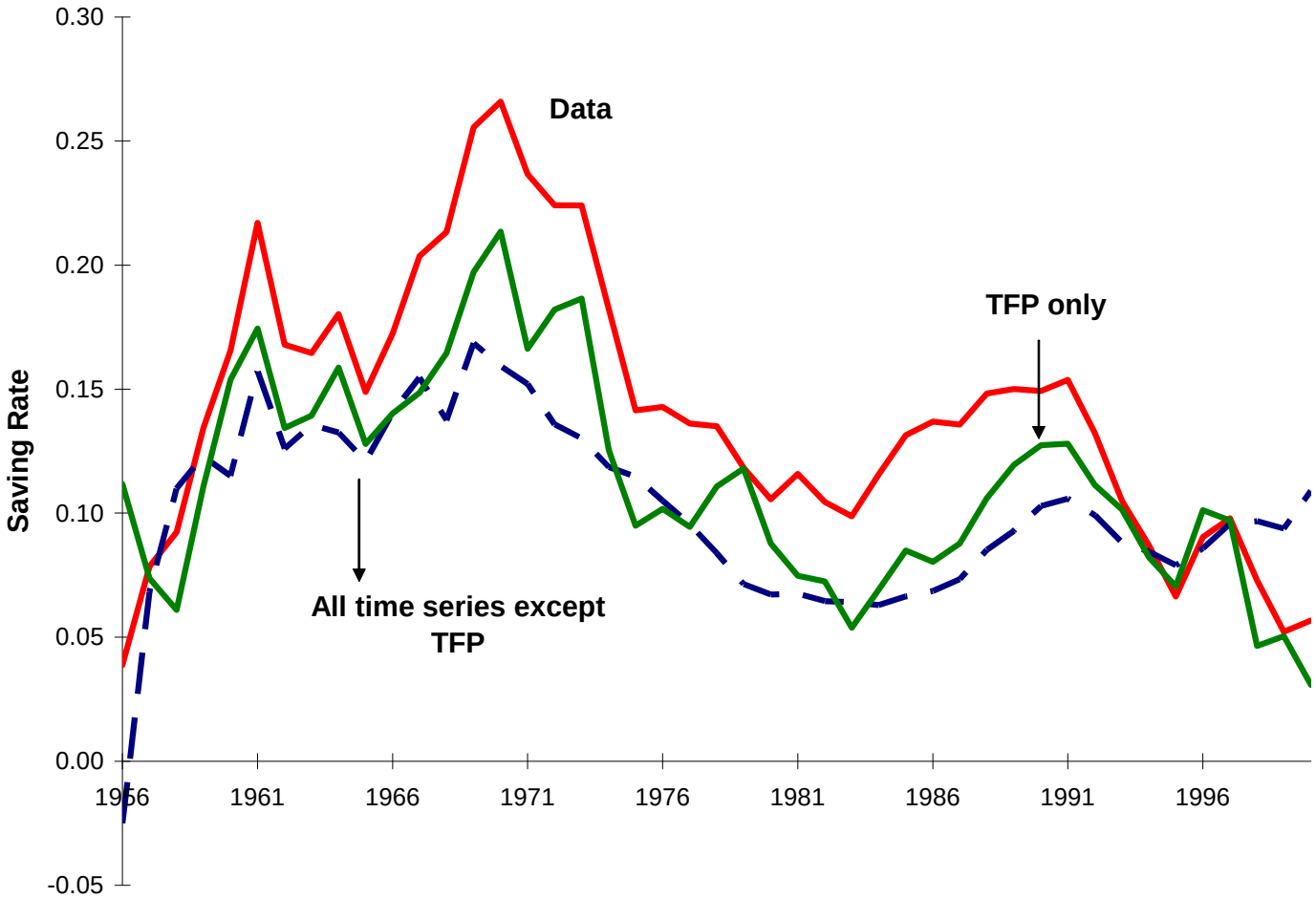
Japanese Saving Rate



The effects of depreciation and tax rate

Japanese Saving Rate

Turned out that a simple neoclassical growth model with annual TFP, taxes and depreciation rate would account for the data.

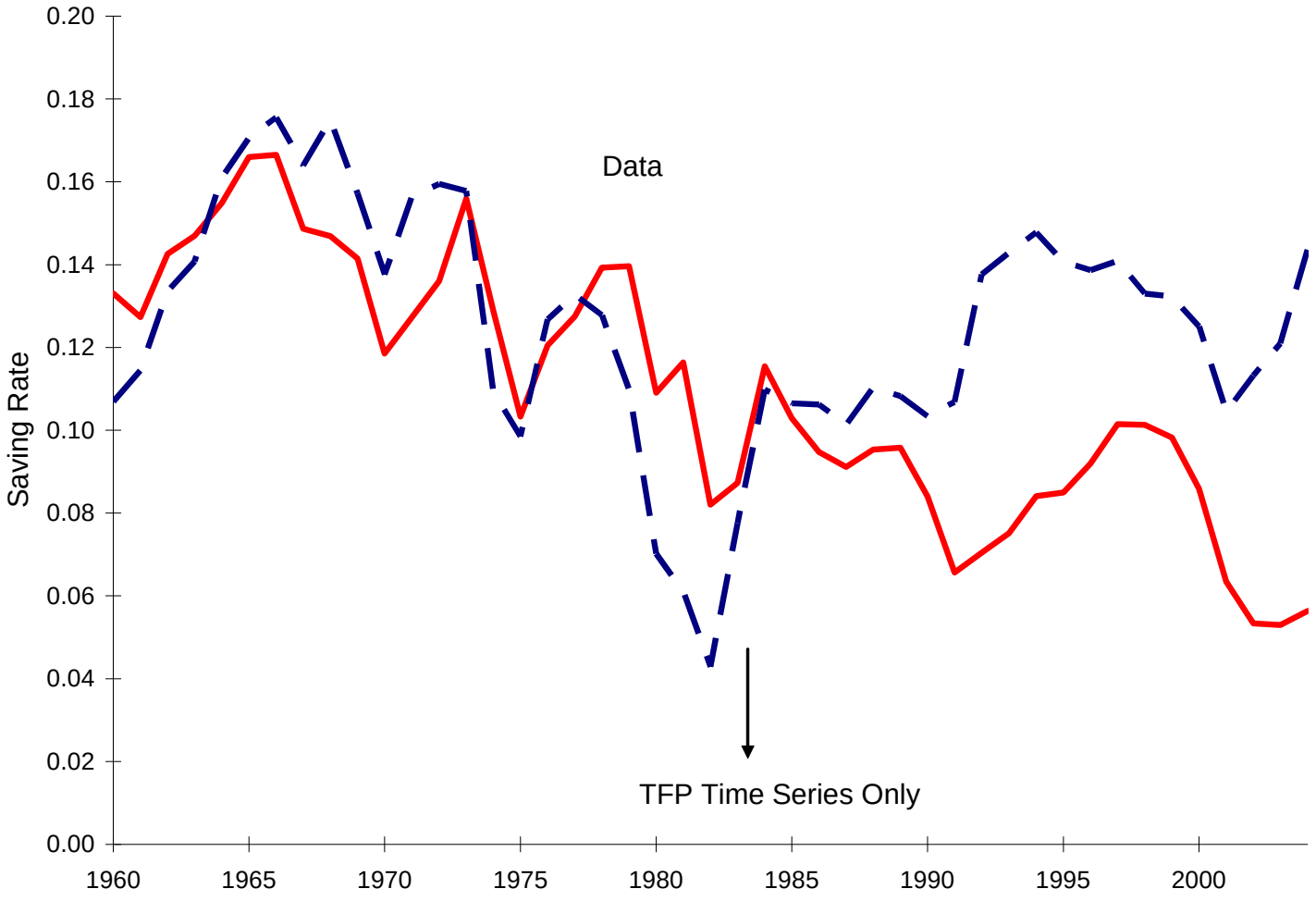


Main determinants of the saving rate

U.S. Saving Rate

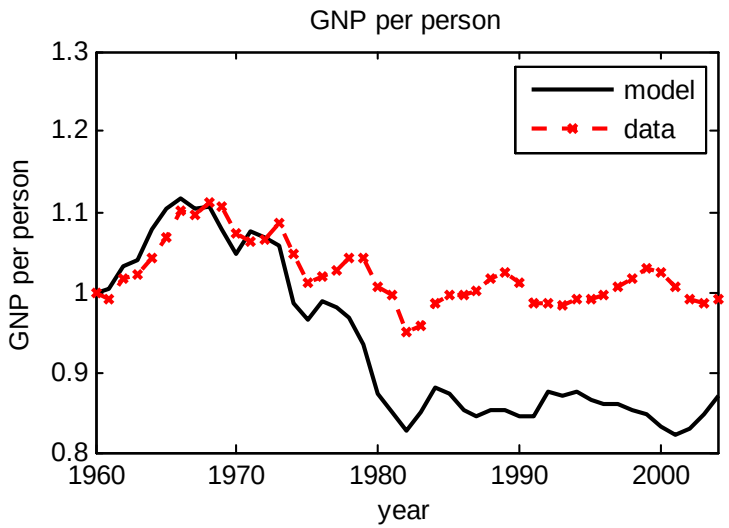
How about the U.S?

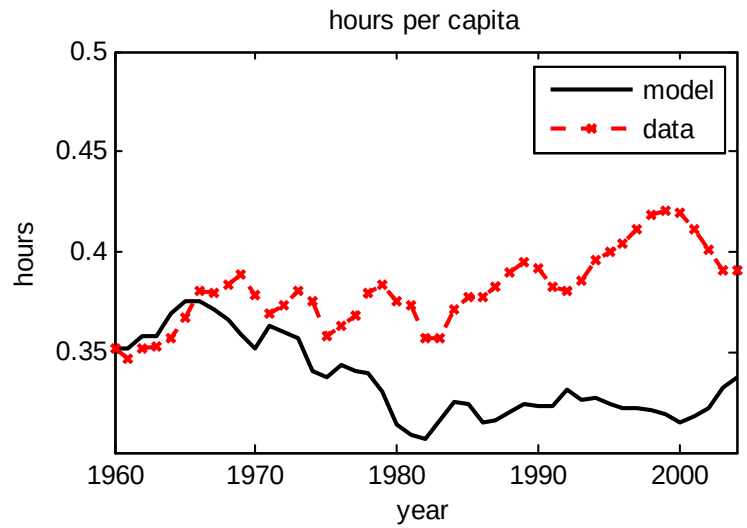
U.S. Saving Rate

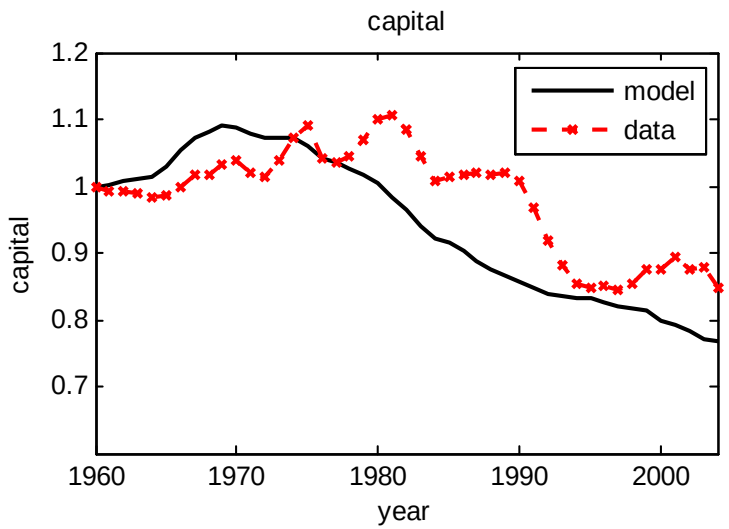


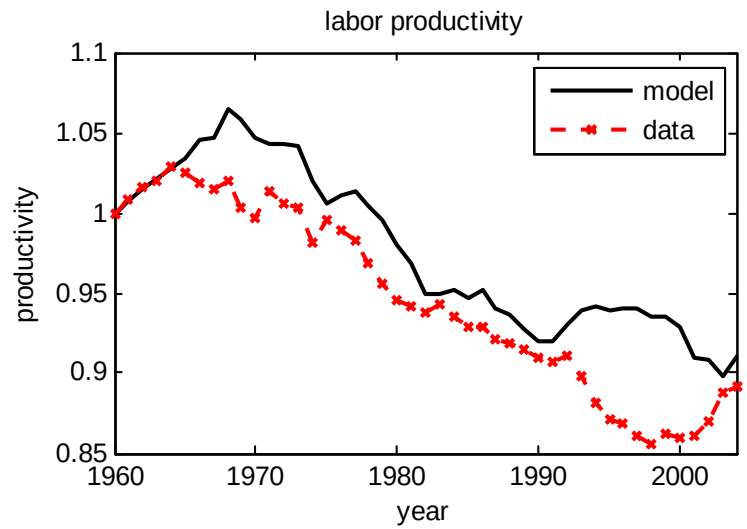
Role of TFP - U.S.

U.S. Saving Rate









U.S. Saving Rate

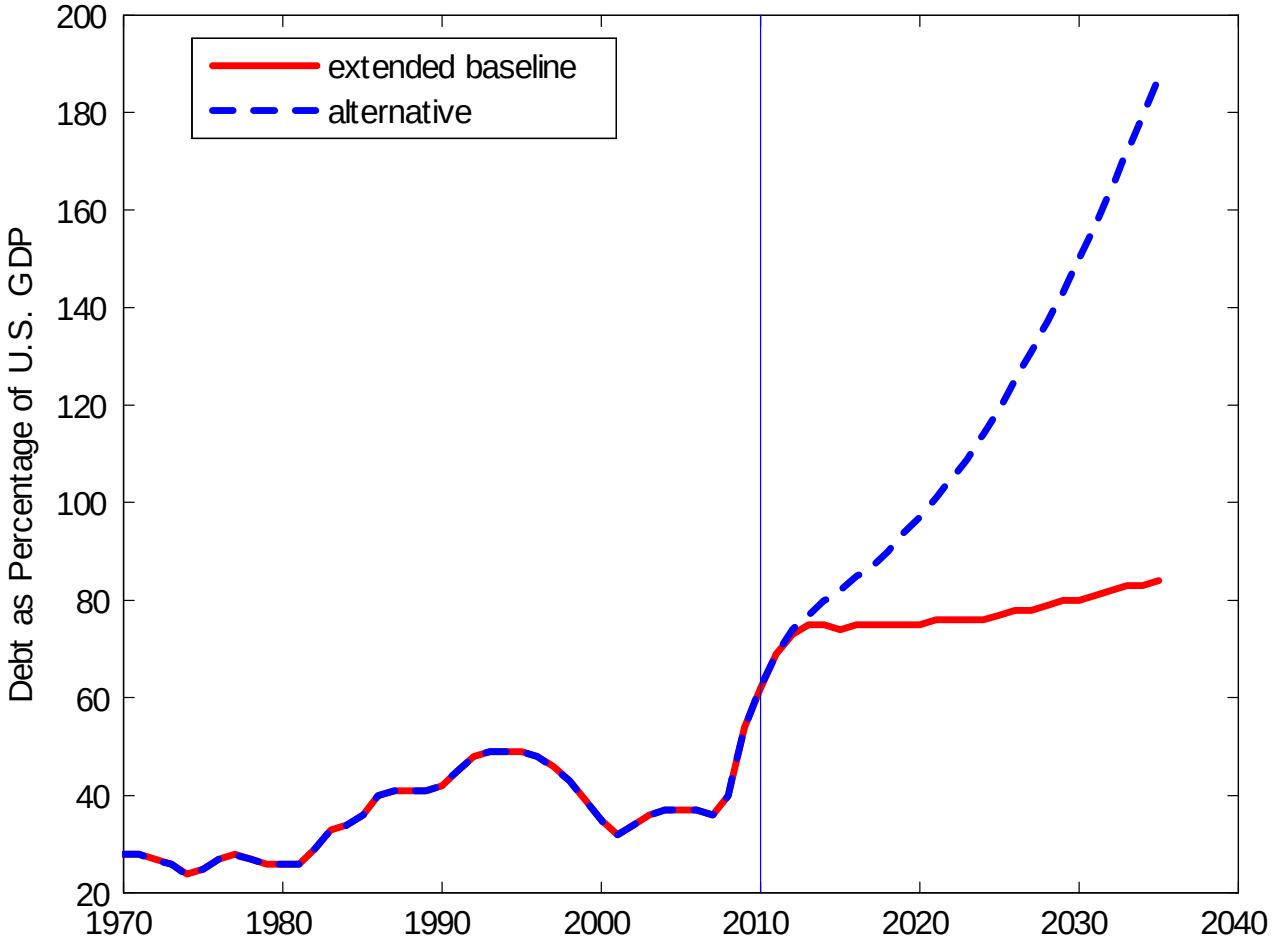
For the U.S. need the labor wedge.

U.S. Debt

How about the future

U.S. Debt

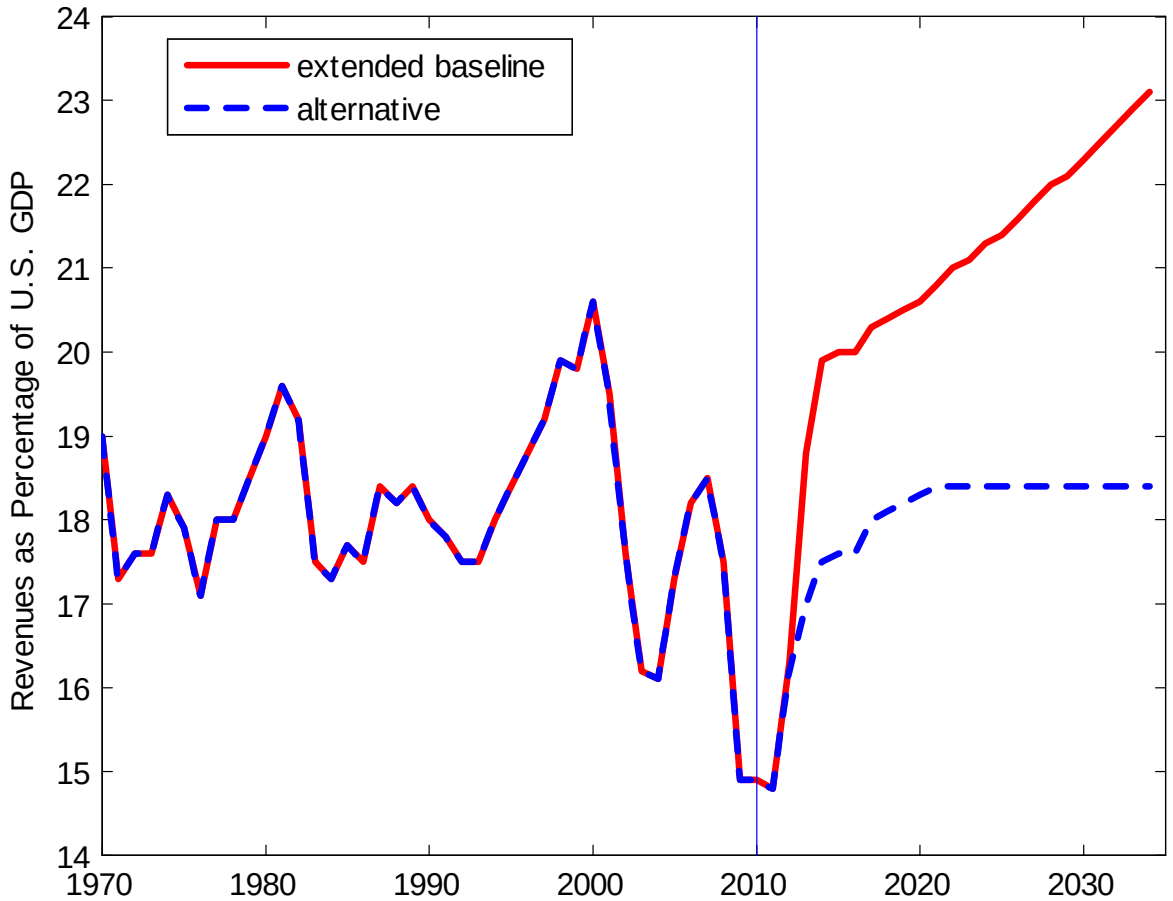
Significant increase in projected debt to GDP by the CBO



Debt to GDP

U.S. Debt

Main reason for the differences in projections: Revenue assumptions



Tax Revenues/GDP

U.S. Debt

- In the CBO projections
  - D/Y stabilize if marginal tax rates on labor income increase from 25% in 2011 to 35% in 2035,
  - Labor supply effects are not incorporated into these projections

U.S. Debt

- How would things behave in a neoclassical growth model?
- Take into account behavioral responses to policy

There is a representative household with N_t working-age members, facing the following problem:

$$\max \sum_{t=0}^{\infty} \beta^t N_t [\log c_t + \alpha \log(1 - h_t)]$$

subject to

$$\begin{aligned} C_t + K_{t+1} \quad \leq \quad & [1 + (1 - \tau_{k,t})(r_t - \delta_t)] K_t + (1 - \tau_{h,t}) w_t H_t \\ & + TR_t + N_t \pi_t^p] \end{aligned}$$

Framework

Firms

Firm's problem is to maximize profits.

- The production function is given by:

$$Y_t = A_t K_t^{\theta} {H_t}^{1-\theta},$$

- Aggregate capital stock K_t follows

$$K_{t+1} = (1 - \delta_t) K_t + X_t,$$

Government Budget Constraint

$$G_t + TR_t = \tau_{h,t} w_t H_t + \tau_{k,t}(r_t - \delta_t) K_t - N_t \pi_t^p.$$

Real Government Debt:

$$B^g_{t+1} = (B^g_t + GB_t)\, P_t / P_{t+1}$$

where GB_t is net borrowing (revenues minus expenditures)

Framework

Solution

- Start from given initial conditions
- Compute an equilibrium transition path towards a balanced growth path

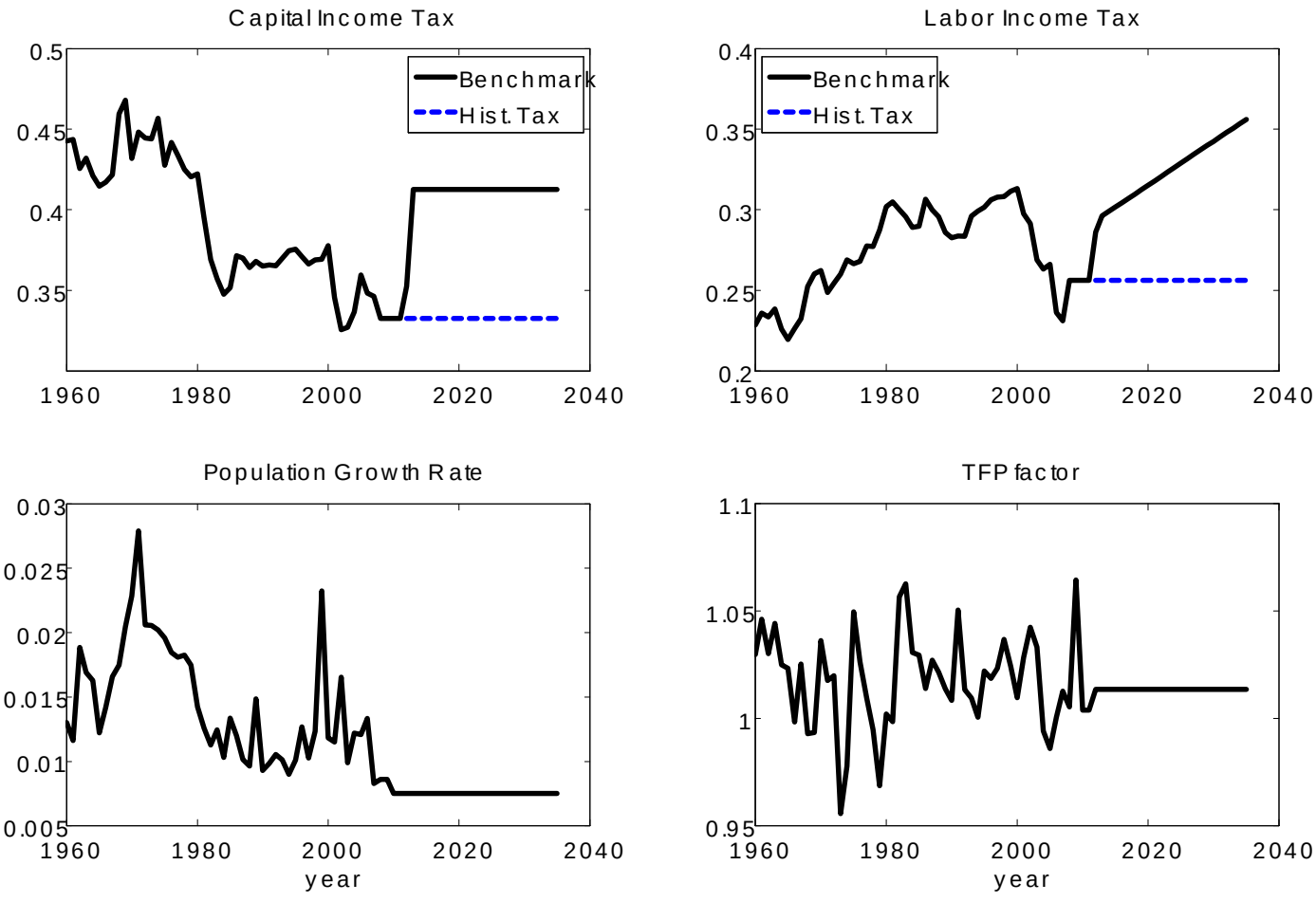
Calibration

Constant Parameters: Standard

- capital share $\theta = 0.4$.
- subjective discount factor, $\beta = 0.969$
- share of leisure in the utility function, $\alpha = 1.45$

Calibration

Calibration of the 1960-2011 period and beyond:

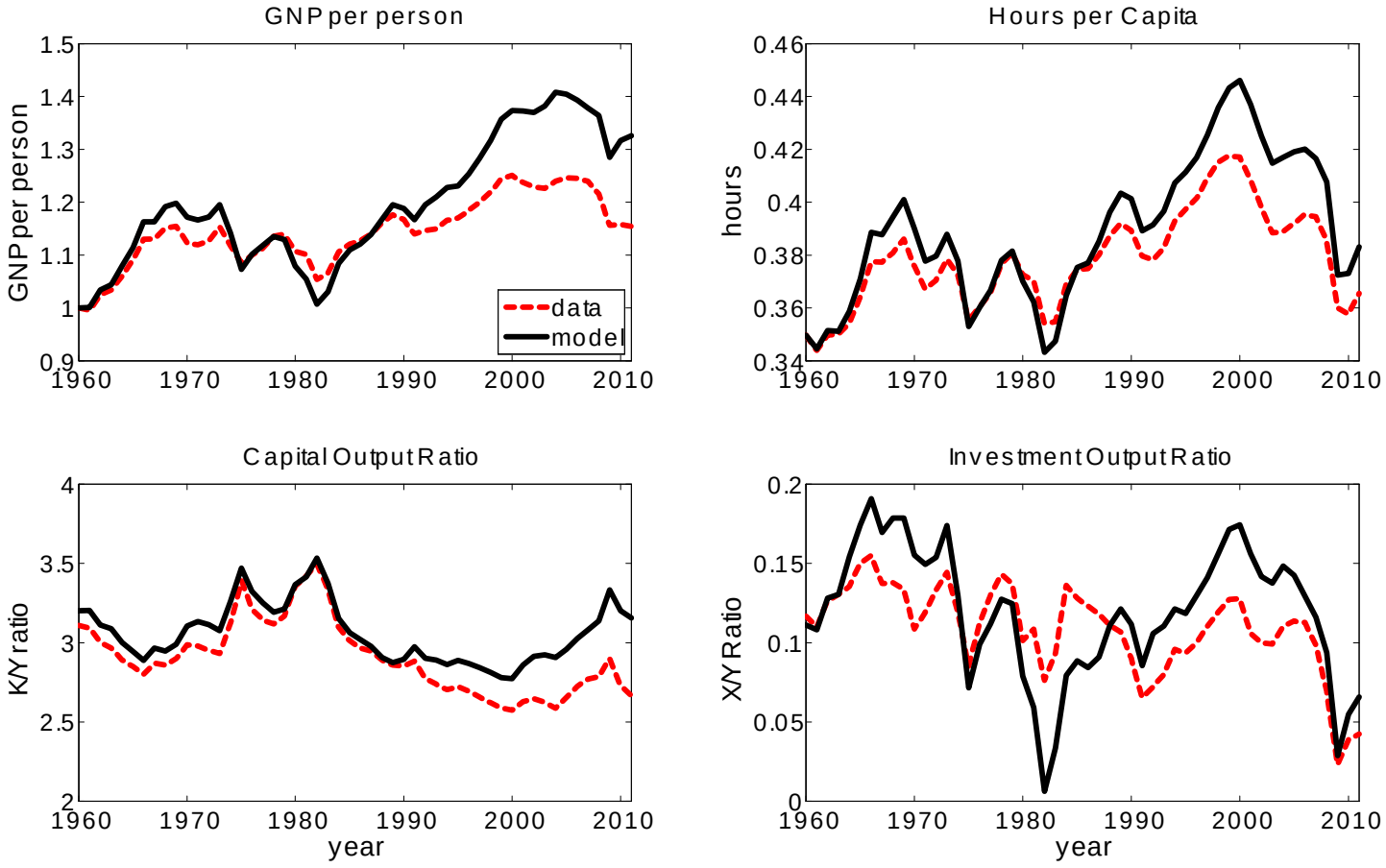


Data and Assumptions for the Future

Calibration: Interest on government debt

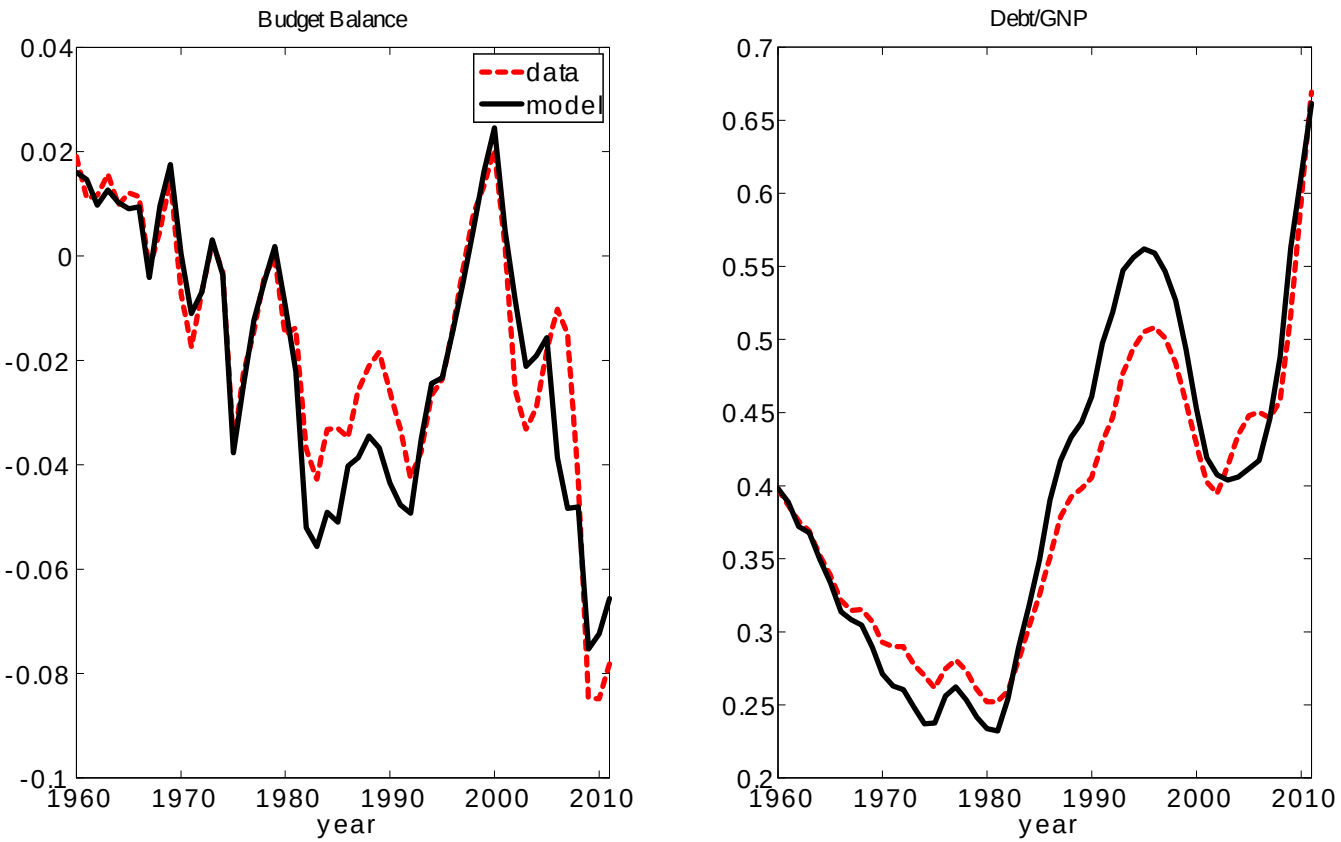
- After 2010: Inflation rate: 2%; Nominal interest rate: 3.3%

Results: Past



Data and the Model

Results: Past



Data and the Model

Results: Future

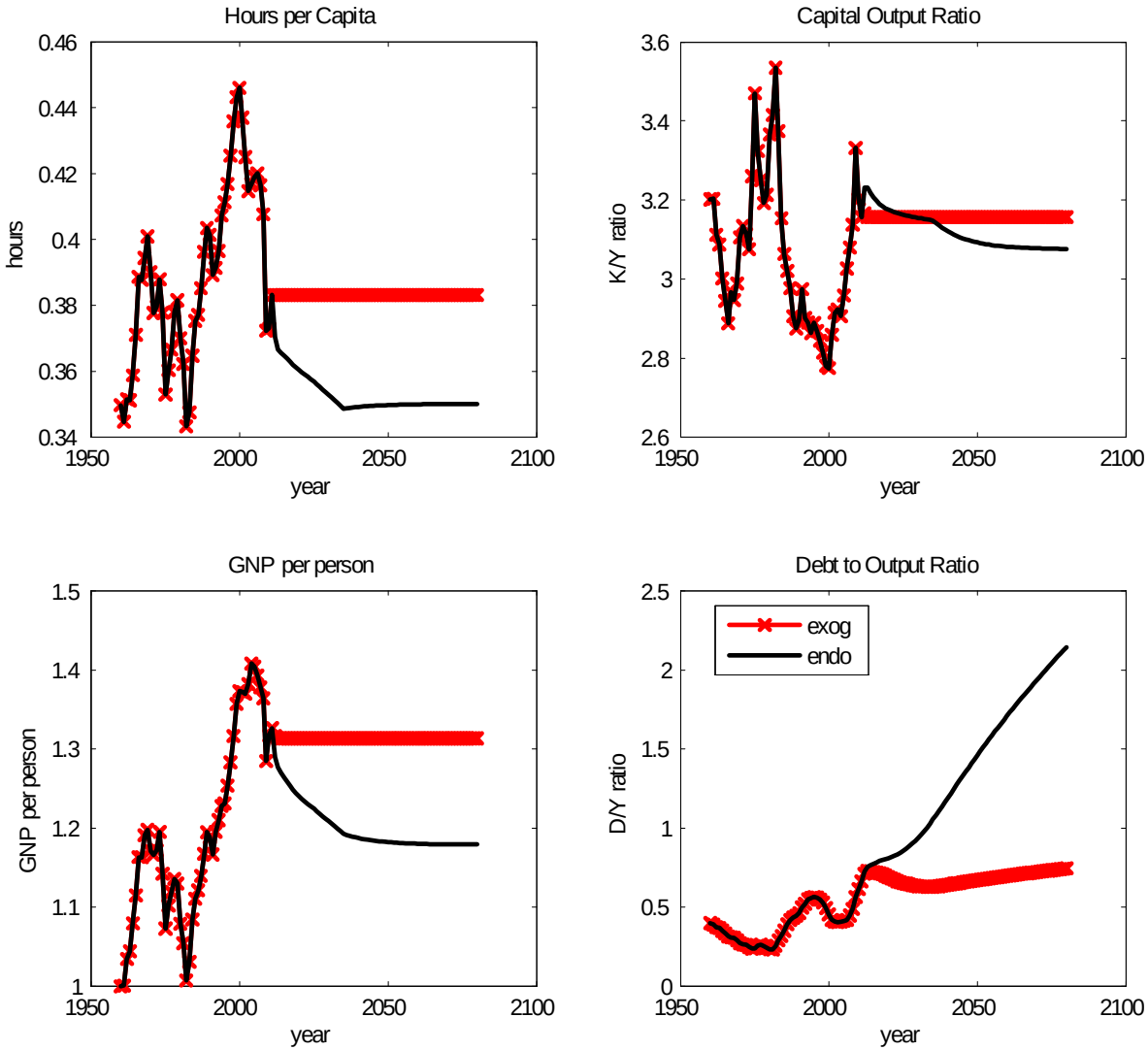
How about the future?

Results: Future

Examine Debt/GNP

- with exogenous labor and higher taxes (CBO's extended benchmark)
- with endogenous labor and higher taxes

Results: Exogenous versus Endogenous Inputs



Exogenous versus Endogenous Inputs

Results: Endogenous Labor - Higher Taxes

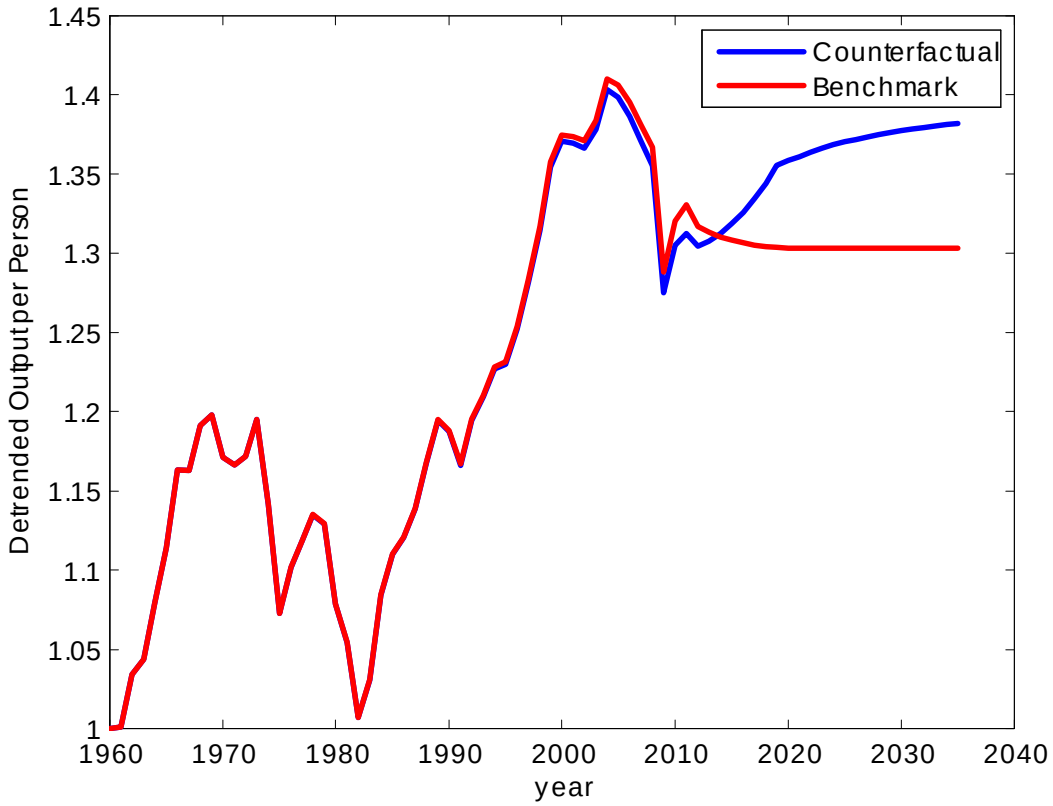
Table 3: Economic Consequences of Higher Taxes

	Elasticity 1.0		Elasticity 0.5	
	High tax	Hist. tax	High tax	Hist. tax
D/Y in 2035 (%)	106	174	97	174
D/Y in 2080 (%)	215	420	184	421
Y/N growth (2011–2035)	0.92	1.27	1.04	1.30
Y/N growth (2011–2080)	1.19	1.33	1.23	1.34
Welfare	4.47%		3.23%	

Results

Counterfactual:

If labor could go back to good old days



GDP per person

Results

Counterfactual:

If labor could go back to good old days
Debt to GNP in 2035: 123%

Results

Counterfactual: Inflation!

4% inflation: Debt to GDP 133% by 2035
6% inflation: Debt to GDP shrinks down to 104% by 2035

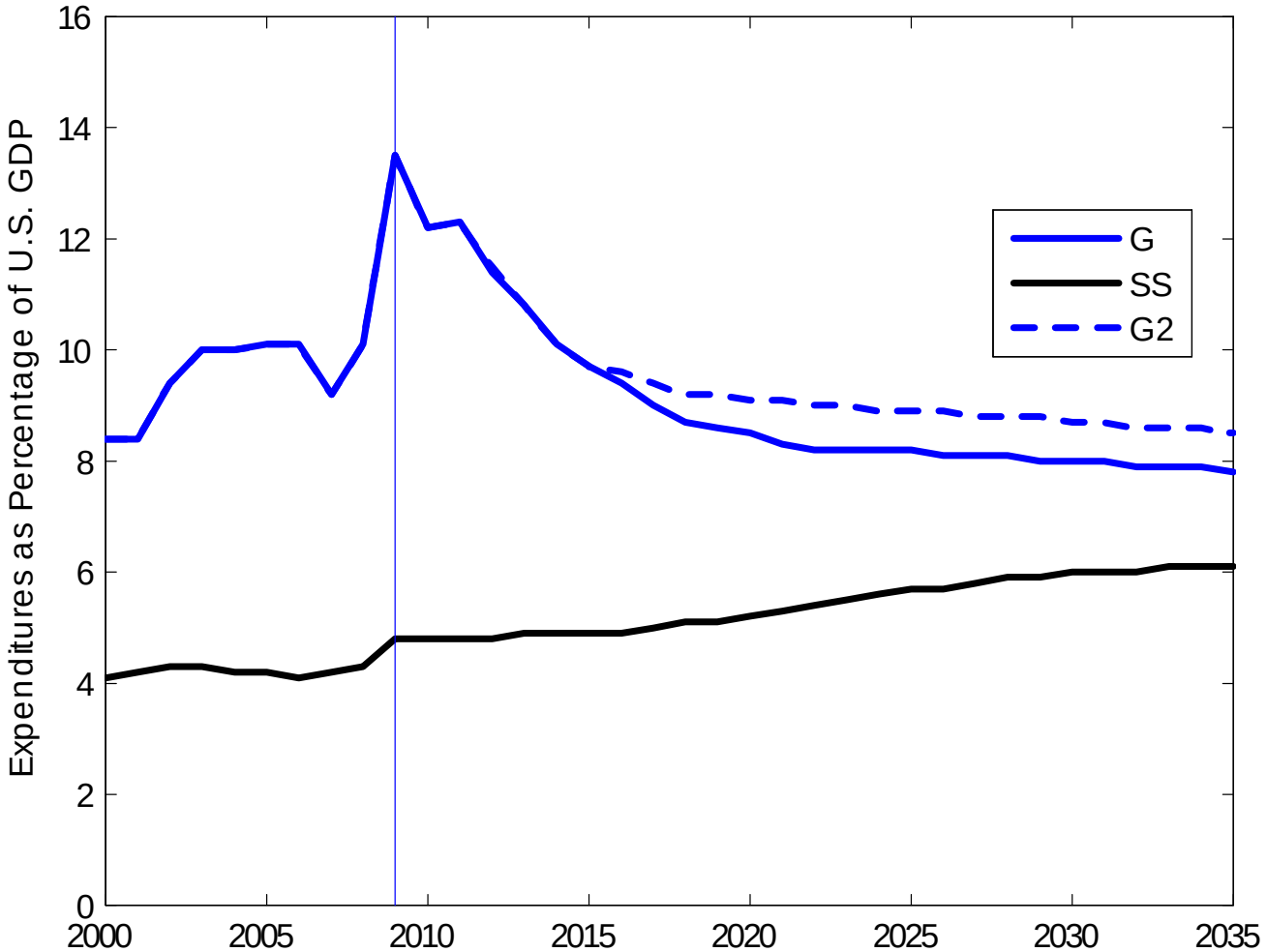
Table 5: Summary Table

	Debt-to-GNP Ratio in 2035 (%)
CBO benchmark projections	74
High Tax Rates	
CBO exp.; exogenous inputs	63
CBO exp.; endogenous inputs	106
Historical Tax Rates (Endogenous Inputs)	
CBO expenditures	174
CBO exp.; high labor wedge and TFP gr.	123
CBO exp.; 4% inflation	132
Bowles-Simpson expenditures	120

Conclusion

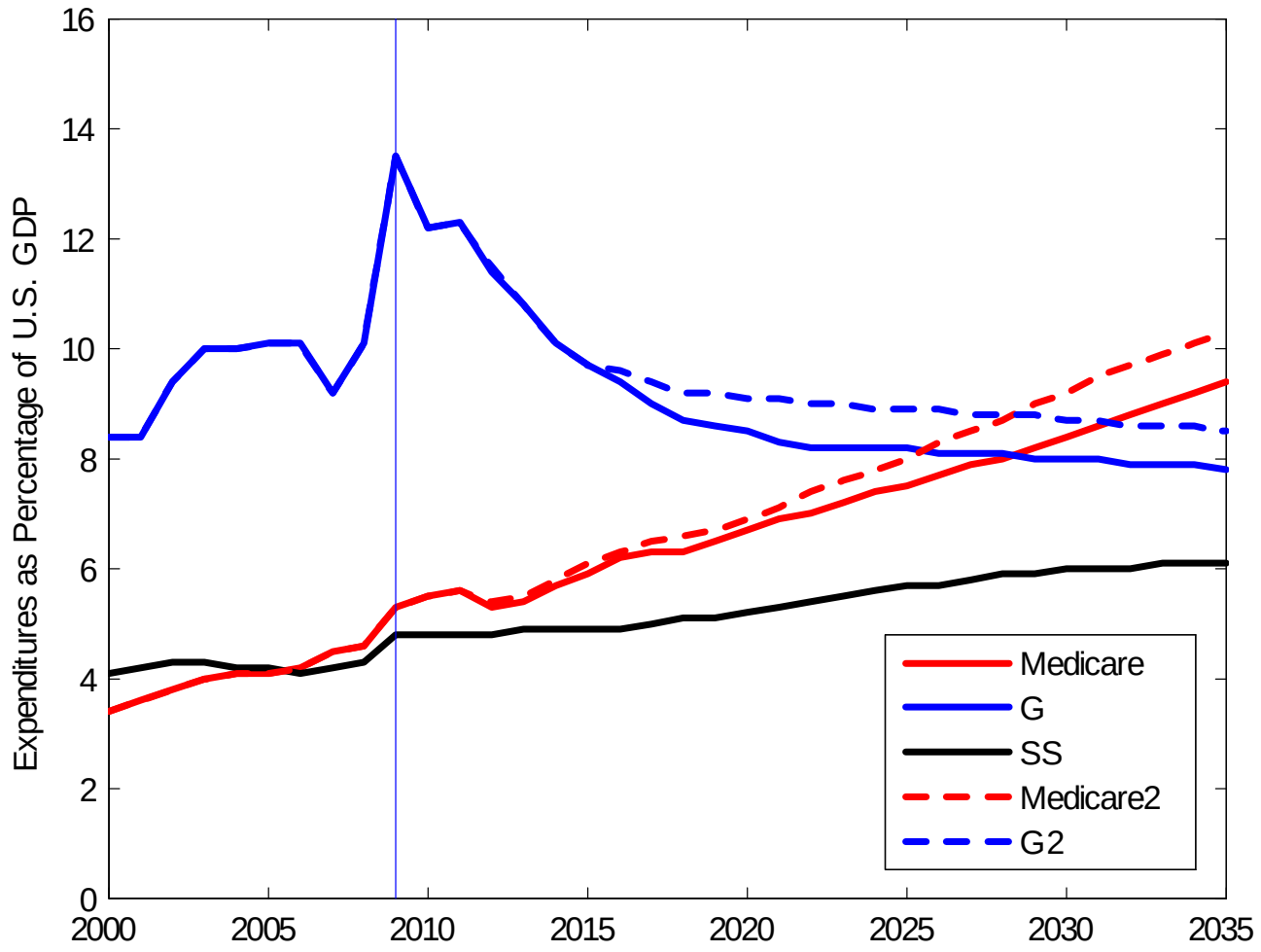
- Modern day back of the envelope calculations
  - High debt/gdp ratio likely to continue into 2035's
  - Welfare cost of higher taxes between 3%-5%

If not taxes what?



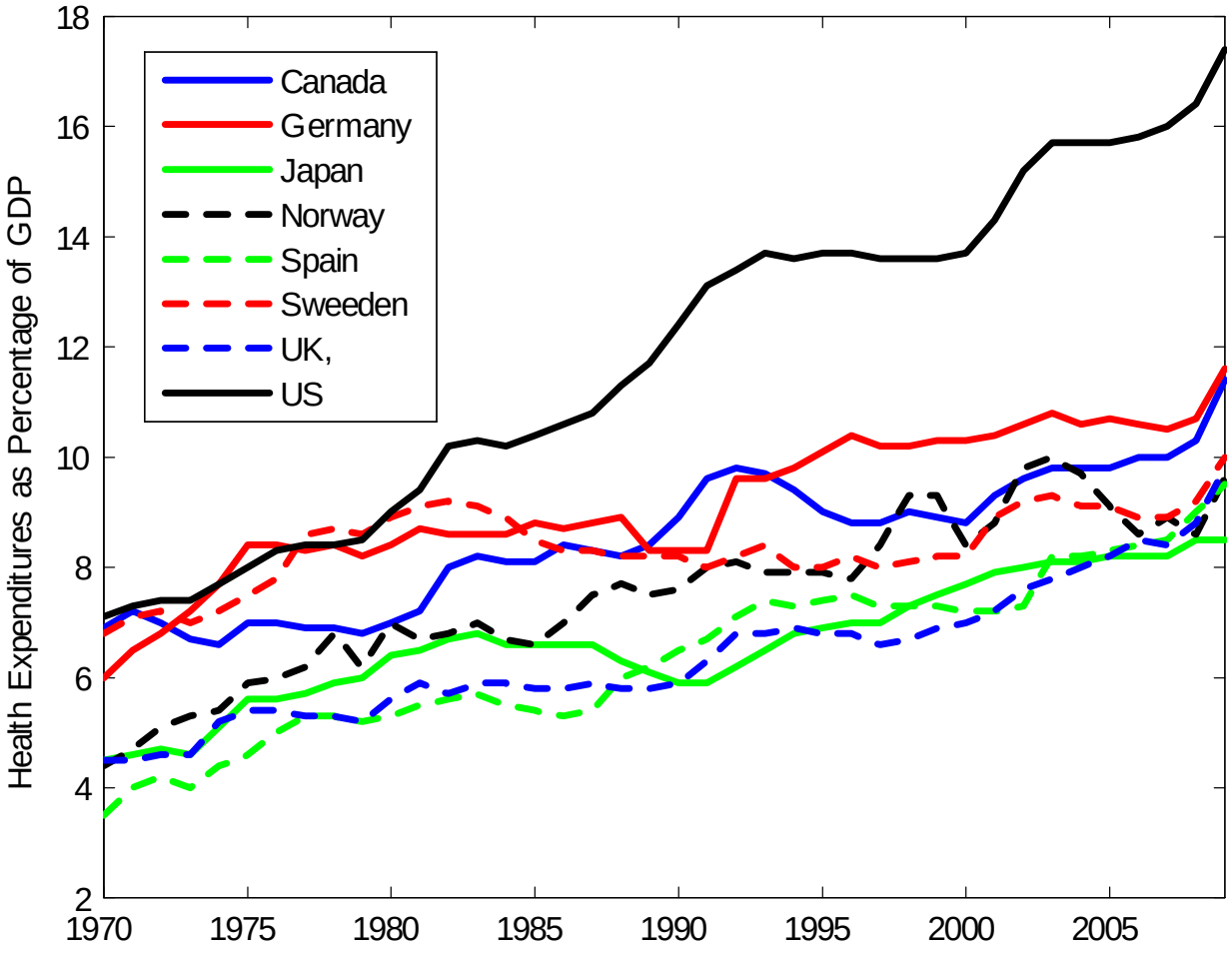
Expenditures/GDP

Health Care



Expenditures/GDP

Health Care



Health Expenditures/GDP

Health Care

Increase in Health Care Expenditures 1970-2009	
Canada	65%
Germany	93%
Japan	89%
Norway	118%
Spain	171%
Sweden	47%
UK	118%
US	145%

Health Care

Will do research on health care!

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Thank you!