Discussion of Eggertsson and Mehrotra

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Goal

- Develop a model in which
  - (Natural) Real Interest Rate can be permanently negative
  - Nominal wage rigidity generate long – lived fall in employment
- Use the model to think about slow recoveries
  - Japan Crisis
  - Great Depression
  - Great Recession

Real Rate Negative

- In a deterministic model, if gross real rate $R = (1 + r) < 1$
  - If borrow b_0 at 0, and roll over,
  - Owe $R^t b_0$ at t. This goes to zero.
  - So, present value budget constraint not well defined.
- Eggertsson and Mehrotra shows:
  - In OG model no such problem.

Backward-looking wages

- Let $w^* = f'(l^*)$ be real wages in the frictionless allocation.
- Nominal wage norm

$$W_t = \gamma W_{t-1} + (1-\gamma)(P_t w^*)$$

- Can have real wage permanently higher than w^*?
- Yes, if permanent deflation $\pi = P_t / P_{t-1} < 1$,

$$\frac{W_t}{P_t} = \gamma \left(\frac{W_{t-1}}{P_{t-1}} \frac{P_{t-1}}{P_t} \right) + (1-\gamma) w^*,$$

- so,

$$\frac{w_t}{w^*} = \frac{1-\gamma}{1-\gamma/\pi} > 1 \text{ iff } \pi < 1$$

Author's takeaways

- Deflation per se not critical
  - rather even at zero nominal interest rates
  - inflation is not high enough
- Want story for why nominal rate $= 0$ long time

Story why nominal rate is 0 for long time

- Central Bank chooses to set it to 0
- Why choose $i = 0$?
  - if economy below trend Central Bank should set i low
- Why it stays at 0?
  - monetary policy alone not powerful enough to cure problems
- Example: take aspirin when get sick
  - if mildly sick it helps
  - if have cancer: take aspirin for 20 years but still dies

EM story

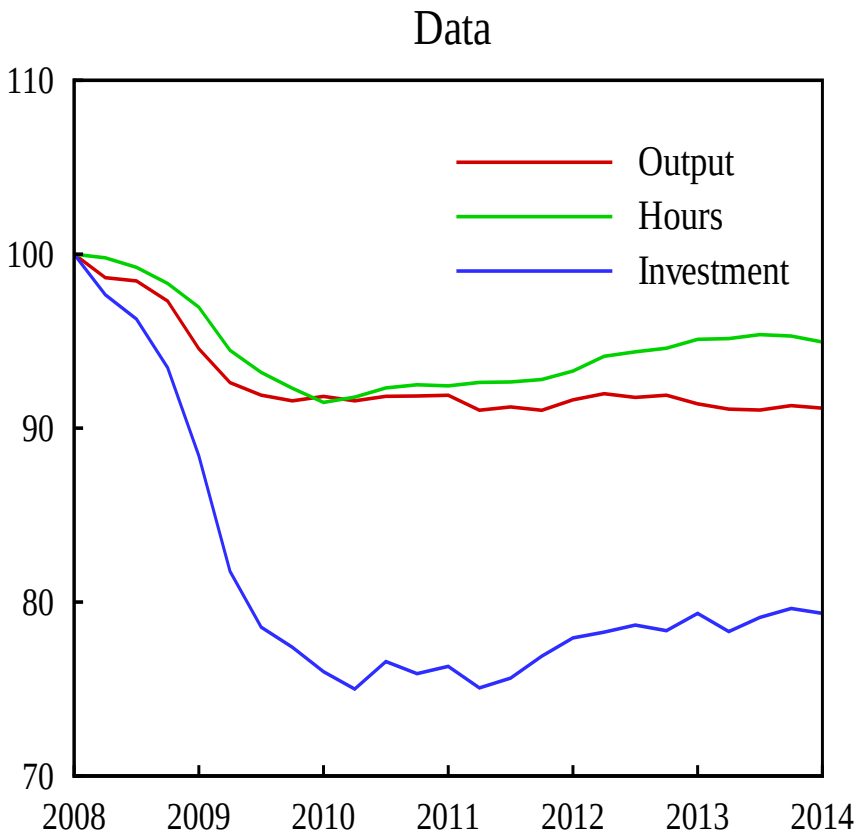
- Persistently high real wages can account for
  - Japanese crisis
  - Great Depression
  - Great Recession
- Such distortions show up as *labor wedge*

$$\frac{u_l}{u_c} < F_l = w \qquad \Longleftrightarrow \qquad \frac{u_l / u_c}{F_l} = 1 - \tau_l < 1$$

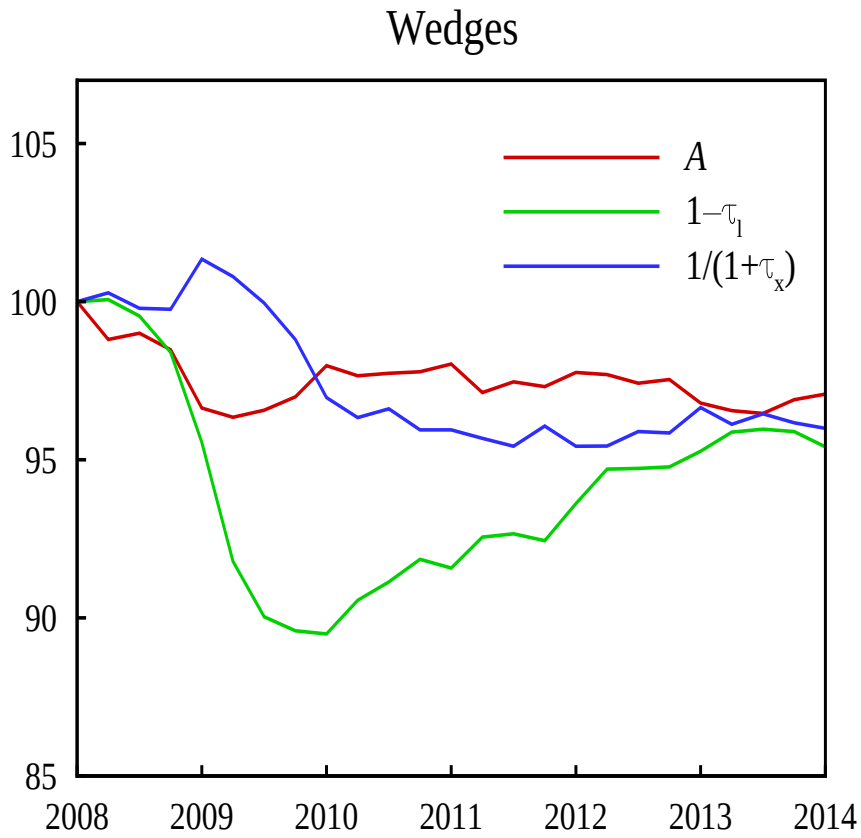
- Not as a productivity shock

A Typical Labor Wedge Recession: US

- From 2008–2014



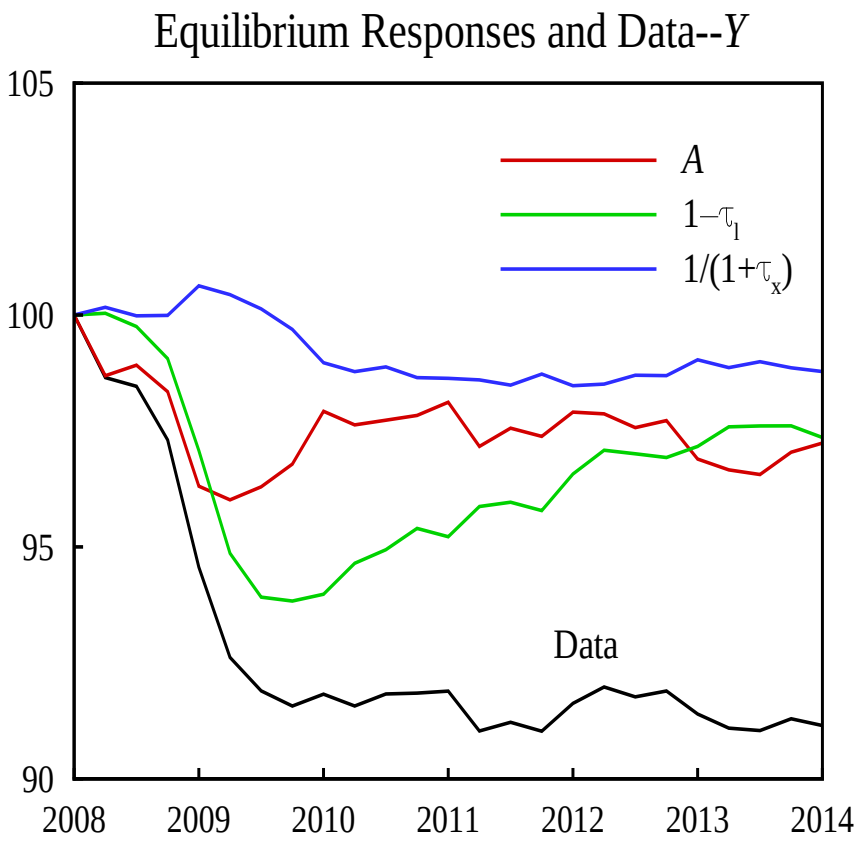
Y and L fall about 8%



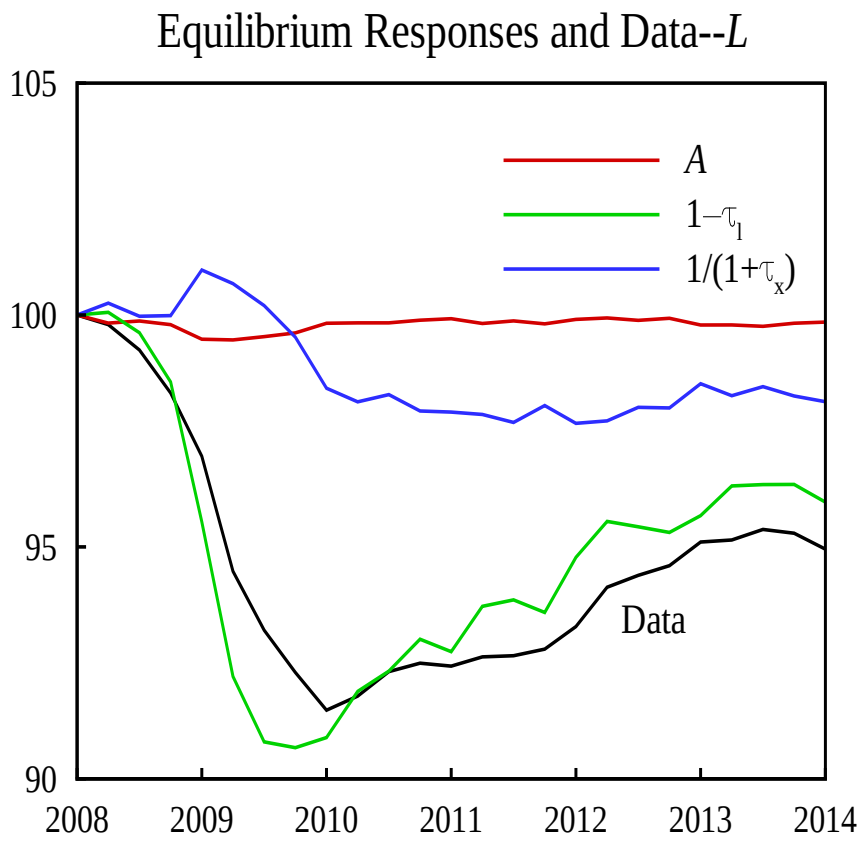
A falls about 3%, τ_l rises about 8 percentage points

Equilibrium Responses: US

- One wedge at a time



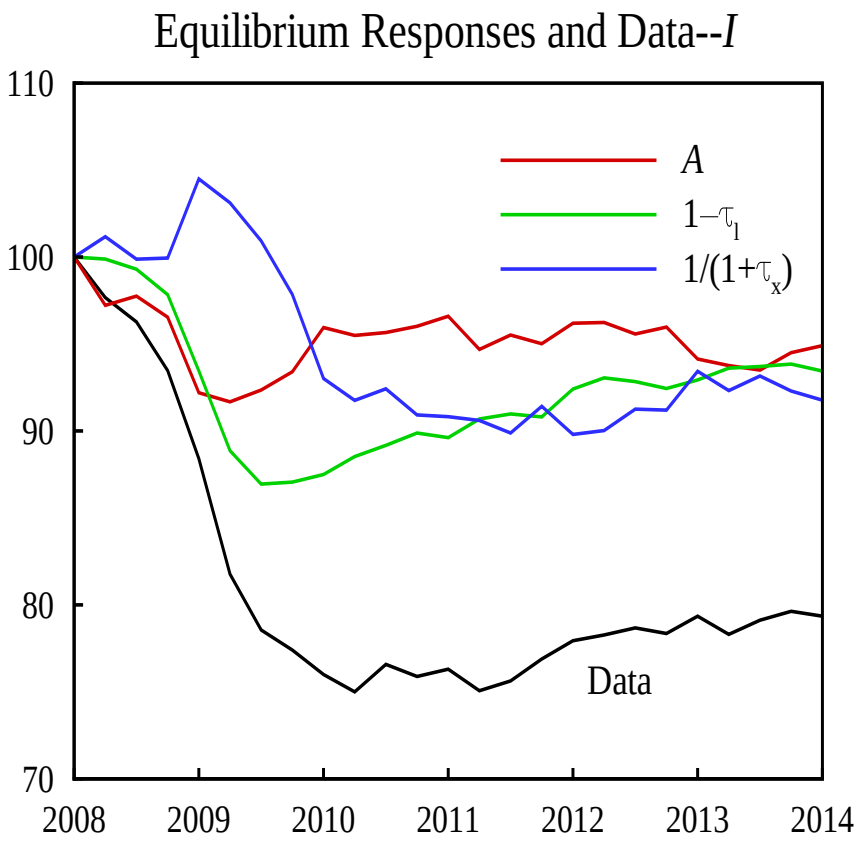
τ_l accounts for 6% of 8% fall in Y



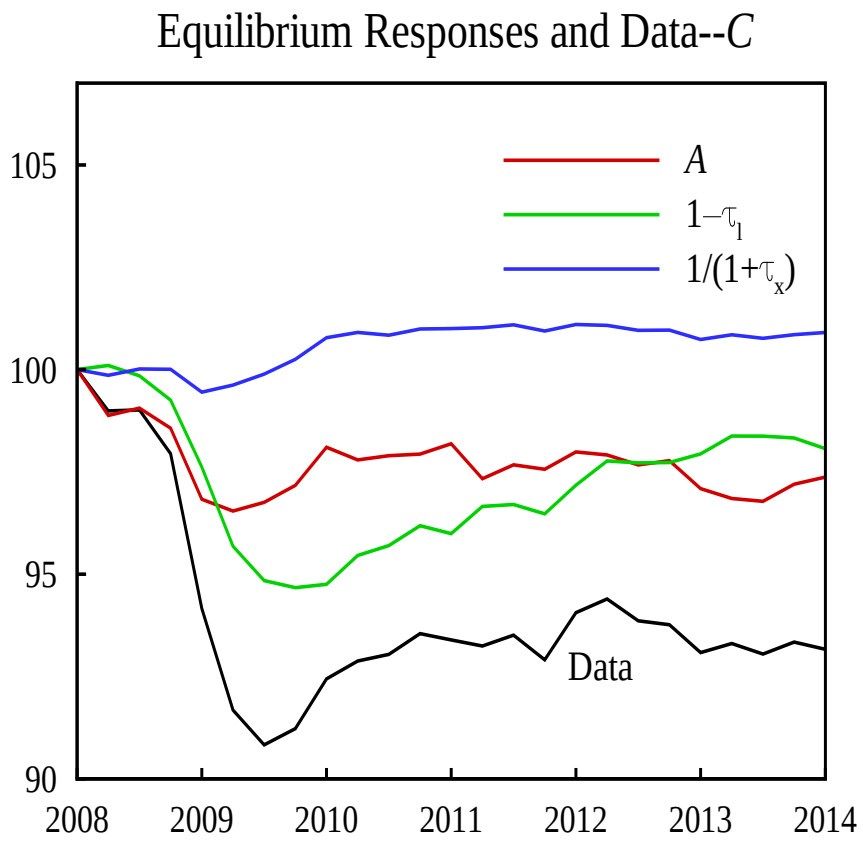
τ_l more than accounts for fall in L

Equilibrium Responses: US

- One wedge at a time



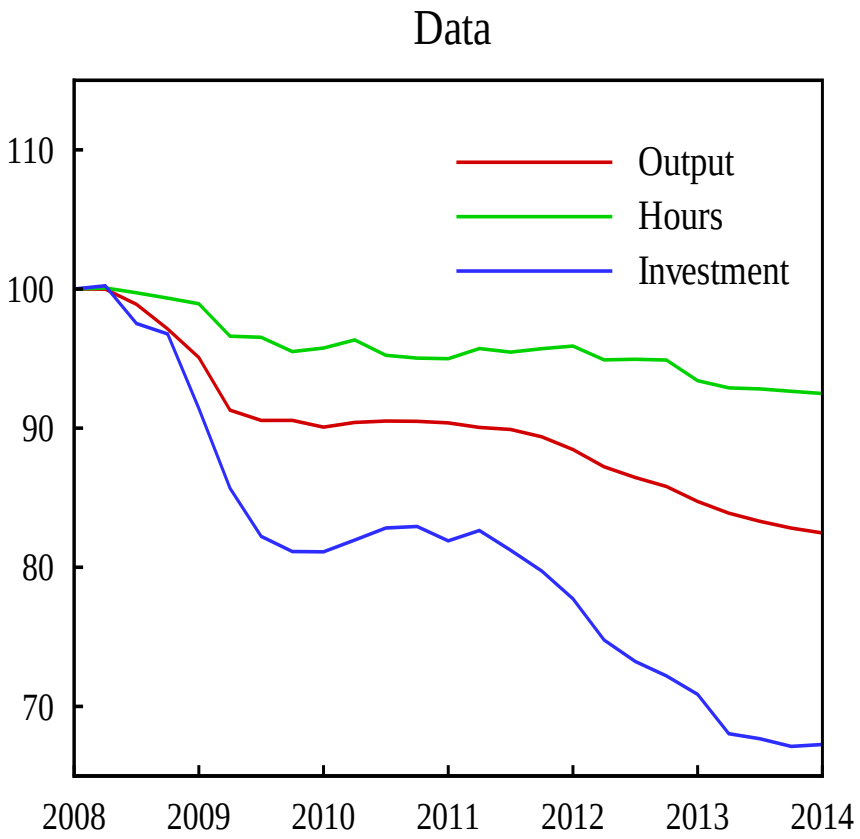
A and τ_l account for most of fall in I



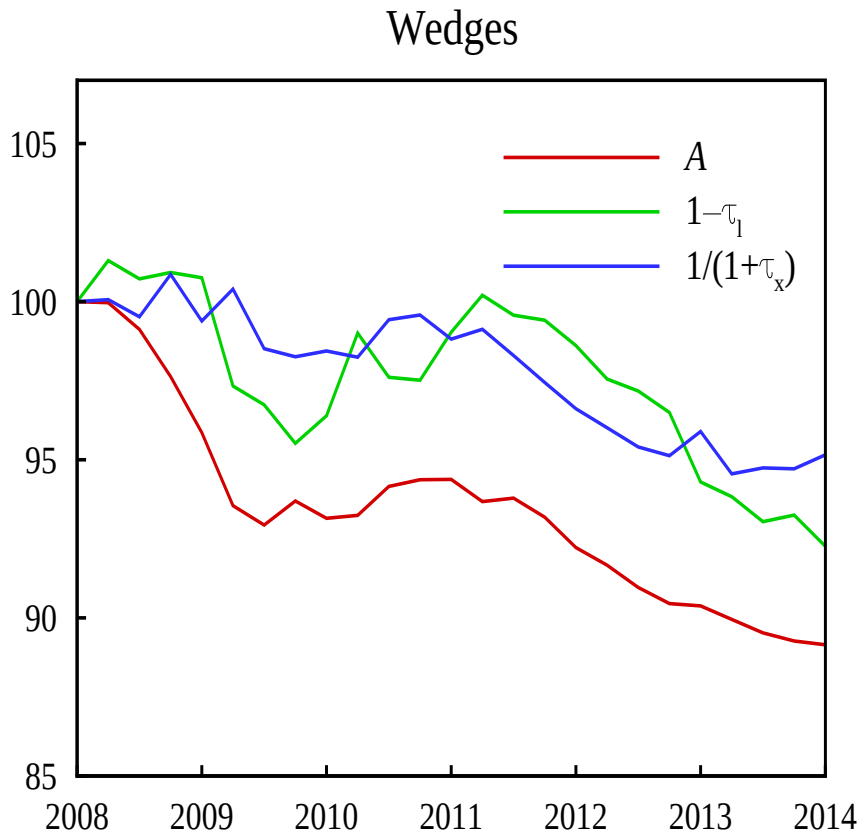
A and τ_l account for most of fall in C

A Typical Efficiency Wedge Recession: Italy

- From 2008–2014



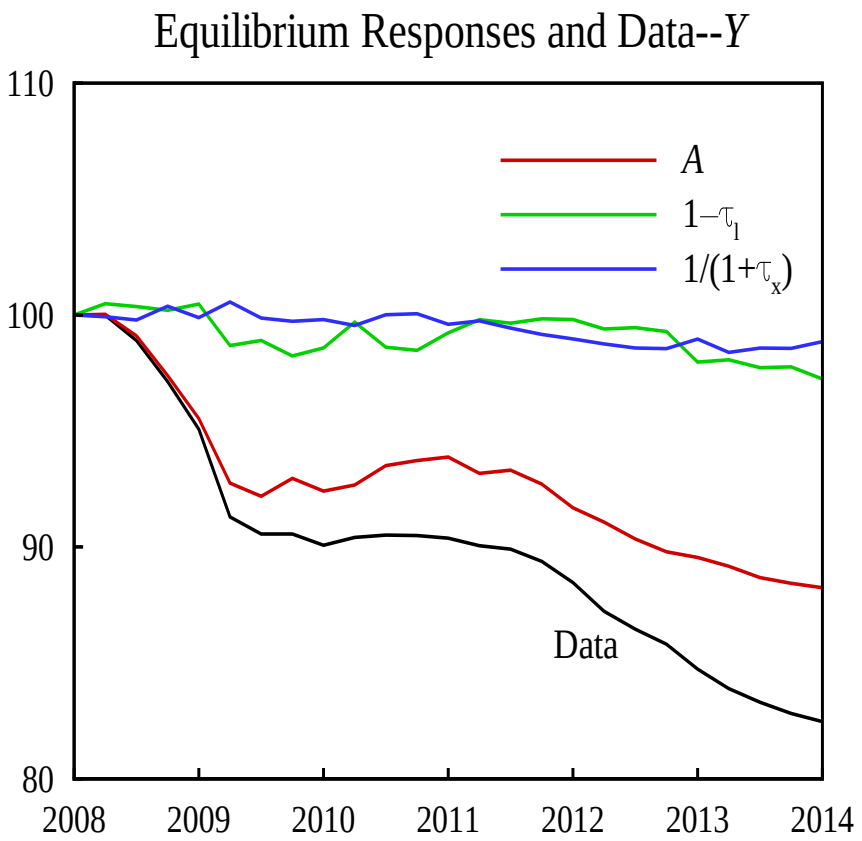
Y falls 10% and L falls 5%



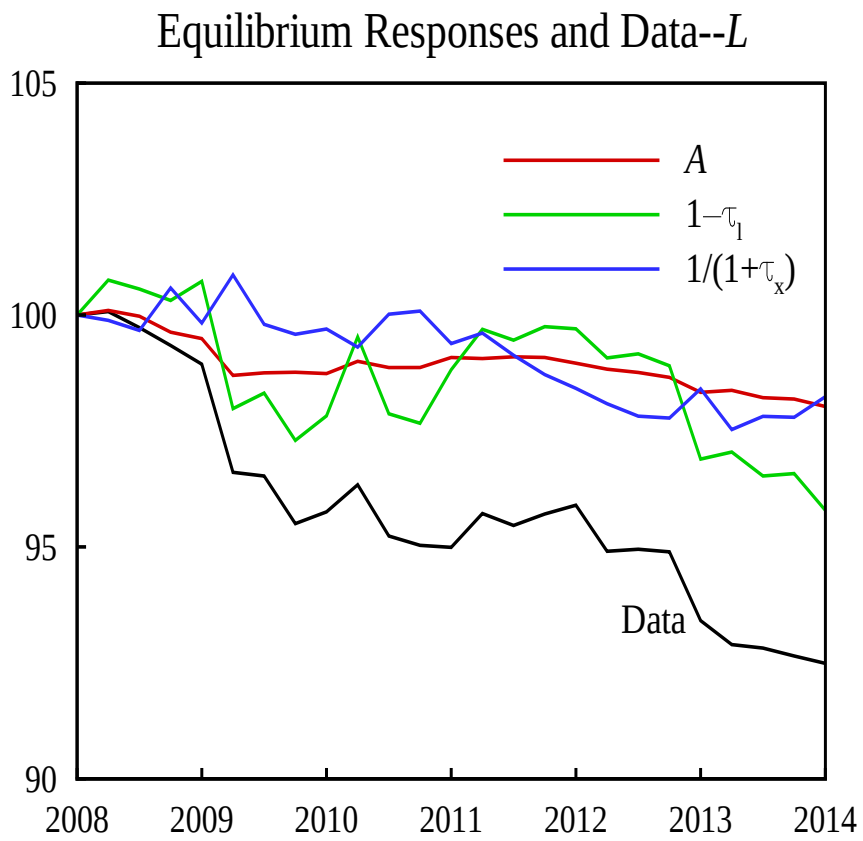
A falls about 8%, τ_l rises modestly

Equilibrium Responses: Italy

- One wedge at a time



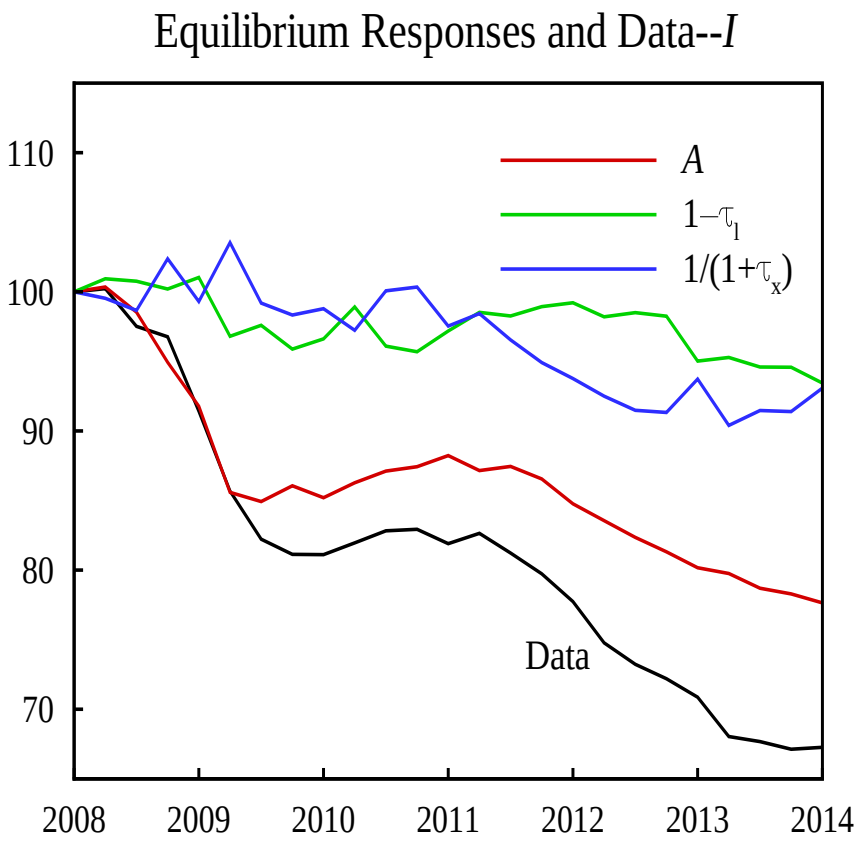
A accounts for 8% of 10% fall in Y



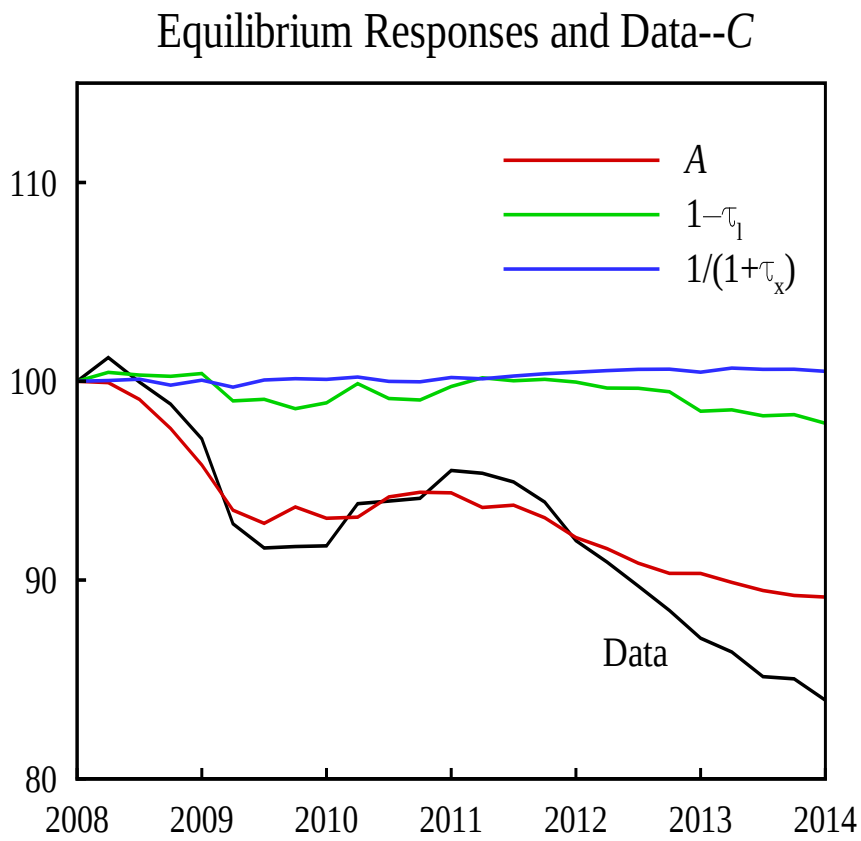
τ_l accounts for 2% of 4% fall in L

Equilibrium Responses: Italy

- One wedge at a time



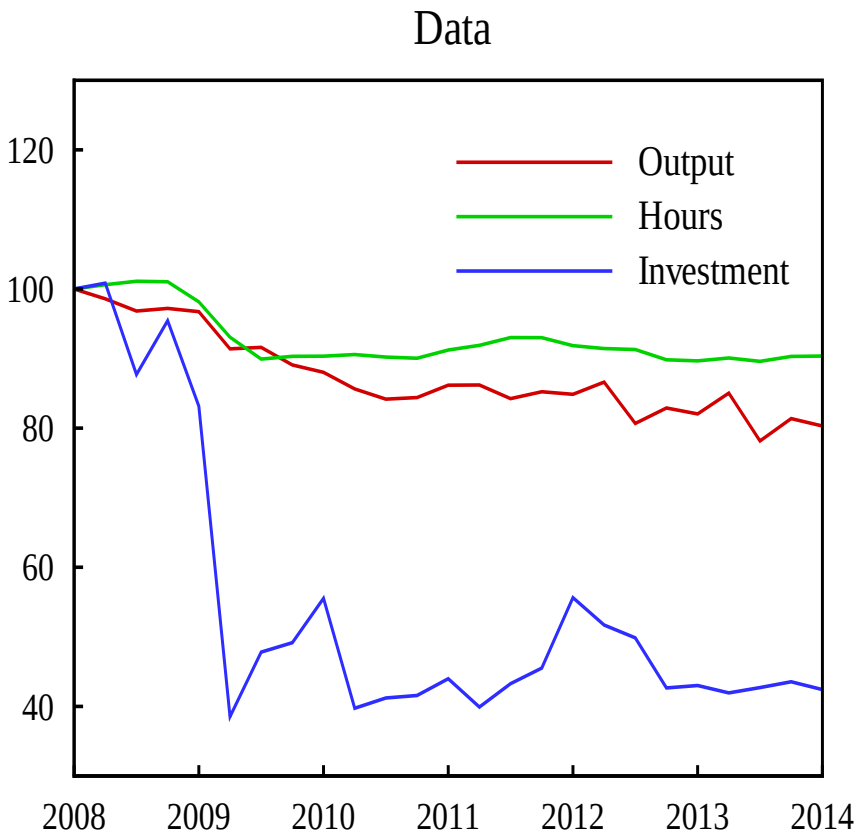
A accounts for most of fall in I



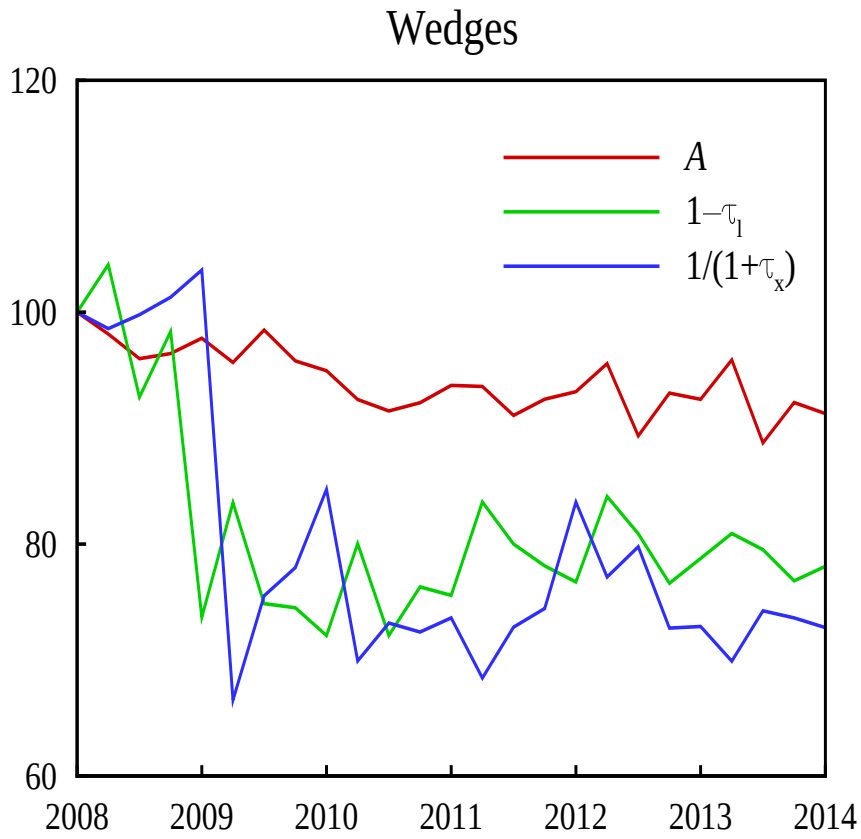
A accounts for most of fall in C

A Typical Investment Wedge Recession: Iceland

- From 2008–2014



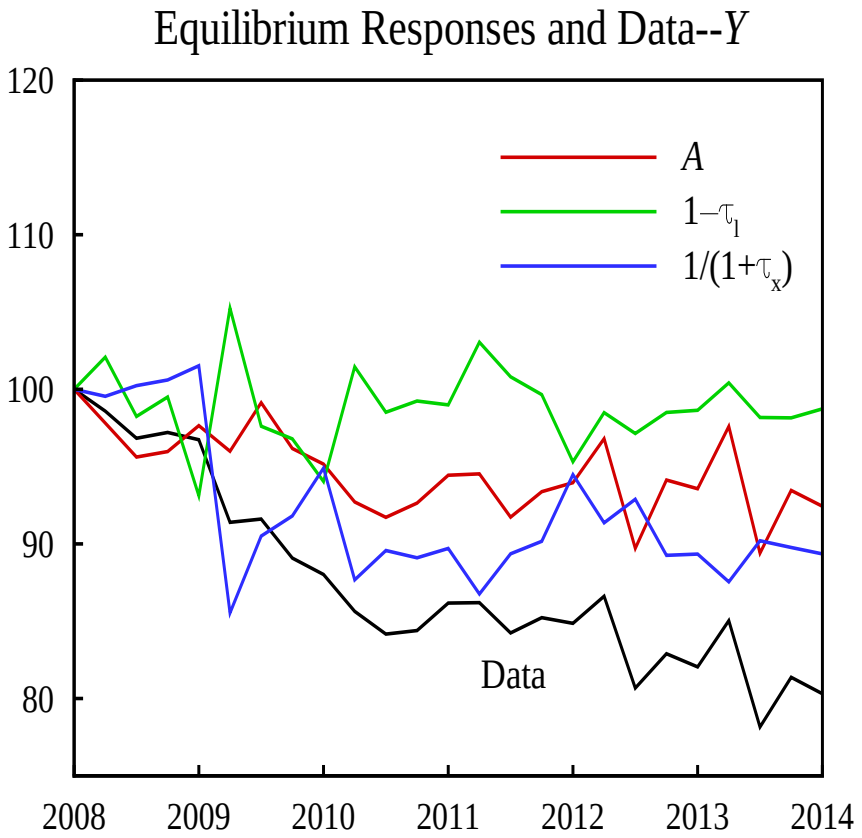
Y falls 12% and L falls 10%



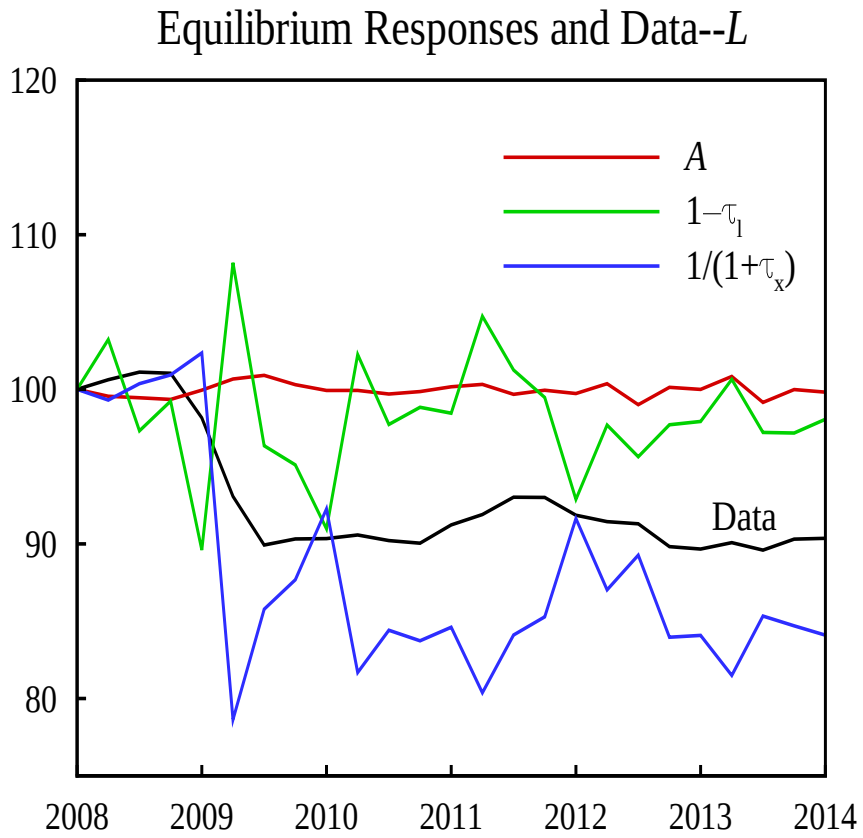
τ_x rises by about 25 percentage points

Equilibrium Responses: Iceland

- One wedge at a time



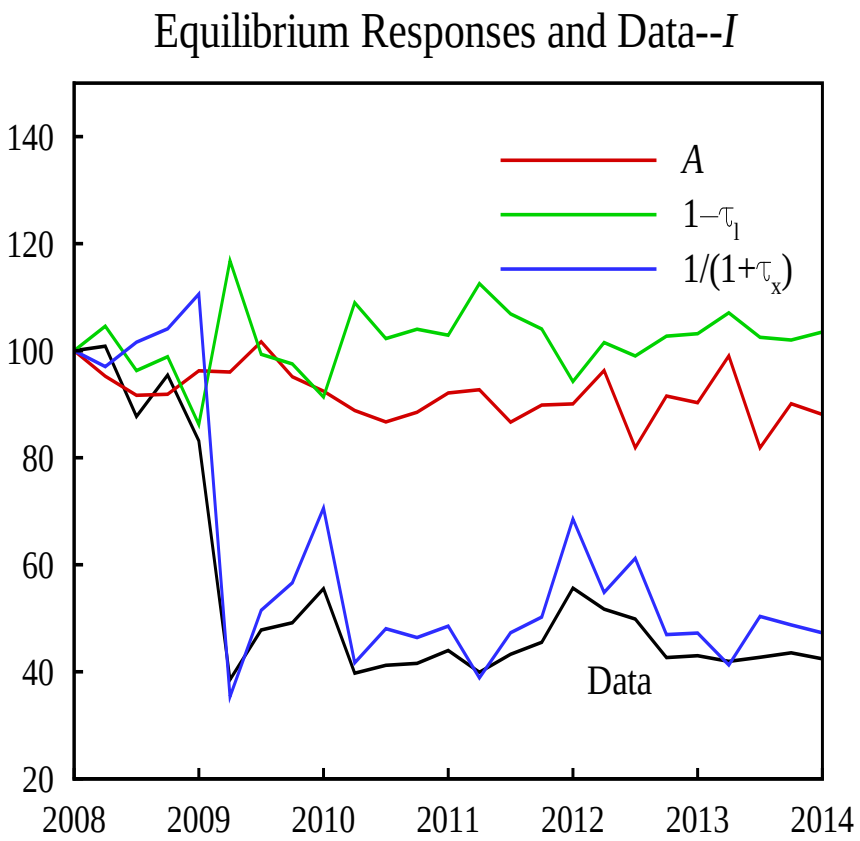
τ_x accounts for 6% of 12% fall in Y



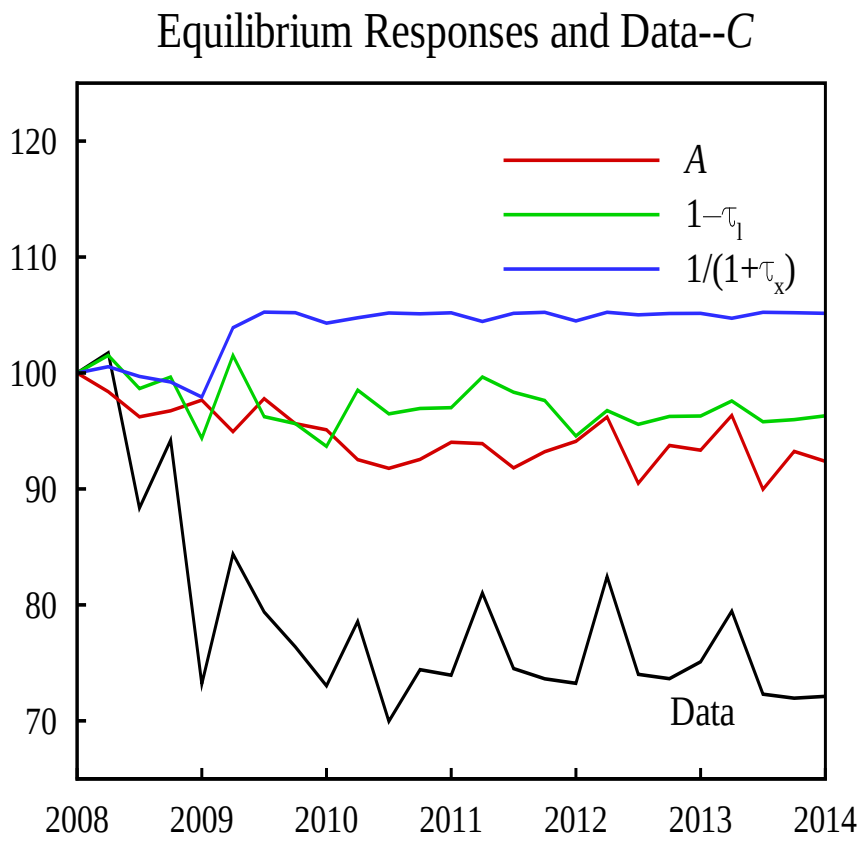
τ_x more than accounts for fall in L

Equilibrium Responses: Iceland

- One wedge at a time



τ_x accounts for all of fall in I



But τ_x makes C rise

Decomposition Statistics

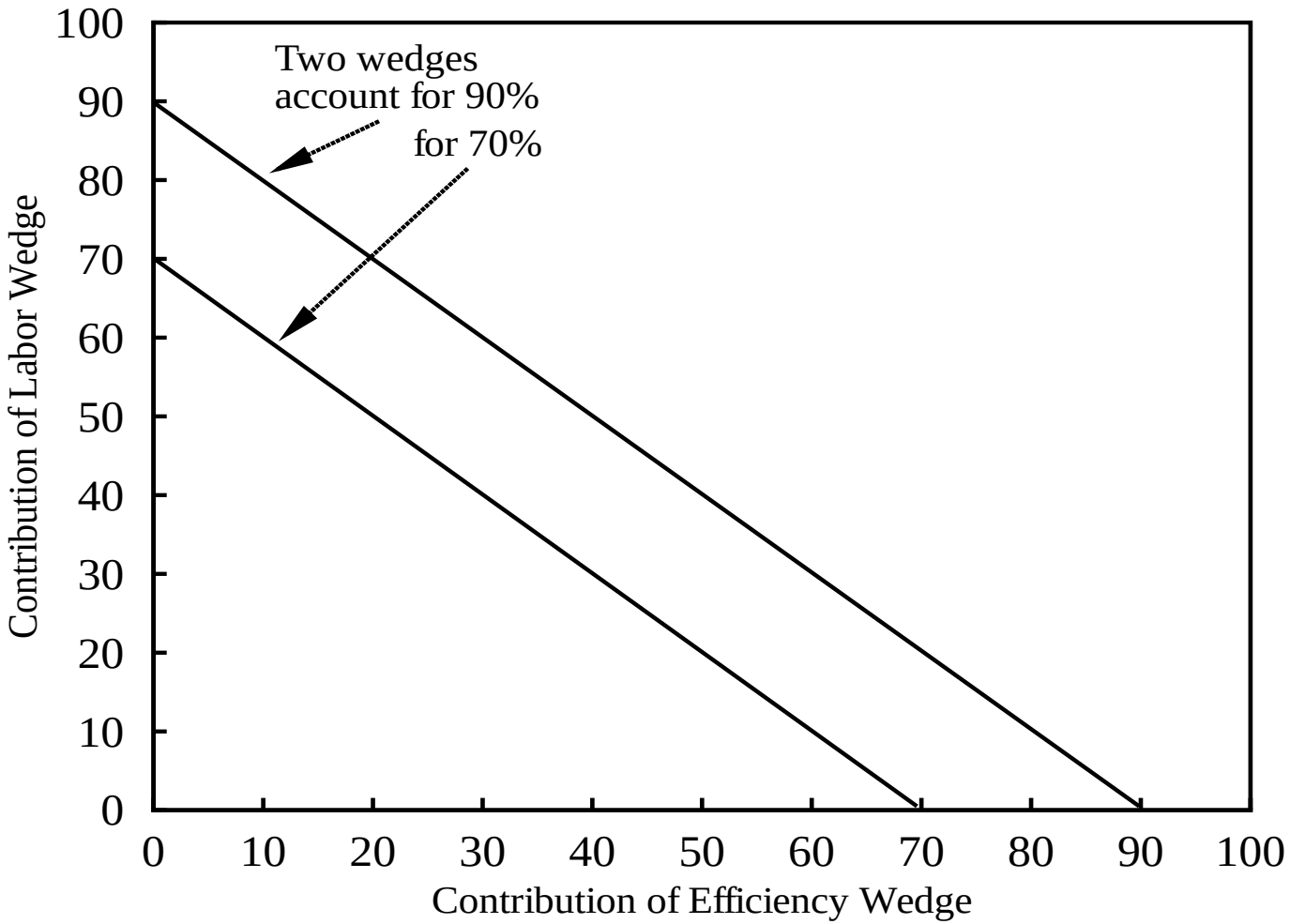
- Want statistic f_i^y that measures fraction of movement in output from wedge i
- With $f_i^y \in [0,1]$, $\sum f_i = 1$, $f_i^y = 1$ when $\text{var}(y_t - y_{it}) = 0$
- Our statistic

$$f_i^y = \frac{1/\text{var}(y_t - y_{it})}{\sum_j (1/\text{var}(y_t - y_{jt}))}$$

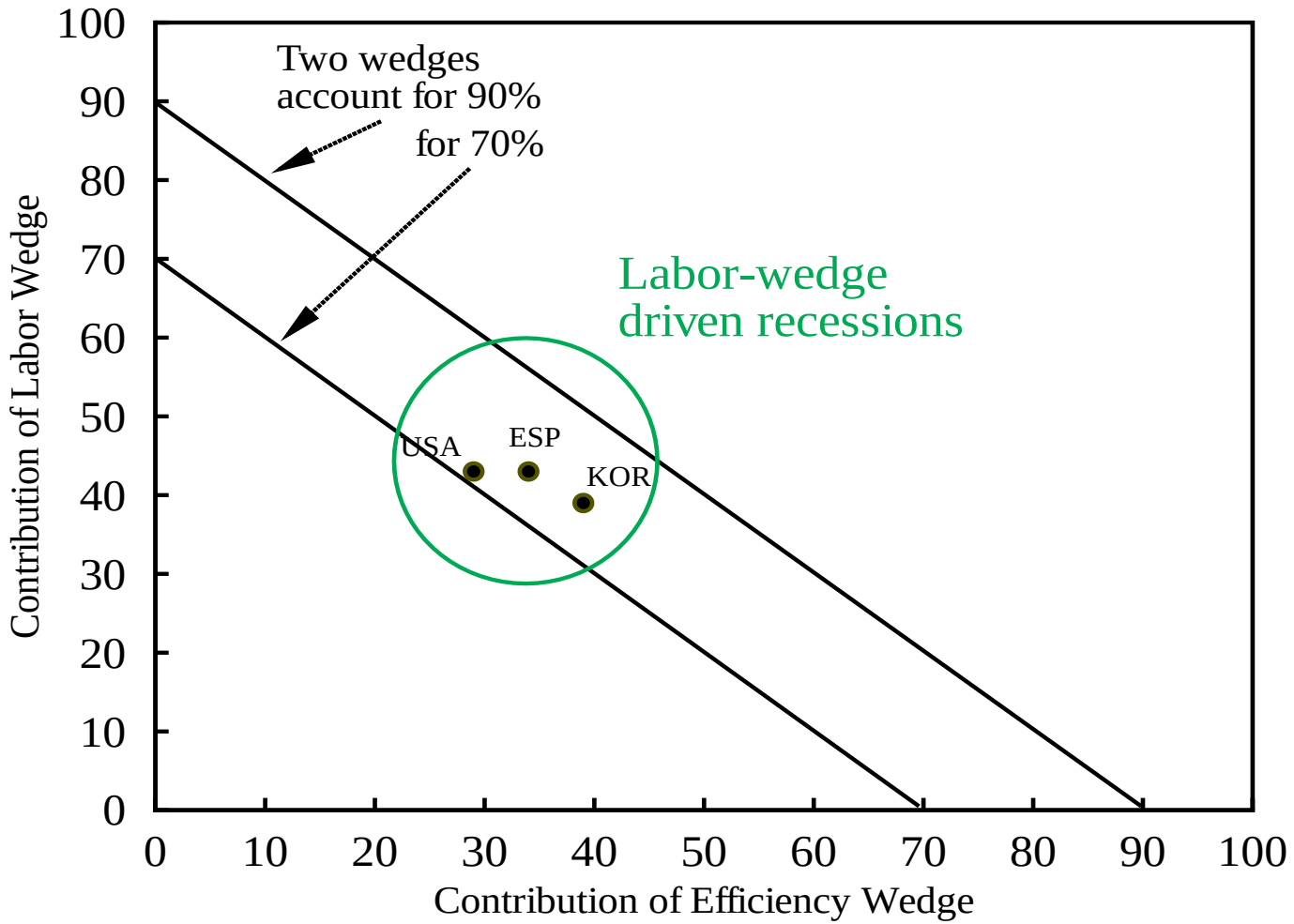
  where y_{it} is the component of output due to wedge $i = (A, \tau_l, \tau_x, g)$

- Similar statistics for other wedges
- Next Decomposition Statistics for OECD countries

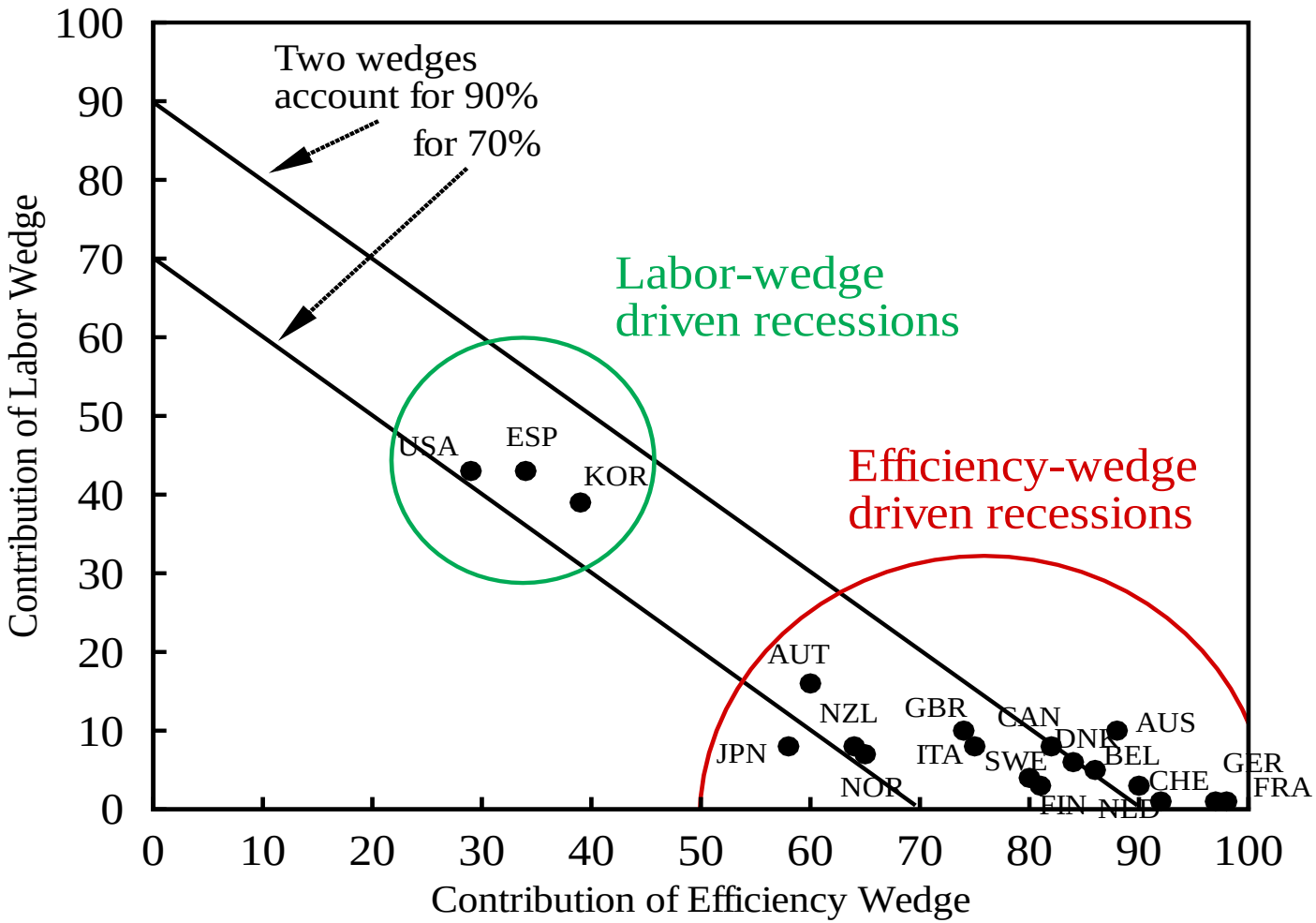
Labor and Efficiency wedge contributions



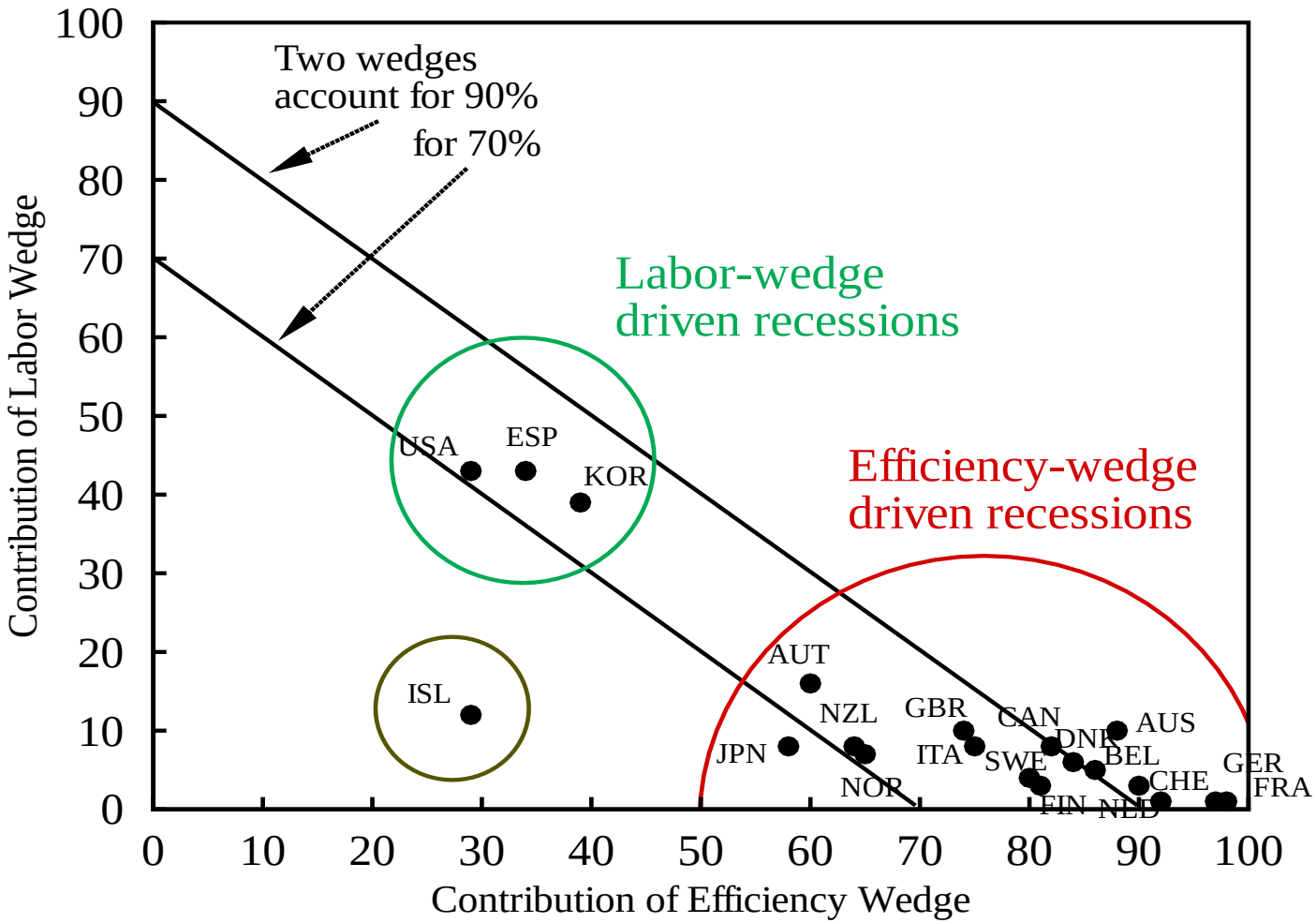
Labor and Efficiency wedge contributions



Labor and Efficiency wedge contributions



Labor and Efficiency wedge contributions

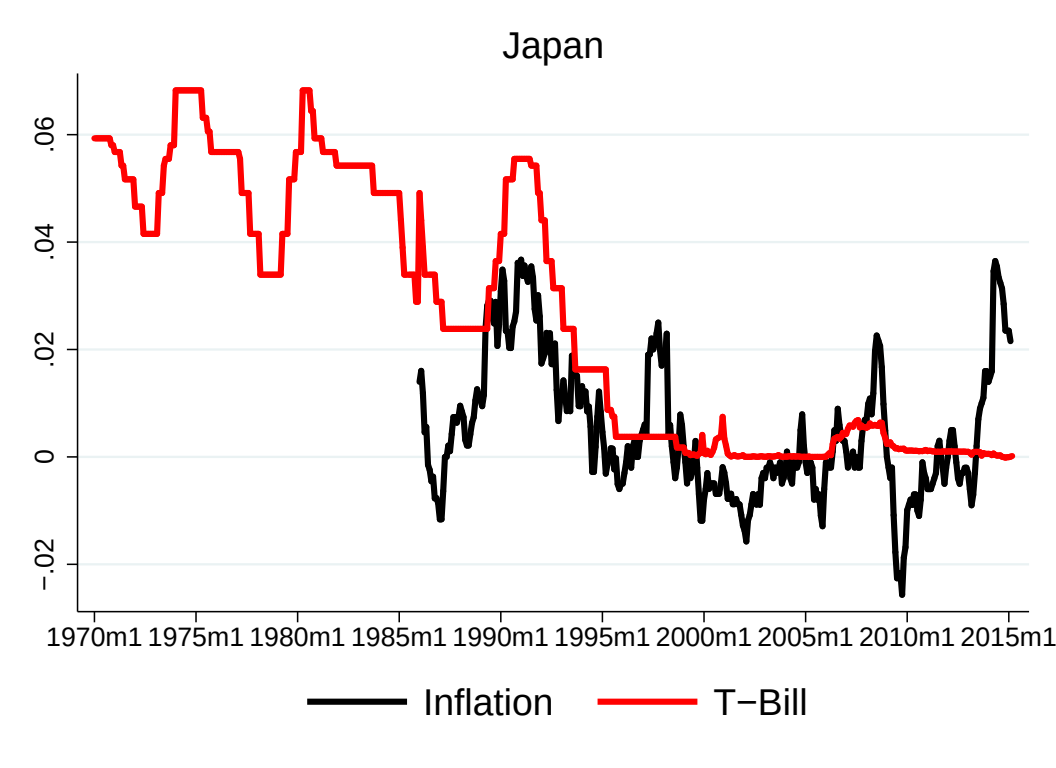


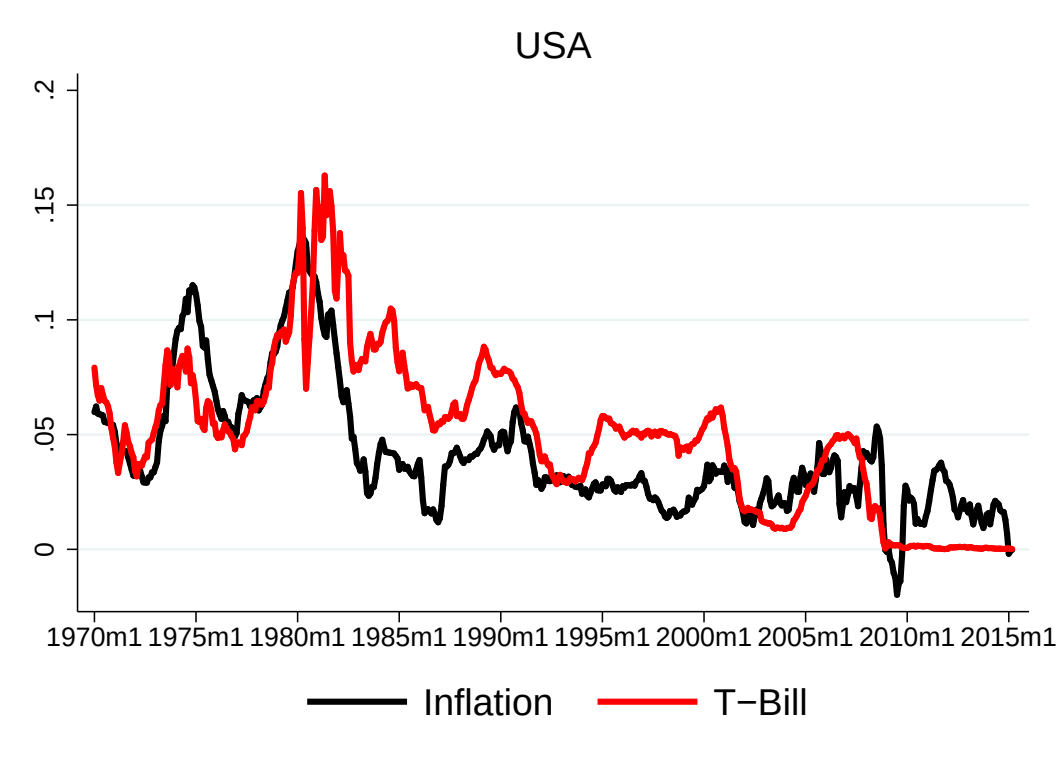
Summary

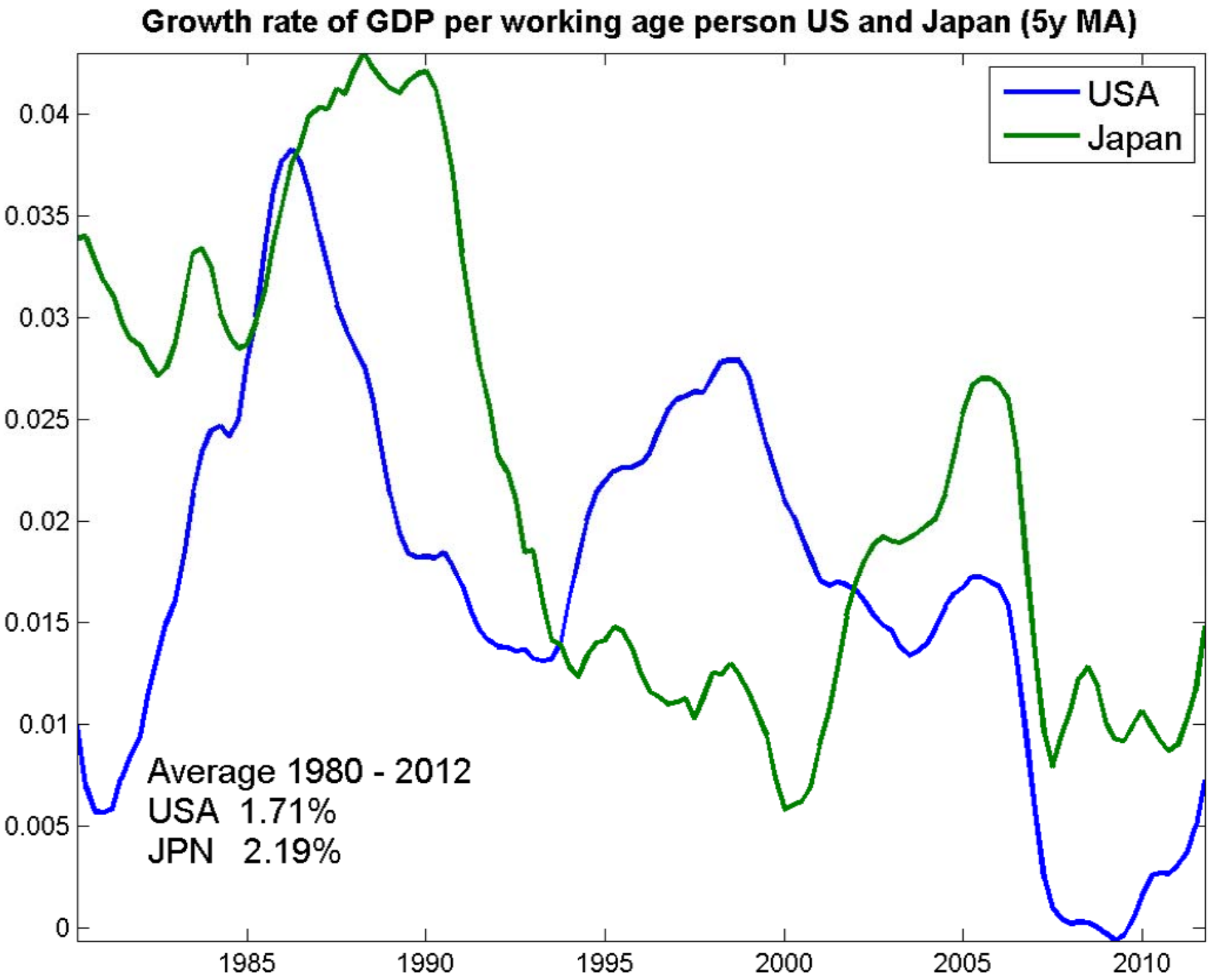
- To explain Europe and Japan,
  - Need theory of endogenous productivity decline.
  - Not theory of the labor wedge.

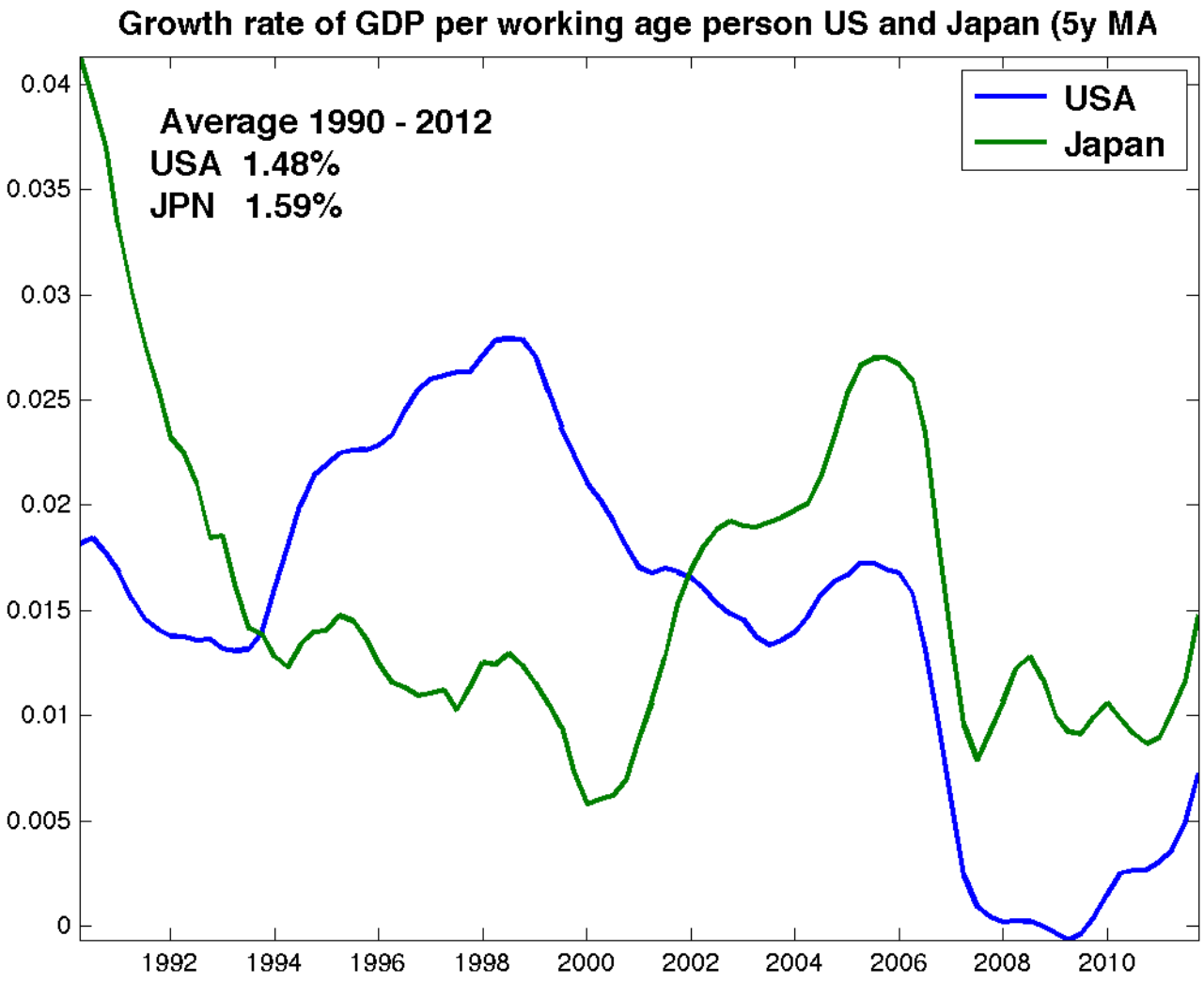
Japan vs United States

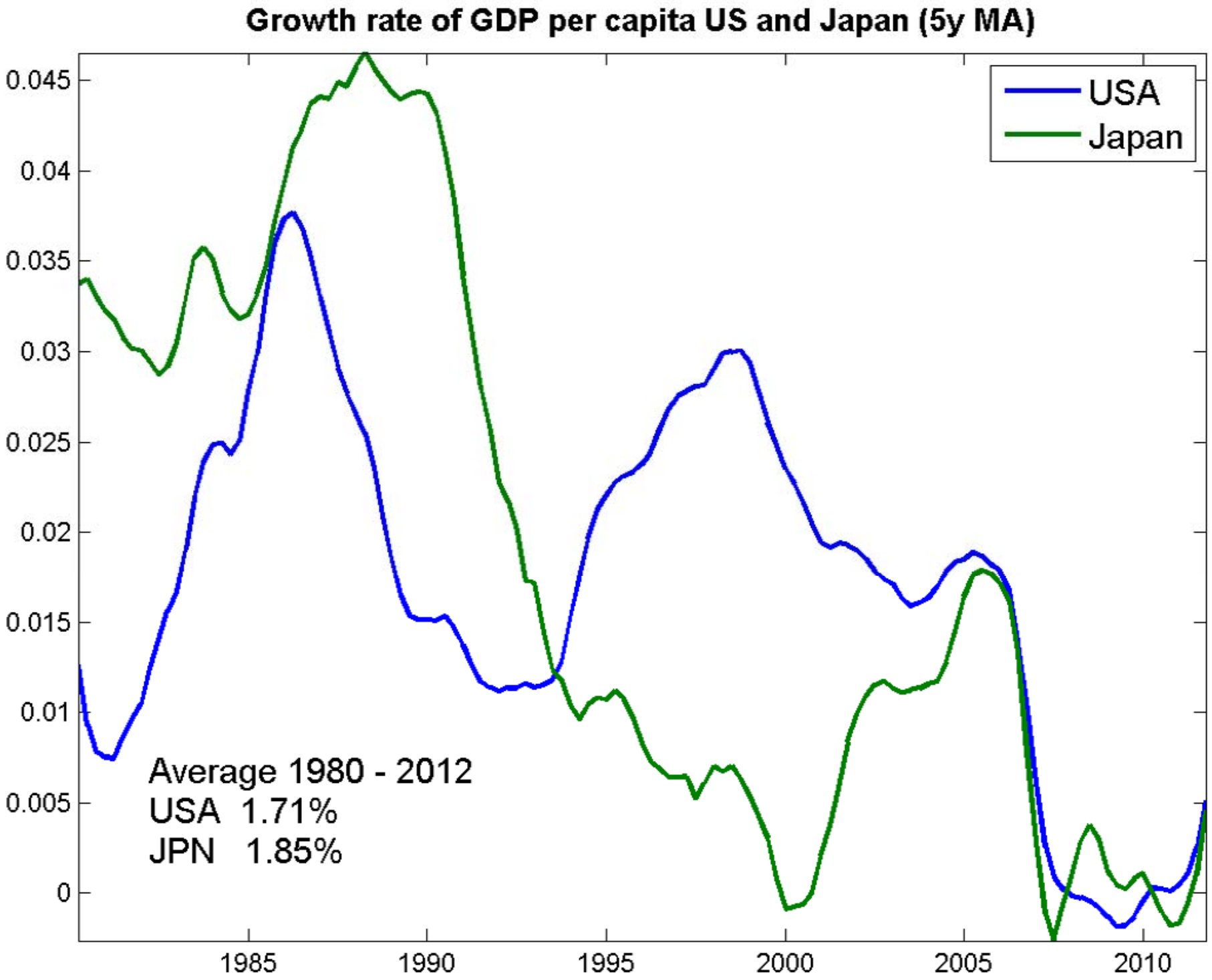
- Inflation and interest rates
- Output growth

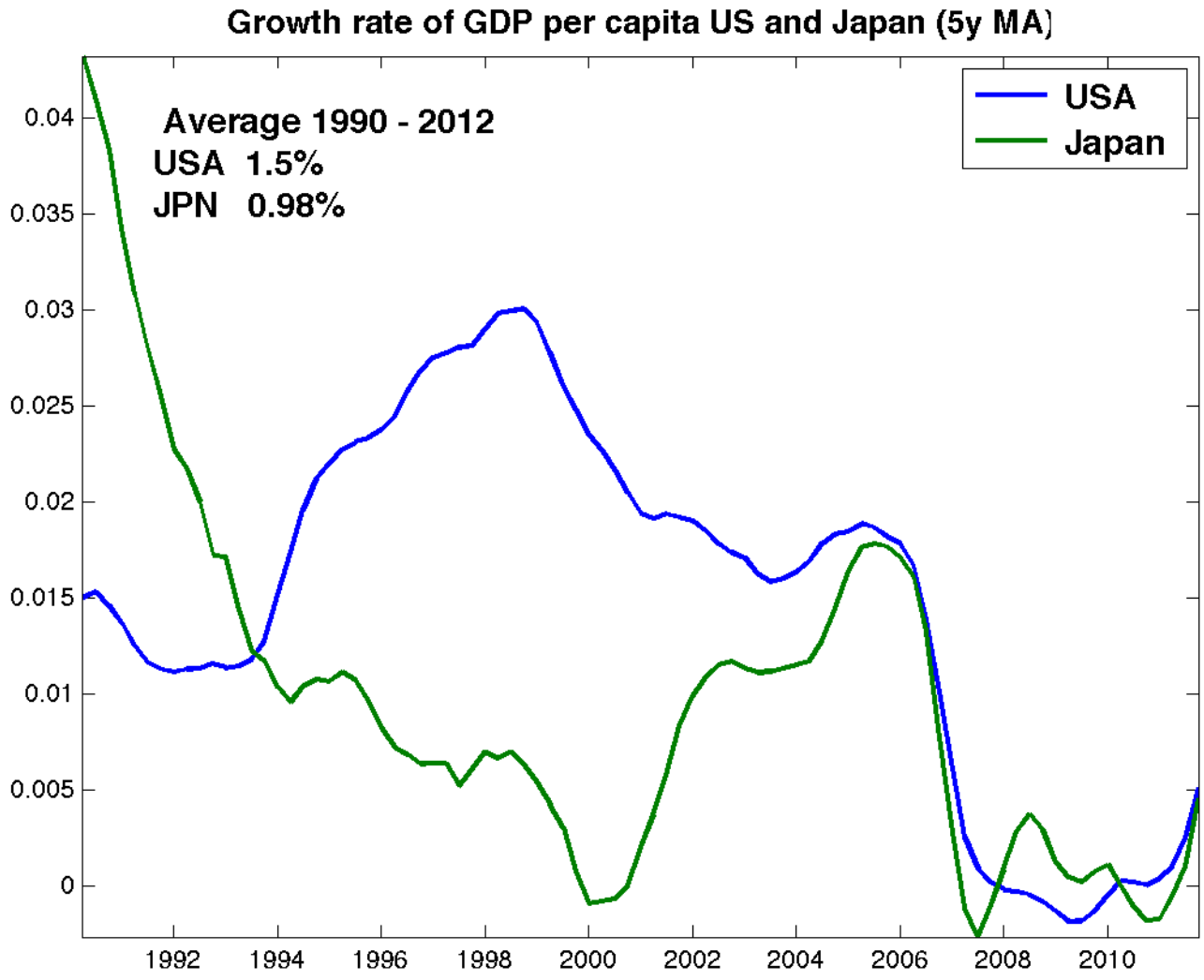

Japan
.06
.04
.02
0
−.02
1970m1
1975m1
1980m1
1985m1
1990m1
1995m1
2000m1
2005m1
2010m1
2015m1
Inflation
T−Bill


USA
.2
.15
.1
.05
0
1970m1
1975m1
1980m1
1985m1
1990m1
1995m1
2000m1
2005m1
2010m1
2015m1
Inflation
T−Bill


Growth rate of GDP per working age person US and Japan (5y MA)
USA
Japan
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1985
1990
1995
2000
2005
2010
Average 1980 - 2012
USA 1.71%
JPN 2.19%

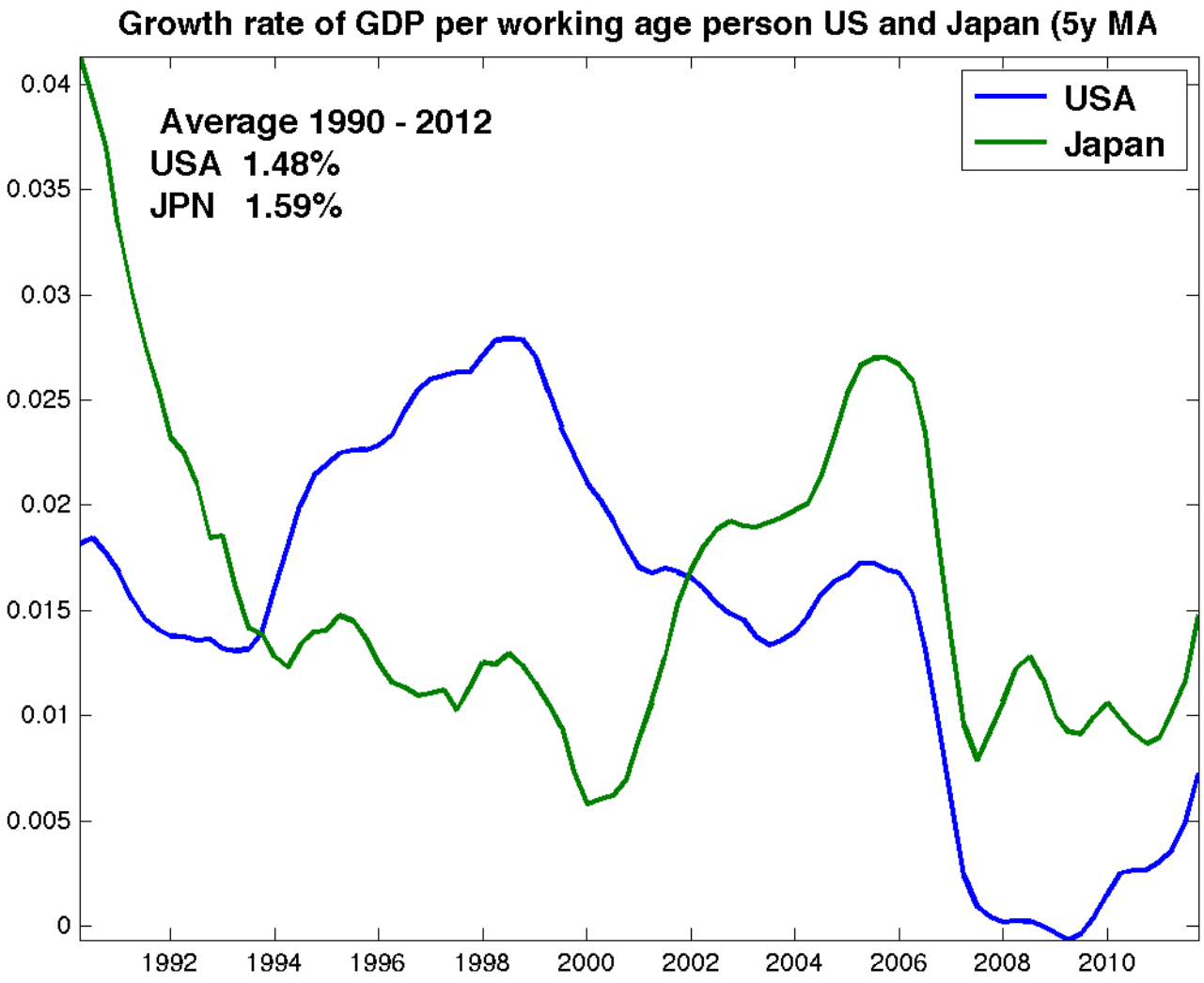

Growth rate of GDP per working age person US and Japan (5y MA
Average 1990 - 2012
USA 1.48%
JPN 1.59%
USA
Japan
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010


Growth rate of GDP per capita US and Japan (5y MA)
USA
Japan
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1985
1990
1995
2000
2005
2010
Average 1980 - 2012
USA 1.71%
JPN 1.85%


Growth rate of GDP per capita US and Japan (5y MA)
Average 1990 - 2012
USA 1.5%
JPN 0.98%
USA
Japan
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010

To account for Japan

- Need theory of,
  - Endogenous fertility decline
  - Endogenous productivity decline
- Will nominal rate $= 0$ be critical?


Growth rate of GDP per working age person US and Japan (5y MA
Average 1990 - 2012
USA 1.48%
JPN 1.59%
USA
Japan
0.04
0.035
0.03
0.025
0.02
0.015
0.01
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1992
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