Non-Performing Loans, Prospective Bailouts and Japan's Slowdown

Discussion

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Overview

- Deposit insurance makes bad loans a public liability
  - crowding-out effect
- Delay in government bailout implies growing public liability
- Rationalizes slowdown. Quantitatively significant
  - decline in physical capital
  - decline in labor input (hours)
  - decline in productivity (selection effects)
- Key issues
  - are bad bank loans really a public liability?
  - is deposit insurance credible? bailout perfect foresight?

Crowding-out Mechanism

Two-period-lived OLG example

- Savings out of net wage income equal deposits

$$s_t = \frac{\beta}{1+\beta}(w_t - \tau_t) = d_t$$

- Bad loans at beginning of period, given initial b_0 surprise

$$b_{t+1} = R_{t+1}(b_t - \tau_t)$$

- Capital formation equals loans to firms equals net deposits

$$k_{t+1} = l_t = d_t - b_t + \tau_t$$

Given b_0 surprise, compare two government bailout policies

- Instant bailout

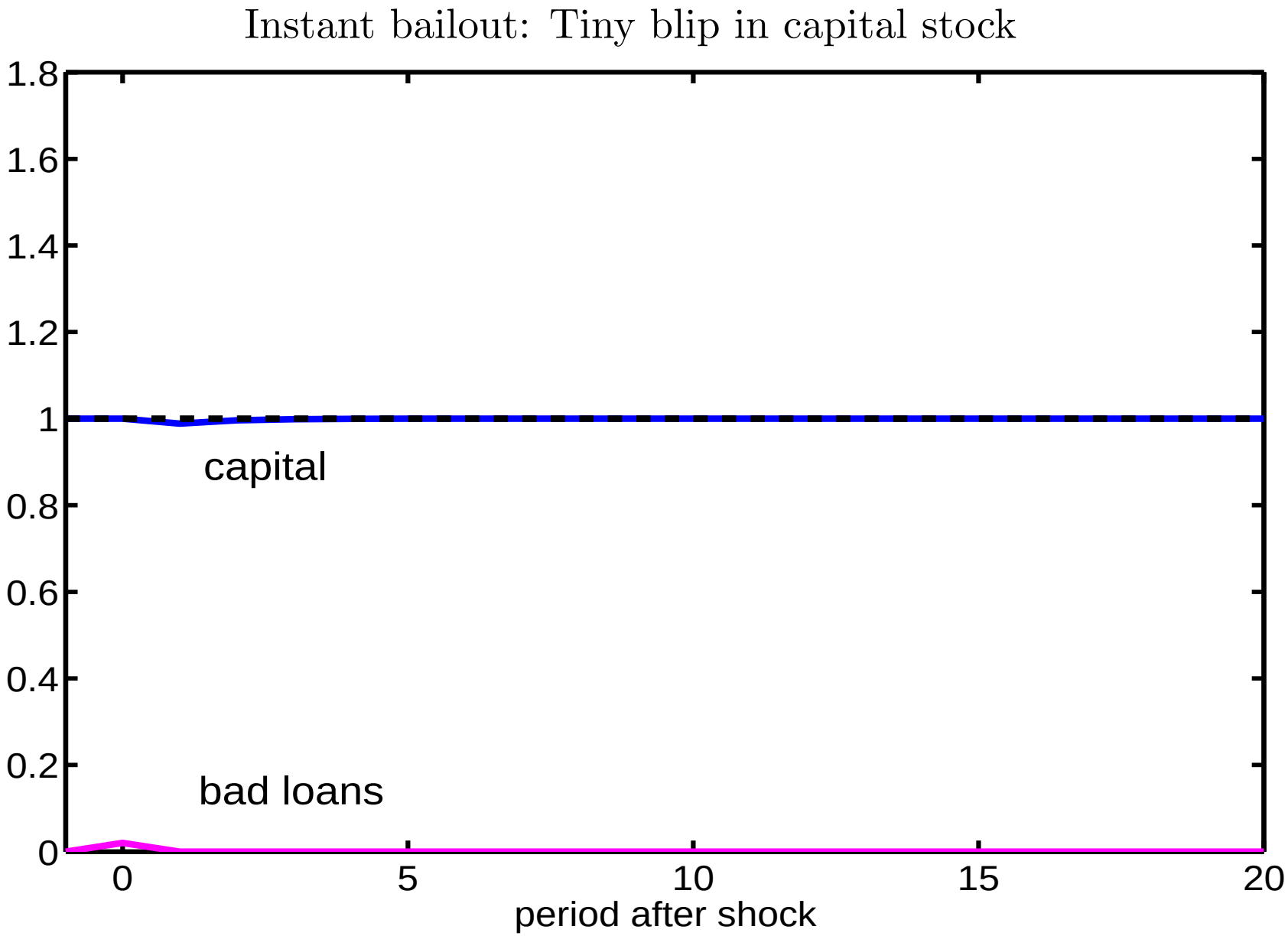
$$\begin{aligned} \text{set } \tau_0 &= b_0 \\ \text{and then } \tau_t &= 0, \text{ for } t > 0 \end{aligned}$$

- Delayed bailout

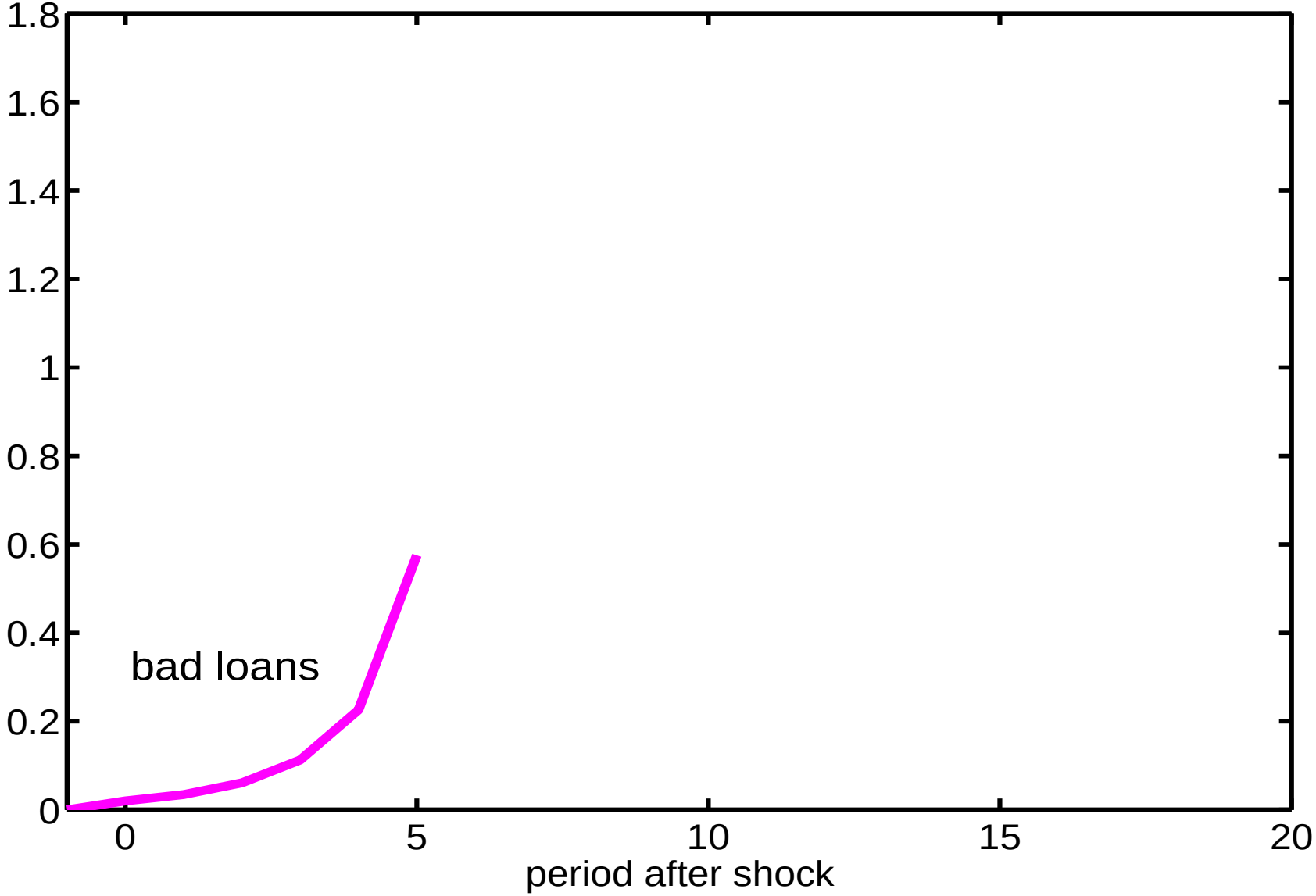
$$\begin{aligned} \text{set } \tau_t &= 0, \text{ for } t < T \\ \text{and then } \tau_T &= b_T \end{aligned}$$

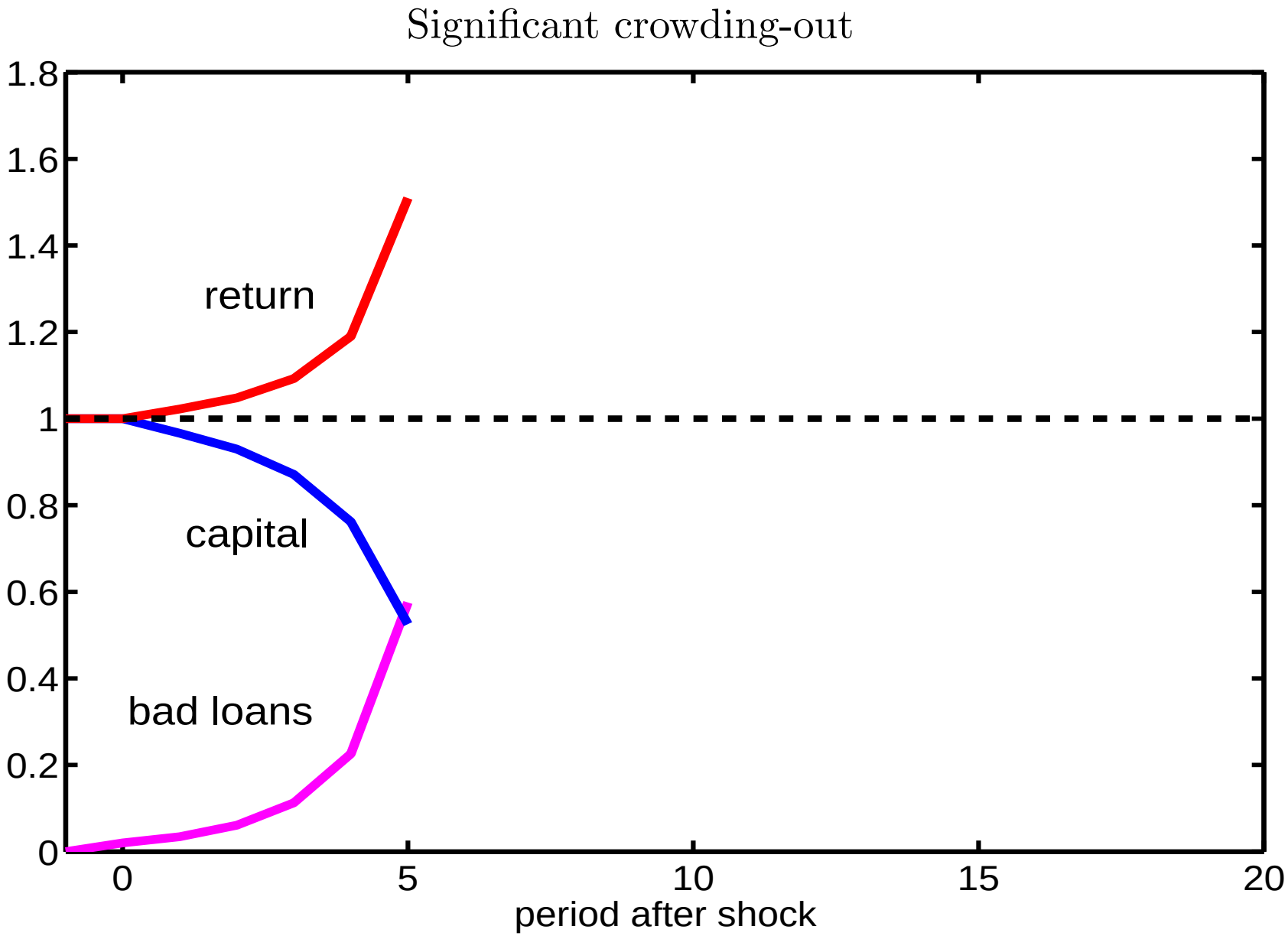
with bad loans growing until bailout (T endogenous)

$$b_{t+1} = R_{t+1} b_t, \quad t < T$$

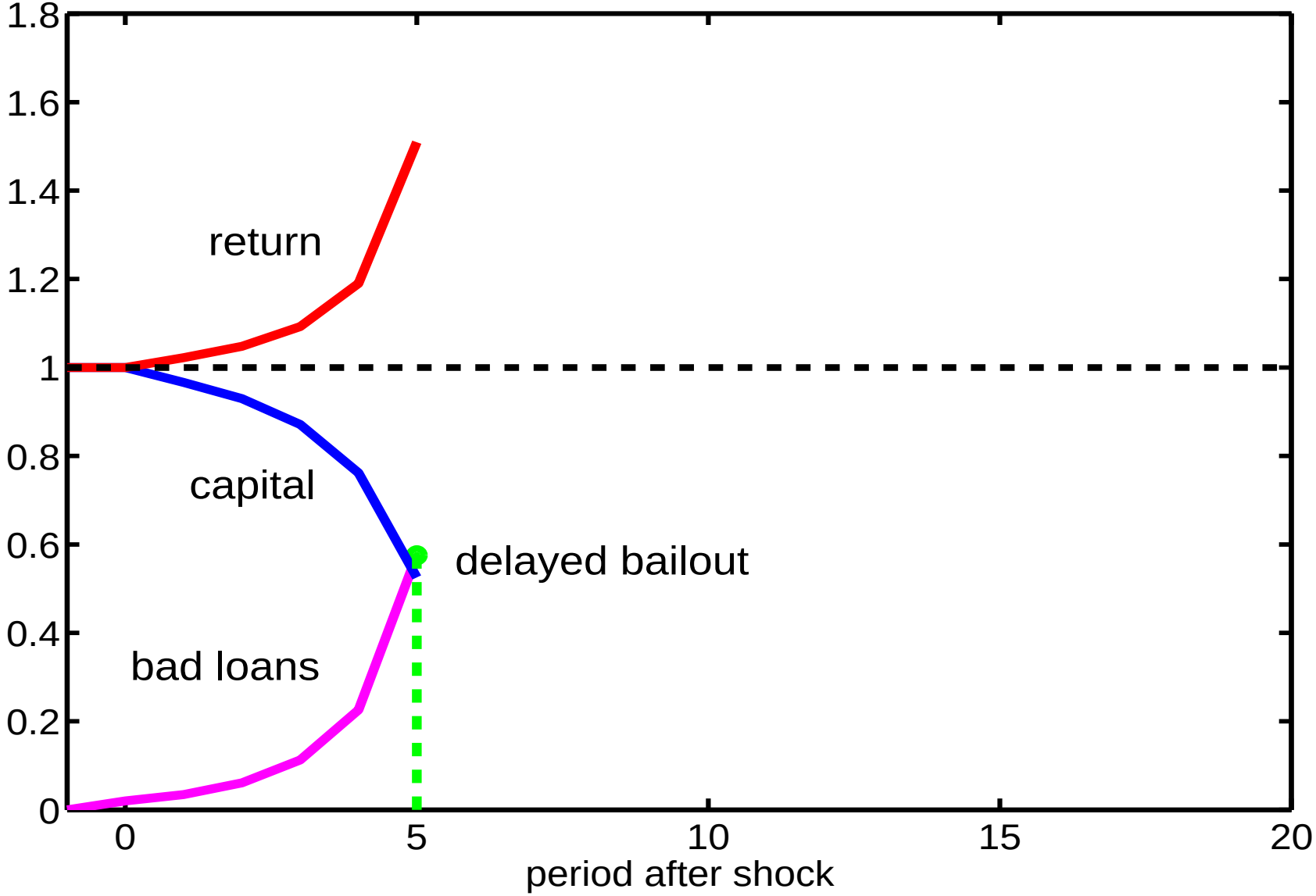

Instant bailout: Tiny blip in capital stock
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
capital
bad loans
0
5
10
15
20
period after shock

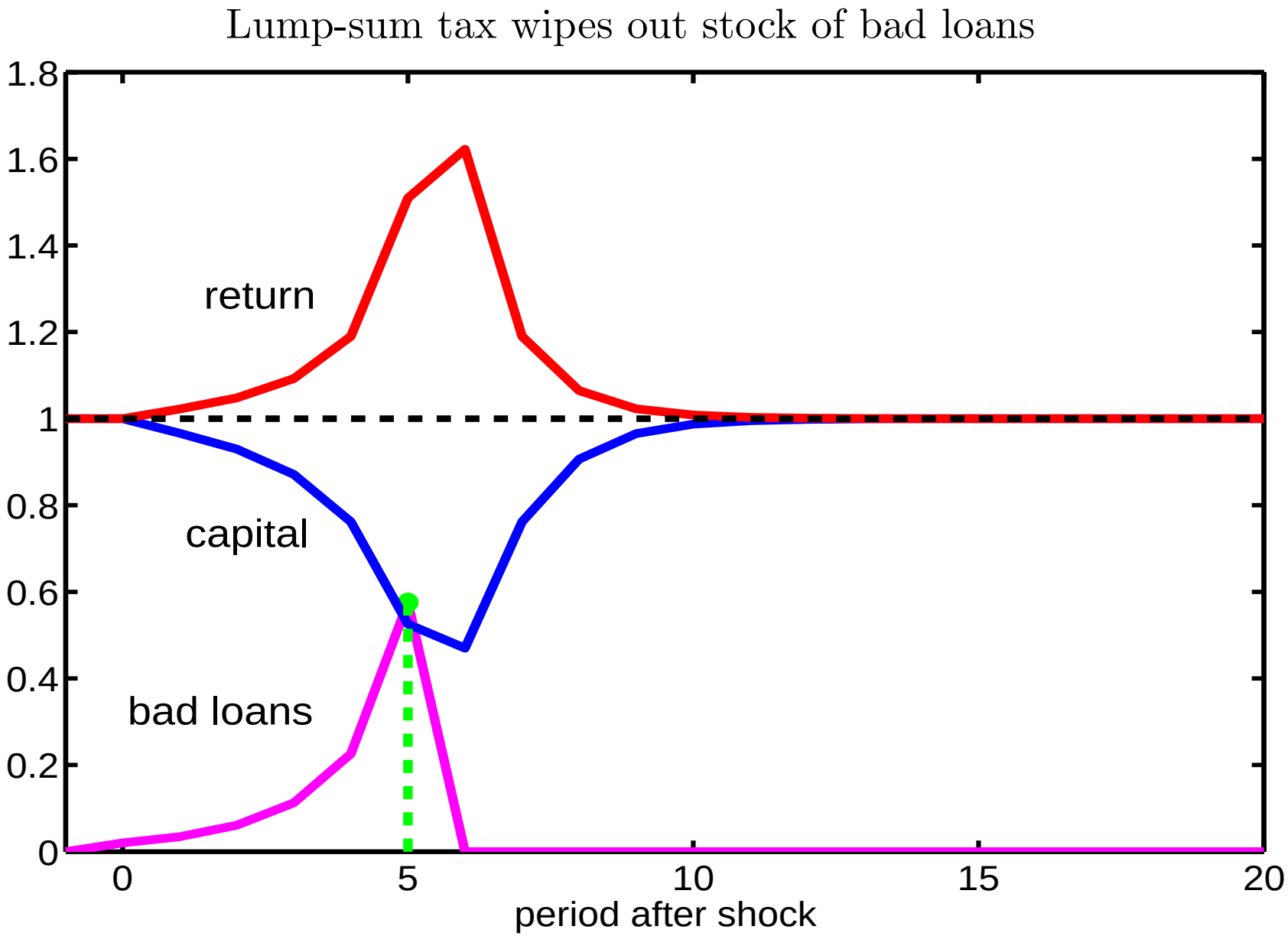
Delayed bailout: Bad loans grow at rate of interest




Significant crowding-out
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
return
capital
bad loans
0
5
10
15
20
period after shock

Bailout occurs when banks can no longer cover old deposits




Lump-sum tax wipes out stock of bad loans
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
return
capital
bad loans
0
5
10
15
20
period after shock

Quantitative Model

- Longer expected lifetime
- Endogenous labor supply, age-varying disutility from labor
- Endogenous TFP
  - monopolistically competitive firms with heterogeneous productivities
  - sunk entry cost, fixed overhead costs
  - entry/exit dynamics

Intuition for Fall in TFP

- Basic crowding-out effect reduces capital stock
  - reduces gross profits
  - reduces managerial wage (operating costs)
  - for low-productivity firms, net profits positive so more operate
  - reduces average productivity, TFP

- Bailout as soon as possible
  - if bad loans are 39% of GDP, then average yearly declines

output	capital	labor	solow
0.33%	0.34%	0.16%	0.11%

  - bailout by 40% increase in labor tax, takes 24 years!

- Match decline in investment/output ratio
  - if bad loans are 50% of GDP, then average yearly declines

output	capital	labor	solow
0.92%	0.93%	0.45%	0.31%

  - bailout by 30% decrease in government spending, takes 18 years!

Main Comments

- 'Bad loans' not bad, banks are indifferent. If so
  - consumers should have confidence in banking system
  - banks should be able to easily borrow from foreign banks
- But as Levon rightly notes
  - consumers favor postal deposits over banking deposits
  - banks face high inter-bank loan rate (premium 10 bp)
- Consistent with credible full deposit insurance?
  - probably not

Other Remarks

- Perfect foresight bailout: critically affects nature of bank assets
  - in what sense is bailout 'prospective'?
  - should we ignore actual interim bailout attempts? (e.g., in 1998-1999)
- Would be nice to document out of sample predictions
  - how believable are 20-year bailout packages?
- In model
  - decline in establishments/steady state is 'small' (1% vs. 7% in data)
  - real interest rates are 'flat' (small increase vs. decline in data)