

# Discussion of “A Lost Decade of Fiscal Misallocation” by Aoki, Fujiwara, Lin, Song and Wang

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**Question:** How does fiscal expansion affect **resource allocation**?

**Core idea:**

- Low interest rates → relaxed borrowing constraint
- → fiscal expansion (“easy borrowing”)
- → **politically-driven allocation** of government investment
- → **misallocation + welfare loss**

# Contribution Relative to Literature

## Misallocation literature

- Hsieh-Klenow (2009)
- Song et al. (2011)
- Mostly private-sector distortions

## Japan Lost Decade literature

- Caballero-Hoshi-Kashyap (2008), Peek-Rosengren (2005), Fukao-Kwon (2006)
- Japan's lost decade reflected distorted credit allocation and credit subsidies to weak firms, which reduced reallocation efficiency and depressed aggregate TFP growth.

**This paper:** A new mechanism: “fiscal curse of easy borrowing”

low rates  $\rightarrow$  fiscal misallocation  $\rightarrow$  *TFP*  $\downarrow$

# Empirical Facts

- Government investment rises sharply in the 1990s
- Widening gap:

$$R^K - R^G \uparrow$$

- Strong **negative correlation**:

$$\frac{I_{it}^G}{G_{it}} \sim R_{it+1}^G$$

- Interest rate decline  $\rightarrow$  borrowing surge

## Interpretation:

- Not just “too much spending”
- But **wrong allocation of spending**

# Model: Key Ingredients

## Two-period setup

- Regions  $i$ , production:

$$Y_i = A_i G_i^\alpha$$

- Planner:

$$R_i^G = 1 + r \Rightarrow \text{efficient allocation}$$

- Political government:

$$U^G = U^H + \sum_i \kappa_i v(G_i)$$

- Debt Limit:

$$D \leq \bar{D} = \frac{bW}{1+r}$$

# Key Mechanism: Capital Wedge

FOC:

$$(1 + \text{Political Distortion} - \text{Borrowing Shadow Cost}) R_i^G = 1 + r$$

**Two margins:**

- **Overinvestment**
  - Easy borrowing  $\rightarrow$  too much  $G$
- **Spatial misallocation**
  - Allocation driven by  $\kappa_i$ , not  $A_i$

# Fiscal Curse of Easy Borrowing

**Debt limit:**

$$\bar{D} = \frac{bW}{1+r}$$

**Lower  $r$  implies:**

- Higher borrowing capacity
- Lower shadow cost of public funds

**Result:**

- Political motives dominate efficiency
- Allocation shifts from:
  - Productivity-driven  $\rightarrow$  lobbying-driven

**Implication:**

$$r \downarrow \Rightarrow \text{TFP} \downarrow$$

# Main Comment 1: Endogeneity of Low Rates

## Paper's mechanism:

$r \downarrow \Rightarrow$  easy borrowing  $\Rightarrow$  misallocation  $\Rightarrow$   $TFP \downarrow$

## Alternative interpretation:

$$r \approx \theta g + \rho \quad (1)$$

asset collapse  $\Rightarrow$  zombie lending  $\Rightarrow$  TFP growth ( $g$ )  $\downarrow \Rightarrow$   $r \downarrow$

## Potential reinterpretation:

- This paper may identify an **amplification mechanism**.

# Zombie Ratio and its Effects on TFP during the Lost Decade

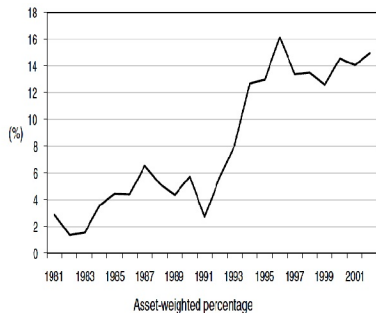


FIGURE 1. PREVALENCE OF FIRMS RECEIVING SUBSIDIZED LOANS IN JAPAN

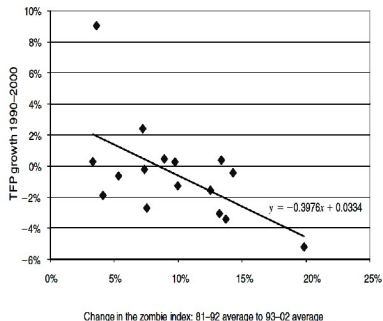


FIGURE 6. ZOMBIES AND TFP GROWTH

Figure: Zombie and TFP Growth (Source: Caballero-Hoshi-Kashyap (2008))

# How Could the Paper Address This?

## 1. Embed fiscal channel into banking-distress framework

banking distress  $\rightarrow r \downarrow \rightarrow$  fiscal amplification

## 2. Empirical Strategy: Cross-prefecture heterogeneity

Test whether fiscal misallocation is stronger in:

- weak-bank regions
- larger land-price collapses
- higher zombie exposure

## Exploit cross-prefecture heterogeneity: empirical strategy

$$\frac{I_{it}^G}{G_{it}} = \alpha_i + \delta_t + \gamma \times R_{i,t+1}^G + \theta \left( R_{i,t+1}^G \times \text{LostDecade}_t \right) + \beta \left( R_{i,t+1}^G \times \text{Exposure}_i \times \text{LostDecade}_t \right) + X_{it}\Gamma + \varepsilon_{it}$$

- In an efficient allocation, high-return prefectures should receive more investment until the returns are equalized ( $\gamma \geq 0$ ).
- This paper finds that in lost decade the opposite ( $\theta < 0$ )
- Question: whether this negative allocation-return relationship is stronger in prefectures more exposed to banking/zombie distress or larger land price falls ( $\beta < 0$ )

## Exposure measures

- for weak-bank exposure

$$Exposure_i^{Bank} = \sum_b share_{ib,pre} \times Weakness_{b,pre}$$

- $share_{ib,pre}$  is the pre-1990 dependence of prefecture  $i$  on bank  $b$ ;
- $Weakness_{b,pre}$  could be bank capital shortfall, NPL exposure, stock-price exposure, real-estate loan share, or later measured distress
- for land price collapse exposure

$$Exposure_i^{land} = -\Delta \log landprice_i$$

- for Zombie-firm exposure

$$Exposure_i^{zombie} = \sum_s EmploymentShare_{is,pre} \times ZombieShare_{is,pre}$$

## Main Comment 2: Estimation of Fiscal Rule

- The paper estimate the following fiscal rule

$$\frac{(a + r_{t+1}) D_{t+1}}{Y_t} = b$$

using the aggregate time series data on government debt to GDP ratio and the interest rate.

- However,  $r_{t+1}$  might be endogenous to  $Y_t$ , creating a potential endogeneity issue.
- better to use IV or internal parameter estimation for correcting this endogeneity issue.

# Main Comment 3: MPK Dispersion and Interpretation

## Core empirical fact:

$$R^K - R^G \uparrow \quad \text{during Lost Decade}$$

## Paper's interpretation:

- Misallocation of government capital

## Alternative (macro-finance) interpretation:

- Equilibrium asset pricing:

$$R_t^H = \alpha_H \frac{Y_t}{q_{t-1}^H G_t} + \frac{q_t^H}{q_{t-1}^H} (1 - \delta) - 1 \quad \text{for } H \in \{G, K\}$$

- Government capital priced differently, due to difference in risk, liquidity, policy backing

## Key question:

- Does  $R^G$  in data capture marginal product, or an **equilibrium return**?

## Main Comment 4: General Equilibrium Effects?

### Paper's focus:

- Misallocation within government investment

### But in equilibrium

- Government investment competes for savings  $\Rightarrow$  affects asset prices and returns

### Key mechanism likely missing:

- $G \uparrow \Rightarrow r^K \uparrow \Rightarrow K \downarrow$
- Crowding out of high-MPK private capital
- Welfare cost (0.31%) is likely **substantially underestimated**

## Specific Comments

- **Welfare decomposition:** Separate welfare gains from improved spatial allocation versus reduced over-investment across various policy experiments
- Source of large welfare gain of the benevolent planner: TFP (welfare) increase by 9.22% (11.93%)
  - multiple policy instruments ( $\kappa_{it}$  and lump-sum transfer to young ( $\{T_{t+j}\}_{j \geq 0}$ ))
  - or largely from no political distortion ( $\kappa_{it} = 0$ )?
- Why does misallocation reverse after 2002?

# Summary

- Very interesting and important insights

Interest rates → Fiscal behavior → Misallocation

- Main takeaway:
  - Fiscal expansion is not neutral
  - Its **allocation** matters critically
- My interpretation: the paper identifies a **fiscal amplification mechanism** within Japan's broader stagnation dynamics.
- Suggestions: address the potential endogeneity of  $r$ .