Public Finance in the Age of AI: A Primer

Anton Korinek   Lee M. Lockwood

University of Virginia, EconTAI, and NBER

Public Finance in the Age of AI

- **AI labs targeting transformative AI this decade**
- **Two-stage transformation:**
  - Stage 1: Labor share declines, inequality rises
  - Stage 2: AGI systems generate and absorb most value
- **Why this matters for public finance:**
  - Labor currently the key tax base and constraint on taxation
  - Need new frameworks for AI-dominated economy

Optimal Taxation in the Current Economy
(See Mankiw, Weinzierl, and Yagan (2009) and Mirrlees Review (2011))

1. **Tax labor earnings and consumption**
   - ▶ Balance equity gain against labor distortion cost

2. **Uniform commodity taxation**

3. **Avoid taxing normal returns to capital**

Roadmap: How Tax Policy Must Evolve

	Labor Tax	Consumption Tax	Capital Tax
Current economy	●	○	×
Stage 1: Twilight of labor	–	●	○
Stage 2: AGI economy	–	–	●

Legend: ● = primary role; ○ = supporting role; × = avoid

Outline

Stage 1: The Twilight of Labor

Model: Transition to Capital Economy

Production: $Y_t = AK_t^\alpha L_t^{1-\alpha}$

- ▶ As $\alpha \to 1$: approach AK economy
- ▶ Consider three tax instruments: τ_L, τ_C, τ_K

Key Results:

1. Capital income tax dominated by consumption + labor taxation $\to \tau_K^* = 0$
2. As labor share $\to 0$, must shift to consumption tax τ_C

Optimal Tax Mix

Optimal consumption tax eliminates inequality associated with endowment k_0^i:

$$0 = \text{cov}(u'(c^i), k_0^i)$$

Optimal labor wedge balances redistribution against labor distortion:

$$\frac{\tau_L^*}{1 - \tau_L^*} \cdot \frac{1}{1 + \tau_C^*} = -\frac{1}{\varepsilon} \cdot \frac{\text{cov}(u'(c^i), \theta^i l^i)}{\mathbb{E}[u'(c^i)]\mathbb{E}[\theta^i l^i]}$$

Intuition and implications:

▶ Tax consumption highly to address wealth inequality

▶ Optimal labor wedge depends on wage inequality

▶ As wages $\rightarrow 0$, must rely on consumption taxation

The Return of Ramsey Taxation

Why Ramsey (Differential) Taxation Returns

Current: Mostly-uniform commodity taxation is optimal (given admin costs)
- ▶ Labor distortion limits optimal tax rates, gain from differentiation

With TAI:
- ▶ ↓ labor distortion → ↑ optimal tax rates → ↑ gains from differentiation
- ▶ Distortions from evasion, home production rise in importance

Applications:
- ▶ ↑ tax on goods complementary with untaxable or high-evasion goods
- ▶ ↑ tax on goods involved in more time-intensive consumption activities

Also, TAI ↑ gain from differentiating fixed factors from reproducible capital

Stage 2: Optimal Taxation of AGI

The Challenge of Stage 2

AGI systems may:

- ▶ Generate most value

- ▶ Reinvest for self-improvement

- ▶ Bypass human consumption $\rightarrow$ little consumption tax revenue

Model: Two-agent economy

- ▶ AGI: produces output, accumulates capital

- ▶ Government: taxes AGI

- ▶ Humans: consume tax revenue

Question: How to optimally "harvest" AGI value?

Optimal Harvesting Result

Main insight: close equivalence to Ramsey consumption-savings problem

$$\tau_K^* = 1 - \beta$$

Intuition and implications:

▶ Like harvesting a growing forest

▶ Optimal harvest rate corresponds to human discount rate

▶ Independent of AGI productivity or goals

Policy Applications

Mapping Proposals to Theory

Policy	Type	Stage
Token taxes	Consumption	1
Robot services tax	Consumption	1
Digital services tax	Consumption	1
Compute tax	Capital	2
Robot ownership tax	Capital	2
Sovereign wealth fund	Equity	1-2
Windfall clauses	Equity	1-2

Key: In stage 1, tax final use (consumption), not production inputs

Policy Roadmap

Preparing for Stage 1:

- ▶ Shift from labor to consumption tax

- ▶ Build differential taxation capacity

- ▶ Identify fixed factors (land, spectrum)

Preparing for Stage 2:

- ▶ Adapt corporate tax for AGI entities

- ▶ Develop frameworks for AGI "harvesting"

Conclusion

- ▶ TAI is coming – need to prepare now
- ▶ Tax systems must evolve:
    - ▶ Stage 1: From labor to consumption taxation
    - ▶ Stage 2: Optimal AGI harvesting
- ▶ Can build on current tax infrastructure