# Public debt and secular stagnation

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# Main points

- Aggregate demand policy may be needed in the long run
- With a sensible fiscal policy, the long-run debt ratio depends
  - inversely on the rate of growth
  - inversely on government consumption
  - directly on the degree of inequality
- Misguided policy debates and misguided austerity policies

# Outline

- Some simple algebra
- Theory
  - Mainstream
  - ‘Functional finance’
- Secular stagnation
  - Japan
  - Summers, Krugman and others

Throughout:

  - Closed, mature economy

# SOME SIMPLE ALGEBRA

- Goods market equilibrium

$$\frac{Y}{K} = \frac{C}{K} + \frac{I}{K} + \frac{G}{K}$$

- Government consumption

$$\frac{G}{K} = \gamma$$

- Steady growth with full employment

$$\frac{I}{K} = n + \delta$$

- Choice of technique

$$\sigma = \frac{Y}{K} = f(r)$$

# Required consumption

$$\frac{C}{K} = \sigma - \gamma - (n + \delta)$$

- Is this condition satisfied ‘automatically’?
- Will  the capital intensity be optimal?
- What determines C/K?

# Kaleckian objections

- Endogenous utilization rates?
- Endogenous ‘natural growth rate’?
- Interest rates, choice of technique, and the capital controversy?

# DSGE MODELS

# Ramsey optimization

- Unique ‘natural rate of interest’
- Optimal capital intensity
- Saving rate adjusts

→ - no need for fiscal policy
- ineffectual fiscal policy (Ricardian equivalence)
- tax smoothing

# Robustness?

- Finite lives / finite horizon (ex: OLG)
  - Optimal capital intensity not ensured, even with perfect optimization and FE
  - If $r=r^*$, $Y/K=(Y/K)^*$ and $T=G$ then

$$\frac{C}{K} \gtreqless \left(\frac{Y}{K}\right)^* - \gamma - (n+\delta)$$

  - No Ricardian equivalence

# FUNCTIONAL FINANCE

- Set interest rate to get ‘optimal’ capital intensity
- Use fiscal policy to maintain full employment
  - What paths of taxes and public debt are consistent with full employment and the optimal capital intensity?

- Intrinsically debt is neither good nor bad

# Example

- Consumption

$$C = c(Y + rB - T) + \mu(K + B)$$

- Government budget constraint

$$\dot{B} = rB + G - T$$

- Adjust *T* to maintain full employment growth

# Implications

- Stable differential equation for *B/K*
- Why stable? An increase in public debt
  - raises private disposable income for given *T*
  - raises private wealth

# Comparative statics

$$\frac{B}{K} \rightarrow \left(\frac{B}{K}\right)^* = \frac{(1-c)\left(\left(\frac{Y}{K}\right)^* - \gamma\right) - \mu - (n+\delta)}{cn+\mu}$$

- Debt ratio depends
  - inversely on the natural growth rate
  - inversely on government consumption
    - Austerity policies
  - directly on the saving rate
    - Income distribution
  - directly the output capital ratio
    - Real interest rate

# Intuition

- Equilibrium condition

$$\frac{C}{K} = \sigma - \gamma - (n + \delta)$$

- With higher *n* or *γ*, consumption needs to get squeezed

  → raise taxes

- With higher inequality the saving rate rises

  → reduce taxes

- With a higher output-capital ratio, consumption needs to rise

  → reduce taxes

# DISCUSSION

# Reinhart and Rogoff

- Debt to GDP ratios over 90 percent “mean levels of growth almost 4 percent lower” (2010)
  - Herndon et al. (2014): no threshold but still negative correlation

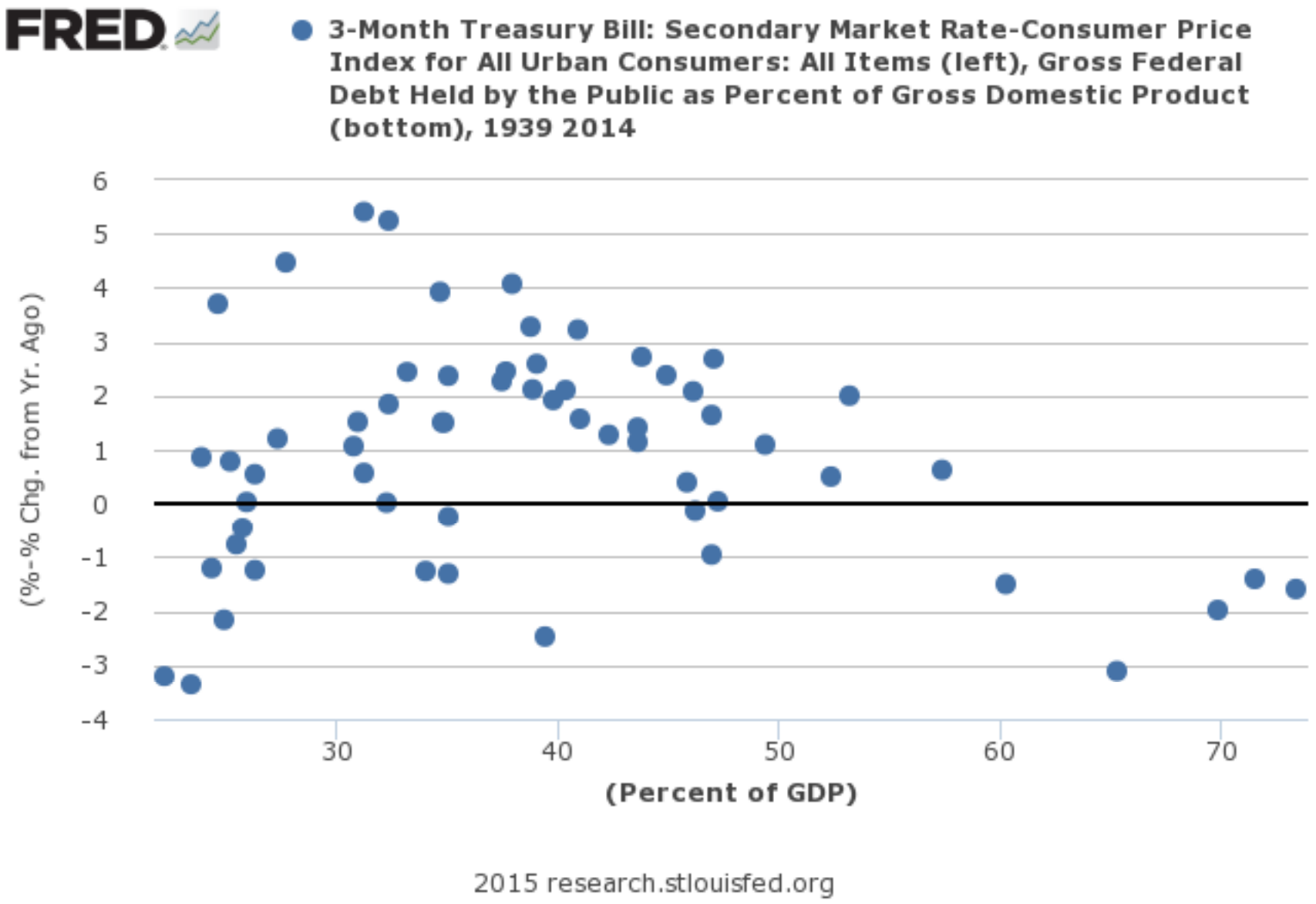
- Key question: Causation?
  - … and what happened to the Lucas critique?

# Robustness and extensions

- Traditional Keynesian models (Schlicht 2006, MECA)
- Neoclassical and Keynesian OLG models (Skott and Ryoo 2014, BEPressMacro, 2015 WP)
- 'Stock-flow consistent' models of a 'corporate economy' (Ryoo and Skott 2013 JPKE)
- Beyond steady growth
  - Short-run stabilization (Ryoo and Skott 2015 WP, Franke 2015 WP)

# Empirical relevance

- Does fiscal policy follow ‘functional finance’?
- Has high debt  been associated with crowding out and high interest rates?


FRED
3-Month Treasury Bill: Secondary Market Rate-Consumer Price Index for All Urban Consumers: All Items (left), Gross Federal Debt Held by the Public as Percent of Gross Domestic Product (bottom), 1939 2014
6
5
4
3
2
1
0
-1
-2
-3
-4
(%-% Chg. from Yr. Ago)
30
40
50
60
70
(Percent of GDP)
2015 research.stlouisfed.org

# JAPANESE GROWTH AND STAGNATION

# Growth rates (GDP per cap)

- 1945-1970:  8.2%
- 1970-1990:  3.6%
- 1990-2014:  0.8%

# Keynesian framework

- Pre-1970: hidden unemployment and catch-up potential
- Post-1970: “maturity”, end of catch-up and low population growth
- Structural demand problems associated with low natural growth and high saving

- Japanese stagnation
-
  - "can be explained by a combination of high saving rates and slow population growth. … the proximate problem of the Japanese economy in the 1990s may be one of aggregate demand, but the demand deficiency is structural."

Nakatani and Skott (2007)

# OECD Economic Survey (April 2015)

- ‘Bold structural reforms’
  - labor market reform
  - pension, long-term care, health reforms
  - …
- Reduce public debt (primary surplus by 2020)

# SECULAR STAGNATION

# Good stuff

- Summers, 2015, AERP&P
  - “the zero bound on nominal interest rates” implies that “ there is no guarantee that the real rate will be low enough for full employment” (p. 61)
  - “equilibrium interest rates may be lower on a sustained basis” (p. 62)
  - “finding ways to increase demand to spend … is likely to be an important part of the way forward” (p. 65)

# But then:

- Summers
  - "fiscal policy may not be possible, given that the government cannot indefinitely expand its debt" (response to Bernanke, blog 2015/04/01)
- Krugman
  - "Yes, the United States has a long-run budget problem" (NYT, 07,21,2010)
- Obstfeld
  - Japan's case "illustrates how dangerous it can be to tolerate large public debt buildups" (CEPR 2013, p.2)

- Where's the theory?
  - Irrelevant DSGE models

# ‘Equilibrium interest rates’

- The ‘equilibrium rate’ associated with full employment is policy dependent

$$r^{FE} = \phi(\gamma, \frac{B}{K}, n; z)$$

- Is Summers assuming *B/K=0*?
- Is the ‘equilibrium rate’ with *B/K=0* socially optimal?
- Is ‘functional finance’ unsustainable?

# CONCLUSIONS

# Structural liquidity traps / secular stagnation

- Don’t ignore long-run aggregate demand problems
- Full-employment growth may require fiscal policy and public debt

# Functional finance

- Don’t ask “is this exogenous path of primary deficits sustainable”?

- Instead: “what paths of taxes and debt can maintain full employment at the optimal capital intensity?”

# Debt implications

- Low growth → high debt
- Austerity policies (lower G) → high debt
- Increasing inequality → high debt

# The rediscovery of secular stagnation

- Great!!!
- But blindness to (post-) Keynesian contributions
  - … and they could learn from us!

# THANKS!