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Economics 614: Macroeconomics II  
Spring 2005  
Cornell University  
Problem Set #8  
Due: Monday, March 28, 2005

1 Full-employment Effects of Government Debt

\[ Y = 2K^{.75}L^{.25}. \]

Savings out of disposable income, \( s = .05. \)
Labor force growth, \( n = .01. \)
Depreciation, \( \mu = 0. \)

Calculate:

(1) \( k^*, \) the golden-rule capital-labor ratio
(2) \( \bar{k}, \) the maximum sustainable capital-labor ratio
(3) \( k^d, \) the steady-state capital labor ratio when \( \Delta = 0 \)
(4) \( \Delta^{\text{max}}, \) the maximum sustainable debt per head
(5) \( \Delta^{\text{min}}, \) the maximum sustainable surplus per head

Plot:

(1) steady-state \( k \) on the vertical axis versus steady-state debt \( \Delta \) on the horizontal axis
(2) steady-state consumption \( c \) on the vertical axis versus steady-state debt \( \Delta \) on the horizontal axis

[Plotting hint: \( k \) is not in general a single-valued function of \( \Delta. \) \( c \) is not in general a single-valued function of \( \Delta. \)]