

Economics 614: Macroeconomics

Spring, 2010

Cornell University

Problem Set #5

Due: Friday, March 12, 2010

Endogenous Growth:

3 factors of production: 2 conventional factors (Private Capital K , Labor L), 1 social overhead capital (ideas or roads or sewers A)

$$\begin{aligned}Y &= A^a K^b L^c = R + Z + C \\ \dot{A} &= R - \rho A = \tau Y - \rho A \\ \dot{K} &= Z - \mu K = s(1 - \tau)Y - \mu K \\ L &= 1, \dot{L} = 0 \\ b + c &= 1 \\ Z &= s(1 - \tau)Y \\ R &= \tau Y\end{aligned}$$

Do the complete dynamic analysis for the following cases:

- (1) $a = 1 = b, c = 0 = 1 - b$
- (2) $0 < a + b < 1, c = 1 - b$
- (3) $1 < a + b, c = 1 - b$
- (4) $1 = a + b, c = 1 - b$

Which case(s) remind you of Solow? Which case(s) remind you of Shell (1967)? Which case(s) remind you of neither?