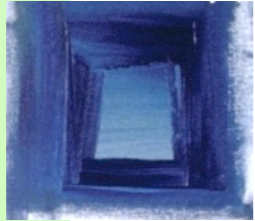# Class 15

## Econ 402
## James Morley

# Class 15 Outline

- Golden Rule and Cobb Douglas Production

- Level vs. Growth Effects

- Technological Change vs. Capital Accumulation

- A "calibrated" model

# A numerical example for Golden rule

Production function (intensive form):

$$y = f(k) = k^{1/2}$$

How would you solve for the the Golden rule saving rate? What would it be? (Assume n=0.)

# Level vs. Growth Effects

- What is the impact of a increase in the saving rate on the level of output per person and the growth of output per person?

- What is the mechanism by which the saving rate has an impact?

# Population Growth

Does population growth affect economic growth? How?

# Summary of
# Level vs. Growth Effects

- The saving rate (s) and the population growth rate (n) can impact growth in the short run

- In the long-run, they only alter the steady-state level of output per worker. Therefore, they do not impact growth in output per worker in the long run.

- Population growth produces growth in output, but not output per worker

# Technological Change

- In the Solow Growth Model, long-run growth in output per worker is due solely to technological change (Ch. 8)

- Long-run growth appears to be more important than transition to steady state

- Thus, capital accumulation plays a relatively small role in explaining differences in output per worker across time and countries

# A "Calibrated" Model

- L=300 million, Y=$12 trillion, K=$30 trillion

- s=0.175, delta=0.04, n=0.01, g=0.02, alpha=0.3

- E=1 (normalization) => A=1264

- Next time: The Empirics of Economic Growth and Alternative Theories (Remainder of Chapter 8 in Mankiw)

- Optional "Spring Break" Assignment posted and due on Monday, March 19