

**ECO 305: Intermediate Macroeconomics**

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**Homework: Economic Growth**

**Fall 2011**

1. Suppose there is an improvement in communication technology, making workers more productive.
  - (a) Describe and illustrate the effect on long-run levels of capital stock per worker and output per worker, in an economy where production of goods and services depends only on capital and the supply of labor.
  - (b) Suppose production of goods and services also depends on human capital. Suppose also that a constant fraction of a country's capital stock is dedicated toward education and training workers. Describe and illustrate the effect your answer in part (a) has on the evolution of human capital. Describe and illustrate the consequence for human capital per worker and output per worker in the long run.
2. Suppose a country decides to dedicate more of its capital stock to human capital production, and less to production of final goods and services.
  - (a) For a given level of human capital (just supposing human capital stays constant while you answer this question), describe and illustrate the impact this has on long-run output per worker.
  - (b) Describe and illustrate impact this has on the evolution for the average level of human capital per worker. What could be the effect on the evolution of output per worker?
  - (c) Human capital investment is subject to diminishing returns to physical capital stock. Given your different answers for parts (a) and (b), describe when it would be beneficial for the government to impose such a policy, and when it might hurt the economy to impose such a policy.