CHAPTER 8 Economic Growth II

Questions for Review

1. In the Solow model, we find that only technological progress can affect the steady-state rate of growth in income per worker. Growth in the capital stock (through high saving) has no effect on the steady-state growth rate of income per worker; neither does population growth. But technological progress can lead to sustained growth.

2. To decide whether an economy has more or less capital than the Golden Rule, we need to compare the marginal product of capital net of depreciation ($MPK - \delta$) with the growth rate of total output ($n + g$). The growth rate of GDP is readily available. Estimating the net marginal product of capital requires a little more work but, as shown in the text, can be backed out of available data on the capital stock relative to GDP, the total amount of depreciation relative to GDP, and capital's share in GDP.

3. Economic policy can influence the saving rate by either increasing public saving or providing incentives to stimulate private saving. Public saving is the difference between government revenue and government spending. If spending exceeds revenue, the government runs a budget deficit, which is negative saving. Policies that decrease the deficit (such as reductions in government purchases or increases in taxes) increase public saving, whereas policies that increase the deficit decrease saving. A variety of government policies affect private saving. The decision by a household to save may depend on the rate of return; the greater the return to saving, the more attractive saving becomes. Tax incentives such as tax-exempt retirement accounts for individuals and investment tax credits for corporations increase the rate of return and encourage private saving.

4. The rate of growth of output per person slowed worldwide after 1972. This slowdown appears to reflect a slowdown in productivity growth—the rate at which the production function is improving over time. Various explanations have been proposed, but the slowdown remains a mystery. In the second half of the 1990s, productivity grew more quickly again in the United States and, it appears, a few other countries. Many commentators attribute the productivity revival to the effects of information technology.

5. Endogenous growth theories attempt to explain the rate of technological progress by explaining the decisions that determine the creation of knowledge through research and development. By contrast, the Solow model simply took this rate as exogenous. In the Solow model, the saving rate affects growth temporarily, but diminishing returns to capital eventually force the economy to approach a steady state in which growth depends only on exogenous technological progress. By contrast, many endogenous growth models in essence assume that there are constant (rather than diminishing) returns to capital, interpreted to include knowledge. Hence, changes in the saving rate can lead to persistent growth.