

EXERCISES

1. *A decrease in the investment rate.* Suppose the U.S. Congress enacts legislation that discourages saving and investment, such as the elimination of the investment tax credit that occurred in 1990. As a result, suppose the investment rate falls permanently from s' to s'' .

Examine this policy change in the Solow model with technological progress, assuming that the economy begins in steady state. Sketch a graph of how (the natural log of) output per worker evolves over time with and without the policy change. Make a similar graph for the growth rate of output per worker. Does the policy change permanently reduce the *level* or the *growth rate* of output per worker?

2. *An increase in the labor force.* Shocks to an economy, such as wars, famines, or the unification of two economies, often generate large one-time flows of workers across borders. What are the short-run and long-run effects on an economy of a one-time permanent increase in the stock of labor? Examine this question in the context of the Solow model with $g = 0$ and $n > 0$.
3. *An income tax.* Suppose the U.S. Congress decides to levy an income tax on both wage income and capital income. Instead of receiving $wL + rK = Y$, consumers receive $(1 - \tau)wL + (1 - \tau)rK = (1 - \tau)Y$. Trace the consequences of this tax for output per worker in the short and long runs, starting from steady state.