

Macro Module 4 Solow growth model savings rate practice exam questions

Countries ABC and XYZ follow the simple Solow growth model, with no changes in the technology level.

- The savings rate is 31% greater in country ABC than in country XYZ.
- The depreciation rate is 5.34% and the population growth rate is 2.80% in both countries.
- In 20XX, capital per worker is 836 and real GDP per worker is 266 in both countries.
- The growth rate of capital per worker in country XYZ is 1.35% *per annum*.

Question 4.1: Ratio of income to capital

What is the ratio of income to capital in 20XX for these two countries?

Answer 4.1: $266 / 836 = 31.82\%$

Question 4.2: Savings rate

What is the savings rate in country XYZ?

Answer 4.2: $(2.80\% + 1.35\%) / (31.82\% - 5.34\%) = 15.67\%$

growth rate of capital per worker = savings rate \times (ratio of income to capital – depreciation rate) – population growth rate \Rightarrow

savings rate = (population growth rate + growth rate of capital per worker) / (ratio of income to capital – depreciation rate)

Question 4.3: Savings rate

What is the savings rate in country ABC?

Answer 4.3: $15.67\% \times (1 + 31\%) = 20.53\%$

(savings rate is 31% higher in ABC than in XYZ)

Question 4.4: Growth rate of capital per worker

What is the growth rate of capital per worker in country ABC?

Answer 4.4: $20.53\% \times (31.82\% - 5.34\%) - 2.80\% = 2.64\%$

(growth rate of capital per worker = savings rate \times (ratio of income to capital – depreciation rate) – population growth rate)