Faculty of Business and Economics
Department of Economics

THE UNIVERSITY OF
MELBOURNE

Introductory Macroeconomics

Pre-Tutorial #8
Week Starting 3rd May 2021

The Tutorial.   This week's tutorial looks at economic growth.

Note that your tutor is under no obligation to go through the answers to the pre-tutorial work in detail. The focus in the tutorial will be on the tutorial work itself – the questions here are preparatory.

Reading Guide.   You should look carefully over lectures 15 and 16. You may also find Chapter 14 and 15 of BOFAH useful.

Key Concepts.   Growth accounting. Labour/Capital share of income. Solow-Swan model.

Problems.

1. The Republic of Ostralaya has experienced a 3 per cent increase in output per worker this year and a 1 per cent rise in capital per worker. Assuming a Cobb-Douglas production function where capital income accounts for 30 per cent of GDP, calculate how much output per worker growth is explained by capital per worker and total factor productivity.

2. Consider the Solow-Swan model.

   (a) What is meant by the term steady state? Provide an interpretation of the following equation:

   $$\theta \frac{Y_t}{L_t} = \left(\frac{K_{t+1}}{L_{t+1}} - \frac{K_t}{L_t} \right) + (d+n) \frac{K_t}{L_t}$$

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   (b) What happens to the capital-labour ratio in steady state? Will K be changing in the steady state? If so, at what rate?

3. What would be the implications for Australia's steady-state per capita capital stock of a rise in the saving rate?

4. The income approach to National Accounts implies:

   $$Y = wL + (r + \delta)K,$$

   where w is the wage, r the interest rate, and δ the capital depreciation rate.

   (a) Provide an economic interpretation to the above equation.

   (b) Assume that the economy is described by a Cobb-Douglas production function. Moreover, assume that the output price (parameter p in the lecture note) is 1. These assumptions imply that the wage is equal to the marginal product of labour and the interest rate plus the depreciation rate is equal to the marginal product of capital. Find expressions for the labour share of income, wL/Y and the capital share of income, $(r + \delta)K/Y$. What determines the labour and capital share in this economy?