Macroeconomics, Part I
Petra Geraats, Lent 2020

Supervision 4

Goods Market Equilibrium in the Short Run

Short question (250 words max)

1. An increase in the desire to save could result in a decrease in actual saving. True or false? Explain. [cf Tripos 2000]

Problems

2. Consider the following macroeconomic model of income determination in a closed economy with a fixed price level:

$$\begin{aligned} Y &= C + I + G \\ C &= C_0 + c\,(Y - T) \\ I &= I_0 + aY - br \\ T &= \bar{T} \\ G &= \bar{G} \end{aligned}$$

where Y is national income, C is planned consumption demand, I is planned investment demand, T is taxes, G is government purchases, r is the (real) interest rate. In addition, $C_0 > 0$, $0 < c < 1$, $a > 0$, $b > 0$, and $\bar{G} > 0$. Consider the case in which there is a unique stable equilibrium.

(a) Give a brief economic interpretation of the equations.

(b) Show graphically how equilibrium income is determined using the Keynesian cross. What are the conditions for existence of a unique stable equilibrium?

(c) Derive the multiplier for government purchases. Explain intuitively what determines its size.

(d) Show graphically and derive algebraically the effect on national income of

i. an autonomous improvement of investor sentiment.

ii. an autonomous increase in consumer thriftiness.

3. Consider the following macroeconomic model of income determination in a closed economy with a fixed price level:

$$\begin{aligned} Y &= C + I + G \\ C &= C_0 + c\,(Y - T) \\ I &= \bar{I} \\ T &= \bar{T} \\ G &= \bar{G} \end{aligned}$$

where Y is national income, C is planned consumption demand, I is planned investment demand, T is taxes, G is government purchases. In addition, C_0, $\bar{I}$, $\bar{T}$ and $\bar{G}$ are positive constants and $0 < c < 1$.

(a) Derive the government-purchases multiplier and the tax multiplier. Explain intuitively how their magnitudes compare and what determines their size.

(b) Derive the balanced-budget multiplier, i.e. the effect of an equal increase in both government purchases and taxes ($\Delta G = \Delta T$) on national income. Explain how it compares to the government-purchases multiplier.

Now assume that instead of lump-sum taxes ($T = \bar{T}$), there is an income tax such that $T = T_0 + tY$, where $0 < t < 1$.

(c) Derive the government-purchases multiplier. Explain how the income tax acts as an 'automatic stabilizer'.

(d) Analyze the effects of an increase in government purchases $\bar{G}$ if the government maintains a balanced budget.

Essay (1000 words max)

4. "Keynes changed our view of the world from one in which a saving dog wags an investment tail to one in which an investment dog wags a saving tail." Discuss.

Main reading

- Mankiw and Taylor (2014), *Macroeconomics - European Edition*, chapters 11.1, 18.1, 19.3.

Supplementary references
- Blanchard and Johnson (2012), *Macroeconomics*, chapter 3.
- Harrod (1937), "Mr Keynes and Traditional Theory", *Econometrica* 5(1), January, pp. 74-86.