Introductory Macroeconomics

Pre-Tutorial #4
Week Starting 29 March 2021

The Tutorial. This week's tutorial provides more examples of working with the Keynesian model.

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 your lecture notes for Weeks 3 and 4. You may also find Chapter 8 of BOFAH useful.

Key Concepts. Fiscal policy. The multiplier. Leakeages and injections.

Problems.

1. Consider a Keynesian model where net taxes collected depend on the state of the economy

$$T = \bar{T} + tY$$

with marginal tax rate t. The rest of the economy is standard

$$C = \bar{C} + c(Y - T)$$
$$I = \bar{I}$$
$$G = \bar{G}$$

Suppose the specific numerical values $\bar{C} = 1600$, $\bar{I} = 1000$, $\bar{G} = 1800$, marginal propensity to consume $c = 0.8$, and for the tax system $\bar{T} = 3000$ and marginal tax rate $t = 0.01$ (okay, so this tax rate is not descriptively realistic — just go with it).

(a) Find a numerical equation relating planned aggregate expenditure to output.

(b) Solve for short-run equilibrium output.

(c) Suppose potential output is $Y^* = 10000$. What marginal tax rate t would achieve full employment?

(d) Show your result graphically using the 45-degree diagram and explain how the change in the marginal tax rate t identified in part (c) has enabled full employment to be achieved.

2. Using the Keynesian model described in Question 1 above, derive an expression for the multiplier

$$\frac{dY}{d\bar{G}}$$

associated with an increase in government purchases $\bar{G}$. Explain how the value of the government purchases multiplier varies depending on the value of the marginal propensity to consume c and the marginal tax rate t.