

Review Seminar

Section A

1. Explain the effect of the following on the equilibrium government spending multiplier in a closed economy with fixed prices: [Tripos 2015]
 - (a) A reduction in unemployment insurance.
 - (b) A decision by the central bank to react more aggressively to the output gap.

2. Describe the long run implications of the following for the trade balance and real exchange rate of a small open economy: [Tripos 2015]
 - (a) A reduction in the world real interest rate.
 - (b) A tax rise.

3. The government of an economy decides to cut down on defence spending. What is the effect of such a policy on the real interest rate, investment, net capital outflows and real exchange rate in the long run when [Tripos 2014]
 - (a) The economy is closed.
 - (b) The economy is small and open.

4. Discuss briefly the possible long run effects of quantitative easing. [Tripos 2014]

5. Can expected inflation have an expansionary short run effect on GDP in a small open economy with a fixed exchange rate? Explain your answer. [Tripos 2014]

6. Consider a closed economy in the short run with fixed prices and interest rate. The marginal propensity to consume is 0.8 and the income tax is 0.3. Government spending is 30 and the government budget is in balance. If the government decides on a tax-financed increase in spending of 10, by how much does GDP increase? By how much does the income tax rate change? Give an intuitive explanation of your results. [Tripos 2011]

7. Consider a small open economy with a floating nominal exchange rate. If the government levies a tax on foreign capital holdings, the arbitrage condition for foreign investments becomes, $R = R^* - \tau$, where R is the domestic interest rate, R^* is the foreign interest rate and τ is the tax rate. What effect does the introduction of the tax have on the nominal exchange rate in the short run? [Tripos 2010]

8. An economy has gone into recession and its output has fallen by £20bn. Suppose that the marginal propensity to consume is $1/2$, that the income tax rate is $1/2$ and that the marginal propensity to import is $1/8$. According to the Keynesian Cross model, by how much should the government reduce the income independent tax to restore output to its previous level? How does your answer depend on the marginal propensity to consume? [Tripos 2009]

9. What happens to the steady state capital-labour ratio, output per worker and consumption per worker if technological progress slows down? [Tripos 2008]

10. Consider a closed economy, where a monetary expansion takes place. Is the impact on the short-run GDP larger when the demand for real money balances depends upon or is independent of the interest rate? Explain. [Tripos 2006]

11. In a closed economy with a fixed interest rate and a fixed price level, where the marginal propensity to consume is $1/2$ and the tax rate is $1/4$, calculate how large a reduction in the income-independent part of the tax schedule is required to increase aggregate output by 10 units. Interpret the results. Would the required reduction be larger or smaller if the interest rate is variable? [Tripos 2005]

Section B

1. Consider an economy with constant population, described by the Solow model. Assume that in this economy there is a government that just spends resources without contributing to production or capital accumulation. The production function in per capita terms is $y = \sqrt{k}$, where y is output per capita and k is capital stock per capita. The government maintains a balanced budget and government spending is financed by proportional income taxation at a constant income tax rate τ . Households save a constant fraction s of their disposable income, and consume the rest of their income. Capital depreciates at rate δ . It is assumed that $0 \leq \tau < 1$, $0 < s < 1$ and $0 < \delta < 1$. [Tripos 2015]
 - (a) Write the resource constraint for this economy in per capita terms. Use this to derive equilibrium investment per capita.
 - (b) Derive the fundamental equation of the Solow growth model for this economy.
 - (c) Derive the steady state capital per capita k^* . How does k^* change when the tax rate τ increases? Provide an intuitive explanation for your answer.
 - (d) Discuss (without doing any derivations) how your answer in (c) may change if the government spending were productive, i.e. if G entered the production function as a factor of production.

2. A central bank in a closed economy is setting the nominal interest rate, i , so that the real interest rate, r , satisfies the following equation:

$$r = 2 + 0.5(\pi - \bar{\pi}).$$

The inflation target, $\bar{\pi}$, is 2, but consumers and firms in the economy currently anticipate deflation at a rate of 1 per cent. [Tripos 2015]

- (a) Show that there is a minimum value for π such that the central bank is able to adhere to its rule, and compute this minimum. What happens for lower values of π ?
- (b) Current levels of consumer demand, investment and government spending in the economy imply the following IS equation:

$$Y = 500 - 100r$$

Derive an aggregate demand curve for this economy in inflation-output space, and comment briefly on its shape.

- (c) The long-run level of aggregate supply in this economy is given by $\bar{Y} = 450$. Discuss, with the use of diagrams, what policy options are available to ensure $Y = \bar{Y}$. How would you expect inflation expectations to evolve if there is no policy change?

3. A small open economy with sticky prices is described by the following relationships:

$$\begin{aligned}C &= 1000 + 0.6(Y - T) \\I &= 400 - 50r \\G &= 400, \quad T = 300 \\NX &= 370 - 100e - 0.1(Y - T)\end{aligned}$$

where Y is GDP, C is consumption, T is taxation, I is investment, G is government expenditure and NX is net exports. The nominal exchange rate, e , is pegged at a value of 1.2. [cf Tripos 2015]

- (a) First, assume that the domestic interest rate, r , is equal to the world rate, r^* , and that $r^* = 2$.
- Find equilibrium GDP and net exports in this economy.
 - What is the effect on GDP and net exports of an increase in government spending to 500?
- (b) Now suppose that the relationship between r and r^* is given by:

$$r = r^* + \gamma(G - T)$$

- Discuss briefly why this relationship might arise.
 - Derive the equilibrium government spending multiplier, $\frac{dY}{dG}$, in terms of γ , and provide a brief interpretation of your result.
4. Consider a closed economy with no government, in which consumption demand C is described by the function

$$C = c_0 + c_1Y$$

where Y is income and c_0, c_1 are positive constants. Suppose that there is an increase in the autonomous consumption demand of the agents, c_0 . [Tripos 2013]

- What is the long run effect of such a shift in private consumption demand on income, savings and investment?
- How would your answer for part (a) change if you considered the short run effects of the same shift on income, savings and investment?
- Compare your answers for parts (a) and (b) and explain where the differences originate from.

5. A small open economy with a floating nominal exchange rate and a fixed price level is hit by a large nominal demand shock that increases the demand for nominal money balances. The government wants to stabilise the economy by cutting taxes. [Tripos 2009]
- (a) Analyse the effect of this policy diagrammatically and evaluate how effective it is likely to be.
 - (b) The tax cut is financed through borrowing. International investors become concerned about the level of government debt and demand a higher risk premium to be willing to invest in the country. How does this affect your evaluation of the tax cut?
6. Consider the AD-AS model for a closed economy. The government has been persuaded to cut the tax rate on income. [Tripos 2008]
- (a) Analyse the impact of this tax cut on aggregate demand.
 - (b) Suppose the government must run a balanced budget. How would this affect your answer to a)?
 - (c) There exists ample empirical evidence that high income taxes reduce labour supply. Analyse how the tax cut would affect aggregate supply in the short run and in the long run.
 - (d) Under the assumption that the government can finance its spending plans after the tax cut through the sale of bonds, analyse what the overall effects of the tax cut on employment, output, and the real rate of interest are likely to be.