Supervision 6
Aggregate Demand and Supply

**Short questions** (250 words max)

1. Why does the aggregate demand curve slope downward in price-output space? [Tripos 2000]

2. Suppose the central bank sets the real interest rate $r$ according to the following Taylor rule:

   $$ r = \bar{r} + m_\pi (\pi - \bar{\pi}) + m_Y (Y - \bar{Y}) $$

   where $\pi$ denotes inflation, $Y$ aggregate output, and the coefficients $m_\pi$ and $m_Y$ are positive. Using the IS-MP model, explain the short-run effects of:

   (i) an increase in inflation;
   (ii) an increase in the monetary policy feedback coefficient on output, $m_Y$.

3. Using aggregate supply and demand analysis, explain the likely consequences for real GDP and inflation in a closed economy if the central bank decides to target a higher rate of inflation.

4. Using the sticky-wage model, explain the short-run effect on aggregate output, the aggregate price level and the real wage of

   (i) a negative aggregate demand shock
   (ii) a negative productivity shock.

   Explain whether the observed behavior of the real wage over the business cycle is consistent with the sticky-wage model.
Problem

5. Consider a closed economy without government, in which investment $I$ is given by

$$I = I_0 - br$$

where $r$ denotes the real interest rate, and $I_0$ and $b$ are positive parameters. Aggregate consumption $C$ is described by

$$C = C_0 + cY + d\frac{M}{P}$$

where $Y$ denotes aggregate income, $\frac{M}{P}$ real money balances, and $C_0$, $c$ and $d$ are positive parameters, with $0 < c < 1$. The demand for real money balances equals

$$\left(\frac{M}{P}\right)^d = \alpha Y - \beta (r + \pi^e)$$

where $\pi^e$ denotes expected inflation, and $\alpha$ and $\beta$ are positive parameters. Suppose the monetary authority sets the real interest rate equal to $\bar{r}$ by controlling the supply of real money balances. Assume that $\pi^e$ is given and that $c + \alpha d < 1$.

(a) Derive an expression for equilibrium output in terms of $\bar{r}$ and the parameters.

(b) What is the multiplier associated with an increase in autonomous consumption, $\frac{dY}{dC_0}$? Explain how it compares to the standard Keynesian multiplier.

(c) Derive and explain the aggregate demand (AD) relationship in this model

i. between $Y$ and $P$ for $\pi^e = 0$;
ii. between $Y$ and $\pi$ for $\pi^e = \pi$.

Essay (1000 words max)


Main reading


Supplementary references