

Consider an economy characterized by the following Aggregate Demand and Aggregate Supply relations:

$$P = P^e(0.5 + 0.0005Y) \quad [AS]$$

$$P = 10 - 0.008Y + 0.01G \quad [AD].$$

a) Confirm that the natural level of output is 1000. If the economy starts in medium run equilibrium with government expenditure of $G = 200$, find: the level of output; the actual price level; and the expected price level.

b) Now suppose that there is a sharp increase in the price of oil, which causes the Aggregate Supply curve to shift to $P = P^e(0.5875 + 0.0005Y)$ [AS']. Continue to assume that $G = 200$.

i. Find the new natural level of output.

ii. Find the short run equilibrium output and price level (accounting for adjustment in all markets, but no immediate adjustment in price expectations) directly caused by the supply shift.

iii. Find the level of output and the price level that will arise once the economy has converged to its new medium run equilibrium.

c) Continue to assume that the Aggregate Supply curve is $P = P^e(0.5875 + 0.0005Y)$. Government expenditure is initially at $G = 200$. Suppose that, immediately after the supply shift, the government decides to adjust its expenditure to move the economy back to the previous output level (i.e. the initial natural level of output, 1000).

i. Find the new level of government expenditure that is necessary to achieve the government's goal.

ii. Find the level of output and the price level that will arise once the economy has converged to its new medium run equilibrium. (Assume that government expenditure stays fixed at the new level you just found.)

d) Continue to assume that the Aggregate Supply curve is $P = P^e(0.5875 + 0.0005Y)$. Forget about part c), and assume once again that government expenditure is initially at $G = 200$. Suppose that, immediately after the supply shift, the government decides to adjust its expenditure to move the economy directly to the new natural level of output.

i. Find the new level of government expenditure that is necessary to achieve the government's goal.

ii. Find the level of output and the price level that will arise in the new medium run equilibrium. (Assume that government expenditure stays fixed at the new level you just found.)