

## Price Shock and AS Shift Answers

Econ 311

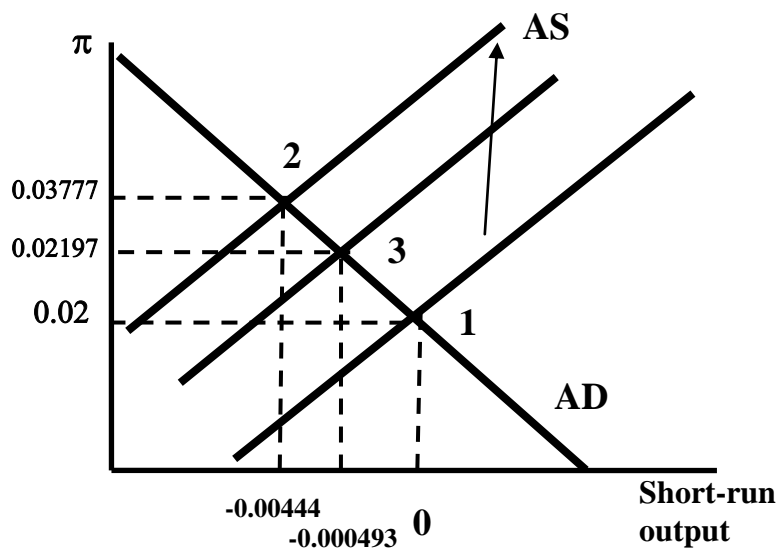
Prof. Eschker

Suppose that for an economy the central bank has an inflation target of  $\bar{\pi} = 2\%$  and

the AD curve is  $\pi = \left( \frac{\bar{x}-1}{\bar{b}\bar{m}} \right) \tilde{Y}_t + \left( \frac{\bar{a}}{\bar{b}\bar{m}} \right) + \bar{\pi}$

and the AS curve is  $\pi_t = \pi_{t-1} + \bar{v}\tilde{Y}_t + \bar{o}$  where  $\bar{b} = \frac{1}{2}$ ,  $\bar{m} = \frac{1}{2}$ ,  $\bar{v} = \frac{1}{2}$ ,  $\bar{x} = 0$ .

1. Draw the AD-AS diagram in the steady state in period zero and indicate the inflation rate and short run output level. Hint: what are  $\bar{a}$  and  $\bar{o}$  in the steady state?



2. Suppose that a price shock hits the economy in period one and  $\bar{o} = 2\%$ . What is the value of  $\pi_1$  and  $\tilde{Y}_1$ ? Hint: Solve AD and AS simultaneously.

$$\left( \frac{\bar{x}-1}{\bar{b}\bar{m}} \right) \tilde{Y}_t + \left( \frac{\bar{a}}{\bar{b}\bar{m}} \right) + \bar{\pi} = \pi_{t-1} + \bar{v}\tilde{Y}_t + \bar{o}$$

$$\left( \frac{-1}{\frac{1}{2} * \frac{1}{2}} \right) \tilde{Y}_t + 0.02 = 0.02 + \frac{1}{2} \tilde{Y}_t + 0.02$$

Solving gives:

$$\tilde{Y}_1 = -0.00444, \pi_1 = 0.03777$$

3. Draw the new AS curve on the figure above.

Point 2 above

4. Suppose that in period 2 the inflation shock goes away and  $\bar{o} = 0$  once again. What is the value of  $\pi_2$  and  $\tilde{Y}_2$ ? Hint: Solve AD and AS simultaneously and use  $\pi_1$  from your answer to #2.

$$\left(\frac{\bar{x}-1}{\bar{b}\bar{m}}\right)\tilde{Y}_t + \left(\frac{\bar{a}}{\bar{b}\bar{m}}\right) + \bar{\pi} = \pi_{t-1} + \bar{v}\tilde{Y}_t + \bar{o}$$

$$\left(\frac{-1}{\frac{1}{2} * \frac{1}{2}}\right)\tilde{Y}_t + 0.02 = 0.03777 + \frac{1}{2}\tilde{Y}_t$$

Solving gives:

$$\tilde{Y}_2 = -0.003948, \pi_2 = 0.03579$$

5. Draw the new AS curve on the figure above.

See point 3