

Analytical Problems

1. (a) The increase in MPK^f leaves aggregate supply unchanged, since expected future labor income and expected future wages are unchanged. But aggregate demand increases, because firms increase investment, shifting the IS curve up and to the right. There is no shift in either the LM curve or the FE line.

Figure 10.6(a) shows that the increase in aggregate demand causes no change in output, since the AS curve is vertical, but the price level increases. Figure 10.6(b) shows the shift up and to the right of the IS curve from IS^1 to IS^2 . To get the economy to equilibrium, the price level rises so that the LM curve shifts from LM^1 to LM^2 . The real interest rate increases as a result. In the labor market, there is no change in labor demand or supply, so employment and output are unchanged. Since the real interest rate rises, saving increases and consumption declines. Since investment equals saving, investment also rises.

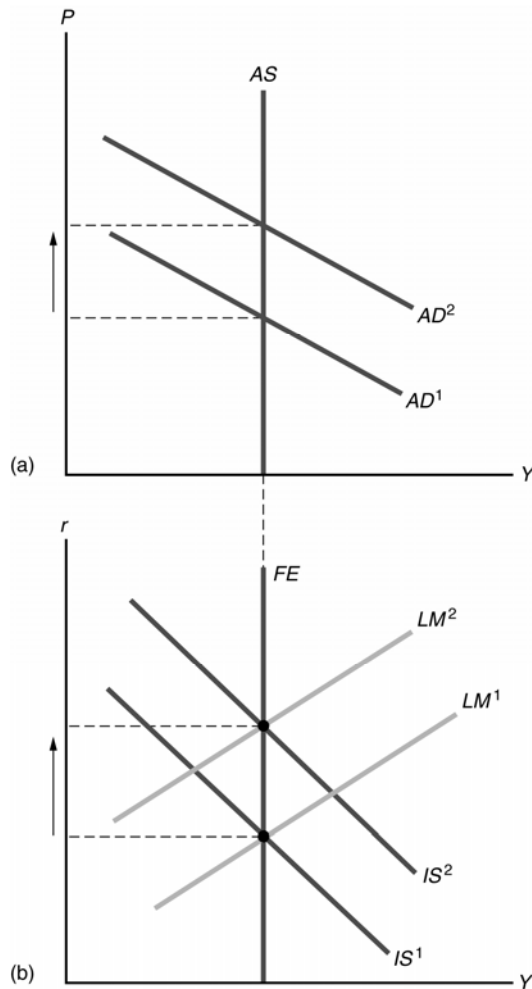


Figure 10.6

- (b) The misperceptions theory gets a different result. As shown in Figure 10.7, the shift in the aggregate demand curve from AD^1 to AD^2 increases both output and the price level as the economy moves along the short-run aggregate supply curve $SRAS$. The difference in this result compared to the result in part (a) comes from producers misperceiving the change in the price level as a change in relative prices, and increasing their labor demand and output.

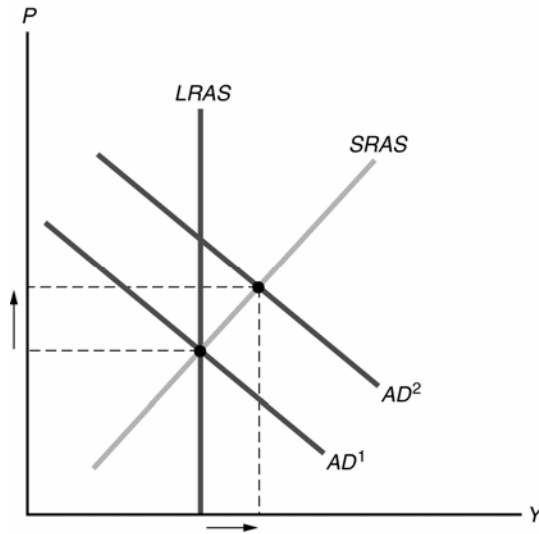


Figure 10.7

2. (a) In the case of a permanent increase in government purchases, the income effect on labor supply, which arises because the present value of taxes increases to pay for the added government spending, is much higher than in the case of a temporary increase in government spending. So workers increase their labor supply more when the government spending change is permanent than when it is temporary.
- (b) Desired national saving is unaffected by the change in government spending if the change in consumption is just equal to the change in taxes, so there is no shift in the saving curve. If investment is also unaffected by the change in government spending, then the IS curve does not shift.

- (c) Figure 10.8 shows the effect of the increase in government purchases on the economy. The FE line shifts to the right from FE^1 to FE^2 due to the increase in labor supply. To restore equilibrium, the price level must decline to shift the LM curve from LM^1 to LM^2 . So output rises and the real interest rate declines.

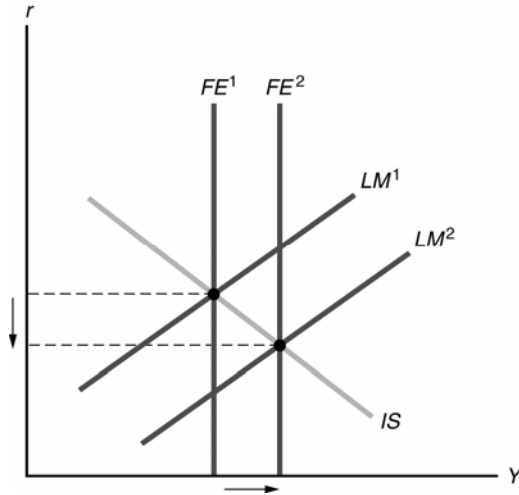


Figure 10.8

If consumption falls less than the increase in government purchases, the IS curve shifts up and to the right from IS^1 to IS^2 in Figure 10.9. As a result of the shift in the IS curve, the real interest rate and the price level will fall by less than in the case in which current consumption falls by 100, and in fact, the real interest rate and the price level may even rise if the IS curve shifts by a lot, as shown in the figure.

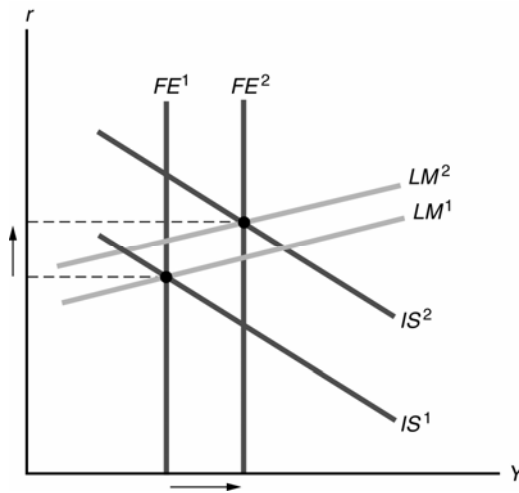


Figure 10.9

3. The temporary increase in government purchases causes an income effect that increases workers' labor supply. This results in an increase in the full-employment level of output from FE^1 to FE^2 in Figure 10.10. The increase in government purchases also shifts the IS curve up and to the right from IS^1 to IS^2 , as it reduces national saving. Assuming that the shift up of the IS curve is so large that it intersects the LM curve to the right of the FE line, the price level must rise to get back to equilibrium at full employment, by shifting the LM curve up and to the left from LM^1 to LM^2 . The result is an increase in output and the real interest rate.

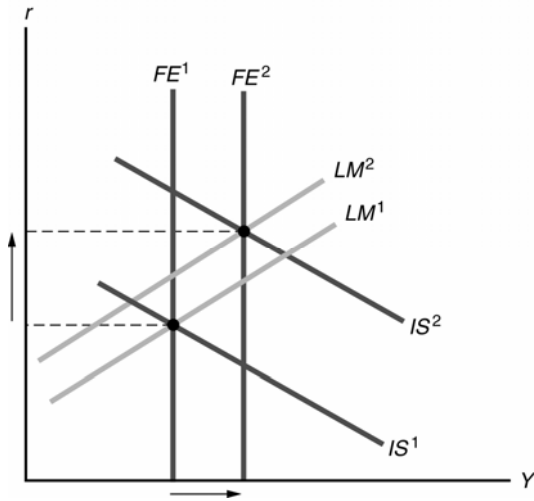


Figure 10.10

Figure 10.11 shows the impact on the labor market. Labor supply shifts from NS^1 to NS^2 , leading to a decline in the real wage and a rise in employment. Average labor productivity declines, since employment rises while capital is fixed. Investment declines, since the real interest rate rises.

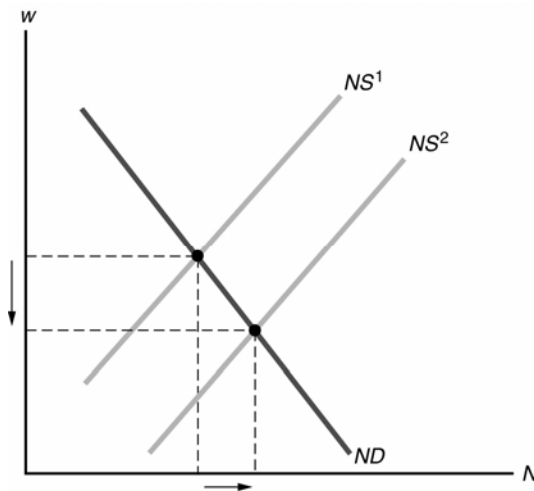


Figure 10.11

To summarize, in response to a temporary increase in government purchases, output, the real interest rate, the price level, and employment rise, while average labor productivity and investment decline.

- (a) The business cycle fact is that employment is procyclical. The model is consistent with this fact, since employment rises when government purchases rise, causing output to rise.
- (b) The business cycle fact is that the real wage is mildly procyclical. The model is inconsistent with this fact, since it shows a decline in the real wage when government purchases rise and output rises.
- (c) The business cycle fact is that average labor productivity is procyclical. The model is inconsistent with this fact, since it shows a decline in average labor productivity when government purchases rise and output rises.
- (d) The business cycle fact is that investment is procyclical. The model is not consistent with this fact, as investment falls when government purchases rise and output rises.
- (e) The business cycle fact is that the price level is procyclical. The model is consistent with this fact, as the price level rises when government purchases increase and output increases.