

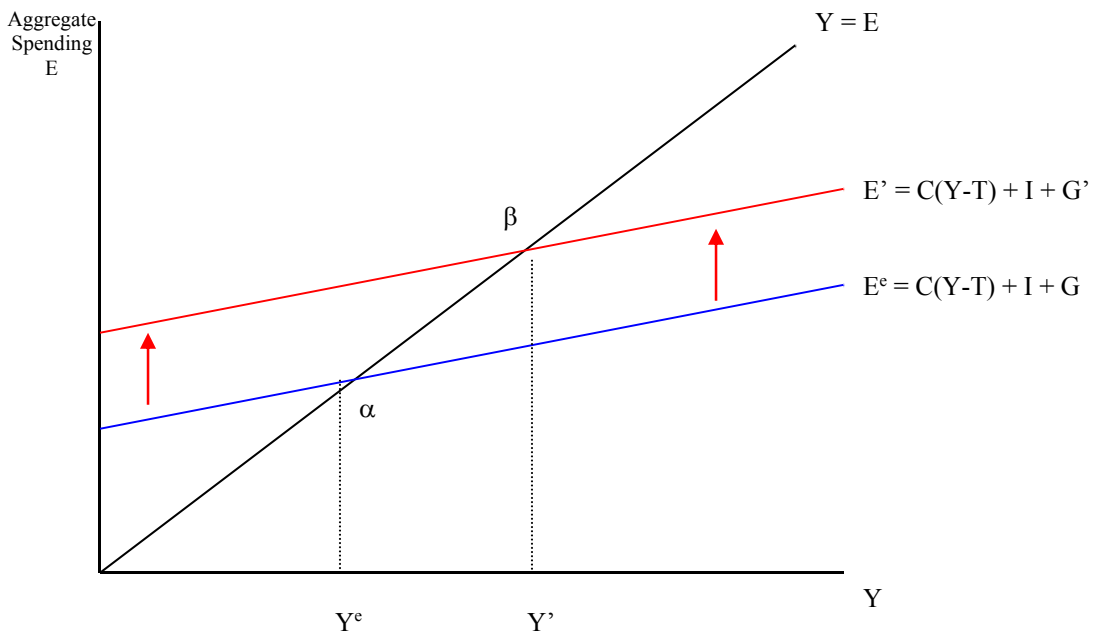
Problem Set # 8

Solutions

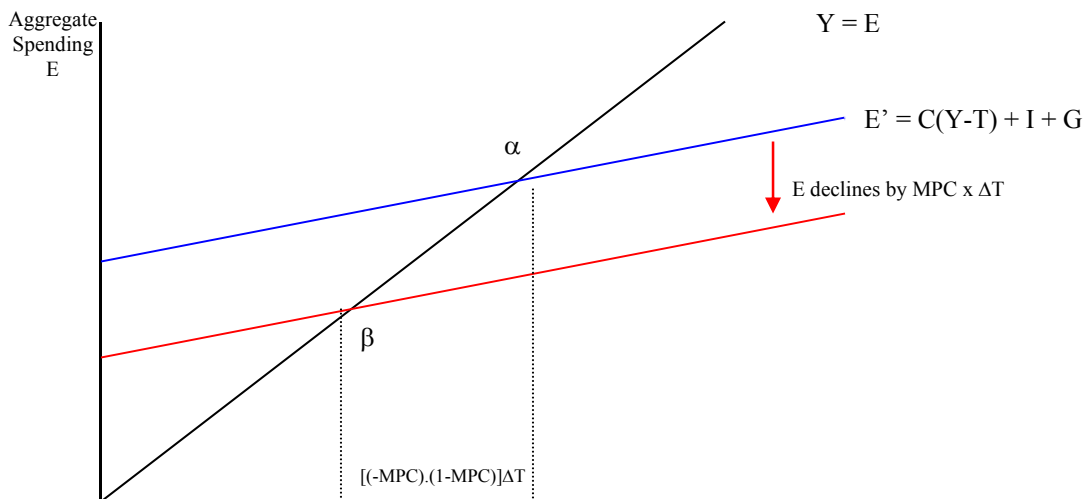
Chapter 11, #1

a) The Keynesian cross graphs an economy's planned expenditure function, $E = C(Y - T) + I + G$, and the equilibrium condition that actual expenditure equals planned expenditure.

An increase in government purchases from G to G' shifts the planned expenditure function upward. The new equilibrium is at point β . The change in Y equals the product of the government purchases multiplier and the change in government spending: $\Delta Y = [1/(1 - MPC)] * \Delta G$. Because we know that the marginal propensity to consume MPC is less than one, this expression tells us that a one-dollar increase in G leads to an increase in Y that is greater than one dollar.



b) An increase in taxes of ΔT reduces disposable income $Y - T$ by ΔT and, therefore, reduces consumption by $MPC \times \Delta T$. For any given level of income Y , planned expenditure falls. In the Keynesian cross, the tax increase shifts the planned expenditure function down by $MPC \times \Delta T$.



The amount by which Y falls is given by the product of the tax multiplier and the increase in taxes: $\Delta Y = [-MPC/(1-MPC)]\Delta T$.

c) We can calculate the effect of an equal increase in government expenditure and taxes by adding the two multiplier effects that we used in parts a and b:

$$\Delta Y = [(1/(1-MPC))* \Delta G] - [(MPC/(1-MPC))]*\Delta T$$

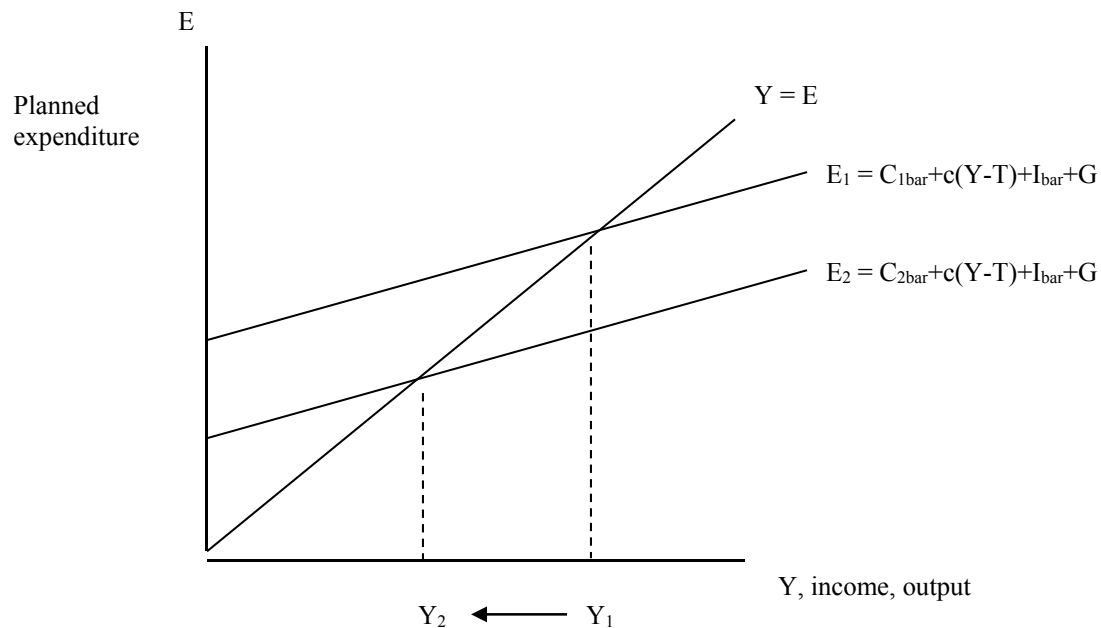
Because government purchases and taxes increase by the same amount, we know that $\Delta G = \Delta T$. Therefore we can rewrite the equation as:

$$\Delta Y = [(1/(1-MPC)) - (MPC/(1-MPC))]*\Delta G = \Delta G$$

This expression tells us that an equal increase in government purchases and taxes increases Y by the amount that G increases. That is, the balanced-budget multiplier is exactly 1.

Chapter 11 #4

a. If society becomes more thrifty – meaning that for any given level of income people save more and consume less –, then the planned expenditure function shifts downward, as in the figure below (note that $C_{2bar} < C_{1bar}$). Equilibrium income falls from Y_1 to Y_2 .

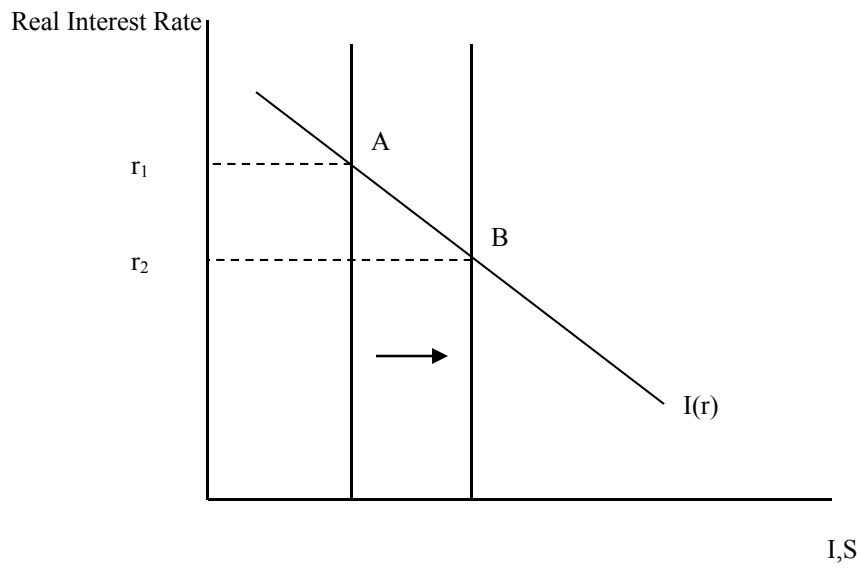


b. Equilibrium savings remains unchanged. The national accounts identity tells us that saving equals investment, or $S=I$. In the Keynesian-cross model, we assumed that desired investment is fixed. This assumption implies that investment is the same in the new equilibrium as it was in the old. We can conclude that saving is exactly the same in both equilibria.

c. The paradox of thrift is that even though thriftiness increases, saving is unaffected. Increased thriftiness leads only to a fall in income. For an individual, we usually consider thriftiness a virtue. From the perspective of the Keynesian cross, however, thriftiness is a vice.

d. In the classical model of Chapter 3, the paradox of thrift does not arise. In that model, output is fixed by the factors of production and the production technology, and the interest rate adjusts to equilibrate saving and investment, where investment depends on the interest rate. An increase in thriftiness decreases consumption and increases saving for any level of output; since output is fixed, the saving schedule shifts to the right, as in the figure below. At the new equilibrium, the interest rate is lower, and investment and saving are higher.

S_1 S_2



Thus, in the classical model, the paradox of thrift does not exist.