

**Problem 1.** The table below shows production and expenditure data for three countries.

	Country 1	Country 2	Country 3
C	12	10	16
I	4	8	6
G	10	12	7
EX	6	5	3
IM	2	4	6
Y	30	35	25

In Country 2,

- (a) the goods market is in equilibrium
- (b) there is excess demand for goods and services
- (c) there is excess supply of goods and services
- (d) there is an unplanned decrease in inventories
- (e) none of the above

**Answer 1: c.** Actual demand is equal to

$$C + I + G + EX - IM = 10 + 8 + 12 + 5 - 4 = 31,$$

whereas output is

$$Y = 35.$$

This means that more is being produced than people want to buy—there is excess supply of goods and services. This causes an unplanned increase in inventories of  $35 - 31 = 4$ . Firms will ultimately respond by producing less stuff so that their production matches demand.

**Problem 2.** Which if the following sequences of events is one of the explanations for the slope of the AD function?

- (a)  $P \downarrow \implies \text{Real Wealth} \uparrow \implies C \uparrow \implies AD \uparrow \implies Y \uparrow$
- (b)  $P \downarrow \implies \text{Real Wealth} \downarrow \implies C \uparrow \implies AD \uparrow \implies Y \uparrow$
- (c)  $P \downarrow \implies \text{Real Wealth} \uparrow \implies C \downarrow \implies AD \uparrow \implies Y \uparrow$
- (d)  $P \uparrow \implies \text{Real Wealth} \uparrow \implies C \uparrow \implies AD \uparrow \implies Y \uparrow$

**Answer 2: a.** If the price level goes down, then all else the same, real wealth goes up—it costs less to buy things so you're relatively wealthier. Thus you will consume more, which causes an increase in  $Y$  via  $C$ . This is the **wealth effect**.

**Problem 3.** Which if the following sequences of events is one of the explanations for the slope of the AD function?

(a)  $P \downarrow \implies (EX - IM) \downarrow \implies AD \uparrow \implies Y \uparrow$

(b)  $P \uparrow \implies (EX - IM) \uparrow \implies AD \uparrow \implies Y \uparrow$

(c)  $P \downarrow \implies (EX - IM) \uparrow \implies AD \uparrow \implies Y \uparrow$

(d)  $P \uparrow \implies (EX - IM) \downarrow \implies AD \uparrow \implies Y \uparrow$

**Answer 3: c.** If the domestic price level (i.e. “our” price level) goes down, then two things happen:

- we buy more domestic goods and import less
- foreign people buy more of our goods and therefore we export more.

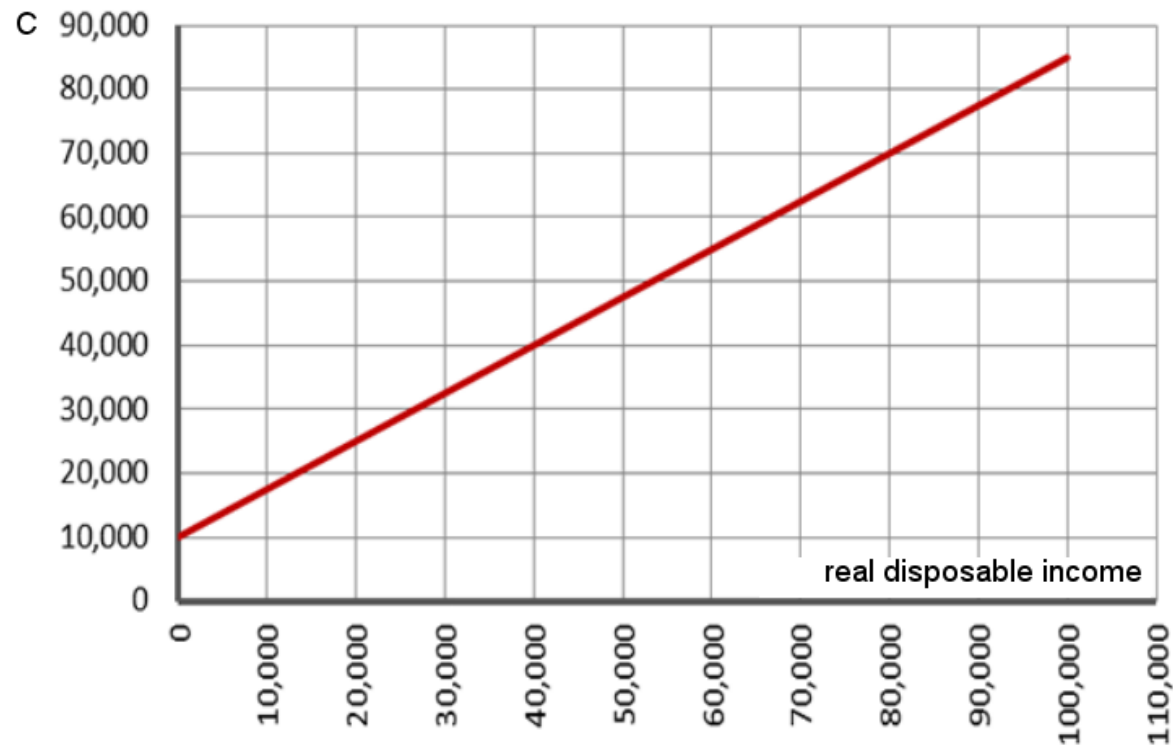
Both effects will increase  $Y$ . This is the **foreign trade effect**.

**Problem 4.** Which of the following sequences of events is one of the explanations for the slope of the AD function?

- (a)  $P \downarrow \implies \text{Demand for Money} \uparrow \implies R \uparrow \implies AD \uparrow \implies Y \uparrow$
- (b)  $P \downarrow \implies \text{Demand for Money} \downarrow \implies R \downarrow \implies AD \uparrow \implies Y \uparrow$
- (c)  $P \downarrow \implies \text{Demand for Money} \downarrow \implies R \uparrow \implies AD \uparrow \implies Y \uparrow$
- (d)  $P \uparrow \implies \text{Demand for Money} \uparrow \implies R \uparrow \implies AD \uparrow \implies Y \uparrow$

**Answer 4: b.** If the price level goes down, demand for money will decrease. This will cause a decrease in the interest rate  $R$ . Lower  $R$  will make borrowing cheaper so people and firms will be inclined to borrow and thus spend more. This increases AD and  $Y$ . This is the **interest rate effect**.

**Problem 5.** The graph below shows a linear consumption function for a country. What is the marginal propensity to consume,  $MPC$ , for this country? What is the marginal propensity to save,  $MPS$ ?



**Answer 5: a.** The MPC is just the slope of the line. I'll pick two points the line up nicely with the grid: (0, 10000) and (40000, 40000). Rise over run.

$$MPC = \frac{30000}{40000} = 0.75.$$

What this means is that people will spend 75 cents of every additional (i.e. marginal) dollar of disposable income they have. Note that what is not consumed is saved, so the marginal propensity to save is

$$MPS = 1 - MPC = 0.25$$

**Problem 6.** In a country the Keynesian consumption function is of the form:

$$C = 12,000,000 + 0.80Y_d.$$

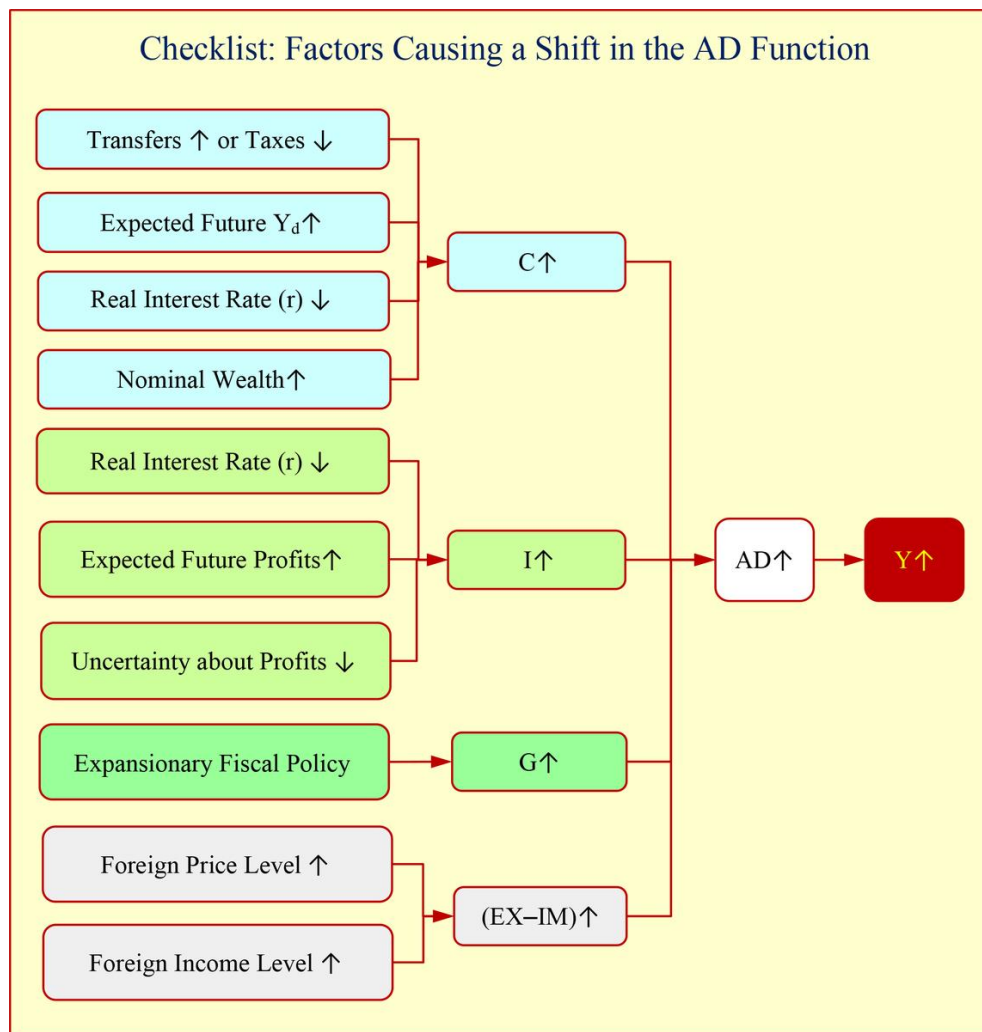
If in this country,  $Y = 100,000,000$ ,  $TX = 30,000,000$ , and  $TR = 10,000,000$ . Then consumption equals \_\_\_\_\_ units.

**Answer 6.**  $Y_d$  is disposable income. Recall that  $Y$  can be thought of as income. Intuitively, if the government takes away a certain amount of your income in taxes, and then gives you a certain amount back in transfer payments, then whatever you have left over to actually spend is your disposable income. Then of that new disposable income, you'll spend 80% of it on consumption and save the remaining 20%.

$$\begin{aligned} Y_d &= Y - TX + TR = 80,000,000 \\ \implies C &= 12,000,000 + 0.80(80,000,000) \\ &= 76,000,000. \end{aligned}$$



# Shifts in AD



Any change that affects  $C, I, G, EX - IM$  that isn't caused by a change in  $P$  will shift AD.

**Problem 7.** Define the following terms:

- (a) fiscal policy
- (b) monetary policy
- (c) expansionary policy
- (d) contractionary policy

**Answer 7.**

- (a) When government increases spending,  $G$  rises, and therefore AD shifts to the right. An increase in the money supply (i.e. monetary policy) is a bit more involved. The chain of logic is as follows:
  - (i) Money supply goes up.
  - (ii) This causes the supply of loanable funds to go up.
  - (iii) This decreases  $R$  and  $r^e$ .
  - (iv) This causes borrowers and firms to borrow more, and hence consume and invest more.
  - (v) Therefore,  $C$  and  $I$  increasing means AD shifts to the right.
- (b) Policy shifting AD to the right is called expansionary
- (c) Policy shifting AD to the left is contractionary. Controlling AD is *demand management*.

**Problem 8.** Reconsider problem 5 where  $MPC = 0.75$ . If the government increases its spending by \$100, by how much will AD shift?

**Answer 8.** The expenditure multiplier is

$$\text{expenditure multiplier} \equiv \frac{1}{1 - MPC}.$$

In this case, the multiplier is  $1/0.25 = 4$ . So AD will shift by  $\Delta Y = 100 \times 4 = \$400$ .

**Problem 9.** Reconsider problem 5 where  $MPC = 0.75$ . Suppose taxes increase by \$100. By how much will AD shift?

**Answer 9.** This means peoples' disposable income falls by \$100. Because  $MPC = 0.75$ , that means consumption decreases by \$75. (In other words, the \$100 of disposable income they used to have was going to \$75 consumption, but they don't have that \$100 disposable income anymore 'cuz the government took it away, thus they lose that \$75 consumption.)

Thus the *initial change* in  $C$  is  $-75$ , and *this* is what undergoes the expenditure multiplier process, meaning AD shifts ultimately by

$$\Delta Y = -100(0.75) \times \frac{1}{1 - 0.75} = -75 \times 4 = -300.$$

The logic for an increased transfer payment is similar (but positive instead of negative).

**Problem 10.** Reconsider problem 5 where  $MPC = 0.75$ . Suppose the government undergoes a balanced-budget increase in spending of \$100. By how much will AD shift?

**Answer 10.** Balanced budget means  $G$  increases by \$100 and  $TX$  increases by 100 to pay for it. Thus we have two effects on aggregate demand:

$$\begin{aligned}\Delta Y_G &= 100 \times \frac{1}{1 - 0.75} = 400, \\ \Delta Y_{TX} &= -(0.75)100 \times \frac{1}{1 - 0.75} = -300, \\ \Delta Y &= 400 - 300 = 100.\end{aligned}$$

So if there is a balanced budget increase in government spending, AD will shift but there is no multiplier effect.