Fiscal policy

Macroeconomics

5th lecture

Transactions by the government

Firms

Government

Households

transfer payments

taxes

transfer payments

taxes

Commodity market
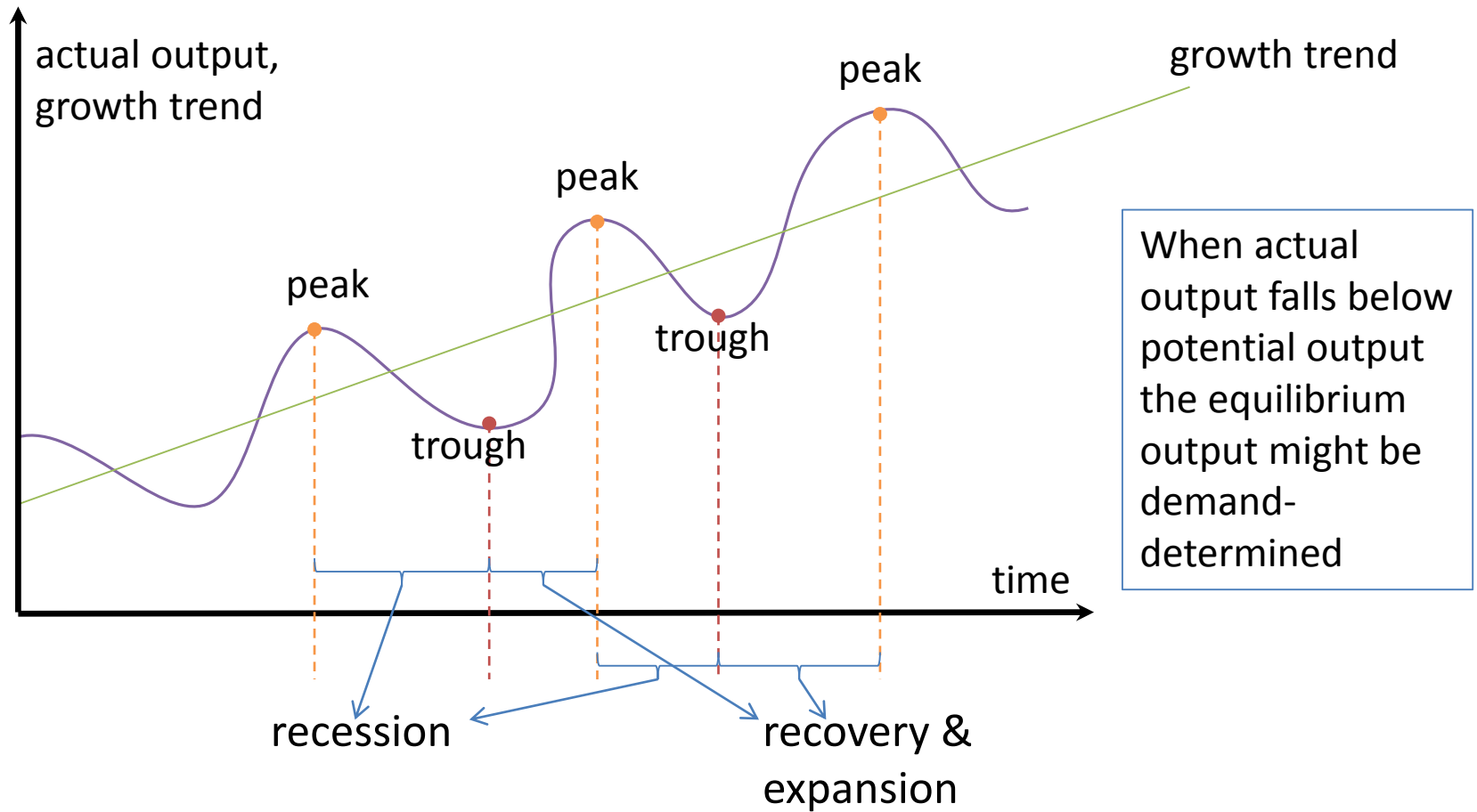
government spending on goods and services

surplus or deficit

Financial markets

I'M FROM THE GOVERNMENT, I'M HERE TO HELP
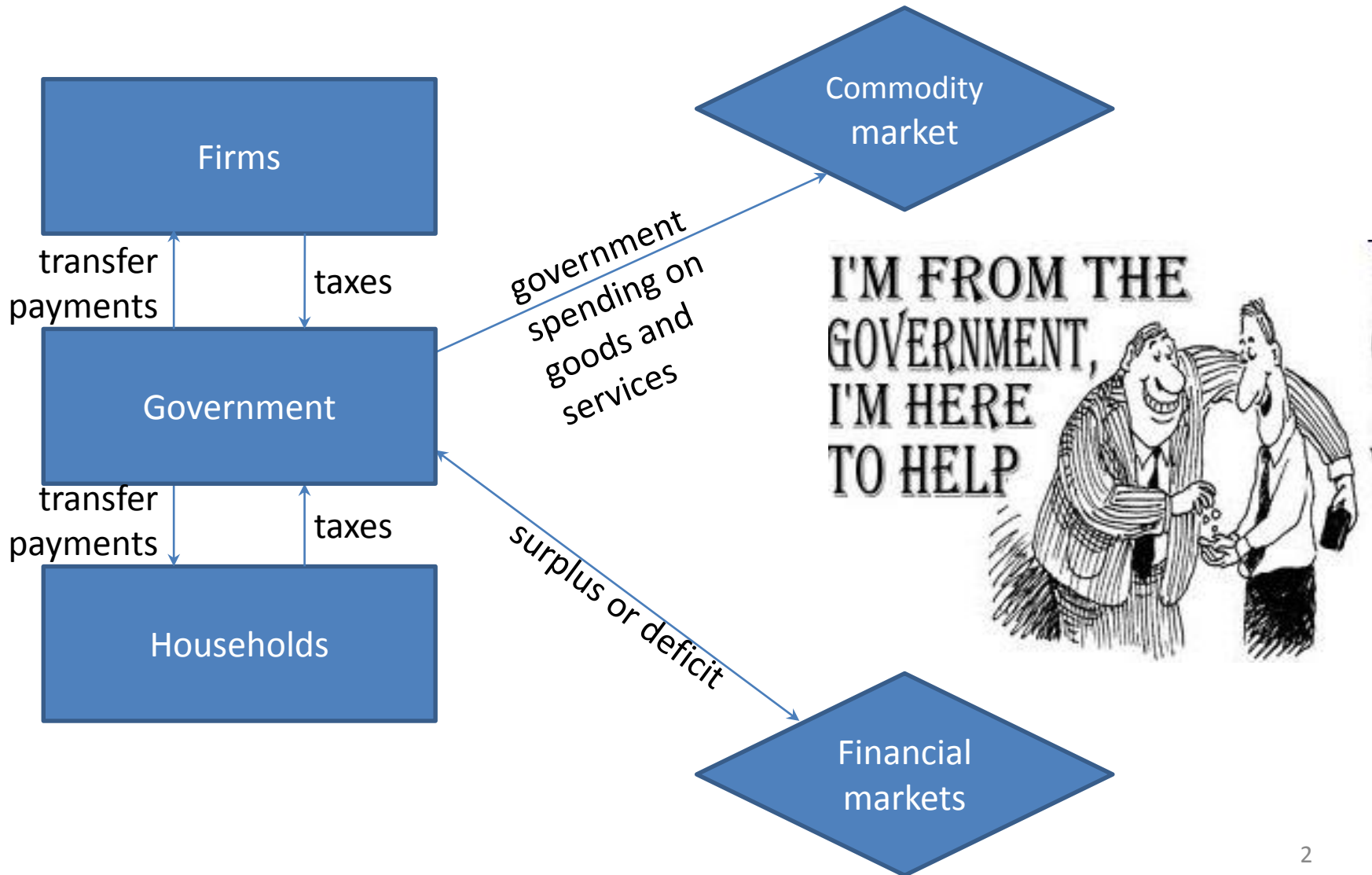
Fiscal policy

- In most European countries, the government directly buys about a fifth of national output, and spends about the same again on transfer payments. This spending is financed mainly by taxes.

- **Fiscal policy** is government policy on spending and taxes.

- **Stabilization policy** is government action to keep output close to potential output.

Why is stabilization important? (business cycles)

The effect of fiscal policy on AD

- Government spending (G) on goods and services add directly to aggregate demand.

- The government also withdraws money from the circular flow through indirect taxes (T_e) on expenditure and direct taxes (T_d) on factor incomes, less benefits (B) that augment factor incomes.

- Transfer payments affect aggregate demand only by affecting other components such as consumption or investment demand.

Aggregate demand
with a government sector

- Assuming all taxes are direct taxes:

    $$AD = C + I + G$$

- We assume that G is autonomous (independent of income).

- Net taxes (NT) are taxes minus transfers: $T - B$.

- Disposable income is: $Y^{DIS} = Y - NT = Y + B - T$.

- For simplicity, we assume that net taxes are proportional to national income. If t is the net tax rate, the total revenue from net taxes is $NT = tY$.

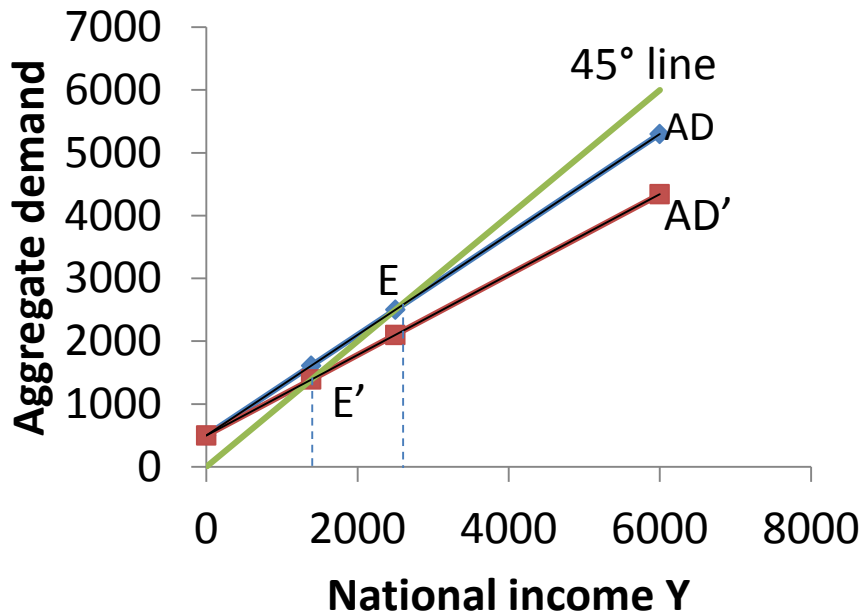- Then, disposable income is $(1 - t)Y$.

Net taxes and consumption

C = 100 + 0,9Y   CC

C = 100 + 0.9Y^{DIS} = 100 + 0,72Y   CC'
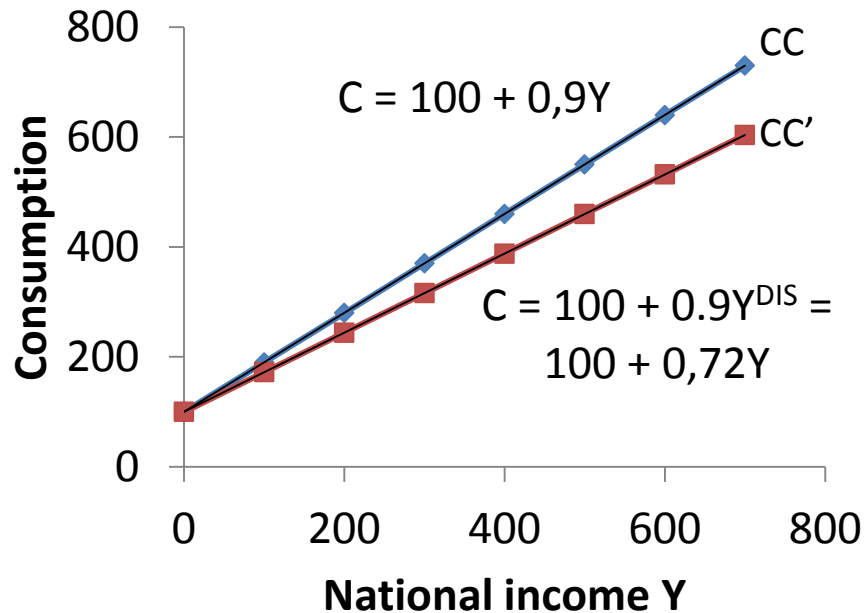
Relating consumption to national income, the effect of net taxes is to rotate the consumption function downwards from CC to CC'

In the absence of taxation, national income Y and disposable income are the same. The consumption function CC' shows how much households wish to consume at each level of national income. With a proportional net tax rate of 0.2 (or 20%), households still consume 90% of each extra unit of disposable income. Since disposable income is now only 0.8Y, households consume only 0.9 × 0.8 = 0.72 of each extra unit of national income.
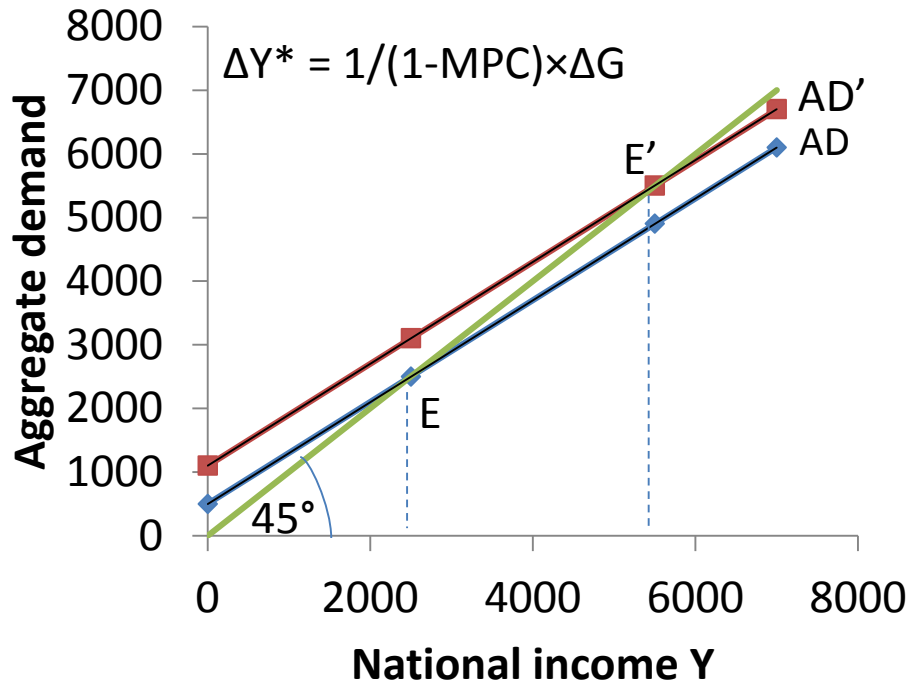
A higher net tax rate

If MPC is the marginal propensity to consume out of disposable income, and there is a proportional net tax rate t, then MPC' the marginal propensity to consume out of national income is given by MPC' = MPC × (1 − t).

An increase in the income tax rate (or a reduction in the rate of unemployment benefit) will increase the net tax rate t. The consumption function rotates from CC to CC' (see previous slide). With constant investment demand, the aggregate demand schedule rotates from AD to AD' in the figure to the left. The equilibrium level of output falls and the equilibrium point moves from E to E'.

Government spending and equilibrium output

$$\Delta Y^* = 1/(1-MPC) \times \Delta G$$

Aggregate demand

AD'

AD

E'

E

45°

National income Y

Now suppose net tax rate is zero. National income and disposable income coincide. The figure to the left shows that higher government spending has an effect similar to that of higher autonomous investment demand.
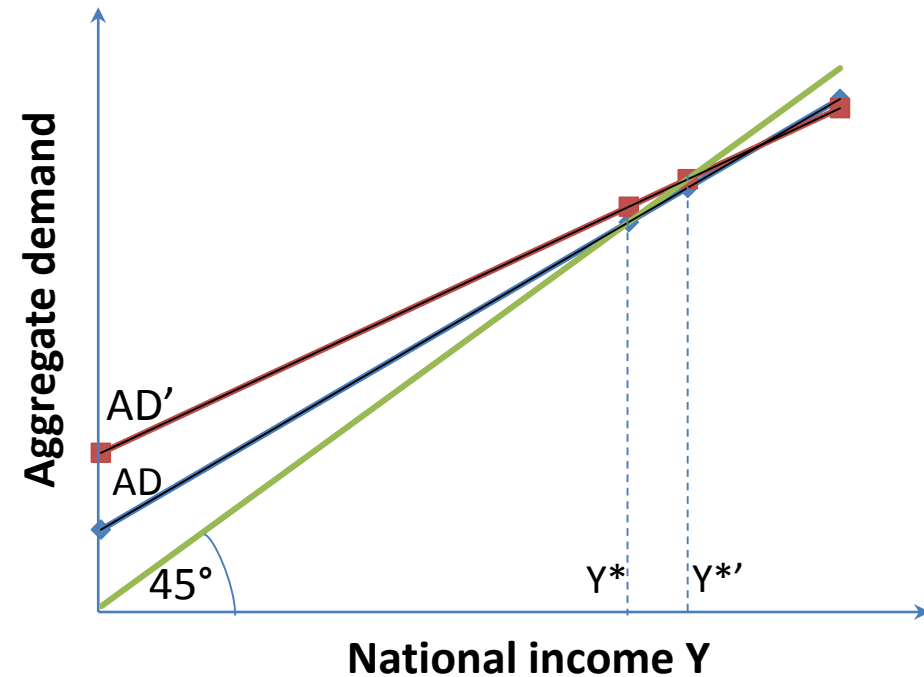
$$C = A + 0.9Y$$

$$AD = C + I$$

$$AD' = C + I + G$$

Beginning from equilibrium at E, AD shifts up to AD'.
The new equilibrium is E' and equilibrium output rises by $1/(1-MPC)$ times the rise in G.

Higher spending and taxes

G=200; t=0.2; C = A + 0.9Y^{DIS}

AD = C + I   Y^{DIS}=Y

AD' = C + I + G; Y^{DIS}=Y(1 − t)

Beginning from equilibrium E, government spending rises from zero to 200, shifting the AD schedule upwards, and the tax rises from zero to 0.2, making the new schedule AD' flatter. Equilibrium moves from E to E' where AD' intersects the 45° degree line. Equilibrium output increases from Y* to Y*'.

An example: higher spending and taxes

- Suppose that the economy began at an equilibrium output of 1000. (A+I=100; MPC=0.9).

- With a proportional tax rate of 20 per cent, initial tax revenue was 200, precisely the amount of government spending. (t=0.2; T = 200 = G)

- The new 200 of government spending raises AD by 200 and the tax increase cuts disposable income by 200. (ΔG = +200; Y^{DIS}=Y−200)

- The MPC out of disposable income is 0.9, so lower disposable income reduces consumption demand by only 0.9 × 200 = 180. (ΔC_1= −0.9 × 200 = 180)

The balanced budget multiplier

- The initial effect of the tax and spending package raises AD by 200 but reduces it by 180. Aggregate demand rises by 20.

- Output rises, inducing further rises in consumption demand. When the new equi-librium is reached, output has risen a total of 71, from 1000 to 1071. (MPC'=0.72; A + I + G = 300; hence: Y = [A+I+G]/[1-0.72]=300/0.28≈1071)

- The **balanced budget multiplier** says that a rise in government spending plus an equal rise in taxes leads to higher output.

The multiplier revisited

MPC	t	MPC'	Multip-lier*
0.9	0	0.9	10
0.9	0.2	0.72	≈3.57
0.7	0	0.7	≈3.33
0.7	0.2	0.56	≈2.27
0.7	0.4	0.42	≈1.72
Values of the multiplier *1/(1−MPC')=1/(1−MPC×[1-t])			

- The multiplier relates changes in autonomous demand to changes in equilibrium national income and output.

- The multiplier with proportional taxes:

    Multiplier = 1/[1−MPC'],

- Where MPC' = MPC × (1 − t).

Larger leakages from the circular flow (higher tax rates or MPS) reduce the multiplier. If both the tax rate and the marginal propensity to save are high, the multiplier might be much lower. See the table above.

The government budget

- A budget is the spending and revenue plans of an individual, a company, or a government.

- The government budget describes what goods and services the government will buy during the coming year, what transfer payments it will make, and how it will pay for them.

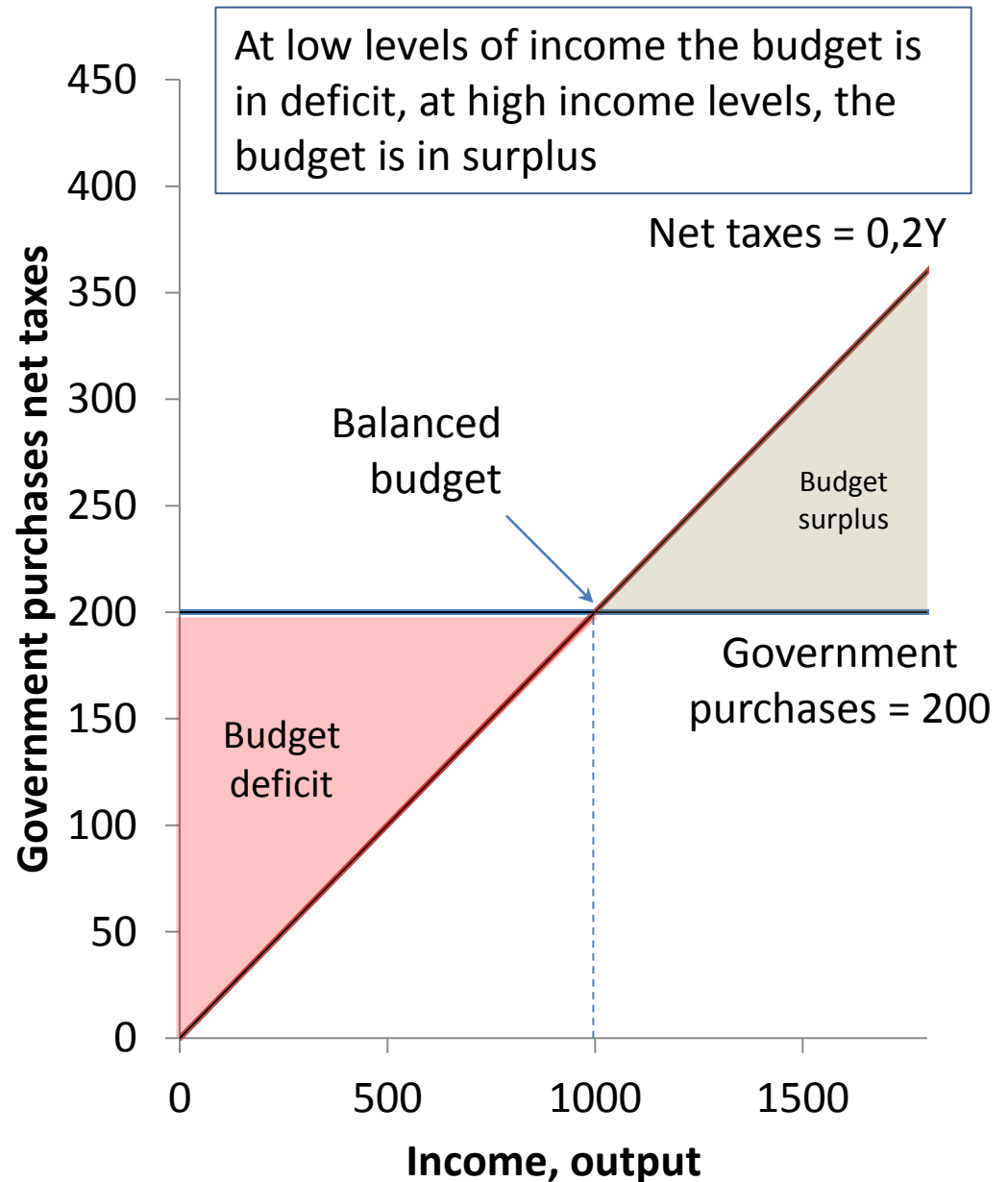- Most of its spending is financed by taxes.

The budget deficit

- When spending exceeds taxes, there is a budget deficit.

- When taxes exceed spending, there is a budget surplus.

- Continuing to use **G** for government spending on goods and services, and **NT** for net taxes or taxes minus transfer payments,

    Government budget deficit = G – NT.

The government budget

The budget deficit equals total government spending minus total tax revenue, or government purchases of goods and services minus net taxes. Government purchases are shown as constant, independent of income, while net taxes are proportional to income.

At low levels of income the budget is in deficit, at high income levels, the budget is in surplus

Net taxes = 0,2Y

Balanced budget

Budget surplus

Government purchases = 200

Budget deficit

Government purchases net taxes

Income, output

Government spending, net taxes, planned saving and investment

- The economy is in equilibrium when all quantities demanded or desired are equal to actual quantities. Planned leakages equal planned injections:

    $$S + NT = G + I$$

- This implies that in equilibrium desired saving minus desired investment equals the government's desired budget deficit:

    $$S - I = G - NT$$

The effects of government spending and tax rate on the budget deficit

- Higher government spending on goods and services increases equilibrium output. With a given tax rate **t**, tax revenue rises but the budget deficit increases (or the budget surplus falls).

- G↑➡Y↑➡NT↑,S↑➡(S−I)↑➡(G−NT)↑

- For a given government spending **G**, a higher tax rate reduces both equilibrium output and the budget deficit.

- t↑➡Y↓➡S↓➡(S−I)↓➡(G−NT)↓