UNIT 5 – Point 2

Goods and financial markets in an open economy

5.2.1 Goods markets

- Domestic demand and demand of domestic goods
- The determinants of imports and exports
- Equilibrium output and the trade balance
- Changes in domestic demand and in foreign demand: comparison
- Fiscal policy revisited
- Depreciation and the trade balance
- Fiscal policies and exchange rate policies

5.2.2 Financial markets

- Choice between domestic and foreign assets
- Interest rates and exchange rates: the uncovered interest parity condition (UIP)
- The UIP as a condition on the exchange rate
- "Sudden stops and limits of the UIP:

Domestic demand and demand of domestic goods:

Domestic demand: $C + I + G$

Demand of domestic goods: $C + I + G + X - M$

NX (net exports)

What are the determinants of Imports and Exports?

The determinants of the quantity of imports

$Q^M = Q^M(\ldots, \ldots)$ **Quantity of imports**

? ?

What factors determine the quantity of imported goods and services?

- The level of real income, Y.
  The higher Y the higher will be the expenditure for all goods, both domestic and foreign.

- The real exchange rate, ε, i.e. the price of domestic goods relative to the price of foreign goods.

Higher ε, means that foreign goods are cheaper relative to domestic , and this will increase the quantity of imports.

$$Q^M = Q^M(Y, \varepsilon)$$

\+ +

The quantity of imports is a positive function of real income and of the real exchange rate

The real value of imports

The value of imports in real terms, is equal to the quantity of imports multiplied by the real unit cost of imports.

The real unit cost of imports is the price of foreign goods relative to the price of domestic goods, i.e. the reciprocal of the real exchange rate:

$$M = \frac{1}{\varepsilon} Q^M \underset{+}{(Y}, \underset{+}{\varepsilon})$$

Value of imports in real terms

Notice that: a real appreciation (depreciation) increases (decreases) the quantity of imports, but at the same time it decreases (increases) the real unit cost of imports.

The total effect on the value of imports, M, is a priori ambiguous. One should know the functional form of Q^M in order to establish whether the effect due to the variation of Q^M is more or less pronounced with respect to the effect due to the variation of (1/ ε).

The determinants of exports

X= X (…, …)

? ?

Which factors determine real exports?

- The level of foreign expenditure, which in turn will be a positive function of the foreign income level, Y*

The higher Y* the higher will be foreign expenditure and the higher our exports will be.

- The real exchange rate, ε, i.e. the price of domestic goods relative to the price of foreign goods.

The higher ε, the more expensive are domestic goods relative to foreign goods, and the lower will be our exports

$$X = X(\underset{+}{Y^*}, \underset{-}{\varepsilon})$$

Changes of the real exchange rate and Net Exports (trade balance)

$$NX = X(Y^*, \varepsilon) - \frac{1}{\varepsilon} Q^M(Y, \varepsilon)$$
$$(+, -) \qquad (+, +)$$

$$NX = NX(Y^*, Y, \varepsilon)$$
$$(+, -, ?)$$

How does the trade balance change when ε changes?

Assume that ε ↓ (real depreciation)

i) X↑ tends to improve the trade balance

ii) Q^M ↓ tends to improve the trade balance

ii)(1/ ε)↑ tends to worsen the trade balance

The total effect on NX is a priori ambiguous.

(presumably, in the real worls the trade balance will first tend to worsen, and then to improve when the quantities adjust, with a sort of «J effect» over time)

We will assume that effects i) e ii) always prevail on effect iii), and that the trade balance always improves after a depreciation

$$NX = NX(Y^*, Y, \varepsilon)$$
$$(+, -, -)$$

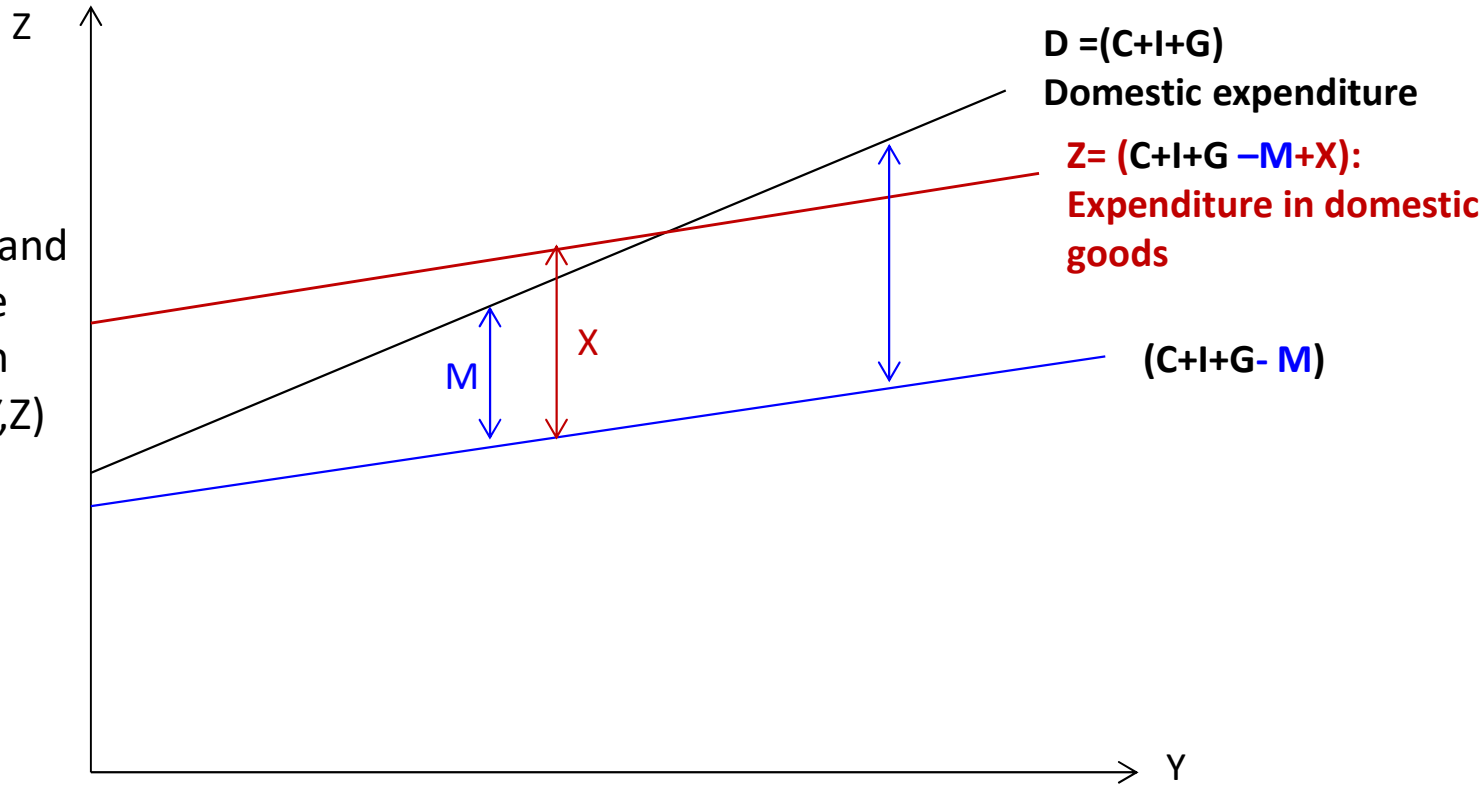
Goods markets in an open economy: expenditure in domestic goods

$$Z = C(Y - T^N) + I(Y, \bar{i}) + G + \underbrace{X(Y^*, \varepsilon) - \overbrace{\frac{1}{\varepsilon} Q^M(Y, \varepsilon)}^{M}}_{NX(Y^*, Y, \varepsilon)}$$

We neglect for the moment financial markets. We reason for a given level of the interest rate, and we neglect both the distinction between real and nominal interest rate and the existence of risk.

For **given** levels of ε , G, T^N and Y* (exogenous variables), we can represent expenditure in domestic goods (Z) on the (Y,Z) plane

How?

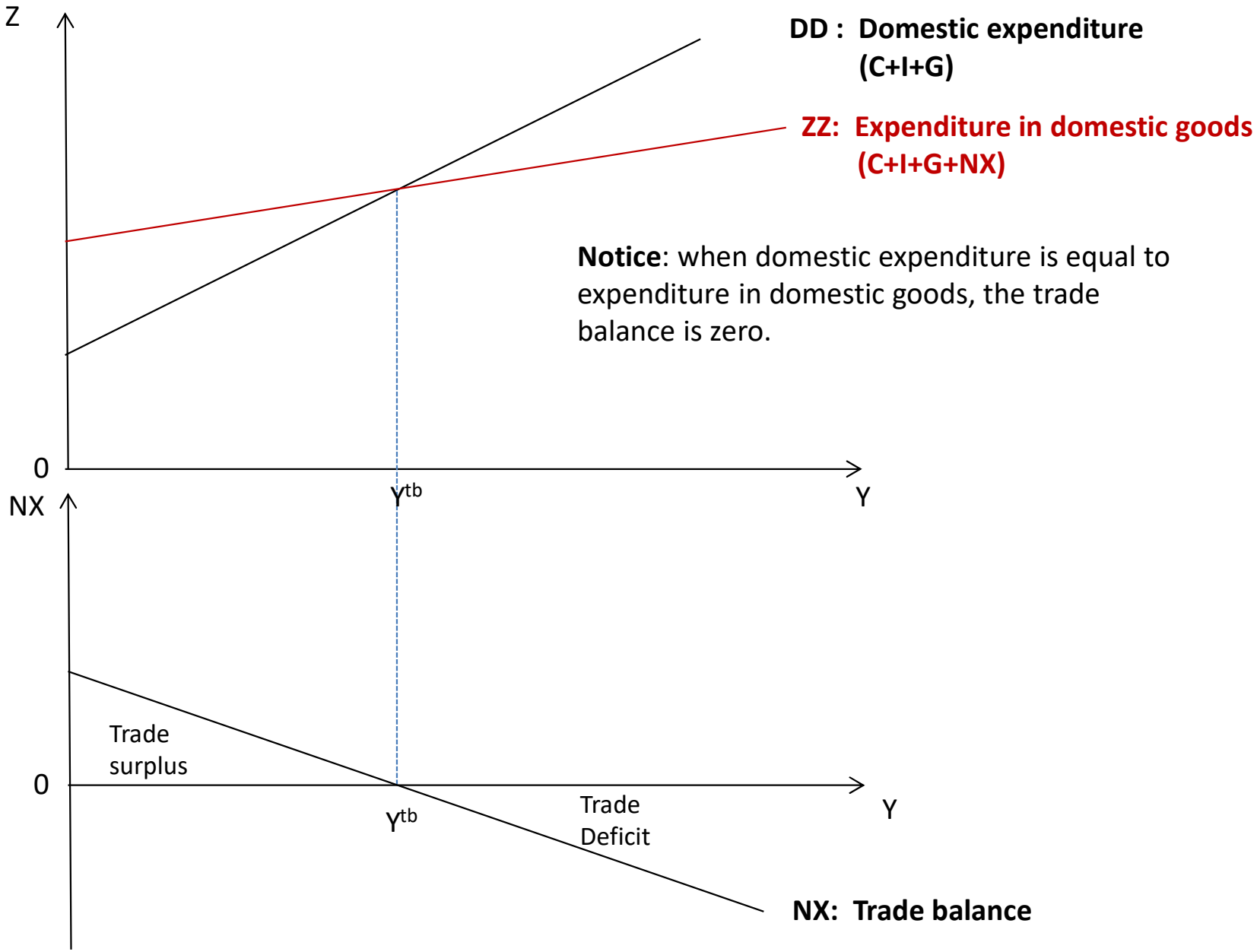


Notice: Z is flatter with respect to D: as Y increases expenditure in domestic goods increases less than domestic expenditure, because the increase in Y increases imports!

Domestic expenditure, expenditure in domestic goods and the trade balance

$$Z = C(Y - T^N) + I(Y, \bar{i}) + G + NX(Y^*, Y, \varepsilon)$$
$$\quad\; + \quad\; + \;\; - \qquad + \quad\; - \;\; -$$

For given ε



DD : Domestic expenditure (C+I+G)

ZZ: Expenditure in domestic goods (C+I+G+NX)

Notice: when domestic expenditure is equal to expenditure in domestic goods, the trade balance is zero.

Notice:

if $Y=Y^{tb}$ DD=ZZ and NX=0

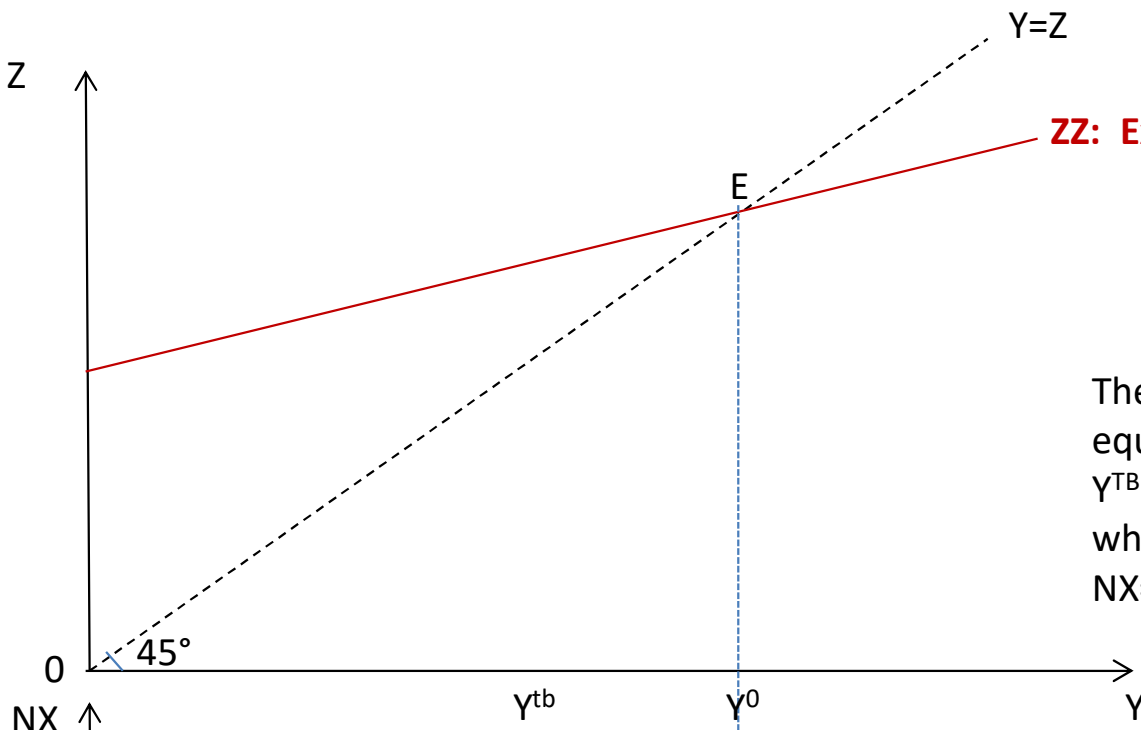
if $Y<Y^{tb}$ ZZ>DD and NX>0

if $Y>Y^{tb}$ DD>ZZ and NX<0

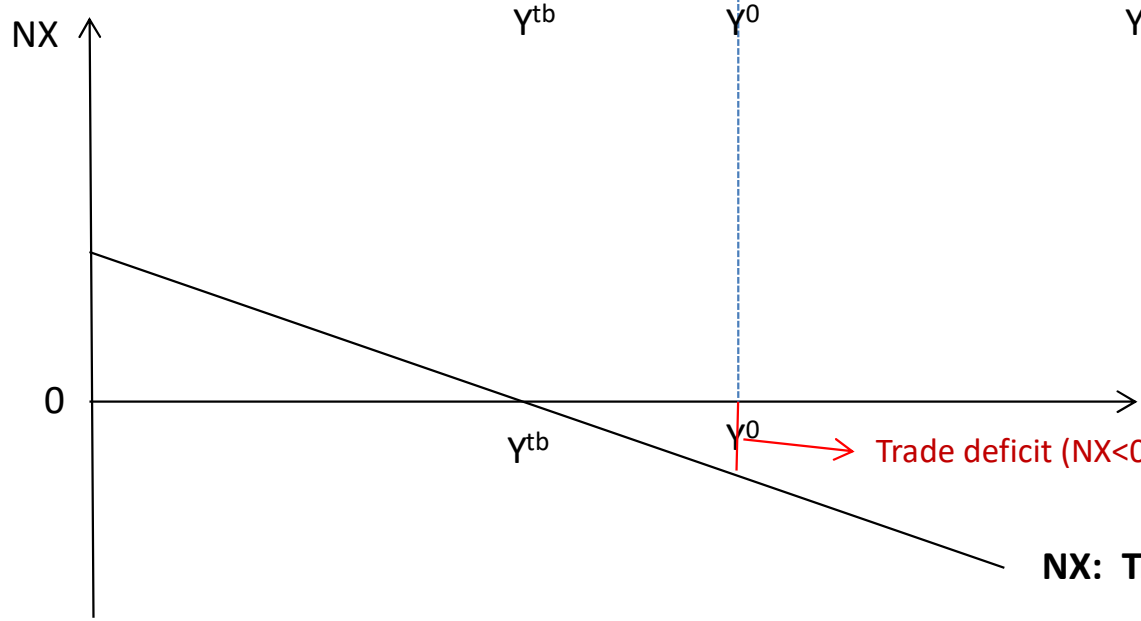
NX: Trade balance

Equilibrium production and the trade balance

$$Z = C(Y - T^N) + I(Y, \bar{i}) + G + NX(Y^*, Y, \varepsilon)$$
$$Y = Z$$



There is no reason for equilibrium Y to be equal to Y^{TB} (i.e. to the level of Y which corresponds to NX=0)



In our example equilibrium Y is higher than Y^{tb}
And there is a trade deficit (NX<0)

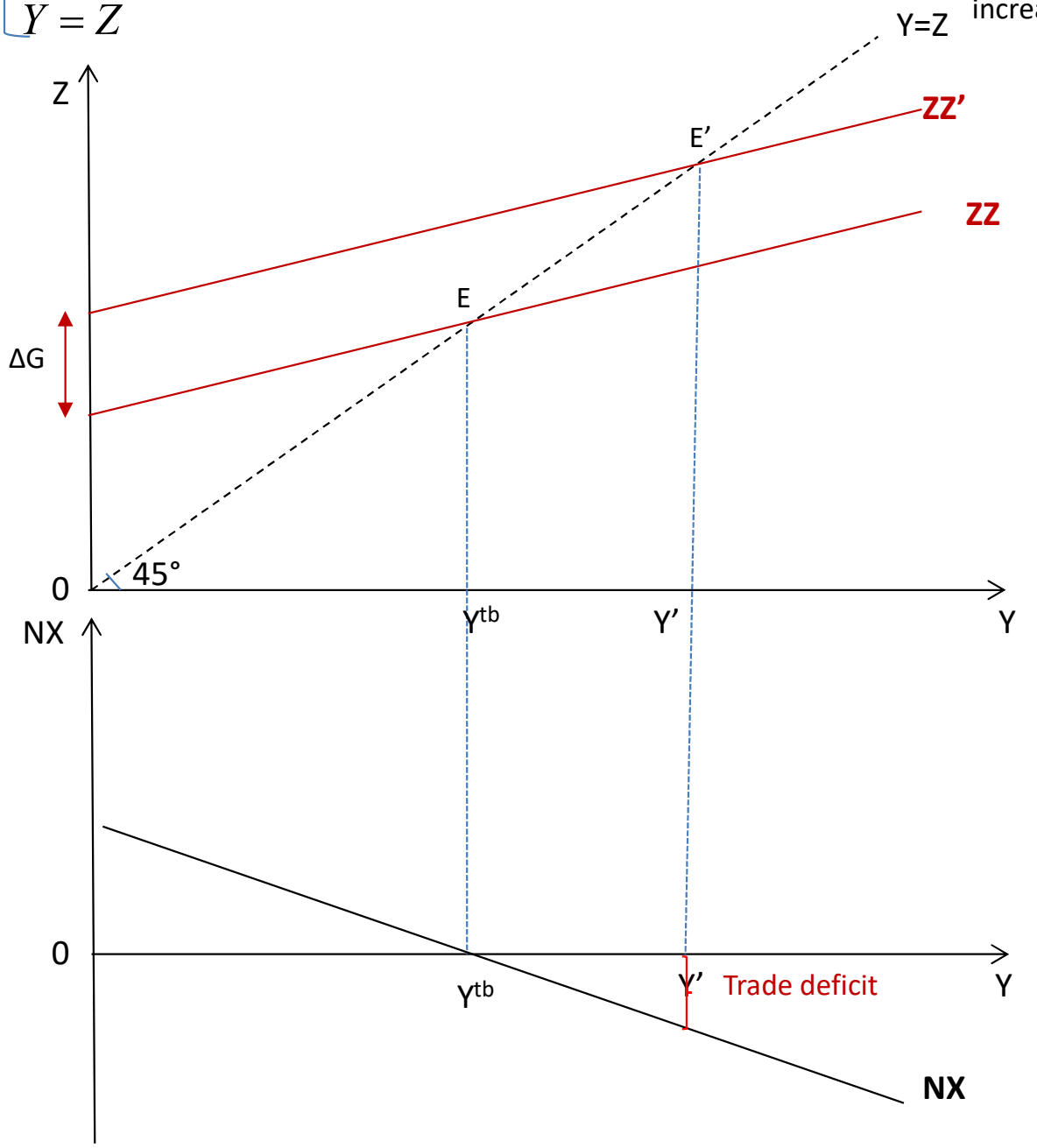
Increases in domestic expenditure

$$\begin{cases} Z = C(Y - T^N) + I(Y, \bar{i}) + G + NX(Y^*, Y, \varepsilon) \\ Y = Z \end{cases}$$

(+) (+, −) (+) (−, −)

Assume that. G ↑

(the effects will be similar for decreases of net taxes or for increases of autonomous component of C and I)



The fiscal expansion determines an increase of equilibrium Y!

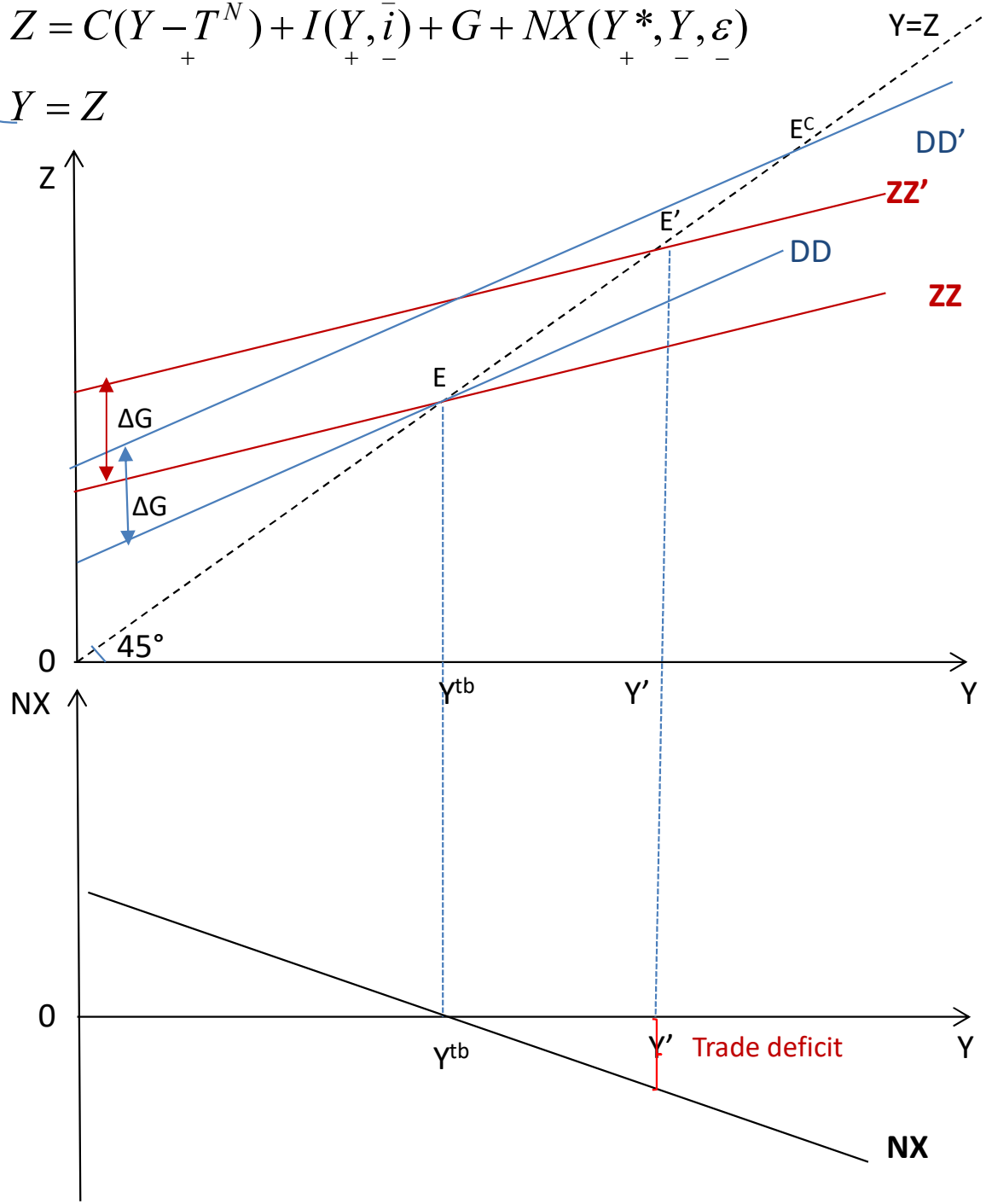
In the new equilibrium, Consumption and Investments are higher …

… and the **trade balance worsens**.

In our example the trade balance was zero at point E and is negative (trade deficit) in the new equilibrium E'.

Increases in domestic expenditure (graph with DD)

$$\begin{cases} Z = C(Y - T^N) + I(Y, \bar{i}) + G + NX(Y^*, Y, \varepsilon) \\ Y = Z \end{cases}$$



G↑ (similar effects for reductions of net taxes or increases of the authonomous components of C and I)

The increase in domestic expenditure not only worsens the trade balance, **but its effect on domestic producion is lower than the one one would observe in a closed economy**.

In a closed economy, equilibrium would be in E^C, where the level of production is higher than in E'!

The oputput effects of a same ΔG are more muted in an open economy with respect to a closed economy because….

….. In an open economy the keynesian multiplier is lower than in a closed economy, since as Y increases C e I increase, but M increases as well!

In an open economy, part of the increases of C and I induced by the increases in Y, are satisfied with imports, and therefore the trade balance worsens, and the multiplier effects are less pronounced.

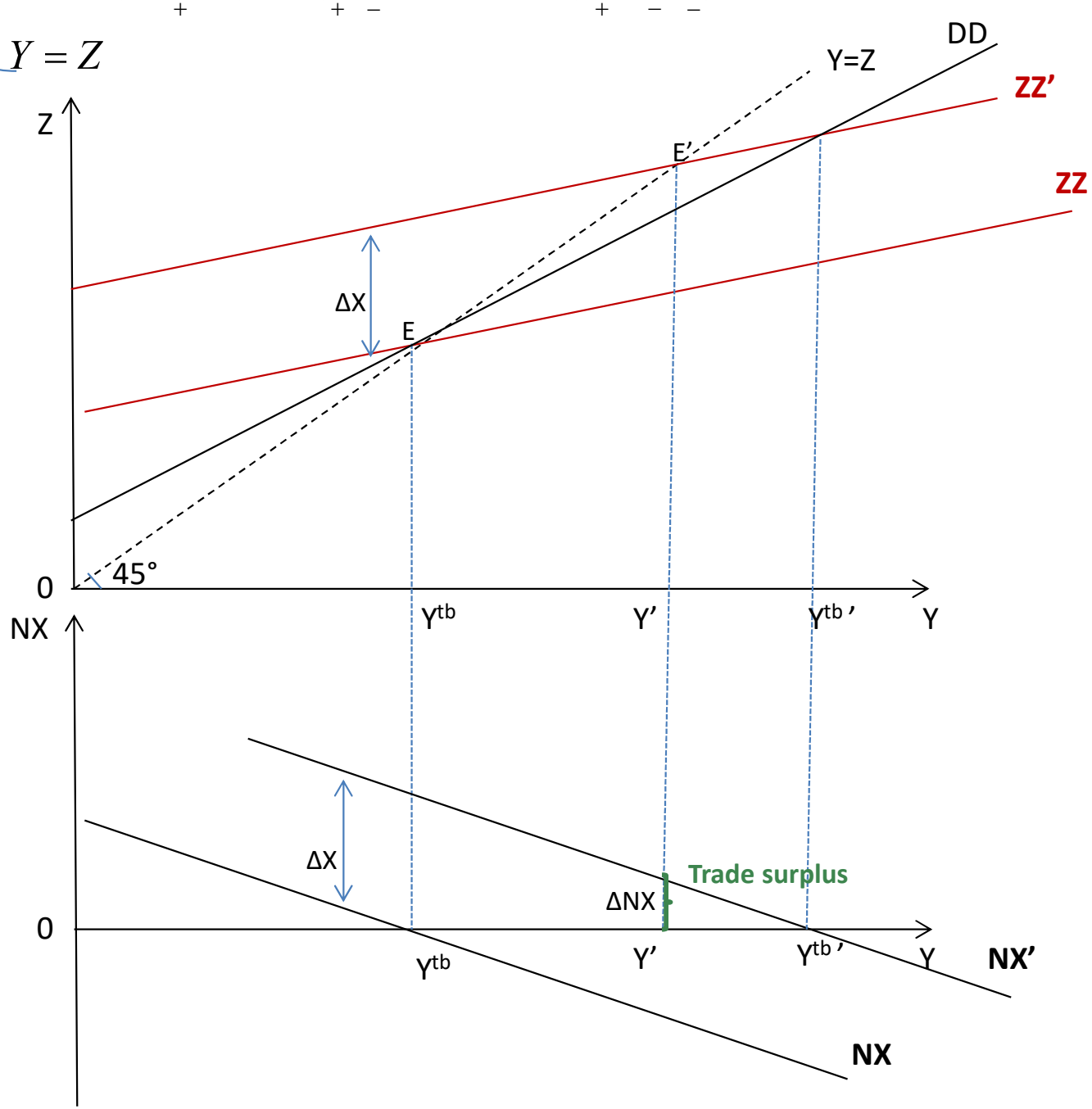
Increases in domestic expenditure

In an open economy, therefore, the increase in real output following an increase of domestic expenditure is lower with respect to a closed economy.
Moreover increases in domestic expenditure has a negative effect on the trade balance.

The higher the degree of openess of an economy, the lower will be the effect on production of an increase of domestic expenditure, and the more pronounced will be the negative effect on the trade balance.

Increases of foreign expenditure

$$Z = C(Y - T^N) + I(Y, \bar{i}) + G + NX(Y^*, Y, \varepsilon)$$
$$Y = Z$$



Y*↑ NX↑

The increase in Y* shifts the ZZ curve upwards, by as much as the exogenous change in exports X.

The NX curve shifts upwards as well, by as much as the exogenous change in exports X
The DD curve does not shift, as Y* does not influence domestic expenditure.

Now NX=0 for an higher level of income: $Y^{tb}{}' > Y^{tb}$

Macroeconomic effects:

Equilibrium jumps from E to E'

The level of production increase (more than the initial increase in exports).

Consumption and Investment increase …
… and **the trade balance improves**!
In our example, NX=0 in E and NX>0 (trade surplus) in E'

Bottomline:

An exogenous increase in domestic expenditure and an exogenous increase in foreign expenditure both determine expansionary effects on the real economy, however:

An increase of domestic expenditure worsenes the trade balance, whereas an increase of foreign expenditure improves the trade balance.

Implications:

i) Exogenous shocks to a country's expenditure will also affect all its trading partners.
Greater trade interactions lead to more similar economic performance across countries.

ii) These interactions make economic policymaking more complex, especially fiscal policy…