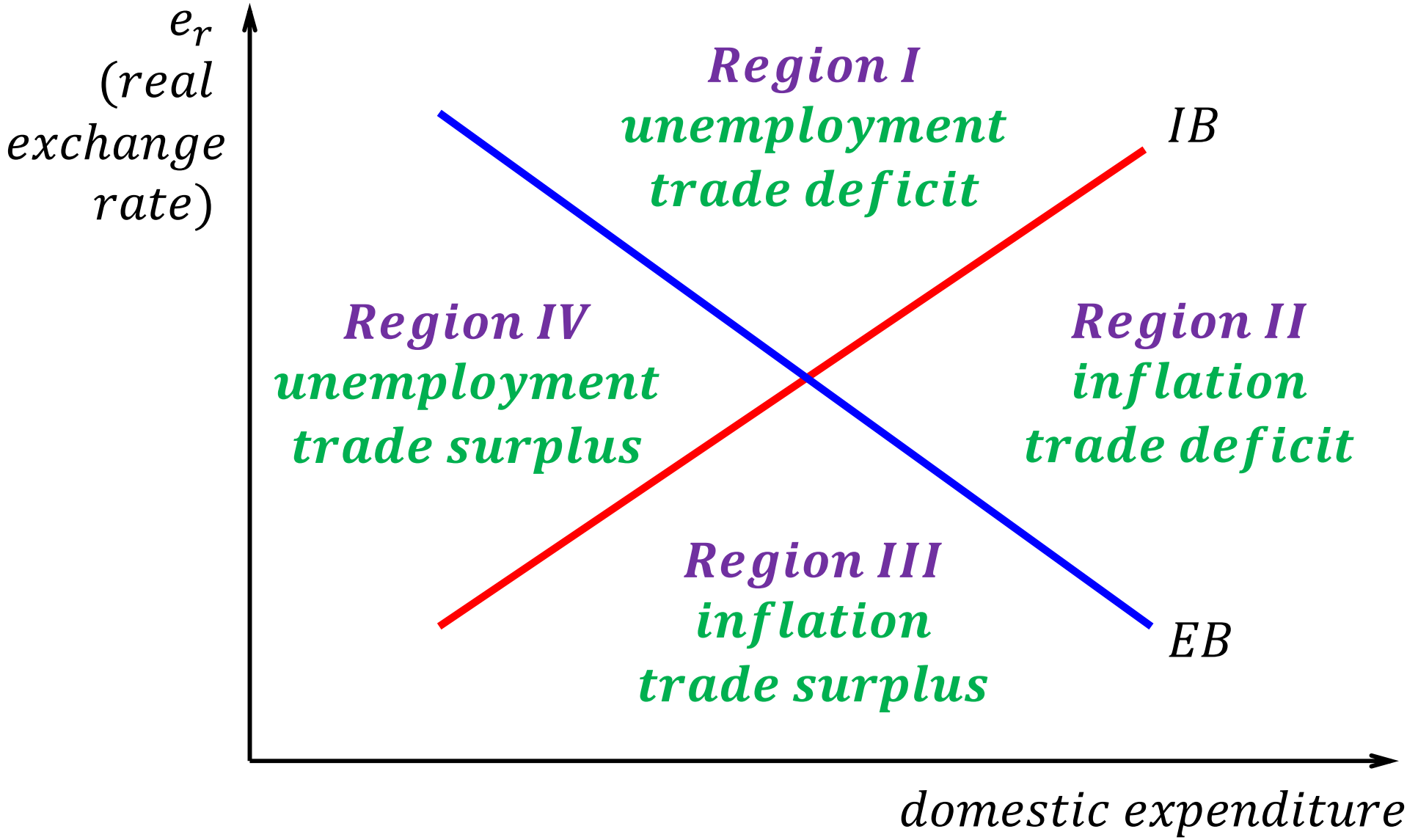
The Swan diagram



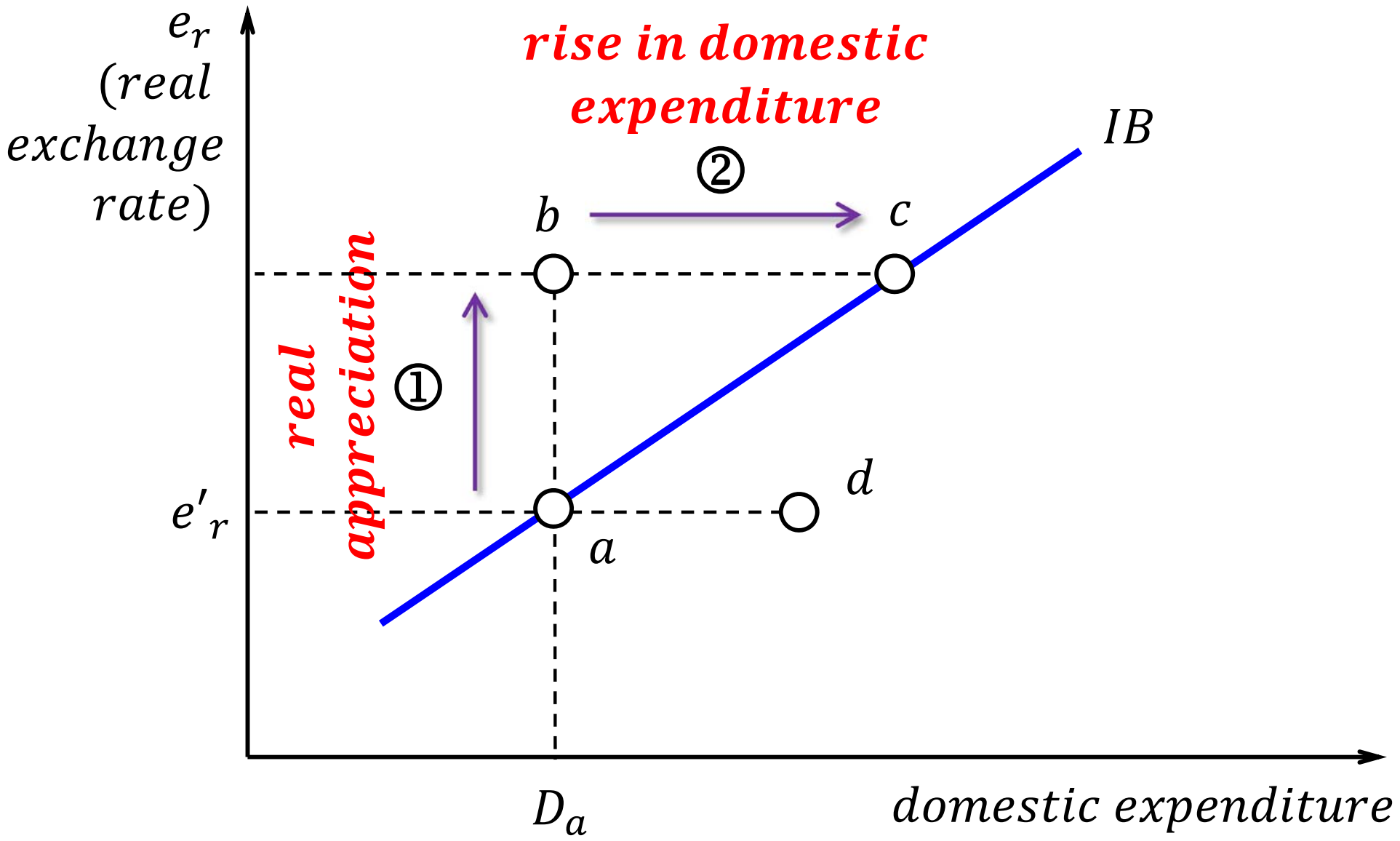
Internal and external balance

- Internal balance requires full employment of resources (sufficiently low unemployment rate) and price stability (low and stable inflation rate).
- External balance may correspond to a balanced current account or, alternatively, to having a current account deficit that is neither too high nor too low.
- Internal balance and external balance both are assumed to depend on two variables: domestic expenditures and the real exchange rate.

The internal balance (IB) function /1

- The IB function drawn on the next slide is assumed increasing for the following reason.
- Suppose the economy is initially at point a. If a real appreciation occurs (the real exchange rage increases), then imports rise and exports fall. That is, there is a switch in demand from domestic to foreign goods. As a result, unemployment goes up and the economy moves from point a to b.
- To restore internal balance by reaching point c, unemployment must be eliminated. This requires an increase in domestic expenditure.

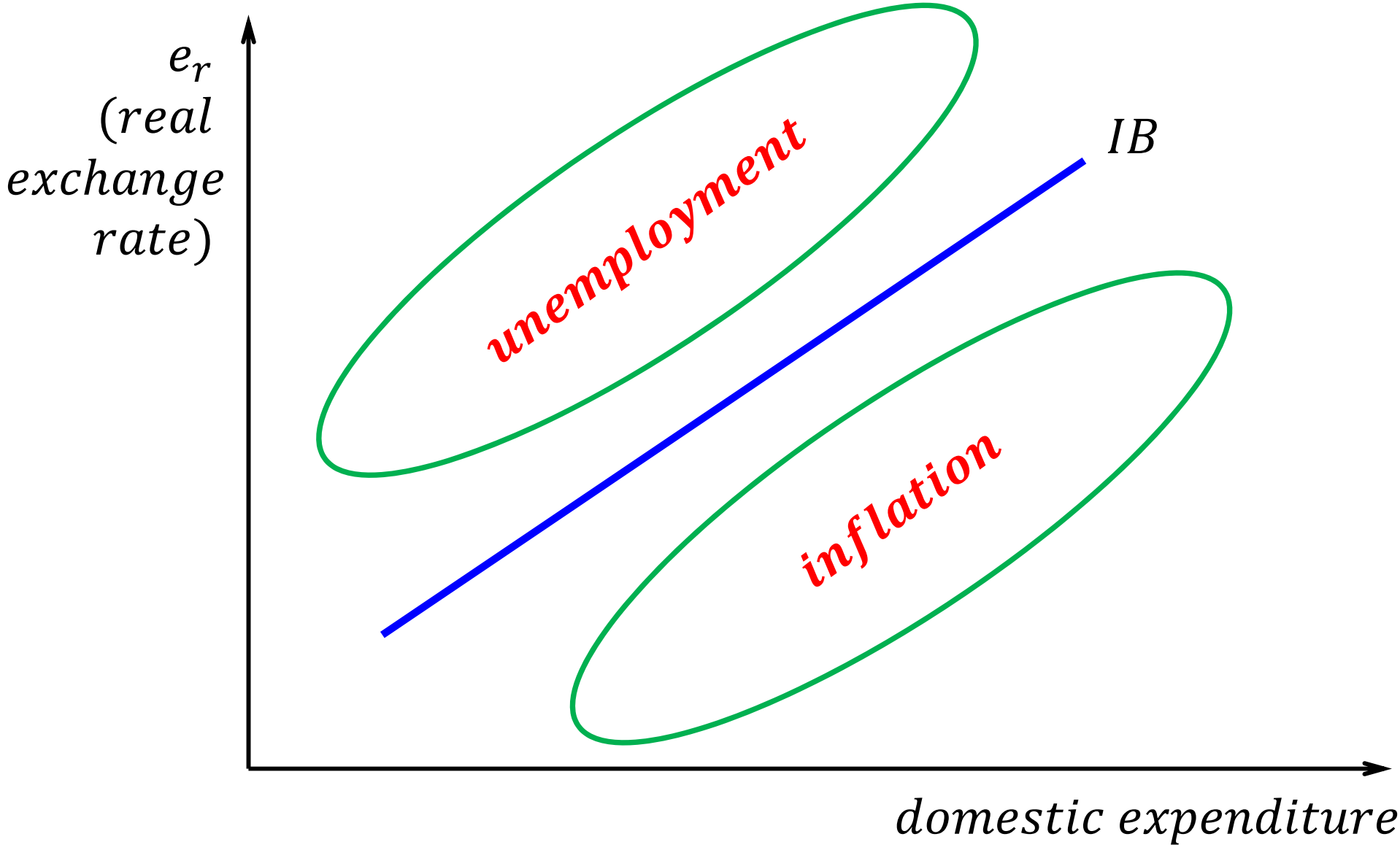
Interpreting the IB function /1



The internal balance (IB) function /2

- If follows from the previous analysis that points above the IB function (excessive expenditure abroad) imply the existence of unemployment.
- Below the IB function failure of internal balance is not due to unemployment but to inflation.
- For instance, at point d, given the corresponding real exchange rate e'_r, domestic expenditure is excessive with respect to the level D_a required to reach internal balance. This excess of domestic expenditure manifests itself in the form of inflation.

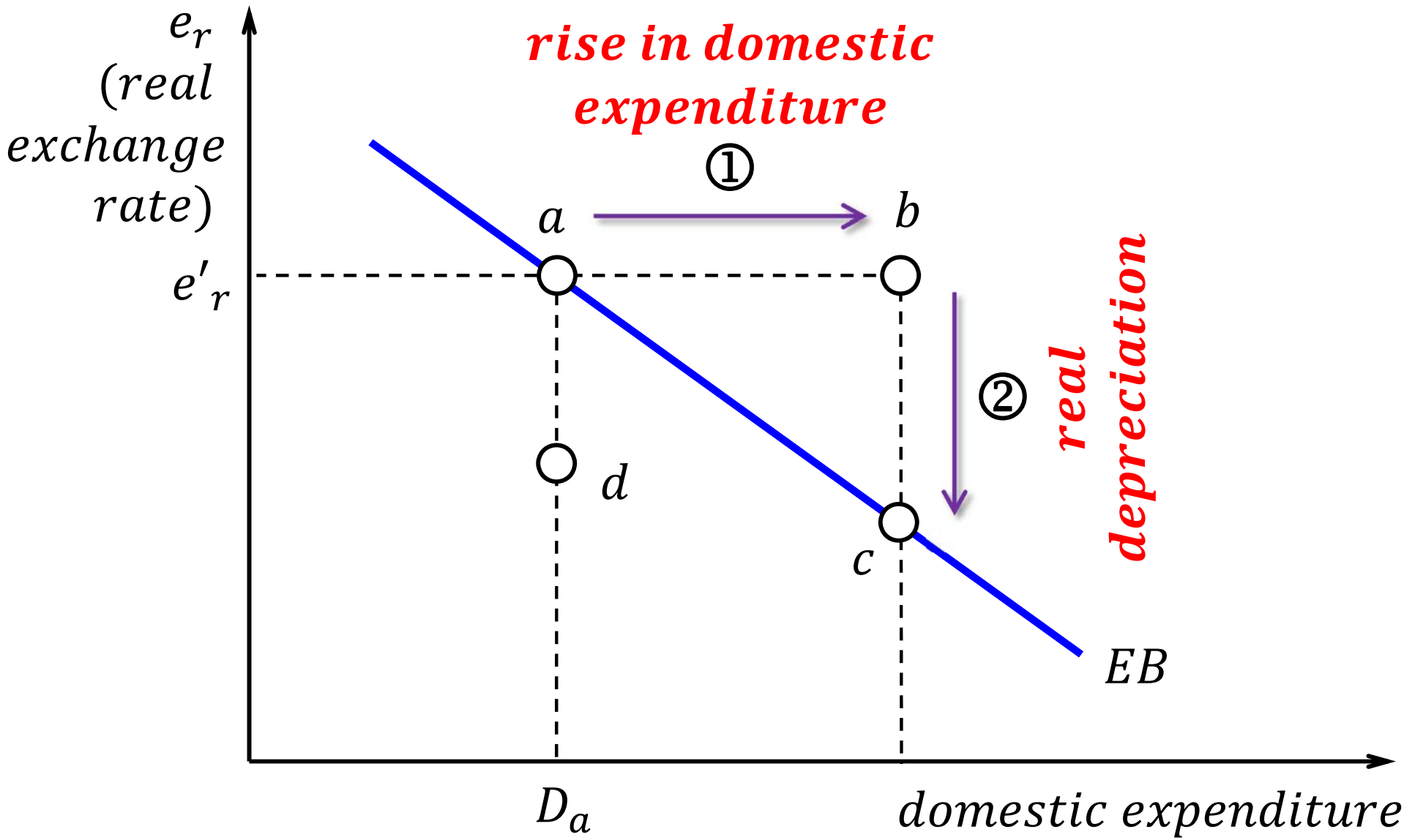
Interpreting the IB function /2



The external balance (EB) function /1

- The EB function drawn on the next slide is assumed decreasing for the following reason.
- Suppose the economy is initially at point *a*, where the trade balance is zero. If domestic expenditure increases, GDP and, consequently, income also increase. Part of this additional income is spent buying foreign goods. A trade deficit ensues.
- To restore external balance by reaching point *c*, the trade deficit must be neutralized. This requires a reduction in the real exchange rate: a real depreciation (an improvement of competitiveness).

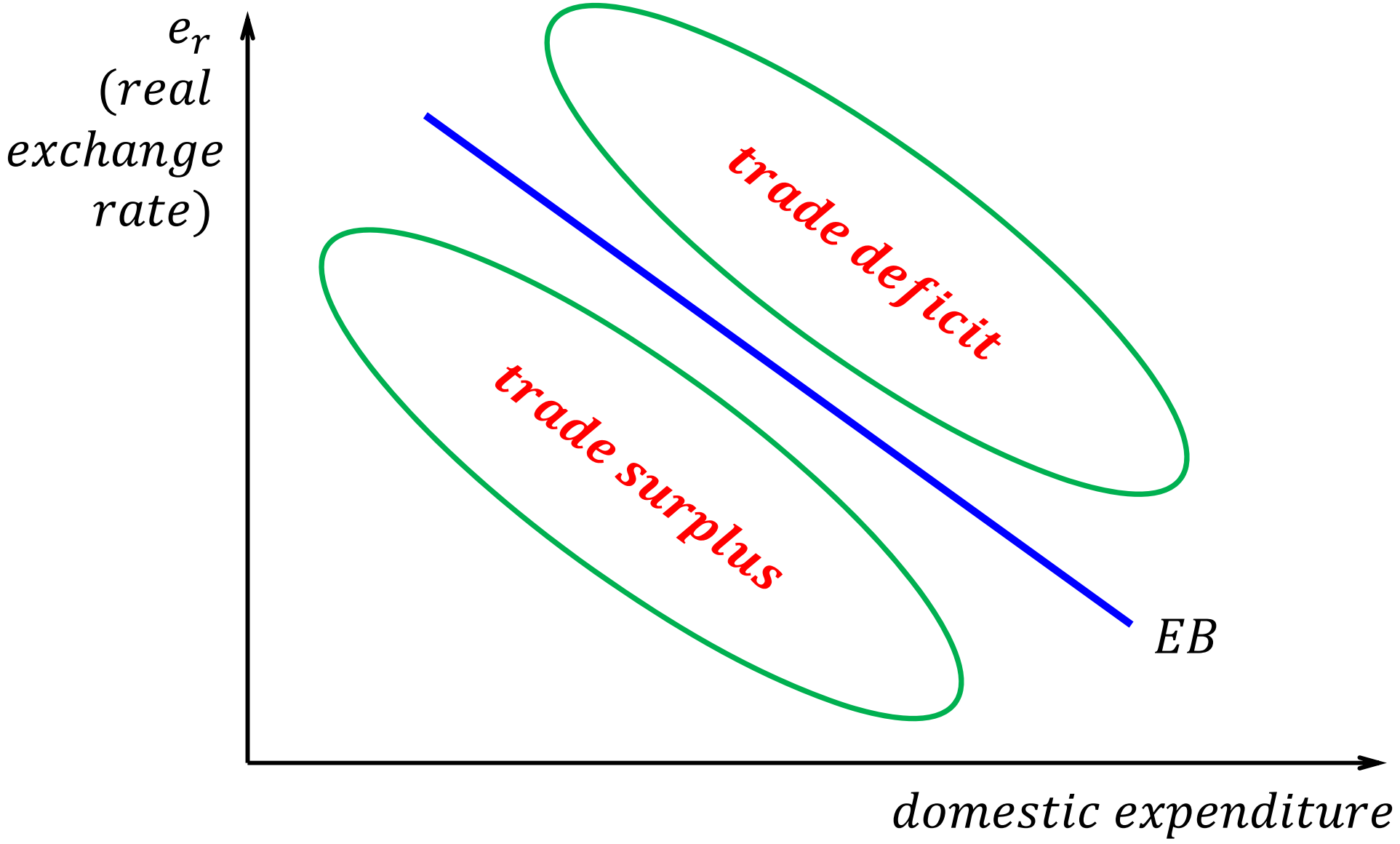
Interpreting the EB function /1



The external balance (EB) function /2

- If follows from the previous analysis that points above the EB function (excessive domestic expenditure) generate a trade deficit.
- Below the EB function failure of external balance is not due to a trade deficit but to trade surplus.
- For instance, at point d, given the corresponding level D_a of domestic expenditure, the real exchange rate is smaller than the value e'_r required to reach external balance with D_a. That is, the economy is too competitive and therefore runs a trade surplus.

Interpreting the EB function /2



The Swan (or Meade-Swan) diagram

- The Swan diagram (due to Trevor W. Swan) combines the IB and EB functions. It separates the plane into four regions.
  - In region I, the economy experiences unemployment and trade deficit (Egypt, South Africa).
  - In region II, inflation coexists with a trade deficit (Brazil, Turkey).
  - In region III, there is inflation and a trade surplus (Russia, Venezuela).
  - In region IV, the economy has unemployment and runs a trade surplus (eurozone).

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The Swan diagram in action

- Suppose the economy is in Region I and, specifically, around the numeral "I" in "Region I".
- At that point, the economy has unemployment. It may appear that more expenditure is needed to reduce unemployment.
- The diagram suggests that the unemployment problem this economy faces is not solved by changing expenditure (increasing it) but by shifting expenditure. To reach the intersection of the IB and EB lines, domestic expenditure must be reduced and net exports increased (through depreciation).