

MANAGING SHORT-RUN CRISIS IN AN OPEN ECONOMY

EE 462 Development Macroeconomics

Semester 1/2014

EQUILIBRIUM IN A SMALL, OPEN ECONOMY

Introduction

- So far, we have seen some evidence of **'unbalanced' economies** due to unstable world market conditions (especially in the 1970s and 1980s).
 - Oil price shocks and rising inflation in the 1970s
 - Overvalued exchange rates prior to the Asian financial crisis
 - IMF's stabilization programs intended to correct these macroeconomic imbalances.
- This lecture is to explain a mechanism for analyzing the macroeconomic policies for LDCs to stabilize its economy and create a climate for faster economic growth.
- Two main policy policies for correcting macroeconomic imbalances: *reductions in expenditures* and adjustments in *relative prices*.

Small and Open Economy

- Two features of developing countries:
 - **Open economy:** Trade and capital flows across borders in sufficient volume to influence the domestic economy, particularly prices and money supply.
 - **Small economy:** Price takers in world markets. Their exports and imports cannot influence world market prices.
- **Australian model:**
 - Exports and imports are *tradables*; all other goods and services are *nontradables*.

Australian Model

- **Tradable goods and services:**

- Prices within the country are determined by supply and demand on world markets, and therefore are exogenous to the model.

$$P_t = eP_t^*$$

where e = nominal exchange rate (baht/\$), P_t^* = world market price

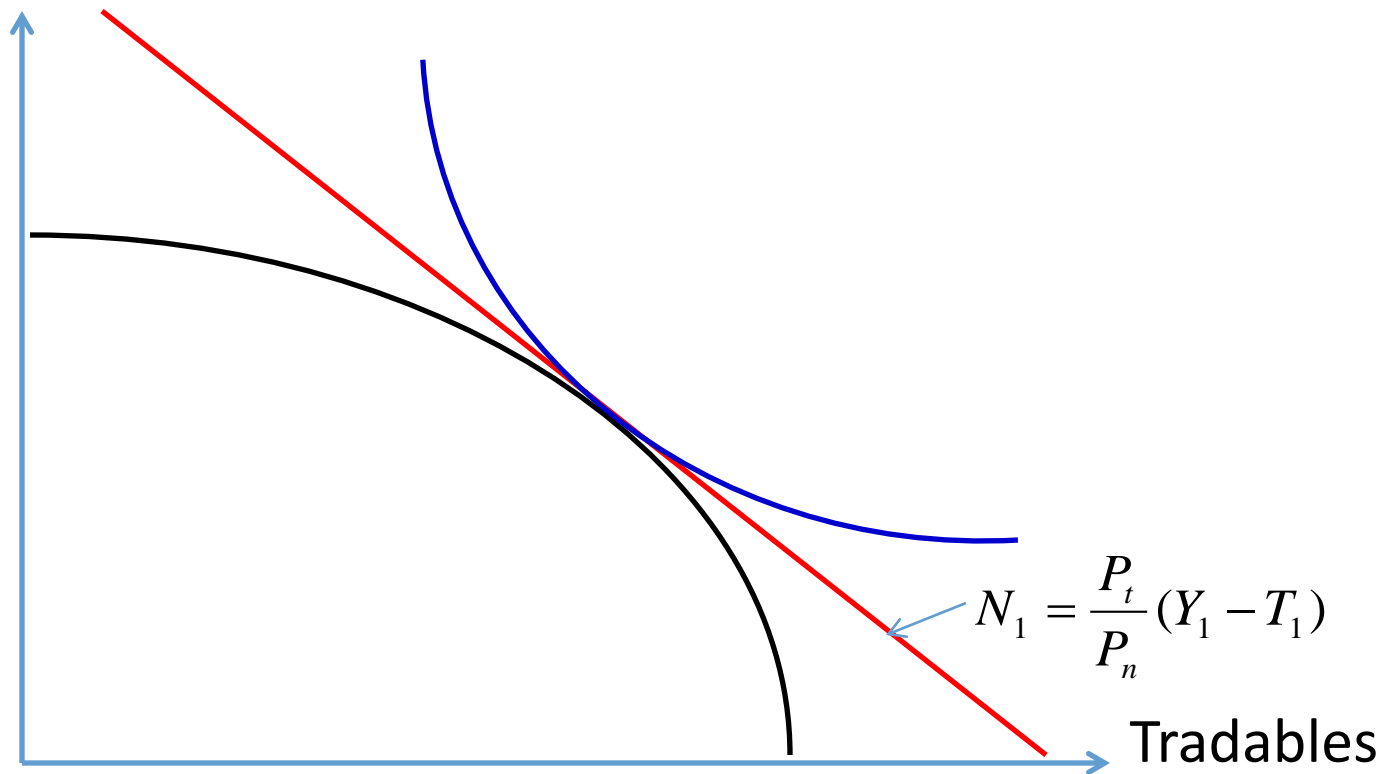
- How does e change as a country *devalue* (or *revalue*) its currency?

- **Nontradables:**

- Prices (P_n) are determined by market forces within the country and therefore are endogenous to the model.

Equilibrium in the Australian Model

Nontradables



Internal and External Balance

- **Internal balance (IB):** equilibrium in the nontradeables markets
- **External balance (EB):** equilibrium in the tradeables markets
- **Real exchange rate (RER):**

$$P = P_t/P_n \quad \text{where } P_t = eP_t^*$$

- **Trade balance:**

B_t = value of tradable supply – value of tradable demand

$$B_t = P_t(S_t - D_t)$$

- Recall: $GDP = Y = C + I + X - M = A + X - M$ (A= Absorption).

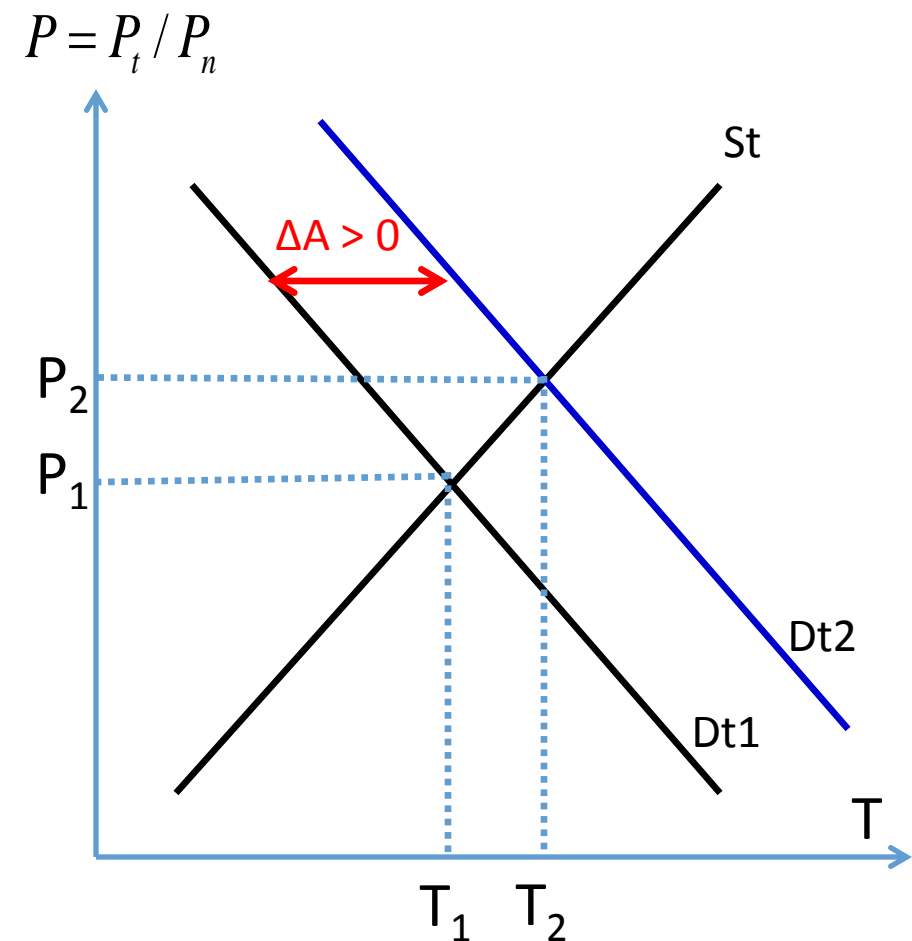
$$\rightarrow A - GDP = M - X \quad (\text{equilibrium in Australian model}).$$

Results from Australian Model

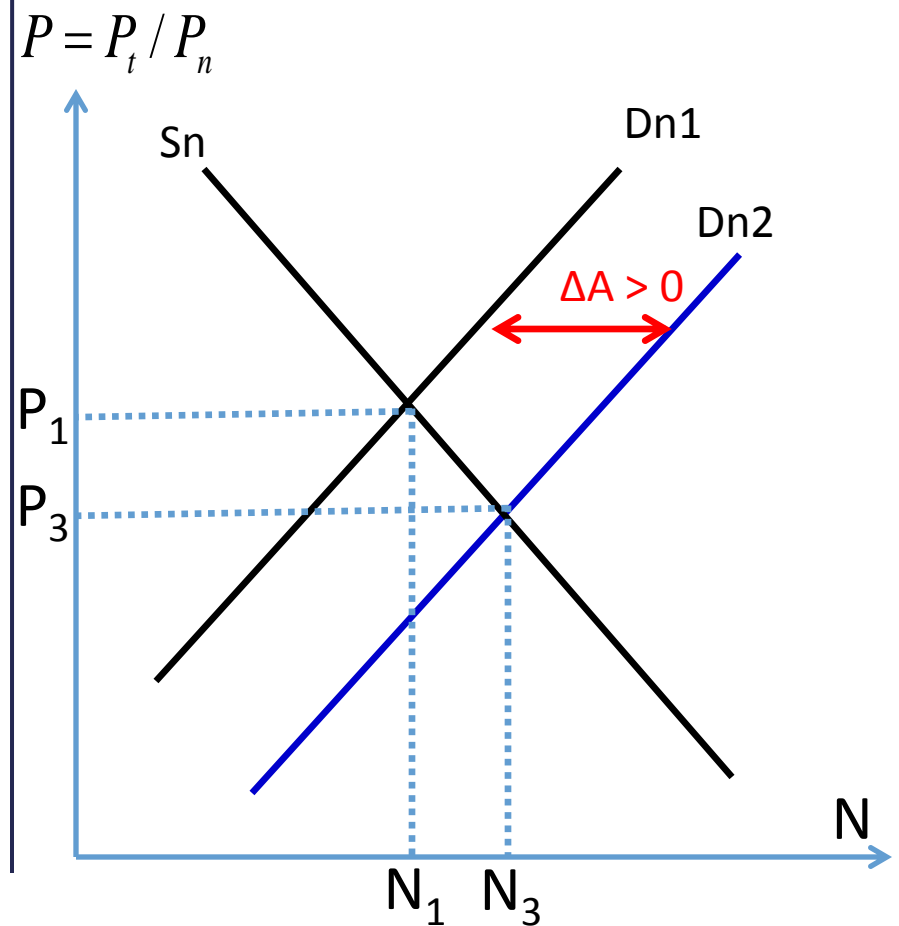
- *Macroeconomic equilibrium* is defined as a balance between supply and demand in two markets, tradables (**external balance**) and nontradables (internal balance).
- To achieve equilibrium in both markets, two conditions must be satisfied:
 - ✓ Expenditure (absorption) = income
 - ✓ The relative price of tradables (real exchange rate) must be at a level that equates demand and supply in both markets.
- Two remedies for an economy that is out of balance: **adjusting absorption**, the **nominal exchange rate**, or both.

Tradables and Nontradables Markets

Tradables Market

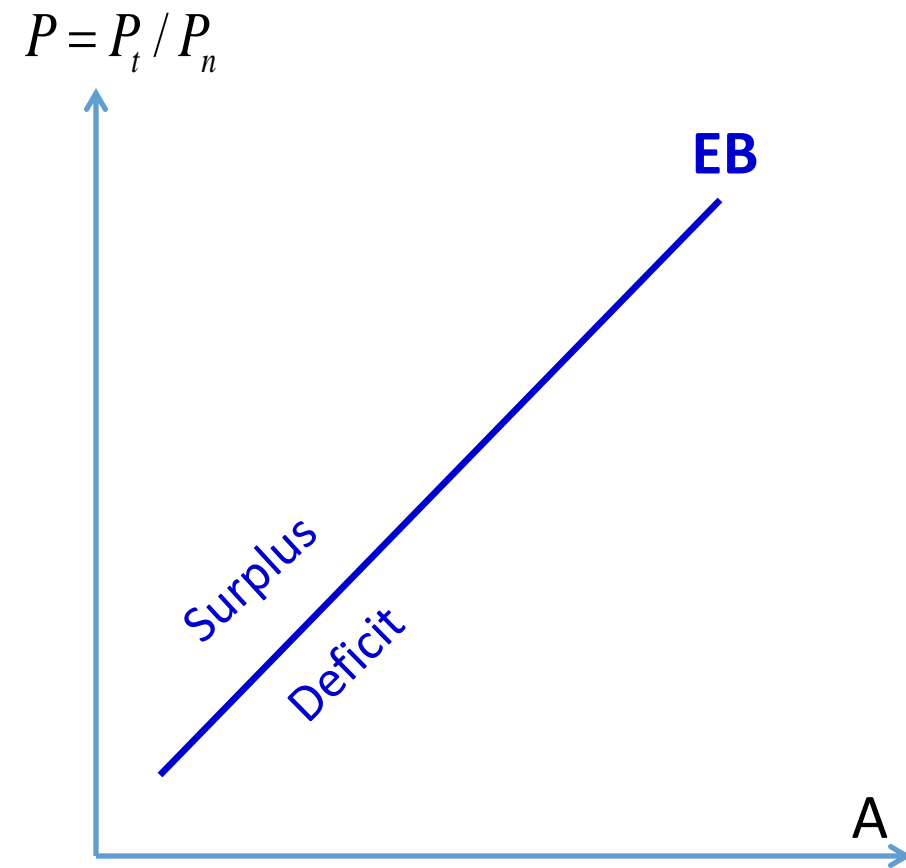


Nontradables Market

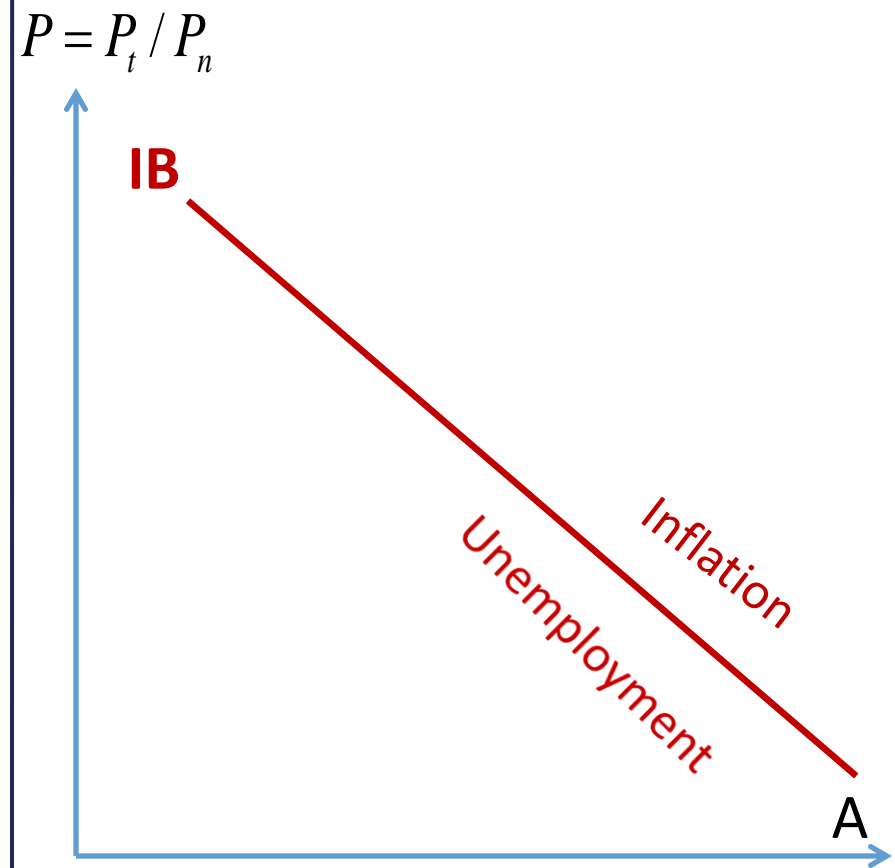


The Phase Diagram

External Balance



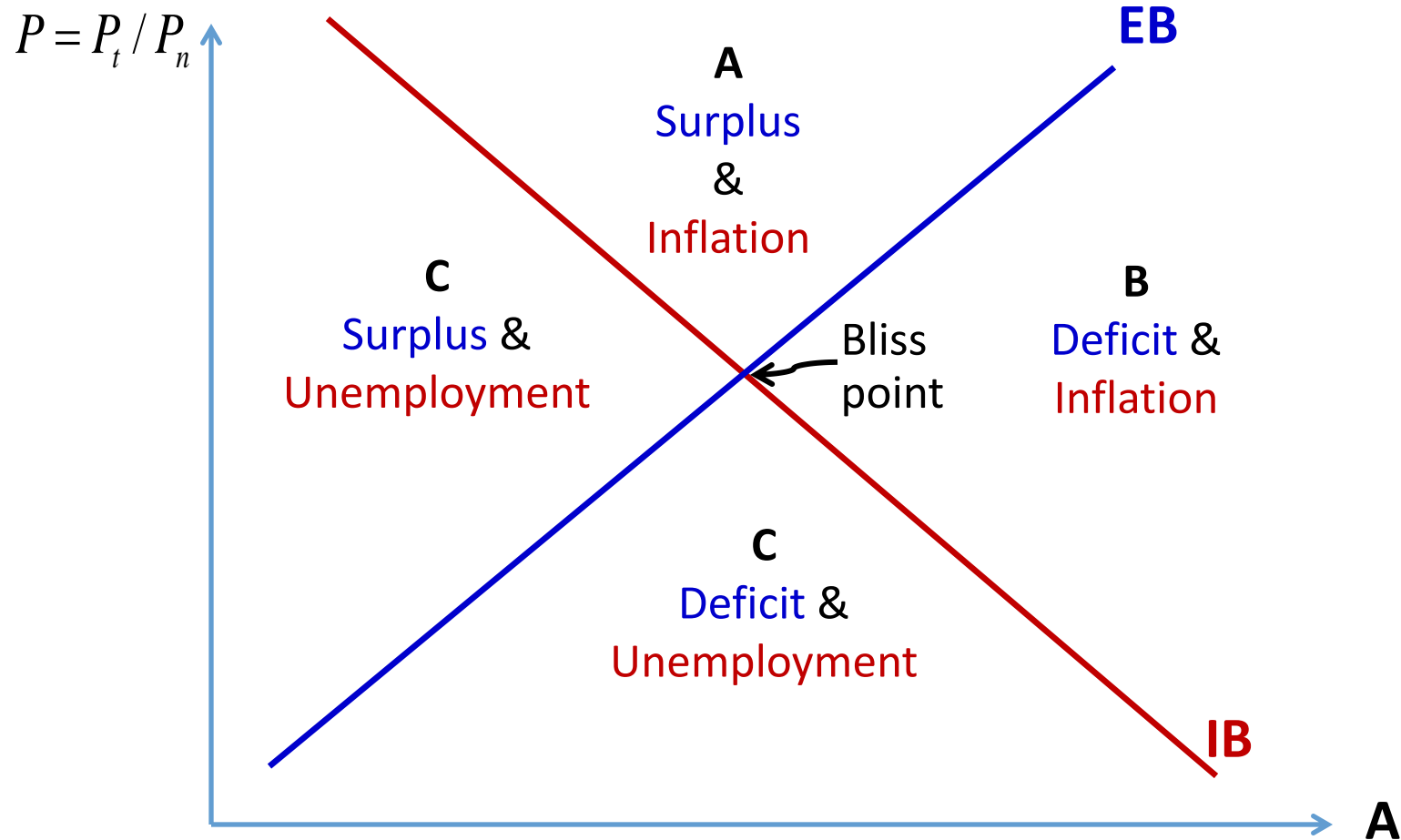
Internal Balance



Zones of Imbalance

- External imbalance:
 - **External surplus**: $X > M$, real exchange rate $P >$ equilibrium P , production of tradables exceeds demand → P is more **depreciated** than required
 - **External deficit**: $X < M$, demand $>$ supply of tradables → P is more **appreciated**
- Internal imbalance:
 - **Internal deficit**: excess demand for nontradables, absorption is too high → **Inflation**
 - **Internal surplus**: excess supply of nontradables, absorption is too low → **unemployment**

Figure: Zones of Imbalance



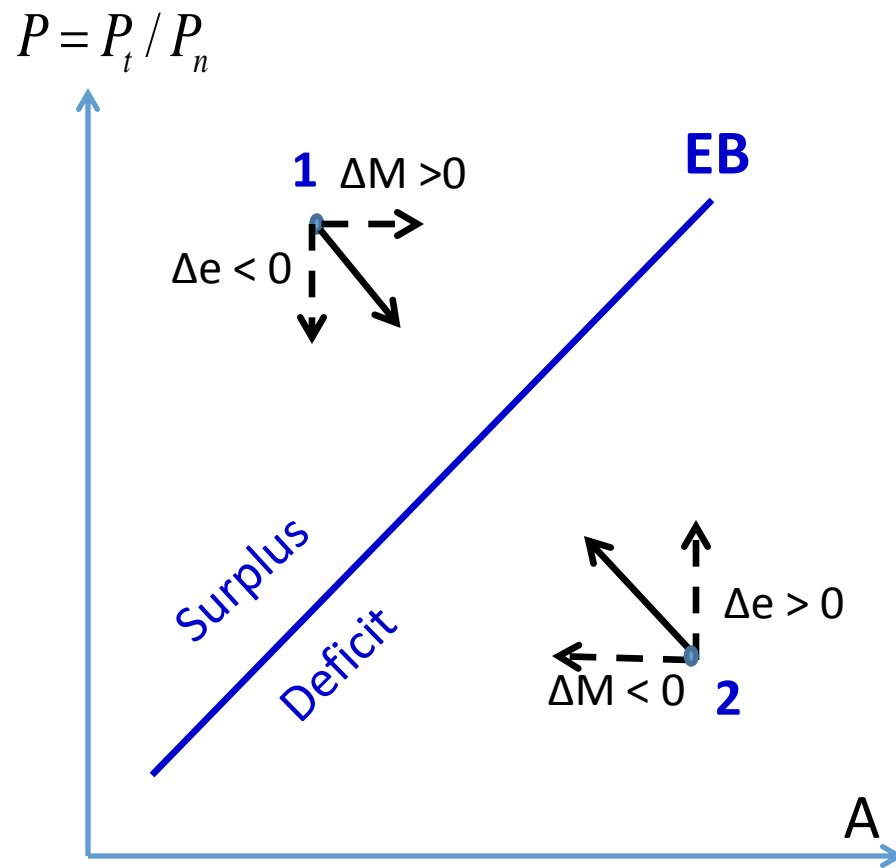
Equilibrium vs. Disequilibrium

- Disequilibrium in the tradable markets
 - ➔ Either a balance of payments deficits (case of excess demand) or a balance of payments surplus (case of excess supply)
- Disequilibrium in the nontradable markets
 - ➔ Either a higher rate of inflation (case of excess demand) or higher unemployment (case of excess supply)
- Four combinations of disequilibrium:

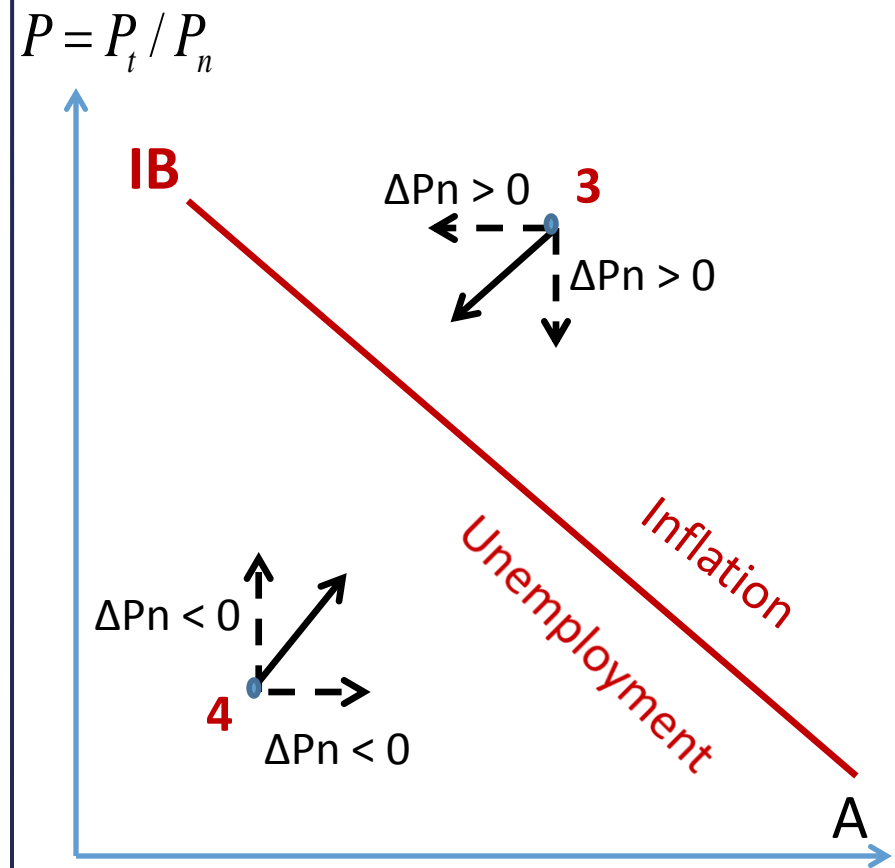
| | Nontradables | |
|-----------|----------------------------|-------------------------------|
| Tradables | A: BOP surplus + inflation | D: BOP surplus + unemployment |
| | B: BOP deficit + inflation | C: BOP deficit + unemployment |

Tendencies toward Equilibrium

External Balance



Internal Balance



Tendencies toward Equilibrium: Self-Correcting Tendencies

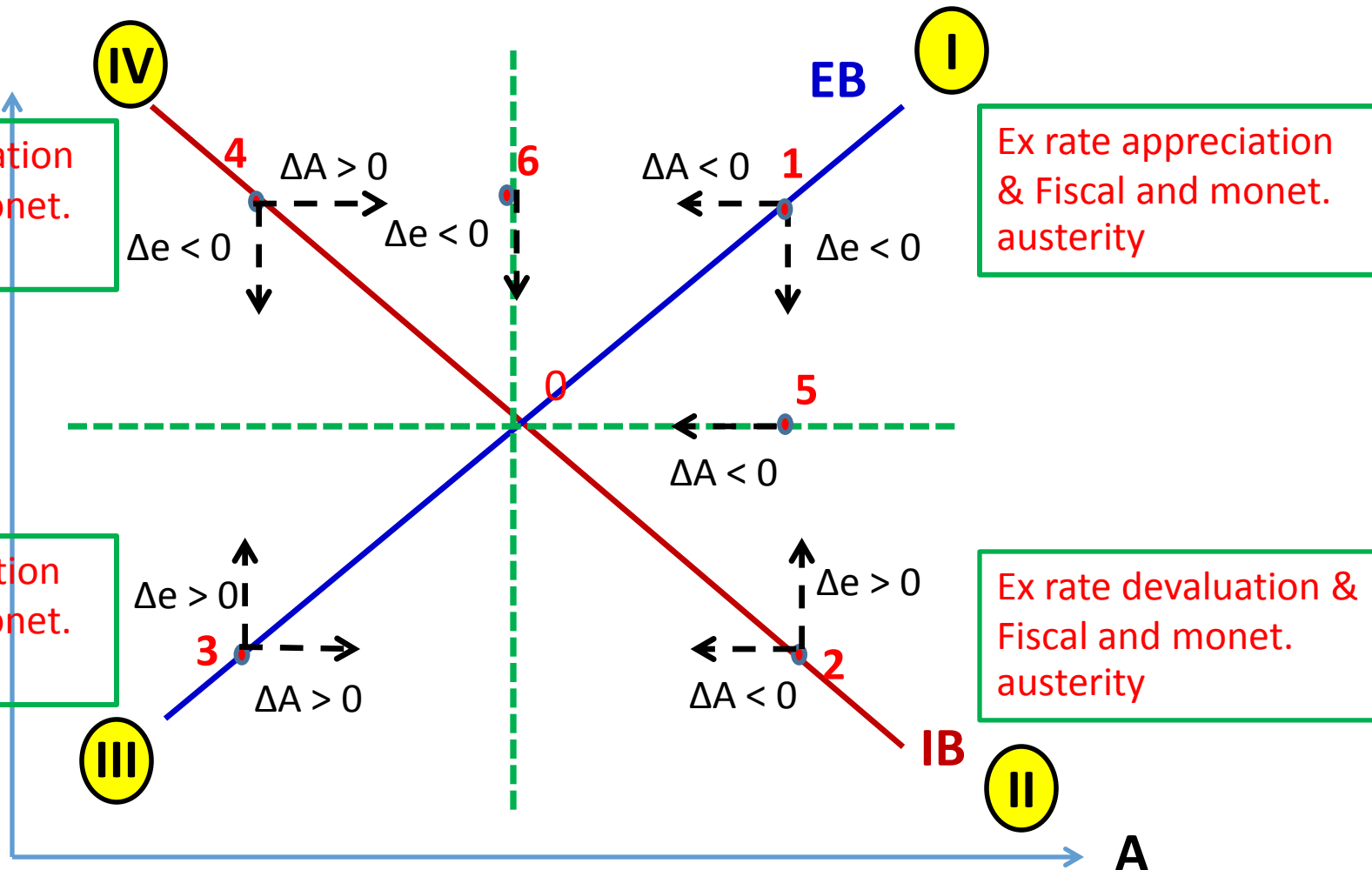
- External surplus (1)
 - International reserves increase $\rightarrow M_s \uparrow \rightarrow r \downarrow \rightarrow A \uparrow$
 - Inflow of foreign exchange $\rightarrow M_d \uparrow \rightarrow e \downarrow$ (appreciation)
- External deficit (2)
 - International reserves decrease $\rightarrow M_s \downarrow \rightarrow r \uparrow \rightarrow A \downarrow$
 - Inflow of foreign exchange $\rightarrow M_d \downarrow \rightarrow e \uparrow$ (depreciation)
- Internal deficit (3)
 - Inflation (rise in NT prices) $\rightarrow \rightarrow e \downarrow$ (appreciation) & $A \uparrow$
- Internal surplus (4)
 - Unemployment would be self-correcting if prices are able to fall as easily as they rise, but this is seldom the case.

Stabilization Policies

- Because of *structural rigidities*, the economy often fails to work smoothly.
 - ✓ Exchange rate changes may take time to affect actual imports and exports.
 - ✓ Nontradables prices may rise quickly if there is excess demand, but the inflation may persist once it starts.
 - ✓ When there is unemployment, unions strike may prevent prices from falling.
- Governments need to take an active role to stabilize their economies. Three instruments: **exchange rate management**, **fiscal policy**, and **monetary policy**.
 - **Exchange rate management**. From fixed to floating rates.
 - **Fiscal policy and monetary policy** are two instruments to influence absorption level.

Policy Zones

$$P = P_t / P_n$$

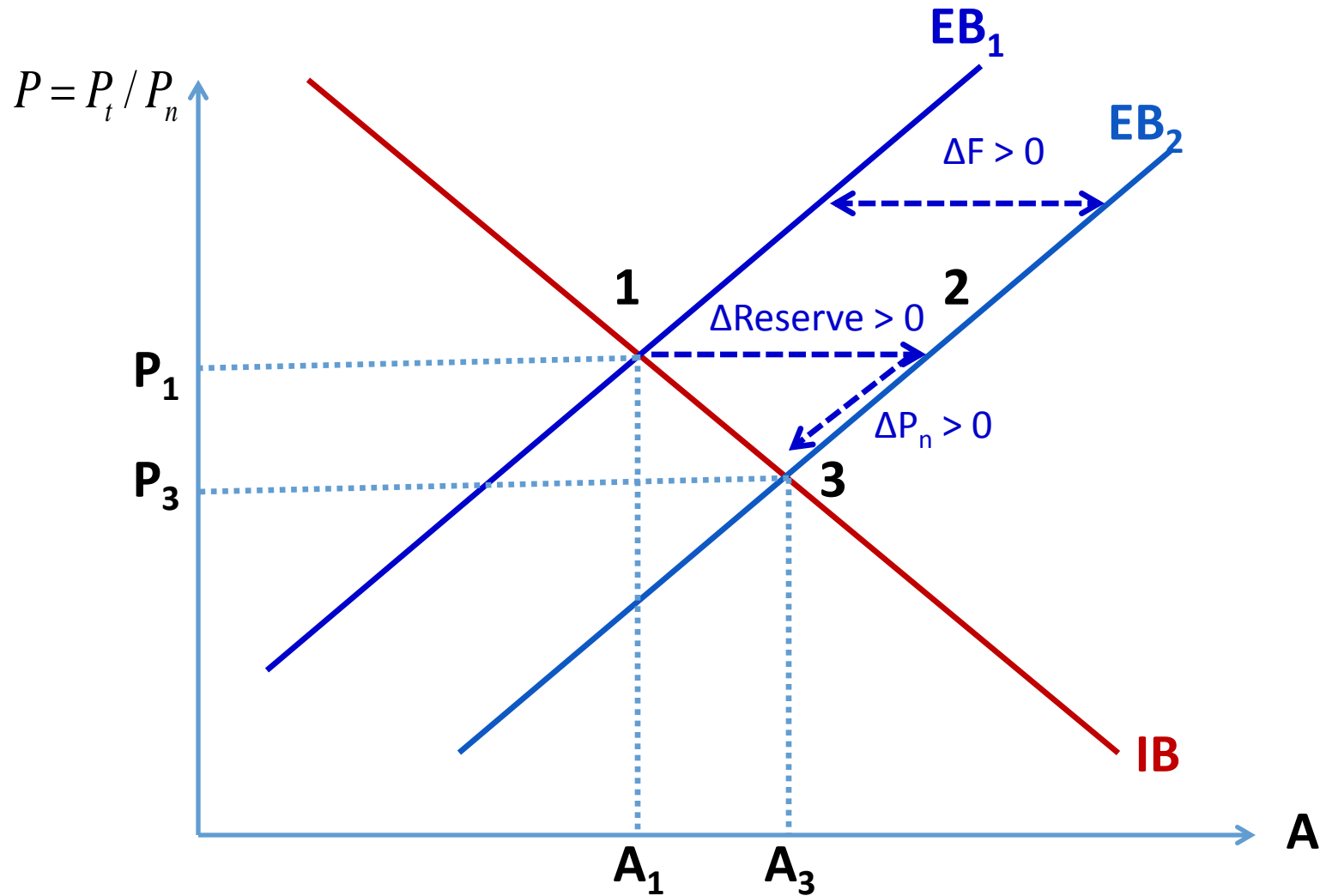


APPLICATIONS OF THE AUSTRALIAN MODEL

Dutch Disease

- A country receives higher export prices or a larger inflow of foreign capital may end up worse off than without the windfall.
- Windfall in foreign reserves occurs:
 - EB shifts rightward, the economy is in surplus, leads to more expenditure.
 - Absorption rises.
 - The economy moves off its internal balance into inflation.
- Effects of a rise in P_N :
 - *Reduction in real absorption* (partially corrects the initial rise in A)
 - *Real appreciation of exchange rate* (assuming official rate is fixed)

Figure: Dutch Disease



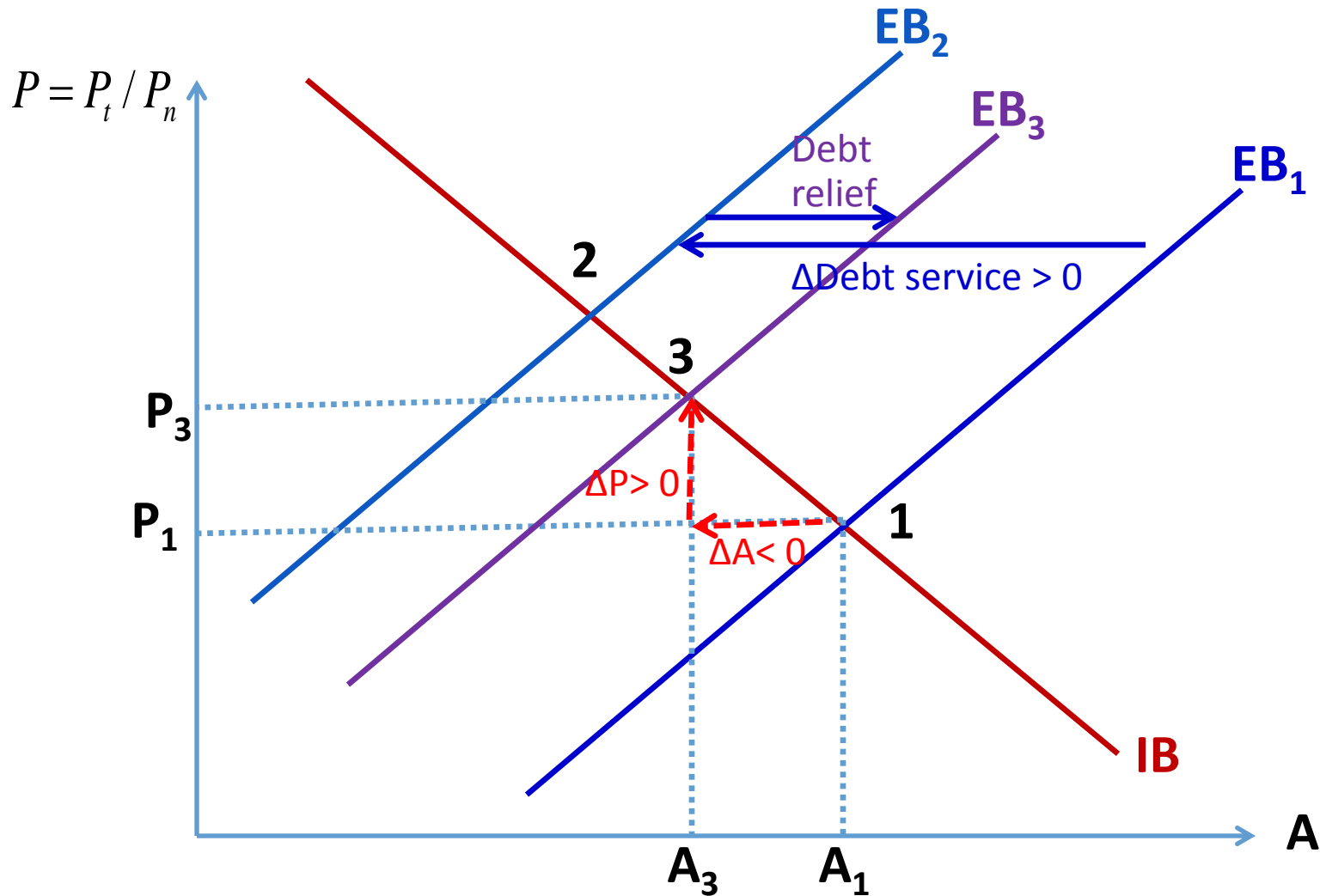
Problems from Dutch Disease

- Such windfalls generally are temporary.
 - When export prices fall or the capital inflow dries up, the EB curve will shift back and a costly adjustment will be necessary.
- In shifting from the old to the new equilibrium, there have to be adjustments in the economy.
 - The *real exchange rate P is lower* (P_n rises), so S_t (tradables supply) has fallen and S_n (nontradables supply) risen.
 - *Unemployment* occurs when workers switch from tradables to nontradables production.
 - *Decline in tradables sector* → “disease”

Debt Repayment Crisis

- It's a reverse of the Dutch Disease, a decline of terms of trade.
- Initially, the economy needs to find additional resources to repay its foreign debt or needs to adjust to falling terms of trade.
- EB curve shifts leftward ($EB_1 \rightarrow EB_2$).
- If there is debt relief, then the curve shift rightward EB3.
 - Absorption is reduced due to falling foreign reserves and reduced expenditure.
 - To gain the new equilibrium at point 3, it is also necessary to devalue the currency.

Figure: Debt Repayment Crisis



Stabilization Package: Inflation and a Deficit (1)

- An economy has **budget deficit** and **inflation**. Private investors try to invest in nonproductive assets like land or to invest abroad, which deepens the external deficit.
 - IMF is called to make **stabilization program loans**.
- IMF stabilization programs:
 - **Reduction in government's budget deficit**
 - Programmed targets for domestic credit to **cap the growth of money supply** in order to **reduce absorption**
 - The package may require **devaluation** of exchange rate, to reach a new equilibrium and avoid unemployment.

Stabilization Package: Inflation and a Deficit (2)

- However, IMF programs usually come with substantial aid attached from IMF, World Bank and bilateral donors.
- The **aid package** would enable the country to have more foreign reserves to buy tradables.
 - EB shifts to the right → new equilibrium
- Two things happen for the package:
 - It reduces the need for austerity.
 - It reduces the need for devaluation of the exchange rate. But IMF and donors often insist on devaluation.

Figure: Stabilization from Inflation and Deficit

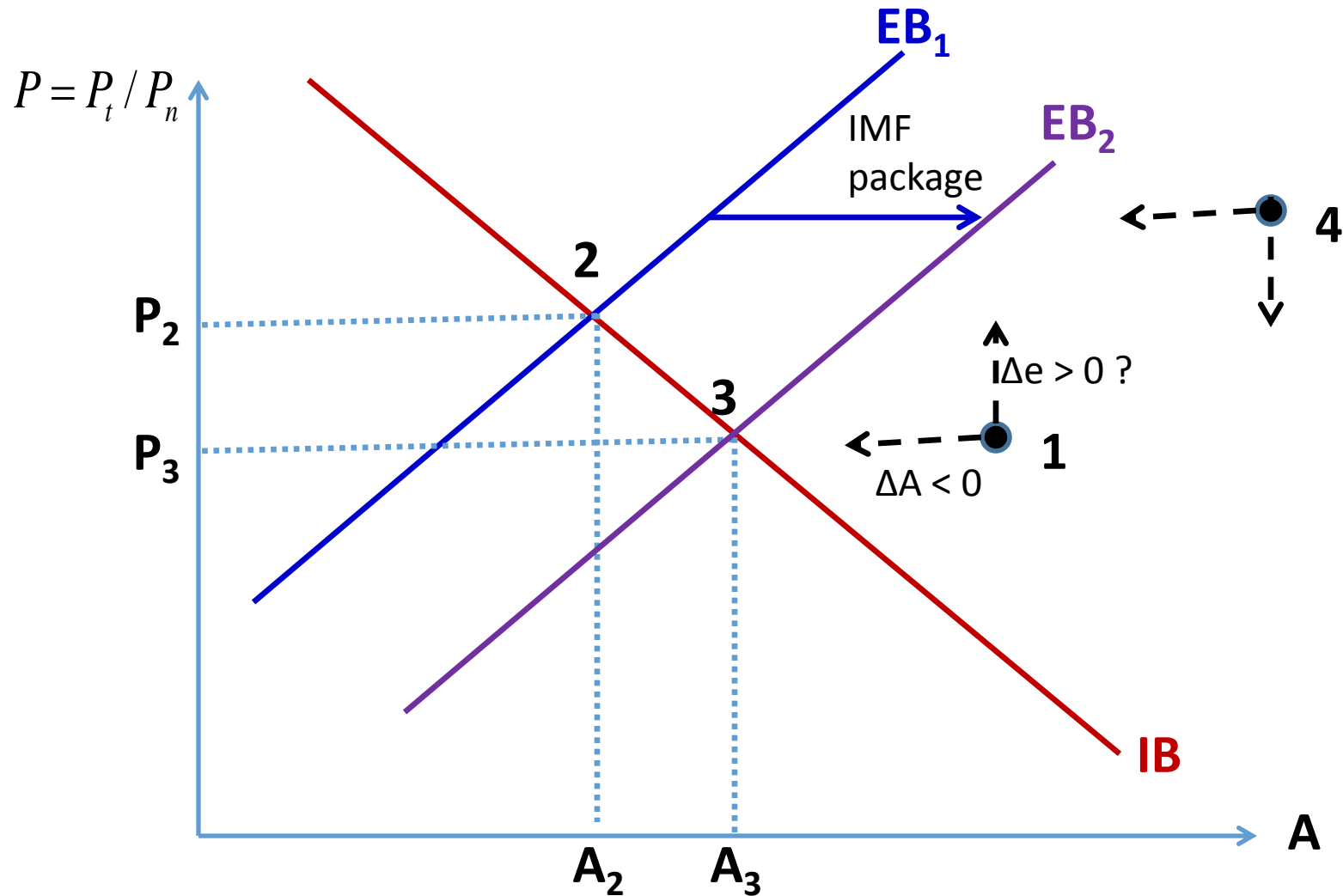
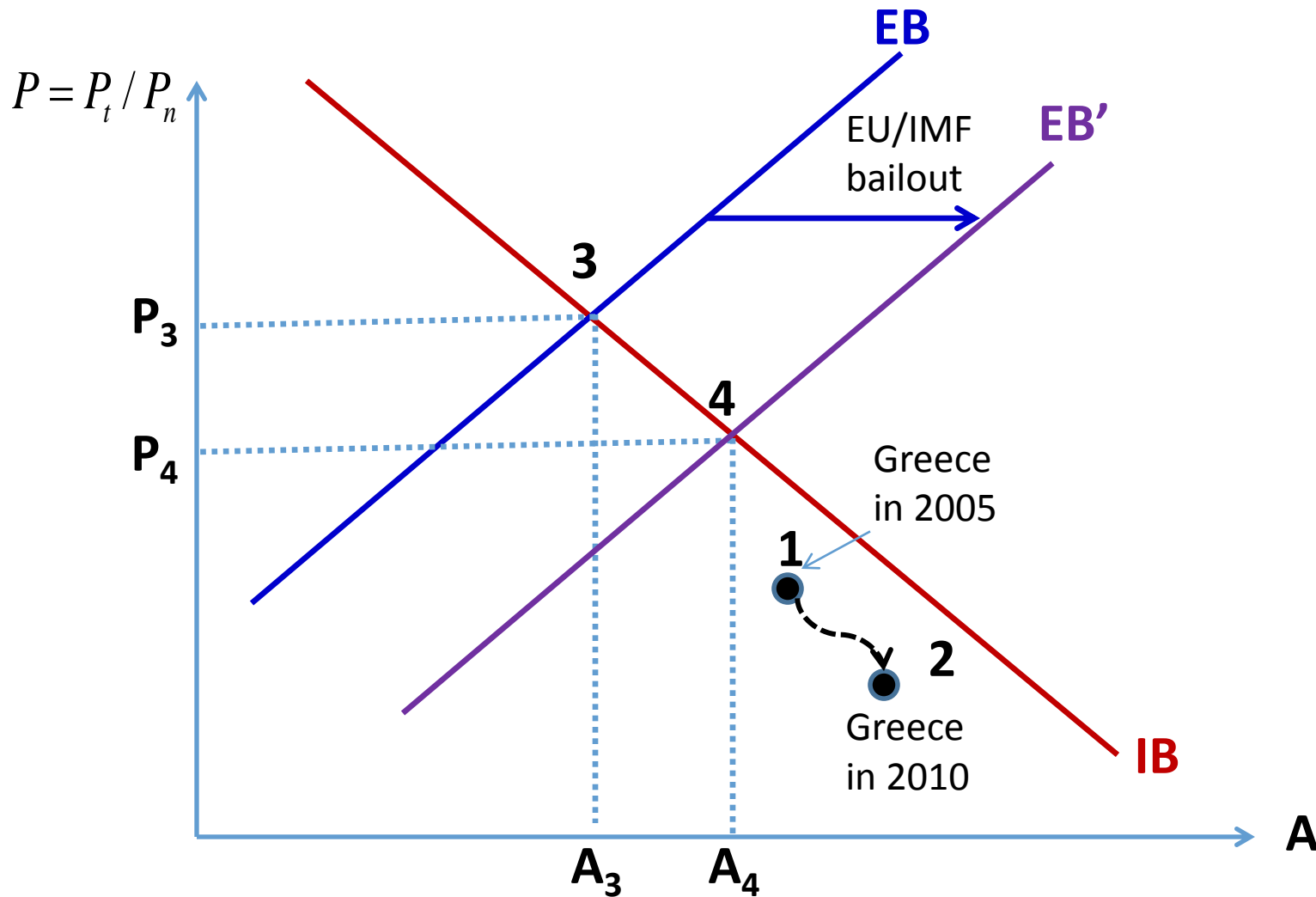


Figure: The Greek Debt Crisis, 2010-2012



Drought, Hurricanes, and Earthquakes

- Starting from point 1, drought or another natural disaster reduces the capacity to produce both N and T, so both IB and EB curves shift to the left.
- Disaster relief from abroad helps by shifting EB to the right → new equilibrium (point 3).
- If the economy remains temporarily at point 1, it is inflationary.
 - The *absorption declines* due to a fall in incomes
 - At the same time government tries to spend more to relieve hunger, disease and other problems.
 - The outcome could be *continued inflation* (somewhere between points 1 and 3).

Figure: Drought

