I. Simple (Ricardian) *Comparative Advantage*:

A. **2x2x1 Model:**
   1. 2 countries (A & B)
   2. 2 goods (X & Y)
   3. 1 factor of production (Labor, L)

B. A **absolute advantage** over B in production of X, if it can produce X more efficiently (w/ less L).
   1. *Production function*: equation that maps input, L, into output, X or Y.
   2. Examples: 
      
   3. A has absolute advantage in production of X, if \( a_{LX} > b_{LX} \)

4. Gains from Absolute Advantage in Trade: If \( a_{LX} > b_{LX} \) & \( a_{LY} < b_{LY} \), i.e., if A has absolute advantage in X and B has absolute advantage in Y, then rather intuitive that each would from specializing in production of good it produces more efficiently and trading for the other.

C. A **comparative advantage** in production of good X, relative to B, if A’s opportunity cost of producing X in terms of good Y is less than B’s, or in terms of production functions, if \( (a_{LX}/a_{LY}) > (b_{LX}/b_{LY}) \).
   1. Country specialized in & exports its c.a., not it’s a.a.’s and, doing so, both countries better off, regardless of a.a.
   2. Since c.a. relative, every ctry has a c.a.: A c.a. in X <=> B c.a. in Y

D. *Production Possibility Frontiers (PPF’s)*: maximum X ctry can produce for each level of Y produced & v.v. I.e., the limits of output capacity given tech (coefficients) and resources (L).
1. Production functns & \( L = L_x + L_y \Rightarrow X = a_{LY} L_A - (a_{LY} / a_{LY})Y \) and \( X = b_{LY} L_B - (b_{LY} / b_{LY})Y \)

2. Graphically (dark lines are PPF’s):

a) A has \( c.a. \) in \( X \Rightarrow \) steeper PPF than B.

b) A specializes in \( X \), trades \( X \) for \( Y \), (at a price somewhere b/w 2 autarky prices (i.e., b/w \( a_{LY} / a_{LY} \) & \( b_{LY} / b_{LY} \), i.e. slopes PPF’s).

c) This line is A’s consumption possibility frontier, which we now easily see is higher than if had to consume & produce same bundle.

II. Open-Economy Macroeconomics (IS-LM-BoP Model)

A. Simultaneous eqbm in money mrkt (LM), goods mrkt (IS), and balance of payments (BoP); i.e., interest rates (i) & national income (Q) that clear money & goods markets, & balances external accounts.

B. The LM (liquidity mrkt) Curve (eqbm in money market)

1. For any given money supply (\( M^s \)), some interest rate, \( i \), needed for folks to demand exactly that quantity of money given their income, Q.

2. Slopes upward: if more income, Q, demand more g&s, want more money, but for a given \( M^s \), price money (i) must rise:
3. From A, ↑Q => ↑demand money, stock fixed, so i rises to pt B, say. From B, ↓Q=⇒↓demand money, stock fixed, so i falls to pt A, say.

4. POLICY: ↑Mˢ => ↓i @ any given Q, ↑Q for any given i; the reverse for ↓Mˢ, so expand/contract monetary policy = outward/inward shift

C. Balance-of-Payments (BoP) Curve (eqbm in external accts)

1. Balance-of-Payments (BoP): Current Account (Trade Balance) + Capital Account (Cap Inflow-Outflow) = 0. I.e., X+M+NetCapFlow=0.

2. Thus, trade surplus matched by capital outflow (revenue invested); trade deficit matched by capital inflow (funds deficit).

3. For any i, some Q balances Trade & Capital Accounts & v.v. Slope? If ↑Q, imports rise, exports not => trade deficit => need cap inflow, get only by higher i and v.v. for ↓Q => surplus => need outflow, get by ↓i.

4. Importantly, this BoP line flatter (elastic, i.e., interest sensitive) the more mobile is capital. Perfect capital mobility => horizontal.
D. **IS (investment-savings) Curve (eqbm goods & services mrkt)**

1. National Income = National Expenditures: \( Y = Q = C + I + (G-T) + (X-M) \)
2. Slopes Downward: For given \( C \), \( (G-T) \) & \( (X-M) \), \( \uparrow i \Rightarrow \downarrow I \Rightarrow \downarrow Q \).
3. FISCAL POLICY: \( \uparrow (G-T) \Rightarrow \uparrow Q \) for every \( i \); i.e., outward shift.
E. Gen Eqbm in IS-LM-BOP Model: All 3 Curves Intersect

![Diagram showing IS, LM, and BOP curves intersecting]

F. Using the IS-LM-BOP Model for Policy Analysis
   1. Capital Mobile:
      a) Monetary Policy under a Fixed Exchange-Rate Regime

   ![Diagram showing monetary policy under a fixed exchange-rate regime]
(1) $\uparrow M^s$ => LM shifts out, but this => $\downarrow i$ along IS curve, but this => capital outflow => depreciation, which violates Fixity.

(2) $\downarrow M^s$ => …[opposite]… => appreciation, which violates Fixity.

(3) **UPSHOT: Monetary Policy Forsaken if Cap Mob & Peg**

b) Fiscal Policy under a Fixed Exchange-Rate Regime

![Diagram](image)

(1) $\uparrow(G-T)$ => IS shifts out, but this => $\uparrow i$ along LM curve, but this => capital inflow => appreciation, which violates Fixity, so monetary policy must accommodate, i.e., $M^s$ must expand to $\downarrow i$ back, which amplifies stimulus.

(2) $\downarrow(G-T)$ => …[opposite]… => $M^s$ must shrink to $\uparrow i$ back, amplifies stim...

(3) **UPSHOT: Fiscal Policy Doubly Effective if Cap Mob & Peg**

c) Monetary Policy under a Floating Exchange-Rate Regime

(1) $\uparrow M^s$ => LM shifts out, but this => $\downarrow i$ along IS curve, but this => capital outflow => depreciation, which allowed, so $\uparrow(X-M)$ => IS shifts out too.

(2) $\downarrow M^s$ =>…[opposite]…=> appreciation, which... $\downarrow(X-M)$ => IS shifts in too

(3) **UPSHOT: Monetary Policy Doubly Effective if Cap Mob & Float**
d) Fiscal Policy under a Floating Exchange-Rate Regime

(1) $\uparrow (G-T) \Rightarrow IS$ shifts out $\Rightarrow \uparrow i$ along LM curve $\Rightarrow$ cap inflow $\Rightarrow$ apprec., which $\Rightarrow \downarrow (X-M)$, which is some, $\frac{\Delta}{\Delta t}$, shift back of IS.

(2) **UPSHOT:** Fiscal Policy Ineffective if Cap Mob & Float
2. Capital Immobile: Model reduces to IS-LM =>
   a) Can Peg or Float w/o Forsaking or Amplifying Monetary Efficacy
   b) Can Peg or Float w/o Amplifying or Dampening Fiscal Efficacy

III. Purchasing-Power Parity & Interest Parity

   A. PPP: \( P = EP^* \) or, in logs \((ln)\), \( p = e + p^* \)
      1. Given free trade, price of basket in one currency must equal price in another currency times exchange rate.
      2. Logic of no-arbitrage: could make \( \infty \) $ if not so & trade free.
      3. Empirical: holds very long run, to a constant; not at all short-run

   B. IP: \( i = i^* + E(\hat{e}) \) \((\ldots \hat{e} = \% \text{ change e.r.} \text{ & } E() \text{ is “expected”})\)
      1. Logic similar, relies on no-arb in dif mrkts (money mrkts) though
      2. If not, all would want the better-return asset & its \( \hat{e} \) would exceed
      3. Empirical: holds very well up to extremely short-run, but VERY flexible given second term on the right