Today’s lecture:

- Current U.S. fiscal policy
  - IMF World Economic Outlook
- Monetary policy in open economy.
- Fixed exchange rates:
  - Short-run: IS-LM
  - Medium run: AS-AD.
Short and medium term effects of current U.S fiscal stimulus

- Budget surplus/GDP ratio fell by 7% from 2001 to 2004 (from +2% to -5%)
- The current deficit constitutes 6% of world savings.
- Projections:
  - Optimists: Deficits will remain at ½ current level for next five years.
  - Pessimists: Current spending remains the same -- deficits will remain at current level for next ten years.
Effects of fiscal stimulus for U.S.

• Short term:
  – Multiplier>1
  – Size of expansion depends on degree of monetary accommodation, currently U.S. interest rates are low so not much crowding out.
  – Interest rate expected to rise which will generate crowding out in future.

• Medium term:
  – Output, Investment and Consumption fall as crowding out reduces capital accumulation.
  – Possible offset: tax reductions have supply-side benefits (appears unlikely).
Effect on rest of world:

• **Short term:**
  – Expansion of world demand through U.S. imports.
  – Has helped sustain global economy in otherwise recessionary period.
  – “Rest of world” multiplier is ¼ to 1/2

• **Medium term:**
  – World interest rates projected to be ½ % higher in medium term.
  – This depresses world investment, output and income.

• **Emerging markets:** particularly sensitive to rise in interest rates and fluctuations in $.
Monetary policy in open economy:

- Monetary policy has one instrument (money supply) and two possible targets:
  - \( i(t) \) the nominal interest rate.
  - \( E(t) \) the nominal exchange rate.
- Uncovered interest parity says these two targets are linked:
  \[ E(t) = \frac{E^e}{1 + i(t) - i^*(t)} \]
Fixed vs Flexible exchange rates

Flexible exchange rates:
  – Fix interest rate.
  – Exchange rate determined by uncovered interest parity.

Fixed exchange rates:
  – Fix exchange rate.
  – Interest rate determined by uncovered interest parity: $i(t) = i^*(t)$
Variations on fixed exchange rates

- Crawling peg.
  - \( e = EP^*/P \)
  - If domestic inflation differs from foreign, let \( E \) drift to keep \( e \) constant.
  - Alternative: occasional devaluations.

- Institutional structures to commit to a fixed exchange rate regime:
  - Currency board.
  - Dollarization.
  - Monetary Union.
Fiscal expansions:

- **With flexible exchange rates:**
  - Monetary authority maintains constant money supply.
  - Interest rate rises and exchange rate appreciates.
  - Rise in $i$ and fall in $E$ dampen investment and net-exports causing offsetting reduction in demand.

- **With fixed exchange rates:**
  - Monetary authority forced to accommodate fiscal expansion by increasing money supply.
  - Interest rates and exchange rates held constant.
  - No offsetting dampening of net-exports and investment.

- Fiscal expansion is more destabilizing with fixed exchange rates.
More generally:

- Fixed exchange rates tie hands of monetary authority and forces country to adopt monetary policy of another country.
- Monetary policy can no longer be used to conduct macroeconomic stabilization policy.
- Examples:
  - France and Italy during German reunification.
  - Ireland vis-à-vis Europe during 1990’s.
Medium run adjustment.

- How does economy move from short-run to medium run if output below natural rate?
- Closed economy:
  - Price level falls, LM shifts down, interest rate falls.
- Open economy with fixed exchange rates:
  - Price level falls, real exchange rate depreciates. IS shifts out.
  - LM shifts down to maintain $i=i^*$ as $Y$ expands.
AD with fixed E

- Aggregate demand:
  \[ Y = C(Y-T) + I(Y,r) + G + NX(Y,Y^*,e) \]
  where:
  \[ r = i - \pi^e \text{ and } e = EP*/P. \]

- Fixed exchange rate:
  \[ E = E^*, \ i = i^* \]

- So that:
  \[ Y = C(Y-T) + I(Y, i^* - \pi^e) + G + NX(Y,Y^*,EP*/P) \]
Comments on AD with fixed E

- IS curve determines output as a function of real exchange rate $EP^*/P$, fiscal policy $G,T$, and foreign output and interest rates $(Y^*,i^*)$:

$$Y = C(Y-T) + I(Y, i^* - \pi^e) + G + NX(Y,Y^*,EP^*/P)$$

- Summarize this as:

$$Y = Y(EP^*/P,G,T)$$

- LM curve determines money supply given $Y,P,i^*$:

$$M = PL(i^*)Y$$
AD-AS

• With fixed exchange rates, AD curve implies a negative relationship between output and the price level:

\[ Y = Y\left(\frac{E\cdot P^*}{P}, G, T\right) \]

As \( P \) falls, real exchange rate depreciates and net-exports rise. This increase output.

• To first approximation, AS is unchanged by open economy considerations:

\[ P = P^e \cdot (1 + m) \cdot F(1 - Y/L, z) \]

– Caveat here would be imported materials inputs (e.g. oil priced in dollars for Japan).
Adjustment

- Suppose we are in a recession: $Y < Y_n$
- AS:
  - If output below the natural rate ($Y < Y_n$) we have $P < P^e$
  - $P^e$ falls and AS curve shifts down.
- AD:
  - Closed economy: As AS shifts down P falls, LM shifts out and output expands as we move down AD curve.
  - Open economy: As AS shifts down P falls, real exchange rate depreciates ($EP^*/P$ rises) and output expands as we move down AD curve.
Devaluations

- If the economy is in a recession it may take a long time for price level to adjust and output to return to natural rate.
- A one time devaluation of the currency achieved through an increase in the money supply could speed recover.
- Devaluation: Outward shift in AD curve.
Issues to consider:

- How much to devalue?
- How long does it take?
  - J Curve: net exports may fall initially as quantity of imports and exports are slow to adjust but value of imports increases.
- Expectations:
  - Given a fixed exchange rate, if devaluation is expected following a downturn, this will push domestic interest rate up and exacerbate the downturn.
  - Devaluation becomes more likely -- self-fulfilling expectations.
- Begs the question: Why not flexible rates?