Topics for Today

1.) Comparative Statics Predictions
   - Intertemporal Substitution in Labor Supply
   - Productivity Shocks (Temporary vs. Permanent)
   - Govt. Spending Shocks (Temporary vs. Permanent)

2.) Goods Market Equilibrium in "Small" Open Economies

3.) The Balance of Payments

4.) Current Account Determination

5.) The "Twin Deficits"

6.) The Feldstein-Horioka Puzzle

7.) Goods Mkt. Equilibrium in "Large" Open Economies
Intertemporal Substitution in Labor Supply

- When discussing the labor market, we focused on a static model (i.e., there was just one period).

- However, just as there are intertemporal substitution effects on consumption, there are intertemporal substitution effects on leisure + labor supply.

The 2 main effects are:

1) Temporarily high wages increase current labor supply (work now, rest later). Alternatively, a decline in expected future wages increases labor supply.

2) Higher interest rates raise the price of current leisure (relative to future leisure), just as they increase the price of current consumption

⇒ More current labor supply.
Comparative Statics

1. Suppose productivity declines temporarily \((A\downarrow)\) (temporary increase in oil prices?)

   1. \(L^\uparrow\) (Labor less productive)
   2. \(L^\downarrow\) (assuming intertemp subst.) dominates wealth effect
   3. \(Y^\downarrow\) because 1.) \(A\downarrow\)
      2.) \(L^\downarrow\)
   4. \(w/p\downarrow\) probably, but not necessarily.

   Labor Mkt.

   ![Diagram](image)

   Goods Mkt.

   ![Diagram](image)

1. \(S^\downarrow\) (Income temporarily low \(\Rightarrow\) Borrow)

2. Invest. not affected if \(A\) only in current period. Investment changes next period's capital stack.

3. \(r^\uparrow\)

4. Invest. falls due to higher interest rate (movement along curve)
Now Suppose Productivity declines Permanently

1.) $L_e^1$ (Labor less productive)
2.) $L_e^2 \uparrow$ (Wealth effect dominates. No inter. subst. in wages. Small offsetting inter. subst. from interest rate)
3.) Ambiguous effect on $L$
4.) $Y \downarrow$ (because $A \downarrow$)
5.) $W/P \downarrow$

Goods MKT.

1.) $I \downarrow$ (MPK is lower)
2.) $S \uparrow$, but it's a movement along the curve. Saving curve doesn't shift since productivity decline is permanent.
3.) $r \downarrow$
(3) Suppose Govt. Spending increases temporarily (a war?)

Assume taxes are lump-sum

1) \( L^s \uparrow \) (small net wealth effect)
   Lower after-tax income \( \Rightarrow \) consumption + leisure decline
   Partial offset since wages will be higher in the future.

2.) \( Y^\uparrow \)

3.) \( w/p \downarrow \)

Goods Mkt.

1.) Consumption falls, but by less than \( G \) rises
   (Households smooth out their consumption decline)
   \( \Rightarrow S \downarrow \)

2.) \( r^\uparrow \)

3.) Higher interest rate crowds out investment
Suppose Govt. Spending Increases Permanently
(“New Deal” ? Health Care ?)

1.) After-tax income is permanently lower
    ⇒ only income effect
    ⇒ L^3 ↑

2.) W/p ↓

3.) Y ↑

Labor Market

Goods Market

1.) Consumption decline matches G↑
    ⇒ no effect on S or I !
Lessons

1.) When households & firms have access to capital markets, intertemporal substitution becomes important.

2.) Therefore, it is essential to distinguish between temporary vs. permanent shocks. Their effects can differ.

3.) Similarly, anticipated future shocks can have effects now.

4.) Often the final effects are ambiguous. This is true even though we abstracted from many real world complications (e.g., distorting taxes & other departures from Ricardian Equivalence, the nature of govt. spending, feedback from investment to the capital stock to changes in output & factor prices, market imperfections, etc).

5.) Therefore, when analyzing a problem, you should focus on the mapping from your assumptions to your conclusions. Don’t worry about getting the “wrong answer”. It’s the economic reasoning that matters!
Goods Mkt. Equilibrium in Small Open Economies

- So far, we have only considered closed-economies, i.e., ones that do not trade goods or assets with other countries.

- In open-economies, it is no longer true that saving must equal investment for the goods market to be in equilibrium. Discrepancies between the 2 can be financed by borrowing & lending with other countries

<table>
<thead>
<tr>
<th>$I &gt; S$</th>
<th>Excess Demand for Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\implies$</td>
<td>Borrow from Abroad</td>
</tr>
<tr>
<td>$\implies$</td>
<td>Current Account Deficit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$I &lt; S$</th>
<th>Excess Supply of Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\implies$</td>
<td>Lend to Abroad</td>
</tr>
<tr>
<td>$\implies$</td>
<td>Current Account Surplus</td>
</tr>
</tbody>
</table>

- A "small" open-economy can borrow & lend as much as it wants at a fixed interest rate. That is, it is a price-taker in the global capital market.

CA Surplus

CA Deficit
1. Trade Deficit (\(NX<0\))
   More likely when:
   a. Domestic Saving is low
   b. Domestic Invest. is high
   c. World real interest rates are low

2. Trade Surplus (\(NX>0\))
   When:
   a. Domestic Saving is high
   b. Domestic Invest. is low
   c. World real interest rates are high.
Balance of Payments Accounting

Current Account = Trade in Goods and Services

Capital Account = Trade in Financial Assets

Current Acct. = Merchandise Trade + Services + Investment Income

By double-entry book-keeping,

\[ CA + KA = 0 \]
Current Account Comparative Statics

1. **Temporary Productivity Decline**
   - 1) $S \downarrow$
   - 2) Increased CA deficit (or reduced surplus)

2. **Permanent Productivity Decline**
   - 1) $I \downarrow$
   - 2) Reduced CA deficit (or increased surplus)
The Twin Deficits

Original CA Deficit = \( I_1 - S_1 \)
New CA Deficit = \( I_1 - S_2 \)

Does it matter why \( BD \uparrow \)?

\( BD = G - T \)

Budget + Current Acct. Deficits Can Be Twins When:
1. Ricardian Equivalence Doesn't Hold
2. Changes in Budget Deficit caused by (temporary) changes in Govt. Spending
Canadian Twin Deficits

Figure 5.12
The government budget balance and the current account balance in Canada, 1961-2006

The figure shows government purchases, net government income (taxes less transfers and interest), and the current account balance for Canada for the period 1961-2006. Government data are for federal, provincial, territorial, and municipal governments, and each series is measured as a percentage of GDP. The government deficit (shaded area) is the difference between government purchases and net receipts. Note the twin deficits during almost the whole period from 1975 to 1998. Since 1998 Canada has experienced twin surpluses.

Source: Adapted from Statistics Canada, CANSIM II series v113713, v646937, v498327, v498332, v498316, and v498328.
Feldstein - Horioka Puzzle

- Just how mobile is capital internationally? How integrated are global capital markets?

- One way to get an answer is to look at the prices of similar assets across countries. They should be the same.

- Another way is to look at the actual flows of capital between countries. This is what Feldstein + Horioka did in a famous paper published in 1980.

- According to our model, the main function of the international capital market is that it allows countries to separate their savings decisions from their investment decisions. For example, countries can finance investment projects without changes in domestic saving. In contrast, in closed-economies the correlation between S and I must be 1.0.

- What do the data tell us?
Figure 3.4
Industrial-country saving and investment rates, 1982–91

\[ \frac{I}{Y} = 0.09 + 0.62 \frac{S}{Y}, \quad R^2 = 0.69. \]

Table 2  FELDSTEIN–HORIOKA REGRESSIONS, \( \frac{I}{Y} = \alpha + \beta \frac{NS}{Y} + \epsilon \),
1990–1997

<table>
<thead>
<tr>
<th>No. of obs.</th>
<th>( \alpha )</th>
<th>( \beta )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>All countries(^b)</td>
<td>56</td>
<td>0.15</td>
<td>0.41</td>
</tr>
<tr>
<td>Countries with GNP/cap. &gt; 1000</td>
<td>48</td>
<td>0.13</td>
<td>0.48</td>
</tr>
<tr>
<td>Countries with GNP/cap. &gt; 2000</td>
<td>41</td>
<td>0.07</td>
<td>0.70</td>
</tr>
<tr>
<td>OECD countries(^c)</td>
<td>24</td>
<td>0.08</td>
<td>0.60</td>
</tr>
</tbody>
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\(^b\)OLS regressions. Standard errors in parentheses.
\(^c\)Israel is excluded from all regressions in this table. If Israel is added to the samples of size (56, 48, 41), the estimates of \( \beta \) are (0.39, 0.45, 0.63).
\(^d\)If one adds Korea to the OECD sample, the estimate for \( \beta \) rises to 0.76. Korea is included in the larger samples.
"Large" Open Economy

Equilibrium row:

\[ S_{USA} - I_{USA} = I_{Row} - S_{Row} \]

Net Lending by USA

Net Borrowing by the Row

1. \[ CA_{USA}(r) + CA_{Row}(r) = 0 \]
2. \[ S_{world}(r) = I_{world}(r) \]