Class 17: International Economics

1. For a nation, the opportunity cost of one good in terms of another depends on the extent to which it specializes in production of that good.
   
   a. Example. Costa Rica is a small country that can produce coffee and computers. The graph shows production possibilities in Costa Rica.

   ![Costa Rica’s Internal Opportunity Cost Depends on its Levels of Production](image)

   b. The slope of a nation’s production possibilities schedule gives the “internal opportunity cost” of a computer in terms of coffee.

2. **World prices define the slope of a trading line along which a small nation may trade.**
   *International trade allows a nation’s consumption possibilities to be different from that nation’s production possibilities.*

   a. Prices in world markets define the “external opportunity cost” of a computer in terms of coffee. A “small” country takes the prices of import and export goods as given and beyond its control.

   b. World prices define a trading line that allows Costa Rica to consume a different combination of computers and coffee than it produces.

   c. Suppose we assume that the world price of coffee is $10 per pound and the world price of a computer is $500. Then the external opportunity cost of a computer is 50 pounds of coffee. The trading line in the graph below has a slope that equals -50 pounds of coffee per computer.
d. As the graph shows, through trade Costa Rica obtains consumption possibilities that lie outside its production possibilities frontier.

3. To maximize the benefits from trade a nation must choose the production strategy that equates the slope of its production possibilities frontier to the trading line defined by world prices.

a. A small nation should use world prices to determine its comparative advantage.

b. It is not necessarily the case that a nation will specialize completely in the production of a single good. It may be true that there are resources in Costa Rica that have a comparative advantage in computer production. The issue is: how much coffee and how many computers should Costa Rica produce?

c. Costa Rica should choose a production point that maximizes the value of its national product given world prices.
d. At point G, Costa Rica equates the internal opportunity cost of computers to the external opportunity cost of computers and reaches the highest available consumption possibilities line.

e. Caveat. The graph is not drawn to reflect the “real world” production possibilities in Costa Rica. The graph is drawn to make the tangency at point G easy to see and understand. It may be, in fact, optimal for Costa Rica to make very few computers.

4. **Using demand and supply to explain who benefits and who loses from trade.**

a. Let’s now assume that the world price of coffee is $10 per pound and the world price of a computer is $1000. Now the world opportunity cost of a computer is 100 pounds of coffee.

b. The following graphs shows demand and supply for computers and for coffee in Costa Rica before and after trade.
c. The impact of trade on the computer market:
   (1) Production falls from 2000 to 1200.
   (2) Computer imports rise from 0 to 1600.
   (3) Price falls from $1400 to $1000.
   (4) Consumer surplus rises from $1 million to $1.96 million.
   (5) Producer surplus falls from $1 million to $360 thousand.

d. The impact of trade on the coffee market:
   (1) Production increases from 100,000 to 200,000 pounds.
   (2) Exports rise from 0 to 160,000 pounds.
   (3) Price rises from $7 to $10 per pound.
   (4) Consumer surplus falls from $250,000 to $40,000.
   (5) Producer surplus rises from $150,000 to $600,000.

e. The impact of trade is to raise total surplus by $560,000. However, there are winners and losers.

5. **Exchange Rates**

   a. The rate at which two currencies can be traded for each other is called the nominal exchange rate.

   b. Nominal Exchange Rates for March 12, 2012 are reported in the following table.

<table>
<thead>
<tr>
<th>Key Currencies</th>
<th>DOLLAR</th>
<th>FOREIGN CURRENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro</td>
<td>$1.3107</td>
<td>−0.0003</td>
</tr>
<tr>
<td>Pound BRITAIN</td>
<td>$1.562</td>
<td>−0.0054</td>
</tr>
<tr>
<td>Yen JAPAN</td>
<td>$0.0122</td>
<td>0.00004</td>
</tr>
<tr>
<td>Yuan CHINA</td>
<td>$0.1581</td>
<td>−0.0004</td>
</tr>
<tr>
<td>Peso MEXICO</td>
<td>$0.079</td>
<td>+0.00018</td>
</tr>
<tr>
<td>Dollar CANADA</td>
<td>$1.0064</td>
<td>−0.0027</td>
</tr>
</tbody>
</table>

(1) If the dollar price of the euro is 1.3107 Dollars, then the euro price of the dollar is approximately 1/1.3107 = .763 Euros.

(2) The bid price of the euro is what someone who wishes to buy a euro is willing to pay. The ask price of a euro is what someone who owns a euro is willing to sell it for. The bid-ask spread is the revenue earned by someone who intermediates the exchange of a dollar for a euro.

(3) The media typically report the average of the bid and ask price which is also the mid-point of the bid-ask spread.
c. There are two kinds of exchange rate regimes

(1) Most nations of the world allow the exchange value of their currency to be flexible to market forces and “float freely.”

(2) Some nations fix the value of their exchange rate to another currency, typically the dollar. China pegs the value of its currency to the dollar.

d. An index of the value of the dollar vis-à-vis a market basket of the currencies of the trading partners of the United States is displayed in the following graph.

![Graph of Trade Weighted Exchange Index: Major Currencies (TWEXWITH)](image)

Shaded areas indicate US recessions. 2013 research.stlouisfed.org

6. A demand and supply diagram can illustrate how economic forces translate into changes in the value of the dollar in terms of other currencies.

![Diagram of Yen-Dollar Market](image)

a. The Diagram

(1) The yen price of the dollar is graphed along the vertical axis. When the yen price of the dollar increases, we say that the dollar appreciates and the yen depreciates.
When the yen price of the dollar falls, we say that the yen appreciates and the dollar depreciates.

(2) The number of dollars exchanged for yen is graphed along the horizontal axis. A larger volume of exchange is a movement to the right.

b. The demand for yen is graphed as a downward sloping schedule.
(1) The demand schedule summarizes the behavior of people who use yen to buy dollars including Japanese citizens who import US goods.

(2) The negative slope of the schedule (inverse relationship between the yen price of the dollar and the quantity of dollars demanded) reflects the fact that as the yen price of the dollar increases, US goods and securities become more expensive from the point of view of people who own yen, and demand for them falls.

(3) Changes in other factors that affect demand for US goods and securities are represented as shifts in the demand schedule. For example, an increase in the dollar price of oil would shift the demand schedule toward higher quantities because Japan imports all the oil it uses and because oil exporters require payment in dollars.

c. The supply of yen is graphed as an upward sloping schedule.
(1) The supply schedule summarizes the behavior of people who use dollars to buy yen including Americans who import Japanese good, Americans who wish to buy Japanese securities, and governments who supply dollars to affect the yen-dollar exchange rate.

(2) The positive slope of the schedule reflects the fact that as the yen price of the dollar increases, Japanese goods and securities become less expensive so Americans supply more dollars in order to buy more of them.

(3) Changes in other factors are represented by shifts in the supply schedule. For example, an increase in US interest rates would shift the supply schedule toward lower quantities because financial investors would use fewer dollars to purchase Japanese securities because US securities now offer a relatively higher return.

d. When governments, such as the US and Japan, allow their exchange rates to float, the rate is determined by the forces of supply and demand. In the diagram, the equilibrium rate equals 80 yen per dollar (point A on the diagram).

e. The exchange rate varies with shifts in the demand and supply schedule.
(1) Suppose the US trade deficit with Japan increases which might have been caused by a shift in preference toward Japanese autos or by an increase in the growth rate of income in the US relative to Japan.

(2) The result is an increase in the supply of dollars in the yen-dollar market, a movement from point A to point C on the diagram, and a depreciation of the dollar.

(3) Suppose instead that interest rates in the US rise relative to those in Japan. The result is an increase in the demand for dollars in the yen-dollar market, a movement from point A to point B in the diagram, and an appreciation of the dollar.
A Demand and Supply Diagram is also useful in thinking about a fixed exchange rate regime.

a. The graph shows the Renminbi (Yuan) price of the US Dollar between 1980 and 2011.

(1) Between 1980 and 1995, the yuan-dollar exchange rate rose from about 1.5 to about 8 yuan to the dollar where it remained for 12 years.

(2) Between 1990 and 2010, the Renminbi price of the dollar rose from 3.75 to 7. That is, the dollar doubled in value over the period.

(3) Between 1990 and 2010, the U.S. trade deficit with China rose from 10.4 billion to 273.1 billion.

(4) These results are opposite of what we would have expected from the previous demand and supply analysis. The increased trade deficit should have resulted in a depreciation (rather than an appreciation) of the dollar.

b. The resolution of the puzzle is that China requires the Peoples Bank of China (PBC) to follow a fixed exchange rate regime. The values of the yuan-dollar rate displayed above should be thought of as values chosen by China rather than values determined by supply and demand.
(1) The rising trade deficits with China shift the supply schedule toward higher dollar quantities. The diagram shows one such shift from “Supply” to “New Supply”.

(2) If the PBC behaved passively, an increase in supply would lead to movement from point A to point B and to an appreciation of the Renminbi and depreciation of the dollar.

(3) However, the PBC itself increases the demand for dollars by creating Renminbi and using them to buy the dollars from Chinese exporters in a quantity that keeps the Renminbi price of the dollar from falling.

(4) Thus, PBC offsets the effect of the US trade deficit and the new equilibrium occurs at point C rather than at point B.

c. There is a cost to China of pegging its currency to the dollar.

(1) If China pegs to the dollar, PBC is no longer free to pursue other stabilization objectives.

(2) Indeed, the increased supply of Renminbi required to keep the value of the yuan low can translate into inflation.

(3) We will return to a consideration of fixed exchange rates and the PBC later in the course after we have a better understanding of what central banks do and how central bank mandates differ across the major economies of the world.