

1. Derive the fundamental balance of payments identity from the definitions of national savings and national income.

$$Y = C + I + G + CA \quad \text{definition of income}$$

Subtract  $C + G$  from each side

$$Y - C - G = I + CA$$

Savings = income less spending, or  $S = Y - C - G$

$$S - I = CA$$

The Current Account is approximately equal to the trade balance, or

$$S - I = EX - IM$$

2. Under what circumstances does international borrowing raise or lower a country's future consumption levels?

International borrowing can be used for consumption or for investment. If it is used for consumption, then consumption goes up immediately, then must fall for two reasons. 1. At some point you have to stop borrowing and lower consumption to reflect current income. 2. You have to pay back the loan, which further reduces consumption.

If borrowing is used for investment, it may raise future output and income enough to pay off the loan and still consume more. That would be the case if domestic interest rates were higher than world interest rates.

3. Suppose the US Congress were to implement a European style VAT (Value-added- Tax), which is a comprehensive tax on consumption.

a. Describe two distinct ways this could affect the US current account.

$$S - I = CA$$

The policy could affect savings in two ways.

1. By making consumption more expensive, households increase private savings
2. By raising revenue (other things equal), public savings rise.

Together we would expect  $S$  to go up, causing an increase in the current account.

b. What would happen to the net foreign wealth of the US?

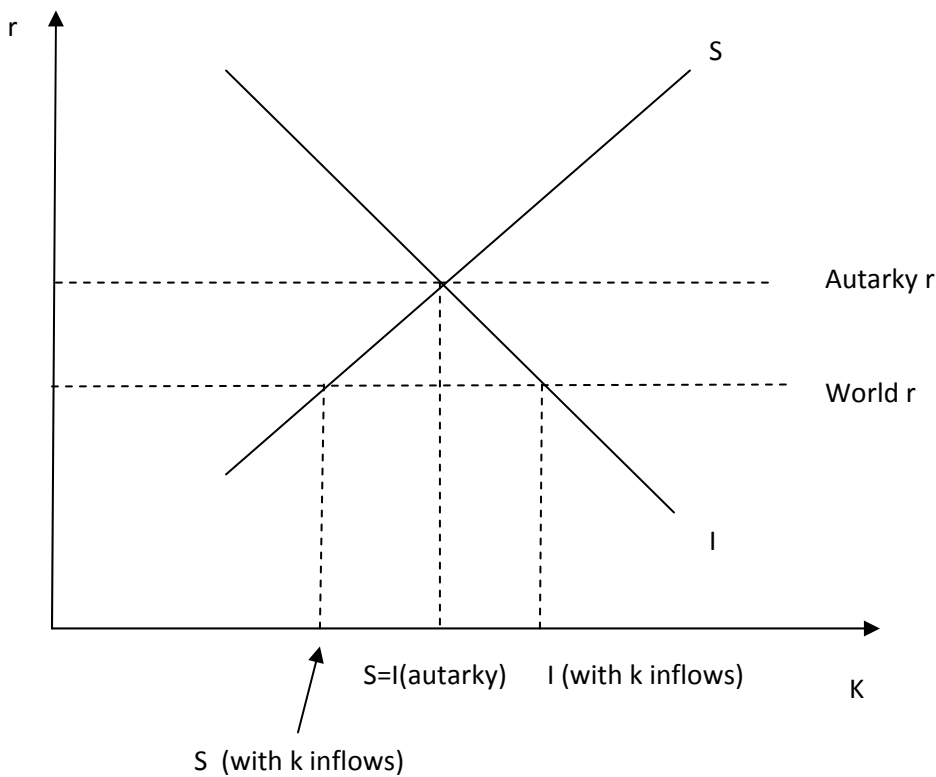
Currently the net foreign wealth of the US is very negative, i.e. we have net foreign debt, and the current account deficit adds to that negative amount every year. If the consumption tax

were enough to make the CA positive, it would enable the US to start paying off net foreign debt.

4. How might foreign capital inflows lower the quantity of domestic savings in the US?

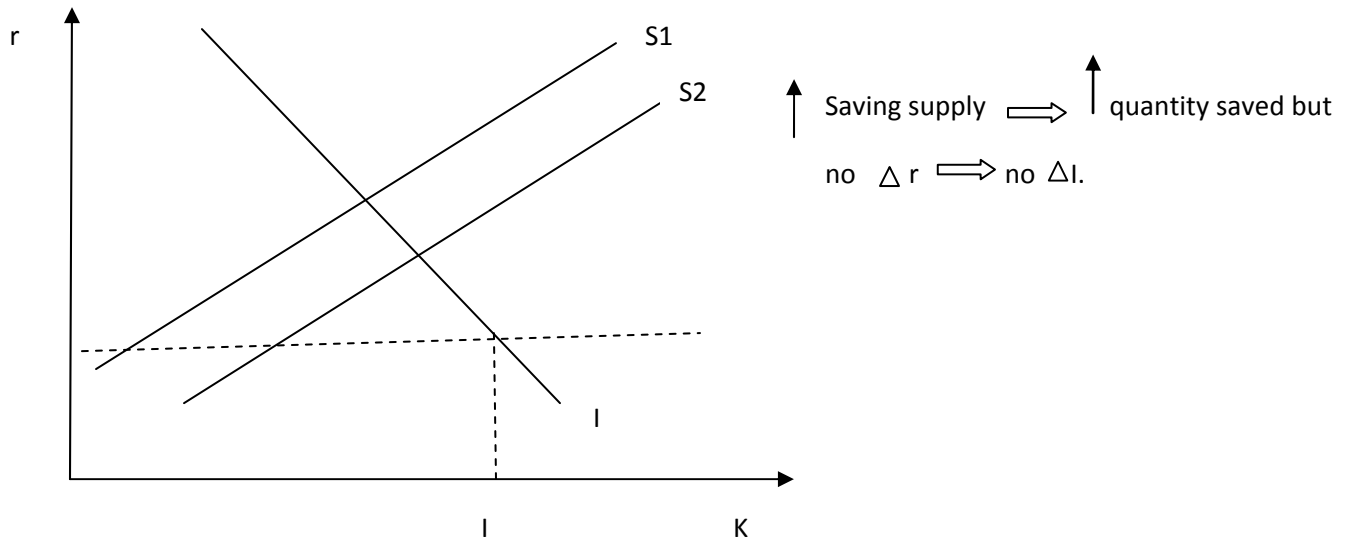
If the US were in autarky, then domestic savings = domestic investment. Having lots of investment demand would drive up interest rates and cause people to save more.

With foreign capital inflows domestic investment > domestic savings but the interest rate stays low because foreigners are willing to lend at very low interest rates. Given low interest rates, domestic savers reduce their quantity of savings.



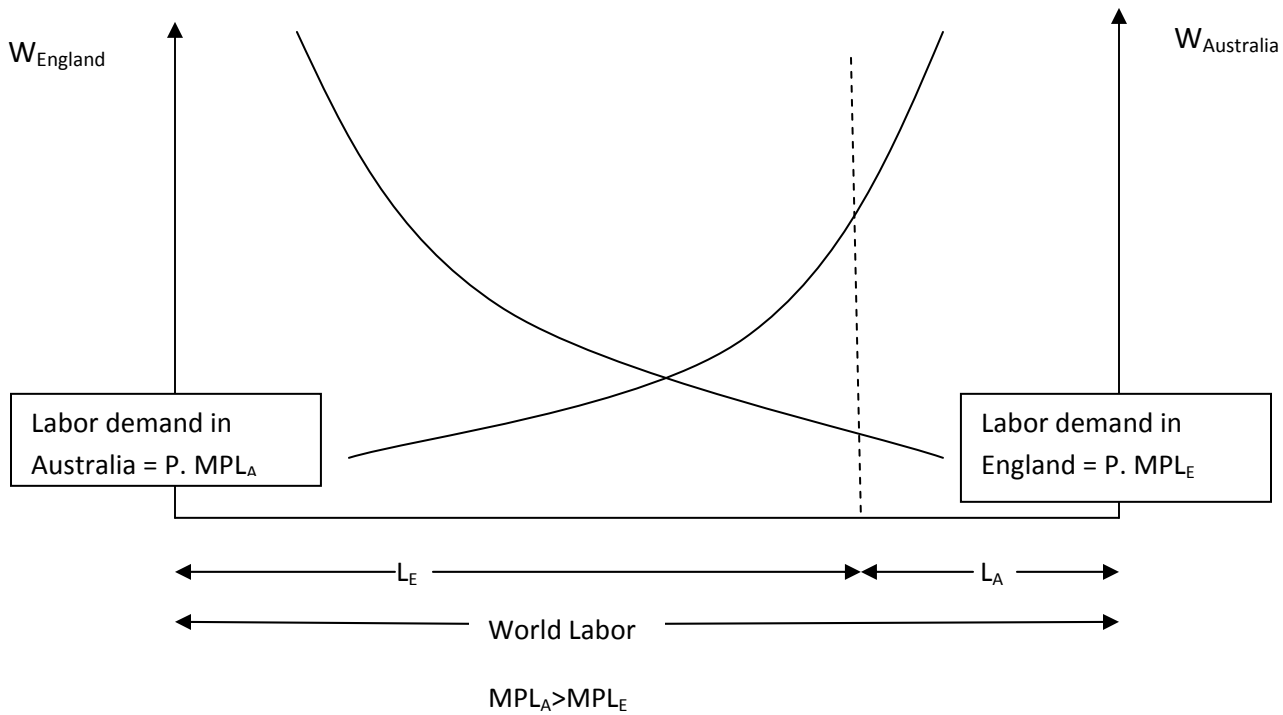
5. Costa Rica is a small open economy facing a fixed world interest rate, and running a trade deficit. Will an increase in domestic savings in CR affect investment demand in CR?

See the diagram below. CR is running a trade deficit, meaning that it is importing capital, which means that the autarky interest rate for CR is above the world rate. In this case, the quantity of domestic investment undertaken is determined by the world interest rate. Changes in domestic savings would not affect the interest rate or the quantity of investment undertaken unless the change was so large as to push domestic interest rates below the world rate (causing CR to become an exporter of capital.)



Questions 6 –7: The year is 1850. We have a one-good economy, in which food is produced using land and labor. There are two countries, England and Australia. In England the land/labor ratio is 1/10 -- that is, there are 10 workers for every acre of arable (farm-able) land. In Australia, the land/labor ratio is 20/1. The technology for farming is the same in both places.

- 6. If there is no international mobility of labor...
  - a. Using the facts about land/labor ratios in each country, draw a bucket diagram showing the equilibrium allocation of labor between the two countries. Important hint: compare the height of the MPL curve in agriculture for the two countries.



b. What should be true about labor wages in the England v. Australia?

The wage in England < Wage in Australia.

7. Allow international mobility of labor.

a. Is there an incentive for workers to migrate? If so, why, and in which direction?

Yes, English workers should want to leave for Australia and the higher wages there.

b. Given your answer to (a), what happens to wages and land rents in the England and Australia?

Australia: wages go down, land rents up

England: wages up, land rents down.

c. Politically, who might you expect to favor or oppose migration in Australia?

Land owners favor migration. Existing farm workers oppose migration.

Questions 8-10. We're back in 2008. The ratio of skilled/unskilled labor is higher in the US than in China. Pharmaceuticals use skilled labor intensively. Children's toys use unskilled labor intensively.

8. The difference in skilled/unskilled labor between the US and China creates an arbitrage opportunity. Describe three distinct ways to take advantage of that arbitrage opportunity.

The S/L difference leads to an autarky factor price difference.

one, the US can export skilled-labor intensive goods and import unskilled labor intensive goods (and vice versa for China).

two, skilled labor can migrate from the US to China.

three, unskilled labor can migrate from China to the US.

All three will cause convergence in relative factor prices.

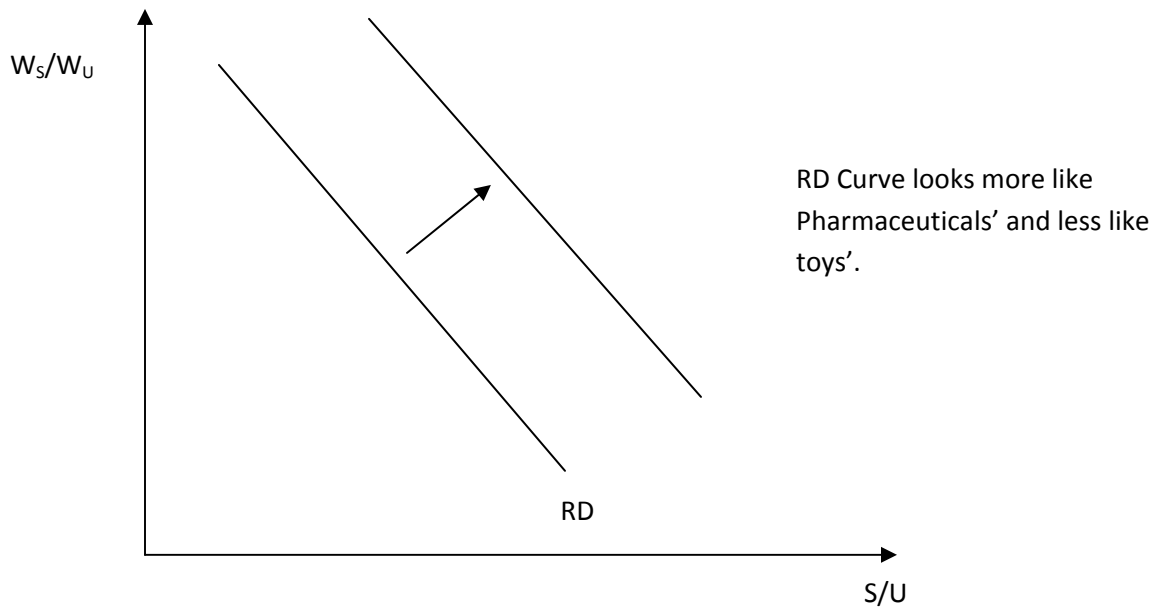
9. Suppose that the US and China close the door to migration but allow trade in goods. In the move from autarky to free trade...

a. In what good does the US have a comparative advantage?

Pharmaceuticals.

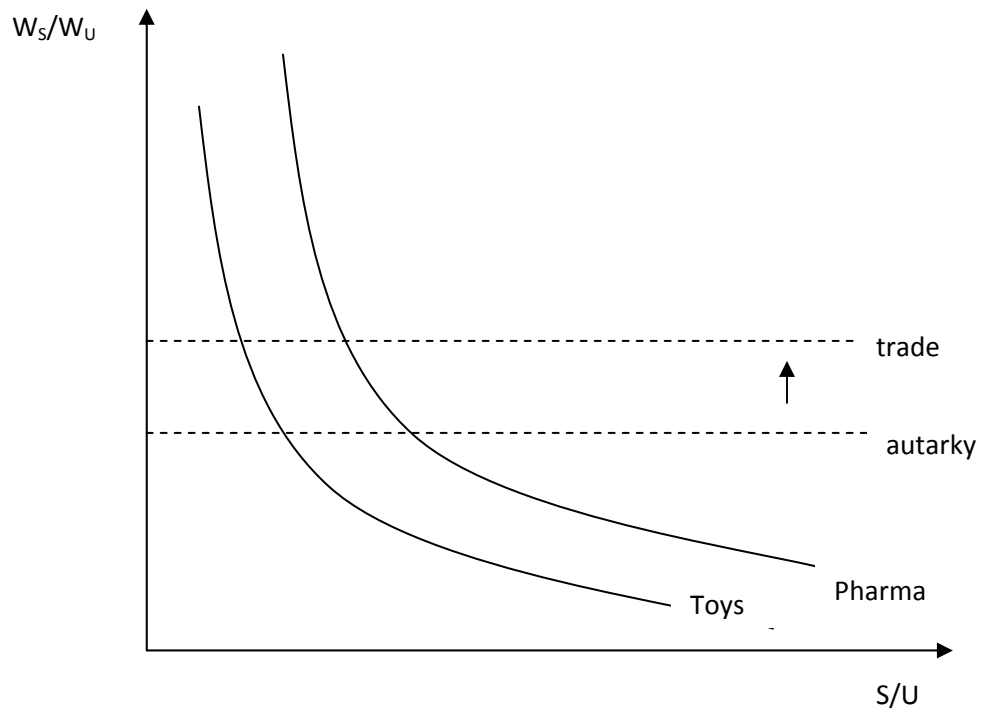
b. What should happen to the economy wide demand for skilled /unskilled labor in the US?

It rises.



c. What should happen to the use of skilled/unskilled labor in pharmaceuticals and in children's toys in the US?

It falls, because skilled labor is now more expensive so you use less of it.



10. Suppose pharmaceutical production can be separated into two stages: a skilled-labor intensive research & development stage, and an unskilled labor intensive production stage.

a. Is there an incentive for the US to outsource one of these stages to China? If so, which?

Yes, the unskilled labor production stage.

b. How does this affect economy wide demands for skilled / unskilled labor in the US?

Demands for skilled labor rise even further because the US has gotten rid of the most unskilled labor intensive part of pharmaceuticals.

c. How does it affect the use of skilled/unskilled labor in the pharmaceutical industry in the US?

. It rises despite the fact the skilled labor has gotten more expensive. Why? Because you've gotten rid of the part of production that actually uses unskilled labor.