Final challenge: Review Solutions
Eco 403, Fall 2009

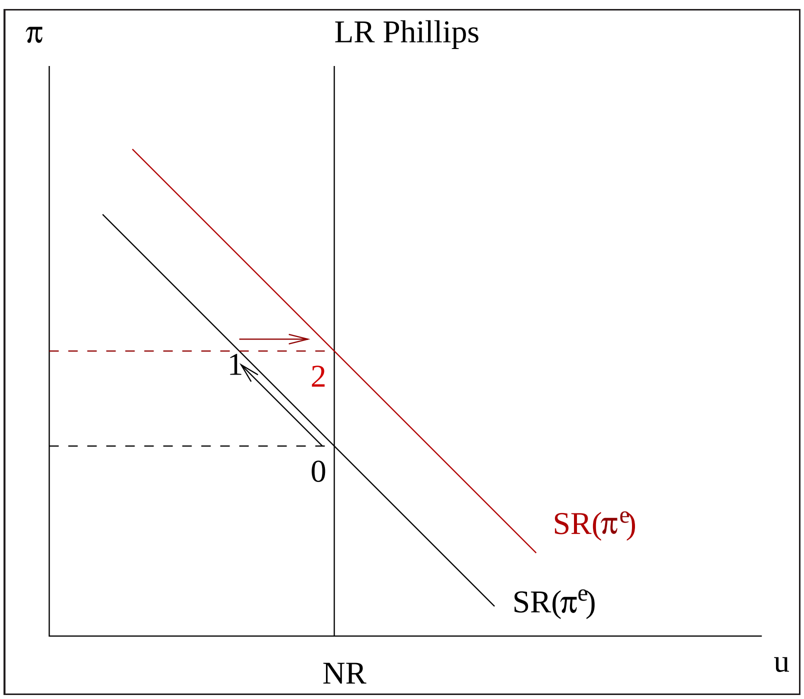
Question 1

a. The increase in Gold reserves means the central bank must issue high powered money:

$$rrH = P_G G \tag{1}$$

Because the central bank is targeting a price of gold, P_G, it gives up control of H (in fact, the increase in the supply of gold means the price of gold would normally fall, so the central bank must buy the gold with printed currency to keep P_G unchanged). In turn, the increase in H causes an increase in money supply and therefore an increase in inflation. However, some firms misperceive and do not raise prices. These firms see an increase in demand since their products are cheaper. They misperceive this change as relative, and then increase output and hire more workers, decreasing unemployment. Note that the price of gold is unchanged.

b. We have:



The initial increase in inflation, which along with the misperceptions generates the decrease in unemployment, is point 1 on the graph. In the long run, the increase in H results only in higher inflation (point 2 on the graph).

Question 2

We have:

$$\Delta M + \Delta V = \pi + \Delta Y \tag{2}$$

$$7.7\% + 0 = \pi + 4.5\% \ \rightarrow \ \pi = 3.2\% \tag{3}$$

So the money supply increase is too high, it is consistent with an inflation target of 3.2% which is outside the band of 1-3%. Canada may have erred in it's forecast of velocity or GDP growth, or been unable to control the money supply precisely. Or it may be trying to decrease unemployment by keeping expectations at 1-3% with actual inflation at 3.2%.

Question 3

a. Gresham's law states that bad money drives out good.

b. Colonial pounds are directly convertible to silver, Bills of Credit have a promise to convert to silver at a later date, and Bills of credit whose convertibility was suspended are fiat money. Colonial pounds are the most valuable, and the fiat money has no value except as a medium of exchange. The value of Bills of Credit with a promise to convert to silver should be close to, but less than, Colonial pounds if the promise to repay is credible. It's value should be close to, but greater than, fiat currency if the promise is not very credible.

c. The medium of exchange is the fiat currency. Households will use Colonial pounds and convertible Bills of Credit as short term stores of value, or to buy imports. If, however, there is very little fiat currency in circulation, households may prefer to use Pounds as currency, rather than the alternative of barter.

Longer Questions

Question 4

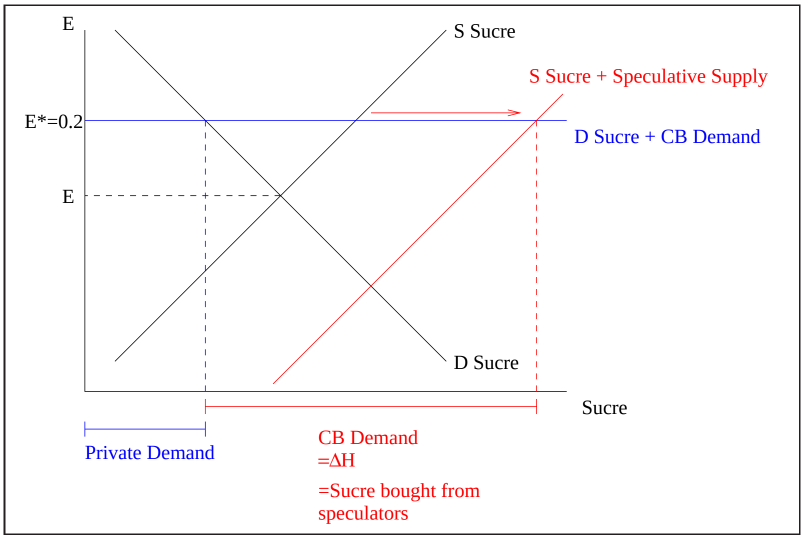
a. Options include borrowing and seniorage. Borrowing seems an unlikely option here, as Ecuador would likely struggle to get loans from investors reluctant to lend due to the Latin American debt crises.

b. When Ecuador prints currency to pay for government expenditures, the result is inflation. However, from the real exchange rate:

$$e = \frac{P \cdot E}{P^f}, \tag{4}$$

the increase in prices must cause a decrease in the nominal exchange rate since e and P^f are constant. But this is inconsistent with a target of E^*. The central bank must therefore buy the printed currency which is being sold in the foreign exchange market by households trying not to hold Sucre, which are losing value. The central bank buys the printed Sucre with foreign reserves. Thus the printed Sucre are removed from the economy and the government has goods and services while the economy has foreign reserves. Ecuador has thus paid for goods and services with foreign reserves.

c. We have:



d. We have:

$$F_t = F_{t-1} + E^* \Delta H \tag{5}$$

$$\$1 = \$1.5 + 0.2 \cdot \Delta H \;\; \rightarrow \;\; \Delta H = -2.5 \text{ Billion Sucre} \tag{6}$$

The central bank has removed 2.5 billion Sucre from circulation. Part of this was the increase in ΔH caused by the seniorage, but most was Sucre sold by speculators to the central bank.

e. We have:

$$rrH = \frac{F_t}{E} \tag{7}$$

$$1 \cdot 25 = \frac{1}{E} \;\; \rightarrow \;\; E = 0.04 \tag{8}$$

The speculators have profited, they sold Sucre for 0.2 dollars to the central bank which they bought back for 0.04.

f. The main difficulty is the lack of seniorage revenue. The budget deficit remains and without seniorage or borrowing, Ecuador must either cut taxes or decrease spending, neither of which is popular in a recession. Ecuador also cannot use monetary policy to fight the recession. Households and importers lose from the devaluation. The prices of imported goods rises considerably overnight. Since Ecuador exports oil and imports most other products, this will likely impoverish many households.