Econ 434 Professor Ickes

Fall 2005

Homework Assignment #3

1. *Consider the graphical model of the gold standard. Analyze graphically (be sure to distinguish impact effects from long-run effects. Assume the economy started in full equilibrium) what happens to the price level and the stock of gold if:*

   (a) *there is a fall in foreign income.*

   brief answer A decrease in foreign income reduces exports so the flow supply of gold will decrease. This causes the stock of gold to fall. Given the demand for gold the relative price of gold must rise. Under the gold standard this requires the price level to fall. This makes us more competitive. Once the price level rises sufficiently the flow supply of gold is once again equal to the flow demand and the stock of gold stops changing. The gold stock is now lower than before and the relative price of gold is higher.

   (b) *credit cards reduce the need for money in making transactions*

   brief answer This reduces the monetary demand for gold. The same level of transactions can be made with the same level of gold. With the demand for gold decreased the relative price of gold must fall. At the lower relative price, the ßow supply of gold is below demand. The gold stock decreases, and this raises the relative price of gold until we reach equilibrium. Notice that the new equilibrium price level is the same as before as long as the flow supply and demand curves do not shift. What happens is that the gold stock is lower than in the initial equilibrium.

   (c) *gold discoveries occur in some faraway land.*

   brief answer Gold discoveries (assuming that they are profitable to mine) shift the flow supply of gold to the right. At the current relative price of gold this leads to an excess of production over dissipation, so the stock of gold rises. This puts upward pressure on the price level and thus lowers the relative price of gold until we reach a new equilibrium. At the lower relative price of gold the flow supply is once again equal to the flow demand (or dissipation).

   (d) *a tariff on imported goods is imposed.*

   brief answer The tariff reduces imports. If exports prices are unaffected we will accumulate gold (the flow supply greater than demand at the current relative price of gold). Hence, the stock of gold will rise as will the price level. We will become less competitive, and flow supply is once again equal to flow demand.[1]

   (e) *silver is to be coined at a rate of ϕ per unit of gold (that is one ounce of silver is now worth ϕ ounces of gold).*

[1] We ignore any second-order effect such as the tariff lowering efficiency, making us poorer and reducing income. These are important, but surely second order effects.

brief answer This is the equivalent of increasing the stock of monetary gold. The stock of money in circulation is now: $M = \lambda[P^G(G + \phi S)]$, where S is the stock of silver. This will increase the price level (lower the relative price of gold). We will become less competitive, and exports will fall relative to imports. Gold will flow out of the country until the price level returns to where it was. If other countries do not coin gold, we lose gold and essentially replace it with silver. Notice that the answer is essentially the same as for a gold discovery.

2. *Suppose that an economy deliberately fixes its exchange rate at a value that gives it a competitive advantage in world markets (whatever this means). What would you expect would happen to the demand for its currency in world markets? Explain.*

   brief answer The economy undervalues its exchange rate to make exports cheaper. The demand for its currency rises in world markets – after all, it is undervalued – the price is too low. This leads to an increase in the supply of foreign exchange as the central bank must purchase sell domestic currency to prevent its price from rising.. Reserves rise.

   (a) *Can the economy maintain a permanent competitive advantage? To answer this, you may use the gold standard model to fix ideas.*

   brief answer Unlikely. The rise in reserves, or the inflow of gold, will cause the money supply to swell, which will put upward pressure on the price level. This will erode the competitiveness derived from undervaluing the exchange rate. The central bank could try to sterilize the inflow, selling bonds domestically to absorb liquidity and offset the effects of the rise in reserves.

   (b) *If the economy is open to capital flows does this make it easier or more difficult to maintain a competitive advantage? Explain.*

   brief answer This will make it more difficult. The more mobile is capital the more difficult it is to keep domestic interest rates different from those outside the country. This raise the cost of sterilization. People will not purchase low interest domestic assets when they can earn higher returns on foreign assets. Moreover, capital may flow into the country *anticipating* a revaluation of the currency. If this occurs, the pressure on the central bank will acclerate, as it will enhance the already large inflows of reserves.

3. *How can inflation be imported from abroad under fixed exchange rates? Why is this not a problem under flexible exchange rates? Explain*

   brief answer Suppose that the rest of the world has a higher inflation rate than we do. Then with a fixed exchange rate our exports will get increasingly more competitive. The trade balance will rise, and reserves will flow in. The domestic monetary base will rise as will the money supply. Since inflation is higher elsewhere everyone will demand our money which will force the central bank to keep printing more. If we had a flexible exchange rate the effect of having lower inflation would mean that the exchange rate would depreciate (currency appreciate). Reserves, and hence hte monetay base would be unaffected.

4. *Suppose a small open economy experiences a negative economic shock. To revive the economy the authorities would like to use monetary policy. Suppose that investors believed that this economy would adhere to rule 5. Would this expand or limit the options of the monetary authorities? Explain. Compare this to the case where investors do not believe that rule 5 will be adhered to.*

   brief answer This is the "great irony" discussed in the gold standard lecture (page 30-31). If investors believe in rule 5 then they do not expect currency depreciation. Hence, if interest rates are cut they will not flee the currency. This is also the reason why yields on dollar bonds were lower than those of gold backed bonds prior to the US return to gold in the 19ty century (recall slide 37 from the graphs on foreign exchange) But if rule 5 is not adhered to, then investors will worry that the currency may be devalued as a response to the negative shock. They will demand a premium to bear this risk, which will make it hard for the authorities to cut interest rates in the face of the negative shock.