

SIMON FRASER UNIVERSITY
Department of Economics

Econ 345
International Finance

Prof. Kasa
Spring 2013

PROBLEM SET 2
(Solutions)

1. (20 points). Use the DD-AA model to compare and contrast how Canada and China respond to a U.S. monetary expansion (i.e., an increase in the U.S. money supply or a cut in U.S. interest rates). [Hint: Canada has a flexible exchange rate against the U.S. dollar, and China has a fixed exchange rate against the U.S. dollar].

Consider Canada first. A U.S. monetary expansion shifts out the U.S. AA curve, which causes the US dollar to depreciate and US interest rates to fall. From Canada's perspective, the lower US interest rate represents a decline in R^ , which shifts Canada's AA curve down and to the left. Canada's currency appreciates, which reduces Canada's net exports. As a result, Canada's output falls. [Caveat: The US monetary expansion will also raise US income, which has a direct positive effect on Canada's net exports. This income effect shifts out Canada's DD curve, which could offset the exchange rate effect, in which case output in Canada could rise instead]. Turning to China, since China fixes its currency to the US dollar, when the US cuts interest rates, China must also cut interest rates. Effectively, China purchases US dollar assets to keep its currency from appreciating (as in Canada's case). This increases the Chinese money supply, which then lowers China's interest rate. As a result, output in China expands as well (and any positive income effect on China's exports arising from higher US output just reinforces this increase).*

2. (20 points). Explain why China might want to 'sterilize' its purchase of U.S. dollar assets. Use a graph to illustrate your answer. How could you tell whether China was indeed sterilizing? Are there any costs to China from pursuing this policy?

Notice what happened in the previous question. As the US money supply increased, so did China's. This might be good for China if China is also in a recession. However, it could be bad for China, if China is already near full employment. In this case, lower interest rates would likely cause inflation in China. This could be especially problematic in an economy like China's where inflation might take the form of asset market bubbles, which can be very costly to unwind. To prevent this, the Bank of China might want to offset the money supply effect of its foreign exchange market intervention by sterilizing its foreign asset purchases. This would involve the Bank of China selling domestic government bonds at the same time it is purchasing US government bonds. (See Lecture 8 (part A) page 9 for the picture). At the end of the day, the public ends up holding a greater proportion of its portfolio in Chinese currency bonds, which makes China's currency riskier. This higher risk can then keep the Chinese currency from appreciating. To detect intervention, one would have to look at the balance sheet of the Bank of China, and see whether its acquisition of US dollar assets is being matched by an equal reduction of Chinese currency assets. This has indeed been the case in recent years.

3. (20 points). The Greek economy has suffered a lot recently. Many people argue that what they need to do is devalue their currency. However, Greece is part of the eurozone, so that is not an option.

Recently, some people have argued that Greece could use *fiscal policy* to replicate many of the effects of a currency devaluation. Use the DD-AA model to show how fiscal policy could be used, even with a totally fixed exchange rate as in a common currency area, to stimulate domestic demand and employment (while not exacerbating an already problematic government budget deficit). [Hint: See the recent working paper, “Fiscal Devaluations” by Emmanuel Farhi, Gita Gopinath, and Oleg Itskhoki].

In general, this is a complicated question, so please be generous with partial credit. I asked it because it is quite important and relevant for what’s going on now in Europe. You can read the Gopinath et.al paper for yourself, but the basic idea is as follows - Greece has two constraints. One, it obviously has a fixed exchange rate with the rest of Europe due to its common currency. Hence, a conventional devaluation is not an option. Two, conventional fiscal expansion (e.g., an increase in G or reduction in T) is not an option either, given that the government is already broke. Gopinath et al. add modern bells and whistles to an old idea (going back at least to Keynes), that various kinds of fiscal policies can replicate the effects of a conventional devaluation. The most direct effect of a devaluation is that it increases the price of imports. At the same time, it decreases the price of domestic goods for foreign residents. These relative price effects can be replicated by an import tariff and an export subsidy! Notice that the tariff revenue can be used to finance the export subsidy, so in principle the policy would be revenue neutral. (In reality, this depends on the initial balance of payments position of the country). The combined tariff/export subsidy would shift out Greece’s DD curve, which would require (actually allow) a monetary expansion in Greece, which shifts out its AA curve so that it intersects the new DD curve at the given fixed exchange rate. The net result is to increase output in Greece. The Gopinath et al. paper also points out that a combined consumption/sales tax and income tax reduction could, under certain conditions, achieve the same result. However, it is sufficient if they just discuss the more obvious tariff/export subsidy case.