Econ 455 Lapan
Fall 2004

FINAL EXAM

Answer a total of **three** questions. **Answer at most one question from Part II.**
{answer three questions from Part I **or** answer 2 questions from Part I and one question from Part II}.

Part I.

1. Consider a small economy, such as Mexico, which is on a flexible exchange rate system. Assume that the US price level (in dollars) and US interest rates are unaffected by any Mexican policy. Answer all of the following parts; your answer should be supported either with equations or a clearly explained graph.

   a) Suppose a newly released economic report by a respected investment firm predicts a much larger increase in 2006 Mexican GNP than had previously been expected. Assuming the report is widely believed and that there is no change in current Mexican GNP, what impact would this forecast have on: (i)the forward exchange rate; (ii)the spot exchange rate; (iii)short-term Mexican interest rates; and (iv)the Current Account balance? Explain your answers. **(8 points)**

   b) Given Mexican income levels, how does a *temporary* increase in the Mexican money supply affect Mexican interest rates, and the spot and forward exchange rates in the **short run?** (By assumption, the peso price of Mexican goods is fixed in the short run). **(6 points)**

   c) How does a *permanent* increase in the Mexican money supply affect Mexican interest rates, prices, and the exchange rate in the **short run, when prices are fixed?** Compare the short-run impact of temporary of temporary and permanent money supply increases. **(6 points)**

   d) What is the **long run** impact of a permanent increase in the Mexican money supply on the exchange rate and interest rates? (by definition, prices are variable in the long run) **(6 points)**

   e) Use your answer to parts (c) and (d) to explain what exchange rate overshooting is and why it occurs. Draw a graph that shows how the Mexican price level, interest rates and exchange rate respond over time to this permanent increase in the money supply. **(7 points)**

2. Answer all parts. In answering this question, assume that **prices adjust immediately and that real income is exogenous (i.e., the economy is always at full-employment).**

   a) Consider two countries, the US and Japan. Real income (GDP) in both countries is stable, the US money supply is increasing at 5% per year, and the Japanese money supply is growing at 7% per year. Further, assume the exchange rate between the two countries is flexible, and can be explained by the exchange rate model discussed in class and developed in Chapter 15.

      i. Under these circumstances, what *specific* predictions would you make concerning: (i)the inflation rate in each country; (ii)the difference in nominal interest rates between the two countries; and (iii)how the exchange rate changes over time? Explain. **(9 points)**

      ii. How would your answer to part (i) above change if the Japanese economy were growing at 4% per year, while there was no real income growth in the US? Explain. **(7 points)**

b) Assume income levels in the US and Japan are stable, the US money supply is growing at 5% per year and the Japanese money supply is growing at 7% per year. Further, assume people had expected these conditions to continue indefinitely. However, suppose that at a press conference this morning the head of the Japanese Central Bank unexpectedly announces that, starting in one week, the Japanese Central Bank will move to a more restrictive monetary policy, with money supply growth reduced to 4% per year.

i. Explain the **immediate** impact of this policy change on interest rates and prices in Japan, and the Yen/$ exchange rate (by immediate, I mean even before there is any change in national money supplies). Carefully explain the reasoning behind your answer. **(7 points)**

ii. Show how this policy affects prices, the interest rate and the exchange rate over time. Demonstrate your results by drawing graphs which show: (i)how each of these variables (prices, interest rates, and the exchange rate) was changing over time before the announcement; (ii)what the immediate impact of the announcement is; and (iii)the long run consequences of this new policy for each of the variables. **(10 points)**

3. Answer all parts.

a) Answer parts (i)-(iii) assuming the following exchange rates hold:

Currency	Exchange Rate (as US$ per foreign currency)
Euro	$1.32/Euro
180-day forward rate	$1.326/Euro
British pound (£)	$1.98/£
180-day forward rate	$1.96/£

i. What is the spot exchange rate between the Euro and the British pound? **(6 points)**

ii. Which interest rates would be higher - those on British government bonds (denominated in pounds) or those on European bonds (denominated in euros)? Explain. **(4 points)**

iii. If US 6 month interest rates are 1.5% (annual interest rates are 3%), what is the 6 month interest rate on British pound securities? Show how you obtained your answer. (**6 points)**

b) While the current international monetary system is generally one of flexible exchange rates, some countries do attempt to fix the exchange rate of their currency against that of some major currency. Suppose, for example, Denmark wished to fix the exchange rate of its currency (the krone) against the Euro, at the rate of 7.45 DK/Euro. (DK = Danish krone)

i. Economists say that under a fixed exchange rate system countries cannot pursue independent monetary policy. Explain why this is true and discuss what would happen if Denmark's monetary policy were more expansionary than that of the European central bank. **(6 points)**

ii. Suppose a new party unexpectedly comes to power in Denmark. This party's platform includes a promise to have Denmark adopt the Euro as its currency by January 2006 at a conversion rate between the two currencies of 8DK/Euro. What impact would this election have on Danish interest rates or the Danish spot exchange rate? Explain. **(6 points)**

(NOTE: Currently, Denmark is part of the EU but has its own currency. When a country joins

the Euro, it establishes a conversion rate at which the local currency is converted into Euros).

iii. When German reunification occurred (East Germany joined West Germany), those holding East German marks were allowed to convert their currency into the (West) German currency (the deutsche mark) at the rate of 1 to 1; most economists thought the more appropriate rate was 3 East German marks to 1 (West) German mark. Given wages (in local currencies) in East and West Germany before reunification, what impact would this *overvaluation* of the East German mark be likely to have on production costs and employment in (the former) East Germany? Explain. **(5 points)**

4. In comparing fixed and flexible exchange rates, it is important to understand that fiscal and monetary policy have different impacts under each exchange regime. Similarly, foreign disturbances (such as a recession) have a different impact on an economy under flexible exchange rates than under fixed exchange rates. To illustrate these points, consider the macroeconomic model for a small economy developed in Chapter 16. Let *AD* represent the aggregate demand-aggregate supply equilibrium relation, and let *LM* represent the money market equilibrium condition. The *AD* locus is determined by setting the supply of goods (*Y*) equal to the demand for goods (*C+I+G+CA*), whereas money market equilibrium (*LM*) is obtained by setting money supply equal to money demand. These relationships are summarized by the following equations:

$$Y = C\left(Y - T\right) + I + G + CA\left(Y, q, Y^*\right); \qquad q \equiv \left(EP^*/P\right); \quad M^s = PL\left(Y, i\right)$$

where: M^s is the domestic money supply; $L\left(Y, i\right)$ is the demand for real money balances; *Y* is real domestic income (output); *T* is taxes; *G* is government purchases; *CA(..)* denotes the current account balance; Y^* is real foreign income; and *i* is the domestic nominal interest rate. *CA* is decreasing in domestic income (*Y*), but increasing in the real exchange rate $\left(q\right)$ and foreign income (Y^*). The domestic interest rate is determined through covered interest arbitrage.

a) Assuming foreign and domestic prices and the foreign interest rate are fixed, find the short run effects of a *temporary* increase in government spending on domestic income, domestic interest rates and the exchange rate under a *flexible* exchange rate system. **(9 points)**

b) If the domestic government wants to maintain a fixed exchange rate, what additional policy must it use to accompany this fiscal expansion? Under which exchange rate system does the fiscal expansion have a greater impact on the domestic economy? **(8 points)**

c) Use your answers to parts (a) and (b) to discuss whether a German recession (a temporary decline in German income) will have a larger effect on the Italian economy under flexible exchange rates or under fixed exchange rates. Explain carefully. **(8 points)**

d) How would your answer to part (a) change if people expected the increase in government spending to be permanent? Will the impact on domestic income and the spot exchange rate be larger (under flexible exchange rates) when the fiscal expansion is temporary or permanent? Explain your answers. **(8 points)**

5. Answer all parts

a) It used to be common for developing countries to use multiple fixed exchange rates. For example, a country (say, Thailand) would **require** its citizens to sell any dollars they had to the Thai Central Bank in exchange for the local currency (baht) at one exchange rate, while the Thai Central Bank would resell these dollars to importers at different exchange rates. To illustrate, suppose Thailand requires exporters (and all citizens who acquire dollars) to sell these dollars to the Central Bank at the rate of 30 baht/$, while the Central Bank sells dollars to food importers at the rate of 45 baht/$, and to car importers at the rate of 90 baht/$.

   i. Why might a government **require** its citizens to sell their foreign exchange (dollars) to the Central Bank at one rate and to buy from the Central Bank at a different rate? Why isn't the Central Bank willing to buy and sell foreign currency at the "fixed" exchange rate of **30baht/$** to all individuals? **(5 points)**

   ii. What are the economic effects of these multiple exchange rates? In what way are they similar to trade policies discussed earlier in the course? {Hint: It might help your discussion to assume given world prices for each good and to calculate how the exchange rate policy affected domestic relative prices}. **(6 points)**

   iii. Illegal markets, in which private citizens (illegally) trade foreign currencies directly with each other (at rates different from those set by the Central Bank) are a common feature of countries that maintain multiple exchange rates, as in this example. Why would these illegal markets develop? Explain. **(4 points)**

b) Consider a flexible exchange rate model for Thailand in which prices adjust instantaneously and full employment prevails (i.e., a "long run" equilibrium). Suppose world (nominal and relative) prices are given, as is the Thai money supply.

   i. How would a 10 % percent tariff on all imports affect relative prices, production, and the values of imports and exports in Thailand? How will this tariff affect nominal prices and the equilibrium exchange rate (in terms of baht/dollar)? Explain. **(6 points)**

   ii. Instead of only import tariffs, suppose Thailand imposes 20% tariffs on all imports and subsidizes all exports by 20%. How will this policy effect relative prices and production in Thailand, and what impact will it have on the exchange rate? Explain. **(6 points)**

   iii. Are the combined import tariffs and export subsidies likely to reduce the country's Balance of Trade deficit? If not, what additional policy would you recommend to reduce the Trade deficit? Explain. **(6 points)**

Part II. **Answer at most one of the following questions.**

6. Consider a small country (Laos) which produces and consumes two goods, shirts and socks. Domestic supply and demand for shirts are:

$$Q^d = 160 - 2P^c; \quad Q^s = 3P^f$$

where P^c is the price domestic consumers pay for shirts and P^f is the price domestic producers receive for shirt output. Assume the country can export socks at a world price of $1/sock, and it can import shirts from two different countries: Thailand, at $10/shirt, and Bangladesh, at $7/shirt.

a) Assume that Laos has **quotas** on shirt imports from each country. Specifically, assume that these quotas limit imports from *each* country to 45 shirts (for a total of 90 imported shirts). Laos has no domestic policies (no production or consumption taxes or subsidies). Find the initial equilibrium price, production and imports of shirts and the value of the quota licenses. **(5 points)**

i. Suppose Laos converts these *country-specific* quotas to a *global* quota on all imports of 90 shirts, regardless of from which country the imports come. How will this change affect domestic prices, output and welfare in Laos? **Be specific.** **(5 points)**

ii. What % import tariff would have the same effect as the *global* quota of part (ai)? **(3 points)**

b) Suppose Laos enters an agreement with Thailand that allows shirts from Thailand to enter the country without any restriction (quota) or tariff. **However,** the global quota of 90 on shirts imported from all other countries (in this case, from Bangladesh) remains in effect. How will this agreement with Thailand affect price, shirt output and shirt consumption in Laos? **(4 points)**

i. How does this agreement affect Laotian welfare? A specific answer is required. **(6 points)**

ii. How does the policy change affect the output of socks in Laos? A specific answer is required. **(5 points)**

iii. Suppose, before entering the agreement with Thailand, Laos converted its global quota of 90 imported shirts into a common % tariff (as in part aii), and then eliminated the tariff on imports from Thailand. From a welfare perspective, how would the welfare effects of this policy be different from that which you calculated in part (bi)? A specific answer is required. **(5 points)**

7. Answer all parts.

a) Consider a small country, such as Switzerland, which produces two goods (watches and textiles), using two inputs (skilled labor and unskilled labor). Further, suppose the production assumptions of the Heckscher-Ohlin model apply, and that watch production is relatively intensive in skilled labor, while textile production is relatively intensive in unskilled labor. Finally, assume that under free trade Switzerland imports textiles and exports watches.

i. How will an **import quota** (on textiles) affect output prices, the production of each good, and the real return to each type of labor in Switzerland? Explain. **(7 points)**

ii. Suppose Switzerland allows a **limited** number of unskilled foreign workers to enter the country. How will this immigration affect output levels, output prices and factor prices in

Switzerland? Within Switzerland, who gains and who loses from the immigration? Can Switzerland's overall welfare be harmed by this immigration? Explain. **(7 points)**

b) Consider the specific factor model for a small country (Honduras) in which there are two goods (clothing, electronics). Each good is produced, under constant returns to scale, using capital and labor. Since the current capital (machines) in each sector is the result of previous investment decisions, capital is not mobile between the two sectors (i.e., capital is sector specific). However, labor is mobile between the sectors and thus, in equilibrium, it earns the same return (wage) in each sector. Under free trade, the country exports clothing and imports electronics.

i. Given the amount of capital in each sector, show how an import tariff on electronics affects the real return to each factor in Honduras and the output of each good. Who gains and who loses as a result of this tariff? Be specific. **(7 points)**

ii. Suppose that, over time, capital can be shifted from one sector to the other (due to depreciation, etc.) but the **total** capital stock stays fixed. Assuming that production of electronics is ***capital-intensive*** (as compared to clothing), discuss the *long-run* effects on output and factor prices of this import tariff on electronics. **(6 points)**

iii. Compare your results from parts (i) and (ii). Are the output changes larger in the short run or long run? Is there a difference between which interest groups gain in the long run than in the short run? Be specific. **(6 points)**