1. (Related to Problem 2, Chapter 14 in book). Consider each of the following goods and services. For each, identify whether the law of one price will hold, and state whether the relative price (where F denotes foreign country and H home country) \( q^F_H \) is greater than, less than or equal to one. Explain your answer in terms of the assumptions we make when using the law of one price.

   (a) Milk freely traded between Germany and Belgium from the point of view of German consumers.

   (b) Tomatoes traded in France and Morocco, from the point of view of French consumers. The European Union imposes a quota on tomato imports into the EU.

   (c) The McDonald’s Big Mac sold in the US and Japan, from the point of view of US consumers.

   (d) Haircuts in the US and in the Czech Republic, from the point of view of US consumers.

2. In this question we will analyze long run policies in China relative to the US. Suppose China’s output growth is 10.5% and inflation rate is 1.5%. In the US output growth is 2% and inflation rate is 4.3%.

   Use the simple monetary model (where L is constant) and all the assumptions it implies to answer the following questions.

   (a) What is the money growth rate in China? And in the US?

   (b) Assuming these rates of growth will continue in the future, and that the current exchange rate \( E_{Yuan/$} \) is 7.57 yuan per US dollar, what is the expected rate of depreciation in the Chinese yuan relative to the US dollar? Explain your answer indicating which theory you applied.

   (c) Suppose the People’s Bank of China (PBOC) wants to maintain an exchange rate peg with the US dollar. What money growth rate would the PBOC have to set in order to fix the value of the yuan with respect to the US dollar?

   (d) Using time series diagrams, show how this change in the money growth rate would affect money supply in China, \( M_{China} \), prices \( P_{China} \), real money supply, and \( E_{Yuan/$} \) over time. (Plot each variable on the vertical axis and time on the horizontal axis.)

   (e) Now, suppose that the PBOC wants to implement a policy that would depreciate the yuan relative to the US dollar. What values of money growth would allow the PBOC to do that?
3. Let us continue with the same data as in Problem 2, but using the general monetary model instead. Suppose the world real interest rate is 3%.

(a) What is the nominal interest rate in China? And in the US?

(b) Suppose the PBOC increases the rate of growth of money to 15%, and the inflation rate rises simultaneously with the growth rate of income unchanged. If the nominal interest rate in the US remains constant, what is the new nominal interest rate in China?

(c) Using time series diagrams, show how this change in the money growth rate would affect money supply in China, $M_{China}$, prices $P_{China}$, real money supply, and $E_{Yuan/\$}$ over time. (Plot each variable on the vertical axis and time on the horizontal axis.)

4. Suppose the following conditions hold: uncovered and covered interest rate parity, real interest rate parity, relative and absolute purchasing power parity. And suppose you are given the following information:

- the current nominal interest rate for a 1 year deposit in an Indian bank is 28%.
- inflation is expected to be 6% points higher in India than in Pakistan.
- the forward exchange rate between India and Pakistan is 1 (Indian rupee / Pakistan rupee).

For each of the following questions, compute a value using the information above, or state if there is not enough data to do it. Indicate which condition you apply and show the procedure you follow.

(a) real exchange rate (India/Pakistan)

(b) expected future spot exchange rate for one year from now (Indian rupee / Pakistan rupee)

(c) real interest rate in India

(d) current spot exchange rate (Indian rupee / Pakistan rupee)