QUESTIONS - CHAPTER 21 PURCHASING POWER PARITY

Question 21.1

21.1A If relative PPP holds, does this also imply that the Law of One Price holds? And what about the relative Law of One Price? Explain.

21.1B Suppose that a laptop costs 1,000 dollars in the United States and 800 euros in the Eurozone. If absolute PPP holds, and Europe and the United States trade only laptops, what is the dollar-euro exchange rate?

21.1C Due to changes in demand, the price of a laptop in the United States increases to 1,200 dollars. If absolute PPP holds, what happens to the exchange rate?

21.1D Suppose that Europe and the United States trade a broad package of goods. The prices of these goods are measured by the consumer price index and the rate of inflation in the United States is persistently higher than in Europe. What happens to the exchange rate according to PPP theory?

21.1E Given the discussion in Chapter 19 about the relationship between money growth and prices, what impact do you expect of monetary tightening by the ECB (lowering money growth) on the exchange rate?

Question 21.2

Politicians often claim that the value of the currency of some other country is too low, which gives the firms of that country an unfair competitive advantage. Econometric evidence, such as that in Figure 21.3, indicates that relative PPP does not hold in the short-run, while it does hold in the long-run.

21.2A What does this imply for countries with a fixed exchange rate that is ‘unfairly low’?

21.2B Can a country maintain an ‘unfair’ competitive advantage in the long run by somehow manipulating its exchange rate?

Question 21.3

21.3A The real effective exchange rate can be measured in many different ways. Can you name the choices you would have to make if you would like to present a graph of the real effective exchange rate of the British pound?
21.3B Suppose the real exchange rate of the pound vis-à-vis the euro is stable at two. Does absolute PPP hold? Why (not)? Does relative PPP hold? Why (not)?

21.3C Suppose that the real exchange rate of the pound vis-à-vis the euro increases to three. What does this mean for the competitive position of British firms? What does this imply for the validity of relative and absolute PPP?

Question 21.4

21.4A What economic process assures that deviations from the Law of One Price do not occur in perfectly competitive markets?

21.4B Which deviations from perfectly competitive markets can cause deviations from the Law of One Price?

21.4C Which problems would confront you if you would try to empirically verify the Law of One Price?

21.4D What are the implications of your answers at B and C for absolute and relative PPP?

Question 21.5

21.5A What did early empirical studies find about the validity of PPP? What shortcomings did these studies have?

21.5B Early empirical studies usually estimated the following equation as a test for absolute PPP: \( s_t = \gamma_1 + \gamma_2 P_{wt} + \gamma_3 P_{st} + u_t \). Which findings for the coefficients would validate absolute PPP? Explain why.

21.5C What do recent studies find about the validity of PPP? How have researchers overcome the earlier shortcomings?

21.5D During the Bretton-Woods era, exchange rates in many countries were fixed rather than freely floating. In principle, does this prohibit the empirical testing of PPP?

Question 21.6

Suppose that you would want to look at the importance of the Chinese economy for international trade and capital flows.

21.6A Would you use a PPP correction? Why (not)?

21.6B If you would like to look at global income levels, would you use a PPP correction? Why (not)?
Question 21.7

21.7A The table below lists the productivity of Argentinean and Bulgarian workers. What can you say about relative prices within Argentina and Bulgaria assuming perfect labor mobility within both economies?

<table>
<thead>
<tr>
<th>Number of products produced per working day</th>
<th>Traded goods</th>
<th>Non-traded goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2</td>
<td>30</td>
</tr>
</tbody>
</table>

21.7B Assuming no transport costs or other trade restrictions between Bulgaria and Argentina, what can you say about relative wage rates for Argentinean and Bulgarian workers in the tradeable goods sector? If you take productivity differences of the traded sector as determinants of the exchange rate between the Argentina and Bulgaria, what would this imply for GNP per capita estimates?

21.7C If you would make a PPP correction for national incomes, how would your estimate under D change?

21.7D Suppose that Bulgaria is a very closed economy. What impact does this have on PPP corrections?

Question 21.8

21.8A The Economist magazine each year publishes a Big Mac index which is directly derived from PPP theory. Locate the most recent overview of the Big Mac index on The Economist website (www.economist.com). Which currencies are most overvalued? Which currencies are undervalued?

21.8B The Big Mac index is an appealing presentation of the PPP theory. What do you think are its methodological strengths and weaknesses?

Question 21.9

21.9A Locate on the NBER website (www.nber.org) working paper 10607 titled “The Purchasing Power Parity debate” by Alan M. Taylor and Mark P. Taylor. What are the two PPP puzzles they refer to?
21.9B What explanations are there for the prolonged deviation from equilibrium PPP exchange rates?

21.9C What does the term “half-life” in the paper mean? What is the generally found adjustment speed with which deviations from long run PPP return to the equilibrium rate?

21.9D Which three broad challenges do the authors identify regarding future empirical research on exchange rates?

Question 21.10

The equation for relative PPP is defined as: 

\[(s_{t+1} - s_t) = (p_{B,t+1} - p_{B,t}) - (p_{A,t+1} - p_{A,t})\].

If this holds at all times we would expect that differences in inflation (the right hand side) translate one for one in changes in the exchange rate (the left hand side). In the accompanying Excel file for question 21.10, we have assembled exchange rates vis-à-vis the US dollar and inflation data for a number of countries from 1970 to 2010. Draw a scatter plot with the left hand side of equation on the x-axis and the right hand side of the equation on the y-axis for each year for every country vis-à-vis the United States.

21.10A What can you learn from this graph?

Now take the average inflation deviation (for the entire time series) from the US for each country. Furthermore, calculate the average exchange rate change for each country. Now draw a scatter plot with your calculated inflation deviation on the y-axis and your calculated changes in exchange rates on the x-axis.

21.10B What can you learn from this graph?