

Worksheet on Purchasing Power Parity

(1)	(2)	(3)	(4)	(5)	(6)	(7)
country	price of Big Mac in LCU, 1-30-2009	exchange rate (LCU per \$), 1-30-2009	price of Big Mac in US\$	PPP exchange rate (LCU per \$)	% by which exchange rate is under(-) or over(+) valued vs. the \$	real exchange rate (local BMs per U.S. BM)
China	12.5 yuan	6.84 yuan/\$				
Euro area	3.42 euro	0.78 euro/\$				
Mexico	33.0 peso	14.4 peso/\$				
Norway	40.0 kroner	6.91 kroner/\$				

- Which countries have the cheapest Big Macs? Which countries have the most expensive Big Macs? To determine the answer, use the exchange rate in column (3) to convert the price of a Big Mac from local currency units (LCU) to U.S. dollars. Write the results in column (4).
- On 1-30-2009, the price of a Big Mac in the U.S. was \$3.54. What exchange rate would equalize the price of Big Macs in the U.S. and China? Write your answer in yuan per dollar in the appropriate space of column (5). We call this the “purchasing power parity exchange rate” between China and the U.S., because at this exchange rate, a dollar has the same purchasing power in both countries.
- For each of the other countries in the table, repeat Question 2: determine the PPP exchange rate (which equalizes the price of B.M.’s in both countries) and write your answers (in LCU per \$) in column (5).
- List all the conditions you can think of that would be necessary for the price of Big Macs to be equalized across countries.
- Assume all of the conditions in your list hold in the long run. Then, the exchange rates in column (5) are long-run equilibrium exchange rates, and we can predict that current exchange rates will move toward their long-run values. Based on this, are there any currencies that represent a particularly good buy for Americans (as of 1-30-09)? Consider China. Comparing (3) and (5), notice that the yuan is currently cheaper than its long-run value: it takes more yuan to buy a dollar now than it will in long-run equilibrium. We say that the yuan is “undervalued.” Compute the percentage undervaluation as $(5) - (3)$ divided by (5), times 100%, and write the result in (6). Do the same for each of the other currencies in the table. Which currencies are undervalued? Which are overvalued? (Note: The Economist computes the difference as a percentage of (3) rather than (5))
- The nominal exchange rate is the amount of home country currency per unit of foreign currency. The real exchange rate is, in a sense, the amount of the home country’s purchasing power per unit of foreign country purchasing power. Just as people care more about real wages and real interest rates than their nominal counterparts, people also care more about the real exchange rate than the nominal exchange rate. In the example on this worksheet, the “purchasing power” of a unit of currency is the quantity of Big Macs it can buy. Compute each country’s real exchange rate with the U.S. as the number of local Big Macs that trade for one U.S. Big Mac, and write them in column (7).
- If absolute purchasing power parity holds, what would you expect to see in column (7)? What is relative PPP? The table above does not have enough information to see whether relative PPP holds. What additional information would we need? What relationship would we expect to see if relative PPP holds?