**Problem 1.** Treat Brazil (currency *real*, code BRL) as the *home* country. Suppose the cost of the market basket in the United States is $P_{US} = 190$ USD, the exchange rate is 4.07 BRL per 1 USD, and the price of a market basket in Brazil is 520 BRL.

**(a)** Determine the price of a US basket in BRL.

**(b)** Determine whether or not PPP holds.

**(c)** Determine whether the real overvalued or undervalued.

**(d)** Determine whether the real is expected to appreciate or depreciate.

**Problem 2.** For the US and Europe, suppose inflation forecasts are $\pi^e_{USD} = 3\%$ and $\pi^e_{EUR} = 1\%$. Consider the following scenarios concerning one year later.

**(a)** If absolute PPP holds, then what would you forecast for the depreciation in USD?

**(b)** Suppose PPP fails: a US basket of a good costs 100 USD, whereas the Euro cost of the same basket – after accounting for the exchange rate – is 130 USD. What would we forecast for the depreciation in USD relative to the EUR by next year?

**Problem 3.** Assume Turkey's money growth rate is currently 12% and Turkey's output growth is 5%. Europe's money growth rate is 4% and its output growth is 2%. Also assume Turkey's inflation rate is currently 7% and the world real interest rate is 2%. In what follows, use the conditions associated with the simple monetary model. Treat Turkey as the home country and define the exchange rate as Turkish lira per euro, $E_{\text{TRY / EUR}}$. Assume all trends continue unless stated otherwise.

**(a)** Compute the nominal interest rate in Turkey.

**(b)** Compute the expected rate of depreciation in the Turkish lira relative to the euro.

**(c)** Suppose the Central Bank of the Republic of Turkey decreases the money growth rate from 12% to 8%. If nothing in Europe changes, what is the new inflation rate in Turkey? What is the new nominal interest rate in Turkey?

**(d)** Illustrate how the change in (c) affects $M_t$, real money supply, $P_t$, and $E_{\text{TRY / EUR}}$ over time. The change in the money growth rate occurs at time $T$.

**Problem 4.** Suppose Turkey's money growth rate is 2% and its output growth is 0%. Europe's money growth rate is 1% and its output growth is 0%. The world real interest rate is 3%. Use the conditions associated with the general monetary model. Treat Turkey as the home country, and define the exchange rate as Turkish lira per euro, $E_{\text{TRY / EUR}}$. Assume all trends continue unless stated otherwise.

**(a)** Find the rate of inflation, real money balance growth rate, the rate of depreciation, and the nominal interest rate.

**(b)** Suppose at time $T$, Turkey increases its money growth rate to 3%. Find the rate of inflation, real money balance growth, depreciation, and nominal interest.

**(c)** Draw the time series for Turkish $M$, $P$, real money balances, $E$, and $i$.