Purchasing Power Parity

LR Exchange Rate Determination

• What determines ER in the long-run?
• Why do some currencies tend to appreciate over the LR? Why do some tend to depreciate in the LR?
  – 2 key reasons:
    • National inflation rate differentials (PPP)
    • Role of the money supply/inflation

Purchasing Power Parity

• LR exchange rates - predictable relationships between product price levels and the exchange rates
• This follows from the belief that trade equalizes the price of tradable goods.
• Thus, Purchasing Power Parity is when the exchange rate is at the level when a given amount of money will be able to purchase the same quantity of goods both domestically and abroad.
• PPP views the underlying trends in ER movement and do not necessarily reflect any particular point in time

There are two versions of PPP:
1) Strict PPP
2) Relative PPP
Strict PPP

- Strict PPP occurs when the price of the good is equal across countries. This requires that the exchange rate satisfies the following condition:

\[ P_d = e_r \times P_f \quad \text{Or,} \quad e_r = \frac{P_d}{P_f} \]

Does PPP hold in the strict sense? Does there exist the “Law of One Price” for all goods? For certain goods?

Relative PPP

- Relative PPP examines how price changes (inflation) affect the exchange rate
- Suppose the domestic country has a relatively low inflation rate (\( \%\Delta P_d \) low relative to \( \%\Delta P_f \))
- The domestic country’s currency tends to appreciate

Monetary View of LR exchange rates

- PPP suggests that a country’s exchange rate is closely related to its price levels
- But what determines price levels in the economy?
- We can view the impact of changes in money supply on price level changes, and thus, the exchange rate

Recall the Quantity Theory of Money

\[ M^* = k \times P \times Y \]
\[ M_f^* = k_f \times P_f \times Y_f \]

Where \( M^* = \text{money supply} \), \( k = \text{velocity of money} \), \( P = \text{price level} \), \( Y = \text{income} \) (\( f = \text{foreign country} \))
Monetary View of Exchange Rates

• $M^s$, $M_t^f$ determined by monetary policy
• We can rearrange each equation to show that

$$P = M^s / (k * Y) \quad \quad \quad P_t = M_t^f / (k_t * Y_t)$$

Therefore, using the PPP relation, we know that

$$\epsilon_r = (P/P_t) = (M^s/M_t^f) * (k_t/k) * (Y_t/Y)$$

This shows that a country’s exchange rate is influenced by

$P$, $M^s$, $k$, $Y$

This also shows how domestic and foreign monetary policy affects a nation’s exchange rate