Econ 371: Note on Monetary Approach and General Theory of Long Run Exchange Rate (Chapter 15)

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Note

This note is NOT a comprehensive summary of Chapter 15. Its goal is to further your understanding about the monetary approach and the general theory. Read the book about other concepts such as the Law of One price, the relative PPP, Fisher Effect, the Balassa-Samuelson effects, etc.

1 Key Question

What can predict exchange rate in a long time horizon? There are two answers to this question. First, the monetary approach believes that "money demand" and "money supply" are the answer. Second, the general theory believes that "output demand," "output supply," "money demand," and "money supply" are the answer.

1.1 Monetary approach

The monetary approach approach believes in the absolute purchasing power parity (PPP). The PPP states that the price level is identical in all countries.

\[ \frac{E}{A} \frac{P_{EU}}{P_{US}} = 1 \]  

Then,

\[ \frac{E}{A} = \frac{P_{US}}{P_{EU}} \]
Since this chapter deals with the long run, then price is not more sticky. Price is flexible and determined in the money market, i.e. the price level $P_{US}$ is a ratio of money supply and real money demand. Then,

$$E_{S/C} = \frac{M_{US} L_{EU}(R_{EU}, Y_{EU})}{M_{EU} L_{US}(R_{S}, Y_{US})}$$  \hspace{1cm} (3)

### 1.1.1 Effects of money supply, interest rate and output supply on nominal exchange rate $E$ under the monetary approach

- **Money supply**
  
  Money expansion in the U.S. will raise the U.S. price level. According to Equation (3), an expansion of the U.S. money supply then make $E$ rises. We will see exchange rate depreciation.

- **Interest rate**
  
  A rise in the U.S. interest rate will reduces the U.S. real money demand. According to Equation (3), this will cause exchange rate to fall or depreciate. This is because the U.S. price level increases as a result.

- **Output supply**
  
  An expansion of the U.S. output supply will increase the U.S. real money demand. According to Equation (3), this will cause exchange rate to rise or appreciate. This is because the U.S. price level falls as a result.

### 1.2 General theory

Proponents of the general theory do not disagree with the monetary approach that money demand and supply are important. However, they believe that other things, i.e. output demand and output supply are also important. Specifically, they believe that it is output demand and supply that defines "strength" of one economy. This strength can be thought of purchasing power in one economy relative to that in the other economy, namely "real exchange rate." The general theory claims that we can use both real exchange rate $q_{S/C}$ and price levels to predict movements in exchange rate $E_{S/C}$.

$$E_{S/C} = q_{S/C} \left( \frac{P_{US}}{P_{EU}} \right)$$  \hspace{1cm} (4)

The role of output demand and output supply works through the first component $q_{S/C}$. In contrast, the second component $P_{US}/P_{EU}$ is influenced by nominal or monetary factors, or money supply and money demand as in the monetary approach.
As a mathematical equation, we can rearrange Equation (4) to obtain the definition of real exchange rate as a function of nominal exchange rate.

\[ q_s/E = E_s/E \left( \frac{P_{EU}}{P_{US}} \right) \]

(5)

Real exchange rate is the value of the European goods in terms of the U.S. goods. So when real exchange rate falls, the European goods become cheaper. We like to think that it reflects strength of purchasing power of the U.S. dollar, so we call it real exchange rate appreciation. Note that the definition of real exchange rate only summarizes the relationship of what we observe in the data. It does not imply that real exchange rate is driven by nominal exchange rate. In contrast, the general theory tells us that nominal exchange rate is in fact driven by real exchange rate.

1.2.1 Effects of output demand and output supply on real exchange rate \( q \) and nominal exchange rate \( E \) with the general theory

- **Output demand**

  A rise in demand for the U.S. goods make them more expensive. So the real purchasing power of the U.S. dollar goes down, or we will see real exchange rate appreciation (\( q \) falls). Output demand does not change money demand, so price level stays constant. According to Equation (4), a fall in \( q \) without changes in price levels implies that \( E \) falls too.

- **Output supply**

  A rise in supply for the U.S. goods make them less expensive. So the real purchasing power of the U.S. dollar goes up, or we will see real exchange rate depreciation (\( q \) rises). A rise in output supply also increases money demand in the U.S. So price level in the U.S. fall. According to Equation (4), a rise in \( q \) with a fall in the U.S. price levels implies that the movement in \( E \) is ambiguous.

The different between the monetary approach and the general theory is that \( q \) is always 1 with the monetary approach, while it can vary with the general theory.

1.2.2 Effects of money supply and interest rate on real exchange rate \( q \) and nominal exchange rate \( E \) with the general theory

Money supply and interest rate have nothing to do with real exchange rate \( q \). As mentioned above, real exchange rate depends on output demand and output supply only. The effects of money supply and interest rate work through the price ratio only. Consequently, their effects on nominal exchange rate \( E \) under the general approach are the same as under the monetary approach.