## TA Info

Gary Baker (he/him)

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| **Office:** | Social Sciences 6470 |
| **Email:** | gary.baker@wisc.edu |
| **Website:** | garygbaker.com |
| **Office Hours:** | Mondays, 1–2 PM (Zoom, see Canvas for link) |
| | Wednesdays, 2–3 PM (in person) |

## Ch. 17 Exchange rates

- Exchange rate: the price of one currency in terms of another.

- Use notation $E_t = \frac{\text{foreign currency}}{\text{dollars}}$, how many units of foreign currency are needed to buy one US dollar (value of the dollar)

- $E_t \uparrow$ means more foreign currency is needed to buy a dollar. Equivalently, a dollar buys *more* of the foreign currency. We then say the dollar **appreciates** and the foreign currency **depreciates**.
    - If the dollar *appreciates*, US consumers can buy foreign goods (import) more cheaply (good for importers)
    - But foreign consumers have to pay *more* for US exports (bad for exporters)

### Converting between exchange rates

$$\frac{\text{Currency A}}{\text{Currency B}} \times \frac{\text{Currency B}}{\text{Currency C}} = \frac{\text{Currency A}}{\text{Currency C}}$$

### Exchange rates in the long run and the law of one price (LOP)

- Assumptions:
    1. Identical tradable goods
    2. No transportation cost and trade barriers

- Result: goods should have the same price in all places.

| **France** | **Spain** |
|:---:|:---:|
| 1 kilo coffee: 3 Euros | 1 kilo coffee: 1 Euro |

<u>Arbitrage opportunity:</u> buy coffee in Spain and sell in France

- Supply of coffee in France $\uparrow$, causes price $\downarrow$
- People take advantage of arbitrage opportunities until a profit can no longer be made from buying in Spain and selling in France (which occurs when prices are equal)

### Purchasing power parity

- If LOP held for all goods, exchange rates would adjust to equalize prices for all goods.

- But we know cost of living is cheaper in some countries than others. Why?

    - <u>Answer 1:</u> Not all goods are tradable. I might spend \$20 on a haircut in Madison, but ₹250 (roughly \$3.50) for a haircut in Bangalore.
      But there's no opportunity for arbitrage! You can't buy a haircut in India and resell it in the US.
    - <u>Answer 2:</u> Even for tradable goods, arbitrage isn't free. There are shipping costs, and countries may have barriers to trade such as tarrifs.

- Purchasing power parity compares the cost of goods in one country to costs in another. (A hyper-simplistic version of this is *The Economist's* "Big Mac Index" which compares the cost of a Big Mac across countries.)

## Determinants of Exchange Rates

1. **Domestic Price Level** $\downarrow$: $P_{US} \downarrow \Longrightarrow$ Demand $D_{US} \uparrow \Longrightarrow E_t \uparrow$: If US goods are relatively cheaper, more foreigners will buy dollars to use to purchase US goods

2. **Trade barriers** (tariffs and quotas) $\uparrow$: US tariff on EU goods $\Longrightarrow D_{US} \uparrow \Longrightarrow E_t \uparrow$

3. **Import Demand** $\downarrow$: $D_{EU} \downarrow \Longrightarrow E_t \uparrow$

4. **Export Demand** $\uparrow$: $D_{US} \uparrow \Longrightarrow E_t \uparrow$

5. **Productivity** $\uparrow$: productivity in the traded-good sector $\uparrow \Longrightarrow$ Cost of Production $\downarrow \Longrightarrow P_{US} \downarrow \Longrightarrow D_{US} \uparrow \Longrightarrow E_t \uparrow$

## Exercises

1. **Example (Mishkin Ch 17 #18):** If the Canadian dollar to U.S. dollar exchange rate is 1.28 and the British pound to U.S. dollar exchange rate is 0.62, what must be the Canadian dollar to British pound exchange rate?

2. If the interest rate is 7% on euro-denominated assets and 5% on dollar-denominated assets, and if the dollar is expected to appreciate at a 4% rate, for Marcel the Frenchman the expected rate of return on dollar-denominated assets is:

   (a) 11%
   (b) 9%
   (c) 5%
   (d) 3%
   (e) 1%

3. _____ in the foreign interest rate causes the demand for domestic assets to increase and the domestic currency to _____, everything else held constant.

   (a) An increase; depreciate
   (b) A decrease; appreciate
   (c) An increase; appreciate
   (d) A decrease; depreciate