

Exchange Rates: Application of Supply and Demand to Currencies

ECO 120: Global Macroeconomics

Goals

Unit Goals

- Interpret meaning of exchange rates
- Use exchange rates to convert prices and values from one currency to another
- Interpret changes in exchange rates in terms of currency's value against others
- Use a supply and demand model of currencies to predict changes in exchange rates.

Learning objectives

- LO3: Use the supply and demand model for currencies to predict changes in exchange rates.

Reading and Exercises

- Exchange Rates Ch 16, pp. 410-414
- Supply and Demand for Currencies Ch 16, pp. 414-423
- **Canvas Quiz due Wednesday 11:59 PM.**
Multiple-choice, 15 questions, unlimited attempts allowed, only best score counts
- **Homework/In-class Exercise due Friday 11:59 PM.** We will work together in class on Thursday.

Exchange Rates

- **Nominal Exchange Rate:** how much of one currency can be traded for one unit of another currency.
- Example:
 - The Mexican Peso / U.S. Dollar exchange rate is 18.38 pesos / dollar (Sep 15, 2025).
 - One U.S. dollar can be exchanged for 18.38 pesos.
- There are two ways to express every exchange rate.
- Same example:
 - The Mexican Peso / U.S. Dollar exchange rate is 0.054 dollars / peso (Sep 15, 2025).
 - One Mexican Peso can be exchange for 0.054 dollars (or 5.4 U.S. cents).

Changes in the Exchange Rate

- **Appreciation:** A currency appreciates against a second currency when one unit of the first currency can purchase *more* of the second currency.
- **Depreciation:** A domestic currency depreciates against a second currency when one unit of the first currency can purchase *less* of the second currency.
- Examples of an appreciation of the dollar:
 - Exchange rate increases from 18.38 pesos/dollar to 20.00 pesos/dollar.
 - Exchange rate decreases from 0.054 dollars/peso to 0.05 dollars/peso.

Converting From One Currency to Another

MXN to USD

Suppose the price of a bike in Mexico is 8,440 MXN.

How much does this cost in USD?

$$8,440 \text{ MXN} \times \left(\frac{1 \text{ USD}}{18.38 \text{ MXN}} \right) \\ = 459.19 \text{ USD}$$

USD to MXN

Suppose the price of a car in the U.S. 9,500 USD.

How much does this cost in MXN?

$$9,500 \text{ USD} \times \left(\frac{18.38 \text{ MXN}}{1 \text{ USD}} \right) \\ = 174,610 \text{ MXN}$$

Mexican Pesos per U.S. Dollar



Australia: U.S. Dollars per Australian Dollar



Canada: Canadian Dollars per U.S. Dollar



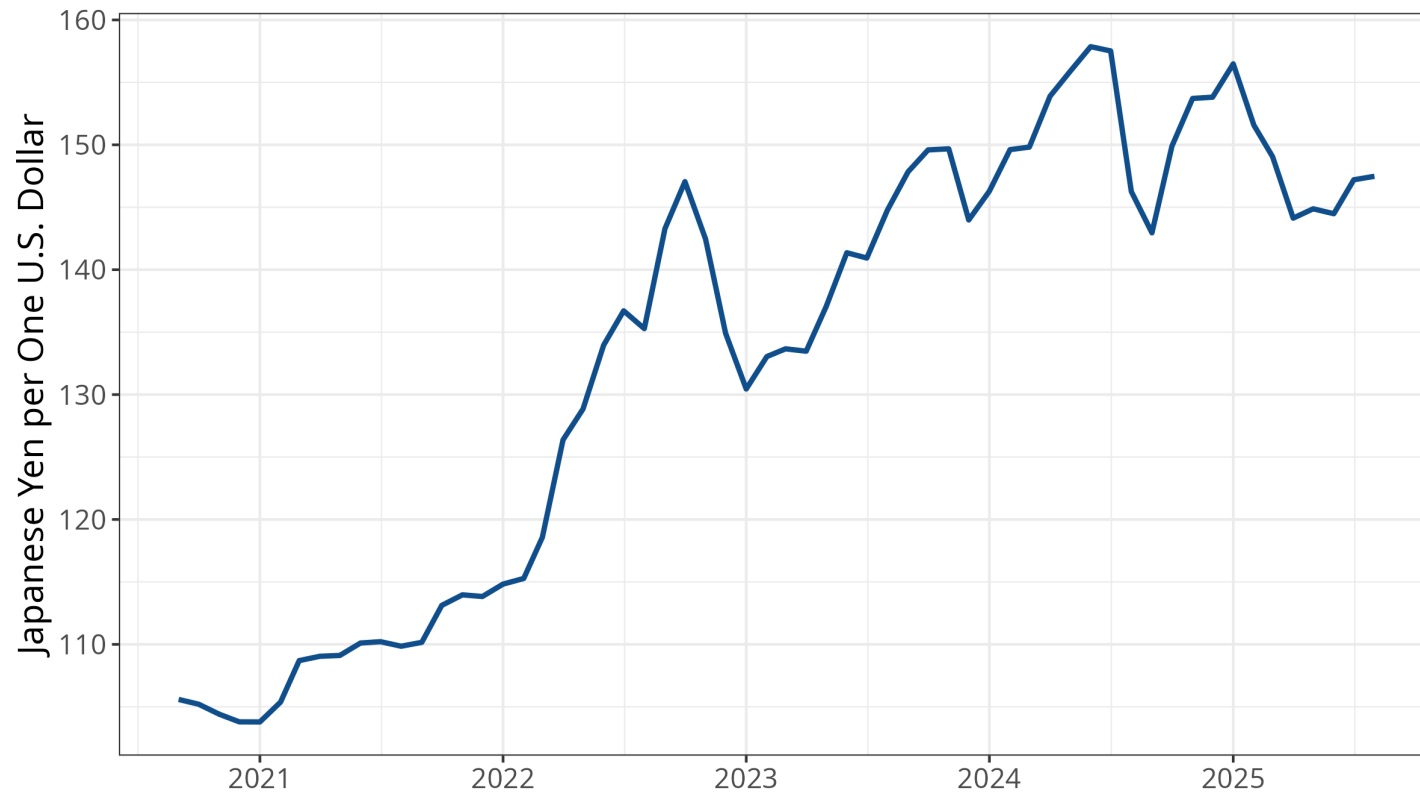
China: Chinese Yuan per U.S. Dollar



Europe: U.S. Dollar per Euro



Japan: Japanese Yen per U.S. Dollars



South Korea: Korean Won per U.S. Dollars



Trade-Weighted Index



Demand for Currency

- Price of currency of interest (say U.S. Dollars):
 - Exchange rate expressed as foreign currency per one unit of currency of interest.
 - Example: price of dollars = Euros per U.S. dollar.
 - An increase in this exchange rate means an appreciation of the dollar.
- Demand for currency is a *derived demand*. It depends on...
 - *foreign demand* for the country's goods.
 - *foreign demand* for the country's assets.
 - Financial assets could include stocks and bonds for companies in a country, government bonds from a country
 - Assets may include foreign direct investment, when owners from a foreign country own significant portions of a company or a company's facilities located in a country.

Demand for Currency

- **Law of demand for foreign exchange:** as the value of the currency increases, the quantity of the currency demanded will fall.
- **Exports effect:** if the currency is more expensive, the country's goods are more expensive.

Supply of Currency

- A currency is supplied when holders of the currency try to sell it.
- Supply of U.S. dollars happens when people in U.S. demand foreign currencies.
- Supply of a currency is nothing more than the holders' demands for foreign currency.

Shifts in Demand

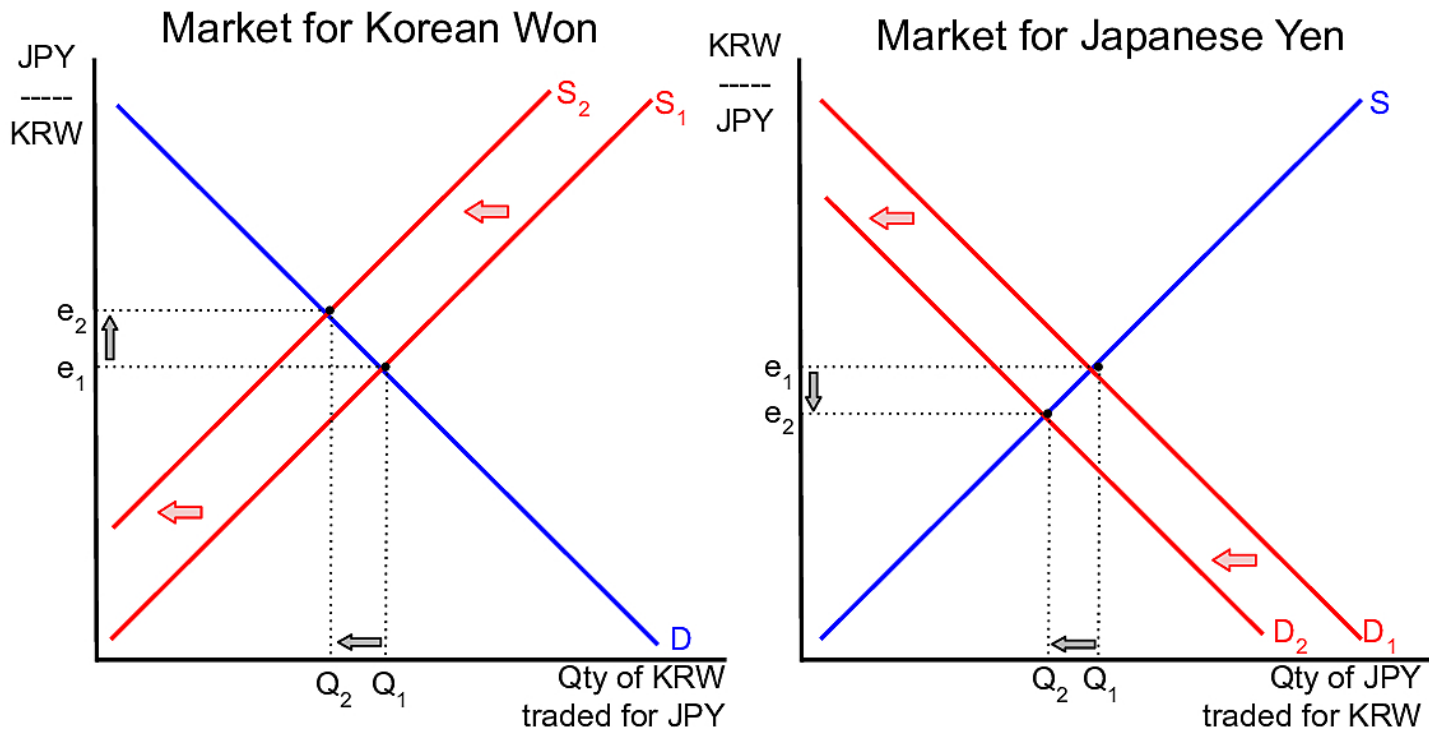
- When something *besides the exchange rate* influences the demand for a currency, then there is a *shift* in the demand.
- Determinants of demand for currency:
 - Changes in demand for country's products.
 - Changes in interest rate differential.
 - Expectations of future exchange rate.

Shifts in Supply

- Don't even think about it.
- The supply of a currency is the demand for the other country's currency
- Think about what currency demand shifts, **then always shift the supply of the other currency in the *same direction*.**

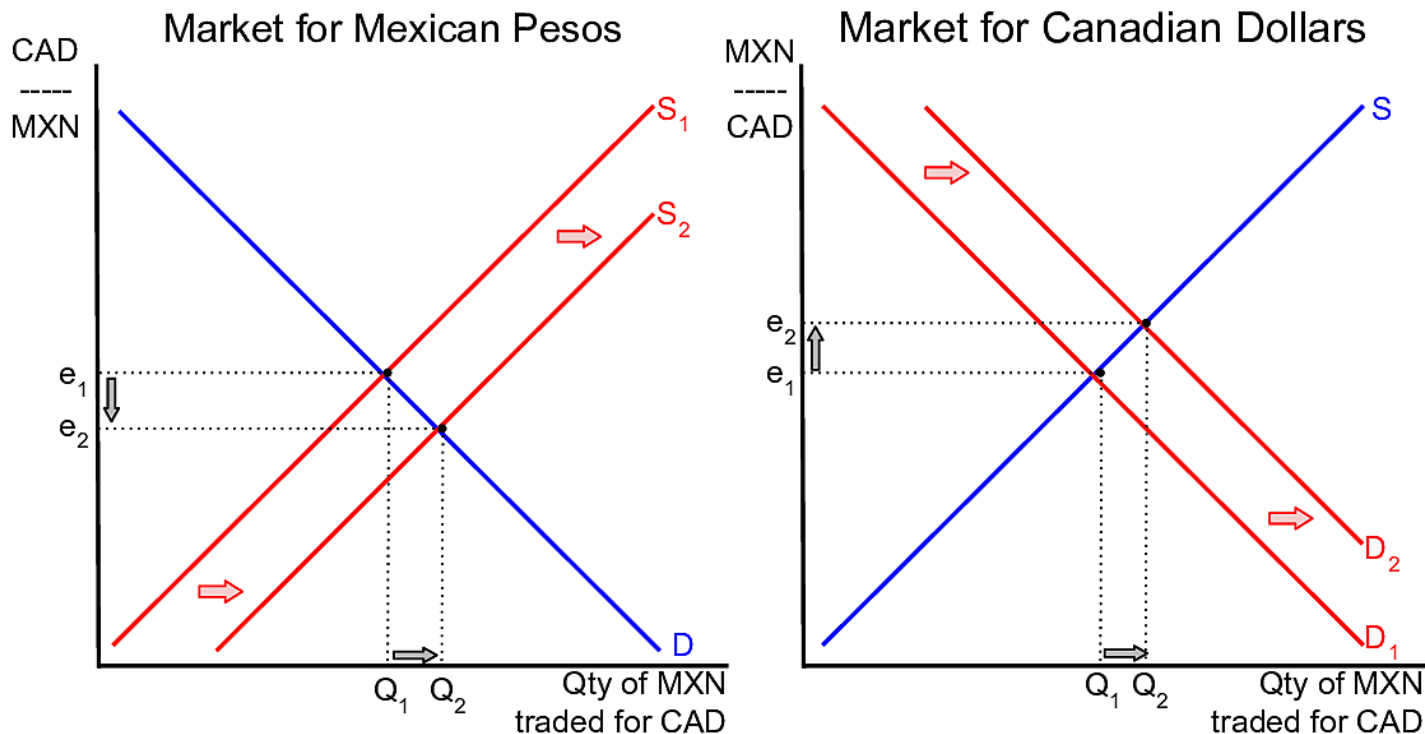
Example 1: Decrease in Income in Korea

Japan and Korea are major trading partners. Suppose there is a decrease in incomes in Korea, leading to a decrease in demand for imported goods from Japan to Korea



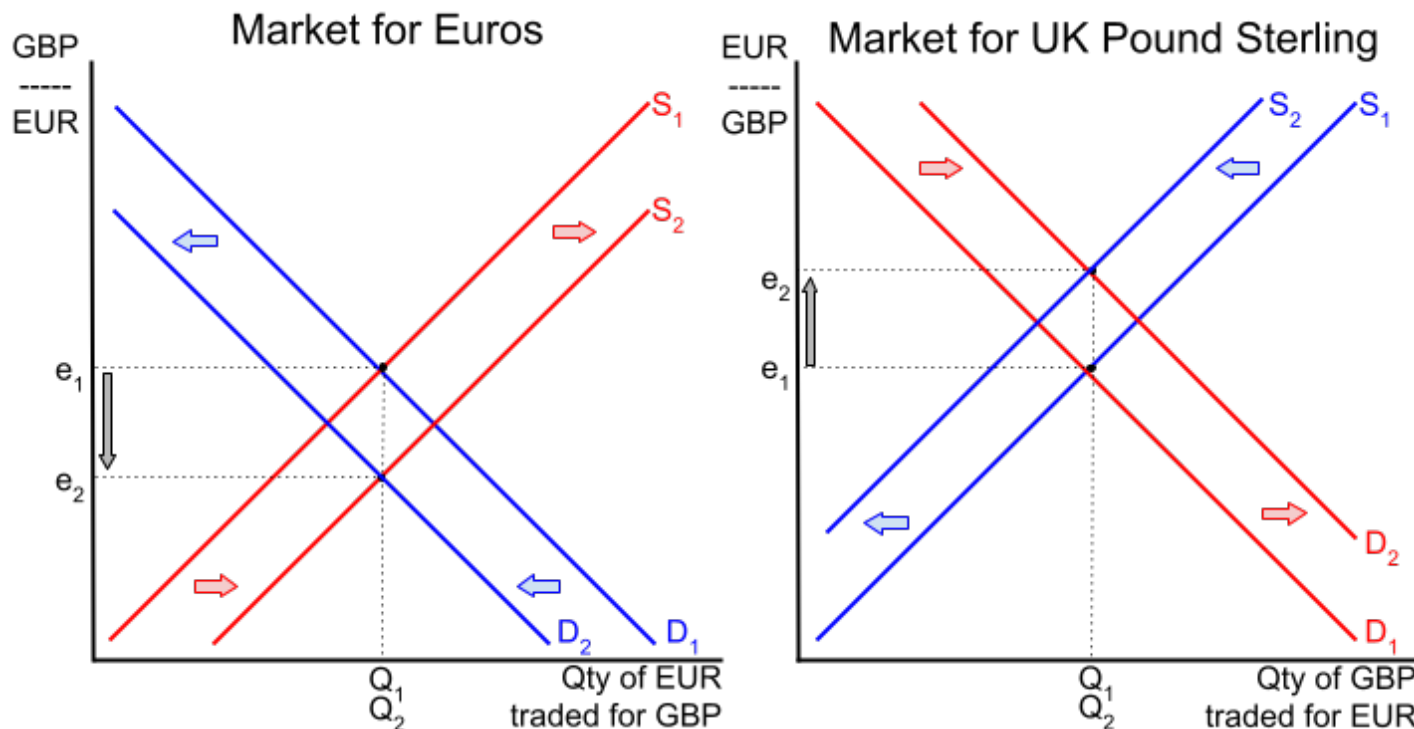
Example: Reduction in Trade Restrictions

Suppose a trade agreement between Mexico and Canada results in a significant reduction in legal restrictions in Mexico, allowing more imports from Canada.



Example: Increase in U.K. Interest Rate

Suppose interest rates in the United Kingdom increase, but stay the same in the Euro area.



Spotlight: Oleg Itskhoki & Dmitry Mukhin

Sanctions and the Exchange Rate, *Intereconomics: Review of European Economic Policy*, 2022.

Factors for the Impact of Sanctions

- Sanctions that prevent financial investment in the country cause the country's currency to depreciate
- Sanctions that limit availability of imports into a country cause the country's currency to appreciate
- Explains both upward and downward movements in USD / RUB exchange rate following Russia's February 2022 invasion of Ukraine

About the Scholars

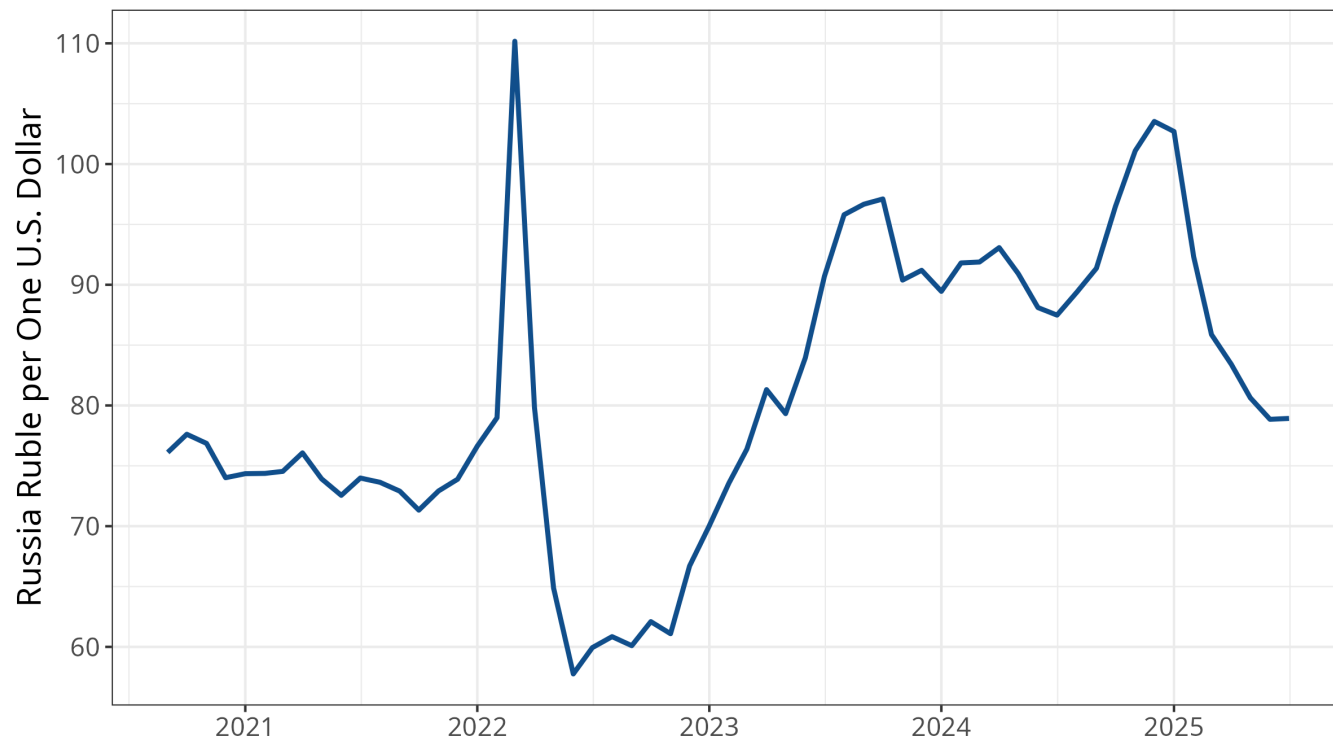


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Russia: Russia Ruble per U.S. Dollars



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