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.

Course Learning Objective

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 17.19 MXN / USD (Feb 9, 2026).
  - One U.S. dollar can be exchanged for 17.19 Mexican pesos.
- There are two ways to express every exchange rate.
- Same example:
  - The Mexican Peso / U.S. Dollar exchange rate is 0.058 USD / MXN (Feb 9, 2026).
  - One Mexican Peso can be exchange for 0.058 dollars (or 5.8 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 17.19 MXN / USD to 20.00 MXN / USD.
  - Exchange rate decreases from 0.058 USD / MXN to 0.05 USD / MXN.

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?

$$8,440\ MXN \times \left(\frac{1\ USD}{17.19\ MXN}\right)$$

$$= 490.98\ USD$$

USD to MXN

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

How much does this cost in MXN?

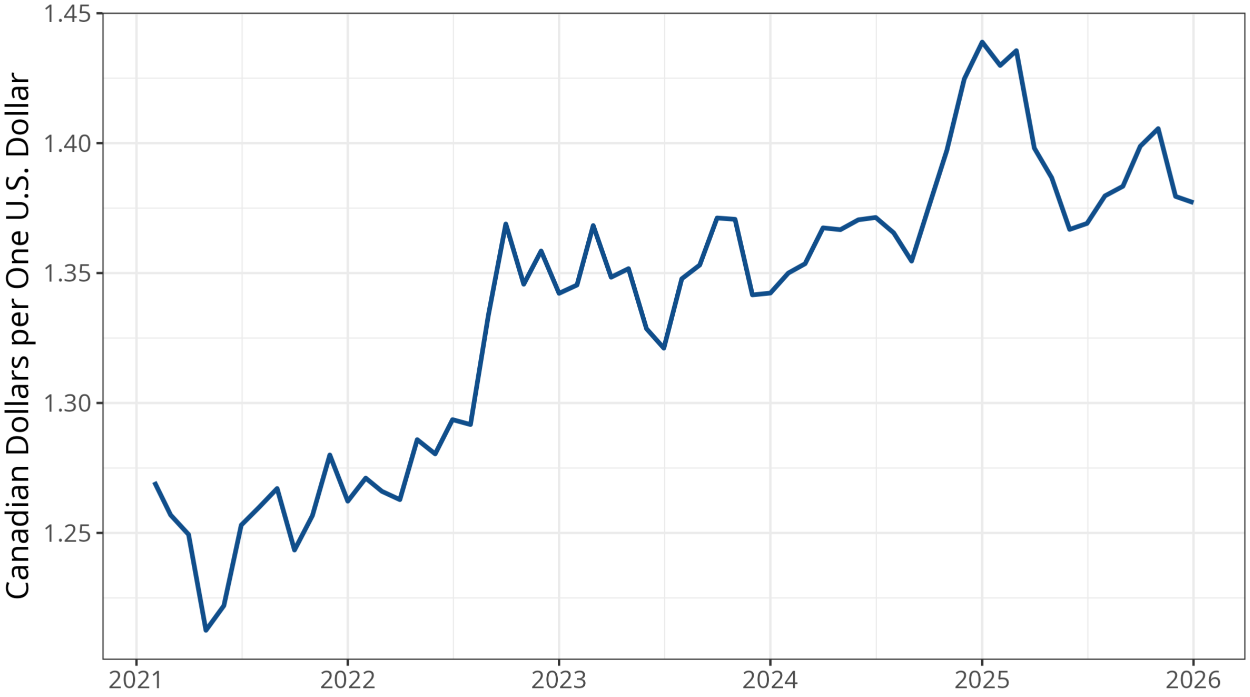
$$9,500\ USD \times \left(\frac{17.19\ MXN}{1\ USD}\right)$$

$$= 163,305\ MXN$$

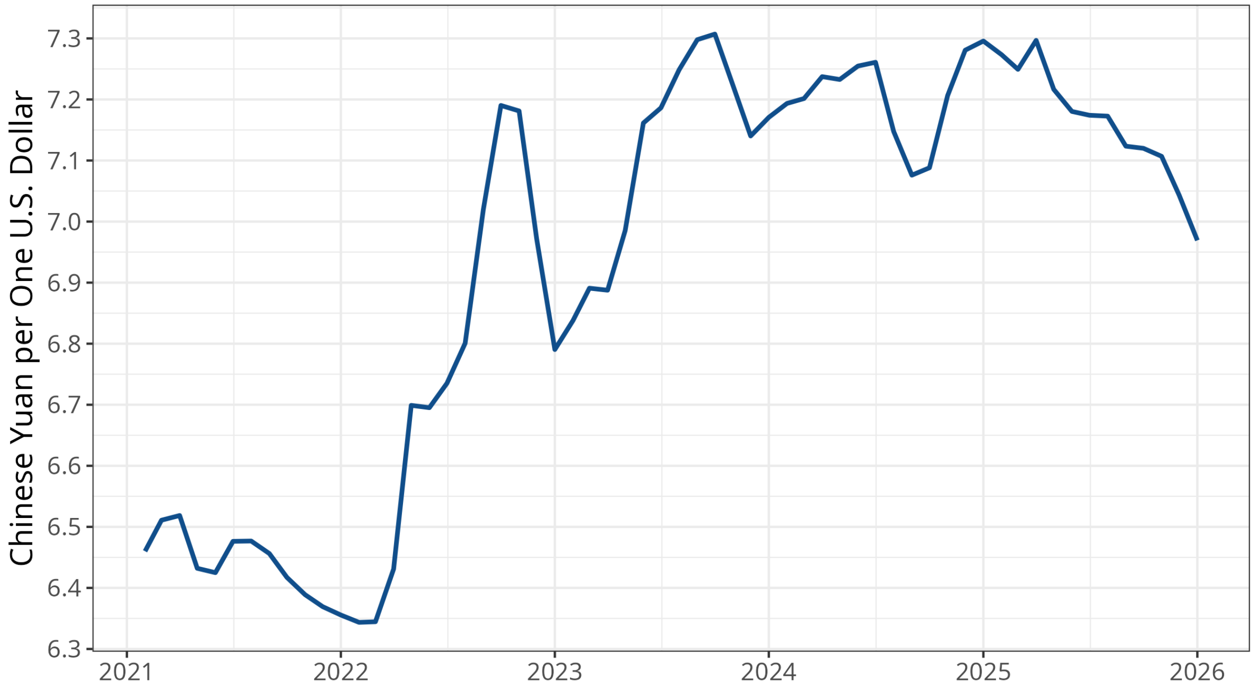
Mexican Pesos per U.S. Dollar

Australia: U.S. Dollars per Australian Dollar

Canada: Canadian Dollars per U.S. Dollar

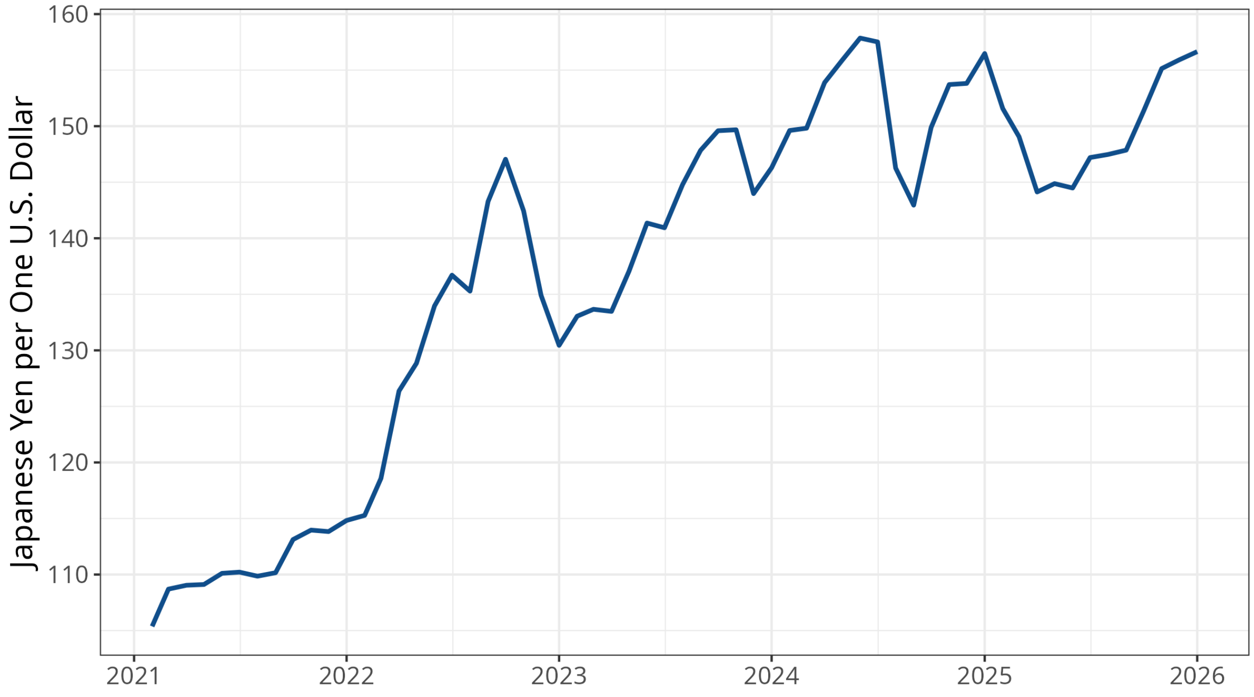


China: Chinese Yuan per U.S. Dollar



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.
  - Buyers in foreign countries will demand less of the country's goods.
  - Therefore, buyers in foreign countries will demand less of the country's currency to pay for those goods.

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

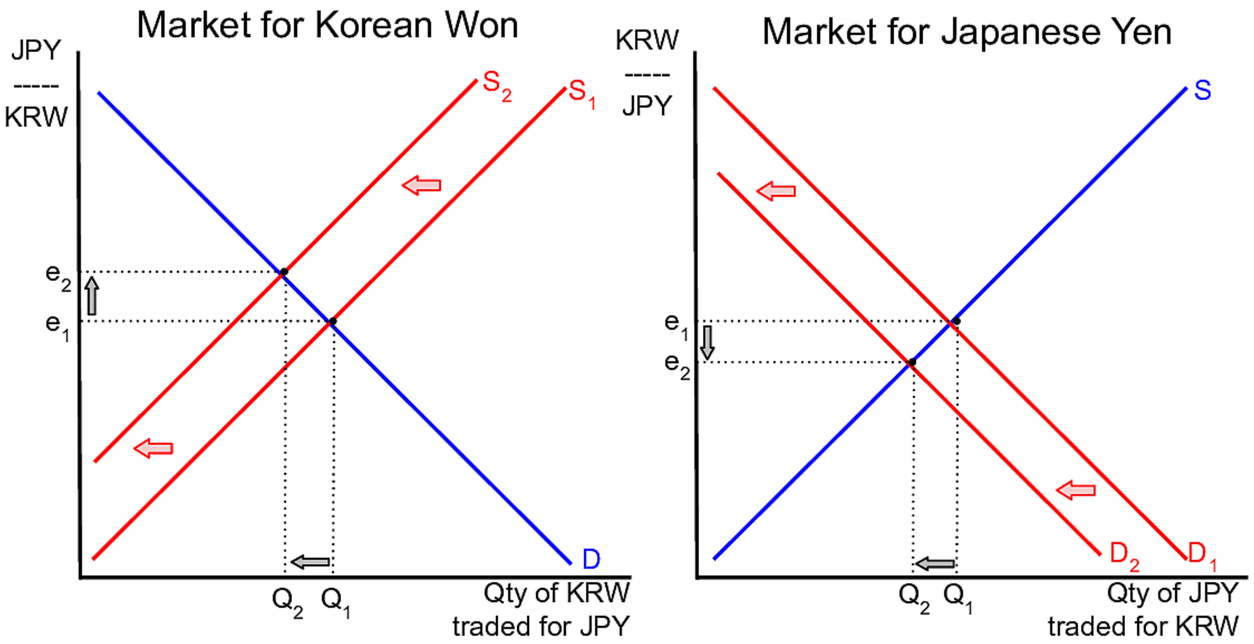
- When something *besides the exchange rate* influences the demand for a currency, then there is a *shift* in the demand.
- Determinants of demand for currency:
  - Changes in demand for country's products.
  - Changes in interest rate differential.
  - Expectations of future exchange rate.

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*.**

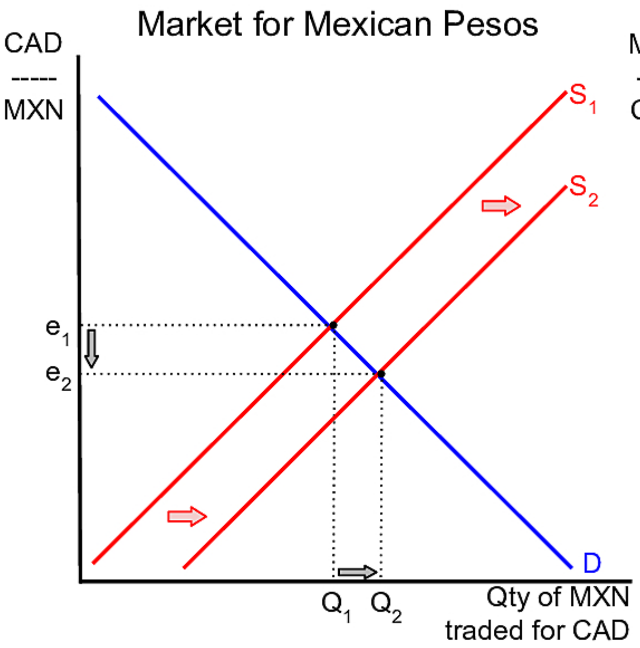
Example 1: Decrease in Income in Korea

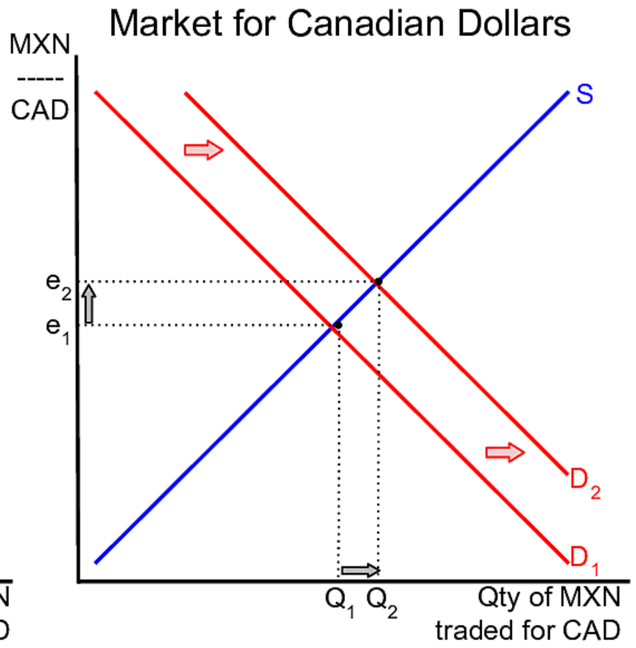
Japan and Korea are major trading partners. Suppose there is a decrease in incomes in Korea, leading to a decrease in demand for imported goods from Japan to Korea



Example 2: Reduction in Trade Restrictions

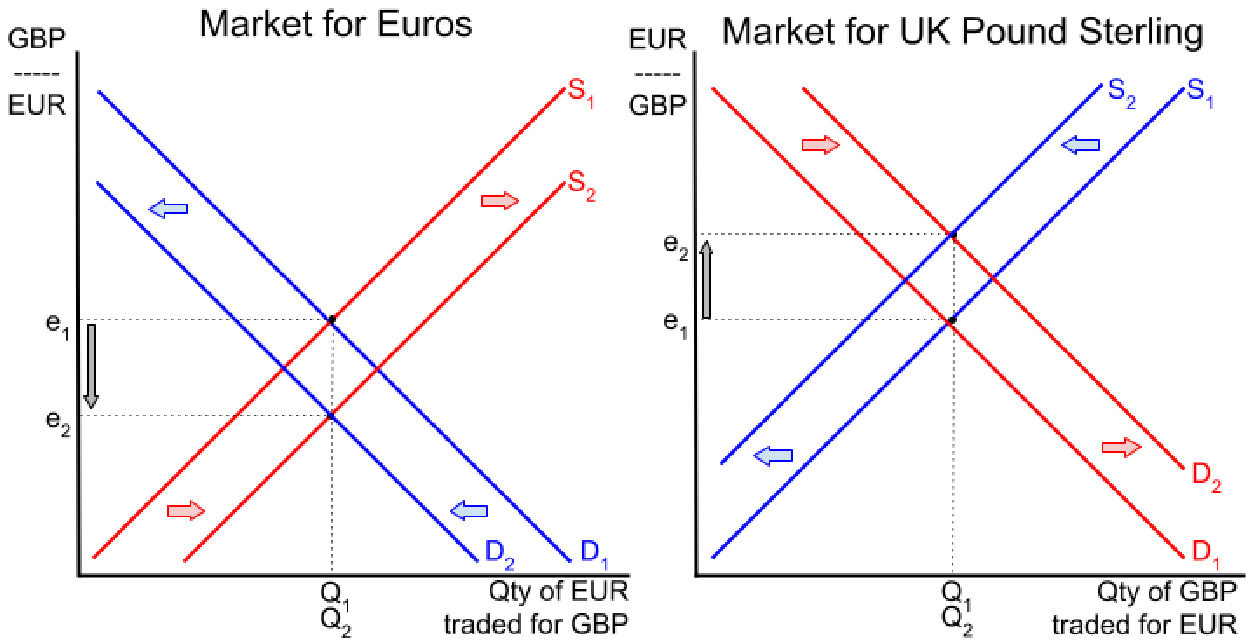
Suppose a trade agreement between Mexico and Canada results in a significant reduction in legal restrictions in Mexico, allowing more imports from Canada.





Example 3: Increase in U.K. Interest Rate

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



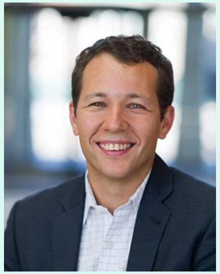
Spotlight: Oleg Itskhoki & Dmitry Mukhin

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 depreciation
- Sanctions that limit availability of imports into a country cause 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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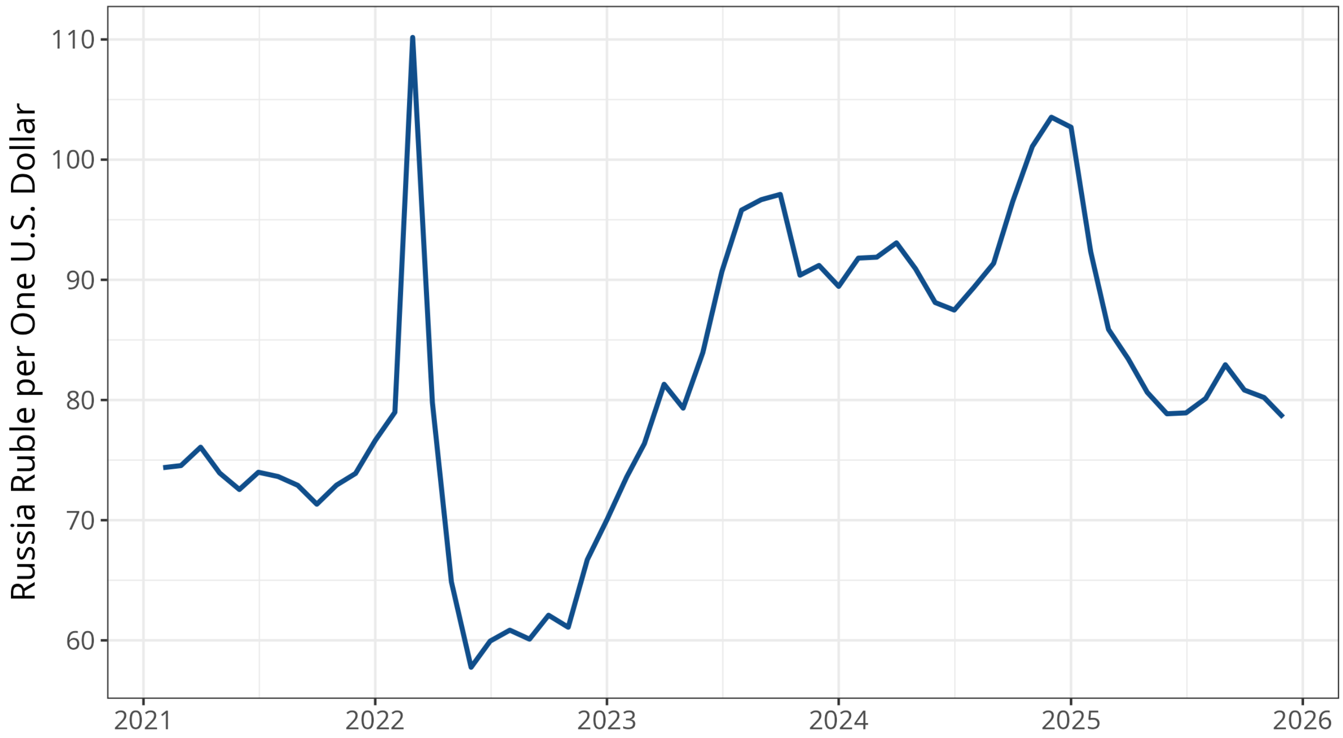
Russia: Russia Ruble per U.S. Dollars



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