



***Osher Lifelong Learning Institute, Fall 2022***  
**Contemporary Economic Policy**

Duke University  
September-October, 2022

National Economic Education Delegation

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**Available NEED Topics Include:**

- US Economy
- Healthcare Economics
- Climate Change
- Economic Inequality
- Economic Mobility
- Trade and Globalization
- Minimum Wages
- Immigration Economics
- Housing Policy
- Federal Budgets
- Federal Debt
- Black-White Wealth Gap
- Autonomous Vehicles
- US Social Policy

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## Course Outline

- **Contemporary Economic Policy**

- Week 1 (9/19): US Economy (Geoffrey Woglom, Amherst College)
- Week 2 (10/3): Trade and Globalization (Alan Deardorff, Univ. of Michigan)
- Week 3 (10/10): Economics of Immigration (Roger White, Whittier College)
- Week 4 (10/17): Autonomous Vehicles (Jon Haveman, NEED)
- **Week 5 (10/24): Trade Deficit and Exchange Rates (Alan Deardorff)**
- Week 6 (10/31): Cryptocurrencies (Geoffrey Woglom, Amherst College)



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## Submitting Questions

- **Please submit questions of clarification in the chat.**
  - I will try to handle them as they come up.
- **We will do a verbal Q&A once the material has been presented.**
- **OLLI allowing, we can stay beyond the end of class to have further discussion.**
- **Slides will be available from the NEED website tomorrow ([https://needelegation.org/delivered\\_presentations.php](https://needelegation.org/delivered_presentations.php))**



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## Trade Deficits and Exchange Rates

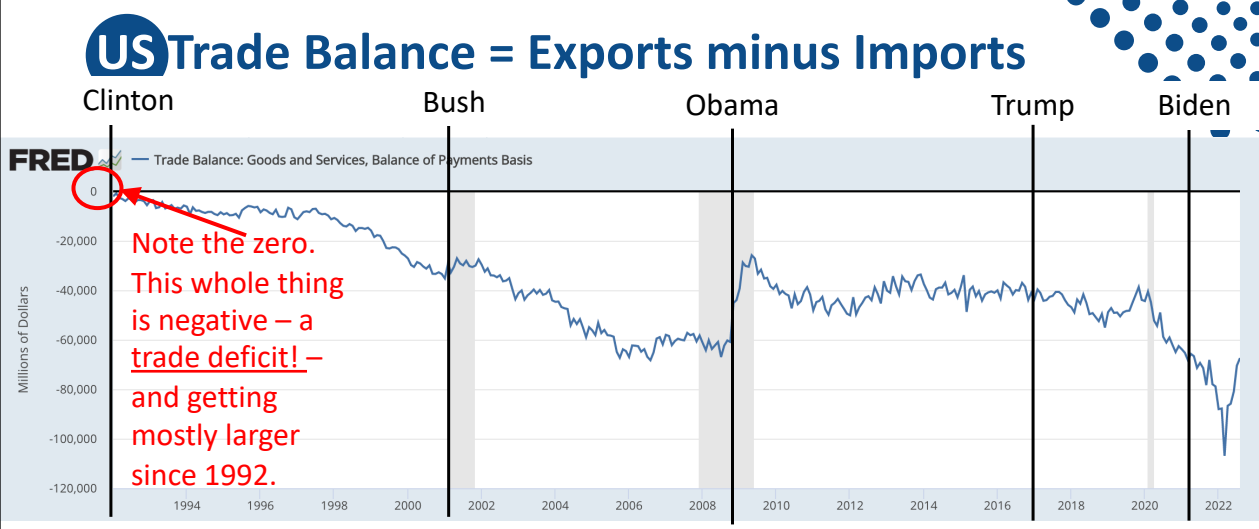
Alan Deardorff  
University of Michigan

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## US Trade Balance = Exports minus Imports



**FRED** — Trade Balance: Goods and Services, Balance of Payments Basis

Clinton Bush Obama Trump Biden

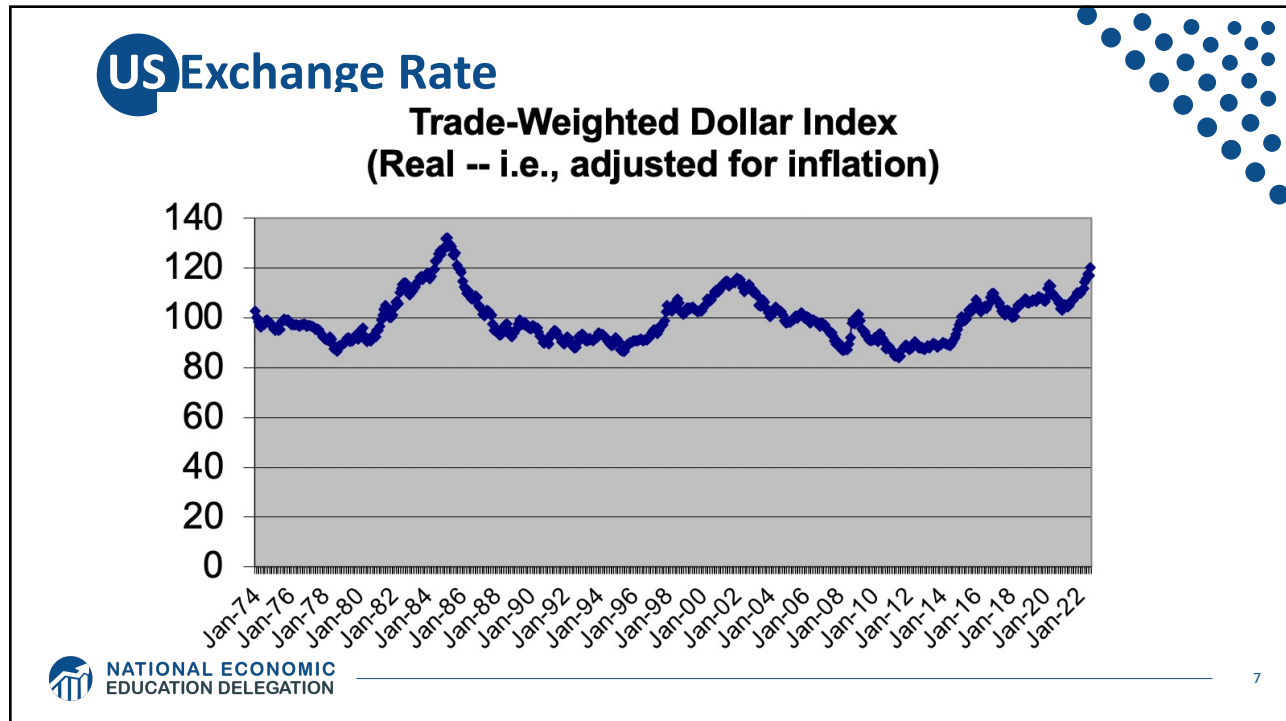
Millions of Dollars

Note the zero.  
This whole thing is negative – a trade deficit! – and getting mostly larger since 1992.

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## Outline

- **The trade deficit**
  - How it's defined
  - How it has changed over time, US and other
  - What it means and does not mean
- **Exchange rates**
  - What they are
  - How they are determined
  - How they have changed over time, US and other
  - How they matter
  - Currency manipulation (if time allows)

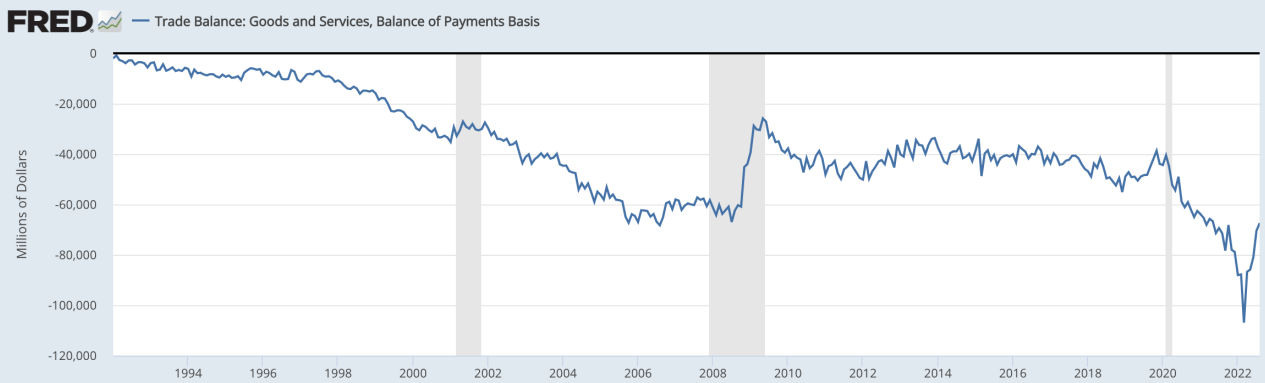
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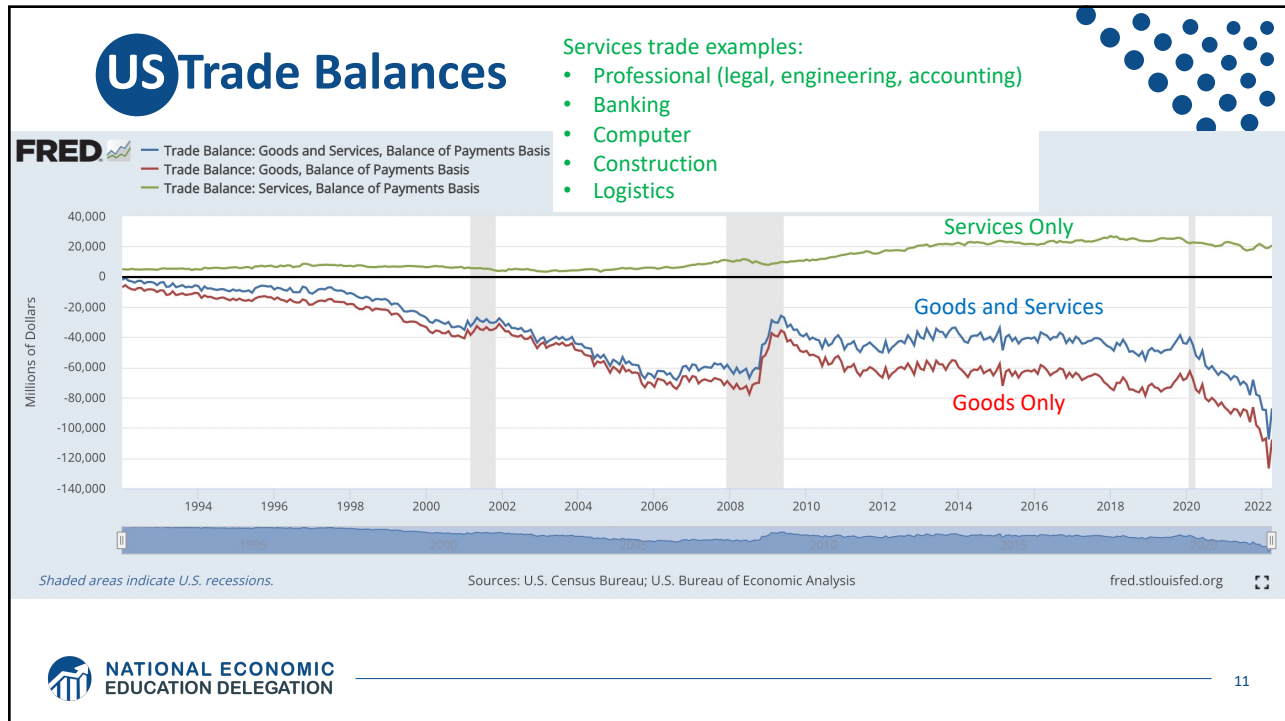
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# Trade Deficit

- **The trade balance**
  - Defined as Exports minus Imports,  $X-M$
  - May be reported for goods only, or for goods and services
- **When trade balance is negative, that's a trade deficit**
  - Thus trade deficit is Imports minus Exports,  $M-X$
- **The US:**
  - Has had a deficit for many decades
  - It has grown substantially in recent years
  - Has had a surplus for trade in services

# US Trade Balance: Goods and Services





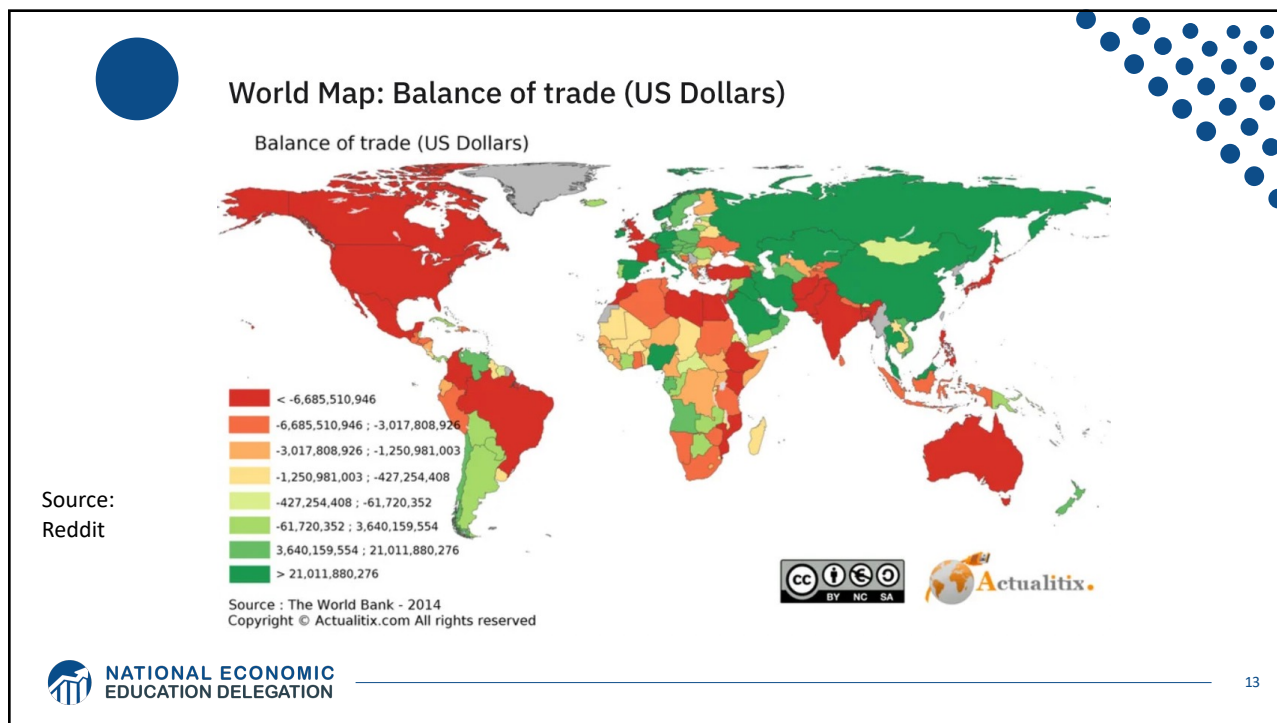
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## Trade Deficit

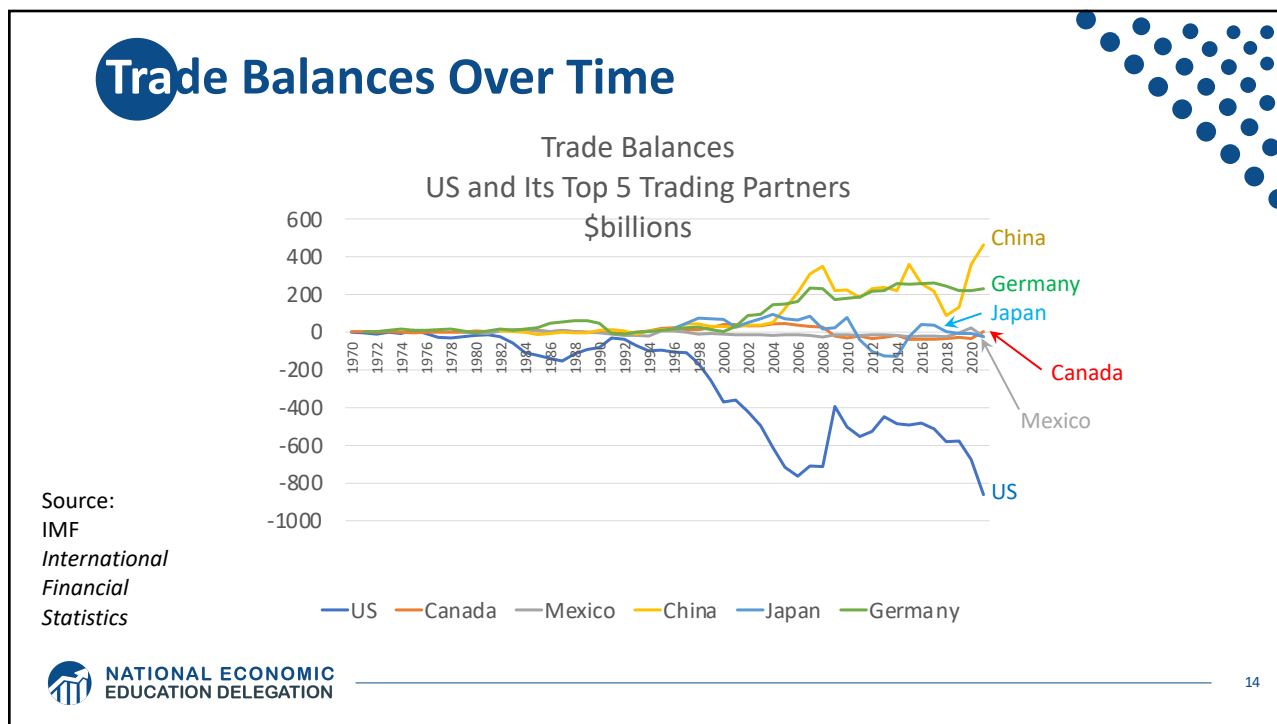
- **For the World as a Whole**
  - Since one country's imports are another's exports
    - ↳ The sum of all deficits and surpluses must be zero
- **Therefore US deficit implies rest of world has surplus**
- **But many countries have deficits**

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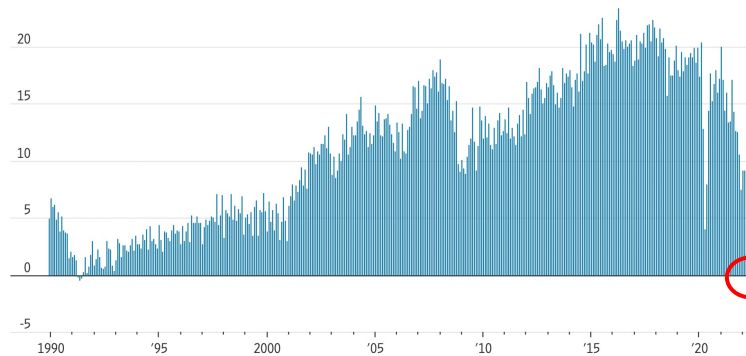
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## Trade Balances Over Time

But note the recent data for Germany:

German trade balance in goods

€25 billion



Negative for first time since 1991

Source:  
WSJ, 7/11/22

Note: Monthly data  
Source: Refinitiv



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## Trade Deficit

### • What a trade deficit means

- Imports > Exports
- The gap must be paid for somehow. By
  - o Capital inflows (borrowing, sale of stocks & bonds)
  - o Sale of property (real estate, companies)
  - o Gifts from foreigners (not relevant for US)
  - o Others willing to hold more of our currency (very relevant for US)
- What explains the gap? Look at GDP (Gross Domestic Product), which measures both production and income in a country:

$$GDP = C + I + G + X - M$$



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## What a Trade Deficit Means

Production →

$$\text{GDP} = C + I + G + X - M$$

Consumption  
= Household  
spending

→ C

Investment  
= Business  
spending on  
equipment  
and  
inventories  
(not inputs)

→ I

Government  
= Purchases by  
government at  
all levels


→ G

Exports

→ X

Imports  
(Subtracted  
because C, I,  
and G all  
include  
imports)

→ M



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## What a Trade Deficit Means

Income      Expenditure      Trade Balance


$$\overbrace{\text{GDP}}^{\text{Income}} = \overbrace{C + I + G}^{\text{Expenditure}} + \overbrace{X - M}^{\text{Trade Balance}}$$

OR:

Trade Balance      Income      Expenditure

$$\overbrace{X - M}^{\text{Trade Balance}} = \overbrace{\text{GDP}}^{\text{Income}} - \overbrace{(C + I + G)}^{\text{Expenditure}}$$

- **Therefore**
  - Trade Surplus = Income minus Expenditure
  - Trade Deficit = Expenditure minus Income
- **Running a trade deficit means we are spending more than our income**



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## What a Trade Deficit Means

- For another interpretation, subtract net taxes from both sides

$$T = \text{Net Taxes} = \text{Taxes} - \text{Transfers}$$

$$\text{GDP} - T = C + I + G - T + X - M$$

$$\underbrace{(\text{GDP} - T - C)}_{\text{Private Saving}} + \underbrace{(T - G)}_{\text{Gov't Saving}} - I = \underbrace{(X - M)}_{\text{Trade Balance}}$$

$$\underbrace{\hspace{10em}}_{\text{Total Saving}}$$

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**Trade Balance = Saving minus Investment**

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## What a Trade Deficit Means

Trade Balance = Saving minus Investment

- **Therefore**
  - If a country is saving more than needed to finance domestic investment, it will, by definition, run a trade surplus
  - If a country is saving less than needed to finance domestic investment, it will, by definition, run a trade deficit
- **That gap is also, as before, the difference between total income and total expenditure**
- **It therefore also appears as**
  - Net borrowing and lending
  - Plus net acquisition or sales of assets

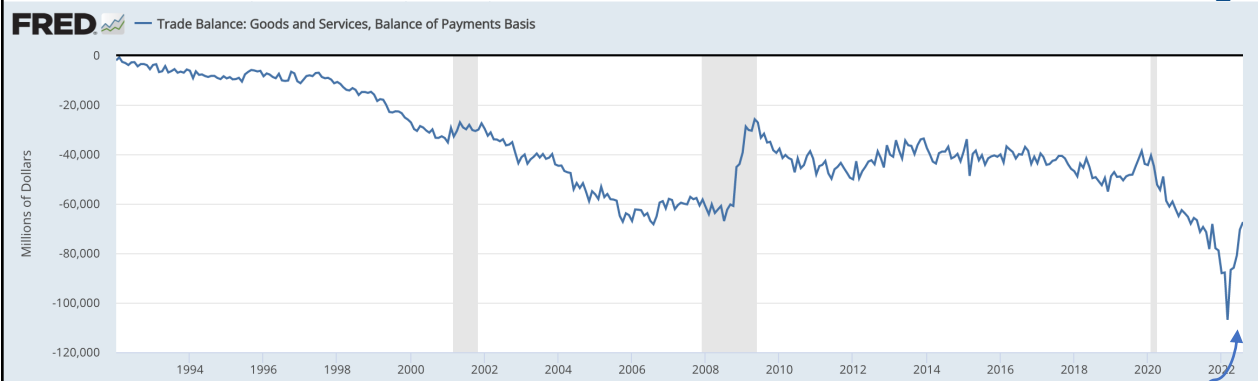
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## What a Trade Deficit Does NOT Mean

- **There are several very popular interpretations of trade deficits that are not valid, even though many politicians believe them:**
  - That foreign trade barriers are hurting our exports
  - That other countries are engaged in unfair trade
  - That our firms are not competitive
  - That we are losing jobs to other countries
  - That we need to restrict trade
- **To understand why these are wrong, think about whether they could change**
  - Expenditure relative to income, or
  - Saving relative to investment
- **Possible exception: If we are in recession and these may change income**
  - But note that trade deficit typically falls during recession, due to recession reducing expenditure

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## US Trade Balance: Goods and Services



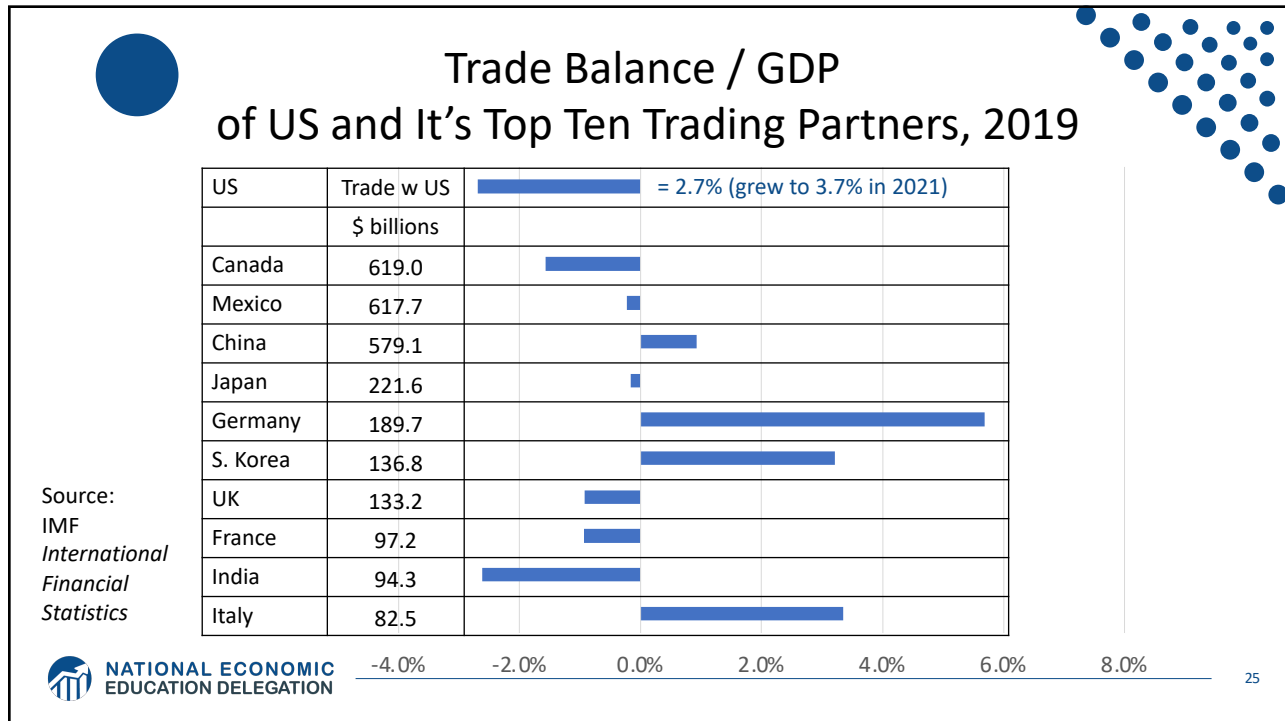
Note that we may be in a recession now.

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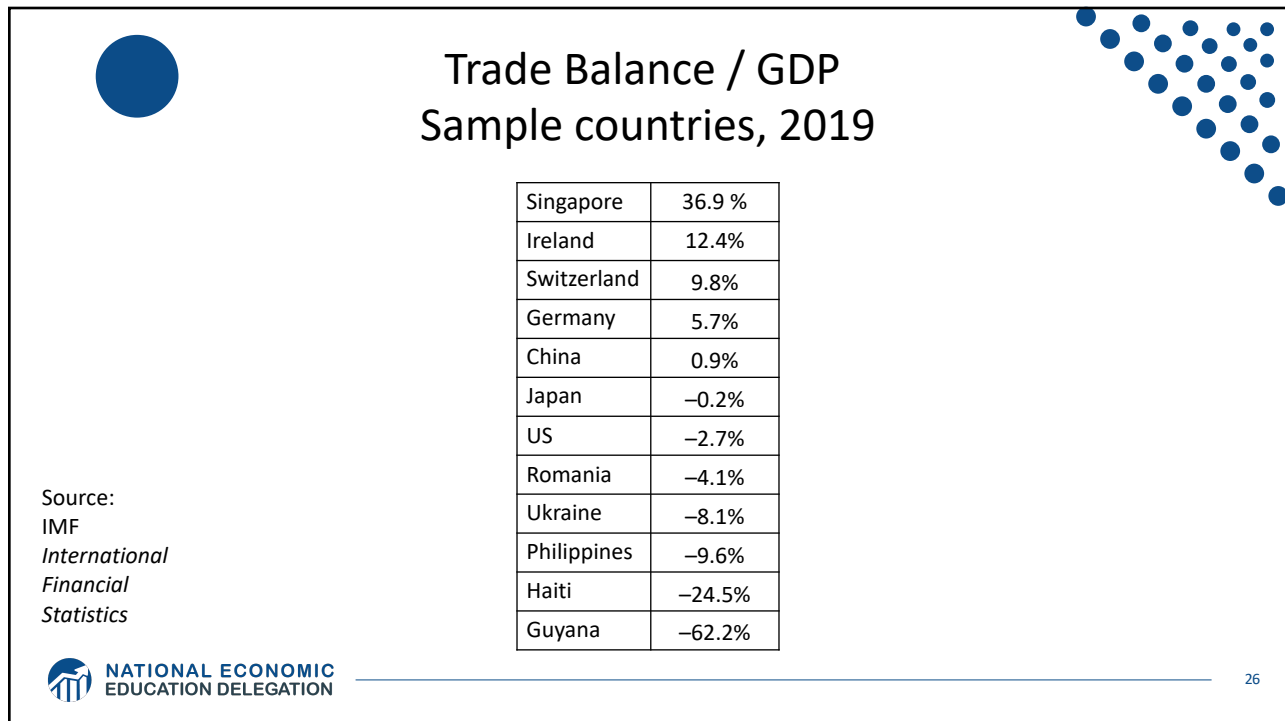
## US Trade Deficit

- **The US trade deficit means that the US is spending more than its income. How much?**
  - \$861 billion in 2021, according to the IMF
  - How does that compare to US GDP? GDP was \$23 trillion.
  - So US trade deficit was about 3.7% of US GDP
  - Collectively, we and our government are spending almost 4% above our income.
  - How does that compare to other countries?

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## US Trade Deficit

### • Is it a problem?

- Yes, if others are unwilling to lend to us or to hold our assets (& our money)
- But US, at least for now, has both a strong currency and a strong economy
  - o Others trust assets in the US more than others
  - o They also rely on US dollars for transactions and reserves
  - o We have an “Exorbitant Privilege” because of the US dollar’s role in the world economy (said by Valery Giscard d'Estaing in the 1960s) when most currencies were pegged to dollars, but still valid today)



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## US Trade Deficit

### • Is it a problem?

- It does mean that US net debt to foreigners grows every year.
- What if other countries decide to dump their dollar assets? Their value would plummet and they would lose. (But runs on currencies, like runs on banks, do happen.)
- US net international investment position recently reached  $-\$18$  trillion!



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## US Trade Deficit

- Is it a problem?
  - Yes, in my view, but not because it might hurt us. Because it takes advantage of others.
  - The US, one of the richest countries in the world, is
    - o Spending more than its income
    - o Being funded, in part, by much poorer countries
  - We are enjoying
    - o More goods and services than we produce
    - o Produced by often lower-wage and poorer workers abroad
    - o Without, at least in the foreseeable future, paying for them
  - That just feels wrong to me,
    - o Especially if others are financing us not by choice but because they have no other option.

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## US Trade Deficit

- **Could a trade deficit ever hurt us?**

- Yes, if we are in a recession.
- Then by demanding foreign goods and services instead of our own, we support jobs abroad instead of at home
- That is when using trade policy and/or exchange-rate policy to promote demand and higher employment at home seems to make sense.
  - But it helps us only at the expense of others, if they are also in recession
  - And it is likely to cause retaliation, cancelling all or more than any benefit



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## Trade Deficits and Exchange Rates

- **Do exchange rates matter for trade deficits?**

- Yes.
- If your currency falls in value, it makes
  - Exports cheaper
  - Imports more expensive
  - Lowers real income and therefore expenditure
  - Result: Trade balance "improves"
    - Deficit shrinks, or
    - Surplus grows
- Example: Volker policy in 1980-81
  - Raised US interest rates
    - ↳ Attracted capital from abroad
    - ↳ Caused the US dollar to rise in value by about 50%
    - ↳ Hurt US exports, helped imports, and increased the US trade deficit



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## Pause

- **Pause for**
  - Questions
  - 5-Minute Break
- **Next: Exchange Rates**



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## Exchange Rates

- **What they are**
  - The price of one currency in terms of another
  - Thus, for example
    - The number of dollars you pay for one euro:  $\$/\epsilon$
    - Or, the number of euros you'll get for one dollar:  $\epsilon/\$$
  - Rates reported in data are those between major banks
  - Rates you see in banks, stores, and currency exchanges will be worse for you
    - To cover cost and make profit for them



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## Exchange Rates

### • What they are

- Confusing! Hard to know what is up and what is down
  - o i.e., “The Japanese yen rose today from 95 to 90”
  - o Makes sense because the numbers are understood to be ¥/\$, not \$/¥, so the change from 95 to 90 is in fact a rise in the value of the yen
- Yen is reported that way because alternative would be
  - o “The Japanese yen rose today from \$0.0105 to \$0.0111”
- For currencies worth much less than \$1, scales often show currency/\$
  - o Graphs of rates over time may be drawn on an “inverted scale”
  - o Or “strength” may appear as drop on the graph

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## Russia’s Surprising Economic Headache: A Strong Ruble



Wall Street Journal  
June 29, 2022

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## Russia's rouble is now stronger than before the war

Rouble v US dollar



The Conversation  
June 13, 2022

TV

Trading View



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## What Determines Exchange Rates

- Exchange rates are determined in markets
- Thus they respond to changes in demand and supply



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## What Determines Exchange Rates

- **Main sources of demand for our country's currency**

Increases that cause our currency to rise (or "appreciate"):

- Exports, i.e., foreign purchases of our
  - o Goods
  - o Services
- "Capital inflows," i.e., foreign purchases of our
  - o Stocks
  - o Bonds
  - o Currency



## What Determines Exchange Rates

- **Main sources of supply of our country's currency**

Increases that cause our currency to fall (or "depreciate"):

- Imports, i.e., our purchases of foreign
  - o Goods
  - o Services
- "Capital outflows," i.e., our purchases of foreign
  - o Stocks
  - o Bonds



## What Determines Exchange Rates

- **Changes that cause our currency, the \$, to rise in value**
  - More US exports and/or less US imports
  - Rise in US interest rates and or fall in foreign interest rates
  - New expectation that dollar will rise
    - Causes wealth holders to buy more of \$ assets
  - Central banks choose to hold more \$ in reserves
- **Opposites of above cause the \$ to fall**



## What Determines Exchange Rates

- **Historic Roles of Governments and Central Banks**
  - Define the value of currency in terms of gold or silver
    - The Gold Standard of the 19<sup>th</sup> and early 20<sup>th</sup> century
  - Intervene in markets to “peg” their currency to another
    - The Dollar Standard of 1945-1973
      - Most currencies were pegged to the US \$
      - Other central Banks bought and sold dollars to achieve this.
  - Let major currencies “float” since 1973
    - Many weaker countries still intervene in markets, buying or selling to
      - Peg to another currency
      - Reduce currency fluctuations
    - A few intervene in markets to “manipulate” their currencies
      - Reduce their value to encourage exports

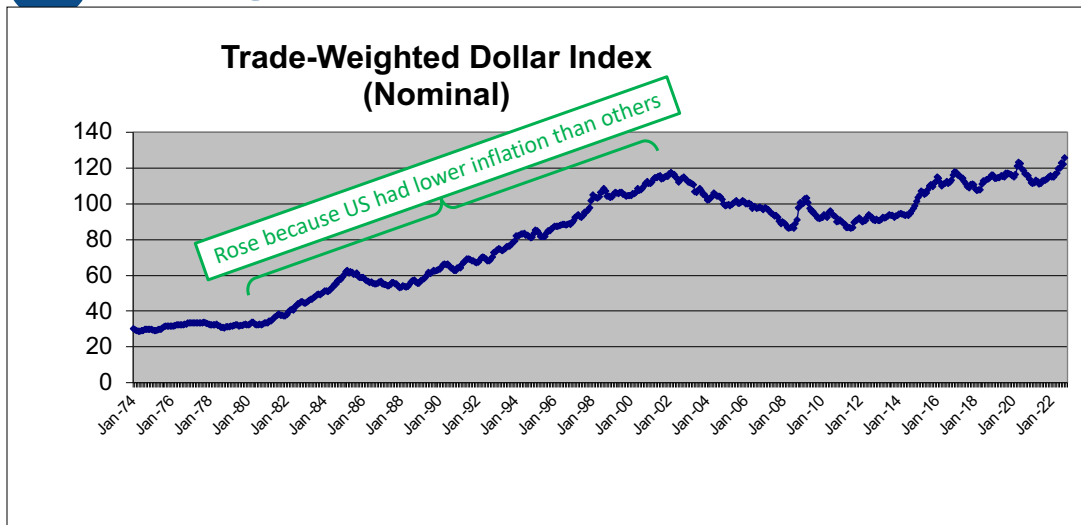


# How Have Exchange Rates Changed

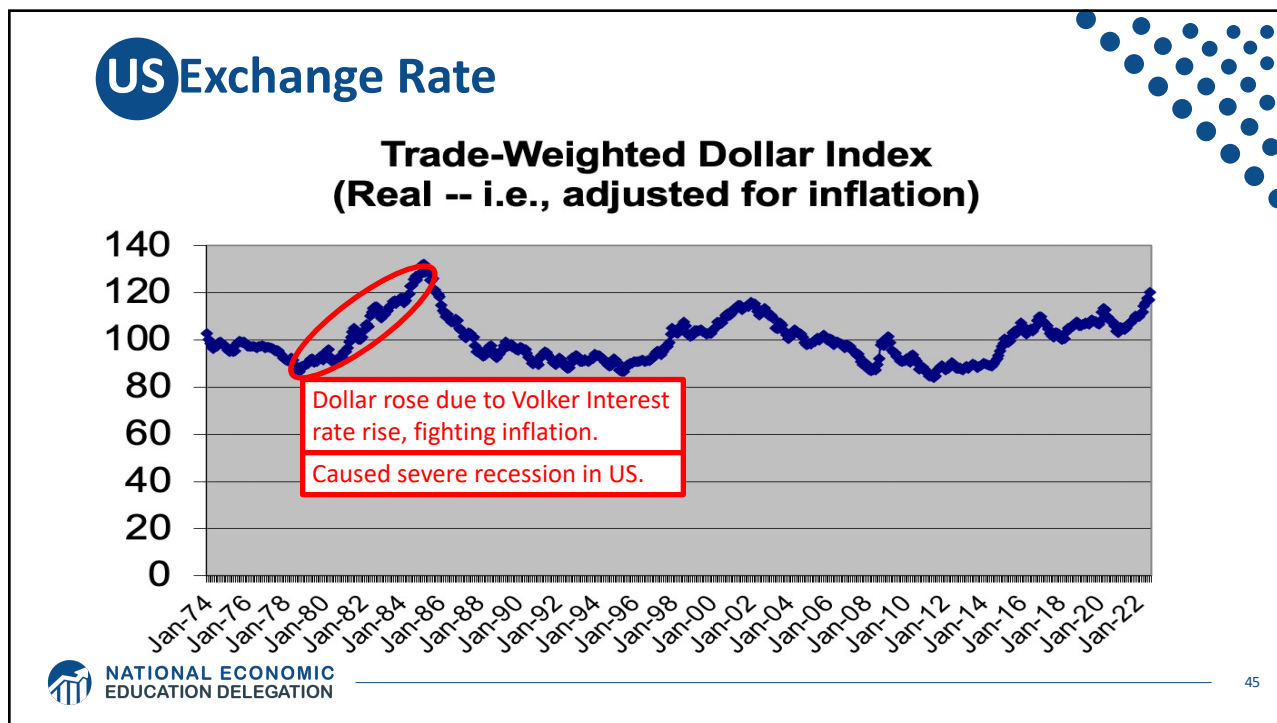
- We'll look at
  - US dollar
  - France, Germany, Italy, and Euro Area's euro
  - Canadian dollar
  - Mexican peso
  - British pound
  - Japanese yen
  - Chinese renminbi

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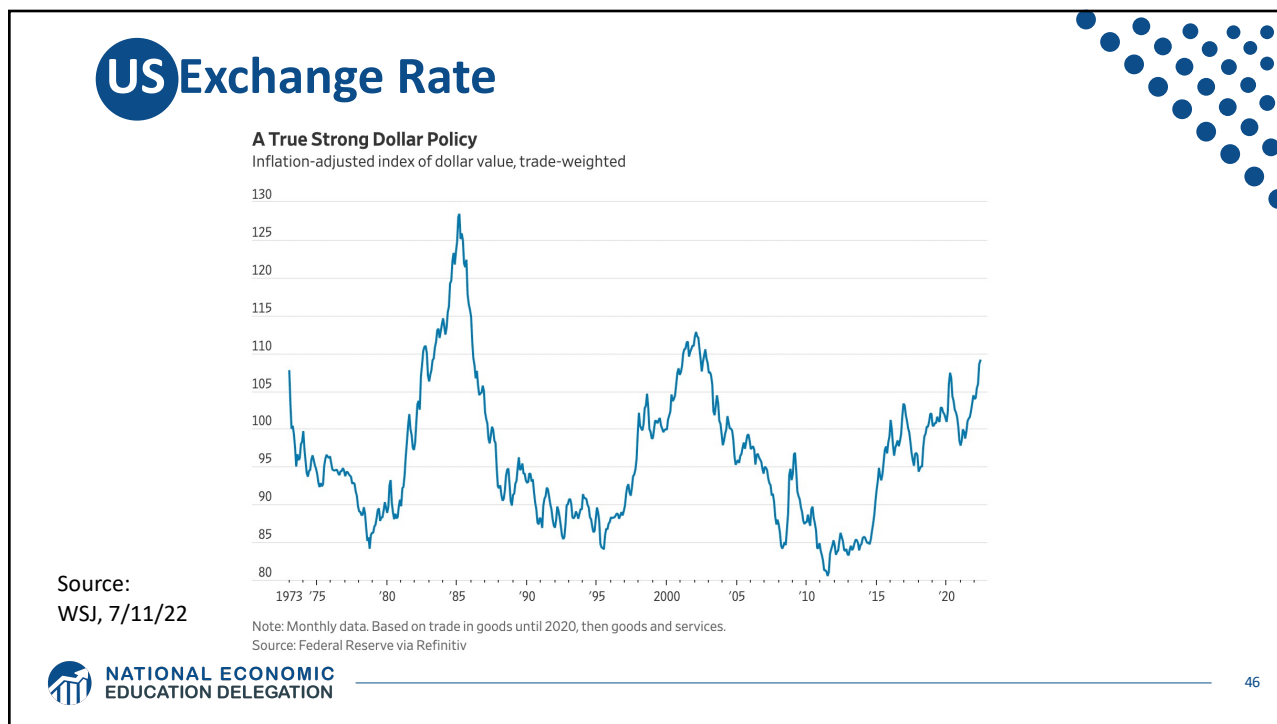
# US Exchange Rate



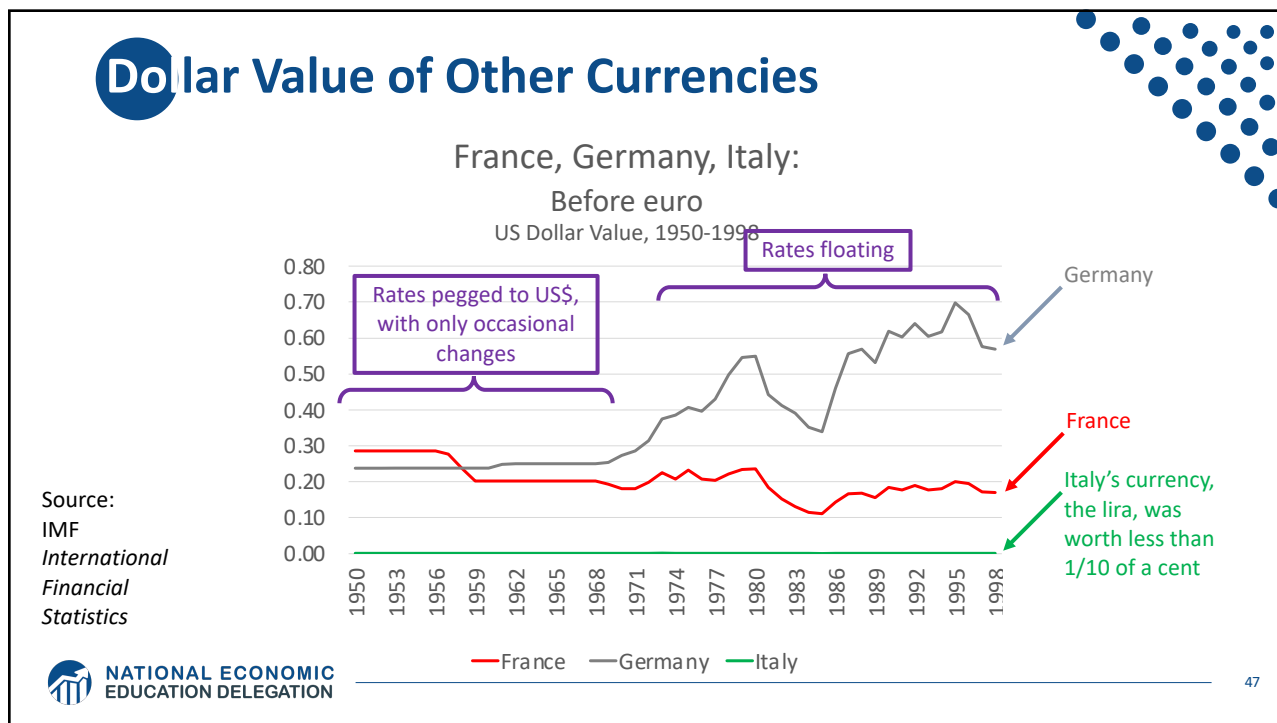
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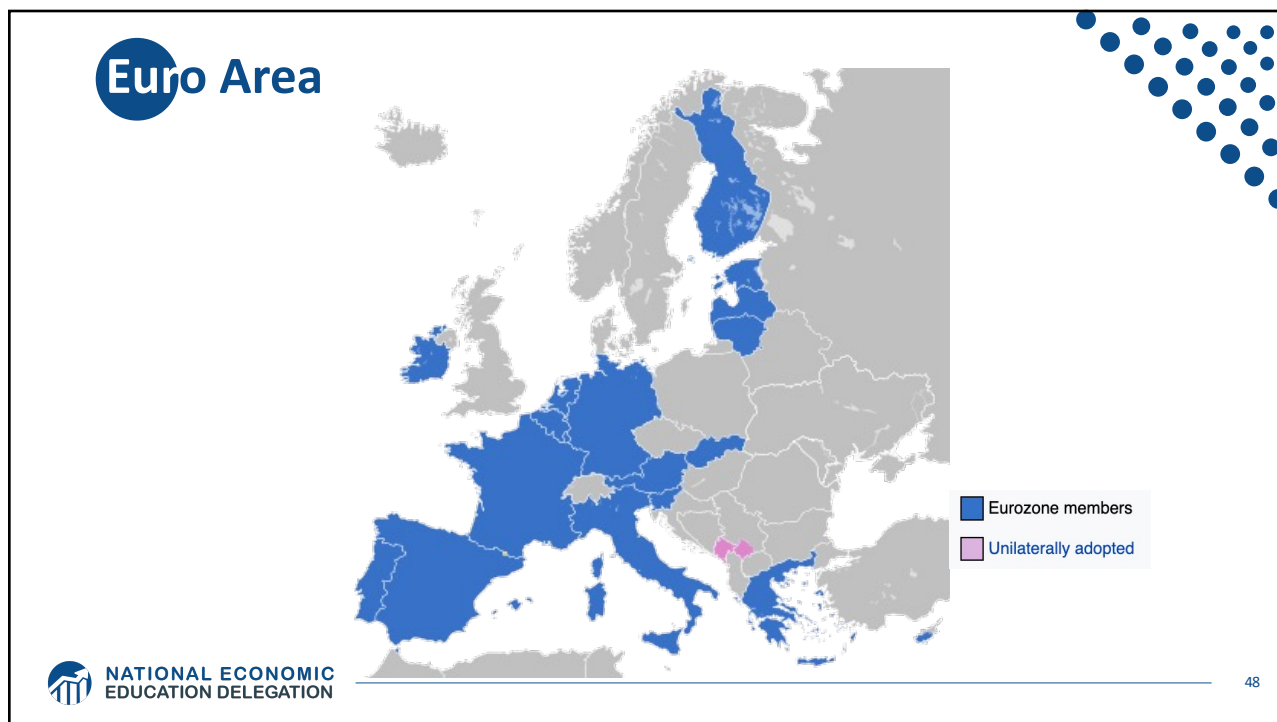
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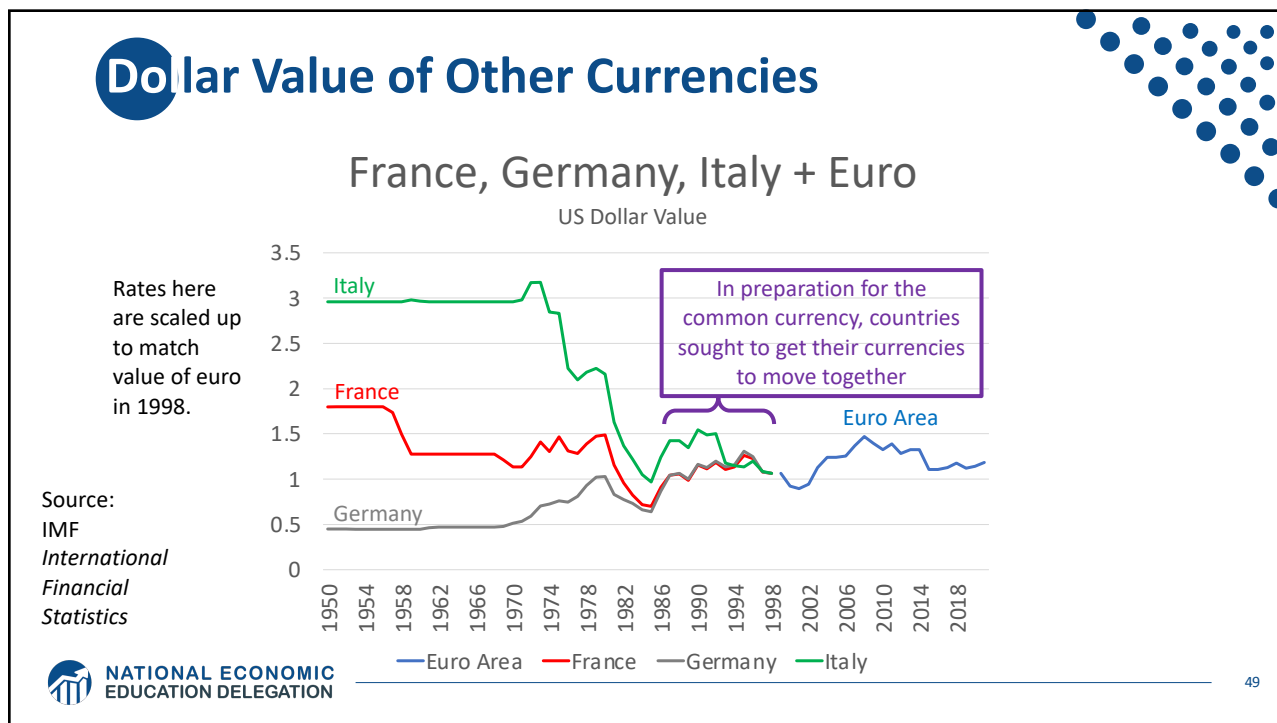


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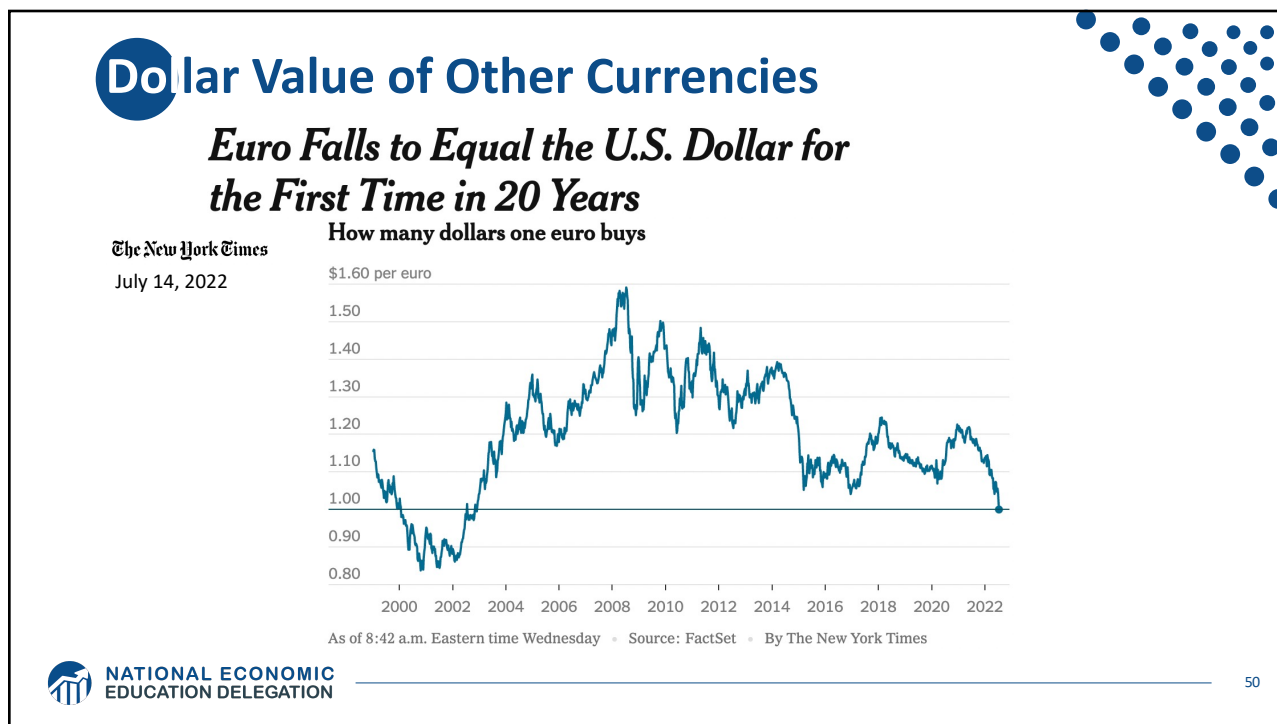


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# Dollar Value of Other Currencies

Euro

X-rates.com  
Oct 22, 2022



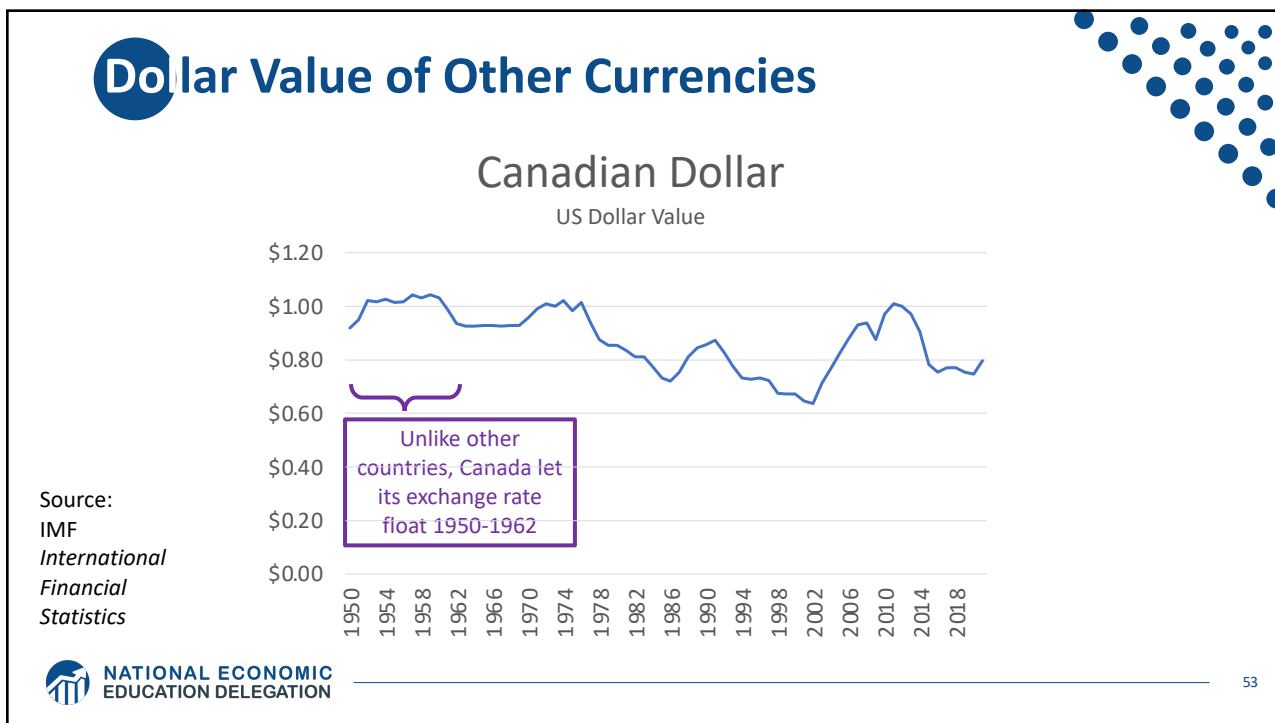
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# Dollar Value of Other Currencies

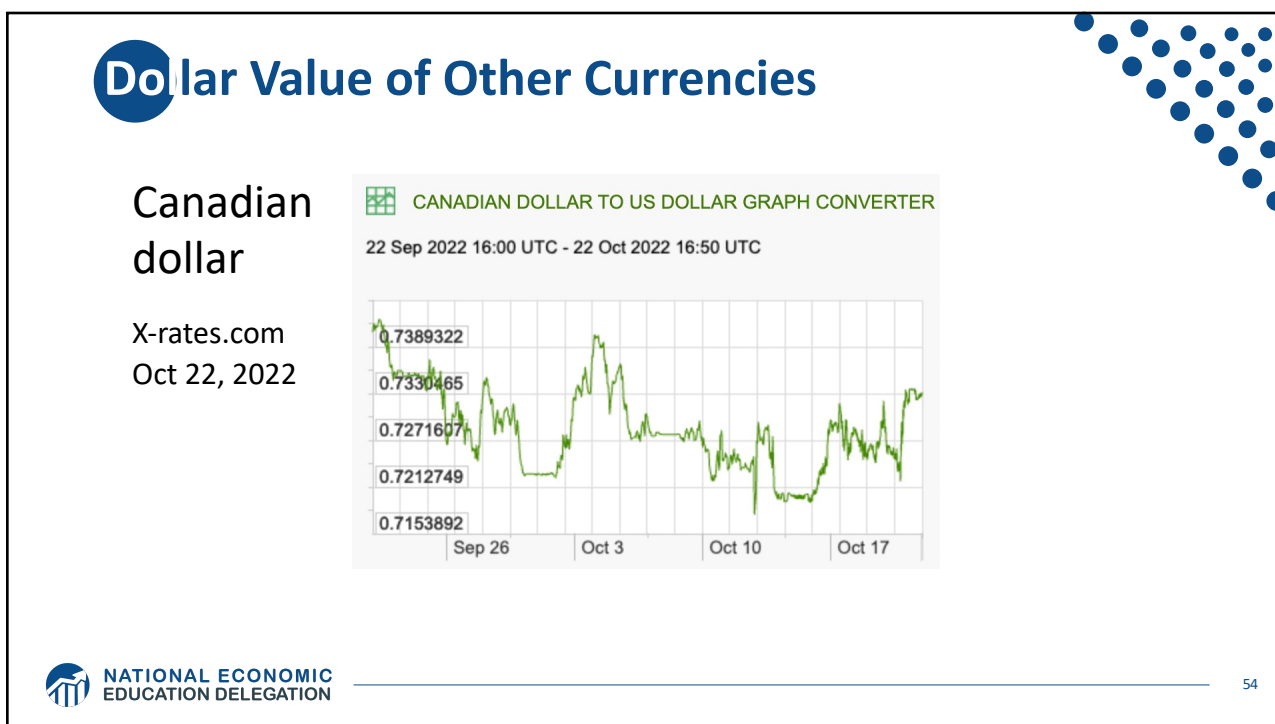
## Percentage change of select currencies versus dollar



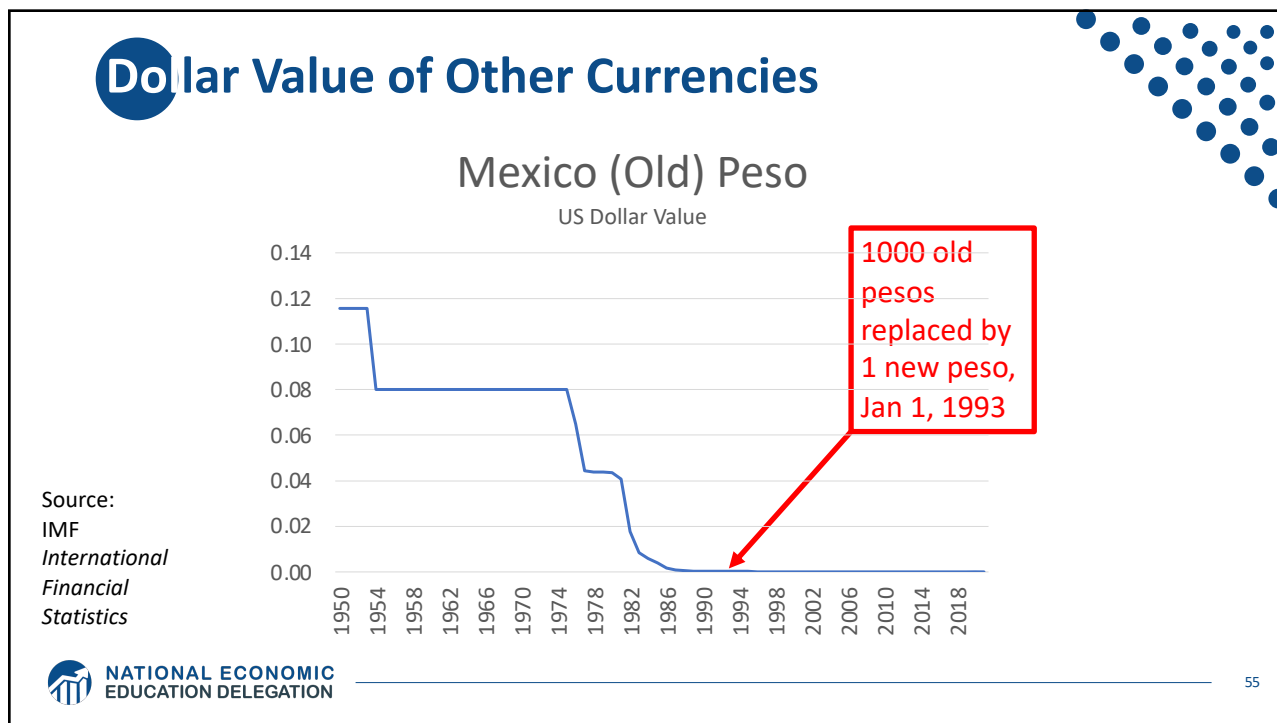
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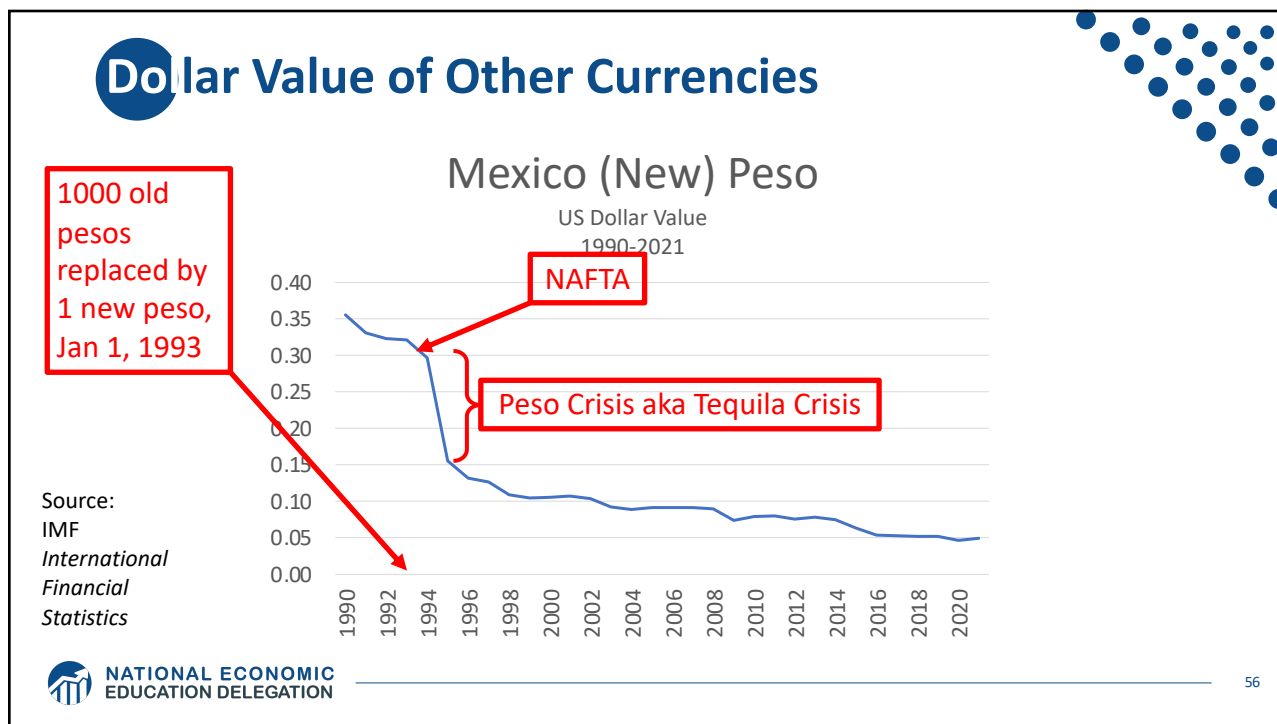
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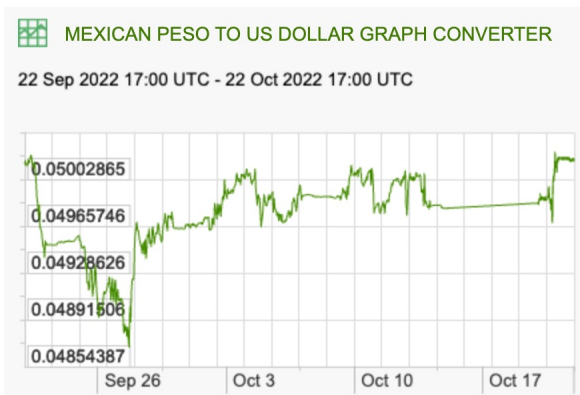


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## Dollar Value of Other Currencies

Mexican peso

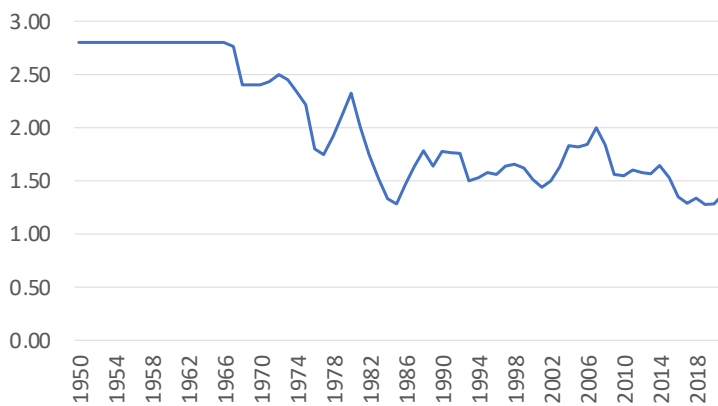
X-rates.com  
Oct 22, 2022



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## Dollar Value of Other Currencies

United Kingdom: pound £  
US Dollar Value



Source:  
IMF  
*International  
Financial  
Statistics*

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## Dollar Value of Other Currencies

UK  
pound

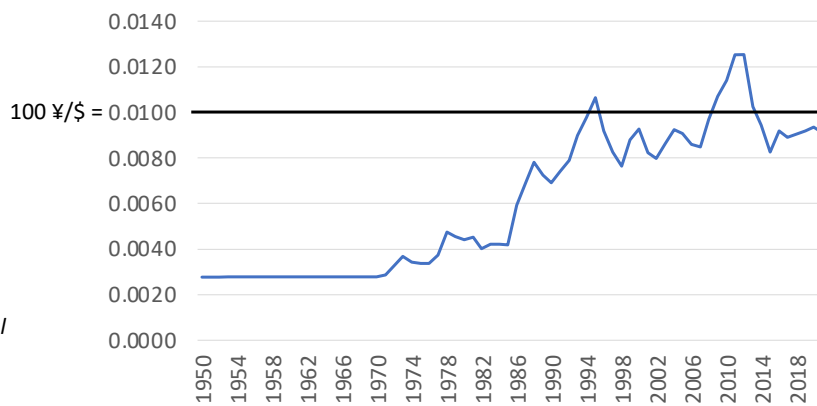
X-rates.com  
Oct 22, 2022



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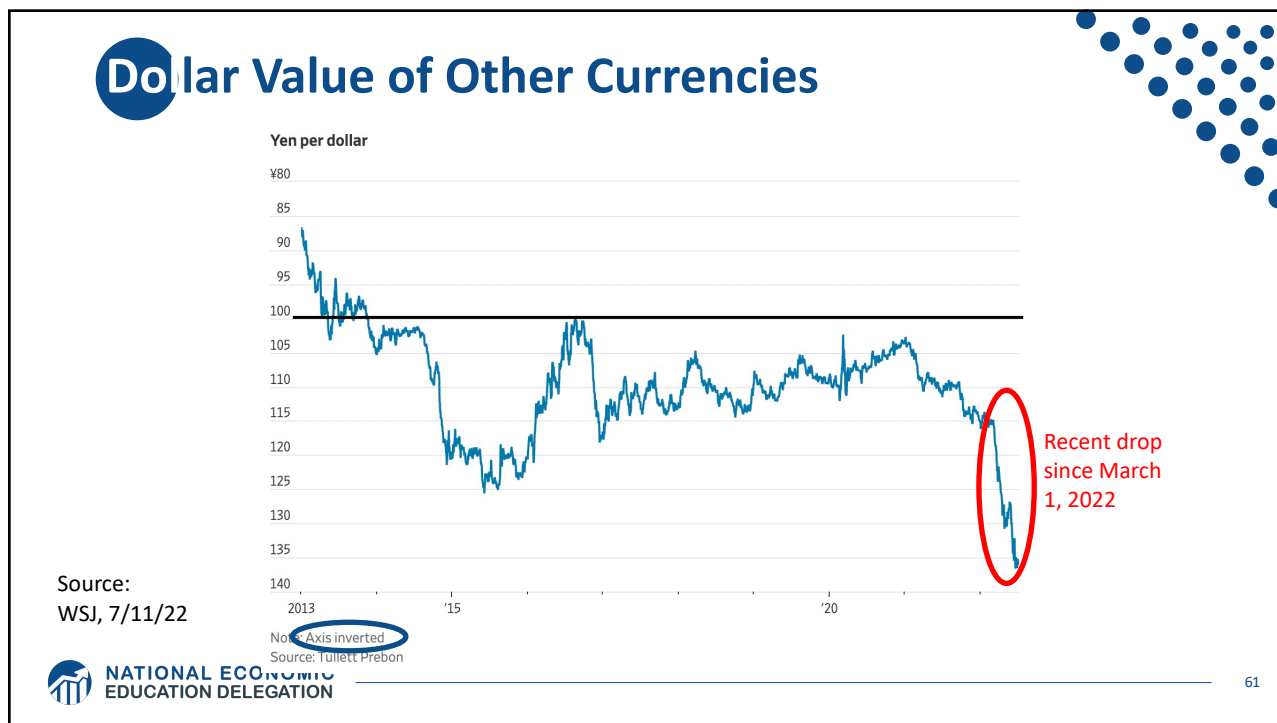
## Dollar Value of Other Currencies

Japan: yen ¥  
US Dollar Value

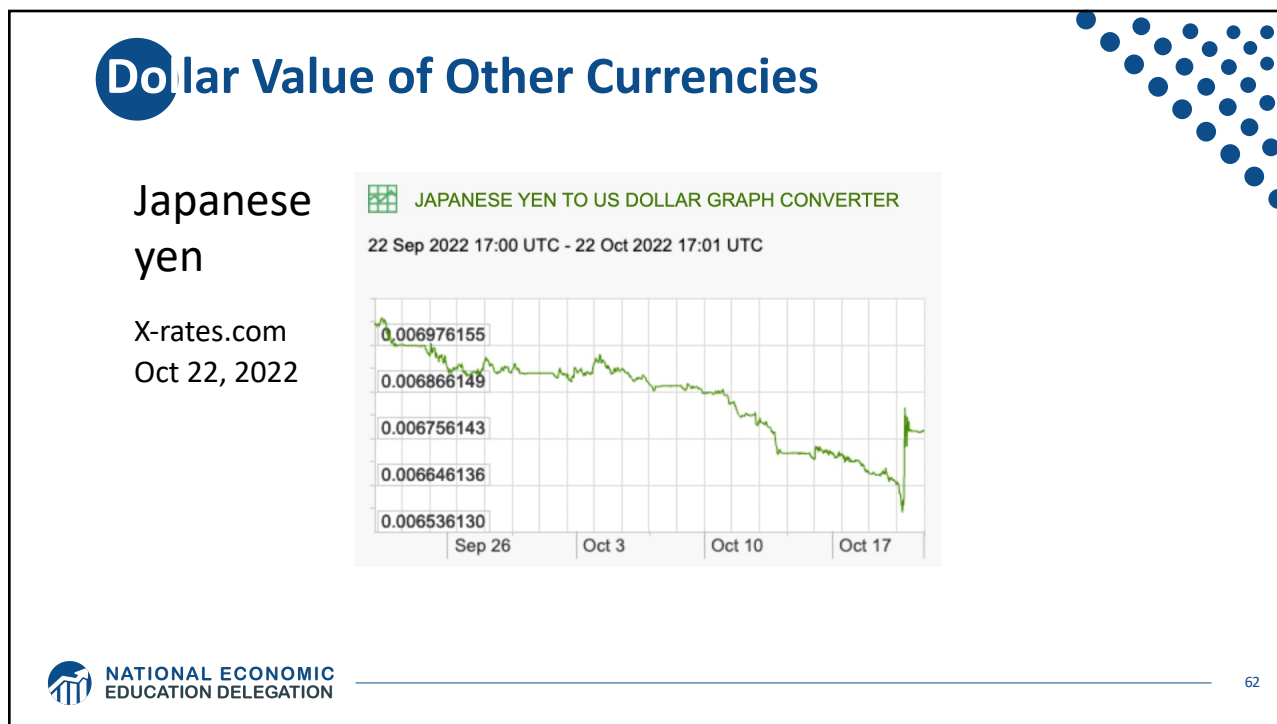


Source:  
IMF  
*International  
Financial  
Statistics*

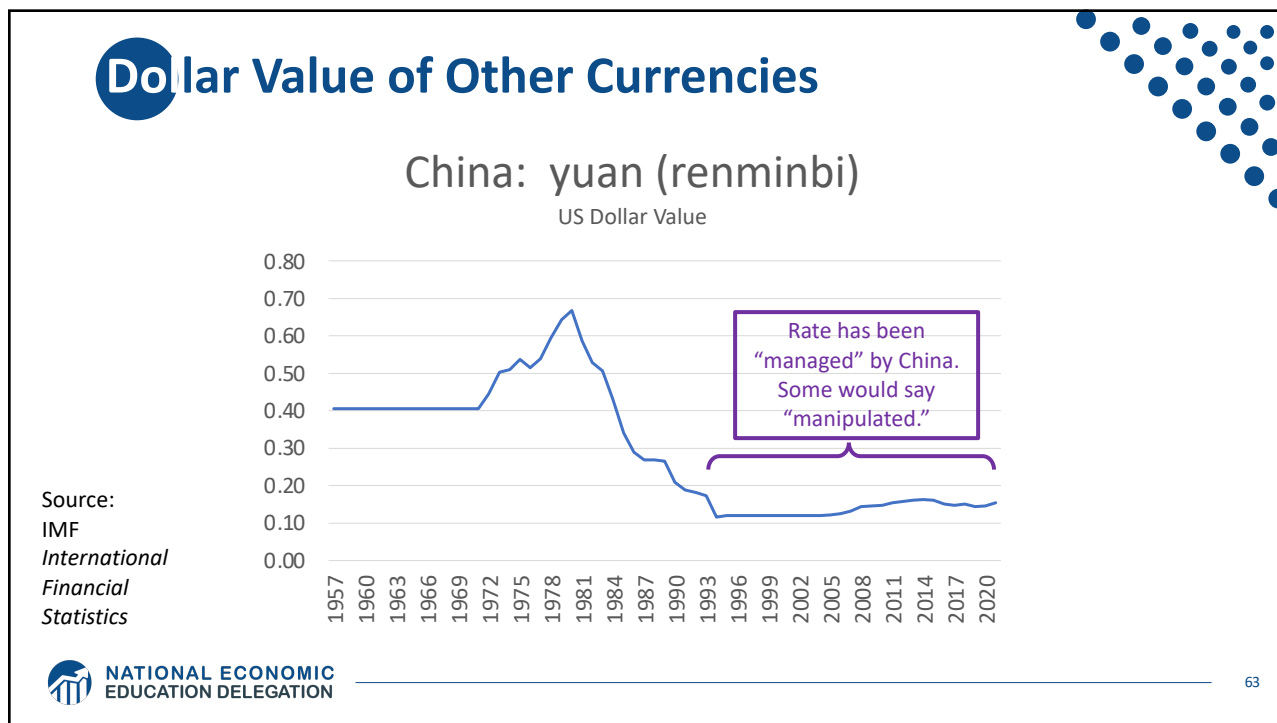
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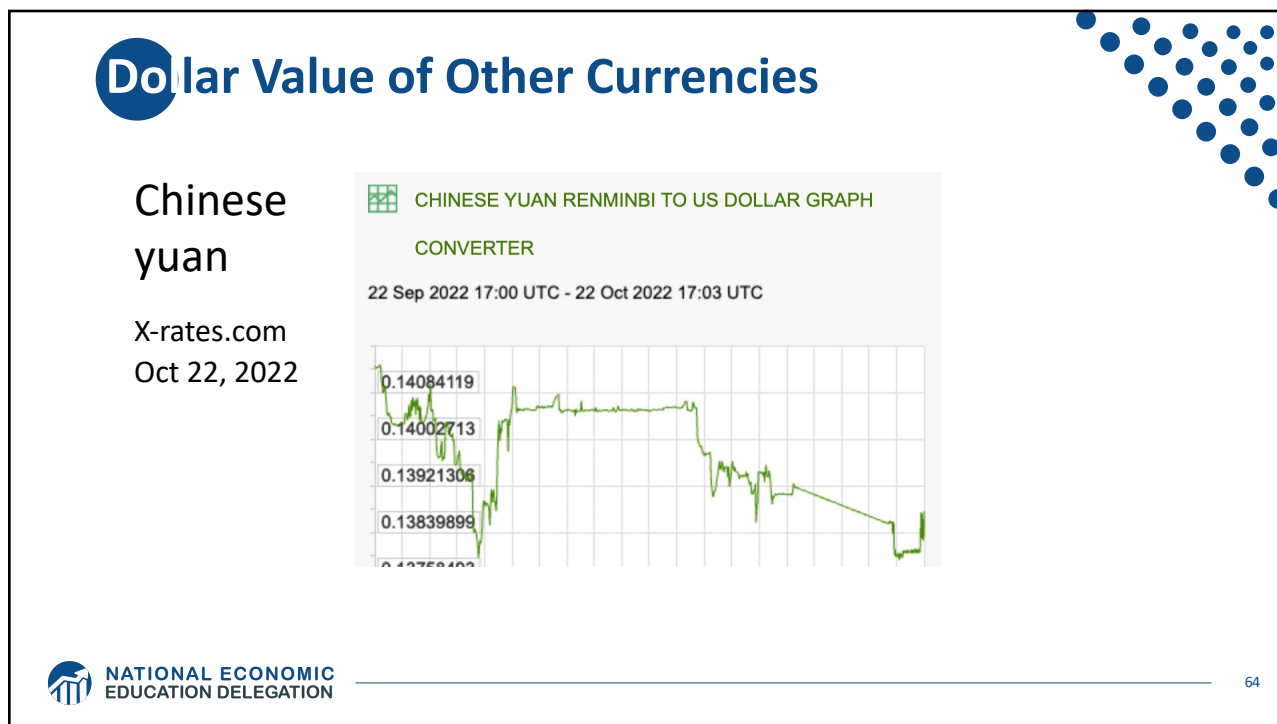
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## How Exchange Rates Matter

### • Effects of an exchange rate depreciation

- (fall in value of the country's currency)
- Trade
  - Exports become less expensive and quantity likely rises
  - Imports become more expensive and quantity likely falls
  - Trade balance likely improves (surplus ↗ or deficit ↘)
- Macroeconomic
  - Raises domestic prices of imports and thus inflation
  - If at full employment, real income falls, causing less spending
  - If in recession, increased demand for products increases employment



## How Exchange Rates Matter

### • More effects of an exchange rate depreciation

- (fall in value of the country's currency)
- Domestic value of foreign assets and debts rises
  - Net creditors gain, net debtors lose
    - Effect on interest/dividend payments is opposite
  - Those who have borrowed abroad to finance investment at home lose
    - May go bankrupt

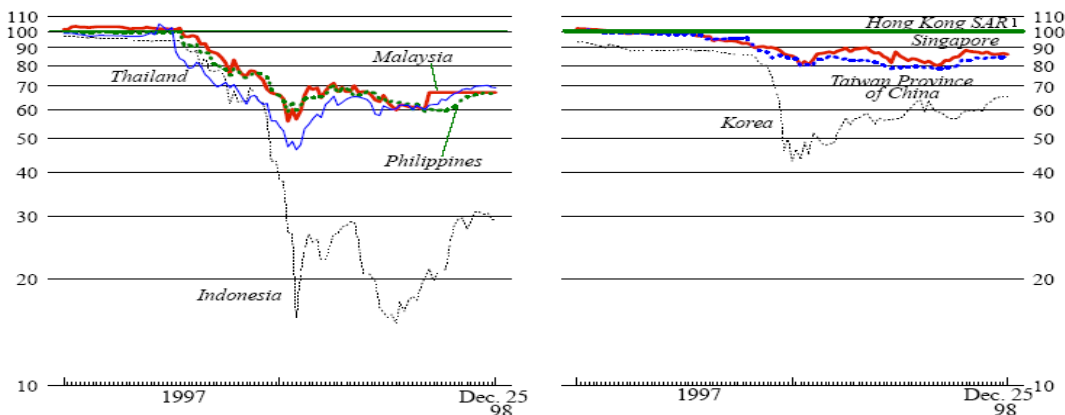
### • Effects of expectation of exchange rate depreciation

- Holders of assets in domestic currency try to sell and move abroad
  - ↳ This speculative attack causes greater depreciation
- Example from 1997 Asian Crisis



# The Asian Crisis of 1997

Bilateral U.S. Dollar Exchange Rates

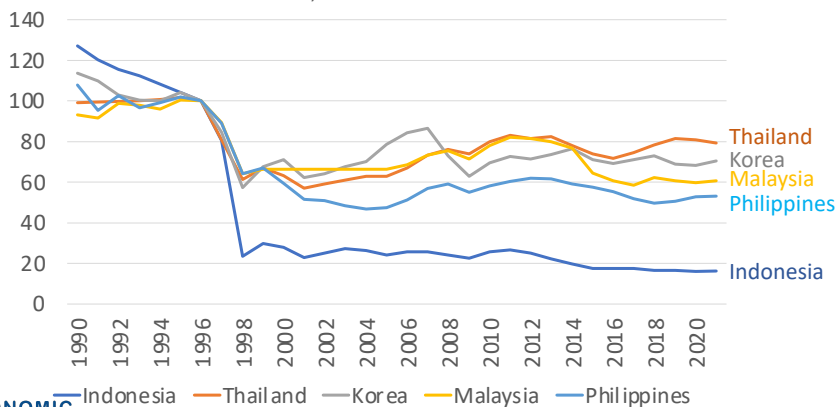


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# The Asian Crisis of 1997

## Asian Crisis 1997 Countries

Indonesia, Korea, Malaysia, Philippines, Thailand  
US dollar values, scaled to 100 in 1996



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## Currency Manipulation

### • Currency Manipulation

- Defined as
  - Intervention in the exchange market by Central Bank or Government
  - In order to push down, or keep down, the value of the currency
- Presumed purposes: To...
  - Increase exports
  - “Gain unfair advantage” in international trade and competitiveness
  - Stimulate the domestic economy
  - Accumulate foreign assets



## Currency Manipulation

### • US Definition of Currency Manipulation

- US Treasury issues report on currency manipulation twice each year
- Criteria for manipulation
  1. Persistent net official purchases of foreign currency  
(more than 2 percent of GDP)
  2. A material trade (current account) surplus  
(more than 2 percent of GDP)
  3. A significant bilateral trade surplus with the United States  
(more than \$20 billion per year)



# Currency Manipulation

## • US Treasury Report June 10, 2022

- “No major U.S. trading partner during 2021 manipulated the rate of exchange between its currency and the U.S. dollar for purposes of preventing effective balance of payments adjustments or gaining unfair competitive advantage in international trade.”

“Switzerland meets all three criteria ... over the four quarters through December 2021, and therefore Treasury is conducting enhanced analysis of Switzerland’s macroeconomic and exchange rate policies in this Report.

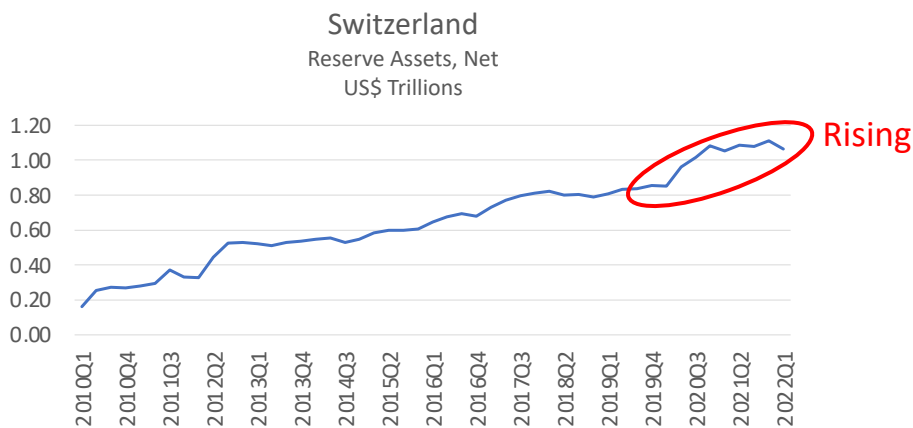
- 12 economies are on “Monitoring List”: China, Japan, Korea, Germany, Italy, India, Malaysia, Singapore, Thailand, Taiwan, Vietnam, and Mexico

## • Look at data for two: Switzerland and China

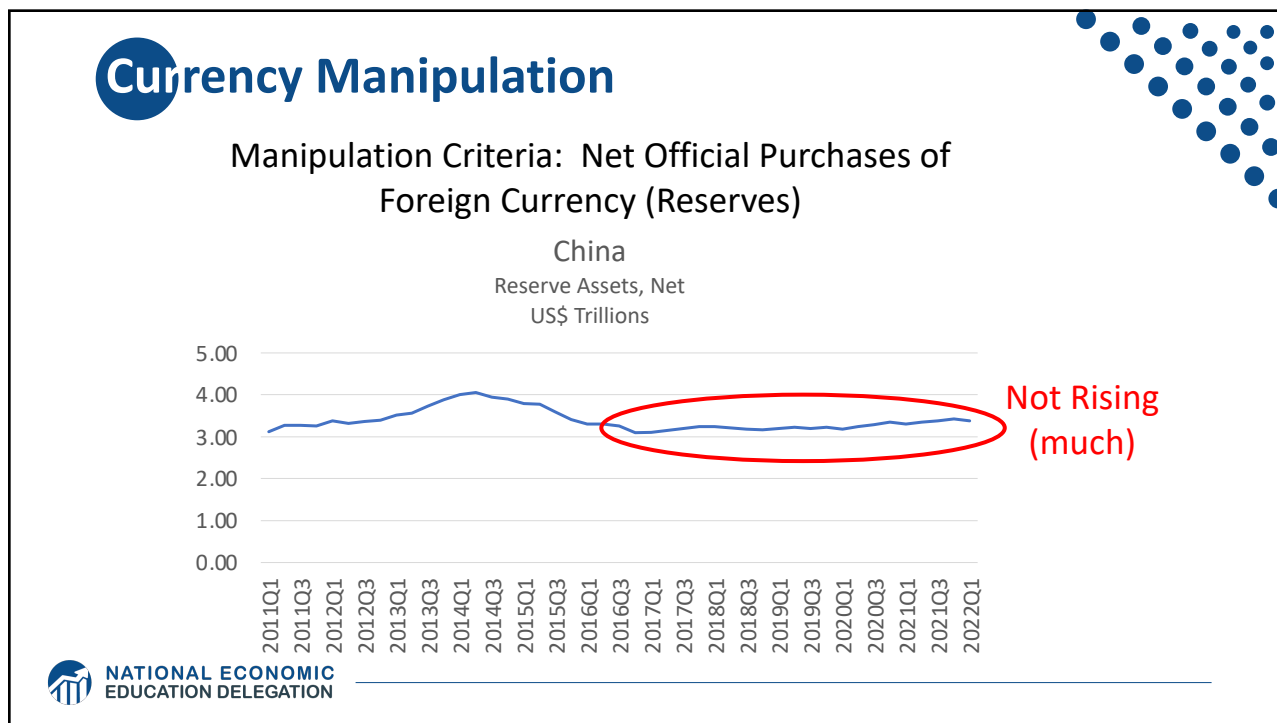
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# Currency Manipulation

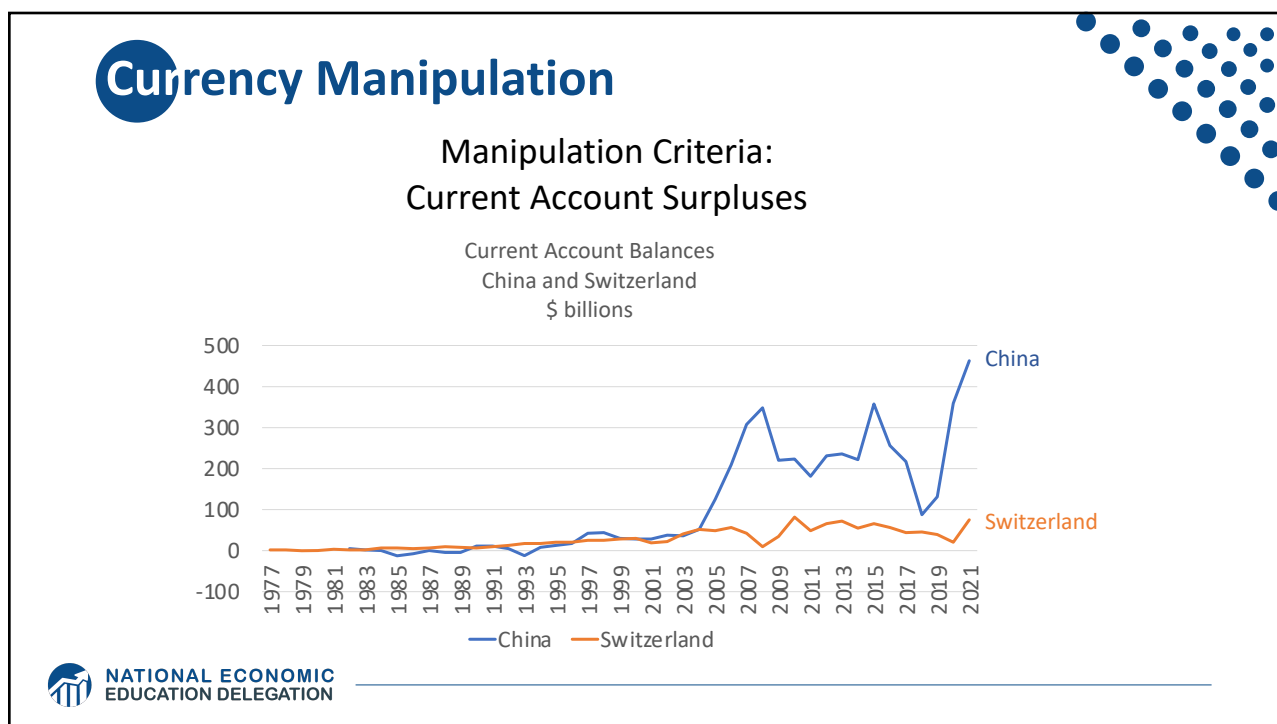
## Manipulation Criteria: Net Official Purchases of Foreign Currency (Reserves)



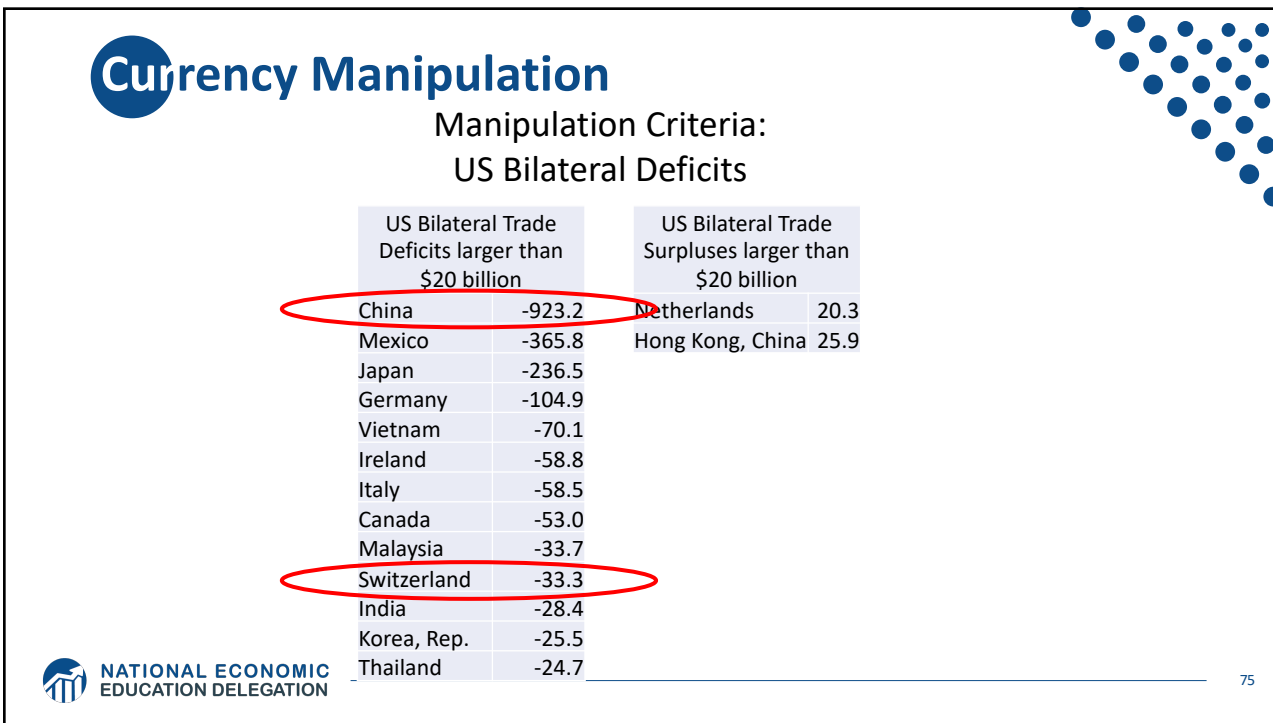
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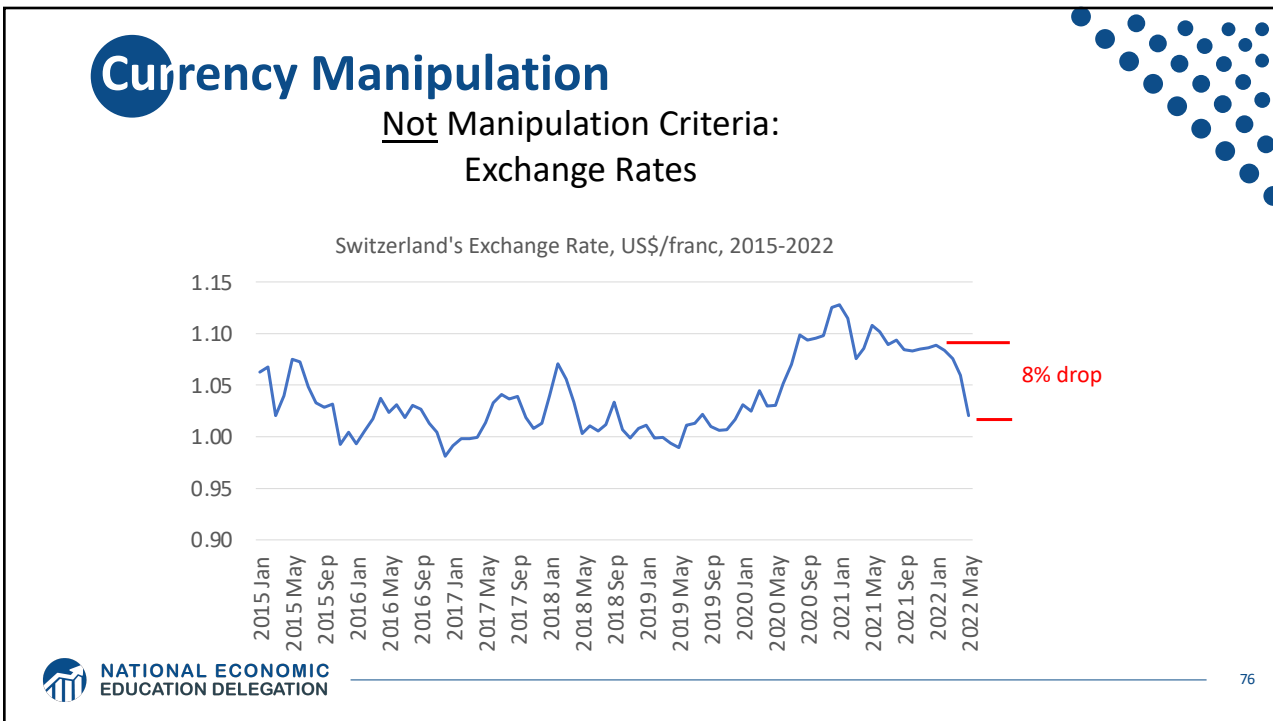
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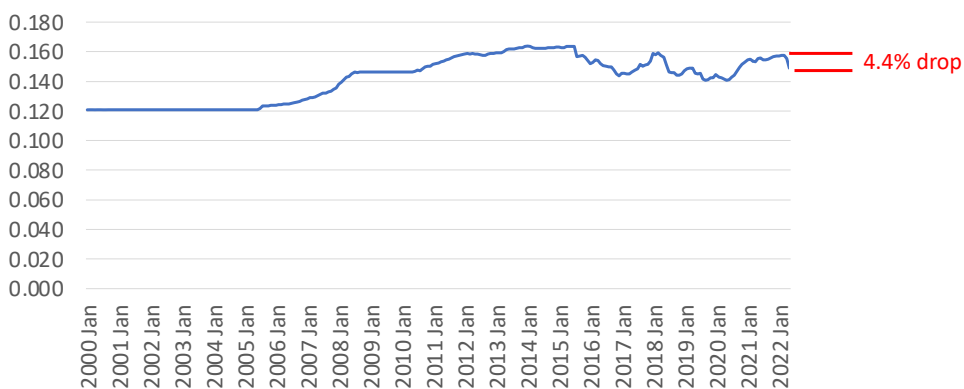


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# Currency Manipulation

## Not Manipulation Criteria: Exchange Rates

China's Exchange Rate, US\$/Yuan, 2000-2022



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# Bitcoins: Geoffrey Woglom

gnvogliom published on TradingView.com, Jul 19, 2022 13:48 UTC

Bitcoin / U.S. Dollar, 1W, BITSTAMP 2757.99%  
GOLD, TVC 45.42%



\$22,000,  
On 7/19,  
9:50

78

**Thank you!**

# Any Questions?

[www.NEEDelegation.org](http://www.NEEDelegation.org)

Alan Deardorff  
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