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Principles of
Economics
Sixth Edition

31

Open-Economy
Macroeconomics:
Basic Concepts

Premium
PowerPoint
Slides by
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In this chapter,
look for the answers to these questions:

- How are international flows of goods and assets related?
- What's the difference between the real and nominal exchange rate?
- What is "purchasing-power parity," and how does it explain nominal exchange rates?

1

Introduction

- One of the Ten Principles of Economics from Chapter 1:
  Trade can make everyone better off.
- This chapter introduces basic concepts of international macroeconomics:
  - The trade balance (trade deficits, surpluses)
  - International flows of assets
  - Exchange rates

2

Closed vs. Open Economies

- A **closed economy** does not interact with other economies in the world.

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3

The Flow of Goods & Services

- **Exports**:
  domestically-produced g&s sold abroad
- **Imports**:
  foreign-produced g&s sold domestically

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4

Variables that affect NX

What do you think would happen to
U.S. net exports if:

- **A.** Canada experiences a recession
  (falling incomes, rising unemployment)
- **B.** U.S. consumers decide to be patriotic and
  buy more products "Made in the U.S.A."
- **C.** Prices of goods produced in Mexico rise faster
  than prices of goods produced in the U.S.

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Variables that Influence Net Exports

- Consumers' preferences for foreign and domestic goods

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- Transportation costs
- Govt policies

8

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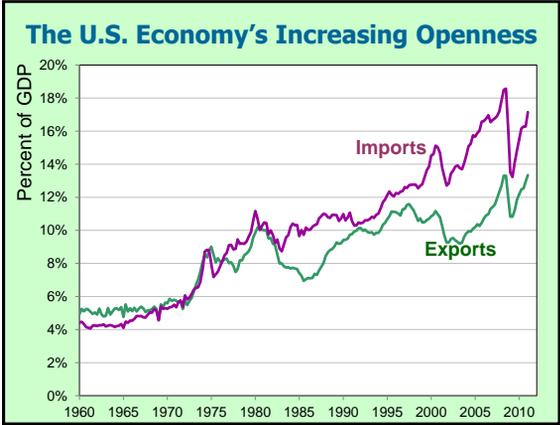_____

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Trade Surpluses & Deficits

NX measures the imbalance in a country's trade in goods and services.

- **Trade deficit**:

- **Trade surplus**:

- **Balanced trade**:

9

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The U.S. Economy's Increasing Openness

Percent of GDP

20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%

Imports

Exports

1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010

The Flow of Capital

- **Net capital outflow (NCO)**:

- *NCO* is also called

11

The Flow of Capital

The flow of capital abroad takes two forms:

- **Foreign direct investment**:
  Domestic residents actively manage the foreign investment, e.g., McDonalds opens a fast-food outlet in Moscow.

- **Foreign portfolio investment**:
  Domestic residents

12

The Flow of Capital

NCO measures the imbalance in a country's trade in assets:

- When ***NCO*** > 0,

- When ***NCO*** < 0, "capital inflow"
  Foreign purchases of domestic assets exceed domestic purchases of foreign assets.

13

Variables that Influence NCO

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- Govt policies affecting foreign ownership of domestic assets

14

The Equality of NX and NCO

- An accounting identity: ***NCO*** = ***NX***
  - arises because

    (and vice versa)
- When a foreigner purchases a good from the U.S.,

15

The Equality of NX and NCO

- When a U.S. citizen buys foreign goods,
  -
    - the U.S. buyer pays with U.S. dollars or assets, so

16

Saving, Investment, and International Flows of Goods & Assets

$Y = C + I + G + NX$ accounting identity

rearranging terms
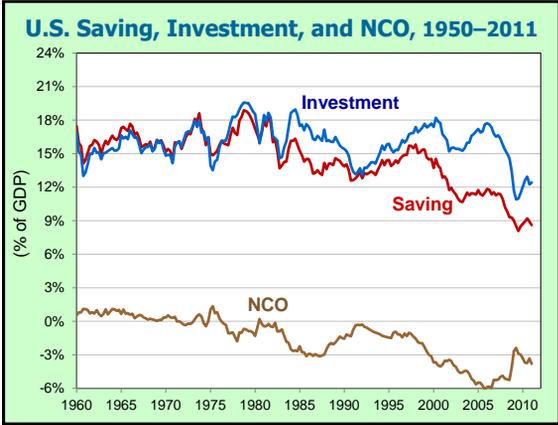
since $S = Y - C - G$

since $NX = NCO$

- When $S > I$,

- When $S < I$,

17

Case Study: The U.S. Trade Deficit

- The U.S. trade deficit reached record levels in 2006 and remained high in 2007–2008.
- Recall, $NX = S - I = NCO$.
  A trade deficit means

- In 2007, foreign purchases of U.S. assets exceeded U.S. purchases of foreign assets by $775 million.
- Such deficits have been the norm since 1980…

18

U.S. Saving, Investment, and NCO, 1950–2011

(% of GDP)

Investment

Saving

NCO

1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010

24%
21%
18%
15%
12%
9%
6%
3%
0%
-3%
-6%

Case Study: The U.S. Trade Deficit

Why U.S. saving has been less than investment:

- In the 1980s and early 2000s,

- In the 1990s,
  national saving increased as the economy grew,
  but

20

Case Study: The U.S. Trade Deficit

- Is the U.S. trade deficit a problem?
    - The extra capital stock from the '90s investment boom may well yield large returns.
    - The fall in saving of the '80s and '00s, while not desirable, at least did not depress domestic investment, since firms could borrow from abroad.
- A country, like a person, can go into debt for good reasons or bad ones.
  A trade deficit is not necessarily a problem, but might be a symptom of a problem.

21

Case Study: The U.S. Trade Deficit

as of 12-31-2009

People abroad owned $21.1 trillion in U.S. assets.

U.S. residents owned $18.4 trillion in foreign assets.

U.S.' net indebtedness to other countries = $2.7 trillion.

Higher than every other country's net indebtedness:

- So far, the U.S. earns higher interest rates on foreign assets than it pays on its debts to foreigners.
- But if U.S. debt continues to grow, foreigners may demand higher interest rates, and servicing the debt would become a drain on U.S. income.

22

The Nominal Exchange Rate

- **Nominal exchange rate**:

- We express all exchange rates as foreign currency per unit of domestic currency.

23

Appreciation and Depreciation

- **Appreciation** (or "strengthening"):

  as measured by the amount of foreign currency it can buy

- **Depreciation** (or "weakening"):

  as measured by the amount of foreign currency it can buy

- Examples: During 2007, the U.S. dollar…
  - depreciated 9.5% against the Euro
  - appreciated 1.5% against the S. Korean Won

24

The Real Exchange Rate

- **Real exchange rate**:

- Real exchange rate =

  where

  P =

  P* = foreign price (in foreign currency)

  e = nominal exchange rate, i.e., foreign
  currency per unit of domestic currency

25

Example With One Good

- A Big Mac costs $2.50 in U.S., 400 yen in Japan

- **e** = 120 yen per $

- **e** x **P** =

- Compute the real exchange rate:

$$\frac{e \times P}{P^*} = \frac{\text{yen per U.S. Big Mac}}{\text{yen per Japanese Big Mac}}$$

=

26

Interpreting the Real Exchange Rate

"The real exchange rate =
   0.75 Japanese Big Macs per U.S. Big Mac"

Correct interpretation:

27

Compute a real exchange rate

e = 10 pesos per $

price of a tall Starbucks Latte
   P = $3 in U.S., *P** = 24 pesos in Mexico

A. What is the price of a U.S. latte measured in pesos?

B. Calculate the real exchange rate, measured as Mexican lattes per U.S. latte.

The Real Exchange Rate With Many Goods

P =
   measures the price of a basket of goods

P* =

Real exchange rate
   = (*e* x *P*)/*P**
   =

▪ If U.S. real exchange rate appreciates,

30

The Law of One Price

▪ **Law of one price**:

   ▪ Suppose coffee sells for $4/pound in Seattle and $5/pound in Boston,
   and can be costlessly transported.

   ▪ There is an opportunity for _____, making a quick profit by buying coffee in Seattle and selling it in Boston.

   ▪

31

Purchasing-Power Parity (PPP)

- **Purchasing-power parity**:

- based on the law of one price
- implies that

32

Purchasing-Power Parity (PPP)

- Example: The "basket" contains a Big Mac.
  P = price of U.S. Big Mac (in dollars)
  P* = price of Japanese Big Mac (in yen)
  e = exchange rate, yen per dollar
- According to PPP,

- Solve for *e*:

33

PPP and Its Implications

- PPP implies

- If the two countries have different inflation rates, then
  - If inflation is higher in Mexico than in the U.S.,

  - If inflation is higher in the U.S. than in Japan, then *P* rises faster than *P**,

34

Limitations of PPP Theory

Two reasons why exchange rates do not always adjust to equalize prices across countries:

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  - Examples: haircuts, going to the movies
  -

-
  - E.g., some U.S. consumers prefer Toyotas over Chevys, or vice versa
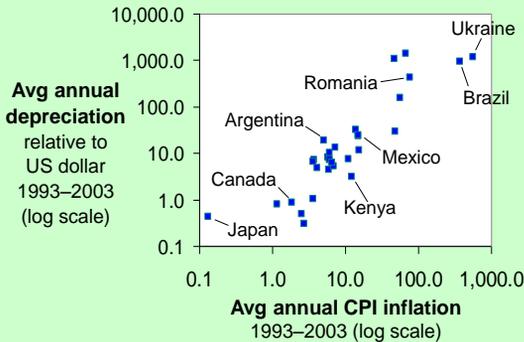 -

35

Limitations of PPP Theory

- Nonetheless, PPP works well in many cases, especially as an explanation of long-run trends.
- For example, PPP implies:

  (relative to a low-inflation country like the US).

- The data support this prediction…

36

Inflation & Depreciation in a Cross-Section of 31 Countries

Avg annual depreciation relative to US dollar 1993–2003 (log scale)

Scatter plot with labeled countries: Ukraine, Romania, Brazil, Argentina, Mexico, Canada, Kenya, Japan

Y-axis: 10,000.0 / 1,000.0 / 100.0 / 10.0 / 1.0 / 0.1

X-axis values: 0.1 1.0 10.0 100.0 1,000.0

Avg annual CPI inflation
1993–2003 (log scale)

Chapter review questions

1. Which of the following statements about a country with a trade deficit is <u>not true</u>?
   A. Exports < imports
   B. Net capital outflow < 0
   C. Investment < saving
   D. $Y < C + I + G$

2. A Ford Escape SUV sells for $24,000 in the U.S. and 720,000 rubles in Russia.

   If purchasing-power parity holds, what is the nominal exchange rate (rubles per dollar)?

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