The Goods Market in an Open Economy

No nation was ever ruined by trade.

*Benjamin Franklin*

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**Balance of Payments Accounting**

- The record of a country’s international transactions
- Split into two parts: the current account and the capital and financial account
- Any transaction that involves a flow of money into the U.S. is a credit (+) item
  - e.g. exports
- Any transaction that involves the flow of money out of the U.S. is a debit (-) item
  - e.g. imports
- Follow the money.

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**The Current Account**

1. Net exports of goods and services ($NX$).
   - Merchandise trade: Exports of goods minus import of goods.
   - Internationally traded services (e.g. transportation, tourism, insurance,...)
2. Net income from abroad
   - Income received from abroad is a credit term, since it causes funds to flow into the United States
   - Payment of income to foreigners is a debit item
   - Net income from assets abroad $\approx NFP$.
3. Net Unilateral transfers
   - Payments made from one country to another
   - Usually negative for United States,
   - Positive current account balance implies current account surplus.
   - Negative current account balance implies current account deficit.

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**The Capital and Financial Account**

- Capital account records some unilateral transfers (e.g. debt forgiveness).
- The financial account records trades in existing assets either real (e.g. houses) or financial (e.g. stocks and bonds)
  - When a home country sells assets to a foreign country, it is a capital inflow for the home country and a credit (+) item in the financial account (e.g. selling Pebble Beach to the Japanese.)
  - When assets are purchased from a foreign country, there is a capital outflow from the home country and a debt (-) item in the financial account.
- The official settlements balance
  - Transactions in official reserve assets are conducted by central banks of countries.
CA – current account

\[ CA = NX + NII + NUT \approx NX + NFP \]

\( NX \) = net exports
\( NII \) = net income from abroad
\( NUT \) = net unilateral transfers
\( NFP \) = net factor payments from abroad

KFA – capital account

\[ \Rightarrow \quad \text{if accounting done right} \quad CA + KFA = 0 \]

The dollars which flow out from an import must go somewhere. If they are used to buy a US product, net exports don’t change. Or they can be used to buy a US asset which affect the capital and financial account with the opposite sign.

Net Foreign Assets

- Net foreign assets are a country’s foreign assets minus its liabilities
  - net foreign assets may change in value (e.g. changes in stock prices)
  - net foreign assets may change through the acquisition of new assets or liabilities.
- What determines the quantity of new foreign assets that a country can acquire?
  - The net increase in the foreign assets equals the current account surplus.
- A current account surplus implies a capital and financial account deficit, and thus a net increase in holdings of foreign assets (a capital outflow).
- A current account deficit implies a capital and financial account surplus, and thus a net decline in holdings of foreign assets (a capital inflow).
- Current account is a flow; net foreign assets is a stock.

Bottom Line: Current account surplus = capital and financial account deficit = net acquisition of foreign assets = net exports (if NFP and NUT = 0).

Where does saving go?

Recall from the second lecture we derived:

\[ S_{pvt} + S_{gvt} = S = I + CA = I + (NX + NFP) \]

\[ \Rightarrow \quad \text{So saving has two uses:} \]

- increase the capital stock by domestic investment
- increase the stock of net foreign assets by lending to foreigners

\[ \Rightarrow \quad \text{The current account represents external lending by Americans to foreigners.} \]

Saving and Investment in a Small Open Economy

- Small open economy: an economy that is too small to affect the world interest rate
- Let \( r^w \) denote the world interest rate in the international market economy.
- Key Assumption: Residents of the small open economy can borrow or lend at the world interest rate.
- Recall the saving and investment curves we derived.

\[ \Rightarrow \quad \text{Three Cases} \]

- Case 1: \( r^w \) above intersection: The \( S > I \) so \( CA > 0 \).
- Case 2: \( r^w \) at intersection: The \( S = I \) so \( CA = 0 \).
- Case 3: \( r^w \) below intersection: The \( S < I \) so \( CA < 0 \).

- Shocks:
  - Shocks that shift the saving curve: temporary income shock (e.g. flood)
  - Shock that shift the investment curve: increase in the MPK. (e.g. A shock).
Government Policy and the Current Account (or trade deficit or surplus)

Do government deficits or surpluses have anything to do with the current account balance or trade surplus?

Analysis

\[ S_{prv} + S_{gvt} = I + NX + NFP \]

- Net Factor payments from abroad (NFP) are unrelated to \( S_{gvt} \).
- \( I \) unrelated to \( S_{gvt} \) if country is small enough to not affect the world interest rate.
- Answer depends on how \( S_{prv} \) is affected by \( S_{gvt} \).

Case 1. – increase \( S_{gvt} \) by increasing taxes while holding \( G \) constant. Assume Ricardian equivalence holds.

- Private sector wealth unchanged due to anticipation of lower taxes in the future.
- Consumption unchanged.
- Implies \( S_{prv} \) decreases by amount of tax increase.
- \( S_{prv} + S_{gvt} \) unchanged thus \( NX \) unchanged.

Case 2. – increase \( S_{gvt} \) by decreasing \( G \) (say by $1000 per person) while holding taxes constant. Say Ricardian equivalence holds.

- Private sector lifetime wealth increased (by $1000) due to anticipation of lower taxes in the future.
- Consumption increases in percentage terms proportional to increase in lifetime wealth (say $50).
- Implies \( S_{prv} \) decreases by amount of increase in consumption ($50).
- \( S_{prv} + S_{gvt} \) increases ($950 in example).
- Increase \( NX \) must increase by change in \( S_{prv} + S_{gvt} \) ($950 in example).

Case 3. – increase \( S_{gvt} \) by increasing taxes (say $1000 per person) while holding \( G \) constant. Assume future tax expectations constant. So Ricardian equivalence does not hold.

- Private sector wealth decreases by amount of tax increase ($1000).
- Consumption decreases proportional to change in lifetime wealth (say $50).
- Implies \( S_{prv} \) decreases by less than amount of tax increase ($950).
- \( S_{prv} + S_{gvt} \) increases since \( S_{prv} \) goes down by less than \( S_{gvt} \) goes up ($50 in example).
- Implies \( NX \) must increase by change in \( S_{prv} + S_{gvt} \) ($50 in example).
Case 4 – increase $S_{gvt}$ by decreasing $G$ (say by $1000$ per person) while holding taxes constant. Assume future tax expectation constant.

- Private sector lifetime wealth unchanged due to constant future tax expectations.
- Consumption constant.
- Implies $S_{pvt}$ constant.
- $S_{pvt} + S_{gvt}$ increases by full amount of decrease in $S_{gvt}$ ($1000$ in example).
- Implies $NX$ must increase by change $S_{gvt}$ ($1000$ in example).

### Overall story
- Given PIH, change in $G$ have bigger effects than changes in $T$.
- No effect if Ricardian equivalence holds and only taxes change.
- Above says that an increase in US government spending causes an increase in trade deficit.
- How are the imports sucked in?

### Example
Country produces 1000 bushels of corn.
Private consumption = 700 bushels
Investment (seed corn) = 200 bushels
Government = 100 bushels, Taxes = 100 bushels, NFP = 0
$NX = 0$
Since $G = T$,
$$S_{gvt} = 0$$
$$S_{pvt} = GDP - T - C = 1000 - 100 - 700 = 200.$$  

Now suppose $G$ increased to 150
$$S_{gvt} = -50.$$  

If $S_{pvt}$ increases by less than 50 (which is true regardless of whether RE holds. See cases 2 and 4.) then $NX$ must increase. Why?

If $G$ increase by 50 and $C$ goes down by less than 50 then supply of corn is less than demand of corn. In a closed economy prices would adjust to get supply equal to demand. In an open economy, consumers just buy corn from world markets so it is okay for domestic supply to be less than domestic demand.

### Saving and Investment In Large Open Economies
- What we mean by a large open economy is one that is large enough to affect the world interest rate.
- Suppose there are two economies in the world
  - The home or domestic economy
  - The foreign economy, representing the rest of the world
- The world interest rate moves to equilibrate desired investment lending by one country with the desired international borrowing by the other.
- Another way of saying this is: The equilibrium world interest rate is determined such that a current account surplus in one country is equal in magnitude to the current account deficit in the other.
What if the US affects the world interest rate?

Suppose the U.S. CA = 0 and something happens to shift US saving curve left.

• Since the US is a big country, the world r increases.
  • Rest of world I decreases.
    – move along the I curve, I does not shift.
  • Rest of world S increases.
    – move along the S curve, S does not shift.

Rest of world CA goes from zero to positive amount.

Implies US CA goes from zero to negative amount.

Higher world r causes US I to move along I curve.

Higher world r causes US S to move along new S curve to partially offset shift.

In this case, an increase in US G crowds out US (as well as rest of world) investment and consumption.

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Meltdown in Mexico, 1994

• In August, 1994 a Mexican peso was worth 30 cents. A year later it was worth 16 cents. What happened?
• The Mexican economy did poorly in the 1980s
• Foreign investors poured money into Mexico in 1991 and 1993
• In 1994, doubts about Mexico’s political stability and questions about the government’s willingness to stick to its reform policies made foreign investor uneasy.
• Large capital inflows can be double-edged sword
• This is not an explanation for Asia