

Chapter 11: Introduction to the open Economy

- drop assumption that Canada is a closed economy
- implications:
 - choice between domestic vs. foreign
 - goods in the goods market
 - bonds in the financial market

Fig 11.1 shows import and export ratios for Canada

- both \uparrow in last 30 years (globalization)
Around 40 % of gdp
- \uparrow during great depression (tariffs \uparrow)
Protection of domestic industries
- lots of hype around globalization
(See trade ratios in 1926)

How open is Canadian Economy ?

- Table 11.1 compares to other countries.
 - small countries can have very large ratios
Luxembourg 94.4 %, Singapore 140%
(Why? Cannot produce all types of goods, so specialize)
 - Openness => consumers and firms have choice of domestic vs. foreign goods
 - choice depends on price of foreign goods in terms of domestic goods: REAL EXCHANGE RATE
 - First start with nominal exchange rates
(newspaper, tv news)
 - 2 ways of quoting an exchange rate:
 1. number of units of foreign currency you get for one unit of domestic currency

2. number of units of domestic currency you get for one unit of foreign currency

Ex: .70 US\$ for 1 C \$.
OR C\$1.43 for 1 US\$.

We will always use definition 2 for nominal exchange rate (E)

So exchange rate between US and Canada is
 $E=1.43$

- **To convert C\$ to US\$ DIVIDE BY E**
- **To convert US\$ to C\$ MULTIPLY BY E**

Some Definitions:

- Appreciation \Rightarrow domestic currency is more expensive relative to foreign currency

IMPORTANT: E \uparrow

Depreciation \Rightarrow dom. Currency is cheaper!

IMPORTANT: E \downarrow

Fig. 11.3 shows E with US

- Nominal Exchange rates only tell us relative price of currencies, not rel. price of goods in the two countries!
- Real Exchange Rates

Example: US vs. Canada (one good each)

$E=1.4$,

US beer costs US\$10 a case

Canadian beer costs \$20 a case

First convert US beer into C\$: $1.4 \times 10 = \text{C}\14

Second compute price ratio of US beer to Cdn beer

$14/20 = .7$ is real exchange rate.

- To take into account all goods, use price index for all final goods : GDP Deflator (P for Canada, P^* for US)

Again first convert P^* into C\$: $P^* \times E$
second take ratio: $(P^* \times E)/P$

So then real exchange rate between two countries is

$$\epsilon = \frac{EP^*}{P}$$

- Real Appreciation: price of dom. goods δ rel. to foreign goods.
- Real Appreciation or Depreciation (change in ϵ) depends on two factors:
 1. nominal exchange rate
 2. relative inflation rates

Ex: Since 1970 inflation per year is .3% lower in US $\Rightarrow P^*/P \uparrow$.

Also nominal depreciation of C\$ of .9% p.a $\Rightarrow E \downarrow$. So ϵ slower by only .6% p.a.

(See fig. 11.6)

Open Financial Markets

- Now foreigners can buy domestic assets, and we can buy assets abroad as financial investment.
(Buy bonds where ever interest rate is higher)
- To buy assets abroad first have to convert currency.
How much currency transactions daily ?
\$2 trillion !!!
20 times the daily production of goods on Earth.
- Openness allows us to run trade surpluses and trade deficits = imports-exports.
- Trade deficit means you borrow from abroad

Trade surplus means you lend abroad.

- Balance of Payments
(See table 11.3)

Two parts: Current Account records payments to and from rest of world.

Capital Account: records changes in borrowing and lending with rest of world.

Capital account balance tells us how much our indebtedness to foreigners increased in that year.

Choice between domestic and foreign assets

- depends on E and relative interest rates in the two countries, i and i^* .

(See Fig. 11.8)

choose whichever asset pays a higher expected return

=> expected return must be the same!

$$1+i = \left(\frac{1}{E_t}\right)(1+i^*)(E_{t+1}^e)$$

Called “Interest parity condition”.

Two simplifications here: transactions costs and risk. Still it is approximately correct.

Rewrite condition as:

$$1+i = (1+i^*)\left(1 + \frac{E_{t+1}^e - E_t}{E_t}\right)$$

$$\Rightarrow i \approx i^* + \frac{E_{t+1}^e - E_t}{E_t}$$

“ domestic interest rate must be approximately equal to foreign interest rate plus the expected depreciation of domestic currency”.

Ex: If US interest rate is 5% and Canadian is 2%, whose bonds should you buy?

$$i - i^* = 2\% - 5\% = -3\%.$$

If you expect C\$ to appreciate by 3% next year, return is the same. If you expect bigger appreciation, then buy Canadian, if expect less buy US.

Interest parity \Rightarrow if expected exchange rate fluctuations are small, then interest rates will stay close in two countries.

(See fig. 11.9)

Ch 12 : The goods market in an open economy

Extending the IS relation:

$$Z / C + I + G + X - \theta Q$$

- $C+I+G$ =domestic demand for goods
- Z =demand for domestic goods
- Q is quantity of imports, θ is real exchange rate
 θQ is value of imports in terms of domestic goods
- determinants of imports:
 - domestic income level (Y)
 - price of foreign goods rel. to domestic goods (θ)

$$Q = Q(Y, \theta)$$

+ -

- determinants of exports:

- income level of foreigners (Y^*)
- price of foreign goods rel. to domestic goods (θ)

$$X = X(Y^*, \theta)$$

- fig. 12.1 shows components of demand as functions of output (income)
 - $AA=DD-\theta Q$
 - $Y \uparrow \Rightarrow Q \uparrow \Rightarrow$ wider gap
 - AA is flatter than DD
 - (marginal propensity to import (mpi) is positive)
 - AA has positive slope
 - ($mpi < mpc$, buy some dom. goods)
 - $ZZ=AA+X$, gap is constant
 - (X does not depend on Y)
- net exports = $X-\theta Q$ = trade balance

- NX has negative slope (why?)
- At $Y = Y_{tb}$, $NX = 0$
- Equilibrium in goods market

$$Y = Z \Rightarrow$$

$$Y = C(Y-T) + I(Y, r) + G - Q(Y, 0) + X(Y^*, 0)$$

(See Fig. 12.2)

- Increase in G (see fig. 12.3)

$$G \uparrow \Rightarrow Y \uparrow \Rightarrow Q \uparrow$$

X is constant, 0 is constant $\Rightarrow NX \downarrow$ =
trade deficit is bigger.

- In open economy increase in Y is smaller.
Why?
Slope of ZZ is flatter \Rightarrow smaller multiplier. Why? ($mpi > 0$)

– Increases in foreign demand (Fig. 12.4)

$Y^* \uparrow \Rightarrow X \uparrow \Rightarrow ZZ \text{ shifts up} \Rightarrow Y \uparrow \Rightarrow Q \uparrow.$

What happens to trade balance?

$X \uparrow$ and $Q \uparrow$. But $NX \uparrow$. Why?

In fig, DD is below ZZ' .