International Monetary Economics

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Introduction

Chapter 13
National income accounting and the balance of payments

Outline

- 13.1 GDP versus GNP
- 13.2 Saving, investment and current account balances
- 13.3 The balance of payments

GDP versus GNP

- GDP measures the production within an economy.
- GDP does not measure the income which is available to the domestic population.
- Domestic income is labeled as Gross National Product (GNP)
- Difference between GNP and GDP stems from transactions with the outside world:
  - A person who resides in Germany but works abroad receives a factor income (wage) from abroad. This increases the foreign GDP and the German GNP.
  - A persons who resides in Germany receives factor income in form of interest or dividend income, because he/she owns foreign bonds or stocks.
- For many countries: More or less no difference between GDP and GNP.

GDP versus GNP
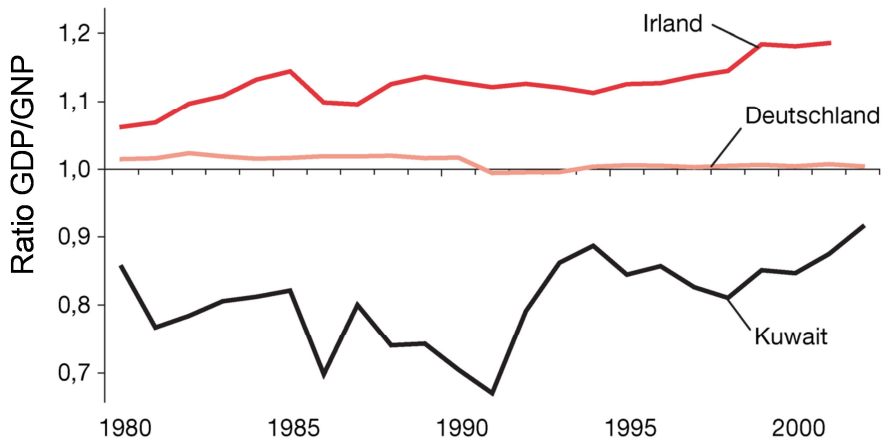
GDP versus GNP

Kuwait

- $GNP > GDP$
- In the past Kuwait was running large current account surpluses due to oil exports.
- Kuwait has accumulated net foreign assets and receives interest and dividend income from abroad.

Ireland

- $GNP < GDP$
- Foreign companies have invested in Ireland.
- Profits are repatriated to the foreign countries in form of dividends Production in Ireland is high, but income lower.

Composition of GDP for Germany in 2005

$$Y = C + I + G + (EX - IM)$$

	in bn. EUR	in % of GDP
Private consumption	1,329.73	59.3 %
+ Government expenditure	417.18	18.6 %
+ Investment	384.67	17.1 %
= Domestic usage of goods	2,131.58	95.0 %
+ Current account balance ($EX - IM$)	112.07	5.0 %
= GDP	2,243.65	100.0 %

Source: Statistisches Bundesamt, Blanchard/Illing p. 83, rounded numbers.

Outline

Saving, investment, and the current account balance

- Equilibrium condition in the closed economy: Investment = Saving
- BUT: Open economy can use international financial markets to borrow from or lend to foreigners.
- Equilibrium condition for the goods market in the open economy:

$$Y = C + I + G + EX - \epsilon \cdot IM$$

Why epsilon (ϵ)? $\Rightarrow$ Krugman/Obstfeld/Melitz (KOM) Table 13-1

- $100w = 75w^a + 25w + 10w + 10w - 20w^b$
- a: $C = 75w^a = (55w + 0.5w/m \cdot 40m)$
- b: $20w^b = \epsilon \cdot IM = 0.5w/m \cdot 40m$

m = milk, w = wheat

Excursus: The real exchange rate (ϵ)

- Europe produces only potatoes and the US only steaks
- Price for potatoes: $P = 4 \, €/\text{Potato}$
- Price for steak: $P^* = 2 \, \$/\text{Steak}$
- Nominal FX rate: $E = 1 \, €/\$$

real FX rate: $\epsilon = \frac{E \cdot P^*}{P} = \frac{1€/\$ \cdot 2\$/\text{Steak}}{4€/\text{Potato}} = \frac{2€/\text{Steak}}{4€/\text{Potato}} = \frac{1}{2} \, \text{Potato}/\text{Steak}$

- An American exchanges 1 steak for 0.5 potatoes.
- An European exchanges 1 potato for 2 steaks.

Excursus: The real exchange rate (ϵ)

- The real exchange rate:

$$\epsilon = \frac{E \cdot P^*}{P}$$

- The natural logarithm of the real exchange rate:

$$ln\epsilon = lnE + lnP^* - lnP$$

Frequently, we use small letters to display the natural log of a variable! $\Rightarrow$ $lnE = e$

$$ln\epsilon = e + p^* - p$$

Saving, investment, and the current account balance

$$Y = C + I + G + EX - \epsilon \cdot IM$$

Subtracting C and T from both sides yields:

$$Y - C - T = I + G - T + EX - \epsilon \cdot IM$$

Private saving is defined as $S^P = Y - C - T$

$$S^P = I + G - T + EX - \epsilon \cdot IM$$

Using the definition of the current account ($CA = X - \epsilon \cdot IM$) yields:

$$S^P = I + G - T + CA$$

Solving for CA leads to:

$$CA = S^P + (T - G) - I$$

Saving, investment, and the current account balance

$$CA = S^P + (T - G) - I$$

- If national saving $S^P + (T - G) >$ investments (I) $\Rightarrow$ current account surplus.
- If investments (I) $>$ national saving $S^P + (T - G) \Rightarrow$ current account deficit.
- If investments I $=$ national saving $S^P + (T - G) \Rightarrow$ current account is balanced.

Saving, investment, and the current account balance

$$CA = S^P + (T - G) - I$$

If investment increases

- either private or government savings have to go up or
- current account balance will deteriorate.

If government spending goes up

- either private savings have to go up or
- investment will decrease or
- current account balance will deteriorate.

Equation does not tell anything about what will happen.
$\Rightarrow$ We need a macroeconomic model to forecast effects!

Saving, investment, and the current account balance
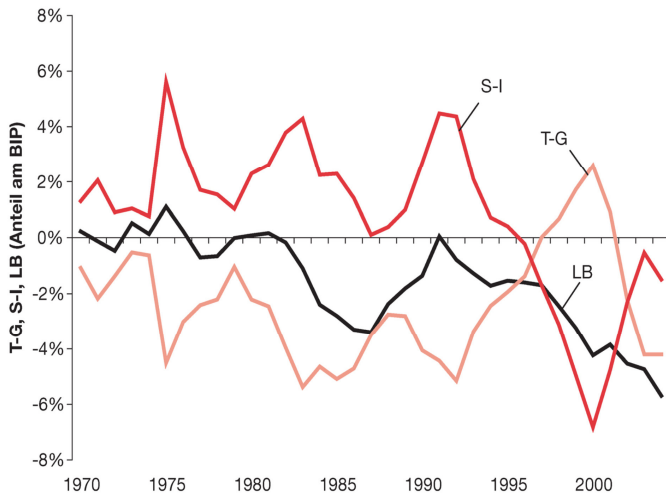
$$CA = S^P + (T - G) - I$$

A country with a high saving rate
- has either a high level of private investment or
- a surplus in the current account.

A country with a low saving rate
- has either a low level of private investment or
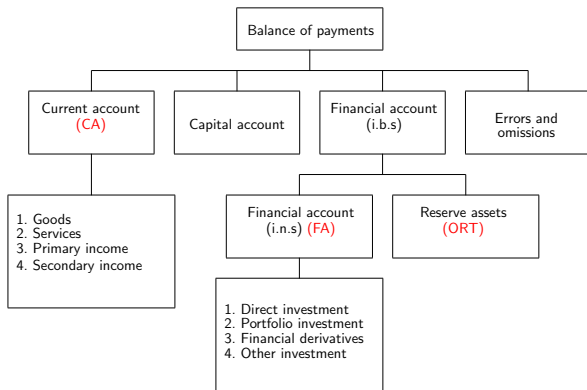- a large deficit in the current account.

S^P, I, $(T - G)$, and CA of the USA as a % of GDP

Outline

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Balance of payments

Balance of payments

- The equation $CA = FA + ORT$ is an identity.
- Ex-post it will always hold.
- In the old days and in some textbooks: $CA + FA + ORT = 0$.

Why should macroeconomists be interested in this identity?

- There are various combinations that fulfill this identity.
- $CA < 0$ & $FA + ORT < 0 \Rightarrow$ current account deficit is financed by getting more indebted to the rest of the world.
- $CA > 0$ & $FA + ORT > 0 \Rightarrow$ current account surplus & economy accumulates foreign assets.

This condition is closely linked to the equilibrium on the foreign exchange market.

$CA = FA \Rightarrow$ Flow equilibrium on the foreign exchange market

- The left hand side of the BoP contains items that result in an inflow of foreign exchange $\Rightarrow$ Supply of foreign currency.
- The right hand side of BoP contains items that result in an outflow of foreign exchange $\Rightarrow$ Demand for foreign currency.
- If $CA = FA \Rightarrow$ Demand = Supply $\Rightarrow$ Equilibrium on the foreign exchange market without any interventions of the central bank.

$CA = 0$ and $FA = 0 \Rightarrow$ Stock equilibrium

- Level of indebtedness does not change $\Rightarrow$ Stock of bonds is constant.
- But also $CA = 0$ can have different scenarios with respect to the sub-balances of the CA...