

Globalization

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Econ 102

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Chapter 4: Capital Flows and the Current Account

- ▶ This chapter makes an important point that sets it apart from all preceding chapters.
 - The trade between countries need not to be balanced
- ▶ Some countries run a trade surplus
 - They export more in value than they import
- ▶ Some other countries run a trade deficit
 - They import more in value than they export
- ▶ The difference between the value of exports and the value of import is net export or trade balance

$$TB = EX - IM$$

Introduction (1/2)

| | Africa | Asia | CIS ^a | Europe | Middle East | North America | South America | World |
|------------------------|--------|-------|------------------|--------|-------------|---------------|---------------|--------|
| Exports (US\$ billion) | 508 | 4,686 | 587 | 5,632 | 894 | 1,964 | 576 | 14,847 |
| Imports (US\$ billion) | 454 | 4,293 | 409 | 5,955 | 575 | 2,555 | 606 | 14,847 |

^aCIS is the Commonwealth of Independent States (Russia and its neighbors).

Source: World Trade Organization (2011, Tables I.4 and II.2).

Notes: Exports and imports in US\$ billions at current exchange rates are region-wide totals, and include intra-regional shipments and unclassified products. Imports inferred from shares of regional trade flows (World Trade Organization 2011, Table I.4). For definitions of regions, see World Trade Organization (2011, Composition, definitions & methodology).

- ▶ The Americas are a region of major trade deficit
- ▶ Asia and Middle East currently provides a large part of the trade surplus

Introduction (2/2)

- ▶ All the transactions of goods between a country and the ROW is registered in the **current account**
- ▶ The current account constitutes an important instrument to consider the amount of world imbalances.
- ▶ In this chapter we will see four main aspects of current account and global imbalances:
 - The functioning of the current account and trade balance
 - Links between imbalances and government expenditures, consumption and investment
 - A model of international capital flows
 - The impact of exchange rate changes on trade balance

Balance of payment and example of transactions

- ▶ The national accountants record all foreign exchanges and international transactions in the so-called **Balance of Payments**
- ▶ The name balance of payments is somehow misleading
 - Does not provide a snapshot of the company's current assets and liabilities at a certain point in time as a balance-sheet
 - The balance of payments track changes over a given period of flows (and not stocks)

Balance of payment and example of transactions

- ▶ The balance of payment has three different accounts:
 - The current account: sales and purchases of produced goods and services
 - The capital account includes for the most part, debt forgiveness and financial assets that migrants take with them as they enter or leave the country
 - Financial account shows the change in a country owned assets abroad and foreign owned assets in the country

Example of balance of payments transactions

- ▶ First, suppose that an US customer acquires a mobile phone to the Finish society Nokia.
- ▶ This sale is a current account debit in the US of the value of the phone \$200
- ▶ The US seller receives a check of \$200 that is deposited in a US bank
 - Nokia buy an asset (the bank deposit) for a value of \$200
 - This transaction is registered as a financial account credit in the US

Table: U.S. Balance of Payments

| | Debit CA | Credit FA |
|----------------------------|----------|-----------|
| Purchase of a mobile phone | 200 | |
| US bank deposit | | 200 |

Example of balance of payments transactions

- ▶ Now we will consider example of transactions that imply imports and export of goods.
- ▶ If no matching imports of good flow back into the country, it will end the year with a net credit extended to foreigners (a current account surplus)
- ▶ Suppose a Mexican farmer exports a good worth 10,000 MXN to a US customer

Example of balance of payments transactions

- ▶ The export results in a current account credit and a financial account debit
 - NB: because of the rules of double bookkeeping, every transactions must result in both a credit in some account and debit in another account.
 - Even if a check would have crossed the Mexican border, the deposit results in a financial account debit.

Table: Mexico's balance of payment

| | credit CA | Debit FA |
|-----------------|-----------|----------|
| Mexican export | 10000 | |
| US bank deposit | | 10000 |

Example of balance of payments transactions

- ▶ Sometimes international transactions start on the financial side
- ▶ Suppose a U.S. resident invests in a Mexican business by purchasing equity in it as a shareholder
 - This transaction results in a financial account debit in the U.S. for the purchase of shares
 - By the rules of double-entry bookkeeping, as a financial account credit for the check the the U.S. investor sends to Mexico

Table: The U.S. Balance of Payments

| | Debit FA | Credit FA |
|------------------------------------|----------|-----------|
| U.S. resident's share purchase | 10000 | |
| US resident's check sent to Mexico | | 10000 |

Assets for international investment

- ▶ There are a number of different assets used for international investments
- ▶ One way to classify assets is by their maturity
 - The most short-term asset is the T-bill
 - The most long-term asset is equity
 - ▶ Foreign direct investments
 - ▶ Portfolio equity investments
 - ▶ Portfolio debt investments

GDP versus GNI

- ▶ In an open economy, domestic production and national income can differ
 - Gross domestic product (GDP) counts the value of all goods and services produced within a country's border
 - Gross national income (GNI) counts the income earned by a nation's factor of production, regardless of the countries the factors are at work in

→ GDP looks at the location of production and GNI looks at the citizenship of the factor of production

GDP versus GNI

- ▶ When a U.S. citizen goes to work in China as an expatriate, her income is counted in China's GDP but U.S.' GNI
- ▶ When a U.S. multinational company invests in Ireland, the profits are counted as part of Irish GDP but U.S.' GNI
- ▶ Other Examples:

Events

U.S. GDP

U.S. GNI

Apple sells an Iphone to France

Ford Factory in Asia makes profits

BMW's plant in South Carolina makes profits

Mercedes' plant in France makes profits

GDP versus GNI

- ▶ For some countries the differences between GNI and GDP can be large.
 - In Ireland, the country's GNI has only been about 84% of its GDP
 - In Luxembourg, 1/5th of the GDP is generated by foreign investment and the country's GNI represents only 79% of its GDP
- ▶ In most countries GDP and GNI differ little
 - In Germany and Japan GNI exceeds GDP by 0.7 and 2.4% on average since 2000
 - In the U.S. GDP and GNI has differed by 1.1% since 2000
- ▶ GDP and GNI are not perfect measure of welfare for several reasons.

The Trade Balance and Current Account

- ▶ We have shown that one dollar of net export results in the equivalent of one dollar of net credit in the current account
- ▶ We will show that show that net exports go hand in hand with net capital outflows
- ▶ A country's GDP can be split into its uses:
 - Private consumption C
 - Private domestic investment I
 - Government expenditure G
 - Net exports $EX - IM = TB$
- ▶ $Y_{GDP} = C + I + G + (EX - IM)$
- ▶ Absorption: because they soak up today's resources in the domestic economy

The Trade Balance and Current Account

- ▶ In this chapter we will allow capital to cross borders, but there are no migrants
- ▶ The only difference between a country's GDP and GNI is the return it has earned on its foreign investments, such as interest earning on foreign credits
 - We call a country's net asset position abroad the **foreign wealth position W**
 - Or the balance of foreigners' net indebtedness to domestic residents
 - Or the home country's net international investment position (NIIP)

The Trade Balance and Current Account

- ▶ The country's factor income from his foreign wealth position is $r^* W$
- ▶ $Y_{GNI} = Y_{GDP} + r^* W$
- ▶ $Y_{GNI} = C + I + G + TB + r^* W$
- ▶ The current account balance: $CA = TB + r^* W$
- ▶ $Y_{GNI} = Absorption + CA$

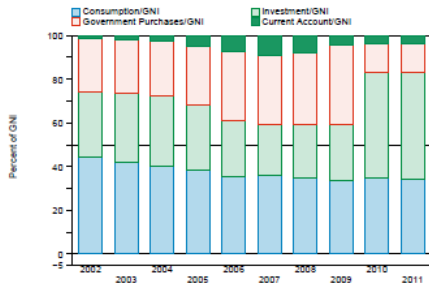
The Trade Balance and Current Account

- ▶ Summary:
 - The difference between GDP and GNI is a country's net international capital income $Y_{GNI} - Y_{GDP} = r^* W$
 - The difference between a country's current account balance and trade balance is also the nation's net international capital income $CA - TB = r^* W$

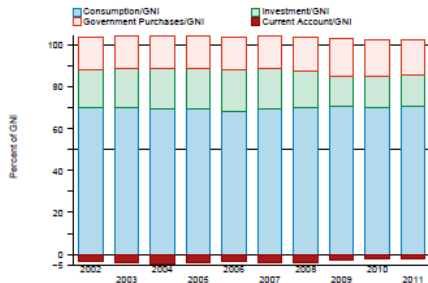
- ▶ A positive current account balance means that domestic residents are giving up some consumption, investment or government expenditures which they could have used for their own good

The Trade Balance and Current Account

China



United States

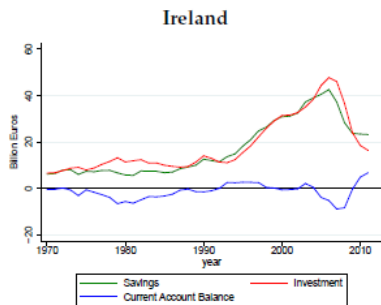
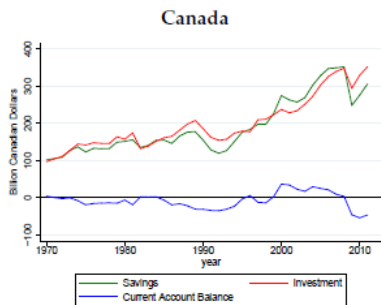


Source: World Development Indicators 2013.

Savings, Investment and the Current Account

- ▶ In a closed economy savings equal investment → there is no much of a portfolio choice for the savings
- ▶ Once the economy is open, there are two assets in which a country can invest his savings:
 - The domestic capital
 - The foreign capital
 - The current account balance measures the amount of capital used to build up foreign net wealth W
- ▶ In an open economy, savings is equal to the sum of domestic investment (the domestic asset) and the current account balance (the newly added foreign wealth).

Savings, Investment and the Current Account



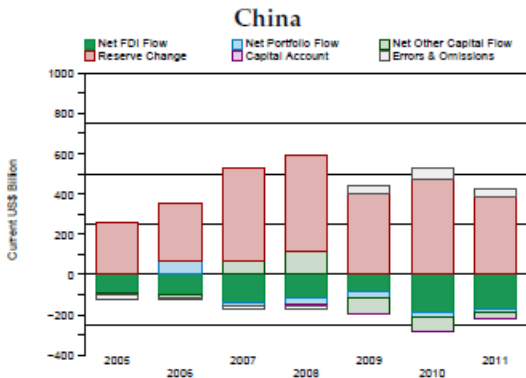
Source: World Development Indicators 2013.

Note: Local currencies are deflated to base year 2005 using the local gross national expenditure deflator.

Savings, Investment and the Current Account

- ▶ All the net shipments of domestic goods to foreigners are domestic savings invested abroad
- ▶ Net exports results in a credit extended by domestic residents to foreigners, which is a capital outflows
- ▶ Foreign wealth is a promise of future repayment, which is a capital outflows
- ▶ A positive current account balance corresponds to a capital outflow
- ▶ However, having a current account surplus and being a net recipient of FDI inflows are two feasible objectives

Savings, Investment and the Current Account



Source: World Development Indicator 2013

Note: The bars stacked above the zero line show the types of capital flowing out of China

The bars stacked below the zero line show the types of capital flowing into China

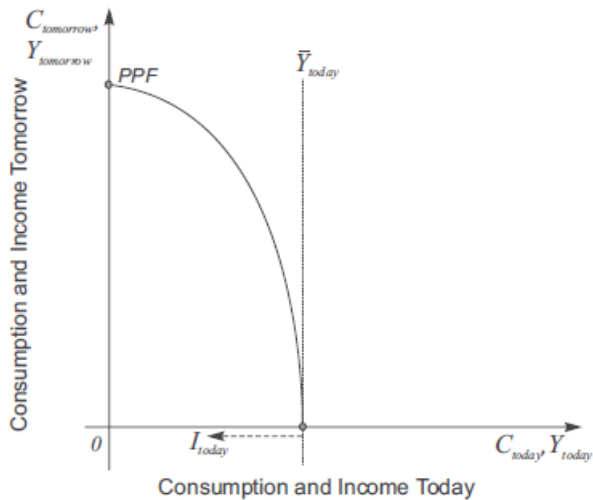
The Fisher Model of International Capital Flow

- ▶ In this model trade is intertemporal:
 - Goods are traded today in exchange of the promise to receive good flow in the future
- ▶ In this model we will analyze capital flows as if they were a special type of goods flows
- ▶ Instead of labeling the two goods as "good 1" and "good 2", we label goods as "good 1 today" and "good 1 tomorrow"
- ▶ We use the Fischer model of intertemporal trade in good to extend it to an international capital market

Intertemporal Production Possibilities

- ▶ The IPPF shows the maximum amount of future consumption for any given amount of invested resources
- ▶ We assume a 2 period model. At the first period the world starts and the second period the world ends.
- ▶ $Y_{GDP}^{Today} = Y_{GNI}^{Today} \rightarrow$ no capital flow at the starting point
- ▶ The future revenue of the country is known in advanced and depends on the investment realized in period 1
 - $Y_{GDP}^{tomorrow} = F(I^{today})$

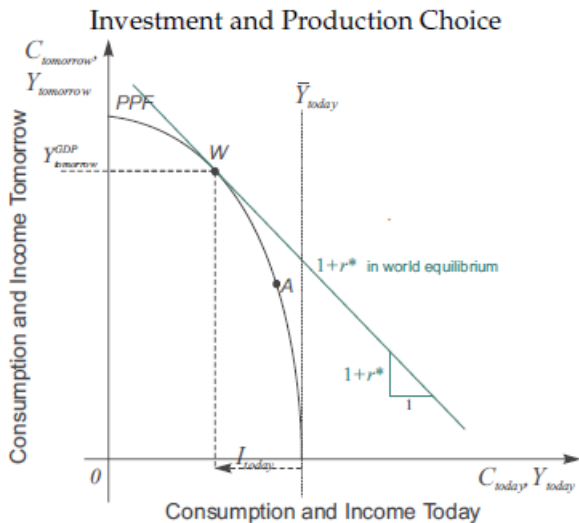
Intertemporal Production Possibilities



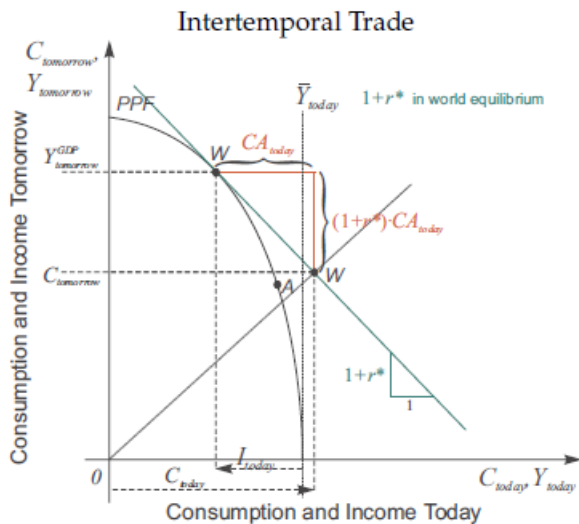
Intertemporal Production Possibilities

- ▶ Let's assume the existence of an other country with the following characteristic
 - The slope of the PPF is flatter at any point
- ▶ Identify the country's comparative advantage
- ▶ Identify the international trade line slope
- ▶ Identify the optimal consumption
- ▶ What are the gain from intertemporal trade?

Intertemporal Trade



Intertemporal Trade



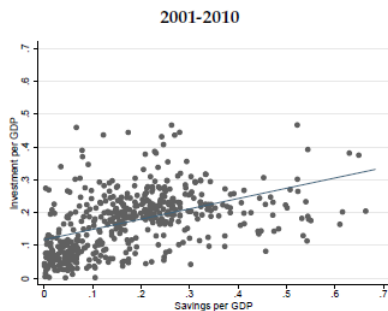
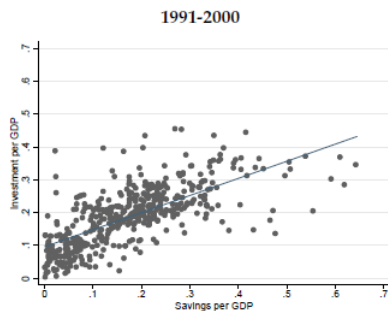
Change in current account

- ▶ There are only two periods in this model
 - Period 1: Country 2 lends capital to country 1
 - ▶ What is the foreign wealth tomorrow for country 1?
 - ▶ What is the foreign wealth tomorrow for country 2?
 - Period 2: Country 1 runs a current account surplus tomorrow that pays back the principal
- ▶ There is a clear separation between investment and savings decision

Intertemporal trade in practice

- ▶ Feldstein and Horioka (1980) checked whether domestic savings are fully decoupled from domestic investment decisions
- ▶ If world financial markets are fully integrated, then the Fischer model of intertemporal trade implies that S and I should be unrelated.
- ▶ From an econometric point of view:
 - $\frac{I}{Y_{GDP}} = \alpha + \beta \frac{S}{Y_{GDP}}$
 - If the slope is 1: the international capital market are hardly integrated
 - If the slope is 0: the international capital market is fully integrated

Intertemporal trade in practice



Source: World Development Indicators 2013.

Notes: Fit left panel $I/Y^{\text{GDP}} = .096 + .521 \cdot S/Y^{\text{GDP}}$ (134 countries), right $I/Y^{\text{GDP}} = .117 + .313 \cdot S/Y^{\text{GDP}}$ (139 countries).

(.004) (.018)

(.004) (.019)

Current account and Solvency

- ▶ One important question from the policy point of view of a policy maker is the question of current account solvency in indebted countries
- ▶ Important account deficit is considered as an handicap for future borrowing capacity
- ▶ To know the borrowing capacity of one country we need to identify the GNI evolution, which is not always feasible

Solvency criteria

- ▶ The generalization of this model to an infinite horizon gives criteria for the solvency analysis

- ▶ $Y_0^{GNI} = Y_0^{GDP} + r^* W_0$

- ▶ $Y_0^{GNI} = \textit{absorption} + CA$

- ▶ Country 1 can borrow some assets from country 2:

$$W_1 = CA_1 + W_0$$

- $W_1 - W_0 = CA$

- $W_1 - W_0 = Y_0^{GNI} - (C_0 + I_0 + G_0)$

- $W_1 - W_0 = Y_0^{GDP} + r^* W_0 - (C_0 + I_0 + G_0)$

- $(1 + r^*) W_0 = (C_0 + I_0 + G_0) - Y_0^{GDP} + W_1$

Solvency criteria

- ▶ By iteration we obtain:

- $(1 + r^*) W_0 = W_{T+1} \left(\frac{1}{1+r^*} \right)^T + \sum_{t=0}^{t=T} \left(\frac{1}{1+r^*} \right)^t (C_t + I_t + G_t - Y_t^{GDP})$

- $\lim_{T \rightarrow \infty} \left(W_{T+1} \left(\frac{1}{1+r^*} \right)^T \right) = 0$

- $(1 + r^*) W_0 = \sum_{t=0}^{t=T} \left(\frac{1}{1+r^*} \right)^t (C_t + I_t + G_t - Y_t^{GDP})$

- ▶ A country is creditworthy if it manages to have enough trade balance excess in the future to finance the actual debt

Conclusion

- ▶ The Fisher model of intertemporal trade puts the principle of comparative advantage to work
- ▶ It predicts that a country with relatively scarce resources today will be a borrower in international capital markets.
- ▶ The country will use its relatively abundant resources in the future to repay its obligations to foreign investors.
- ▶ The fundamental source of the gains from intertemporal trade is the separation of the savings decisions of households from producers' investment decisions.
- ▶ Empirical data suggest, however, that the separation of savings and investment decisions is not complete