INVESTMENT AND SAVINGS

EE 462 Development Macroeconomics

Semester 1/2014

Topics

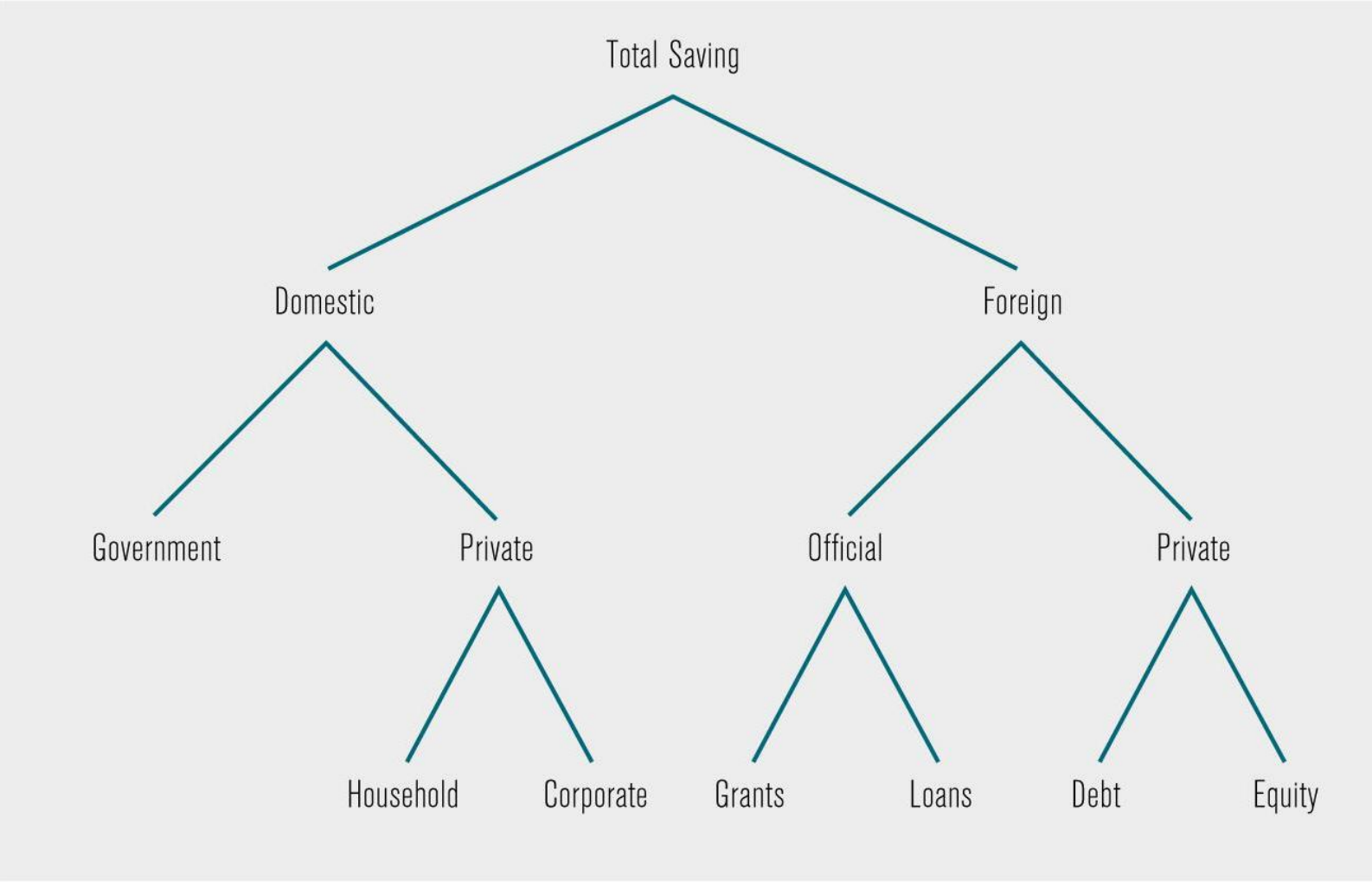
- Savings
  - Household Saving and Consumption
  - Foreign Saving
- Investment
  - Cost-Benefit Analysis of Investment
  - Barriers to Productive Public and Private Investment
  - Foreign Direct Investment

SAVINGS

Savings

- Domestic savings:
  - Includes household, domestic corporation, and government savings
  - Saving rates vary across countries, but on average domestic savings tend to be higher in high- and middle-income countries.
- Foreign savings:
  - Includes foreign aid, FDI, portfolio equity, loans
- Interesting questions:
  - Can government policy have a major influence on a country's saving rate?
  - Does a rise in savings lead to a rise in investment that in turn leads to higher growth, or the causation goes in the other direction?

Key Components of Savings



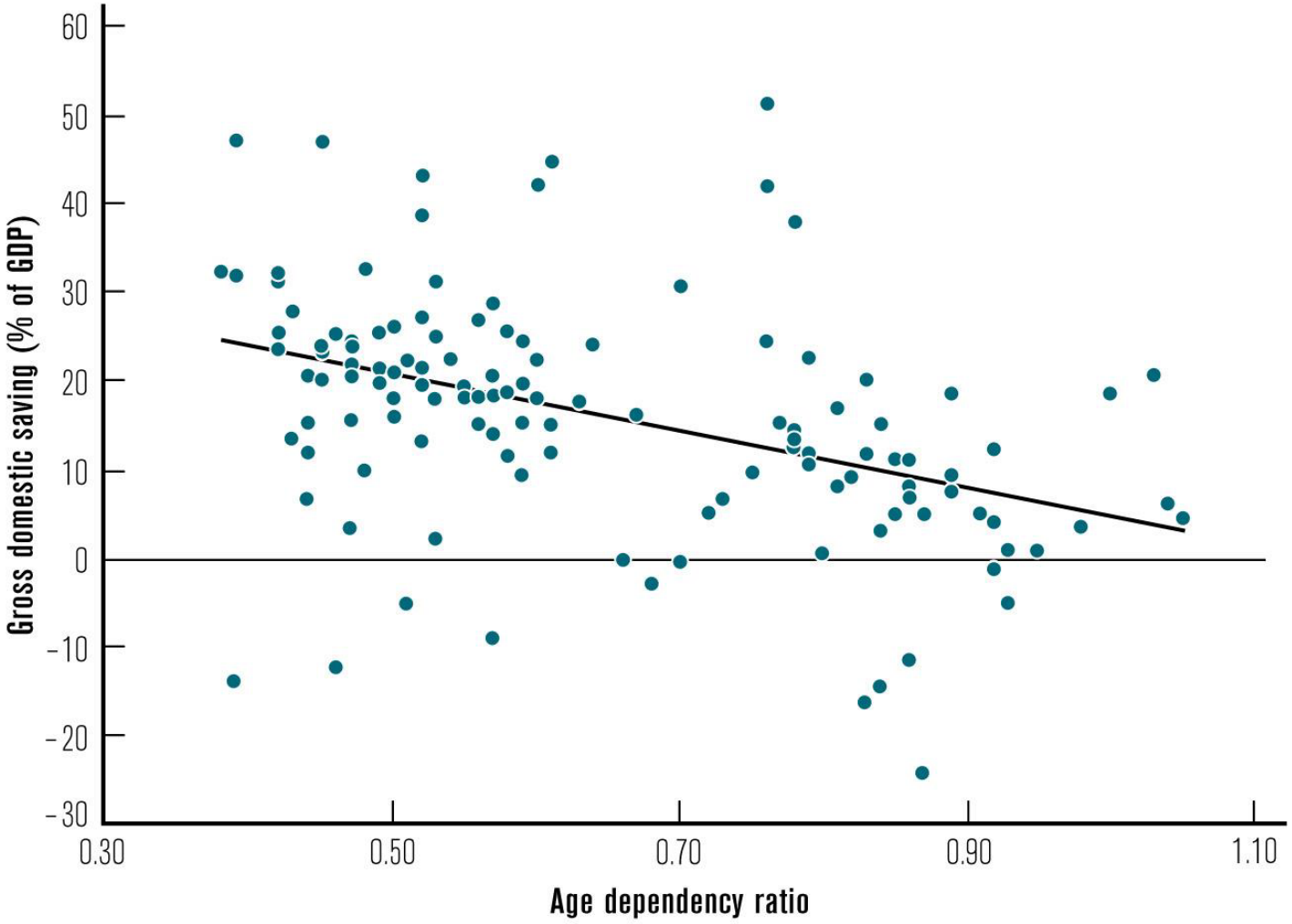
Household Saving and Consumption

- Individuals and households saves for 2 main purposes:
  1. To generate future income by saving and investing current income
  2. To protect themselves against unexpected falls in income in the future → Precautionary savings
- But, to save is to reduce in current consumption. So, what determine saving behavior?
- Modigliani's life-cycle model – saving and consumption vary systematically during a person's lifetime:
  - Lower savings when young
  - Rising saving and peak toward the middle and end of working years
  - Dissaving after retire

Life-Cycle Hypothesis and Demographic Structure

- Recall the demographic transition with 3 stages:
  1. High birth and death rates → low pop growth
  2. Declining death rates and continued high birth rates → high pop growth
  3. Low birth and death rates → low pop growth
- Question: In which stage of the demographic transition would a country have saving rates?
  - Stage 3
- Examples:
  - High saving rates in East Asia such as South Korea and Taiwan
  - China's one child policy

Gross Domestic Saving and the Age Dependency Ratio, 2003



Government Saving

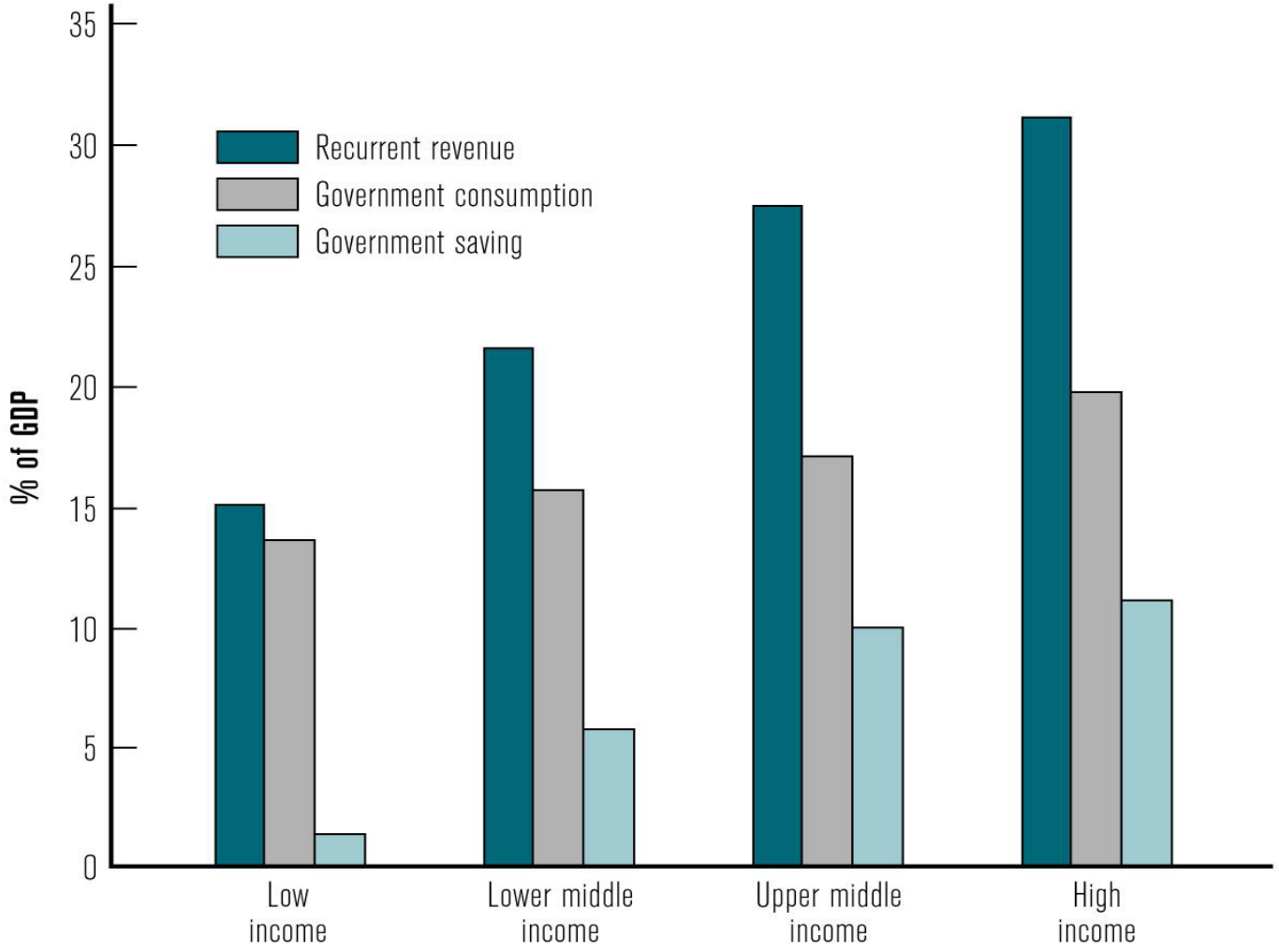
- Government saving arises when tax revenues exceed public consumption expenditures.
  - Government saving can be changed by either increasing revenues or reducing consumption expenditures
- Key questions:
  1. To what extent can government increase the tax ratio (if they want to)?

     ➔ Not so easily.
  2. Will an increase in the tax ratio lead to an increase in government saving?

     ➔ Generally yes.
  3. Will an increase in government saving increase total domestic saving?

     ➔ Not necessarily!

Government Revenue, Consumption, and Saving, 1990-2002



Government Saving and Domestic Saving

- Q: How does private saving responds to an increase in government spending?
- Ricardo equivalence: Any increase in public saving is offset by an equivalent decline in private saving, with total domestic saving remaining unchanged.
  - When there's a tax cut, government saving may fall, but private sectors increase private saving in anticipation of a future tax increase.
- Empirical studies finds that, in general, an *increase in government saving* tends to be associated with *a decline in private saving*, but less than the strict one-to-one relationship.
  - Will domestic saving increase or decrease?
  - Ex. 1% rise in gov't saving rate is associated with a 0.4 – 0.65 % decline in private saving.

    ➔ Domestic saving increases ~0.35-0.6%.

Foreign Saving

- Recall the income side of the national account:

$$Y = C + I + G + X - M$$

- Expenditure side:

$$Y = C + S_p + T \qquad (S_p = \text{private saving})$$

- Rearranging:

$$I = (T - G) + S_p + (M - X)$$

Where T – G = government saving

M – X = deficits of the balance of payments + foreign savings

- Alternative writing:

$$I = S_d + S_f \quad \text{or} \quad I - S_d = M - X$$

  - As the difference between investment and domestic saving grows, the trade deficit grows proportionately.

Foreign Saving

- Two components of foreign saving:

  1. *Official foreign saving* – foreign aid provided on concessional terms as either grants or soft loans

  2. *Private foreign saving*:

  - *FDI* – made by nonresidents (typically MNCs) in enterprises located in hosted countries
  - *Portfolio equity* – purchase by foreigners of host country bonds or stocks
  - *Commercial bank lending*
  - *Export credits* – credits given to firms in developing countries that import from the industrialized countries (permitting delayed payment)

Capital Flows to Developing Countries, 1990-2003

	1990	1996	2000	2003
Inflows	107.0	307.1	206.2	272.1
Official development finance	51.8	25.8	28.1	23.7
Grants (excluding technical assistance)	25.4	23.0	23.2	38.0
Official loans (net)	26.4	2.8	4.9	−14.3
Private finance	55.2	281.3	178.1	248.4
Long-term debt flows (net)	16.6	82.5	7.4	22.9
Short-term debt flows (net)	13.2	37.4	−7.9	49.0
Portfolio investment	3.4	32.9	12.4	24.8
Foreign direct investment	22.1	128.6	166.2	151.8
Outflows	53.5	200.5	226.6	346.9
Accumulation of reserves	32.4	90.4	46.8	291.9
FDI from developing countries	5.0	10.0	16.5	24.0
Other items/errors and ommissions	16.1	100.1	163.3	31.0
Total	53.5	106.6	−20.4	−74.8
Memo item: Aggregate current account balance of developing countries				
Excluding grants	−53.5	−106.6	20.4	74.8
Including grants	−28.1	−83.6	43.6	112.8

Source: World Bank, *Global Development Finance* 2005 and IMF, *International Financial Statistics,* annual yearbook.

Net Capital Flows ($ billions) to Developing Countries, 2000-2007

Category	1999	2000	2001	2002	2003	2004	2005	2006	2007e
Current account balance	−17.7	36.3	12.8	62.0	116.9	164.3	309.5	431.0	425.9
as % of GDP	−0.3	0.7	0.2	1.0	1.7	2.0	3.2	3.8	3.1
Financial flows									
Net private and official flows	209.7	181.2	191.3	174.0	262.4	386.4	479.7	689.8	1025.0
Net private flows (debt + equity)	195.7	187.0	164.5	169.1	274.1	412.5	551.4	760.3	1028.9
Net equity flows	188.4	179.0	178.6	166.2	186.0	265.9	357.4	472.3	615.9
Net FDI inflows	177.0	165.5	173.0	160.7	161.9	225.5	288.5	367.5	470.8
Net portfolio equity inflows	11.4	13.5	5.6	5.5	24.1	40.4	68.9	104.8	145.1
Net debt flows	15.1	−0.4	4.5	8.9	72.8	128.8	152.4	217.5	409.1
Official creditors	14.0	−5.8	26.8	4.9	−11.7	−26.1	−71.7	−70.5	−3.9
World Bank	8.8	7.9	7.6	−0.4	−0.8	1.4	2.5	−0.7	3.0
International Monetary Fund	−2.2	−10.6	19.5	14.0	2.4	−14.7	−40.2	−27.1	−4.7
Others official	7.4	−3.1	−0.3	−8.7	−13.3	−12.8	−34.0	−42.7	−2.2
Private creditors	1.5	5.8	−23.0	3.8	84.4	155.2	222.7	288.0	413.0
Net medium- and long-term debt flows	18.9	12.2	1.9	0.7	30.9	87.7	133.1	193.8	283.3
Bonds	25.7	19.5	10.2	8.8	19.6	41.1	52.6	25.3	79.3
Banks	−5.5	−3.9	−2.0	−1.7	15.2	50.4	85.3	172.4	214.7
Others	−1.3	−3.4	−6.3	−6.4	−3.9	−3.8	−4.8	−3.9	−10.7
Net short-term debt flows	−17.4	−6.4	−24.9	3.1	53.5	67.5	89.6	94.2	129.7
Balancing item[a]	−153.1	−172.3	−115.5	−70.6	−83.2	−156.6	−417.5	−481.9	−391.0
Change in reserves (− = increase)	−32.8	−42.6	−80.4	−166.5	−292.4	−402.4	−390.8	−634.2	−1090.7
Memorandum item									
Workers' remittances	77.5	84.5	95.5	115.8	143.4	160.7	191.0	221.0	240.0

Sources: World Bank Debtor Reporting System and staff estimates.
Note: e = estimate; FDI = foreign direct investment.
a. Combination of errors and omissions and transfers to and capital outflows from developing countries.

Source: http://siteresources.worldbank.org/INTGDF2008/Resources/gdf_ch02_033-080_web.pdf

INVESTMENT

Investment

- Investment is central to economic growth and development.
  - *Public investment* generally focuses on roads, infrastructures, schools, health facilities.
  - *Private investment* involves creating new jobs, new technologies, and growth in economic output.
- Question – what leads to "good investment" (i.e. Investment that promote growth either of individuals, large corporation, or the country as a whole?
- Investment decision making can be made by using cost-benefit analysis (or project appraisal).
- Investment decision can also be affected by *ownership*.

Cost-Benefit Analysis of Investment

- Cost-Benefit Analysis (CBA) is a tool used to judge whether an investment is likely to be productive or not.
- Steps in evaluating a project:
  1. Forecast the net cash flow of an investment
  2. Adjust the valuation of costs and benefits by reducing the values of future flows or "discounting" → Net present values
  3. Consider the risks to both the costs and the benefits of an investment
  4. Compare across projects

Net Present Value (NPV)

- NPV is given by:

$$NPV = \sum_t \frac{B_t - C_t}{(1+i)^t}$$

Where

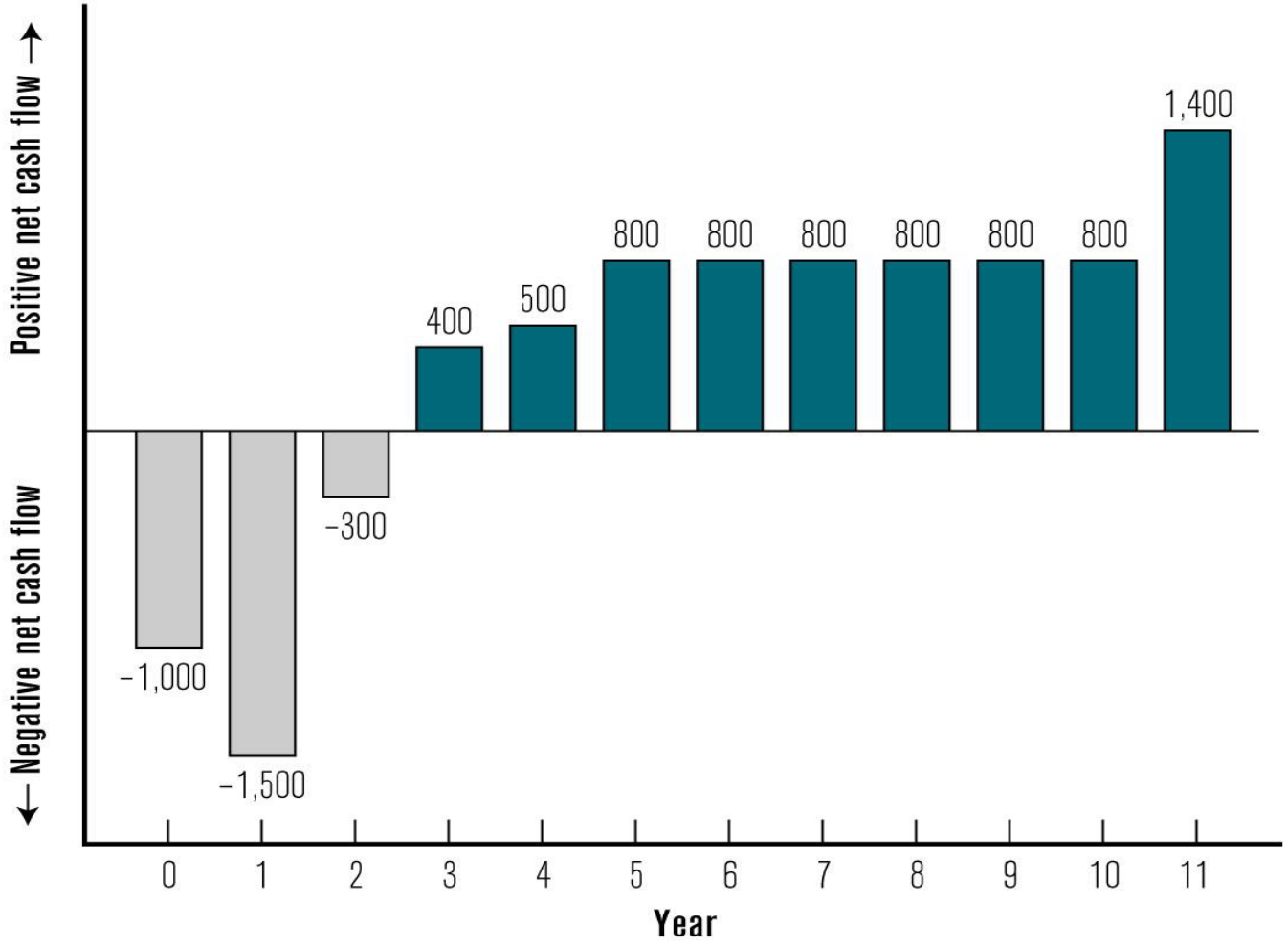
B_t is the expected benefit at time t

C_t is the expected cost at time t

i is the discount rate

- If NPV=0, the discount rate is the *internal rate of return (IRR).*
- If NPV > 0, the project can cover all its financial costs with some profit left for the firm.
- If NPV < 0, the project should not be undertaken.

Time Profile for Investment: Net Cash Flow



Net Present Value

YEAR	CASH FLOW FROM FIGURE 11–2 (DOLLARS)	DISCOUNT FACTOR AT 8%	PRESENT VALUE (DOLLARS)
0	−1,000	1	−1,000
1	−1,500	0.926	−1,389
2	− 300	0.857	−257
3	400	0.794	318
4	500	0.735	368
5	800	0.681	544
6	800	0.63	504
7	800	0.583	467
8	800	0.54	432
9	800	0.5	400
10	800	0.463	371
11	1,400	0.429	600
Net Present Value			1,358

Notes: The discount factor is calculated as $1/(1 + i)^t$ from equation 11–2. The present value in each year is calculated as the cash flow times the discount factor. The net present value is the sum of the present value in each year.

Social Project Appraisal

- Social project evaluation - Government need to be concerned with *whether a project contributes to the overall economic growth or to social welfare*.
  - Consider *shadow prices* and *welfare weights*
- The opportunity costs of using goods and services in an investment are the net benefits that they would have provided in some alternative projects.
- *Shadow prices* or economic opportunity costs are the opportunity costs of goods and services for the economy as a whole.
  - Need to adjust market prices to fully reflect full opportunity costs by accounting for interference in the market, such as taxes and subsidies, monopoly power, interest rate controls, tariffs, etc.

Effects of Shadow Pricing on CBA

PROJECT	INVESTMENT (FIRST YEAR)	NET ANNUAL CASH FLOW (NEXT 5 YEARS)	NET PRESENT VALUE (10%)
1. Take two projects with identical cash flows. Project A earns more net foreign exchange and uses more labor than project B:			
A. Textile mill, of which	−1,000	+300	+137
Net foreign exchanged earned	−500	+400	
Wages paid	−350	−100	
B. Telecommunications system, of which	−1,000	+300	+137
Net foreign exchange earned	−800	0	
Wages paid	−100	−50	
2. The shadow wage is 75% of market wage, so all wage costs are reduced by 25%. This results in the following net cash flows:			
A. Textile mill	−913	+325	+319
B. Telecommunications system	−975	+313	+212
3. The shadow exchange rate is 20% above official rate, so the net foreign exchange flow is raised by 20%. This results in the following net cash flows:			
A. Textile mill	−1,100	+380	+340
B. Telecommunication system	−1,160	+300	−23

Barriers to Productive Public and Private Investment

- Political instability
  - Lowers the rate of return and increases the risk of project
- Macroeconomic instability
  - Drives away from investment that promote long-term growth and toward investments that are protected from inflation
- Rent-seeking behavior – activities by private and public officials to extract value from a project without providing any compensation in return or contributing any increased productivity to the project.
  - Excessive or inappropriate regulations
  - Corruption
  - These can lead to low rate of return

Foreign Direct Investment

- *Foreign Direct Investment (FDI)* is a long-term investment in which a non resident entity exerts significant management control over an enterprise an the host country.
- Portfolio equity is another cross-border investment, in which investors takes a smaller stake in an enterprise, either through a direct purchase or a stock exchange.
- Most FDI in developing countries is undertaken by multinational corporations (MNCs).
  - MNC – A firm that controls assets of enterprises located in countries other than its home country in which foreign operations are central to its profitability.

FDI Patterns and Products

- Three broad categories of FDI:

  1. Natural resource-based activities
     - Petroleum, minerals

  2. Manufacturing and services aimed at the domestic market in the host country
     - Consumer goods, capital-intensive goods, and some services

  3. Labor-intensive manufacturing aimed for export on world markets
     - Apparel, electronics, food processing, footwear, etc.

Benefits of FDI

- FDI is a source of capital that adds to total investment, and it is usually more stable than other forms of private foreign capital.
- In addition to new capital, FDI could add to the demand for labor and generate employment.
  - Note that the impact of FDI on wages and working conditions is still controversial. (Ex. Maquiladora in Mexico)
- FDI could help increase specialization in production, especially for FDI in manufactured exports.
- It can also bring access to world markets.
- Most important potential benefits is the transfer of technology, skills, and ideas; that is, it creates positive externalities or "spillovers"
  - Through the training of workers and managers

Drawbacks of FDI

- MNCs might create air or water pollution or cause other environmental damage, generating negative externalities in host countries.
- FDI could be a source of "labor exploitation" if the host country does not have strong regulations.
- FDI in protected (or inefficient) activities can lead to economic losses.
  - Ex. FDI in petrochemical industry where an MNC can be profitable only with government regulations that limit competition
- Lost of local control over business
  - MNCs can drive local businesses out of market

FDI and Growth

- General findings about this relationship is mixed, but there's a pattern.
- FDI focusing on manufactured exports tends to have a positive relationship with growth and development.
  - Efficient and conducive to adoption of new technologies, training new workers, and positive spillovers.
- FDI for natural resources or for firms producing in protected domestic markets is less likely to be beneficial or even create economic losses for the host country.
  - Inefficient operations
  - Dependent on the impact of the industry (for natural resource based industry)

Policies toward FDI

- *Improve the general environment for all kinds of investment*
  - Improve the general infrastructure and improve the quality of labor
- *Introduce specific policies and incentives to attract FDI*
  - Establish industrial parks or export-processing zones (EPZs)
  - Provide specific incentives, such as protection from import competition (tariffs and quotas), tax holidays (tax exempts on corporate income)
- *Impose requirements on MNCs*
  - Requirement of specified share of equity to local partners to form "joint ventures"
  - Domestic content requirement – require MNCs to purchase a certain share of inputs locally