



# Understanding Economics

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2nd edition

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## Chapter 9

# **The Economic Problem**

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# Chapter Objectives

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- In this chapter you will:
  - learn about Gross Domestic Product (GDP) and the two approaches to calculating it
  - consider real GDP and per capita GDP and their possible uses and limitations when comparing living standards in different years or different countries
  - analyze other economic measures developed from the national income accounts

# National Income Accounts

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- Canada's national income accounts show the levels of total income and spending in the Canadian economy
- Among other measures these accounts include Gross Domestic Product (GDP)

# Gross Domestic Product

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- GDP is the total dollar value of all final goods and services produced in an economy during a particular period
- GDP is calculated using two approaches
  - the income approach
  - the expenditure approach
- The GDP identity states that GDP expressed as total income = GDP expressed as total spending

# Calculating Gross Domestic Product

Figure 9.1, Page 215

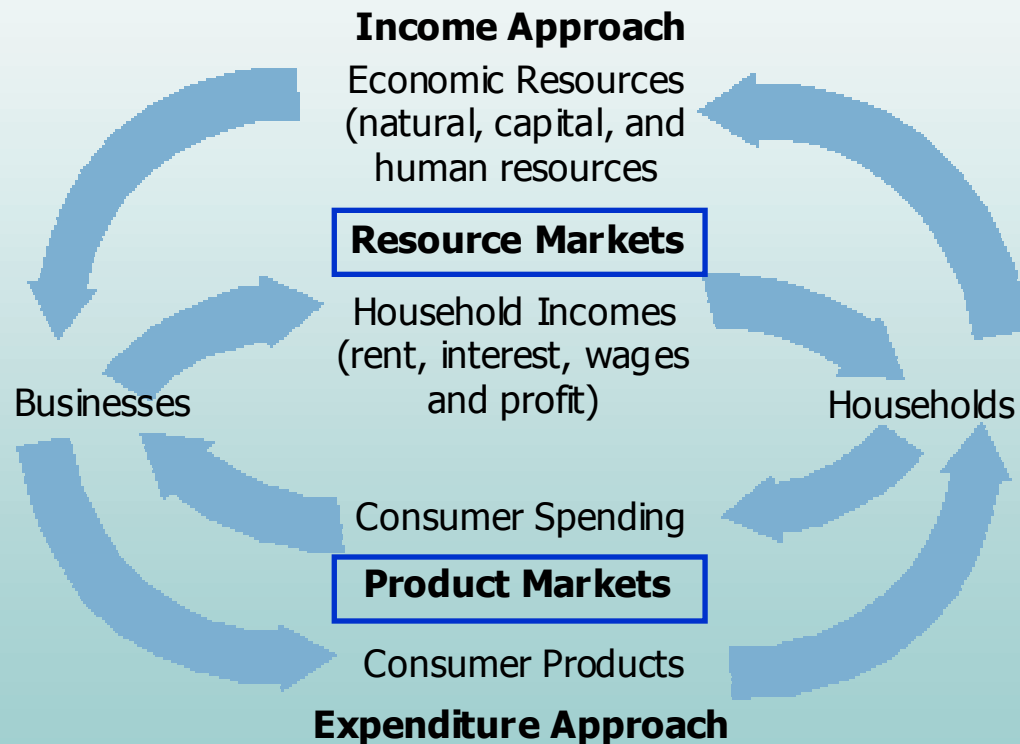
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| <b>Product</b>  | <b>Current Price<br/>(P)</b> | <b>Annual Product<br/>(Q)</b> | <b>Total Dollar Value<br/>(P x Q)</b> |
|-----------------|------------------------------|-------------------------------|---------------------------------------|
| Surgical lasers | \$1000                       | 3                             | \$3000                                |
| Milkshakes      | 2                            | 1000                          | 2000                                  |
|                 |                              |                               | <hr/>                                 |
|                 |                              |                               | GDP = \$5000                          |

# Circular Flow in a Simple Economy

Figure 9.2, Page 216

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# The Income Approach (a)

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- The income approach includes four classes of income
  - wages and salaries
  - corporate profits
  - interest income
  - proprietors' incomes and rents

# The Income Approach (b)

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- The income approach also includes three other categories to balance GDP calculated with the expenditure approach
  - indirect taxes
  - depreciation
  - the statistical discrepancy is the difference between the GDP estimates using the two approaches with half added to the lower one and half deducted from the higher one

# The Expenditure Approach

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- The expenditure approach
  - is the sum of purchases in product markets
  - is based on value added at each production stage to avoid double counting
  - excludes financial exchanges and second-hand purchases

# Value Added in Making Paper

Figure 9.4, Page 219

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| <b>Production Stage</b>                      | <b>Total Value Paid/Received</b> | <b>Value Added</b> | <b>Business That Adds Value</b> |
|--|----------------------------------|--------------------|---------------------------------|
| 1. Wood is cut and transported to paper mill | \$1.00                           | \$1.00             | logging company                 |
| 2. Paper is processed and sold to retailer   | 2.75                             | 1.75 (2.75 – 1.00) | paper company                   |
| 3. Paper is sold by retailer to consumer     | 4.00                             | 1.25 (4.00 – 2.75) | retailer                        |
|  | <u>\$7.75</u>                    | <u>\$4.00</u>      |                                 |

# Components of the Expenditure Approach (a)

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- There are four components of the expenditure approach
  - personal consumption (C) consists of household purchases of services and nondurable and durable goods
  - gross investment (I) represents business and government purchases of real capital (including added inventories) and is financed through retained earnings and personal saving

# Components of the Income Approach (b)

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- government purchases (G) exclude transfer payments and are financed through taxes and borrowing
- net exports (X-M) equals exports (foreign purchases of Canadian products) minus imports (Canadian purchases of foreign products)

# Canada's Gross Domestic Product (2000) Figure 9.3, Page 218

| <b>Income Approach<br/>(\$ billion)</b> |               | <b>Expenditure Approach<br/>(\$ billion)</b> |               |
|---|---------------|--|---------------|
| Wages and salaries                      | 534.6         | Personal consumption (C)                     | 591.1         |
| Corporate profits                       | 134.8         | Gross investment (I)                         | 207.3         |
| Interest Income                         | 52.0          | Government purchases (G)                     | 191.4         |
| Proprietors' incomes and rents          | 64.2          | Net exports (X – M)                          | 48.5          |
| Indirect taxes                          | 128.5         | Statistical Discrepancy                      | 0.5           |
| Depreciation                            | 125.2         |  |               |
| Statistical discrepancy                 | -0.5          |  |               |
| Gross Domestic Product                  | <u>1038.8</u> | Gross Domestic Product                       | <u>1038.8</u> |

# Gross and Net Investment

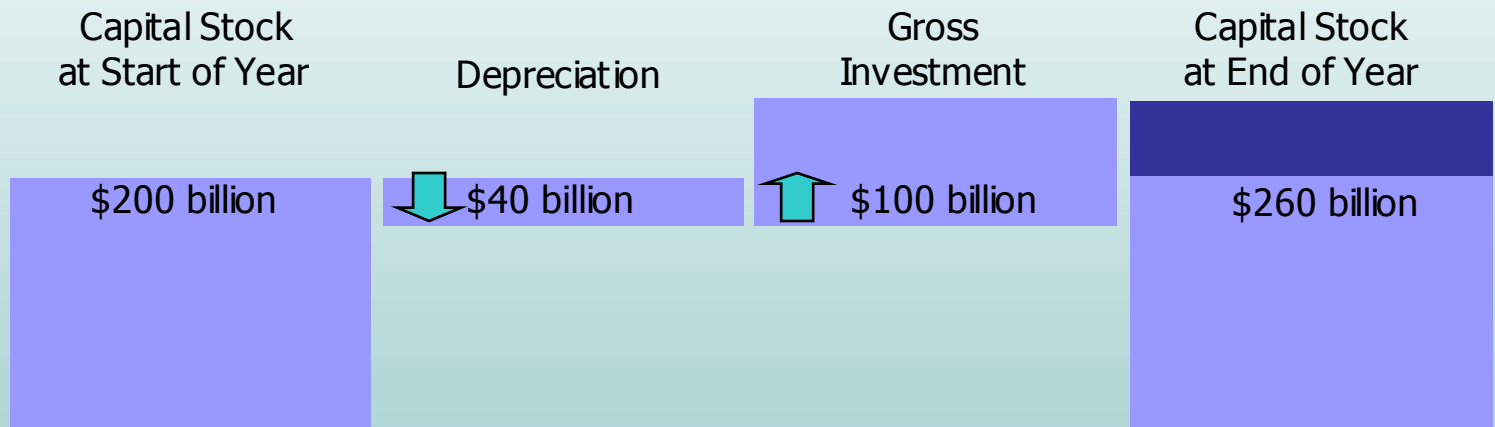
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- Net investment
  - is the annual change in an economy's capital stock
  - equals gross investment - depreciation
  - is positive in a growing economy with an increasing capital stock
  - is negative in a declining economy with a decreasing capital stock

# Net Investment and Capital Stock

Figure 9.5, Page 221

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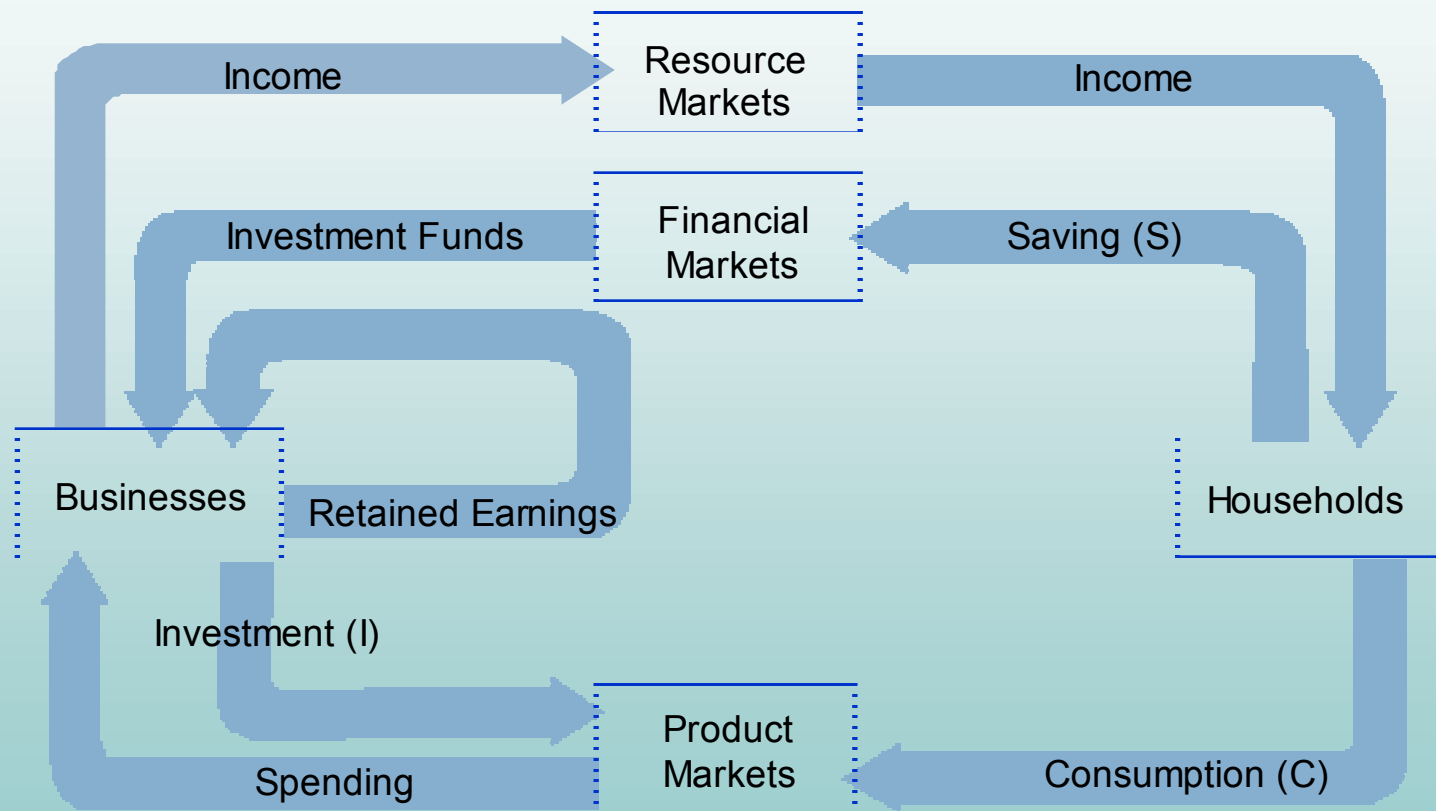
# Financial Market Flows

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- The sources of funds for investment come from
  - businesses' retained earnings
  - personal saving (S)
- These are inflows into financial markets, while investment is an outflow

# Financial Markets and the Circular flow

Figure 9.6, Page 222



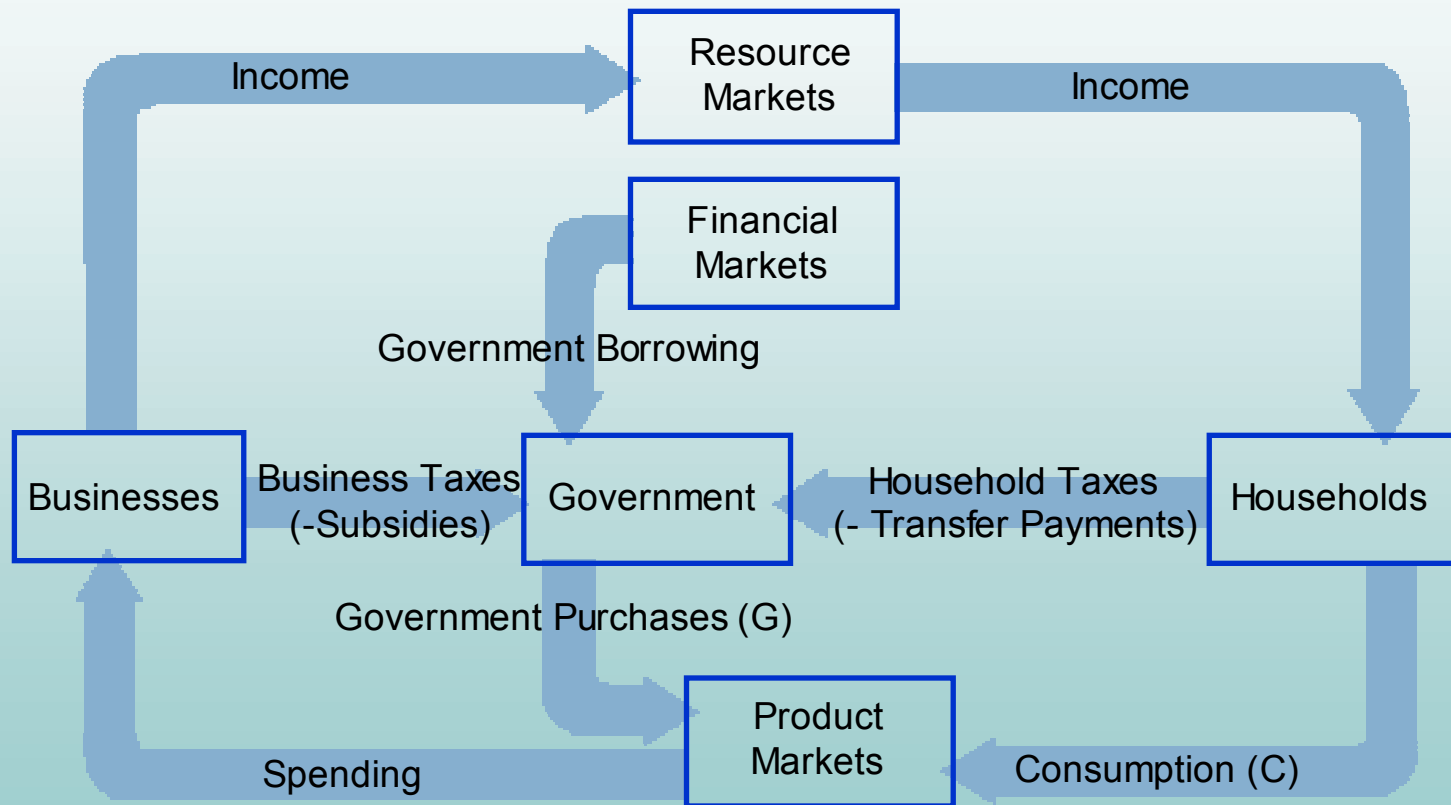
# Government Flows

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- Financial inflows to government include
  - household taxes minus transfer payments
  - business taxes minus subsidies
  - Government borrowing
- Government purchases are a financial outflow from government

# Government and the Circular Flow

Figure 9.7, Page 222



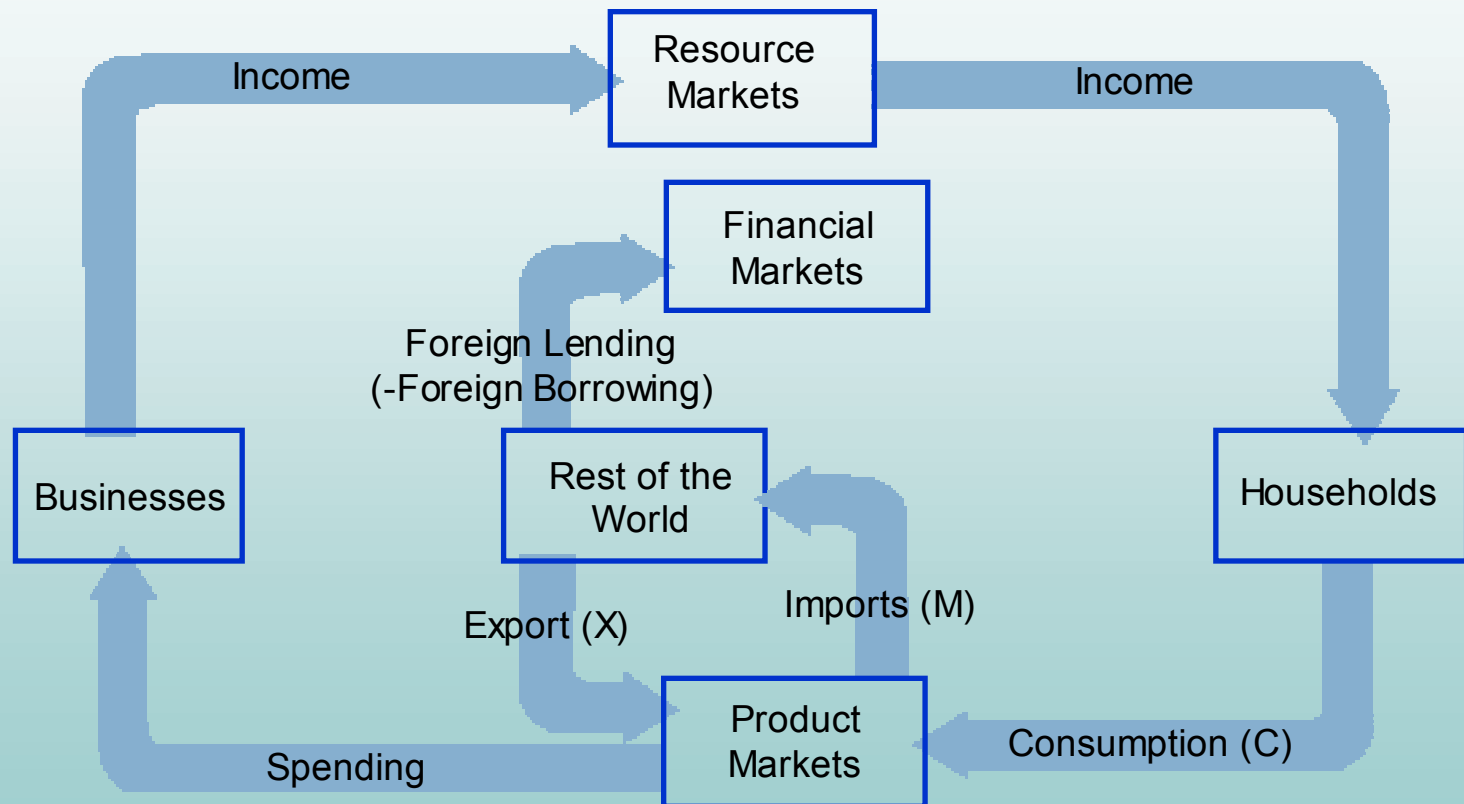
# Connections with the Rest of the World

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- Net exports represent a net inflow into Canadian product markets
- Lending by foreigners represents an inflow into Canadian financial markets
- Borrowing by foreigners represents an outflow from Canadian financial markets

# The Rest of the World and the Circular Flow

Figure 9.8, Page 223



# GDP and Living Standards

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- Per capita GDP is GDP per person and equals GDP divided by population
- Per capita real GDP
  - is per capita GDP expressed in constant dollars from a given year
  - is used to compare living standards in a given country over time
- Per capita GDPs for various countries are measured in a single currency

# Limitations of GDP (a)

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- GDP has limitations as an indicator of living standards because it does not
  - include nonmarket activities and those that take place in the underground economy
  - fully capture improvements in product quality
  - indicate the composition of output
  - indicate the distribution of income

# Limitations of GDP (b)

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- indicate how much leisure is enjoyed by a country's citizens
- distinguish between activities that are and are not harmful to the environment

# Other Economic Measures (a)

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- Gross National Product (GNP)
  - is the total income acquired by Canadians both within Canada and elsewhere
  - equals GDP - net investment income to the rest of the world
- Net Domestic Income (NDI)
  - is what is earned by households by supplying resources and equals GDP - indirect taxes - depreciation - the statistical discrepancy

# Deriving Gross National Product (2000)

Figure 9.9, Page 228

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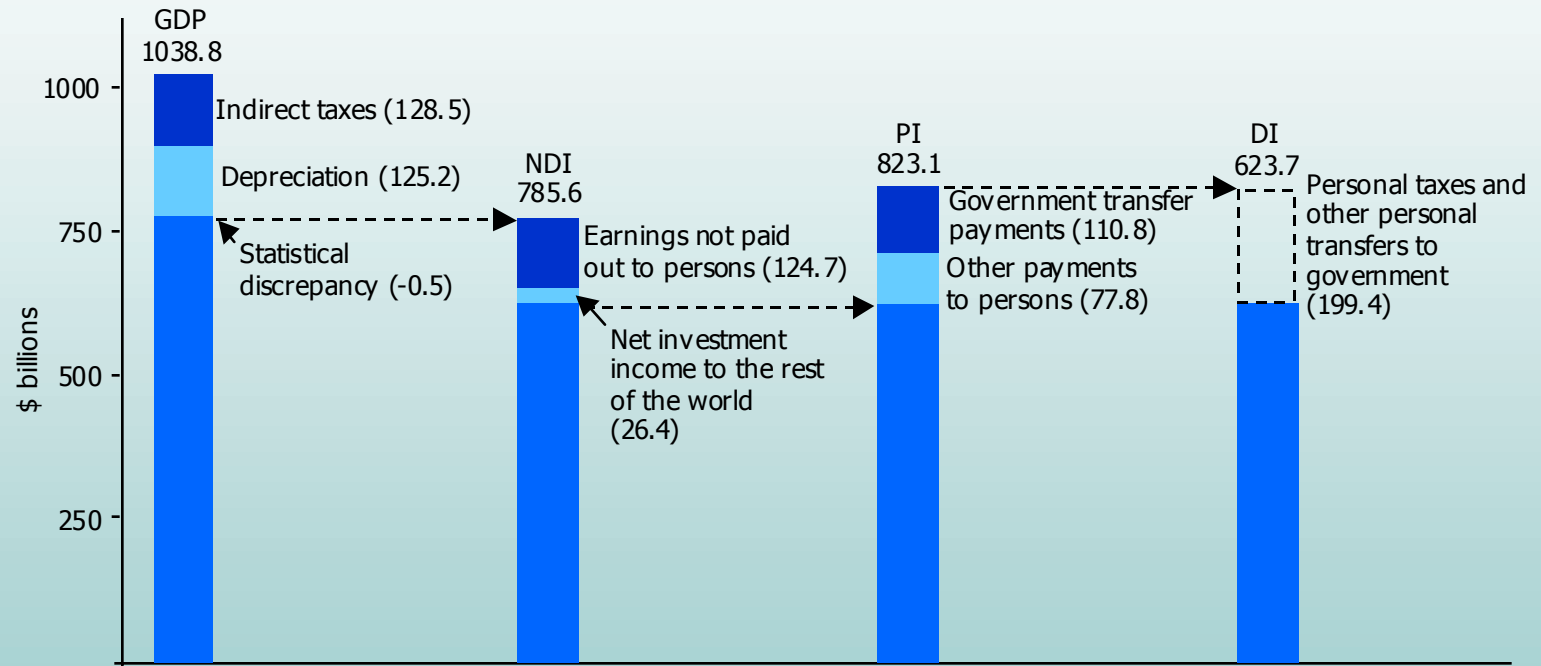
|  | <b>(\$ billions)</b> |
|--|----------------------|
| Gross Domestic Product (GDP)                           | 1038.8               |
| Deduct: Net investment income to the rest of the world | (-) 26.4             |
| Gross National Product (GNP)                           | 1012.4               |

# Other Economic Measures (b)

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- Personal Income (PI)
  - is the income actually received by households
  - equals NDI + government transfer payments + other payments to persons - earnings not paid out to persons - net investment income to the rest of the world
- Disposable Income (DI)
  - is personal income - personal taxes and other personal transfers to government

# Deriving Other Income Measures (2000) Figure 9.10, Page 229



# Adding the Human Dimension (a)

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- Mahbub ul Haq was instrumental in devising the Human Development Index (HDI) published annually for various countries by the United Nations Development Programme.
- This index is based on per capita GDP adjusted for purchasing power parity, the rate of adult literacy, the percentage of youth enrolled in school and life expectancy at birth.

# The Debate Over the HDI (a)

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- There are four issues with the HDI that its critics highlight
  - The HDI rankings for rich countries are numerically very close, making it difficult to use these rankings in any meaningful way.
  - Literacy figures for many countries (such as Canada's figure of 99 percent) are open to dispute.

# The Debate Over the HDI (b)

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- Increases in per capita GDP for rich countries are discounted at higher and higher rates, a method criticized by some observers.
- Life expectancy statistics change very gradually and are difficult to estimate.

# Refining the HDI

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- Haq was aware of these suggestions, and realized that the HDI would be modified over time.
- Each year, the UNDP has been including adjusted HDIs that highlight income disparities within countries and disparities between men and women. Such extensions are certain to continue.



# Understanding Economics

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