

# **DMS 201 : INTRODUCTION TO MANAGEMENT**

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## **MODULE-II: FINANCIAL MANAGEMENT**

**DR. PARVATI NEELAKANTAN**

# **PART 1: BUSINESS ENVIRONMENT**

## **LECTURE 4: MEASURING A NATION'S INCOME**

*In this class,  
look for the answers to these questions:*

- What is Gross Domestic Product (GDP)?
- How is GDP related to a nation's total income and spending?
- What are the components of GDP?
- How is GDP corrected for inflation?
- Does GDP measure society's well-being?

# Micro vs. Macro

- ***Microeconomics:***  
The study of how individual households and firms make decisions, interact with one another in markets.
- ***Macroeconomics:***  
The study of the economy as a whole.

# Income and Expenditure

- **Gross Domestic Product (GDP)** measures total income of everyone in the economy.
- GDP also measures total expenditure on the economy's output of goods & services.

*For the economy as a whole,  
**income equals expenditure**  
because every rupee a buyer spends  
is a rupee of income for the seller.*

# The Circular-Flow Diagram

- a simple depiction of the macroeconomy
- illustrates GDP as spending, revenue, factor payments, and income
- Preliminaries:
  - **Factors of production** are inputs like labor, land, capital, and natural resources.
  - **Factor payments** are payments to the factors of production (e.g., wages, rent).

# The Circular-Flow Diagram

## Households:

- own the factors of production, sell/rent them to firms for income
- buy and consume goods & services

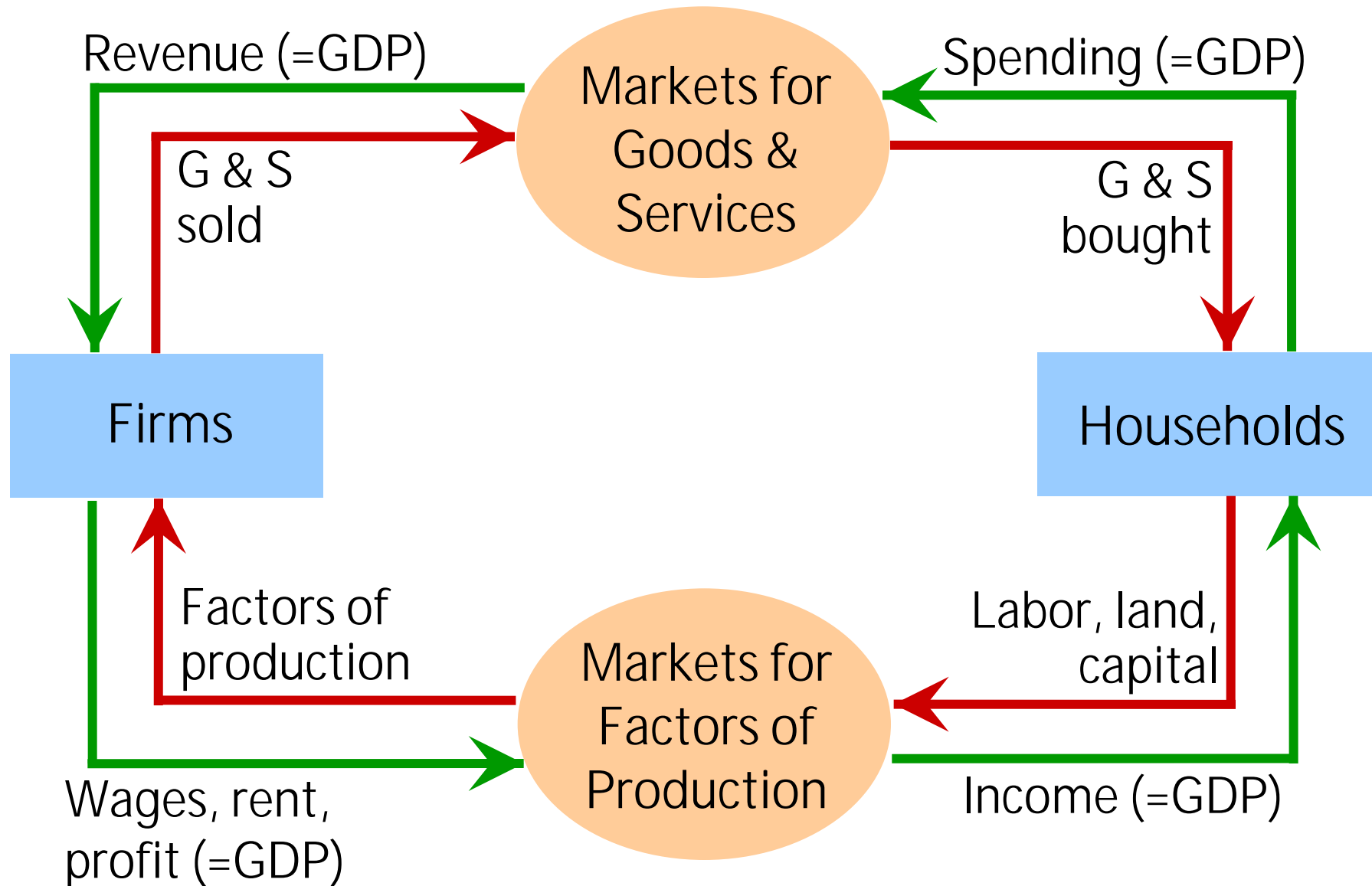
Firms

Households

## Firms:

- buy/hire factors of production, use them to produce goods and services
- sell goods & services

# The Circular-Flow Diagram





# What This Diagram Omits

- The government
  - collects taxes, buys goods & services
- The financial system
  - matches savers' supply of funds with borrowers' demand for loans
- The foreign sector
  - trades goods & services, financial assets, and currencies with the country's residents

# Gross Domestic Product (GDP) Is...

...the market value of all final goods & services produced within a country in a given period of time.

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*Goods are valued at their market prices, so:*

- *All goods measured in the same units (e.g., Rs in India)*
- *Things that don't have a market value are excluded, e.g., housework you do for yourself.*

## Gross Domestic Product (GDP) Is...

...the market value of all **final** goods & services produced within a country in a given period of time.

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***Final goods:*** intended for the end user

***Intermediate goods:*** used as components or ingredients in the production of other goods

*GDP only includes final goods—they already embody the value of the intermediate goods used in their production.*

## Gross Domestic Product (GDP) Is...

... the market value of all final goods & services produced within a country in a given period of time.

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*GDP includes tangible goods  
(like DVDs, mountain bikes, coke)*

*and intangible services  
(dry cleaning, concerts, cell phone service).*

## Gross Domestic Product (GDP) Is...

...the market value of all final goods & services **produced** within a country in a given period of time.

---

*GDP includes currently produced goods,  
not goods produced in the past.*

## Gross Domestic Product (GDP) Is...

...the market value of all final goods & services  
produced within a country  
in a given period of time.

---

*GDP measures the value of production that occurs within a country's borders, whether done by its own citizens or by foreigners located there.*

## Gross Domestic Product (GDP) Is...

...the market value of all final goods & services  
produced within a country  
in a given period of time.

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*Usually a year or a quarter (3 months)*

# The Components of GDP

- Recall: GDP is total spending.
- Four components:
  - Consumption (**C**)
  - Investment (**I**)
  - Government Purchases (**G**)
  - Net Exports (**NX**)
- These components add up to GDP (denoted **Y**):

$$Y = C + I + G + NX$$



# Consumption (C)

- is total spending by households on g&s.
- Note on housing costs:
  - For renters, consumption includes rent payments.
  - For homeowners, consumption includes the imputed rental value of the house, but not the purchase price or mortgage payments.

# Investment (I)

- is total spending on goods that will be used in the future to produce more goods.
- includes spending on
  - capital equipment (e.g., machines, tools)
  - structures (factories, office buildings, houses)
  - inventories (goods produced but not yet sold)

*Note: "**Investment**" does not mean the purchase of financial assets like stocks and bonds.*

# Government Purchases (G)

- is all spending on the g&s purchased by govt at the federal, state, and local levels.
- **G** excludes **transfer payments**, such as Social Security or unemployment insurance benefits. They are not purchases of g&s.

# Net Exports (NX)

- **NX** = exports – imports
- Exports represent foreign spending on the economy's g&s.
- Imports are the portions of **C**, **I**, and **G** that are spent on g&s produced abroad.
- Adding up all the components of GDP gives:

$$Y = C + I + G + NX$$

## ACTIVE LEARNING 1

### GDP and its components

In each of the following cases, determine how much GDP and each of its components is affected (if at all).

- A.** Debbie spends \$200 to buy her husband dinner at the finest restaurant in Boston.
- B.** Sarah spends \$1800 on a new laptop to use in her publishing business. The laptop was built in China.
- C.** Jane spends \$1200 on a computer to use in her editing business. She got last year's model on sale for a great price from a local manufacturer.
- D.** General Motors builds \$500 million worth of cars, but consumers only buy \$470 million worth of them.

## ACTIVE LEARNING 1

### Answers

**A.** Debbie spends \$200 to buy her husband dinner at the finest restaurant in Boston.

*Consumption and GDP rise by \$200.*

**B.** Sarah spends \$1800 on a new laptop to use in her publishing business. The laptop was built in China.

*Investment rises by \$1800, net exports fall by \$1800, GDP is unchanged.*

## ACTIVE LEARNING 1

### Answers

- C.** Jane spends \$1200 on a computer to use in her editing business. She got last year's model on sale for a great price from a local manufacturer.

*Current GDP and investment do not change, because the computer was built last year.*

- D.** General Motors builds \$500 million worth of cars, but consumers only buy \$470 million of them.

*Consumption rises by \$470 million, inventory investment rises by \$30 million, and GDP rises by \$500 million.*

# Real versus Nominal GDP

- Inflation can distort economic variables like GDP, so we have two versions of GDP:
- **Nominal GDP**
  - values output using current prices
  - not corrected for inflation
- **Real GDP**
  - values output using the prices of a *base year*
  - is corrected for inflation



## EXAMPLE:

	Pizza		Latte	
<i>year</i>	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>
2011	Rs10	400	Rs2.00	1000
2012	Rs11	500	Rs2.50	1100
2013	Rs12	600	Rs3.00	1200

Compute nominal GDP in each year:

2011:	$\text{Rs}10 \times 400 + \text{Rs } 2 \times 1000$	=	Rs6,000	} <u>Increase:</u>
2012:	$\text{Rs}11 \times 500 + \text{Rs}2.50 \times 1100$	=	Rs8,250	
2013:	$\text{Rs}12 \times 600 + \text{Rs } 3 \times 1200$	=	Rs10,800	

37.5%

30.9%

## EXAMPLE:

	Pizza		Latte	
<i>year</i>	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>
→ 2011	Rs10	400	R2.00	1000
2012	Rs11	500	Rs2.50	1100
2013	Rs12	600	Rs3.00	1200

Compute real GDP in each year,  
using 2011 as the base year:

$$\begin{array}{llll} 2011: & \text{Rs}10 \times 400 + \text{Rs}2 \times 1000 & = \text{Rs}6,000 & \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} 20.0\% \\ 16.7\% \end{array} \\ 2012: & \text{Rs}10 \times 500 + \text{Rs}2 \times 1100 & = \text{Rs}7,200 & \\ 2013: & \text{Rs}10 \times 600 + \text{Rs}2 \times 1200 & = \text{Rs}8,400 & \end{array}$$

Increase:

## EXAMPLE:

<i>year</i>	<i>Nominal GDP</i>	<i>Real GDP</i>
2011	Rs6000	Rs6000
2012	Rs8250	Rs7200
2013	Rs10,800	Rs8400

In each year,

- nominal GDP is measured using the (then) current prices.
- real GDP is measured using constant prices from the base year (2011 in this example).

## EXAMPLE:

<i>year</i>	<i>Nominal GDP</i>		<i>Real GDP</i>	
2011	Rs6000	}	Rs6000	}
2012	Rs8250		Rs7200	
2013	Rs10,800		Rs8400	}
		37.5%		20.0%
		30.9%		16.7%

- The change in nominal GDP reflects both prices and quantities.
- The change in real GDP is the amount that GDP would change if prices were constant (i.e., if zero inflation).

***Hence, real GDP is corrected for inflation.***

# The GDP Deflator

- The GDP deflator is a measure of the overall level of prices.
- Definition:

$$\text{GDP deflator} = 100 \times \frac{\text{nominal GDP}}{\text{real GDP}}$$

- One way to measure the economy's **inflation rate** is to compute the percentage increase in the GDP deflator from one year to the next.

## EXAMPLE:

<i>year</i>	<i>Nominal GDP</i>	<i>Real GDP</i>	<i>GDP Deflator</i>
2011	Rs6000	Rs6000	100.0
2012	Rs8250	Rs7200	114.6
2013	Rs10,800	Rs8400	128.6

14.6%  
12.2%

Compute the GDP deflator in each year:

$$2011: 100 \times (6000/6000) = 100.0$$

$$2012: 100 \times (8250/7200) = 114.6$$

$$2013: 100 \times (10,800/8400) = 128.6$$

# ACTIVE LEARNING 1

## Computing GDP

	2011 (base yr)		2012		2013	
	$P$	$Q$	$P$	$Q$	$P$	$Q$
Good A	Rs30	900	Rs31	1000	Rs36	1050
Good B	Rs100	192	Rs102	200	Rs100	205

Use the above data to solve these problems:

- A.** Compute nominal GDP in 2011.
- B.** Compute real GDP in 2012.
- C.** Compute the GDP deflator in 2013.

# ACTIVE LEARNING 1

## Answers

	2011 (base yr)		2012		2013	
	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>
Good A	Rs30	900	Rs31	1,000	Rs36	1050
Good B	Rs100	192	Rs102	200	Rs100	205

**A.** Compute nominal GDP in 2011.

$$\text{Rs}30 \times 900 + \text{Rs}100 \times 192 = \text{Rs}\underline{46,200}$$

**B.** Compute real GDP in 2012.

$$\text{Rs}30 \times 1000 + \text{Rs}100 \times 200 = \text{Rs}\underline{50,000}$$



# ACTIVE LEARNING 1

## Answers

	2011 (base yr)		2012		2013	
	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>	<i>P</i>	<i>Q</i>
Good A	Rs30	900	Rs31	1,000	Rs36	1050
Good B	Rs100	192	Rs102	200	Rs100	205

**C.** Compute the GDP deflator in 2013.

$$\text{Nom GDP} = \text{Rs}36 \times 1050 + \text{Rs}100 \times 205 = \text{Rs}\underline{58,300}$$

$$\text{Real GDP} = \text{Rs}30 \times 1050 + \text{Rs}100 \times 205 = \text{Rs}\underline{52,000}$$

$$\begin{aligned}\text{GDP deflator} &= 100 \times (\text{Nom GDP})/(\text{Real GDP}) \\ &= 100 \times (\text{Rs}58,300)/(\text{Rs}52,000) = \underline{112.1}\end{aligned}$$

# GDP and Economic Well-Being

- *Real GDP per capita is the main indicator of the average person's standard of living.*
- But GDP is not a perfect measure of well-being.

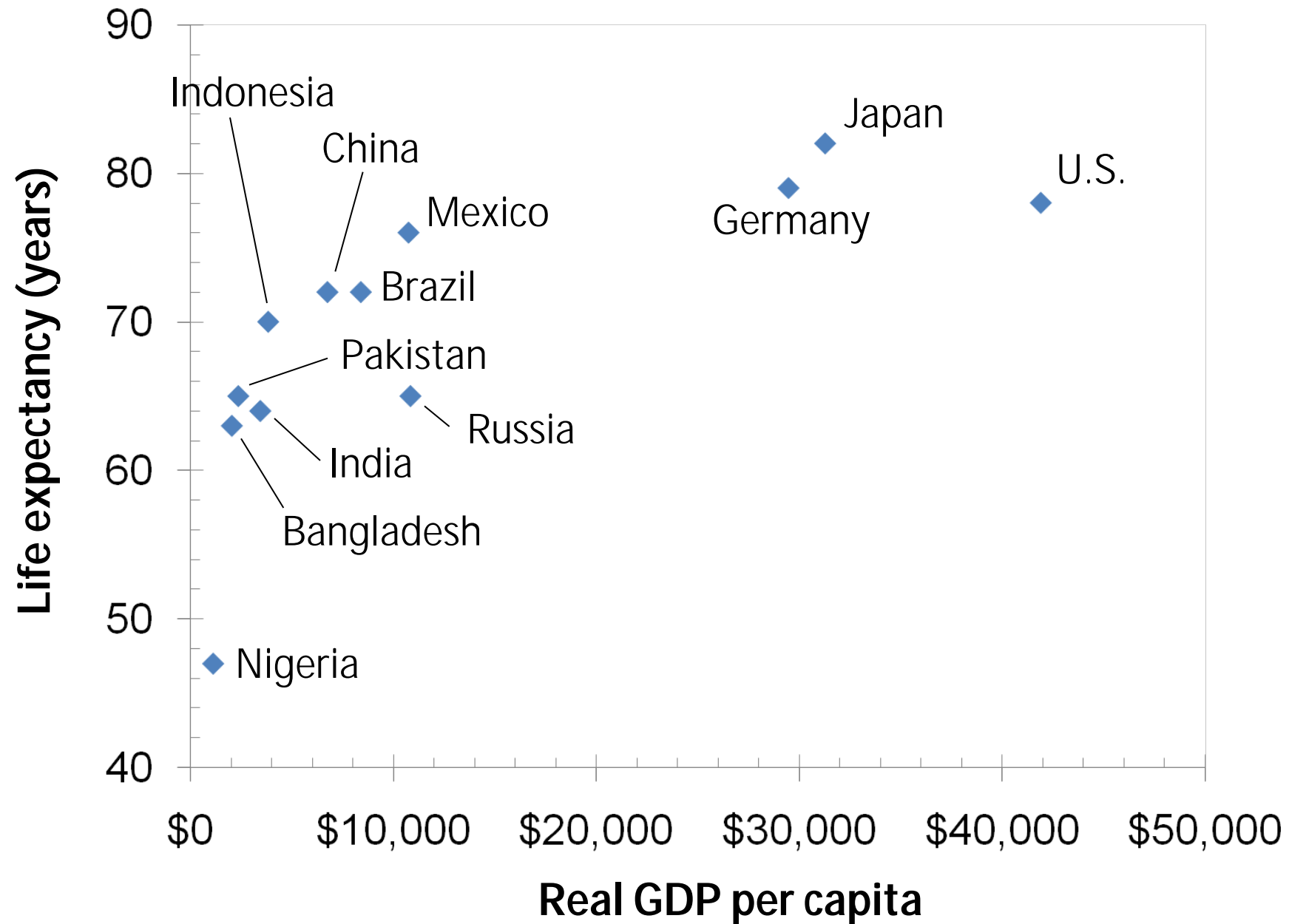
# GDP Does Not Value:

- the quality of the environment
- leisure time
- non-market activity, such as the child care a parent provides his or her child at home
- an equitable distribution of income

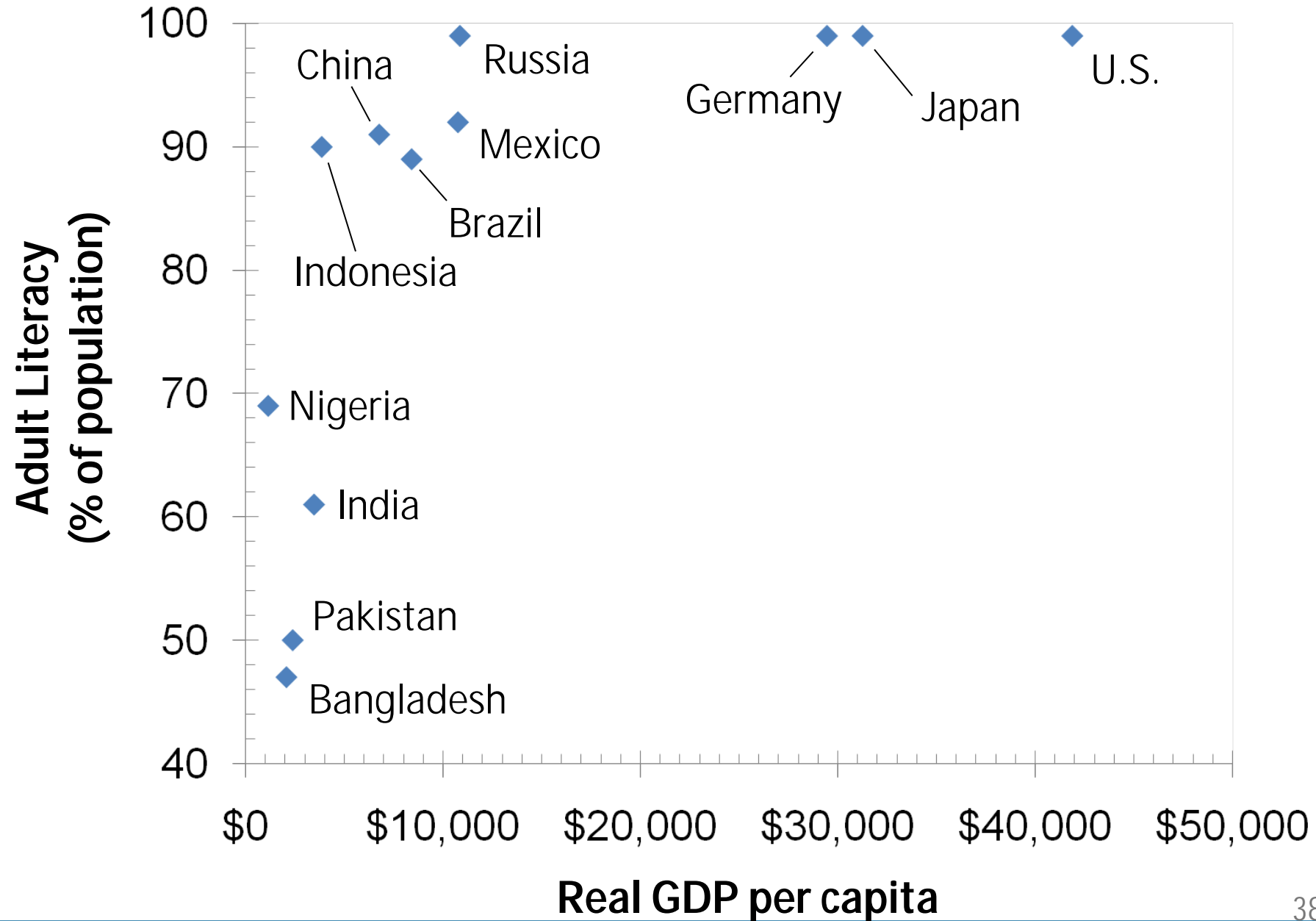
# Then Why Do We Care About GDP?

- Having a large GDP enables a country to afford better schools, a cleaner environment, health care, etc.
- Many indicators of the quality of life are positively correlated with GDP. For example...

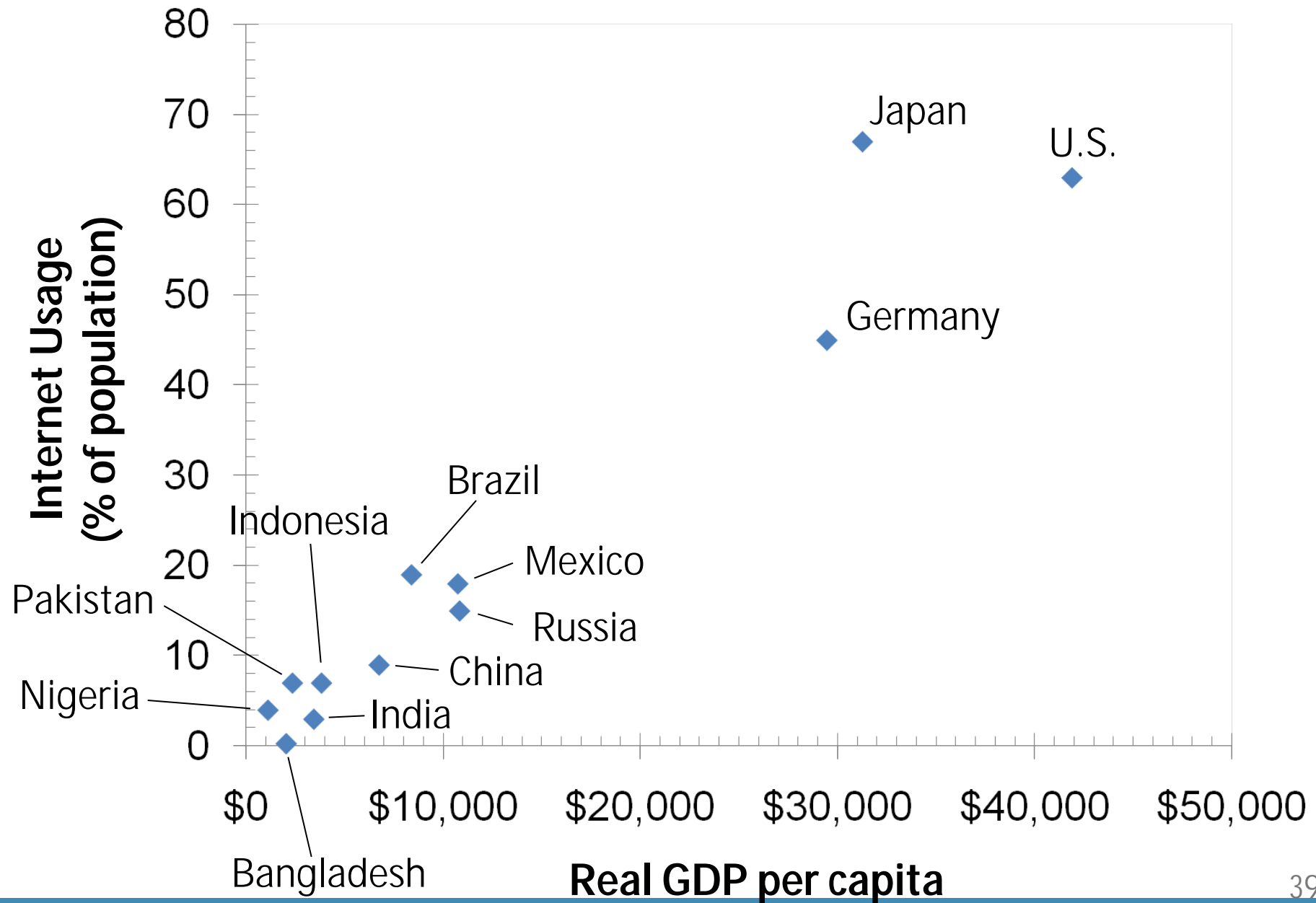
# GDP and Life Expectancy in 12 countries



## GDP and Literacy in 12 countries



# GDP and Internet Usage in 12 countries



# SUMMARY

- Gross Domestic Product (GDP) measures a country's total income and expenditure.
- The four spending components of GDP include: Consumption, Investment, Government Purchases, and Net Exports.
- Nominal GDP is measured using current prices. Real GDP is measured using the prices of a constant base year and is corrected for inflation.
- GDP is the main indicator of a country's economic well-being, even though it is not perfect.