

# Introduction to Macroeconomics

S. Bhattacharyya

Department of Humanities & Social Sciences

E-mail: [surajitb@iitb.ac.in](mailto:surajitb@iitb.ac.in)

Tel: 7388 [Office]

# **MACROECONOMICS**

**Readings:**

**Macroeconomics, Rudiger Dornbusch, Stanley Fischer and Richard Startz, McGraw-Hill**

**Macroeconomics, N. Gregory Mankiw, Worth Publishers**

**Principles of Macroeconomics, S. Sikdar, Oxford University Press**

# What Is Macroeconomics All About?

Study of the *structure* and *performance* of national economies and of the *policies* that governments/policy makers use to affect the overall economic performance.

Macroeconomic theory is the theory of income, employment, prices and money.

Is macroeconomics a *theoretical* science or a *policy* science?

Macroeconomics has both *theoretical* and *policy* orientations.

# ***Trade off At The Macro Level***

## **Public Investment**

- concentrated in the area of *public infrastructure*.
- directed primarily towards *agriculture*.
- directed towards *industrial development*.

# **Some Macro Issues**

**Why is it that Ethiopia, Guatemala, Ghana are still poor and the US, Germany, Japan are rich countries?**

**Why do the economies go through the phases of boom and bust?**

**What causes inflation?**

**How is money supply controlled in the economy?**

**What is budget deficit? How can a government finance its budget deficit?**

# TIMES GLOBAL

THE TIMES OF INDIA, MUMBAI | THURSDAY, SEPTEMBER 15, 2011

## Slowdown effect: 1 in 6 Americans is poor

Washington: The ranks of America's poor swelled to almost 1 in 6 people last year, reaching a new high as long-term unemployment left millions struggling and out of work. The number of uninsured edged up to 49.9 million, the biggest in more than two decades.

The Census Bureau's annual report released on Tuesday offers a snapshot of the economic well-being of US households for 2010, when joblessness hovered above 9 percent for a second year.

It comes at a politically sensitive time for President Barack Obama, who has acknowledged in the midst of a re-election fight that the unemployment rate could persist at high levels through next year.

The overall poverty rate

### THE POOR RICH STATE

**46 MILLION** Americans were living in poverty in 2010, almost 1 in 6 people

► US poverty rate at its **highest level since 1993**

► The US has the **highest poverty rate** among developed countries

► The poverty line for an

American family of four with two kids is an income of **\$22,113** a year

► Up to **49.9 MILLION** Americans uninsured

► **Blacks and Hispanics** together accounted for **54%** of the poor with **whites at 9.9%** and **Asians at 12.1%**



climbed to 15.1%, or 46.2 million, up from 14.3% in 2009. The official poverty level is an annual income of \$22,314 for a family of four.

Reflecting the lingering impact of the recession, the US poverty rate from 2007-2010 has now risen faster than any three-year period since the early 1980s, when a crippling energy crisis amid government cutbacks contributed to inflation, spiraling interest rates and unemployment.

Measured by total numbers, the 46 million now living in poverty is the largest on record dating back to when the census began tracking poverty in 1959. Based on percentages, it tied the poverty level in 1993 and was the highest since 1983.

Broken down by state,

Mississippi had the highest share of poor people, at 22.7%, according to calculations by the Census Bureau. It was followed by Louisiana, the District of Columbia, Georgia, New Mexico and Arizona. On the other end of the scale, New Hampshire had the lowest share, at 6.6 %.

The share of Americans without health coverage rose from 16.1% to 16.3% — or 49.9 million people — after the Census Bureau made revisions to numbers of the uninsured. That is due mostly to continued losses of employer-provided health insurance in the weakened economy.

Congress passed a health overhaul last year to deal with rising numbers of the uninsured. While the main provisions do not take effect until 2014, one aspect taking effect

in late 2010 allowed young adults until age 26 to be covered under their parents' health insurance.

Brett O'Hara, chief of the Health and Disability Statistics branch at the Census Bureau, noted that the uninsured rate for adults ages 18 to 24 declined last year — from 29.3% to 27.2%.

It was the only age group which posted a decrease. "For the change in uninsured, the law change certainly could be a factor," he said. The median — or midpoint — household income was \$49,445, down 2.3% from 2009.

The latest numbers, which cover Obama's second year in office, offer political fodder for both parties as Obama seeks to push a new \$447 billion plan for creating jobs and stimulating the economy. AP



**“The global financial meltdown and consequent economic recession in developed economies have clearly been a major factor in India’s economic slowdown. Given the origin and dimension of the crisis in the advanced countries, ... every developing country has suffered to a varying degree. No country, including India, remained immune to the global economic shock.”**

Source: ***Economic Survey***, Govt. of India (2008-09), Ch.1, State of the Economy



Inflation

Fiscal Deficit

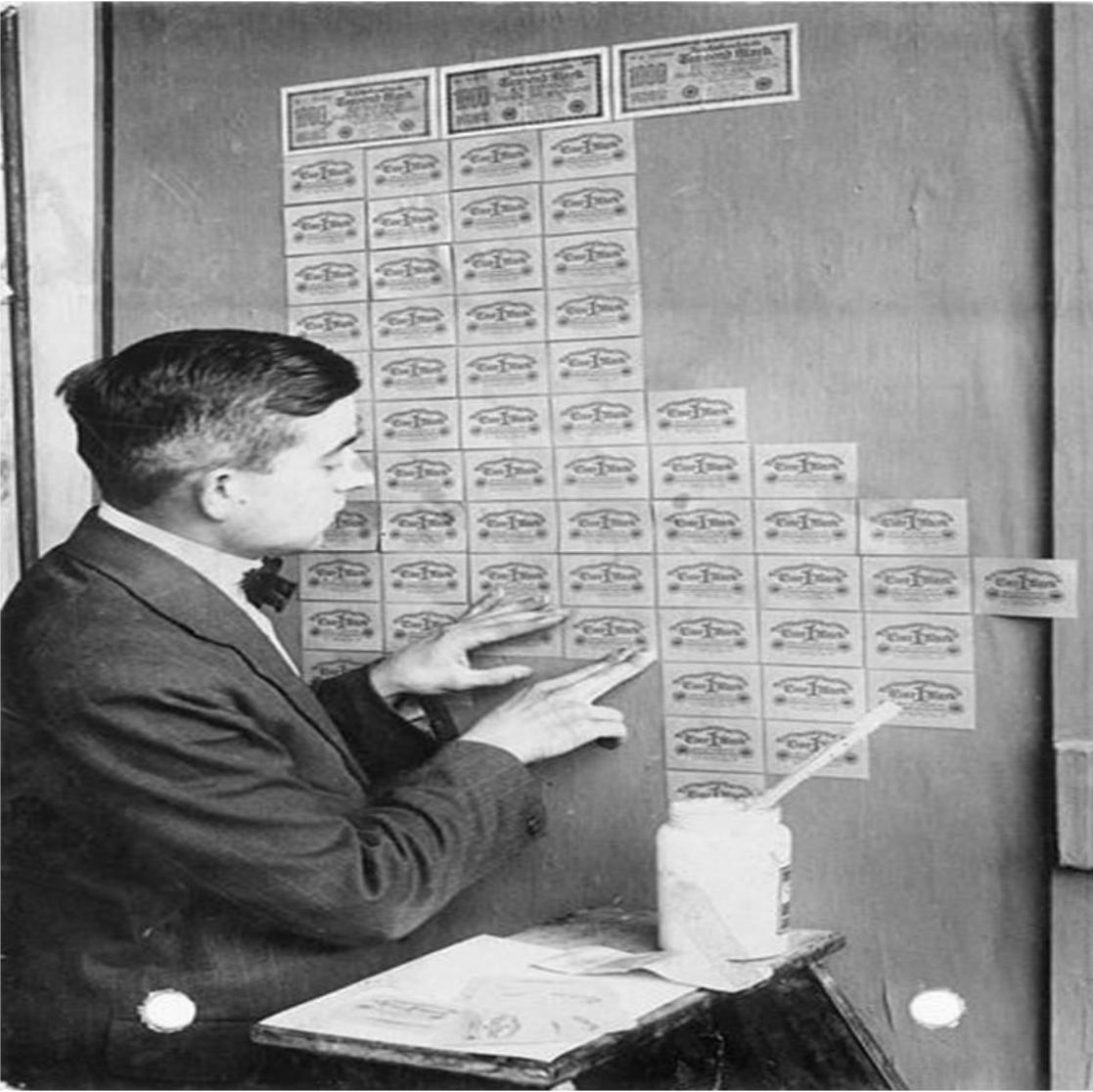
Poverty &  
Unemployment

Slow Pace of Investment  
Growth

Current Account Deficit

# Cases of Hyperinflation

Bolivia (1983-1985): prices increased by 23,000 percent!



Germany (1923): banknotes had lost so much value that they were used as wallpaper!

# The Tragic Case of Zimbabwe

Zimbabwean inflation rates (official) since independence

Date	Rate	Date	Rate	Date	Rate	Date	Rate	Date	Rate
1980	7%	1985	10%	1990	17%	1995	28%	2000	55.22%
1981	14%	1986	15%	1991	48%	1996	16%	2001	112.1%
1982	15%	1987	10%	1992	40%	1997	20%	2002	198.93%
1983	19%	1988	8%	1993	20%	1998	48%	2003	598.75%
1984	10%	1989	14%	1994	25%	1999	56.9%	2004	132.75%
								2005	585.84%
								2006	1,281.11%
								2007	66,212.3%
								2008	231,150,888.87%
									(July)

**Unstable governments, civic unrest, and lack of fiscal discipline are causes for hyperinflation.**

## Hyperinflation in Hungary



## 20th Century Hyperinflations

Nation	Year(s)	Peak Inflation (%)
Angola	1991-95	$1 \times 10^9$
Argentina	1983-92	$1.5 \times 10^9$
Austria	1922-23	500,000
Belarus	2000-08	$1 \times 10^8$
Bolivia	1984-86	$1 \times 10^6$
Bosnia/Herzegovina	1992-93	$5 \times 10^7$
Brazil	1967-94	$2.75 \times 10^{18}$
China	1948-55	$1.5 \times 10^{19}$
Georgia	1993-95	$1 \times 10^6$
Greece	1944	$5 \times 10^{13}$
Hungary	1922-24	n/a
	1945-46	$4 \times 10^{29}$
Mexico	1982-92	1,000
Nicaragua	1987-90	$5 \times 10^{10}$
Peru	1988-90	$1 \times 10^6$
Philippines	1942-44	100
Poland	1921-24	$1.8 \times 10^6$
	1989-91	10,000
Romania	1990-98	$5 \times 10^6$
Russia	1992-98	1,000
Taiwan	1944-49	4,000
Ukraine	1993-95	100,000
U.S.S.R.	1921-22	n/a
Yugoslavia	1989-94	$1.3 \times 10^{27}$
Zaire	1989-96	$3 \times 10^{11}$
Zimbabwe	2000-08	$1 \times 10^{25}$

# Introduction to Macroeconomics

S. Bhattacharyya

Department of Humanities & Social Sciences

E-mail: [surajitb@iitb.ac.in](mailto:surajitb@iitb.ac.in)

Tel: 7388 [Office]

**Capitalism:** Economic resources are owned by the private individuals and organizations.

All economic decisions (*production, distribution, exchange*, etc.) are taken by those private parties without any interference by the government. *Market mechanism governs the entire economic system.*

Private ownership of the means of production and creation of goods or services for profits are fundamental characteristics of a capitalist economy.

# CAPITALISM

STANDARDIZED  
COMPETITION  
MONOPOLISTIC  
ACCOUNTABLE

## PROFIT

COMPETITORS

ORGANIZATION  
CUMBERSOME  
INSTITUTIONS  
PROPONENTS  
CONSTRAINT

TESTED  
GEOGRAPHY  
GENERATED

TRANSLATES  
ABSTRACTION

COLLECTIVE  
INTERACTION

INTERACTION

DEFINITION DOMINANT  
FACTORIES ETC  
ANARCHIST DESCRIBED  
RESOURCES TERRITORIES BASED

PROPERTY ACCORDING  
COMPANIES PRICES  
CONSENSUS COLLECTIVITY  
MARKET GROWTH  
EXCHANGEABLE INCREMENTALLY  
CRITICISM MARKET CAPITAL  
ACCUMULATION SPECIALIZATION

## MAR

## COMPETIT

PHILOSOPHY CONSUMERS  
ENTERPRISES INVESTORS  
DESCRIPTIVE INSTRUMENTS  
TECHNOCAPITALISM ADVERTISING  
INDUSTRIALISATION ACTIONES  
PROTECTIONISM GRAINS  
THROUGHOUT MERCANTILISM  
NATIONALIST COMPUTERS  
PARTICULAR DESIRE PROBLEMS  
CORPORATE OWNERSHIP

INTERACTIONS CONTROVERSY  
RECOGNITION  
TELEVISIONS  
MECHANISM  
GLOBALISATION  
SIGNIFICANT ADVOCATING  
DESIGNATION  
ECONOMICS  
FREEDOM

**Socialism:** The State owns and operates most of the nation's major sectors such as banks, airlines, railroads, telephone, electricity and other factors of production and designs the means of distribution.

Planning plays an important role and State plans for a given period of time *what to produce, how much to produce, how to produce* and at *what price to supply* resources and commodities to the producers and consumers.

*The basic objective of socialism is to ensure social justice and more equitable distribution of wealth.*

Extreme form of socialism is communism; e.g., China in pre-1978 period.

# Capitalism



# Socialism



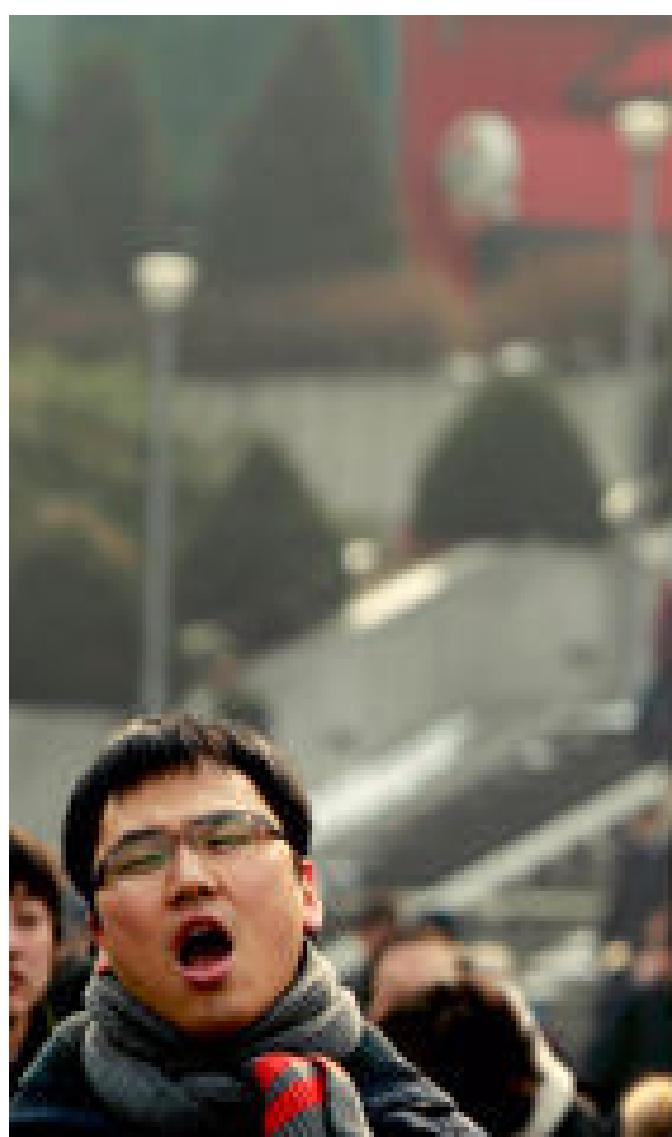
# COMMUNISM

# Communism

- **A political, social, economic system where the government controls everything- making sure that all get what they need. (in theory)**



**More extreme form of Socialism**



# **STOP GENOCIDE IN NORTH KOREA**

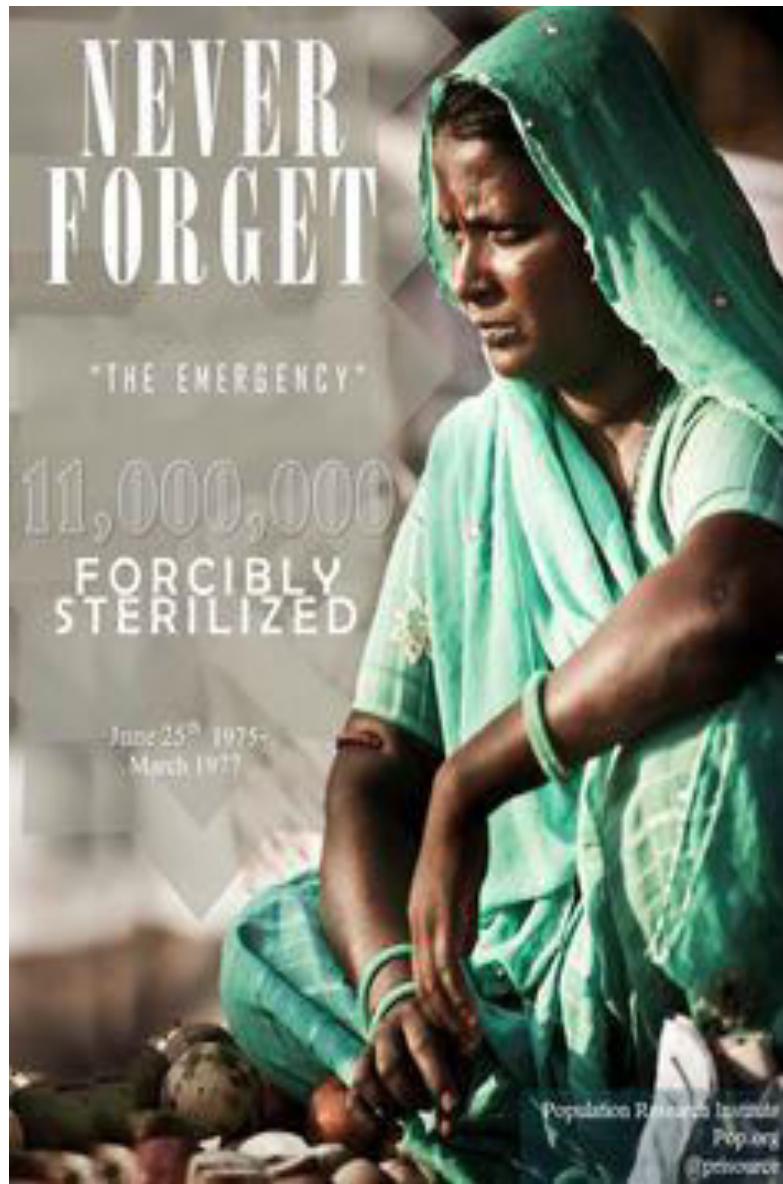


A human rights activist shouts slogans, holding up an image of North Korean children, during a January 27 rally in Seoul denouncing North Korea's human rights policy.

The Chinese government estimates that 400 million births were prevented by the *one-child policy* as of 2011.

The economic systems reveal a stark contrast in living standards with the annual per capita income of democratic **South Korea \$33,200** compared to communist **North Korea's \$1,800**.

It was increasingly observed that the communist countries' upper classes were experiencing all of the luxury and amenities, while the remainder of the population had none.



*"...women are persuaded with cash incentives – or the chance to win a refrigerator or a car – and how they are coerced – into sterilizations."*





Emergency period 25th June 1975- 21st March 1977

## "Blackest Hours"

*Of Independent India*

# **Historical Background**

## **Industrial Revolution (18<sup>th</sup> Century)**

Threw thousand of handcraft workers into the newly industrialized labor market.

**Around the factories crowded slums were established.**

**Crime, disease, hunger and misery were a way of life.**

**Industrial accidents brought no compensation for families.**

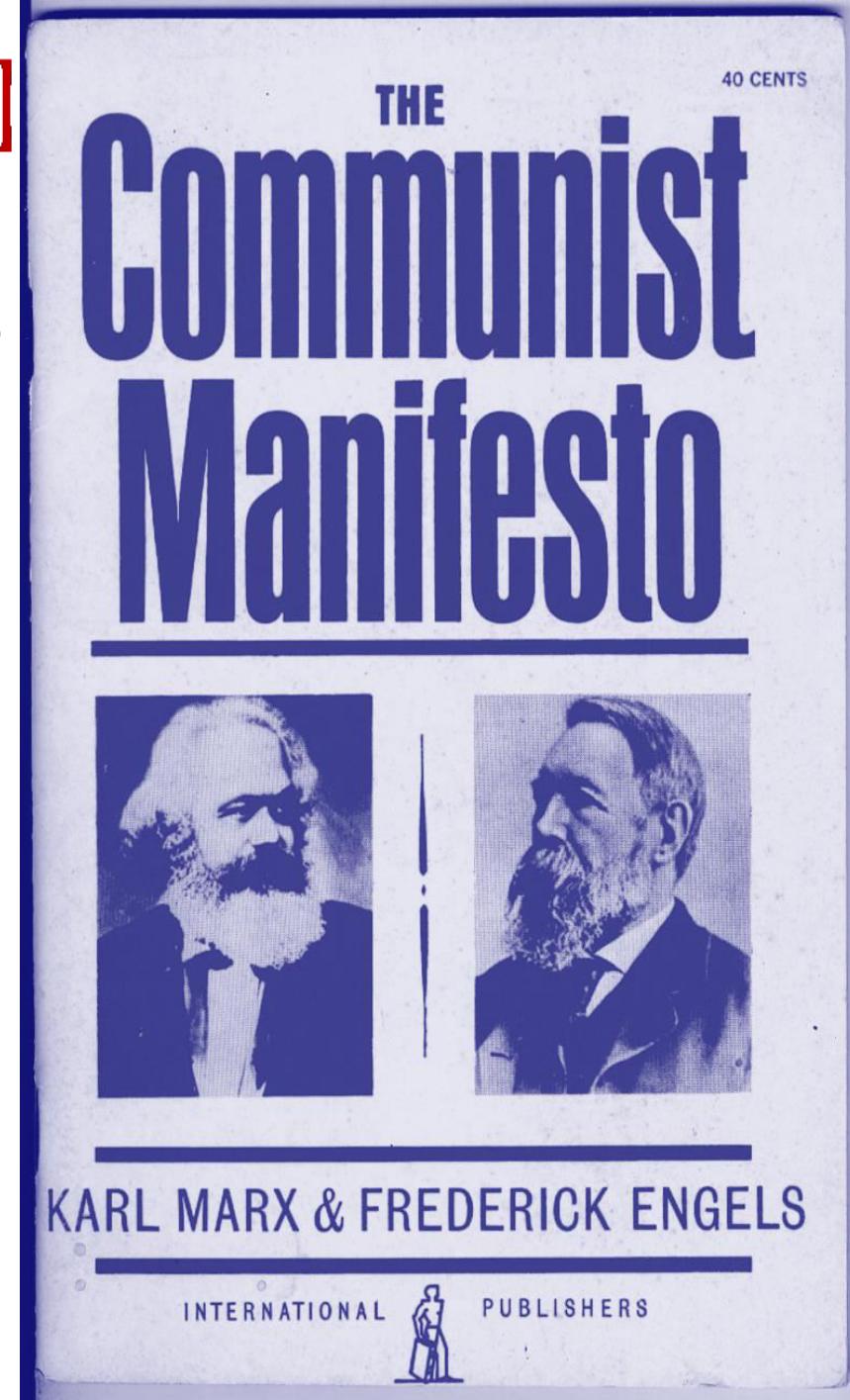
**Rights for wage earners did not exist.**

**Unions were illegal.**

# *The Communist Manifesto [1848]*

*Marx asked all workers world over to revolt and take control of the governments and thus create socialist economies.*

**Working Men of All Countries, Unite!**



# Major Revolutions Influenced by the Communist Manifesto

**Russia, 1917**

**North Korea, 1948**

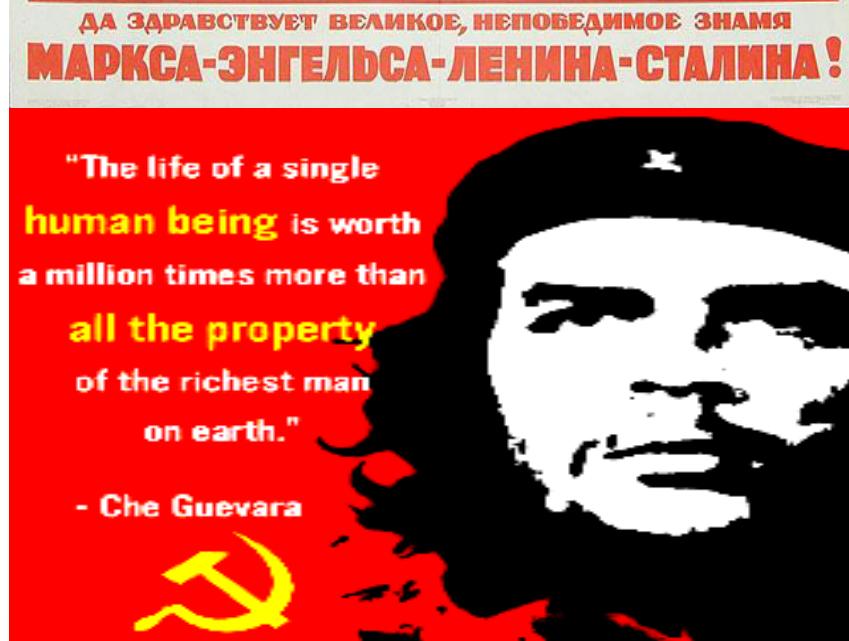
**China, 1949**

**Cuba, 1959**

**Vietnam, 1945-1975**



COMMUNISM IN CHINA



# The Macroeconomic History of the Twentieth Century

## *The Great Depression!*

### 1929-1939

#### The United States Business Cycle, 1890-1940



The U.S. economy was already past the peak of the business cycle when the stock market crashed in 1929. The stock market crash on "Black Tuesday", October 29, 1929, saw American common stocks lose a tenth of their value.

# The US Unemployment Rate During Great Depression

Year	Unemployment Rate (%)
1929	3.2
1930	8.7
1931	15.9
1932	23.6
1933	24.9
1934	21.7
1935	20.1
1936	16.9
1937	14.3

High unemployment  $\Rightarrow$  Low employment  $\Rightarrow$  Low income  $\Rightarrow$  Low demand  $\Rightarrow$  Low output

# Market *vs.* Government – The Neoclassical school *vs.* The Keynesians

The way in which we nowadays study macroeconomics largely owes its origins to John Maynard Keynes's *The General Theory of Employment, Interest and Money* published in 1936.

In his seminal work, John Maynard Keynes set out to challenge the mainstream neoclassical economic thoughts of those days, which Keynes castigated as unable to explain or offer policy solutions for the high level of unemployment which rose to 22 percent in 1932.

# **Classical Economics**

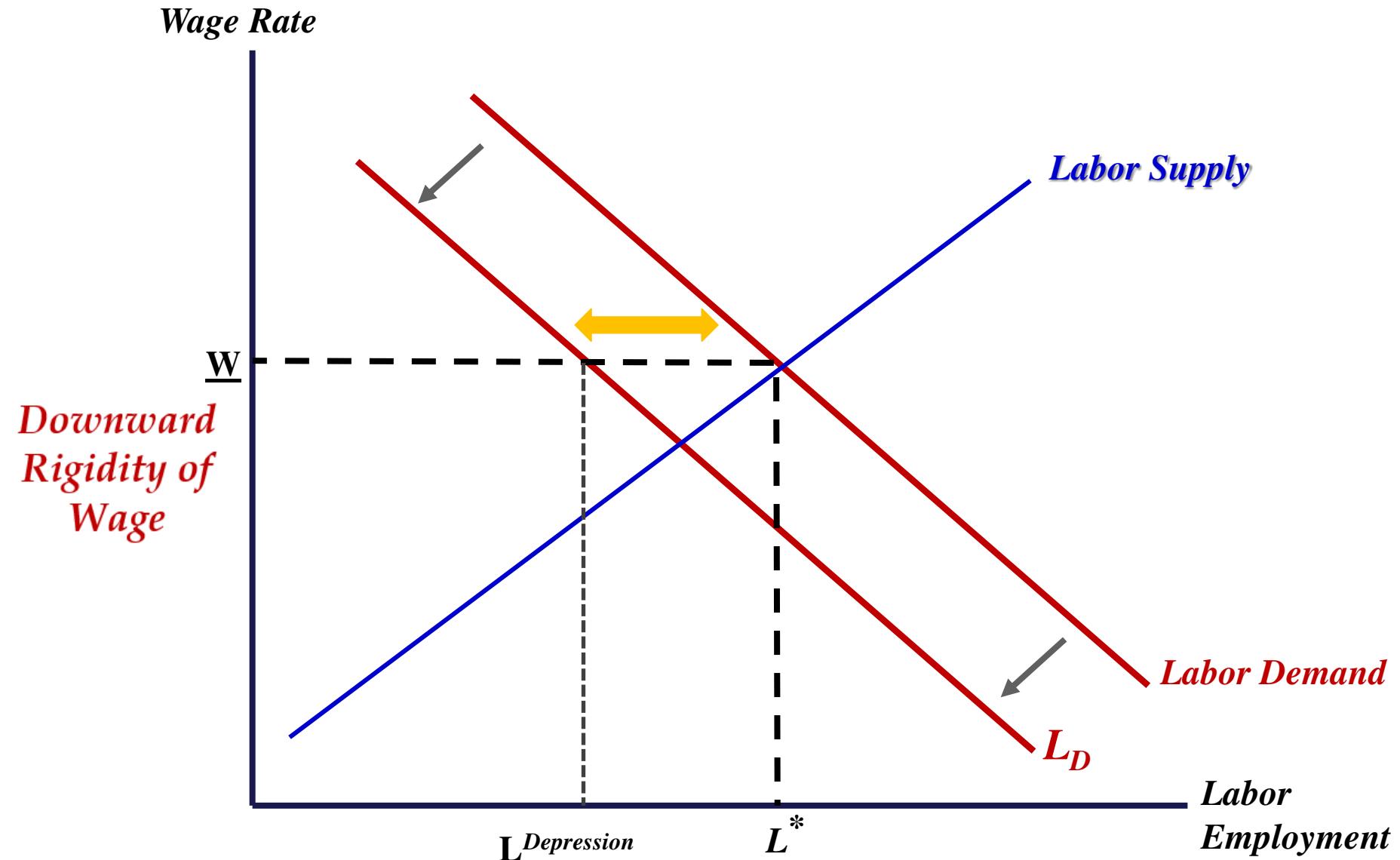
Before the 1930s, economists believed that the economy was self-equilibrating:

- a shortfall in demand for goods (*recession*) would result in falling prices and interest rates, and a recovery in demand.
- a shortfall in the demand for workers (*unemployment*) would result in falling wages, and a recovery in employment.

Says Law — *Supply creates its own demand.*

*Persistence of 1930s depression cast doubt on "Classical" economics.*

Keynesian Economics: *Output is demand determined.*



# Is Output Really Demand Determined?

Maruti Suzuki cuts down production and lays off 200 workers in the advent of low demands –

July, 2013

In December 2008, Suzuki, Japan's fourth biggest car manufacturer, announced that it will cut production in Japan by about 30,000 units due to falling demand.

Reported in *Bloomberg* on December 23, 2008, that Mitsubishi Motors is to widen production cuts on falling demand.

# Auto cos cut output of passenger vehicles

## Production Falls 5% In Aug As Demand Slows

Pankaj Doval | TNN

**New Delhi:** Slowdown pressures are building up in key segments of the Indian economy. The passenger vehicle segment—a crucial indicator of the mood of consumers—has seen its first production cut in the last two-and-a-half years as companies fight sluggish demand.

Production of passenger vehicles—that comprises cars, utility vehicles and vans—fell 5% in August to 234,093 units against 246,146 units in the same month last year. A reduction was last seen in February 2009 (-2%) amid the global economic recession. This move by the companies reflects the despondent mood and belief that the current slowdown will continue for some time.

The cut in output indicates that the companies are not too optimistic about the festive season and are not keen to pile up heavy inventories.

The production cut is a setback to India's story as a bellwether of the global car industry, though many analysts feel this is a temporary phenomenon. But indications are not that rosy. Industry body Society

### BUMPY RIDE

Month	2010	2011	Growth Rate (%)
Apr	2,24,959	2,75,635	22.5
May	2,13,611	2,51,743	18
Jun	2,08,360	2,33,175	12
Jul	2,49,851	2,55,658	2
Aug	2,46,146	2,34,093	-4.9
Fiscal*	—	29,87,296	27

Figures Are Units Produced; Source: Siam



\*2010/11

of Indian Automobile Manufacturers (Siam) has already said that demand is likely to remain moderate for passenger vehicles and it may have to downwardly revise the sales outlook for this fiscal from the 10%-12% predicted earlier. The original growth forecast made by Siam was 16-18%, which was revised downwards recently.

The output reduction follows dismal sales performance by the passenger vehicle industry, particularly for cars, that has been hit by poor demand as people refuse to go for new purchases due to high interest rates and petrol price. Pinching inflation and choppy stock markets have only added to the negative sentiment.

Analysts said companies are being forced to cut production as they want to reduce the high inventory levels at dealerships. Companies which have reduced output in August include Maruti (-22%), Tata Motors (-27%), Honda Siel (-32%), Fiat (-54%) and Hindustan Motors (-54%). Only, General Motors' output was up by 0.58% and Hyundai increased it by 2%. Maruti's production at Manesar plant is affected due to a labour unrest. "The market has slowed down and demand has completely gone down. The good thing for GM is that we have a good demand for the Beat diesel compact that has kept us going," said P Balendran, V-P at GM India.

# *Possible Causes Behind the Great Depression*

Overproduction till late 1920's [following the *Say's Law*]

The havoc stock market crash of 1929 ( October, 29).

[Arguably] the untimely intervention by the FED — *raising the interest rate* to cool off the market.

Increasingly widening gap between *rich* and *poor*.

# Change in Economic Indicators, 1929-32

	United States	Great Britain	France	Germany
Industrial Production	- 46%	- 23%	- 24%	- 41%
Wholesale Prices	- 32%	- 33%	- 34%	- 29%
Unemployment	+607%	+129%	+214%	+232%

# Main Twofold Arguments of Keynes (1936)

It is possible for high unemployment and underutilized capacity to persist in market economies.

Government policies (*fiscal* and *monetary*) can affect output and thereby reduce unemployment and shorten economic downturns.

**Govt. expenditure,  
Tax/Subsidies**

**Money Supply &  
Interest Rate**

```
graph LR; A[Govt. expenditure,  
Tax/Subsidies] --> B[unemployment ↑ and  
shortens economic  
downturns]; C[Money Supply &  
Interest Rate] --> B;
```

Post World War II, for the first time in history, the U.S Congress affirmed the government's role in promoting output growth, fostering employment and maintaining price stability.



# Economic Policies

**Fiscal Policy:** Tax rates/rebates, expenditures (for Defence forces, transfers, subsidies, investment for unemployment and poverty reduction, etc.)

**Monetary Policy:** change in money supply, interest rates, reserve ratios, etc.

**External Sector Policies:** Trade policies (tariff and non-tariff measures), Exchange rate policy.

**Sectoral Policies:** Industrial, Agricultural Policies, etc.

# **Government Intervention & Intriguing Issues:**

***Can* the Government and *should* the Government intervene in the economy to improve its performance?**

**What is the role of economic thinking in shaping policy and performance of economies and firms?**

***Why* does the Government intervene in the economy?**

***What* are the objectives of government policy measures?**

***How* is the performance of the economy related to the public policy interventions?**

# *Govt. Intervention in Price Setting*

# Price Ceiling and Price Floor

## GOVT FIGHTS PRICEY DRUGS



1 To negotiate prices of cancer drugs and stents with companies

2 Negotiations will be for cancer drugs outside price control

3 Will procure in bulk and distribute through hospitals

4 Currently only 51 cancer medicines are under price control

5 Prices of total 348 medicines are capped by government

**REUTERS** EDITION: IN ▾

HOME BUSINESS MARKETS INDIA WORLD TECH OPINION BREAKINGVIEWS

## India caps prices of 36 more drugs to improve access - government official

BY ADITYA KALRA AND ZEBA SIDDIQUI  
NEW DELHI/MUMBAI | Fri Sep 19, 2014 7:34pm IST

0 COMMENTS | [Tweet](#) 29 | [Link this](#) [Share this](#) [Email](#) [Print](#)



# THE MAHARASHTRA RENT CONTROL ACT, 1999

(As Amended upto date)

TOGETHER WITH

- Specimen of Leave and Licence Agreement  
Tenancy Agreement / Deed of Surrender
- Registration Charges and Stamp Duty Charges on  
Leave and Licence and Tenancy with its Chart
- The Bombay Rent Act, 1947 with Bombay Rules  
C.P. And Berar Letting of Premises and Rent  
Control Order, 1949, The Hyderabad Houses (Rent,  
Eviction and Lease) Control Act, 1954
- Report of the Joint Committee
- Exhaustive Notes citing cases of Supreme Court  
and Bombay High Court on Bombay Rent Act  
and Mah. Rent Control Act Apprx. 1000 Cases

By  
Sameer Tendulkar  
Advocate Bombay High Court

LAW TIMES (BOMBAY)  
Mumbai-01 22671552

Rs. 455/-



Scott Bonukian

# Setting of Price Floor by GoI

Commodity	MSP for 2013-14 <i>(Rs. per quintal)</i>	MSP for 2014-15 <i>(Rs. per quintal)</i>	Increase over previous year
Wheat	1400	1450	50
Barley	1100	1150	50
Gram	3100	3175	75
Masur (Lentil)	2950	3075	125
Rapeseed/Mustard	3050	3100	50
Safflower	3000	3050	50

**U.S. Govt. to Take Over AIG in \$85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up**

*The Wall Street Journal*, September 16, 2008

**Govt. calls Satyam a unique case, mulls bailout**

The Indian Express, January 12, 2009

# Key variables in Macroeconomics

- Total output in the economy
- Aggregate Price Level
- Employment (and Unemployment)
- Interest Rate
- Wage Rate
- Exchange Rate

# Major [Macro]Economic Objectives

- Output: High *level* and rapid *growth* of output.

*Growth without social justice is inhuman and social justice without growth is impossible.*

- Employment:

*High* level of employment with *low* involuntary unemployment.

- Price-level stability: *Stable moderate inflation rate.*

**Redistributive justice:** reduction of inequalities /poverty alleviation



# Aggregate Demand (AD)

- Refers to the total amount that different sectors in the economy willingly spend on goods and services in a given period.
- Aggregate demand is the sum of spending by consumers (*on cars, food items, tourism, etc.*), businesses (*investment on construction of houses and factories, machines and equipments*), government (*spending on highways, missiles*) and the rest of the world (*exports and imports*).



# Aggregate Supply (AS)

- Refers to the total quantity of goods and services that the nations' business is willing to produce and sell during a given period.

Potential Output: Maximum sustainable output that an economy can produce. It is determined by the availability of productive inputs and the managerial and technical efficiency with which those inputs are combined.

# *Possible Causes Behind the Great Depression*

Overproduction till late 1920's [following the *Say's Law*]

The havoc stock market crash of 1929 ( October, 29).

[Arguably] the untimely intervention by the FED — *raising the interest rate* to cool off the market.

Increasingly widening gap between *rich* and *poor*.

# Change in Economic Indicators, 1929-32

	United States	Great Britain	France	Germany
Industrial Production	- 46%	- 23%	- 24%	- 41%
Wholesale Prices	- 32%	- 33%	- 34%	- 29%
Unemployment	+607%	+129%	+214%	+232%

# Main Twofold Arguments of Keynes (1936)

It is possible for high unemployment and underutilized capacity to persist in market economies.

Government policies (*fiscal* and *monetary*) can affect output and thereby reduce unemployment and shorten economic downturns.

**Govt. expenditure,  
Tax/Subsidies**

**Money Supply &  
Interest Rate**

```
graph LR; A[Govt. expenditure,  
Tax/Subsidies] --> B[unemployment ↑ and  
shortens economic  
downturns]; C[Money Supply &  
Interest Rate] --> B;
```

Post World War II, for the first time in history, the U.S Congress affirmed the government's role in promoting output growth, fostering employment and maintaining price stability.



# Economic Policies

**Fiscal Policy:** Tax rates/rebates, expenditures (for Defence forces, transfers, subsidies, investment for unemployment and poverty reduction, etc.)

**Monetary Policy:** change in money supply, interest rates, reserve ratios, etc.

**External Sector Policies:** Trade policies (tariff and non-tariff measures), Exchange rate policy.

**Sectoral Policies:** Industrial, Agricultural Policies, etc.

# **Government Intervention & Intriguing Issues:**

***Can* the Government and *should* the Government intervene in the economy to improve its performance?**

**What is the role of economic thinking in shaping policy and performance of economies and firms?**

***Why* does the Government intervene in the economy?**

***What* are the objectives of government policy measures?**

***How* is the performance of the economy related to the public policy interventions?**

# *Govt. Intervention in Price Setting*

# Price Ceiling and Price Floor

## GOVT FIGHTS PRICEY DRUGS



1 To negotiate prices of cancer drugs and stents with companies

2 Negotiations will be for cancer drugs outside price control

3 Will procure in bulk and distribute through hospitals

4 Currently only 51 cancer medicines are under price control

5 Prices of total 348 medicines are capped by government

**REUTERS** EDITION: IN ▾

HOME BUSINESS MARKETS INDIA WORLD TECH OPINION BREAKINGVIEWS

## India caps prices of 36 more drugs to improve access - government official

BY ADITYA KALRA AND ZEBA SIDDIQUI  
NEW DELHI/MUMBAI | Fri Sep 19, 2014 7:34pm IST

0 COMMENTS | [Tweet](#) 29 | [Link this](#) [Share this](#) [Email](#) [Print](#)



# THE MAHARASHTRA RENT CONTROL ACT, 1999

(As Amended upto date)

TOGETHER WITH

- Specimen of Leave and Licence Agreement  
Tenancy Agreement / Deed of Surrender
- Registration Charges and Stamp Duty Charges on  
Leave and Licence and Tenancy with its Chart
- The Bombay Rent Act, 1947 with Bombay Rules  
C.P. And Berar Letting of Premises and Rent  
Control Order, 1949, The Hyderabad Houses (Rent,  
Eviction and Lease) Control Act, 1954
- Report of the Joint Committee
- Exhaustive Notes citing cases of Supreme Court  
and Bombay High Court on Bombay Rent Act  
and Mah. Rent Control Act Appx. 1000 Cases

By  
Sameer Tendulkar  
Advocate Bombay High Court

**LAW TIMES (BOMBAY)**  
Mumbai-01 22671552

Rs. 455/-



Scott Bonukian

# Setting of Price Floor by GoI

Commodity	MSP for 2013-14 <i>(Rs. per quintal)</i>	MSP for 2014-15 <i>(Rs. per quintal)</i>	Increase over previous year
Wheat	1400	1450	50
Barley	1100	1150	50
Gram	3100	3175	75
Masur (Lentil)	2950	3075	125
Rapeseed/Mustard	3050	3100	50
Safflower	3000	3050	50

**U.S. Govt. to Take Over AIG in \$85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up**

*The Wall Street Journal*, September 16, 2008

**Govt. calls Satyam a unique case, mulls bailout**

The Indian Express, January 12, 2009

# Key variables in Macroeconomics

- Total output in the economy
- Aggregate Price Level
- Employment (and Unemployment)
- Interest Rate
- Wage Rate
- Exchange Rate

# Major [Macro]Economic Objectives

- Output: High *level* and rapid *growth* of output.

*Growth without social justice is inhuman and social justice without growth is impossible.*

- Employment:

*High* level of employment with *low* involuntary unemployment.

- Price-level stability: *Stable moderate inflation rate.*

**Redistributive justice:** reduction of inequalities /poverty alleviation



# Aggregate Demand (AD)

- Refers to the total amount that different sectors in the economy willingly spend on goods and services in a given period.
- Aggregate demand is the sum of spending by consumers (on *cars, food items, tourism*, etc.), businesses (*investment on construction of houses and factories, machines and equipments*), government (*spending on highways, missiles*) and the rest of the world (*exports and imports*).



# Aggregate Supply (AS)

- Refers to the total quantity of goods and services that the nations' business is willing to produce and sell during a given period.

Potential Output: Maximum sustainable output that an economy can produce. It is determined by the availability of productive inputs and the managerial and technical efficiency with which those inputs are combined.



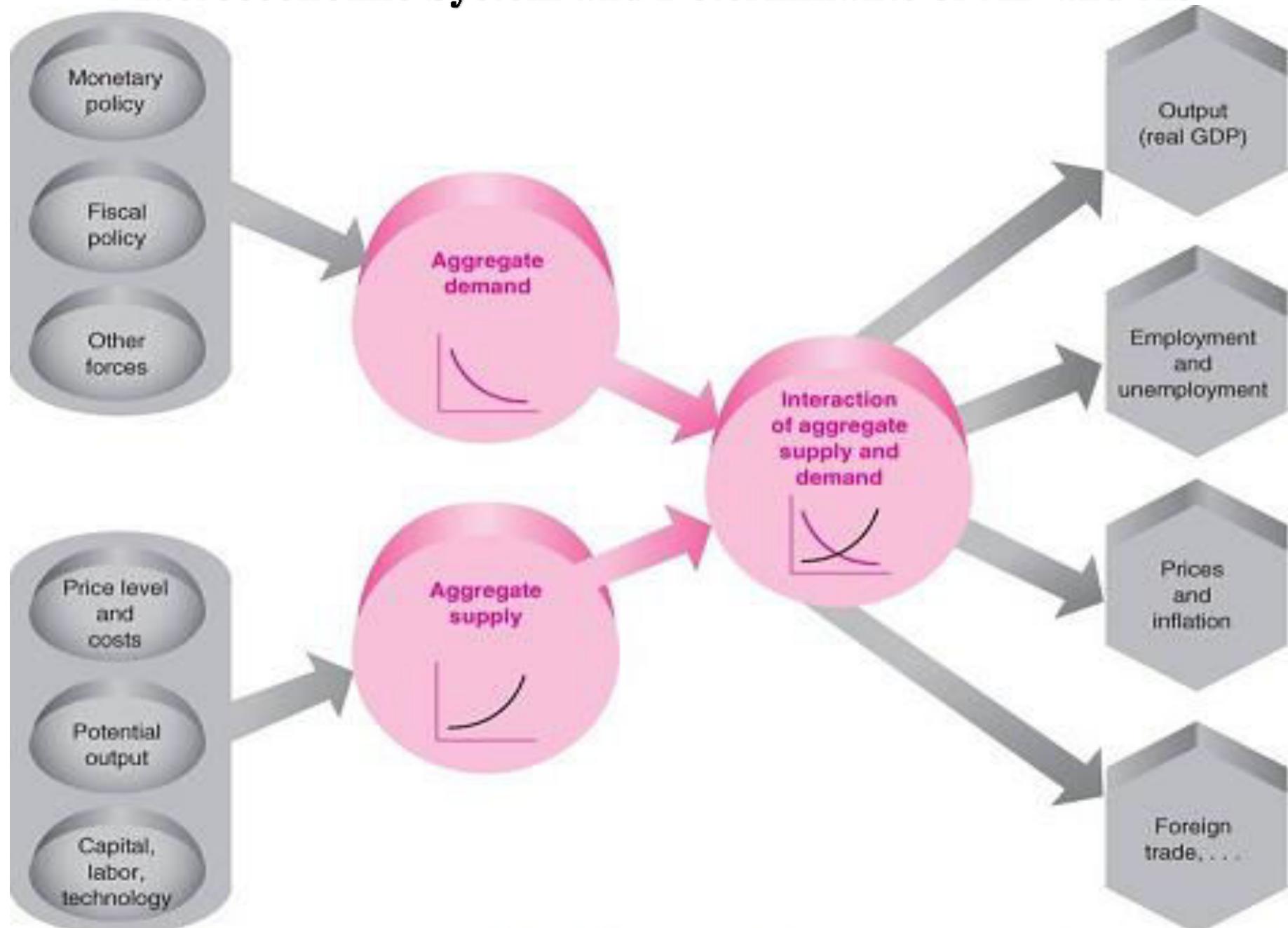
# Aggregate Demand (AD)

- *Aggregate Demand* is the sum of spending by *consumers* (e.g., on **cars, food items, tourism**, etc.), *businesses* (**investment on construction of houses and factories, machines and equipments**), *government* (**spending on highways, missiles**) and the rest of the world (**exports and imports**).

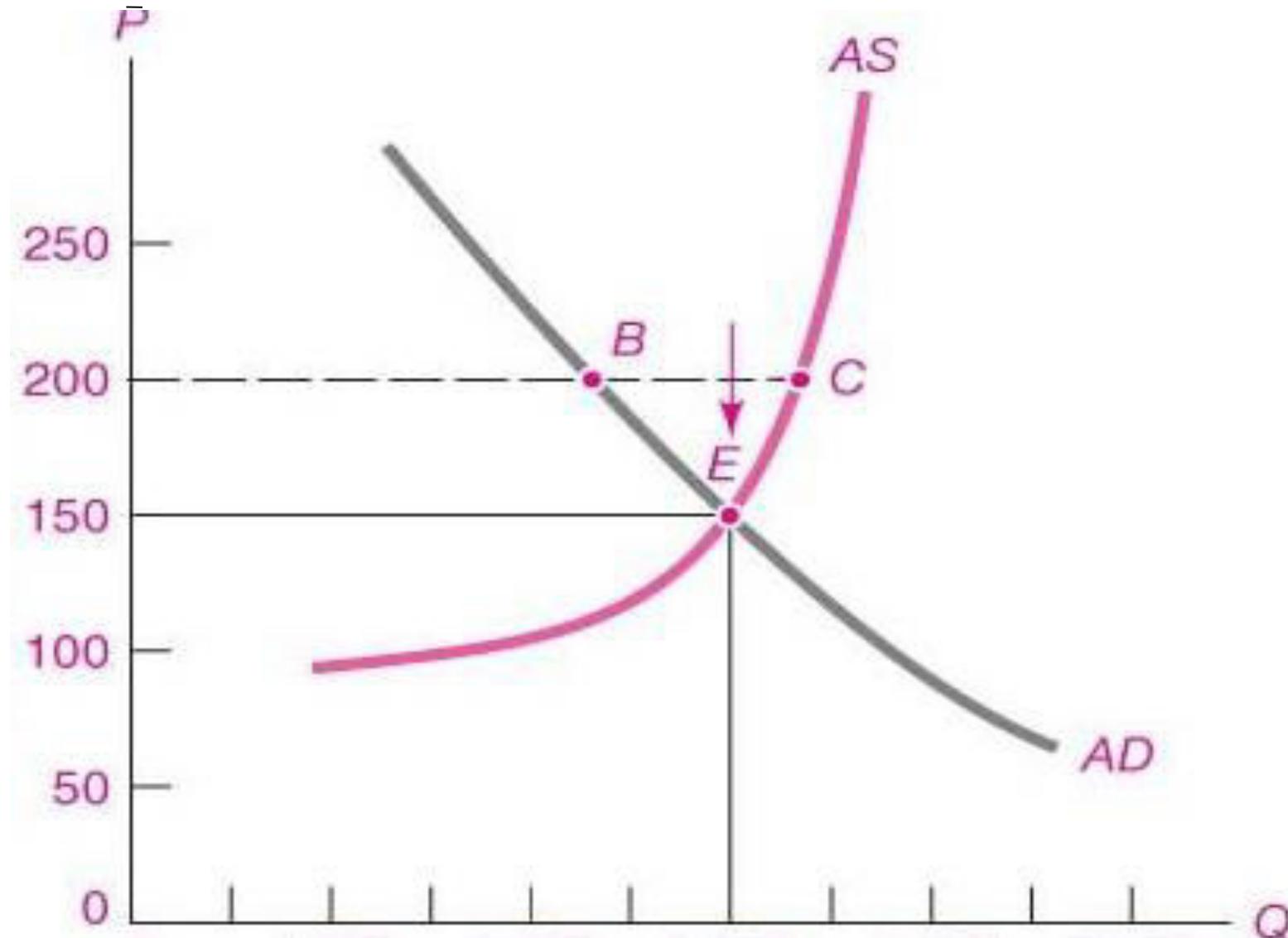
# Aggregate Supply (AS)

- *Aggregate Supply* refers to the total quantity of goods and services that the nations' **business houses are willing to produce and sell during a given period.**

# Macroeconomic System and Determinants of AD and AS

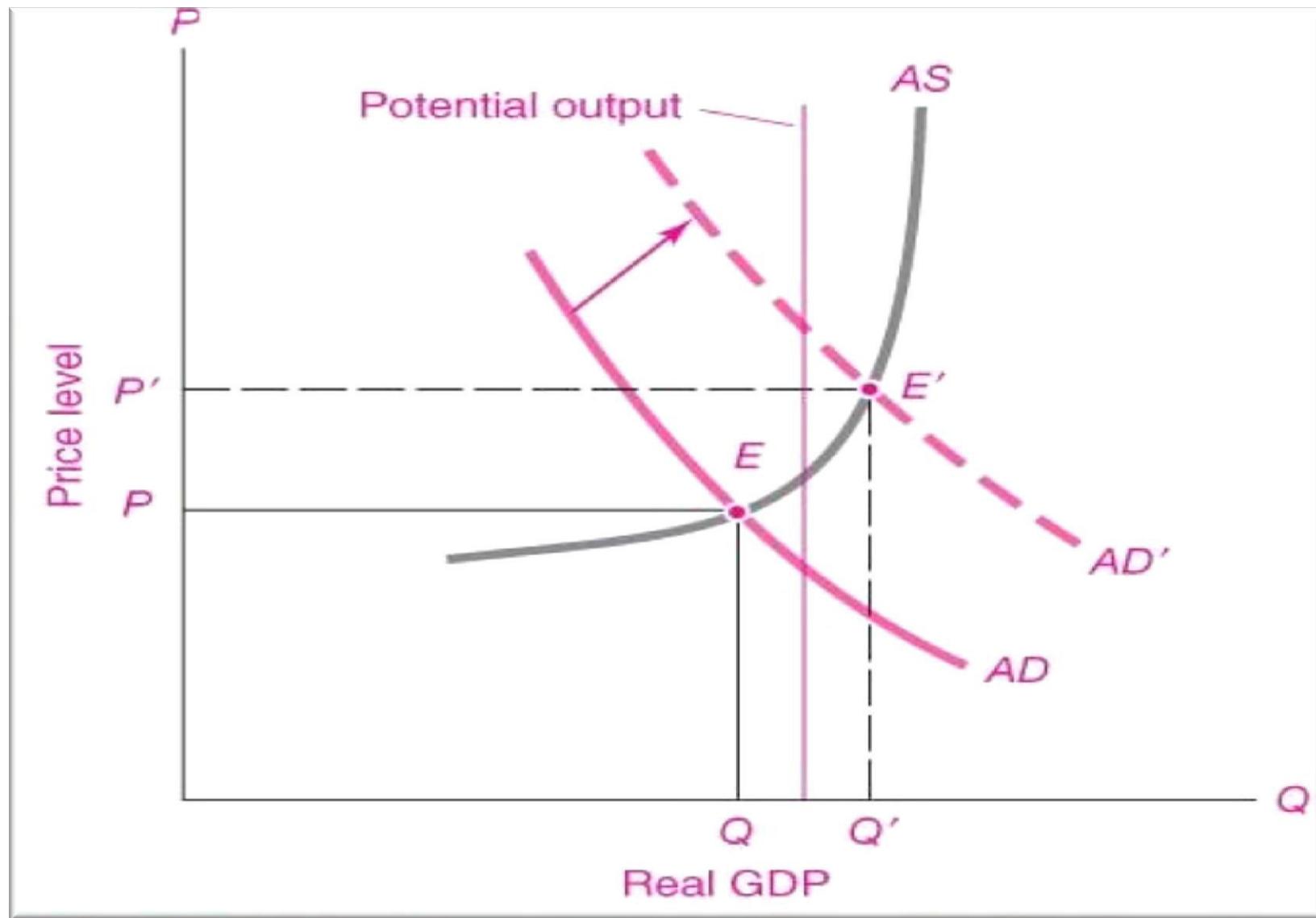


# MACROECONOMIC EQUILIBRIUM

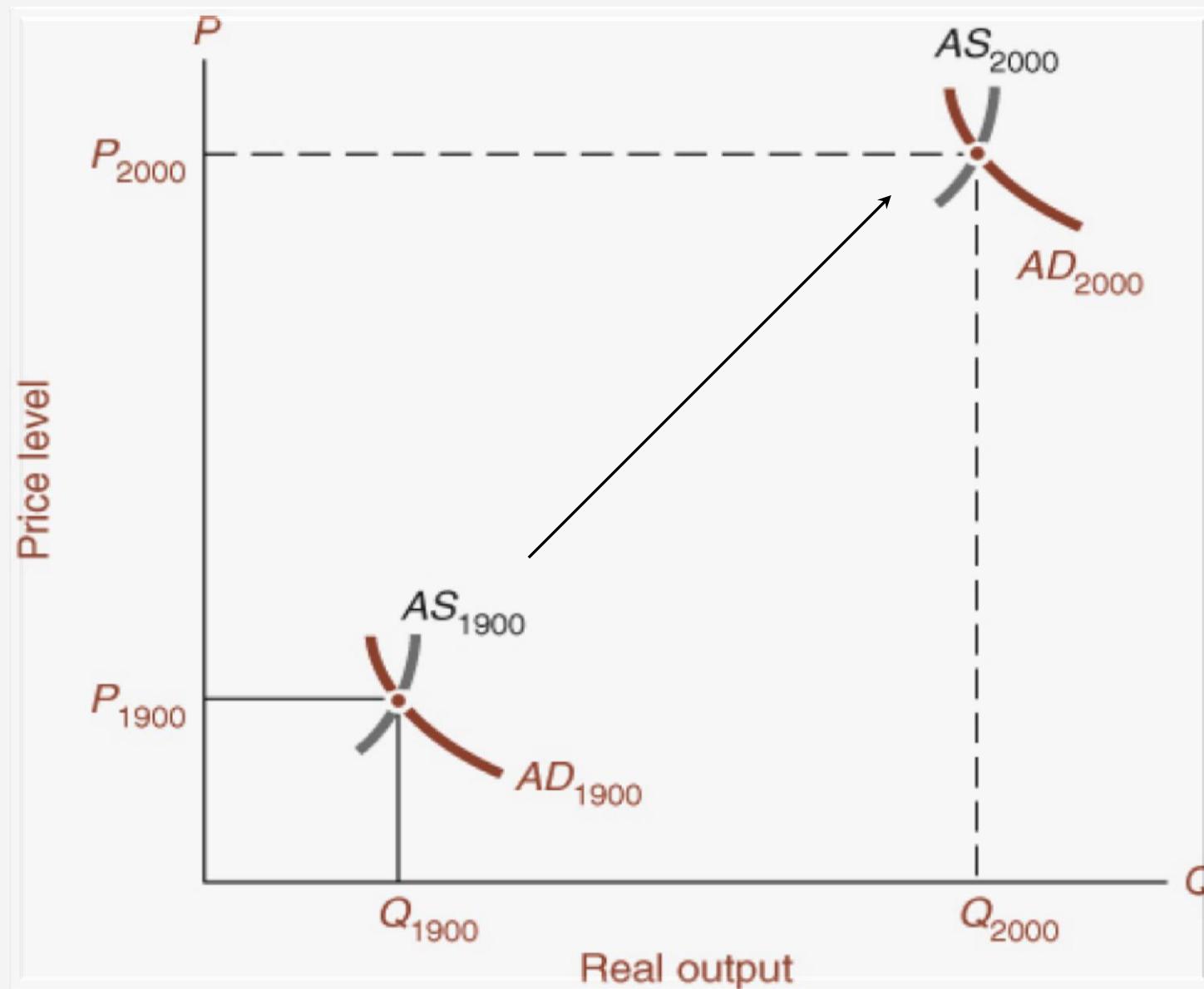


Equilibrium determination of National Income and general price level

**Output can rise above the trend (or potential output) because people work overtime and machinery is used for several shifts.**



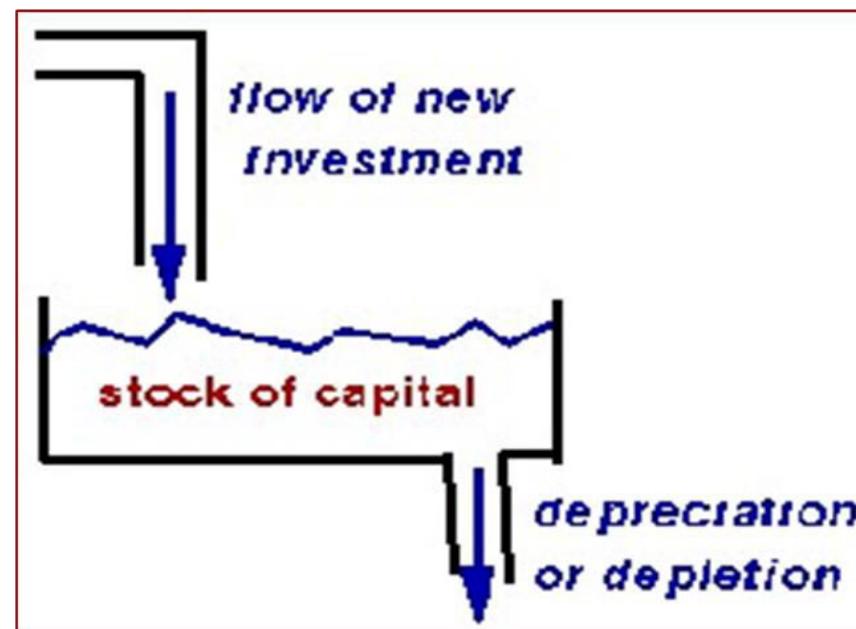
# Growth in Potential Output Determines Long-Run Economic Performance



# Stock and Flow

- Stock variables are measured *at a given point of time*. The macro stock variables are: **total money supply**, **total bank deposits**, **inventory**, **capital stock**, etc.
- Flow variables are measured *over a period of time*. The macro flow variables are: **consumption**, **investment**, **national income** and **output**, etc.

Total money supply is a stock quantity, but the change in money supply is a flow quantity.



# The Unemployment Rate

- to be *unemployed*, a person must want to work and be actively looking for a job (but have not yet found one).
- the *labor force* consists of those who are employed and those who are unemployed.
- the *unemployment rate* is equal to the number of unemployed people divided by the labor force.

# Measuring Joblessness: The Unemployment Rate

**Labor Force = Number of Employed + Number of Unemployed**

Unemployment Rate =  $\frac{\text{Number of Unemployed}}{\text{Labor Force}} \times 100$

Labor-Force Participation Rate =  $\frac{\text{Labor Force}}{\text{Adult Population}} \times 100$

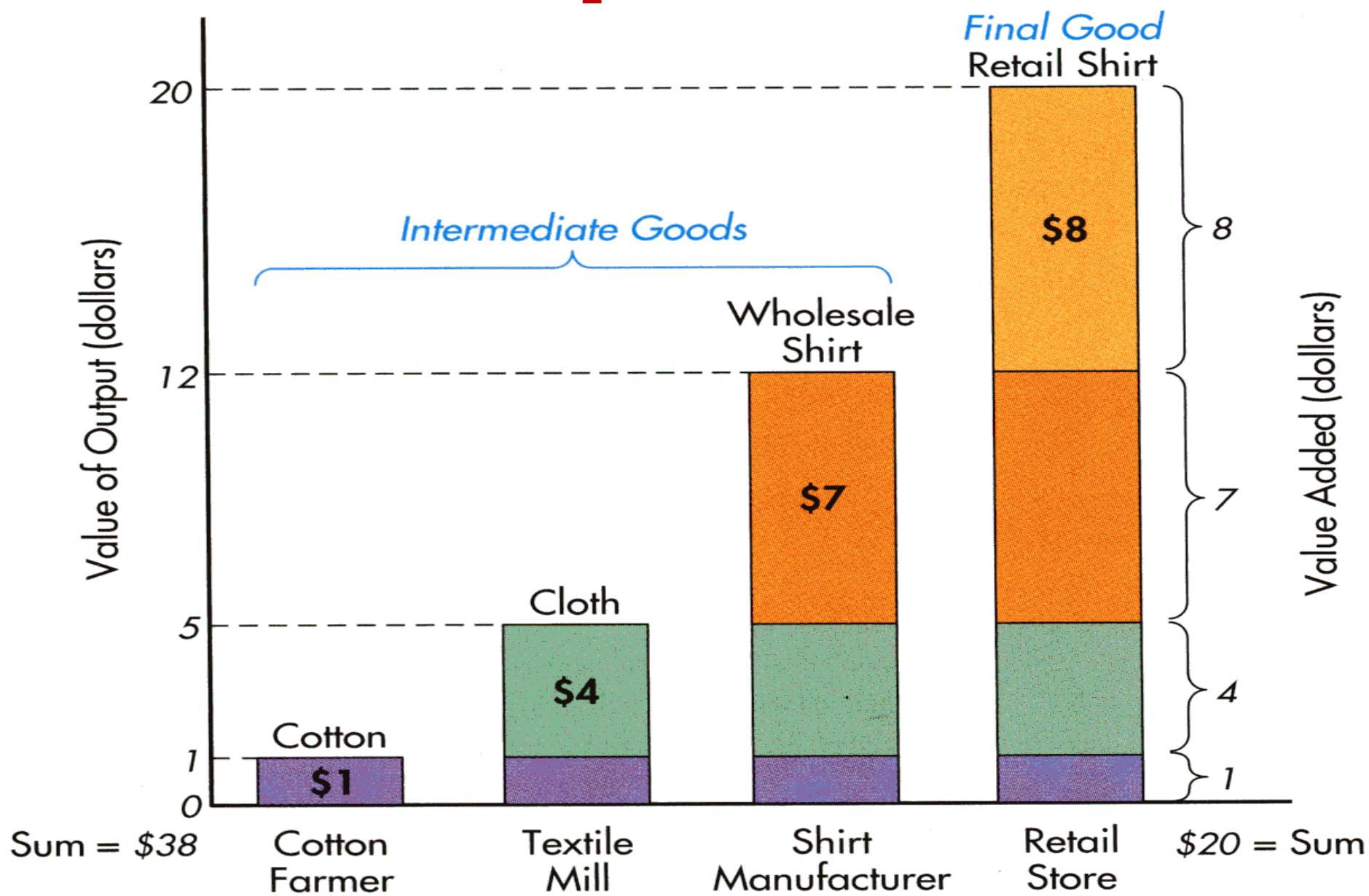
# National Income Accounting

Three approaches:

- amount of output produced, excluding output used in the intermediate stages of production (**Product approach**);
- total income generated in the economy (**Income approach**);
- amount of spending by the ultimate purchasers of output (**Expenditure approach**).

*All the three approaches give identical measurements of the amount of current economic activity.*

# The Concept of Value Added



# Methods of Measuring Sectoral Output in India

Method / Approach	Sectors
Product Approach <i>(Value added method)</i>	Agriculture, forestry, fishing, mining, manufacturing.
Income Approach	Electricity, water supply, banking and insurance, transport, communication, real estate, hotels, restaurants, and defence, etc.
Expenditure Approach	Construction.

# NI Accounting : Some Important Definitions

**GDP:** It is a measure of all *currently domestically produced final goods and services evaluated at market prices.*

Market transactions such as exchanges of *previously produced* houses, cars, factories, and exchanges of stocks and bonds and other assets are not included in GDP.

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

GDP includes *tangible goods* (like DVDs, mountain bikes, mineral water, Mobile Phones) and *(intangible) services* (dry cleaning, music concerts, cell phone service, internet service, Spa service).

*Non-market productive activities* and the *underground economy* are left out.

- Gross National Product (GNP)

- The value of all *final goods and services* produced by a country's factors of production and sold on the market in a given time period.

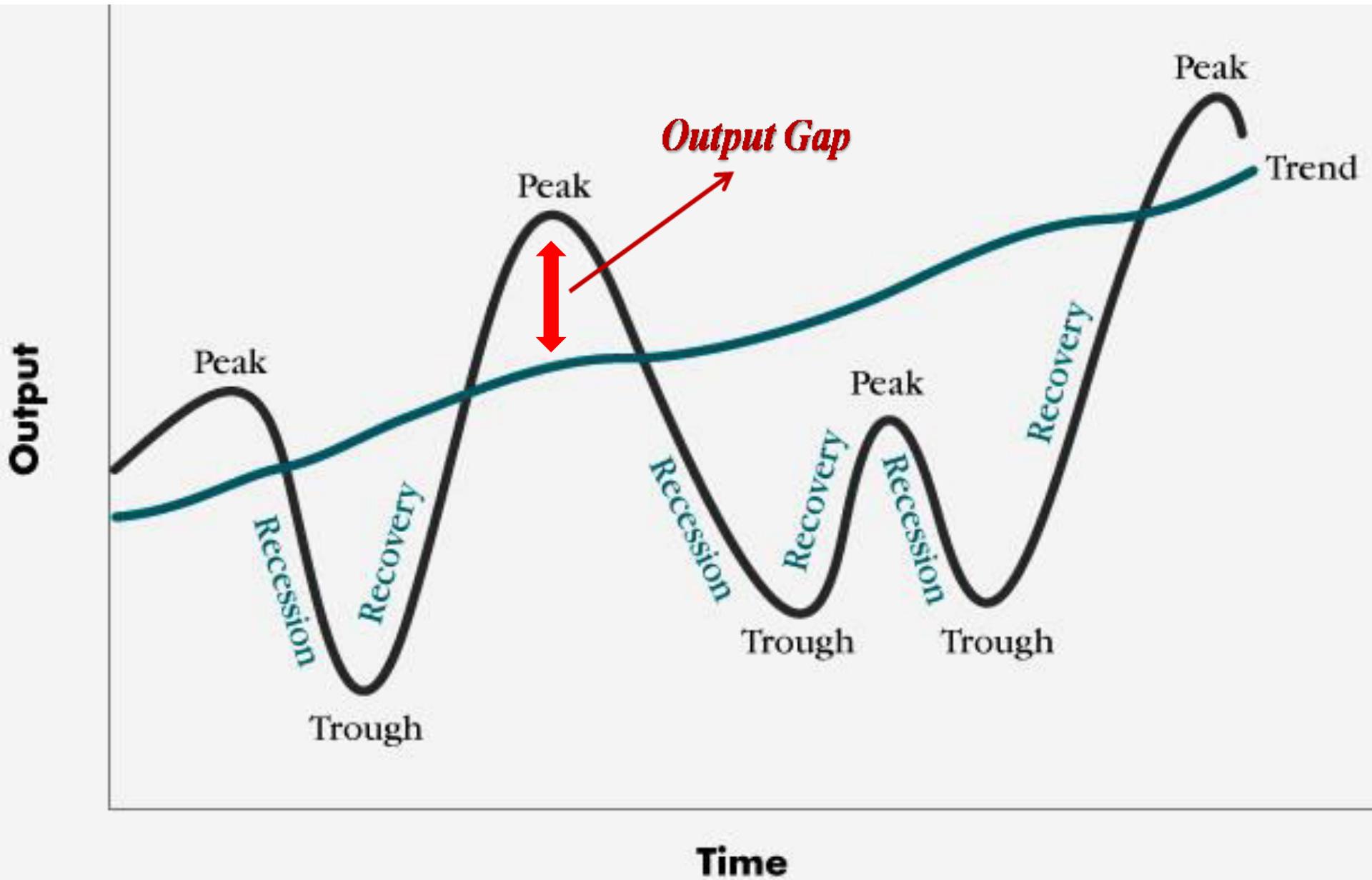
**GNP = GDP + Net Factor Income from Abroad (NFIA)**

**NFIA = Factor Income Received from Abroad *minus* Factor Income Paid Abroad**

NFIA is the (net) *interest earnings, profits* and *dividends* coming into India from our assets owned overseas matched against the flow of profits and other income from foreign owned assets located within India.

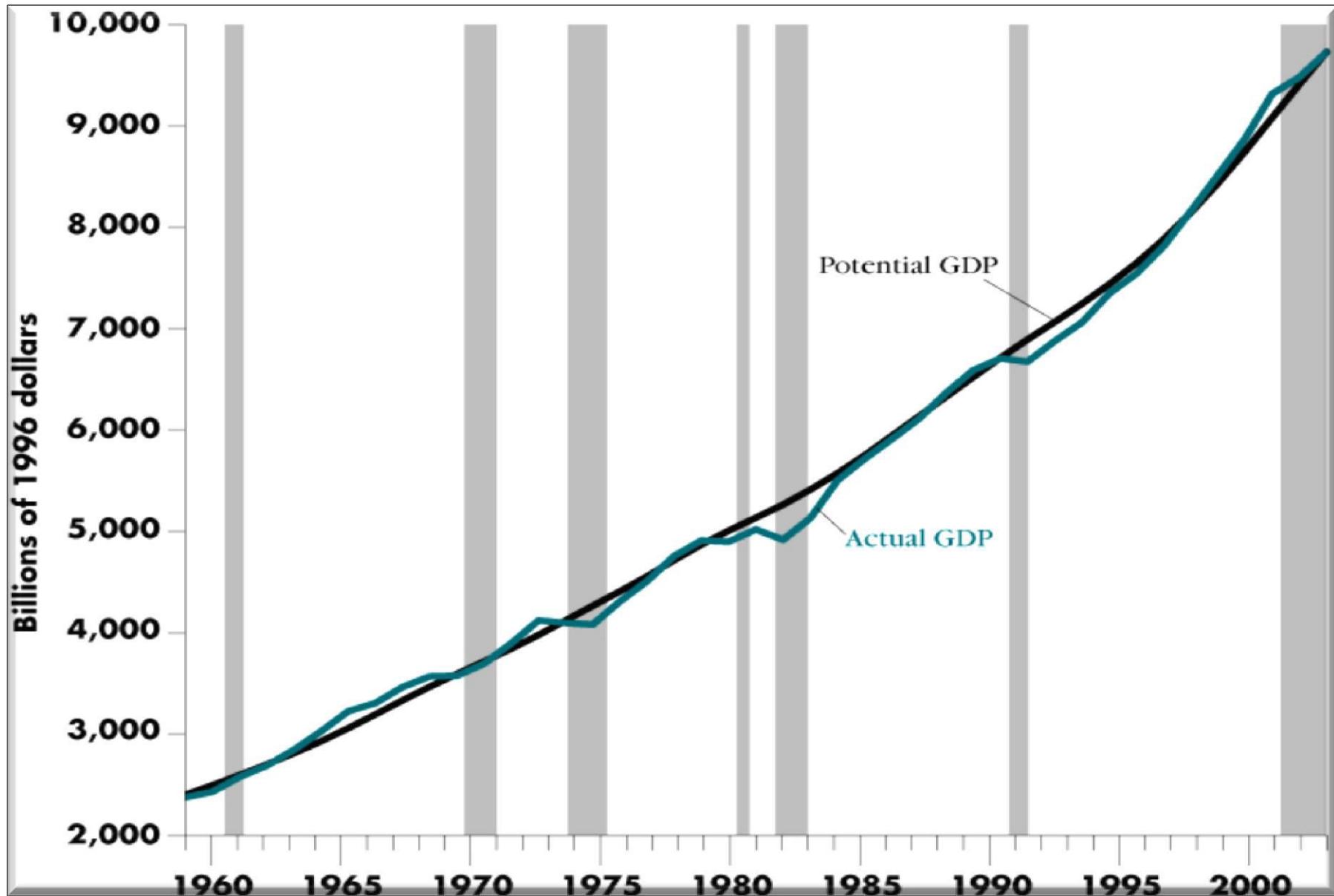
In recent years, many foreign firms have set up production plants here whilst Indian firms have expanded their operations overseas and become multinational organisations.

# Business Cycle





# *Actual & Potential Output*



## 1973 OIL CRISIS (OPEC OIL EMBARGO)

- October 1973, when OPEC proclaimed an oil embargo
- Egypt and Syria, with the support of other Arab nations, launched a surprise attack on Israel
- United States chose to re-supply Israel so OPEC decided to "punish" the United States.
- Negotiation to arrange an Israeli pull back from the Sinai and the Golan Heights after the Arabs withdrew from Israeli territory.

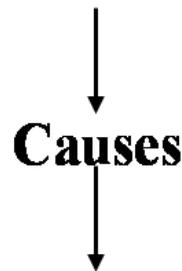
## *Business Cycle Chronology for India*

Dates of Peaks and Troughs		Duration (in months)	
Trough	Peak	Contraction (peak to trough)	Expansion (trough to peak)
	November 1964		
November 1965	April 1966	12	5
April 1967	June 1972	12	62
May 1973	November 1973	11	6
February 1975	April 1979	15	50
March 1980	March 1991	11	132
September 1991	May 1996	6	56
November 1996		6	
Average (months)		10.4	51.8
Median (months)		11	53
Standard Deviation (months)		3.3	46.6

# Total Spending and Level of Economic Activity

## Recovery or Expansion

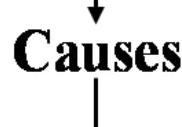
Increased Spending



Larger Output



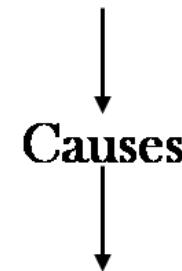
Increased Employment



More Income

## Recession or Contraction

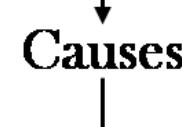
Decreased Spending



Smaller Output



Decreased Employment



Less Income

Variables that move in the same direction as GDP in the course of a business cycle are called *procyclical*. Those that move in the opposite direction are called *countercyclical*. *Thus unemployment moves countercyclically; employment and capacity utilization are procyclical.*

# Rate of Growth in Real GDP and Rate of Unemployment

*Okun's Law:* An annual (approximately) 2.5% increase in the rate of *real* GDP growth *above* the *trend growth* rate results in a 1% decrease in the rate of unemployment.

$$\begin{aligned}\text{GDP/Population} &= (\text{GDP} / \text{Hours Worked}) \times (\text{Hours Worked} / \text{Employment}) \\ &\quad \times (\text{Employment} / \text{Labor Force}) \times (\text{Labor Force} / \text{Population})\end{aligned}$$

GDP per capita is the product of hourly productivity and the number of hours worked, among others. Hours worked can be affected by labor market policies such as raising participation rates, but this cannot occur indefinitely.

Boosting hourly productivity is perhaps the only means to achieve sustained long-run growth.

# Price Indexes

- CPI measures the retail prices of a fixed “*market basket*” of several goods and services purchased directly by the consumers / households. *The CPI is the index most relevant to consumers.*

The basket usually covers the items of consumption in day-to-day life such as food, clothing, housing, fuel, transport, education, medicine, electricity, entertainment, etc.

- WPI contains prices of *raw materials and semi-finished goods beside the prices of imported goods and final consumer items.*

# The Common Formula for the *CPI*

$\frac{\text{Cost of a fixed basket of goods and services in the current period}}{\text{Cost of the same basket in the base period}} \times 100$
$\frac{\sum q_0 p_t}{\sum q_0 p_0} \times 100$

No. of items in *Rural Basket: 448* and in *Urban Basket: 460*

# National Income Accounting

*National Income Accounting* refers to the **measurement** of aggregate economic activity, particularly national income and its components.

# GDP – “*Output*”

- **Gross Domestic Product** is the market value of final goods and services produced within a country during a specific time period, usually a year.
  - **Valued at Market Value**
  - **Only Final Goods and Services Count:**

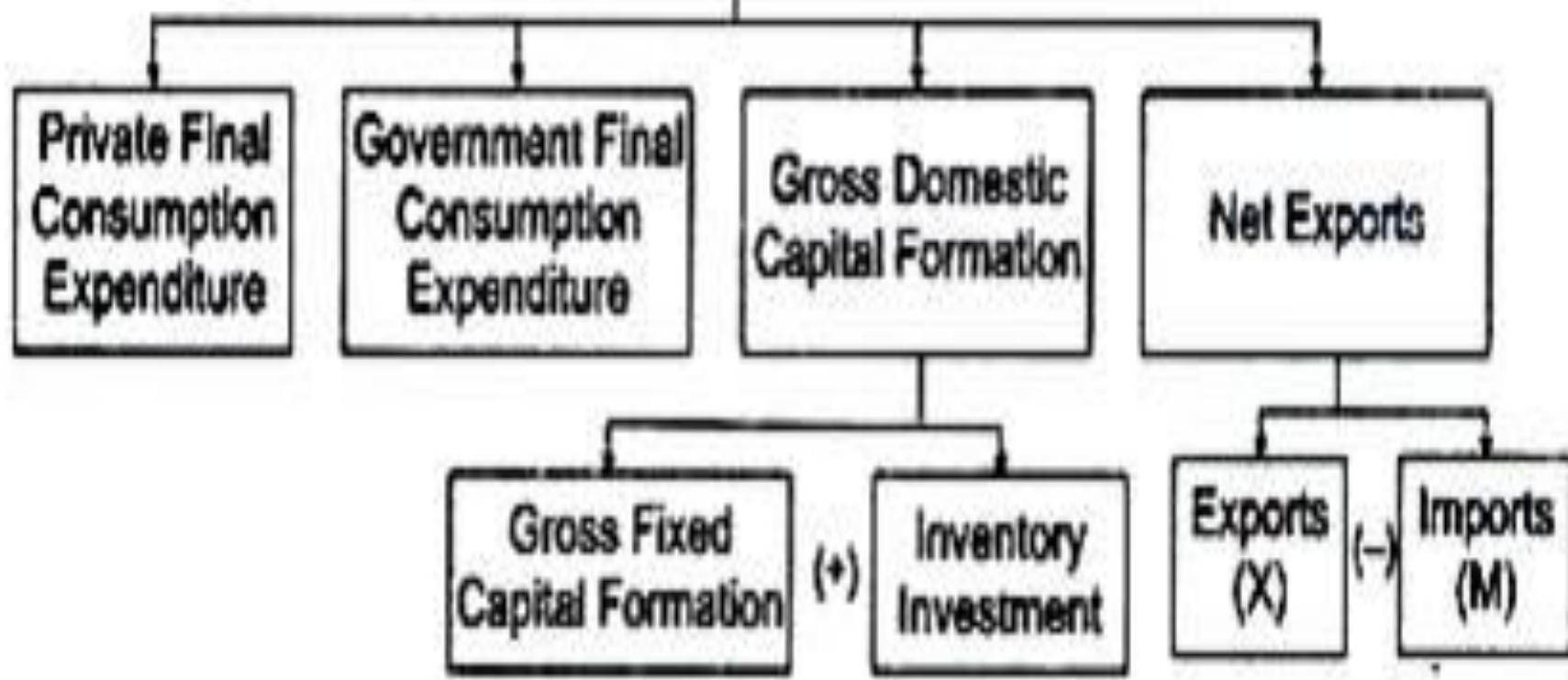
Sales at intermediate stages of production are not counted as their value is embodied within the final-user good. Their inclusion would result in double counting.
  - **Excludes financial transactions and income transfers** since these do not reflect production.
  - Must be produced **within the geographic boundaries** of the country.
  - **Net additions to inventory** are current period output so are also included.

# GDP as Expenditures

- GDP is the sum of expenditures on:
  - Personal consumption expenditures (C);
  - Gross private domestic investment (I);
  - Government purchases (G) of goods and services;
  - Net exports (NX)

$$\mathbf{GDP = C + I + G + NX}$$

## **COMPONENTS OF FINAL EXPENDITURE**



# Measuring GDP

Recall the Circular Flows

**Expenditures = GDP = Income**

GDP and GNP — *Ownership* and *Location*

- GDP ⇒ *economic output based on location*. If output occurs in India, then it is included in the GDP of India.
- GNP ⇒ *economic output based on ownership*. If the resources that produce the economic output are owned by an American entity, they are included in the GNP.

# Honda and Ford

Honda is the automotive manufacturer in Ohio, USA. There are four Honda plants in Ohio. Because these plants are located in the USA, their output is included in the GDP of USA. However, because these plants are owned by a corporation based in Japan, the output is *not* included in the GNP of USA.

Recall:  $GNP = GDP + NFIA$

Ford manufactures automobiles at its plant in Mexico. Ford is an American corporation, so the benefits from this plant is included in the GNP of America. Since the plant is outside the United States, the output is *not* added to the US GDP.

# IS GDP A GOOD MEASURE OF ECONOMIC WELL-BEING?

- GDP is the *best single measure* of the economic well-being of a society.
- GDP per person (*Per-capita Income*) tells us the income and expenditure of the average person in the economy.
- Higher GDP per person indicates a higher standard of living.
- GDP is *not* a perfect measure of the happiness or quality of life.

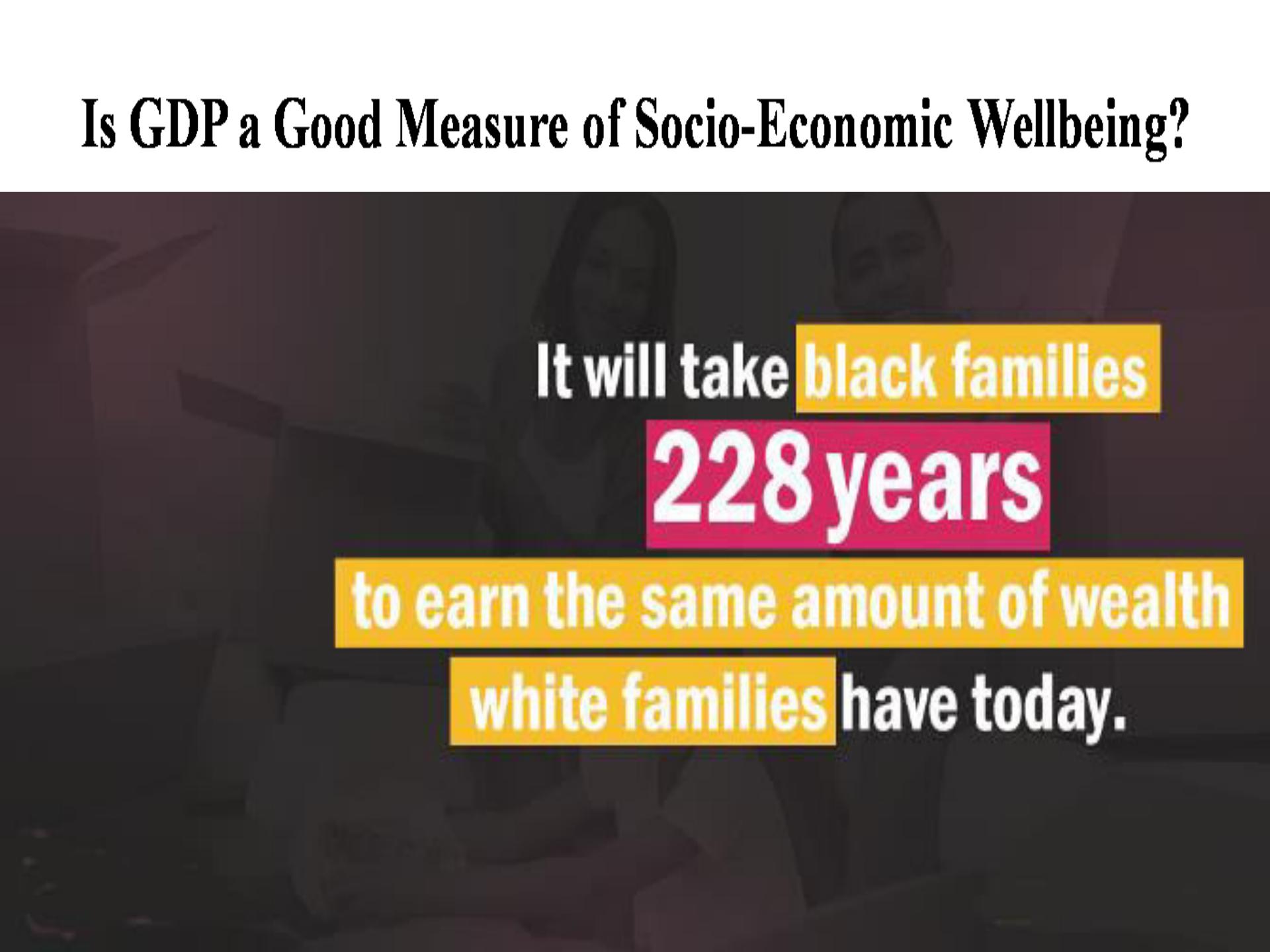
# GDP and Economic Well-Being

Certain things that contribute to well-being are *not* included in GDP.

- The value of *leisure*.
- The value of a *clean environment*.

**Non-market productive activities** such as *mothers' service towards the children*, *housewives' service towards the households*, etc. are not considered in GDP.

# Is GDP a Good Measure of Socio-Economic Wellbeing?



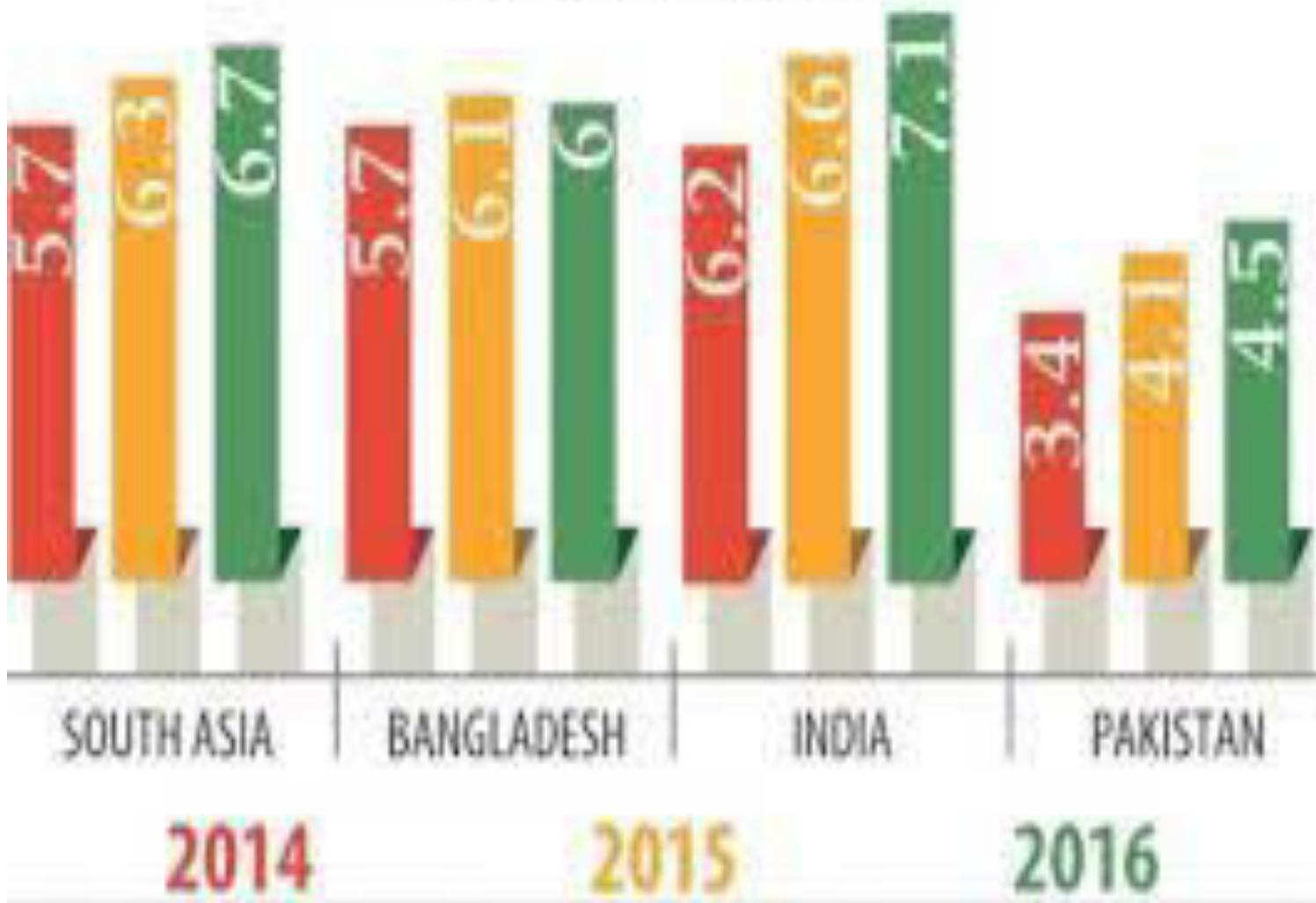
It will take **black families**

**228 years**

**to earn the same amount of wealth**

**white families have today.**

# WB'S GDP GROWTH PROJECTIONS IN PERCENTAGE



SOURCE: WB STUDY

# *Income Inequality in India*

## "Rich" households

\$35,000+ per year: 1.3% (16 million people)

## "Middle-class" households

\$8,000 to \$35,000 per year: 13% (160 million)

## "Deprived" households

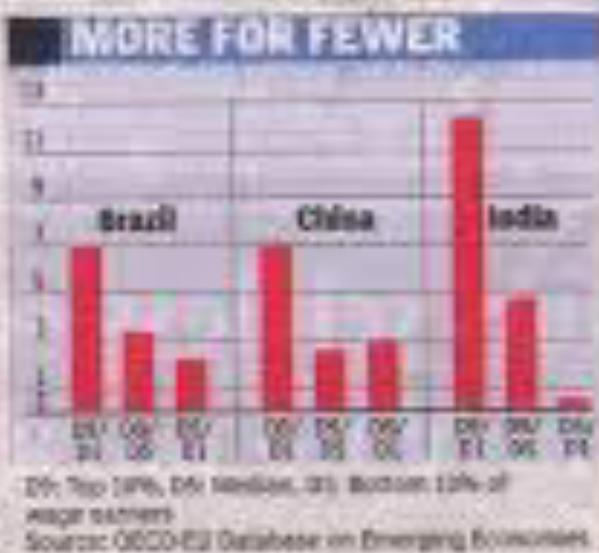
Below \$3,500 per year: 57% (684 million)

# Income inequality doubles in 20 years

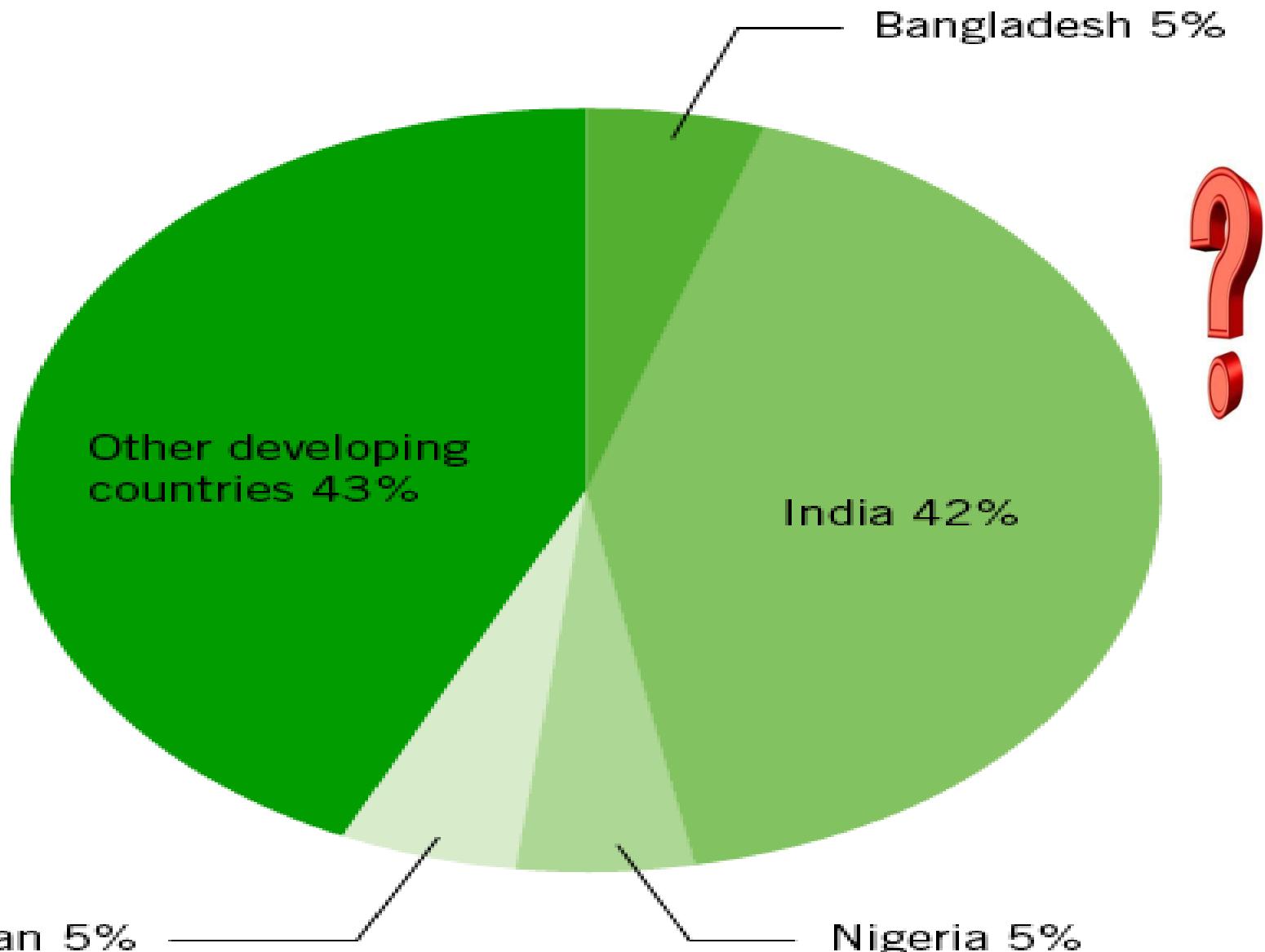
TIMES INSIGHT GROUP

New Delhi: Inequality in earnings has doubled in India over the last two decades, making it the worst performer on this count of all emerging economies. The top 10% of wage earners now make 12 times more than the bottom 10%, up from a ratio of six in the 1990s.

Wages are not smoothly spread out even through the middle of the distribution. The top 10% earners make five times more than the median 10%, but this median 10% makes 6.4 times more than bottom 10%. "The key driver has been a rise in wage inequality between wage earners and contractual employees," says the Organisation for Economic Cooperation and Development.

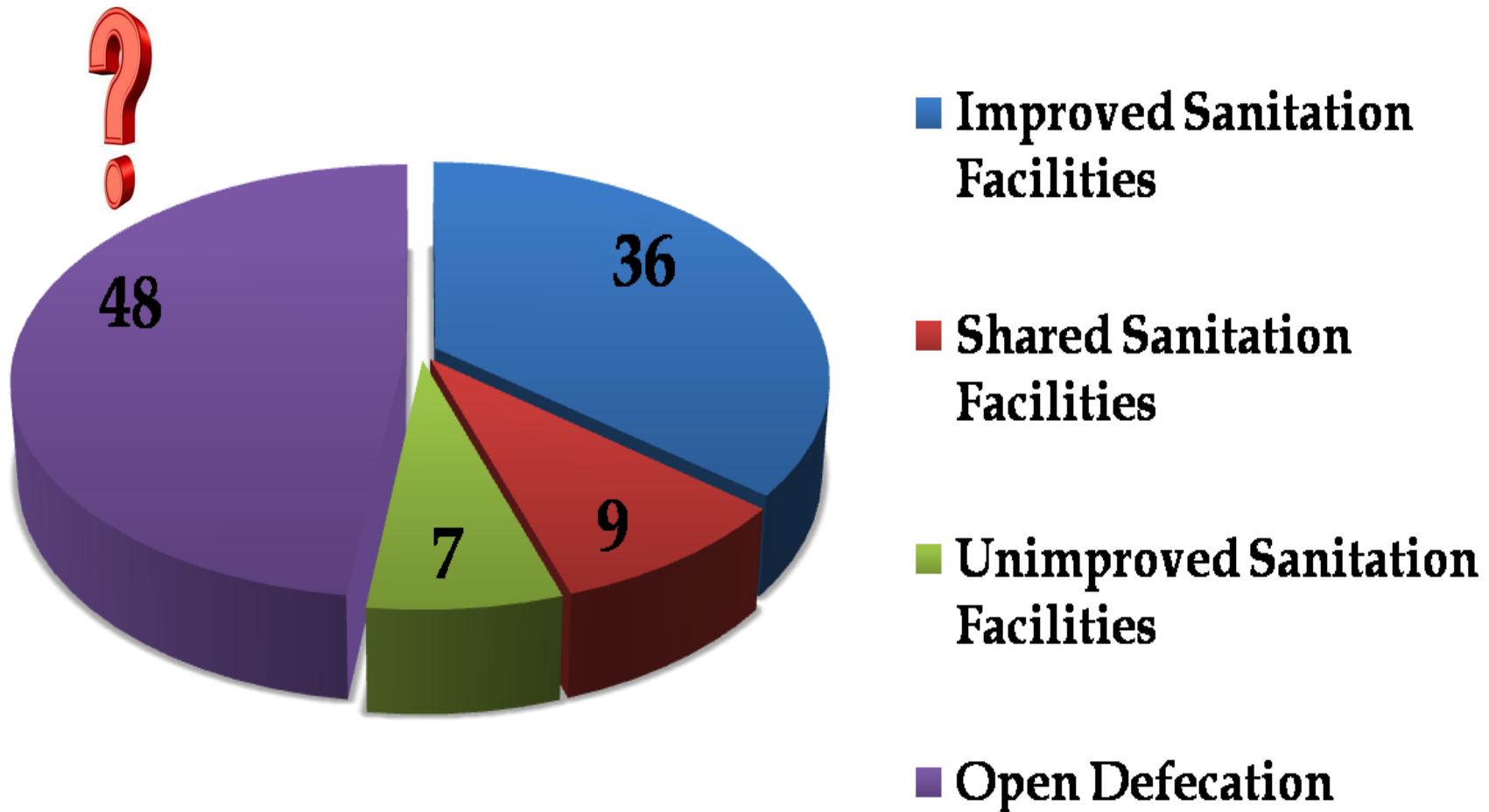


## SHARE OF UNDERWEIGHT CHILDREN UNDER FIVE YEARS OF AGE



Source: UNICEF (2009b).

# Sanitation Facilities in India: The Current Status



Source: <http://data.unicef.org/>



# Rising Crime Against Women In Madhya Pradesh, 2005-2012



*Source: National Crime Records Bureau*

# RURAL, SC/ST PEOPLE WORSE

The nutritional indicators for rural and SC and ST communities is worse in the state

The RSoC report shows that in rural MP,

**39.5%**  
children are underweight

**44.7%**  
are stunted

Among SC population, the figure is 38.5% and 44.4% while in tribal population, it is the worst at 46.0% and 49.7% respectively indicating that almost half of these children are nutritionally compromised



■ According to 2013-14 survey of RSoC, about 12% children in the state are severely underweight.

HT FILE PHOTO

## NUTRITION STATUS

→ MADHYA PRADESH



Underweight kids



Stunted kids



Low weight girls

UTTAR PRADESH



RAJASTHAN



BIHAR



ODISHA

Figures in percentage

National product at *market prices* indicates the total amount paid by the (final) purchasers of output whereas, national income at *factor cost* measures the total amount earned by the factors of production for their contribution to the final output.

$$\text{GDP}_{\text{MP}} \text{ (or } \text{GNP}_{\text{MP}}\text{)} = \text{GDP}_{\text{FC}} \text{ (or } \text{GNP}_{\text{FC}}\text{)} + \text{Indirect Taxes} \\ - \text{Subsidies}$$

$$\text{GDP}_{\text{FC}} + \text{NFIA} = \text{GNP}_{\text{FC}}$$

$$\text{GNP}_{\text{FC}} - \text{Depreciation} = \text{NNP}_{\text{FC}}$$

$$\text{GDP}_{\text{FC}} - \text{Depreciation} = \text{NDP}_{\text{FC}}$$

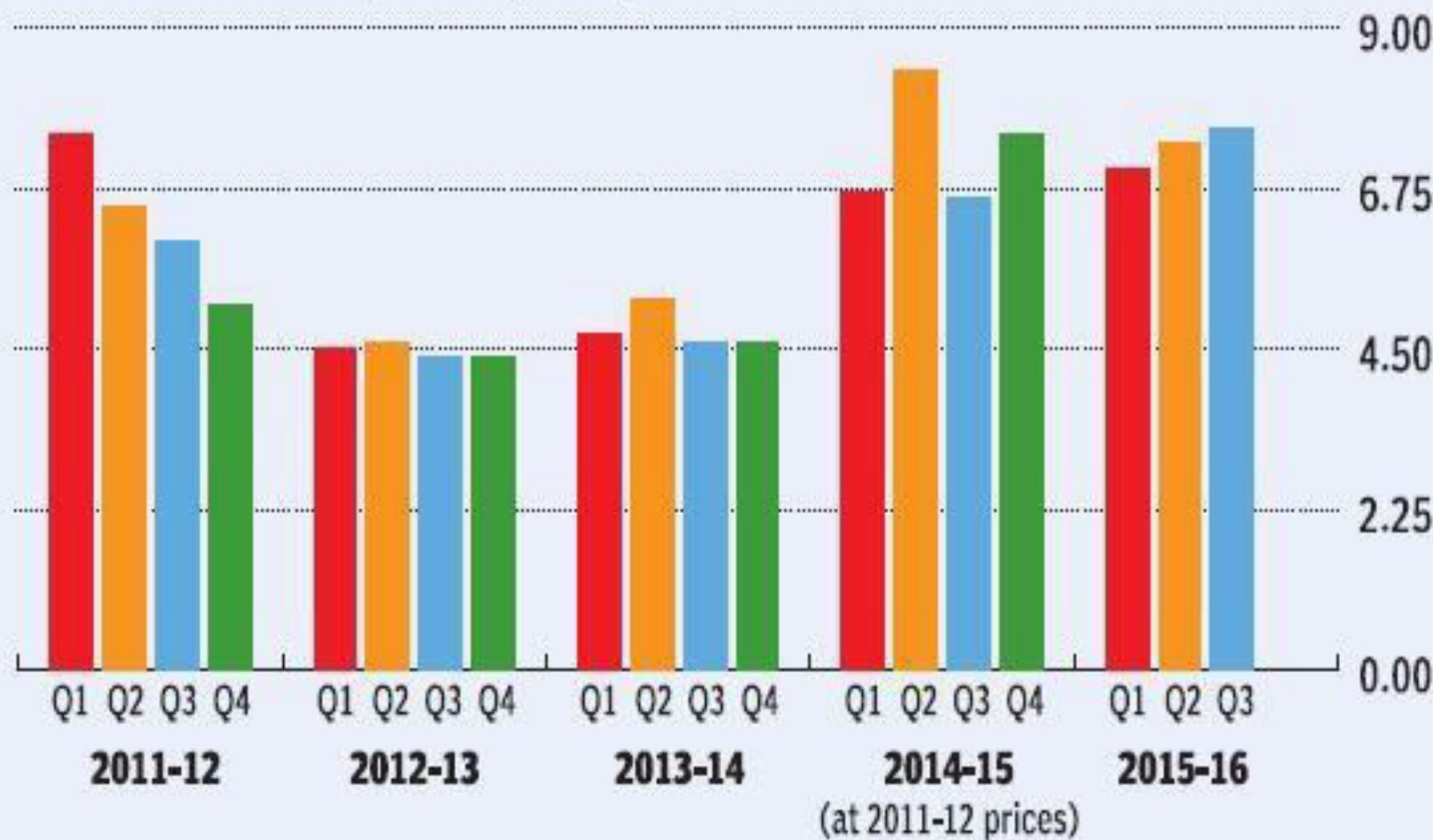
$$\text{NDP}_{\text{FC}} + \text{NFIA} = \text{NNP}_{\text{FC}}$$

*Depreciation* is the consumption of capital in the production process — *the wearing out of plant and equipment.*

# Positive outlook

(in %)

GDP at factor cost (2004-05 prices)



Source: MOSPI

# Final Accounting of National Income and Related Aggregates

## Gross Domestic Product at Factor Cost (GDP<sub>FC</sub>)

*plus*

NFIA

$$= \text{GNP}_{\text{FC}}$$

*minus*

Depreciation (*Capital Consumption Allowance*)  
= NNP<sub>FC</sub>

*minus*

Corporate Taxes

*plus*

Transfer Payments

$$= \text{Personal Income}$$

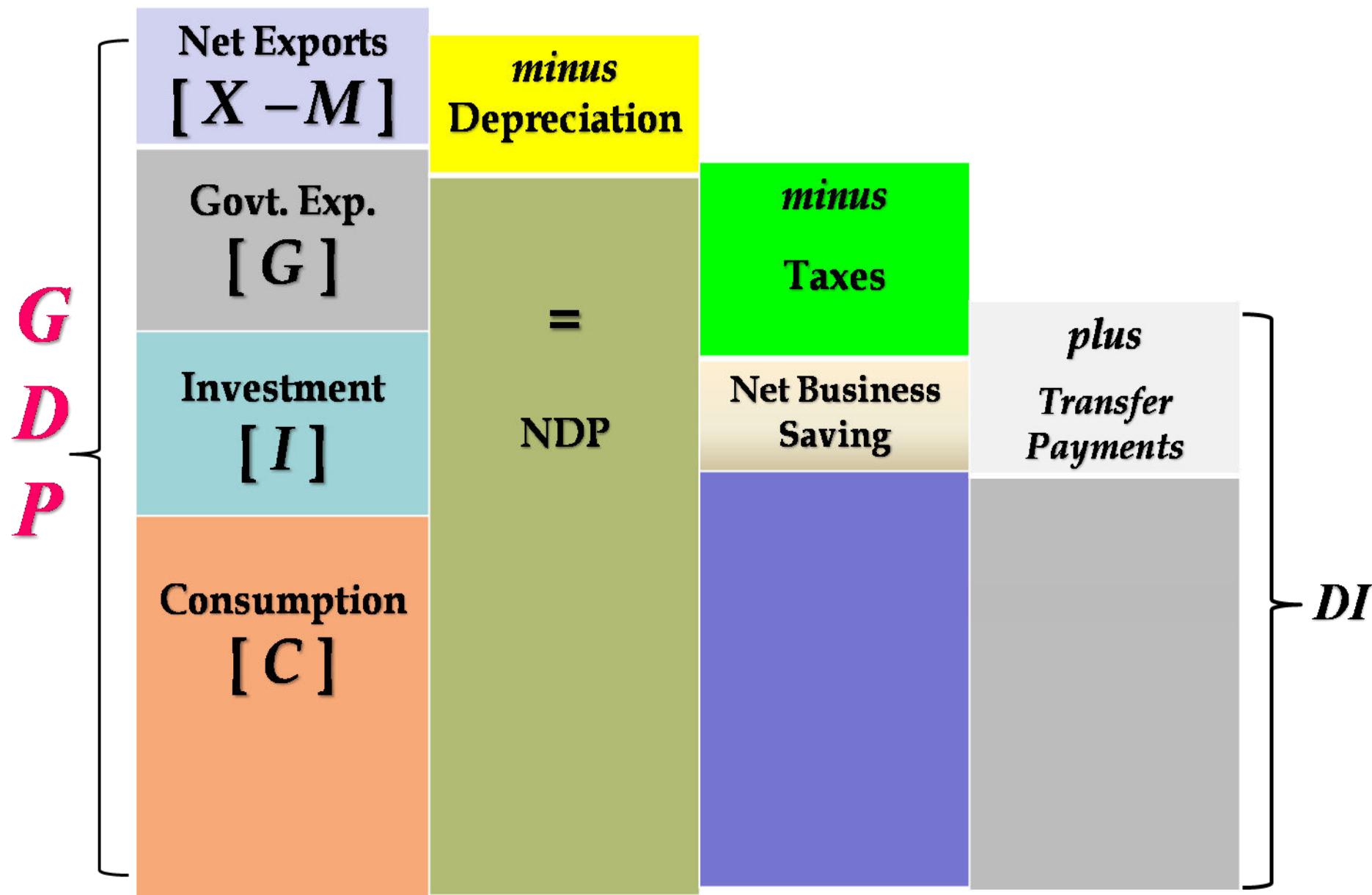
*minus*

Personal Taxes (e.g., Income Tax)

$$= \text{Personal Disposable Income}$$

NNP<sub>FC</sub> *plus* Indirect Taxes *less* Subsidies = NNP<sub>MP</sub>

# GDP to National Income to Disposable Income



# *National Income*

**NFIA**

**PROFITS**

*Interest  
Income*

**RENT**

**Wages &  
Salaries**

*Less*  
***Undistributed  
Corporate Profits***  
*and*  
***Corporate Taxes***  
*Plus*  
***Transfer payments***

***Personal  
Income***

*Less*  
***Personal  
Taxes***

**$DI$**   
=  
 **$C + S$**

**NDP = {GDP - Depreciation}**

**NNP = {GNP – Depreciation}**

**Disposable Income =  $\underbrace{\text{GDP} + \text{NFI}A}_{\text{GNP}} + (\text{TR} - \text{T})$**

# National Income

In computing NI, consider total GNP, *not* GDP. Because, GNP *includes* income earned by Indian residents and firms but *excludes* earnings of foreign residents and firms from production in India.

$$\text{GNP} - \text{Depreciation} = \text{NNP} \quad \text{and}$$

$$\text{NNP} - \text{Indirect taxes and Other} = \text{NI}$$

Indirect taxes include both *sales* and *excise taxes*. ‘Other’ includes Bad Debts to the business sector, among other things.

# Problem with GDP Accounting

- **Nominal GDP** is a measure of national output based on the current prices of goods and services. It is also called “money GDP”.
  - **Problem: Higher prices but no increase in quantity.**
- **Real GDP** is a measure of the quantity of final goods and services produced, obtained by eliminating the influence of price changes from nominal GDP.
  - The term "*real*" means *adjusted for inflation*.

# Real versus Nominal GDP

<b>Year</b>	<b><i>Price of Hot dogs</i></b>	<b>Quantity of Hot Dogs</b>	<b><i>Price of Burgers</i></b>	<b>Quantity of Burgers</b>
<b>2005</b>	<b>\$1</b>	<b>100</b>	<b>\$2</b>	<b>50</b>
<b>2006</b>	<b>\$2</b>	<b>150</b>	<b>\$3</b>	<b>100</b>
<b>2007</b>	<b>\$3</b>	<b>200</b>	<b>\$4</b>	<b>150</b>

## *Calculating Nominal GDP*

<b>2005</b>	$(\$1 \text{ per hot dog} \times 100 \text{ hot dogs}) + (\$2 \text{ per burger} \times 50 \text{ burgers}) = \$200$
<b>2006</b>	$(\$2 \text{ per hot dog} \times 150 \text{ hot dogs}) + (\$3 \text{ per burger} \times 100 \text{ burgers}) = \$600$
<b>2007</b>	$(\$3 \text{ per hot dog} \times 200 \text{ hot dogs}) + (\$4 \text{ per burger} \times 150 \text{ burgers}) = \$1200$

## *Calculating Real GDP (Base year 2005)*

<b>2005</b>	$(\$1 \text{ per hot dog} \times 100 \text{ hot dogs}) + (\$2 \text{ per burger} \times 50 \text{ burgers}) = \$200$
<b>2006</b>	$(\$1 \text{ per hot dog} \times 150 \text{ hot dogs}) + (\$2 \text{ per burger} \times 100 \text{ burgers}) = \$350$
<b>2007</b>	$(\$1 \text{ per hot dog} \times 200 \text{ hot dogs}) + (\$2 \text{ per burger} \times 150 \text{ burgers}) = \$500$



**PRINCIPLES OF**  
**ECONOMICS**  
**FOURTH EDITION**

**N. GREGORY MANKIW**

**PowerPoint® Slides**  
**by Kathryn Nantz and Laurence Miners**

# Price Indexes

- CPI measures the retail prices of a fixed “market basket” of several goods and services purchased directly by the consumers / households. The CPI is the index most relevant to consumers.

The basket usually covers the items of consumption in day-to-day life such as food, clothing, housing, fuel, transport, education, medicine, electricity, entertainment, etc.

- WPI contains prices of *raw materials and semi-finished goods beside the prices of imported goods and final consumer items.*

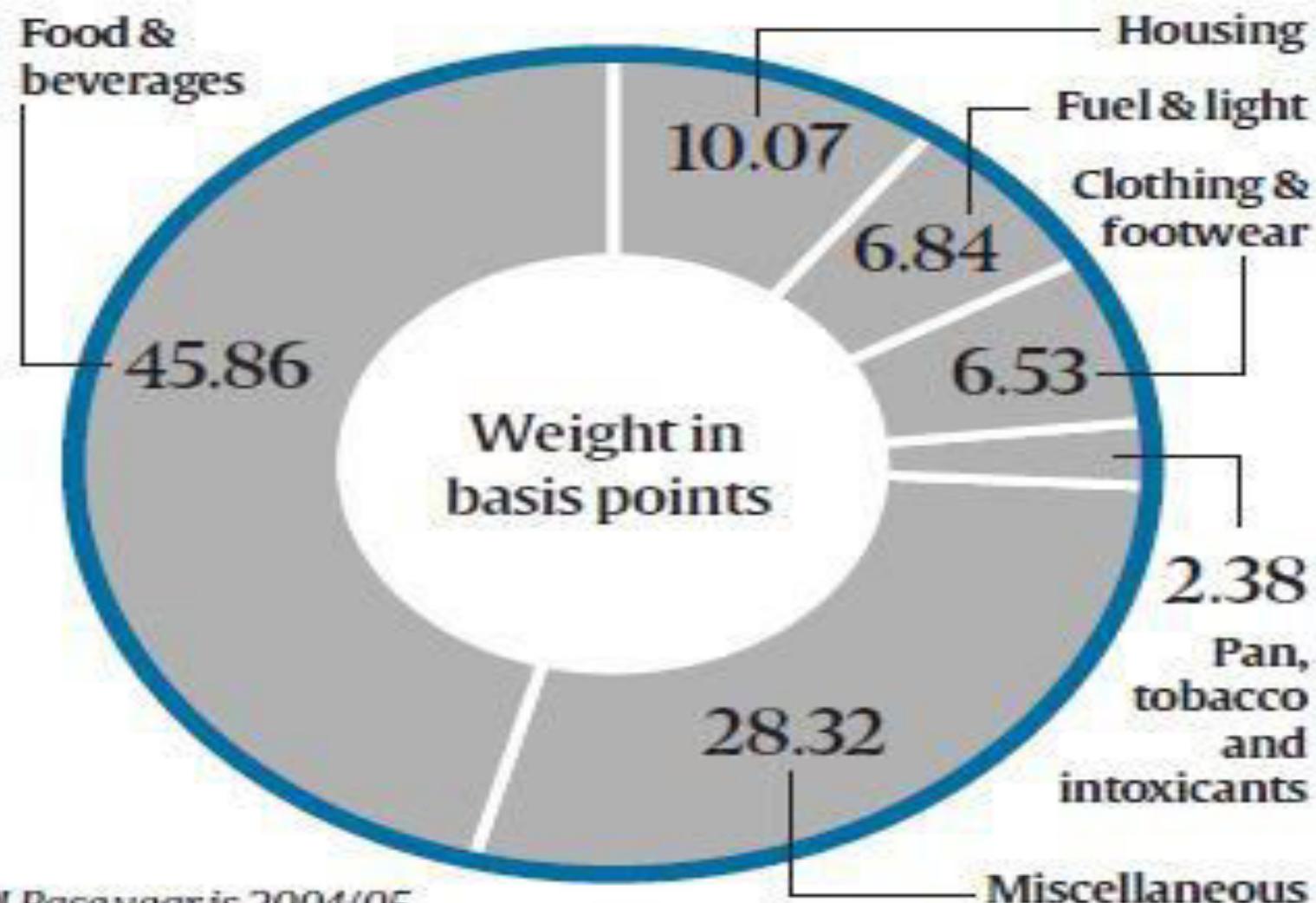


**PRINCIPLES OF**  
**ECONOMICS**  
**FOURTH EDITION**

**N. GREGORY MANKIW**

**PowerPoint® Slides**  
**by Kathryn Nantz and Laurence Miners**

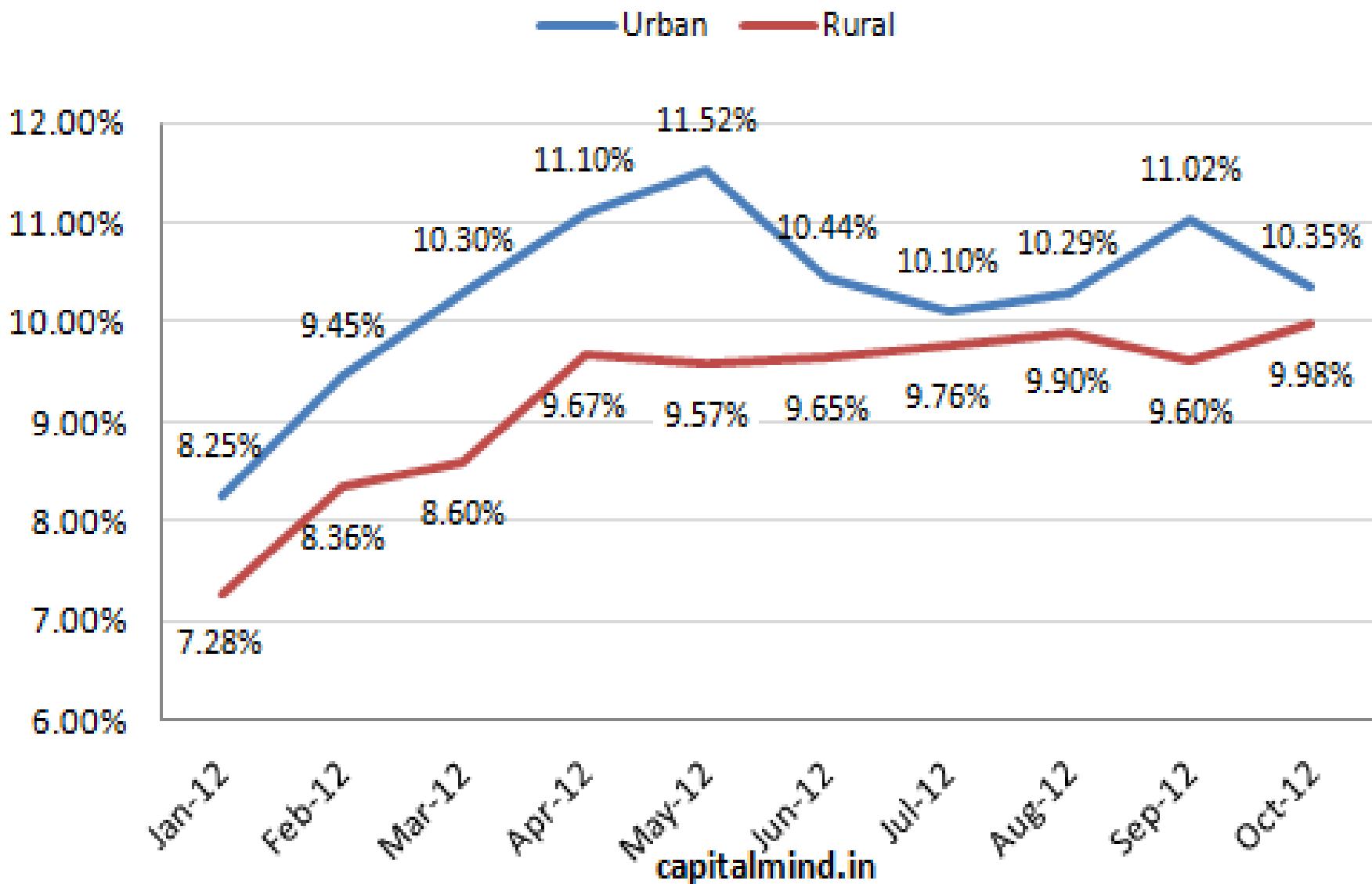
## CONSUMER PRICE INDEX



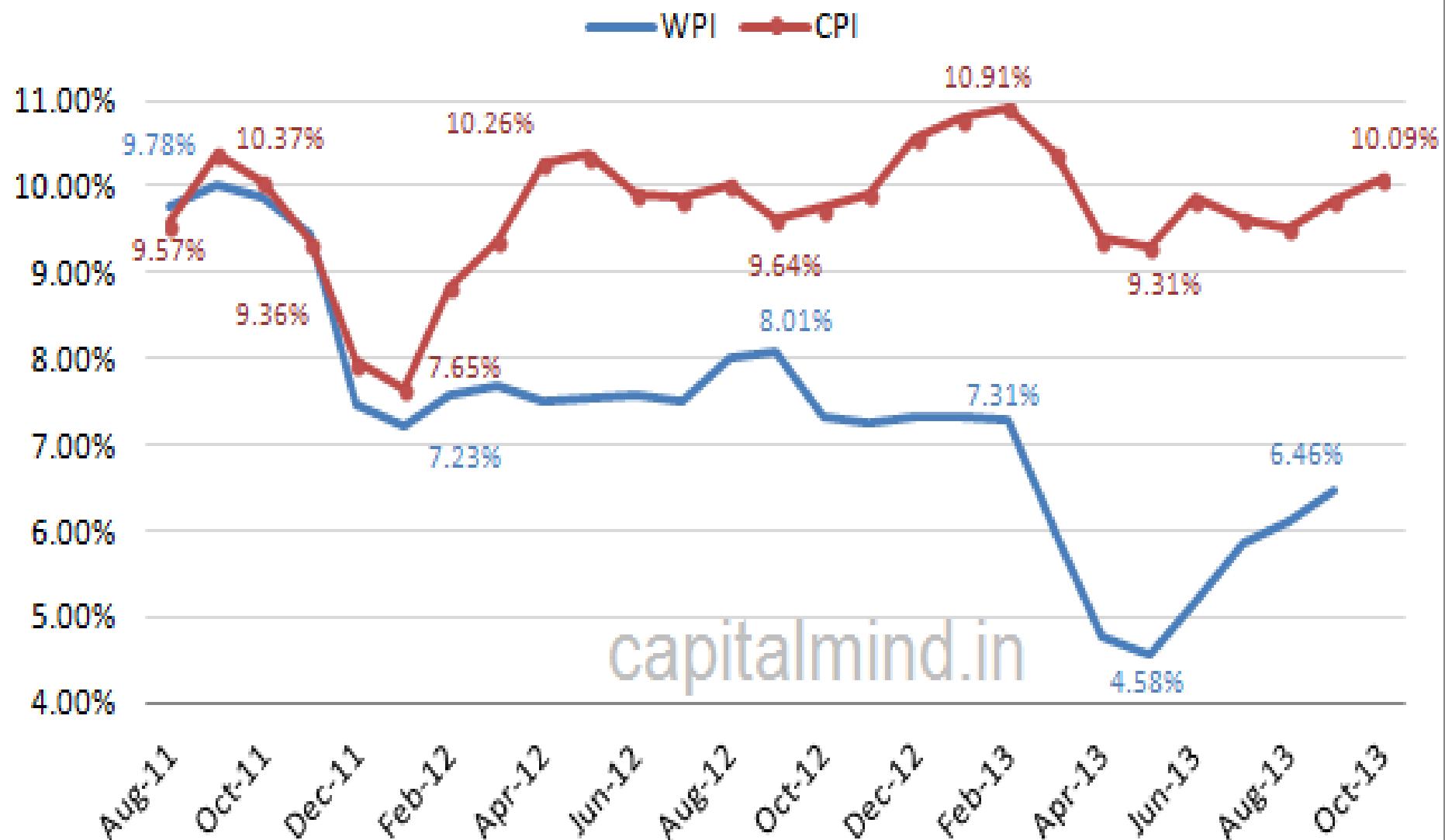
WPI Base year is 2004/05

CPI Base year is 2012

# CPI Inflation



## WPI and CPI



capitalmind.in

# MEASURING THE COST OF LIVING

The goal of the CPI is to measure changes in the *cost of living*.  
The CPI tries to gauge how much incomes must rise in order to maintain a constant standard of living.

## Existence of *substitution bias*

When prices change, they do *not all change proportionately*. Some prices rise by more than others. Consumers respond to these differing price changes!

Yet the CPI is computed assuming a *fixed basket* of goods.

Hence, the index *overstates* the increase in the cost of living from one year to the next.

## *Introduction of new goods*

When a *new good* is introduced, consumers have more variety from which to choose. *Greater variety, in turn, makes each dollar more valuable*, so consumers need fewer dollars to maintain any given standard of living.

Yet because the consumer price index is based on a fixed basket of goods and services, it does *not* reflect this change in the purchasing power of the dollar.

# Demand Side of the Economy

$$Y \equiv C + I + G + (X - M)$$

Consider a Closed Economy (*without Government*)

$$Y \equiv C + I$$

$$Y - C \equiv I$$

$$S \equiv I$$

*With Government*

$$Y \equiv C + I + G$$

*National Income Accounting Equation:*  $Y = C + I + G + (X - M)$

$$Y + TR - T = C + I + [G + TR - T] + (X - M)$$

$$Y_D = C + I + [G + TR - T] + (X - M)$$

But,  $Y_D = C + S$

$$C + S = C + I + [G + TR - T] + (X - M)$$

$$S - I = [G + TR - T] + (X - M)$$

Saving-Investment  
Gap

Budget Deficit /  
Surplus

Trade Surplus  
/ Deficit

# Trends in Savings and Investment: The Indian Experience

	2000-01	2001-02	2002-03	2004-05	2005-06
<i>Domestic savings*</i>	23.4	23.5	26.4	31.1	32.4
<i>Domestic investment*</i>	24.0	22.9	25.2	31.5	33.8

\* All values are percent of GDP at *current prices*.

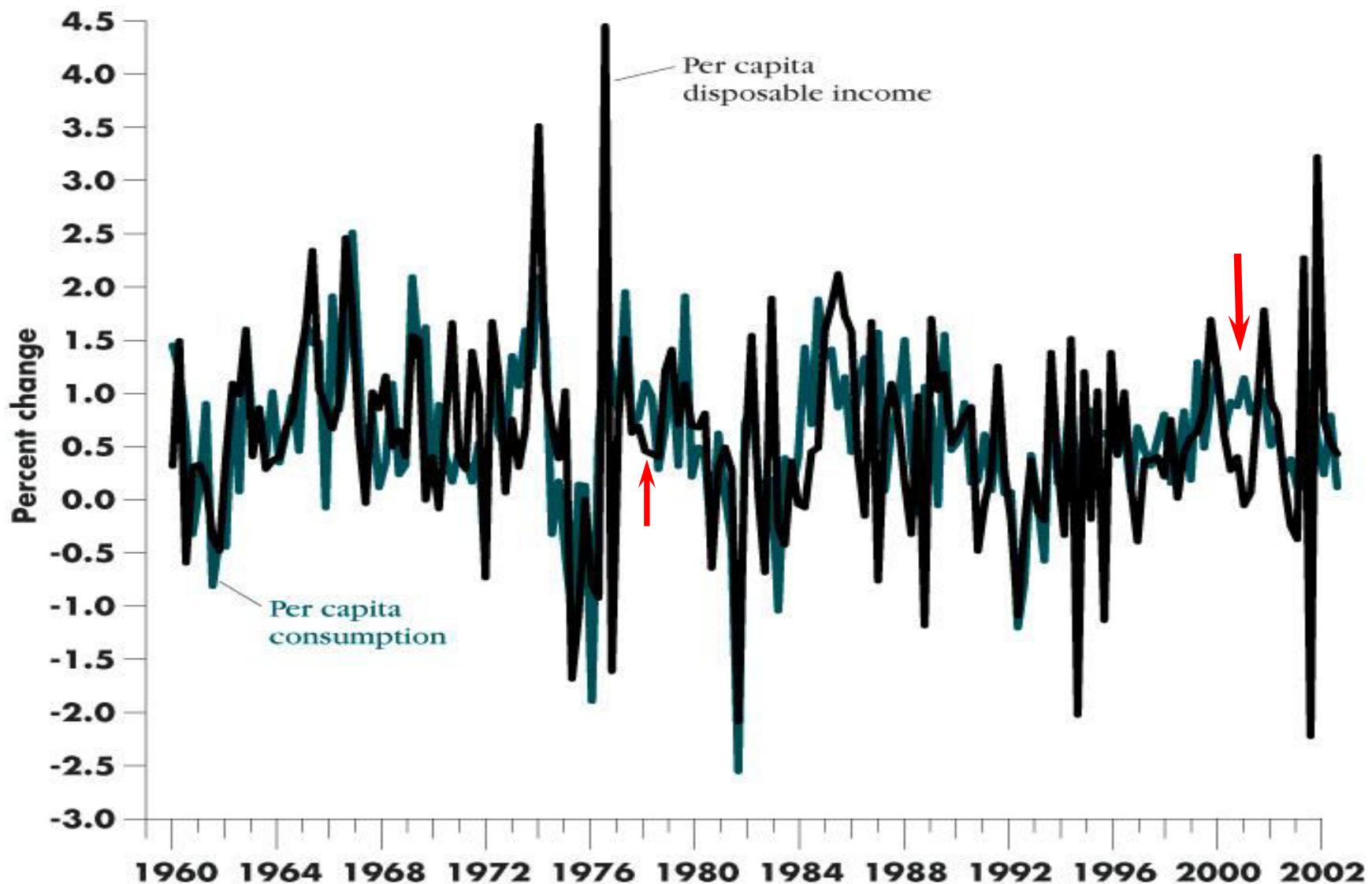
Source: GOI, Economic Survey (Various Issues).

## Lecture 1

# Theories of Consumption

## Behavioral Function

# Per Capita Consumption and Disposable Income in the US (1959-2002)



*Consumption is the sole end and purpose of all production.*

— Adam Smith

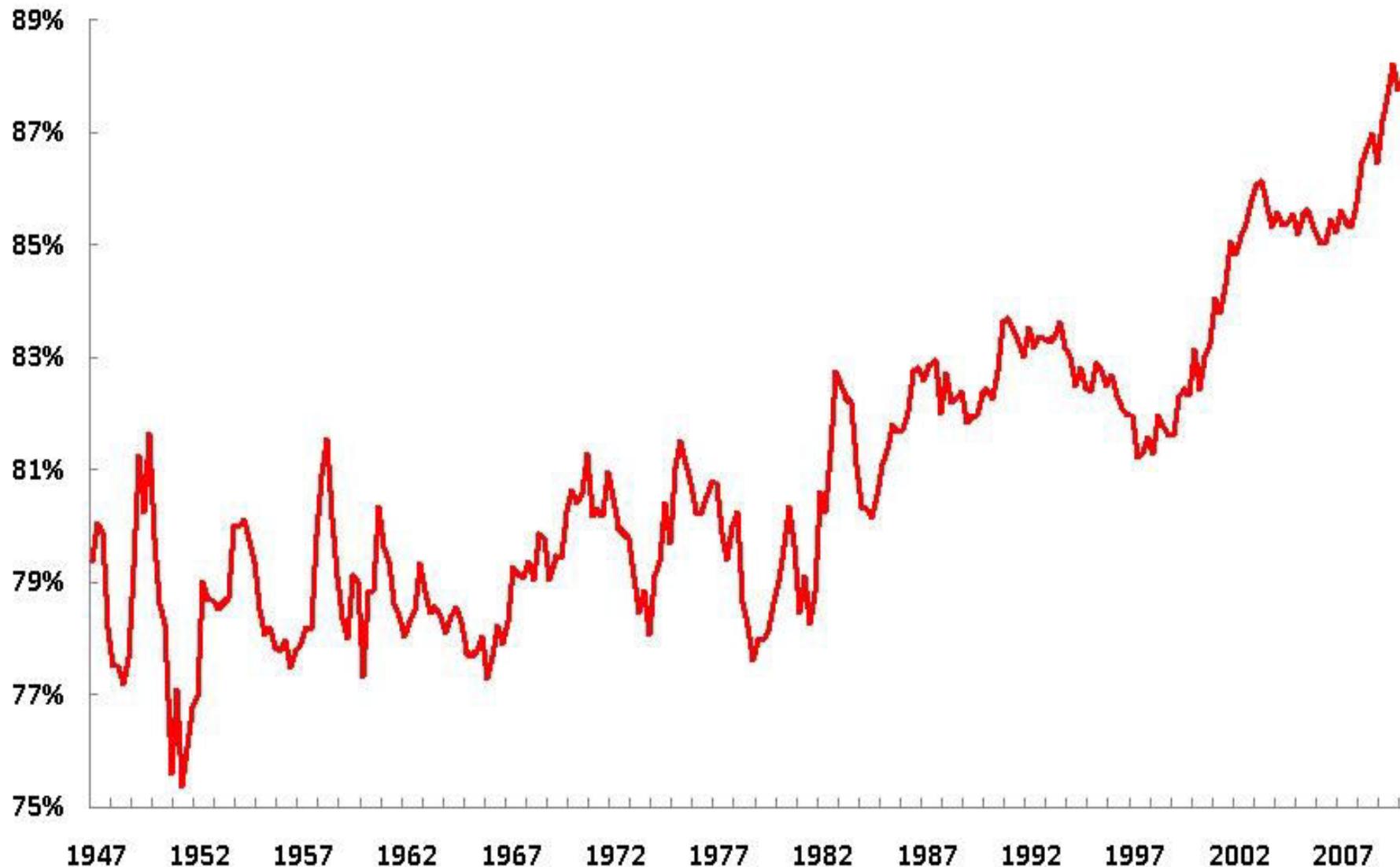
**Consumption contributes more to China's GDP growth**, January 30, 2008, REUTERS India.

**The contribution of PFCE to GDP growth increased from 50.4% in 2002-03 to 60.9% in 2003-04 in India.** [Source: GOI, Economic Survey 2004-05].

The Final consumption expenditure (% of GDP) in India was last reported at **69.69** in **2011**, according to the World Bank report published in **2012**.

# US Total Consumption

% of GDP



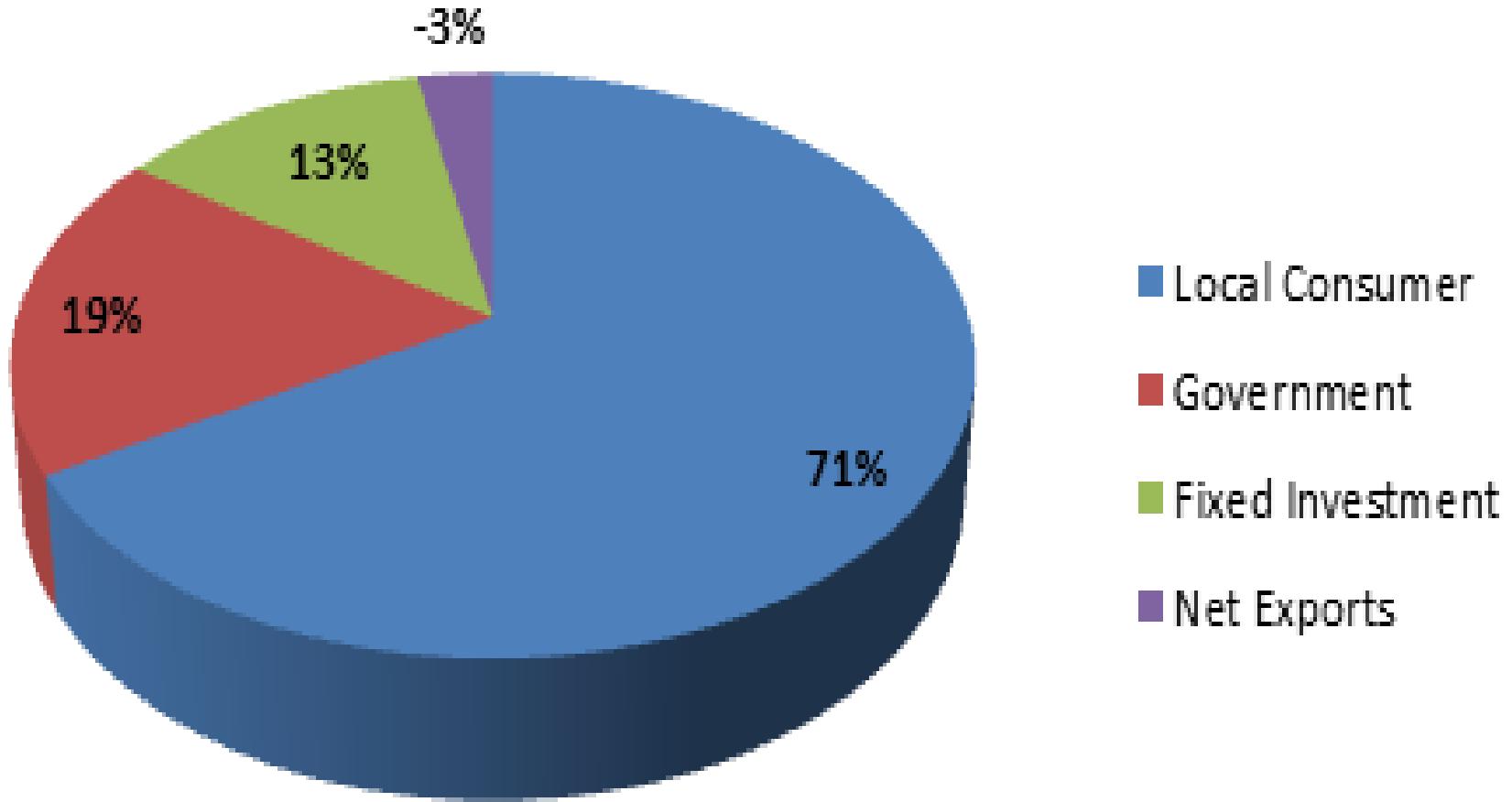
Source: Calculated from US Bureau of Economic Analysis

## Consumption as a Proportion of GDP, 2002

Argentina	61.7
Bangladesh	77.5
Colombia	65.8
Philippines	69.0
U.K	65.6
U.S.A	69.9

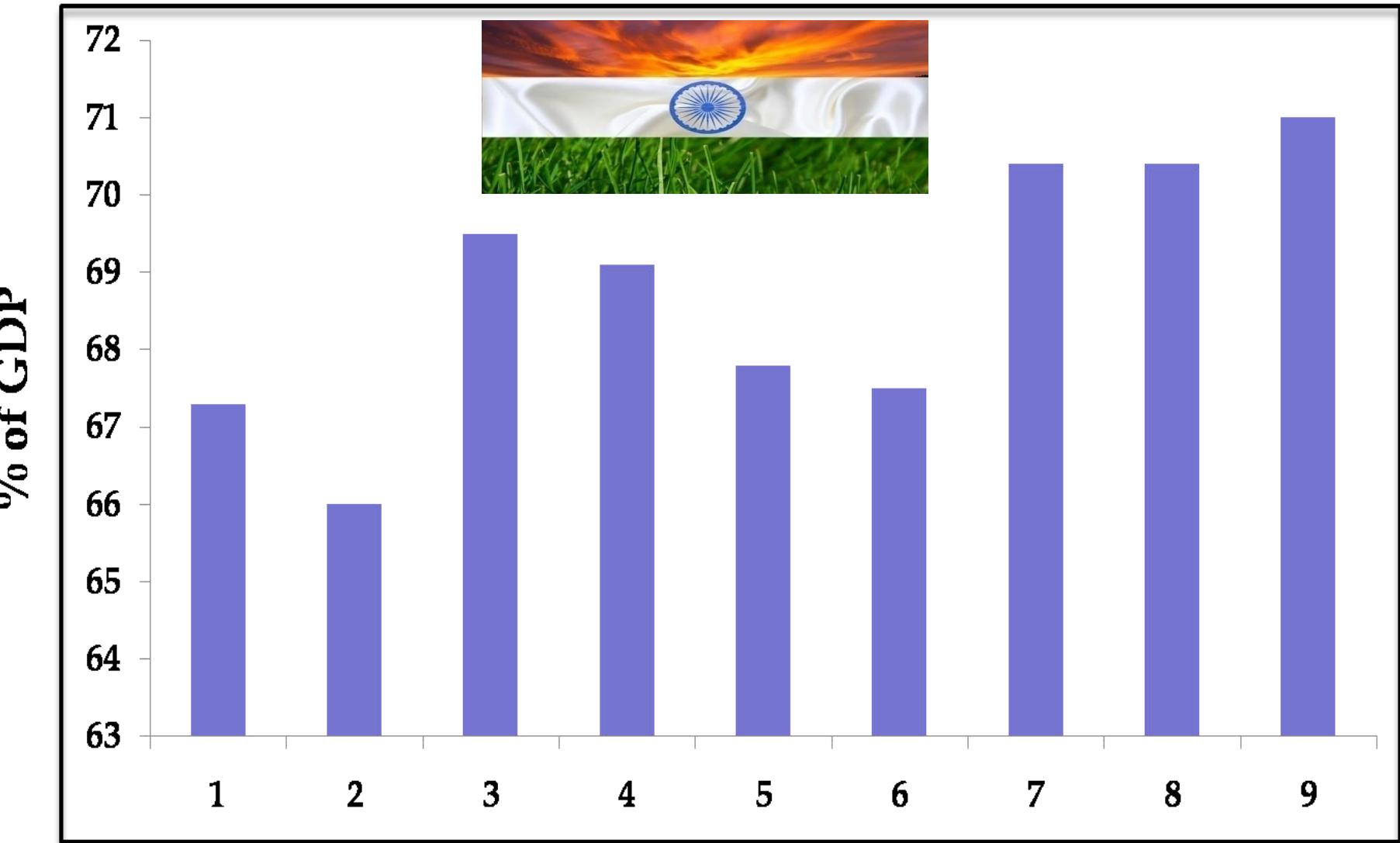
Source: IMF, *International Financial Statistics* (2003).

# US GDP in 2010



# Final Consumption Expenditure [% of GDP]

Data Period: 2006-2014



# Consumption Function

## (Behavioral Function)

Consumption constitutes a very high proportion of aggregate demand in the economy. And consumption demand in an economy is generally quite *stable* – fluctuations in consumption are proportionately *smaller* than the fluctuations in GDP.

**MPC**  $\left[ \frac{dC}{dY} \text{ or } \frac{\Delta C}{\Delta Y} \right]$ : Increase in consumption due to per unit increase in income.

***Keynesian model suggests a high value of MPC.***

***Keynes had put high importance on the consumption demand of an economy.***

**APC**  $\left[ \frac{C}{Y} \right]$ : Consumption per unit of income.

# Absolute Income Hypothesis (AIH)

“The fundamental psychological law ... is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income” — *John Maynard Keynes (1936, p. 96)*.

## The Keynesian Theory

Consumption is a *linear* function of disposable income.

$$C = a + bY_D \quad a > 0 \text{ and } 0 < b < 1$$

where  $C$  is consumption,  $Y_D$  is disposable income,  $b$  is the *marginal propensity to consume*.

$$\frac{C}{Y_D} = \frac{a}{Y_D} + b \quad \Rightarrow \text{APC} - \text{MPC} > 0$$

## **Keynes's Conjectures**

- APC falls as income rises. Rich people save a higher proportion of their income than the poor.
- MPC lies between 0 and 1; i.e.  $0 < \text{MPC} < 1$ . There is empirical evidence that wealthier people have a lower MPC than the poor.
- Income is the primary determinant of consumption and that the interest rate does not have any important role – stark contrast to the beliefs of the classical economists. Keynes did not have interest rate in his formulation of consumption function.

## AIH (The Keynesian Consumption Theory)

Keynes hypothesized that consumption demand has two components: *autonomous* and *induced* consumption.

The corollary of the Keynesian consumption function provides the saving function:

- (i) MPS is  $(1-b)$ ; and
- (ii) APS *increases as income increases.*

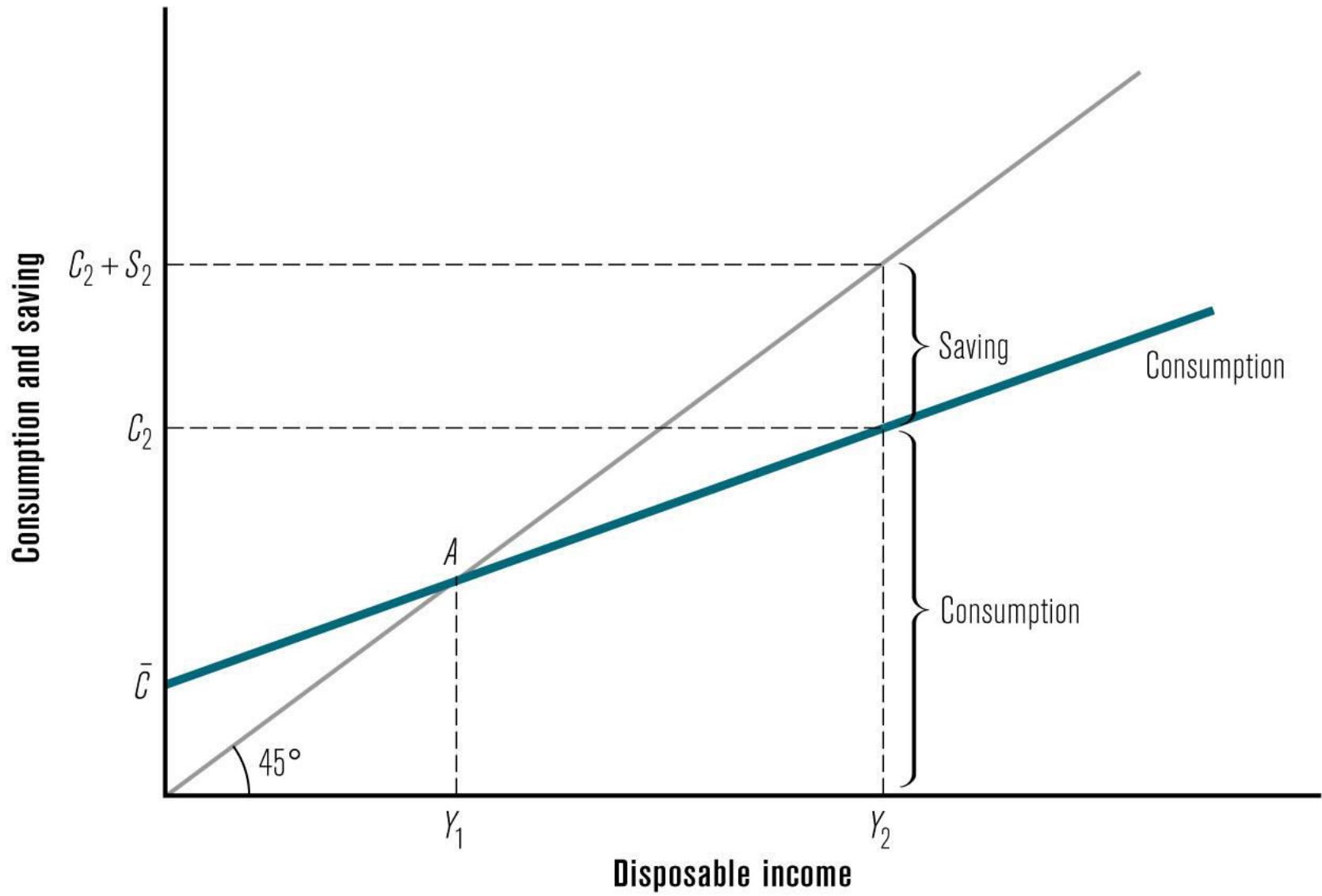
Note that,  $MPC + MPS = 1$  and  $APC + APS = 1$ .

Rich people and rich countries have high saving rates in comparison to poor people and poor countries.

## Simple Keynesian Consumption Function

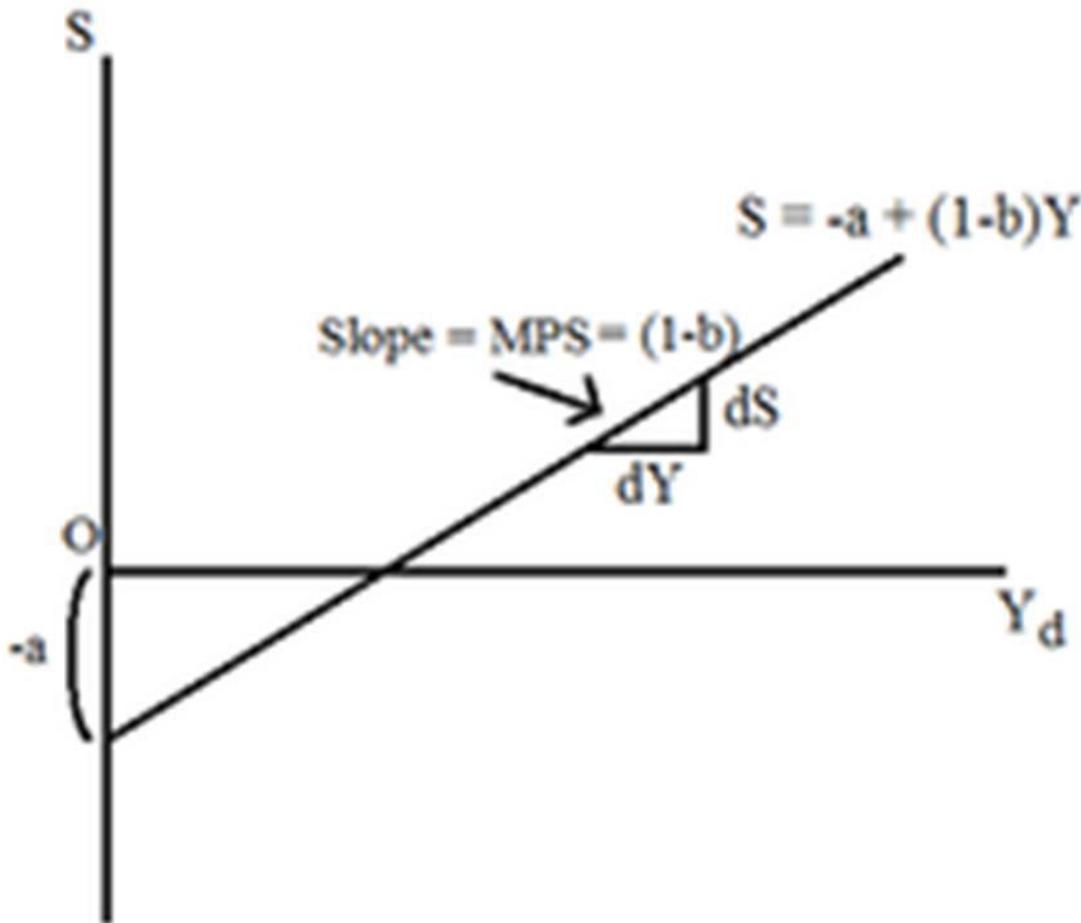
Disposable Income ( $Y_D$ )	Consumption (C)	APC (= C/Y <sub>D</sub> )	Saving (= Y <sub>D</sub> - C)
500	875	1.75	- 375
1000	1250	1.25	- 250
1500	1625	1.08	- 125
2000	2000	1.00	0
2500	2375	0.95	125
3000	2750	0.92	250
3500	3125	0.89	375
4000	3500	0.88	500

Note that, MPC = 0.75 is constant throughout.



**The Keynesian Absolute Income Hypothesis**

# The Keynesian Savings Function



## Lecture 2

*on*

# Theories of Consumption

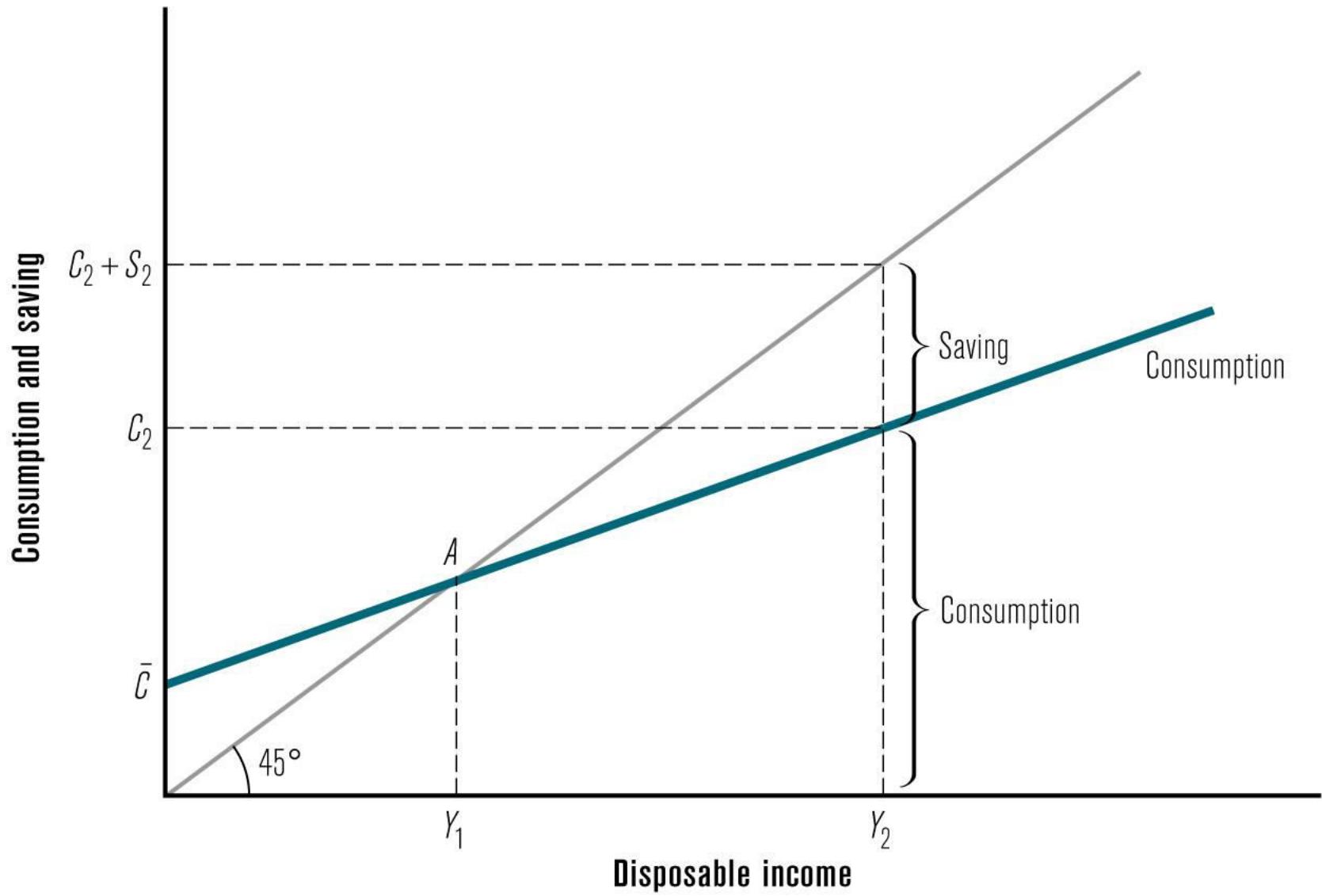
## **Keynes's Conjectures**

- APC falls as income rises. Rich people save a higher proportion of their income than the poor.
- MPC lies between 0 and 1; i.e.  $0 < \text{MPC} < 1$ . There is empirical evidence that wealthier people have a lower MPC than the poor.
- Income is the primary determinant of consumption and that the interest rate does not have any important role – stark contrast to the beliefs of the classical economists. Keynes did not have interest rate in his formulation of consumption function.

## Simple Keynesian Consumption Function

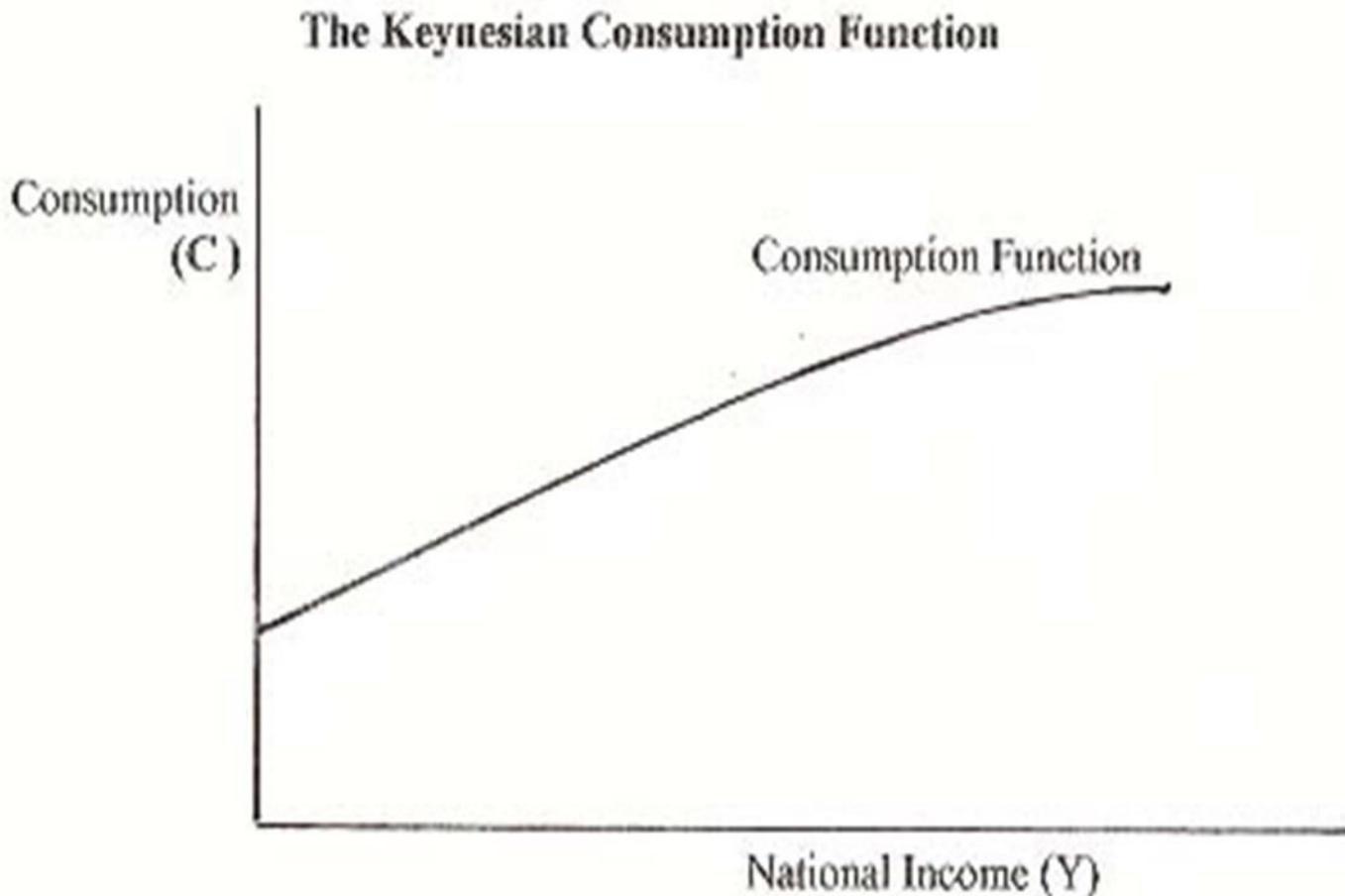
Disposable Income ( $Y_D$ )	Consumption (C)	APC (= C/ $Y_D$ )	Saving (= $Y_D$ - C)
500	875	1.75	- 375
1000	1250	1.25	- 250
1500	1625	1.08	- 125
2000	2000	1.00	0
2500	2375	0.95	125
3000	2750	0.92	250
3500	3125	0.89	375
4000	3500	0.88	500

Note that, MPC = 0.75 is constant throughout.



The Keynesian Absolute Income Hypothesis

# Non-Linear Consumption Function: MPC Decreases as Income Increases



# Income, Consumption and Savings Relationship in a Non-Linear Consumption Function

Income (Y)	Consumption (C)	Savings (S)	APC (C/Y)	APS (S/Y)	MPC	MPS
0	60	-60	—	—	—	—
100	150	-50	1.50	-0.50	0.90	0.10
200	220	-20	1.10	-0.10	0.70	0.30
250	250	0	1.00	0	0.60	0.40
350	300	50	0.89	0.11	0.50	0.50
450	345	105	0.77	0.23	0.45	0.55

**MPC Decreases as Income Increases.**

*Keynes's conjectures were questioned and found erroneous.*

Simon Kuznets (1942) found APC to be remarkably *stable* from decade to decade, despite large increases in income over his study period (1869-1929).

***Simon Smith Kuznets*** was an American economist and statistician who received the **1971 Nobel Memorial Prize in Economic Sciences**.

# **Failures of AIH**

Empirical findings have not verified all of Keynes's three conjectures. For example, his statement that consumption is a stable function of income is true in the long run and has been established by the time series analysis. Keynes's conjecture that MPC is positive, but *less* than 1, is true in the short run as well as in the long run. But, his statement that APC falls as income increases has not been found valid in the long run.

---

The failure of the *secular stagnation hypothesis* and the empirical findings of Simon Kuznets [supported by Goldsmith's study in 1955] presented a puzzle that motivated much of the subsequent research works on consumption.

# Saving Leakage!

When individuals do not consume their entire income (or reduce consumption as compared to what they should have consumed), they are not purchasing the entire output that they helped create.

This implies that, there is a *saving leakage*! Investment must fill the void created by saving if output is to be maintained.

**Output contracts if saving leakages are not replaced by an equal amount of investment injections.**

# **Life - Cycle Hypothesis (LCH)**

**Albert Ando, Franco Modigliani & Richard Brumberg**

**1954, 1957, 1963**

Individuals generally plan their consumption and savings behavior in the best possible way over their life times.

**Consumption plans are made so as to achieve a smooth or even level of consumption by saving during periods of high income and dissaving during periods of low income.**

Income varies *systematically* over people's life time — saving allows people to move income from those times in life when income is high to those times when it is low — this fact of consumer behavior forms the basis of LCH.

The LCH views savings as resulting mainly from individual's desires to provide for smooth consumption in old age. This theory identifies the *age structure of the population as an important determinant of consumption and saving behavior*.

## **LCH** (contd.)

Consider a man who expects to live another  $T$  years. He has wealth of  $W$  amount and expects to work and earn income  $Y$  for another  $R$  years from now.

**What level of consumption would the man choose to maintain a smooth level of consumption over his life time?**

The man's life time resources are composed of his initial wealth  $W$  and lifetime earnings  $RY$ ; i.e.,  $[W + RY]$ .

**(For simplicity, we assume a zero or negligible interest rate. Otherwise, we need to take account of interest earned on savings).**

## **LCH** (contd.)

The individual divides his lifetime resources among his  $T$  remaining years such that he achieves smoothest possible path of consumption.

Therefore, he divides this total of  $[W + RY]$  equally among the  $T$  years and each year consumes

$$C = \frac{[W + RY]}{T}$$

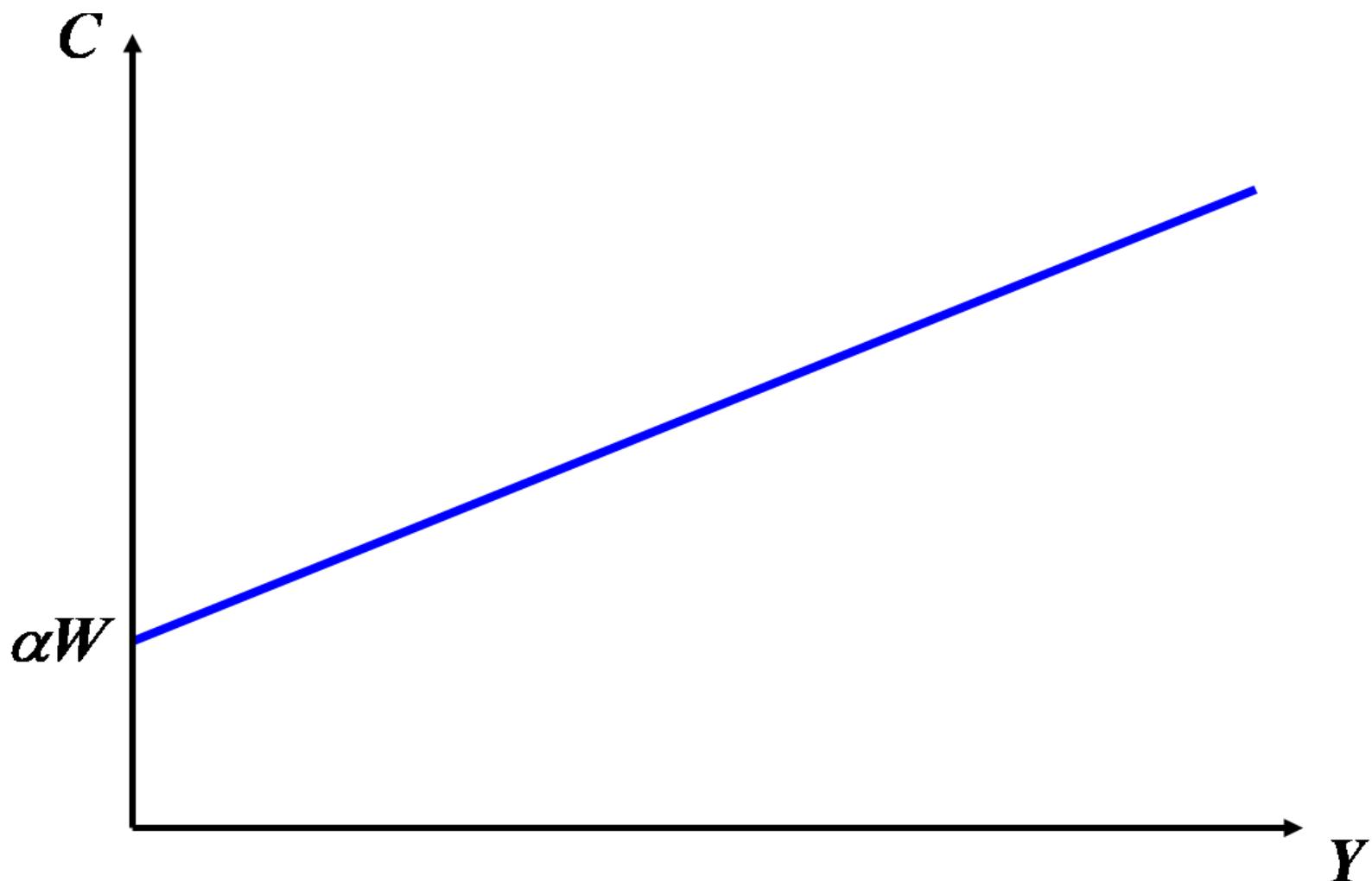
Rewrite this consumption function as:

$$C = \left( \frac{1}{T} \right) W + \left( \frac{R}{T} \right) Y$$

Consumption depends on both income and wealth.

The economy's aggregate consumption function is:

$$C = \alpha W + \beta Y \quad \alpha < \beta$$



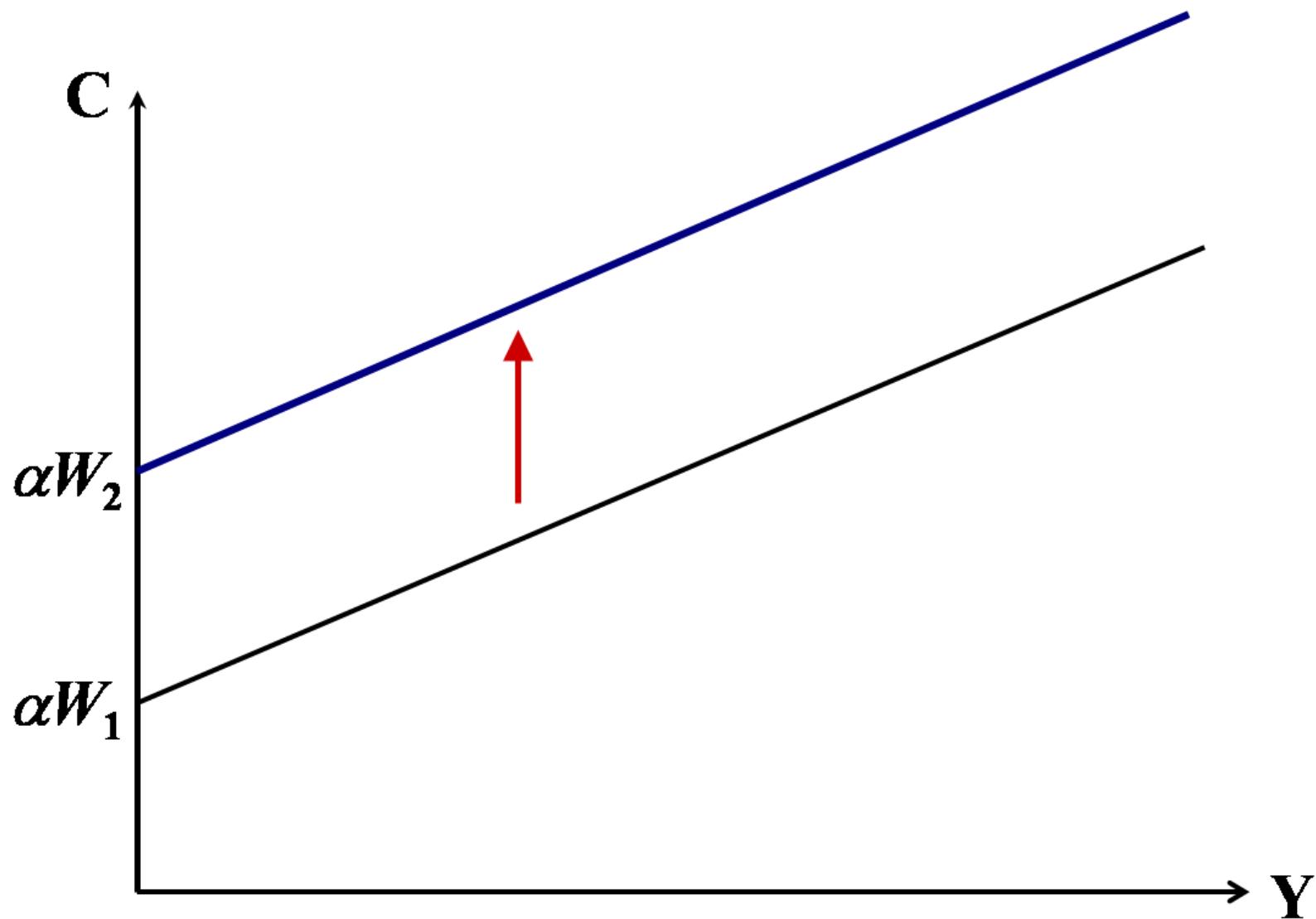
## **LCH** (contd.)

APC is 
$$\frac{C}{Y} = \alpha \left( \frac{W}{Y} \right) + \beta$$

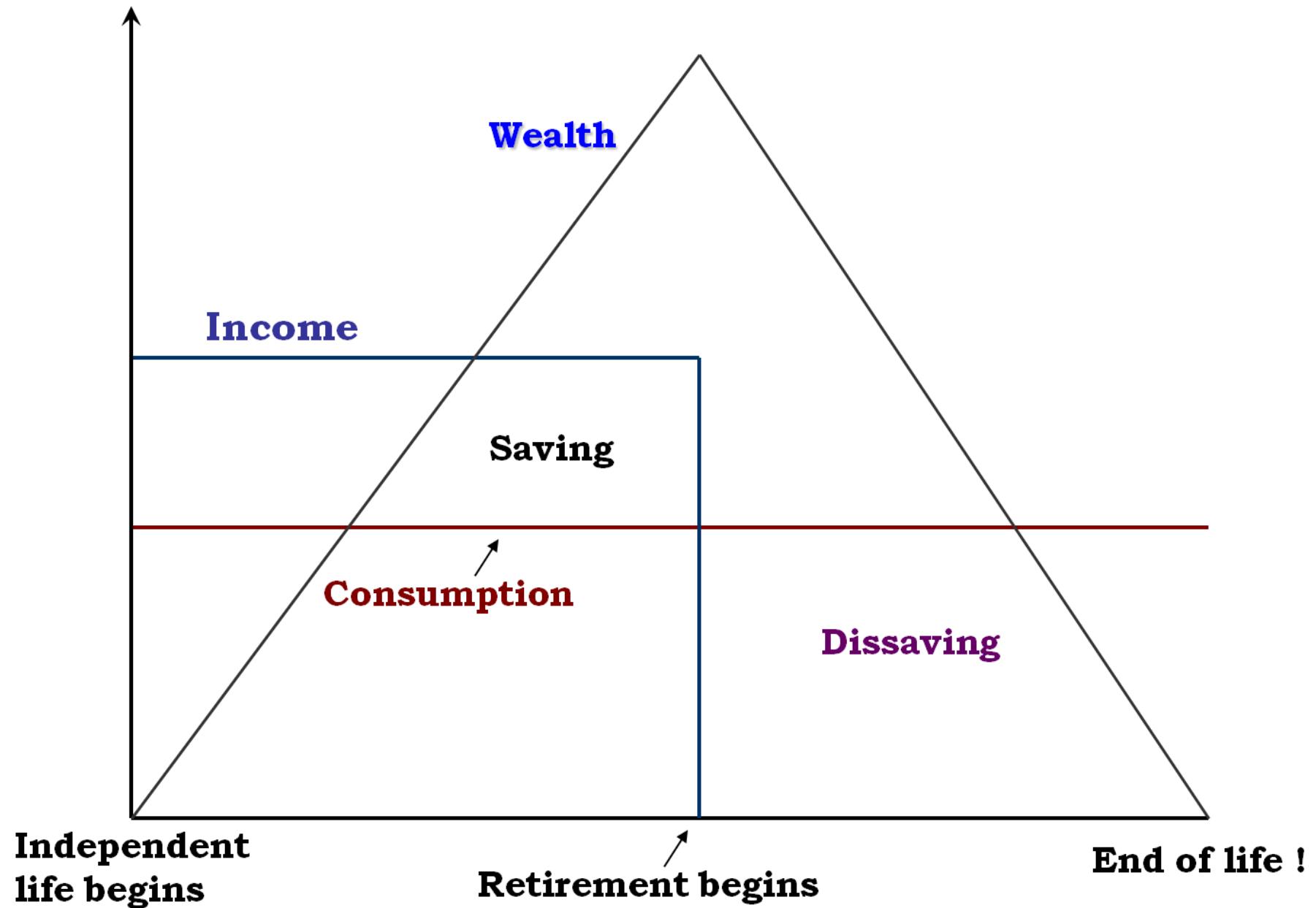
In the short run, high income corresponds to a low APC. But, over the long run wealth and income grow together, resulting in a constant wealth-income ratio and thus a constant APC — **this way Modigliani solved Kuznet's consumption puzzle.**

In the short run, wealth is constant. However, in the long run as wealth increases the consumption function shifts upward. This upward shift prevents the APC from falling as income increases.

# Changes in Wealth Shift the Consumption Function



# Wealth, Income

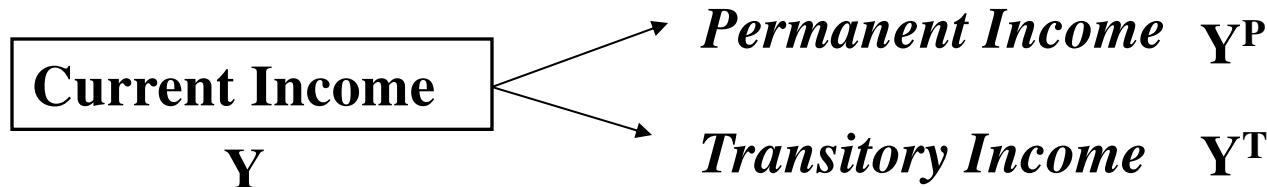


# *Theories of Consumption*

# Permanent Income Hypothesis

## Milton Friedman (1957)

People experience *random* and *temporary* changes in their incomes from time to time.



**Permanent income** is the part of income that people expect to persist into the future. **Transitory income** is the part of income that people do not expect to persist.

A good education provides a permanently higher income, whereas to a farmer good monsoon provides only transitorily higher income.

**Friedman (1957): Consumption depends primarily on permanent income.** For example, if a person receives a permanent raise of Rs. 10,000 per year, his consumption will rise by about as much. But if a person wins lottery of Rs. 10,000, he will not consume it all in one year. Instead, he will spread the extra consumption over the rest of his life time. **Thus, people spend their permanent income, but they save rather than spend most of their transitory income.**

Friedman concluded that we should view the consumption function as approximately

$$C = \alpha Y^P$$

$\alpha$  measures the fraction of permanent income consumed.

# Implications

Keynesian consumption function uses wrong variable.  
According to PIH, consumption depends on permanent income and *not* on current income. This *errors-in-variables* problem gives contradictory empirical findings.

Friedman's PIH:  $APC = \left( \frac{C}{Y} \right) = \alpha \left( \frac{Y^P}{Y} \right)$

When current income temporarily rises above permanent income, the APC temporarily falls; however, when current income temporarily falls below permanent income, the APC temporarily rises.

# **Relative Income Hypothesis**

## **James Duesenberry (1949)**

RIH states that the satisfaction (or utility) an individual derives from a given consumption level depends on its *relative* magnitude in the society (e.g., relative to the average consumption) rather than its absolute level.

It is based on a postulate that has long been acknowledged by psychologists and sociologists, namely that individuals care about status.

# **Relative Income Hypothesis**

## **James Duesenberry (1949)**

Duesenberry claimed that an individual's utility depends on the ratio of his or her consumption to a weighted average of the consumption of the others.

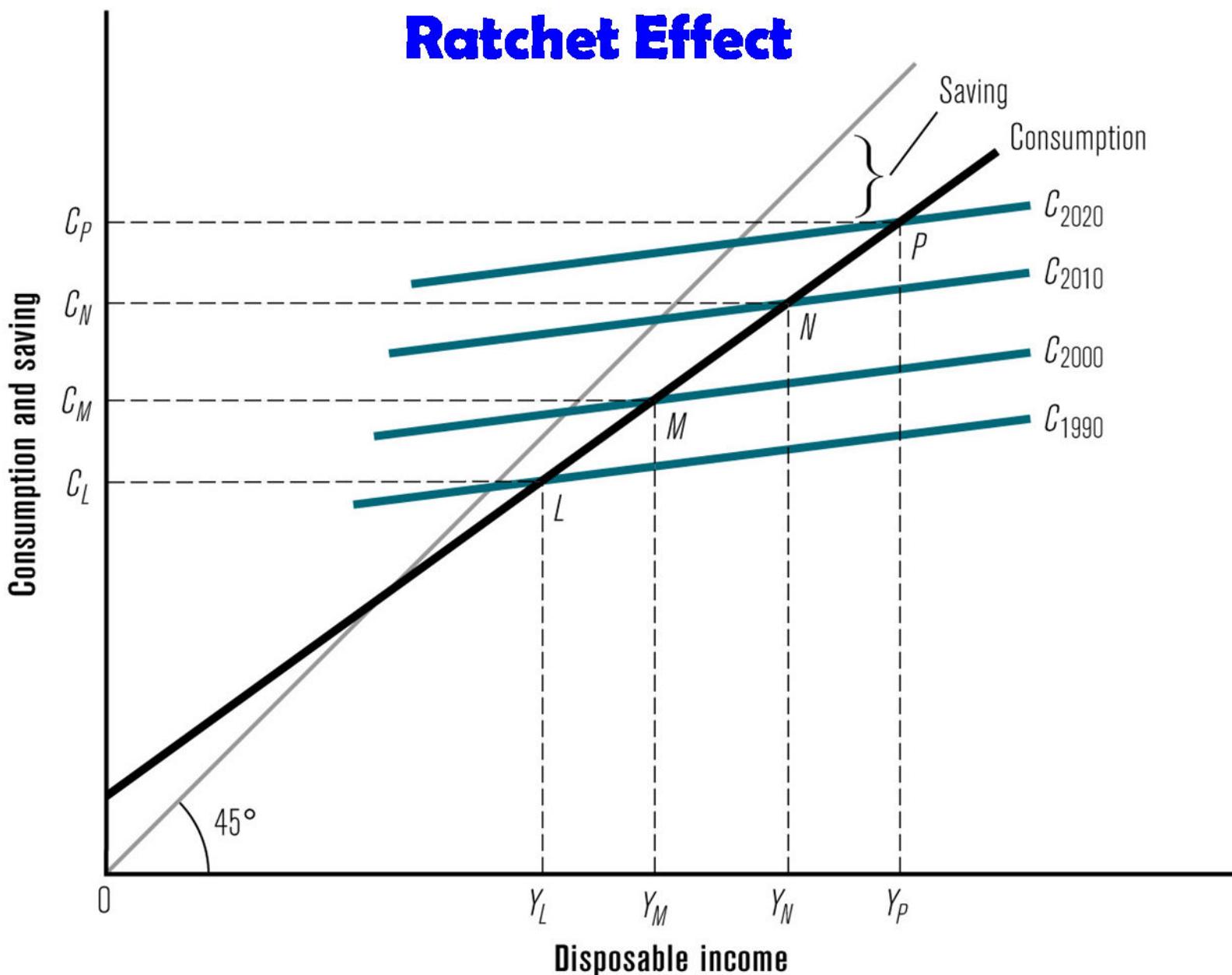


# Ratchet Effect

*Downward rigidity in consumption was observed,* which implies that while consumers raised their consumption expenditures in the face of rising incomes they were too reluctant to reduce their consumption expenditures when their incomes fell.

This is known as the *ratchet effect*.

# Ratchet Effect



Consumption and Saving in the Short and Long Term with  
Rising Income over Time

# **Role of Interest Rate ?**

# INVESTMENT

The second largest component of aggregate demand in an economy after consumption, is investment.

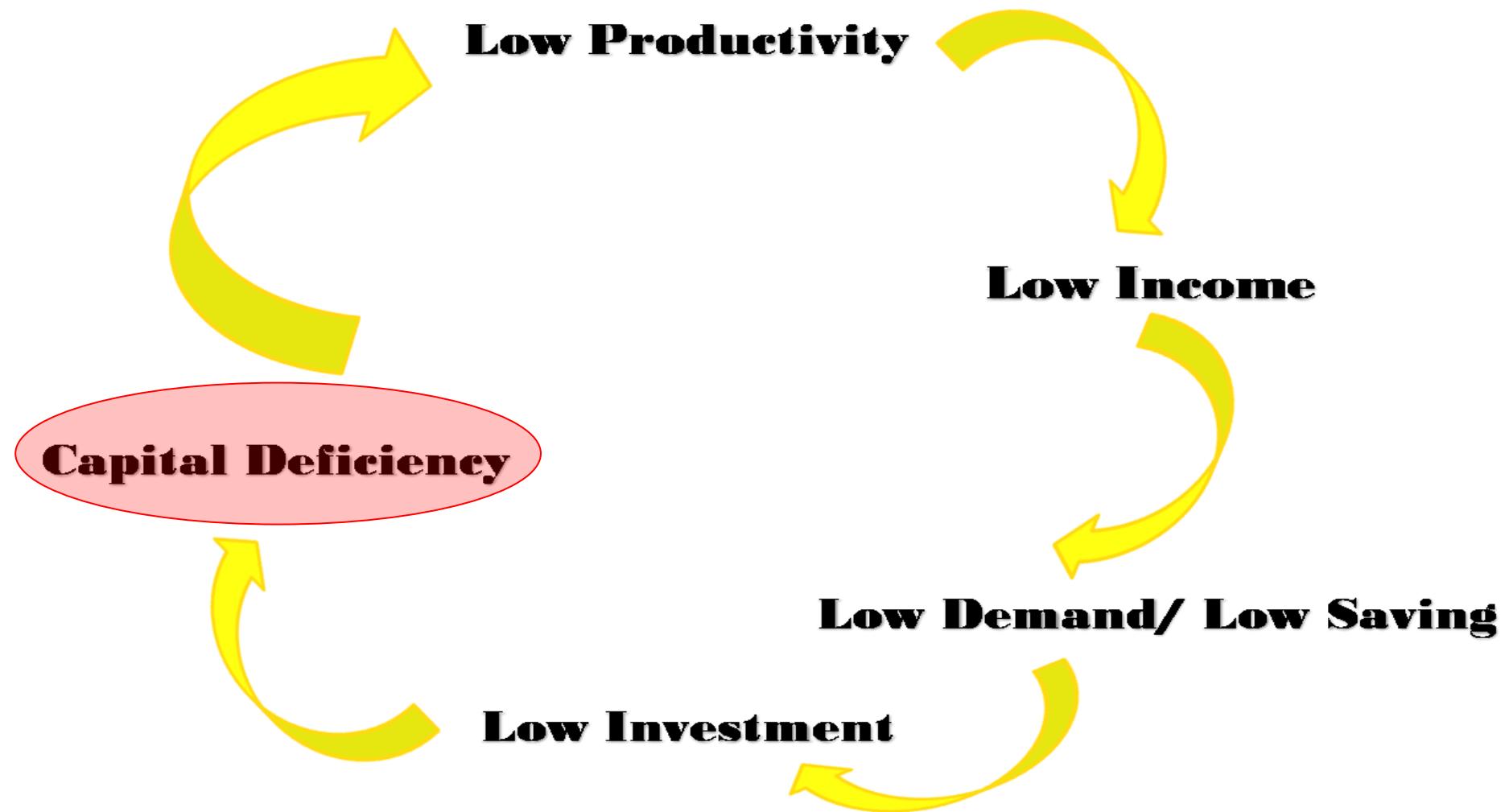
Two important roles:

*Large and highly volatile component of aggregate demand affecting the business cycle.*

*Investment leads to capital accumulation and promotes economic growth in the long run.*

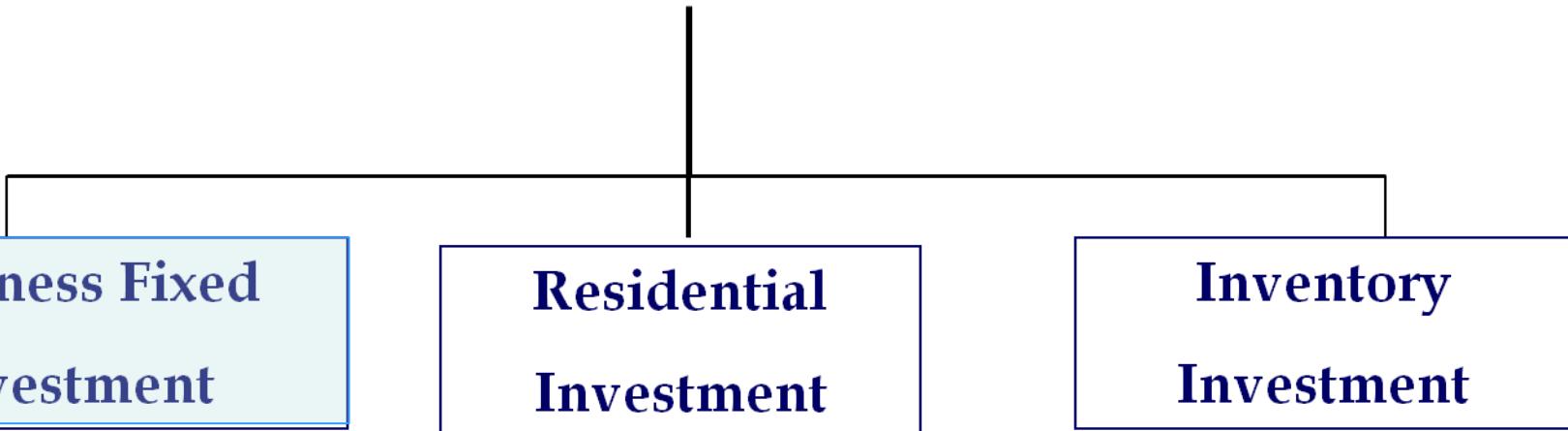
*The most volatile component of GDP over the business cycle.*

# Vicious Circle of Poverty



Ragnar Nurkse (1953): *A Country Is Poor Because It Is Poor*

# INVESTMENT

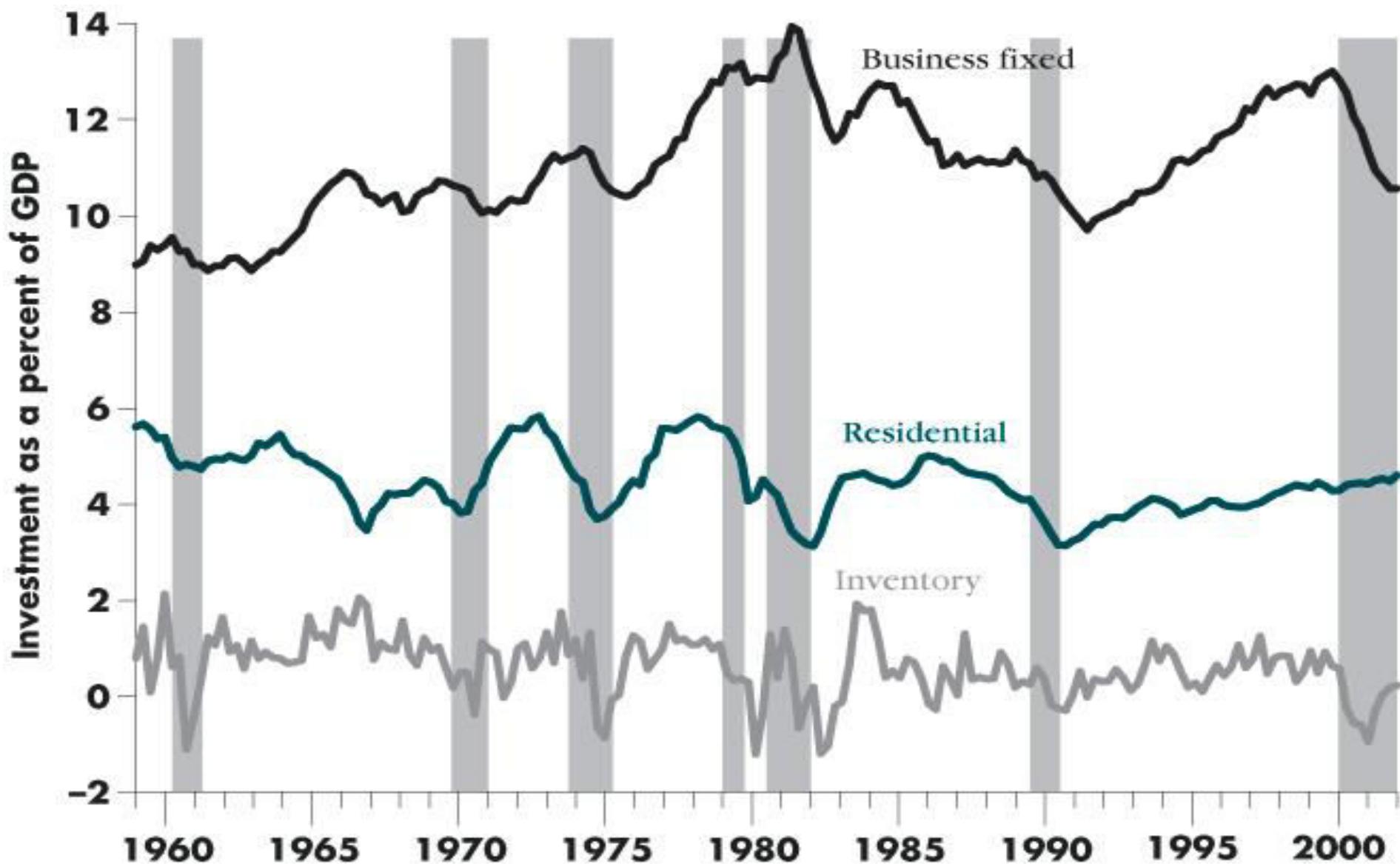


**Business fixed investment** comprises mainly of business spending on machinery, equipment, and structures such as factories.

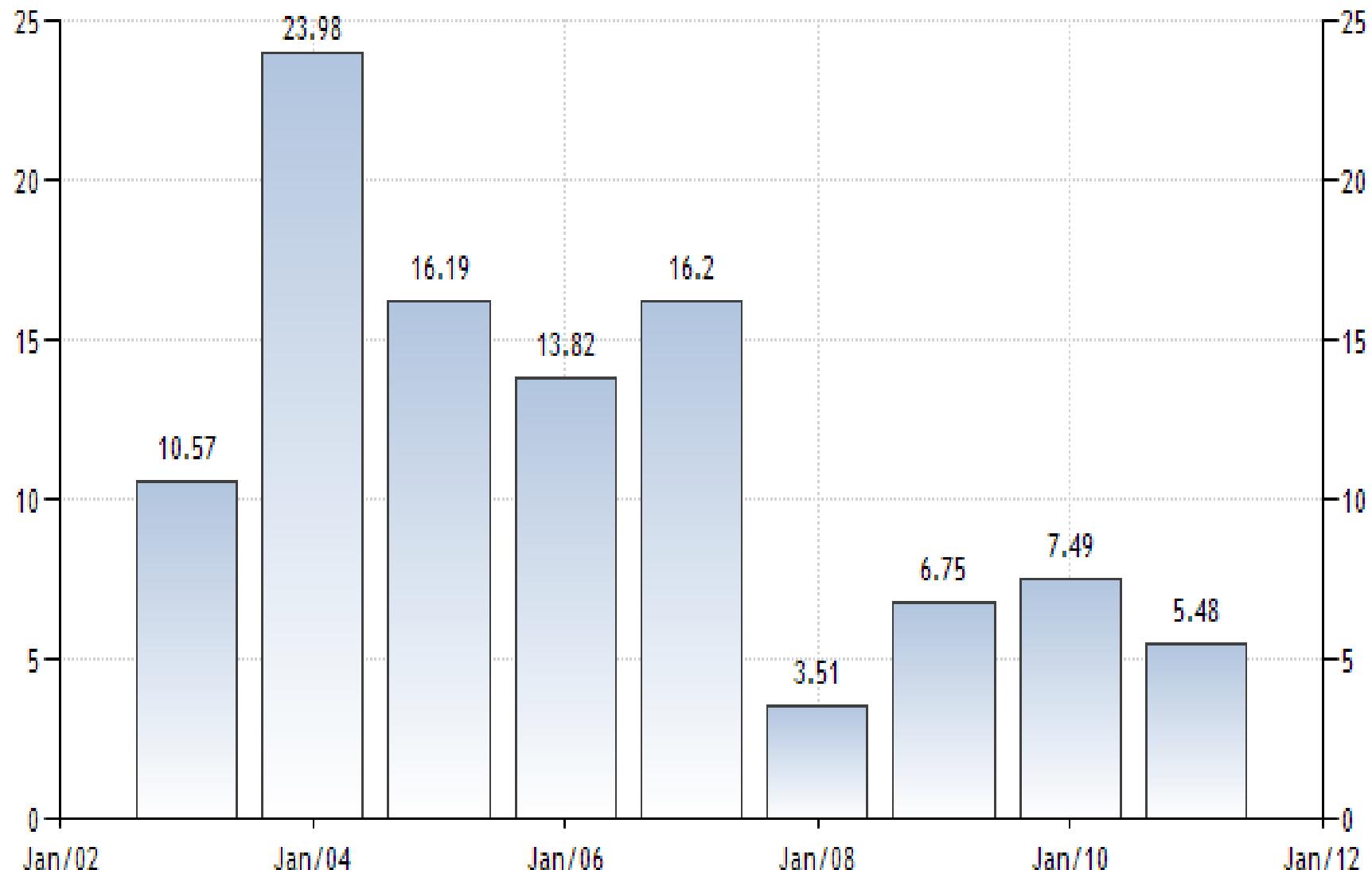
**Residential investment** consists largely of investment in housing and real estate.

**Inventory investment** considers only additions to the stock of inventories of firms: both final goods' inventories and inventories of raw materials.

# Components of Investment as a Percentage of GDP in the US



# GROSS FIXED CAPITAL FORMATION (ANNUAL % GROWTH) IN INDIA



# Business Fixed Investment

Gross investment expenditures of a firm are conceptually broken up into two parts: net investment expenditures on new capital goods and replacement investment expenditures on the depreciated stock of capital. The latter includes both maintenance expenditures on usable capital inherited from the past, and expenditures to replace the obsolete capital goods.

**Net Investment**  
↓  
**Replacement Investment**

**Continuous Framework**  $I \equiv \frac{dK}{dt} + \delta K_{t-1}$      $0 < \delta < 1$

**Discrete Framework**  $I \equiv K^* - K + \delta K_{t-1}$

$\delta$  is the depreciation rate

# Investment-Accelerator Relationship

## The Traditional Accelerator Model

Maurice J. Clark (1917)

A simple *linear* relationship between changes in the capital stock of the firm and changes in its flow of output.

“the acceleration principle ... suggests that an increase in the growth rate of output — an *acceleration* — is needed to increase the level of investment”, Branson (1989).

*Assumptions:*

- firms invest proportionally to the variations in demand; and
- firms observe only the demand for their own products.

$$I = f(\Delta Y_t, \Delta Y_{t-1}, \dots, Y_{t-1}, Y_{t-2}, \dots)$$

# *Drawbacks of the Accelerator Model*

Transitory change in  
demand

Excess Capacity

Financial Constraints

# INVESTMENT

The second largest component of aggregate demand in an economy after consumption, is investment.

**Two important roles:**

*Large and highly volatile component of aggregate demand affecting the business cycle.*

*Investment leads to capital accumulation and promotes economic growth in the long run.*

*The most volatile component of GDP over the business cycle.*

# **MARGINAL EFFICIENCY OF CAPITAL**

Investment, in the theory of income and employment, means an addition to the nations physical stock of capital like building of new factories, new machines as well as any addition to the stock of finished goods or the goods in the pipeline of production.

**Investment has to create income and employment.**

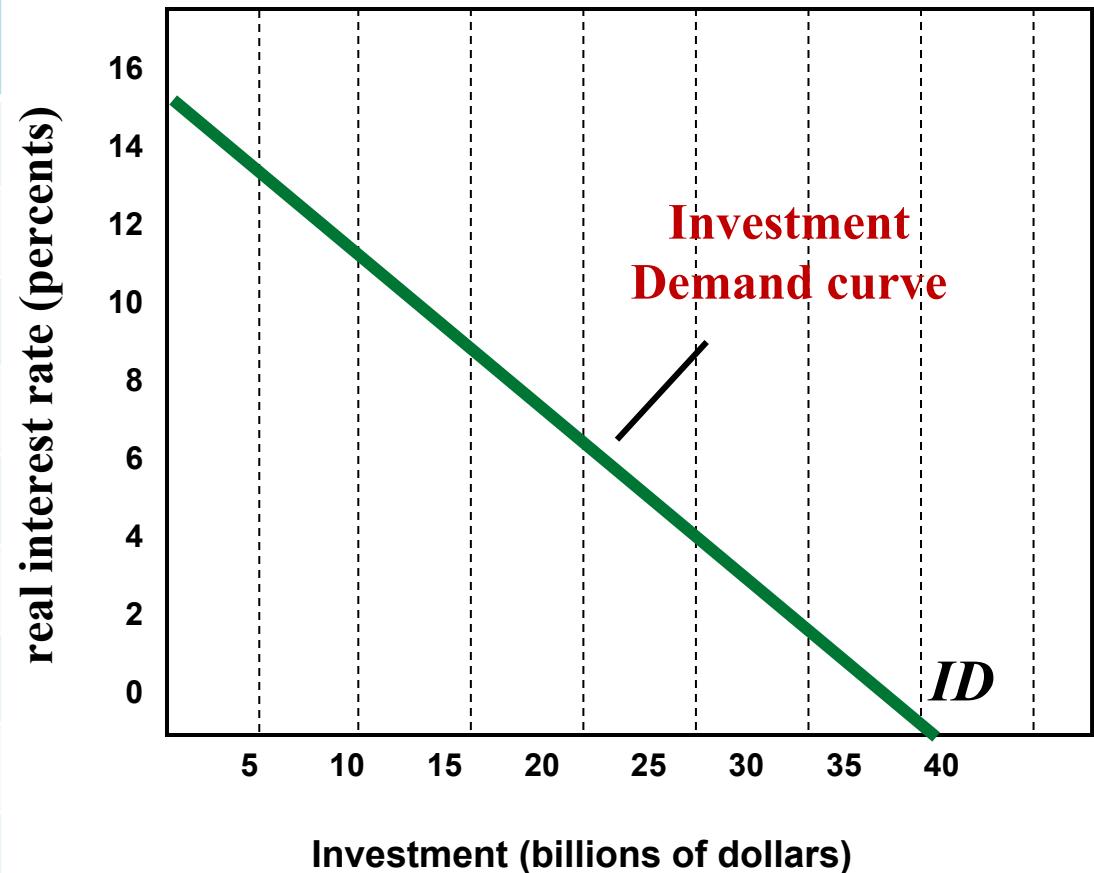
**Marginal efficiency of investment is the highest expected rate of profit which is likely to be had by a marginal increase in the rate of investment.**

**MEC must never fall below the current rate of interest, if investment is to be worthwhile.**

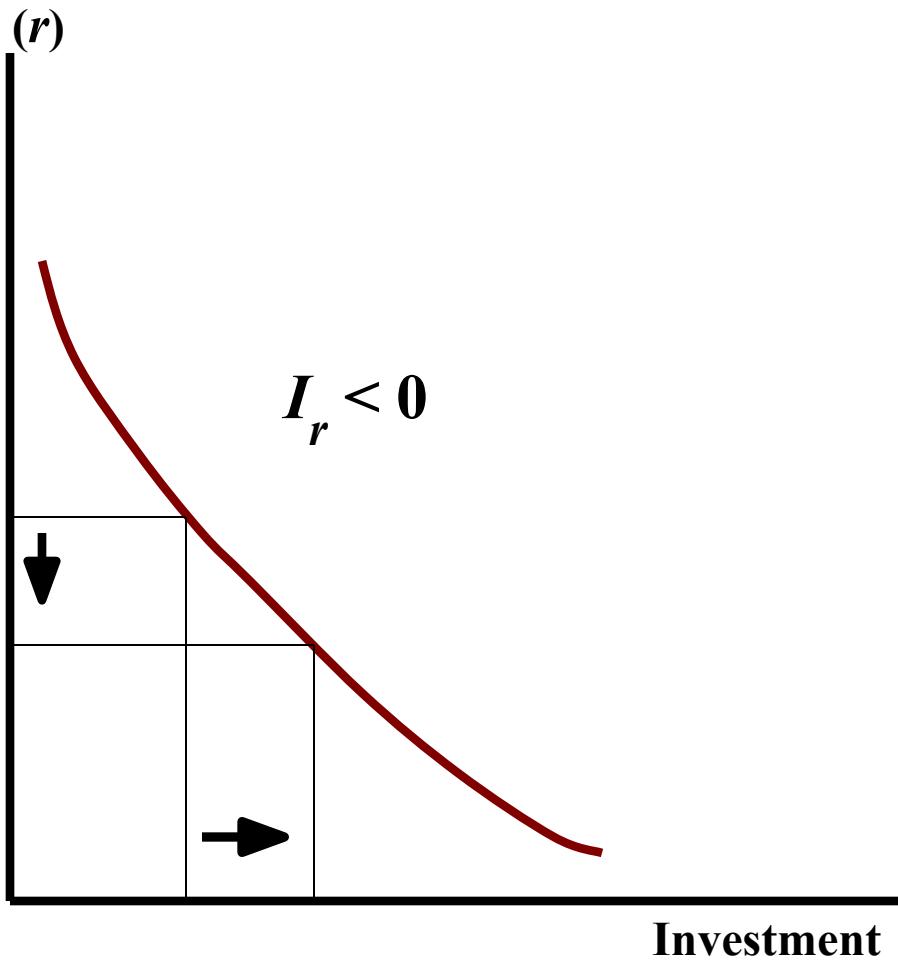
# Investment Demand Curve

Real Interest Rate	Investment (Bn. of dollars)
16%	\$ 0
14	5
12	10
10	15
8	20
6	25
4	30
2	35
0	40

real interest rate (percents)

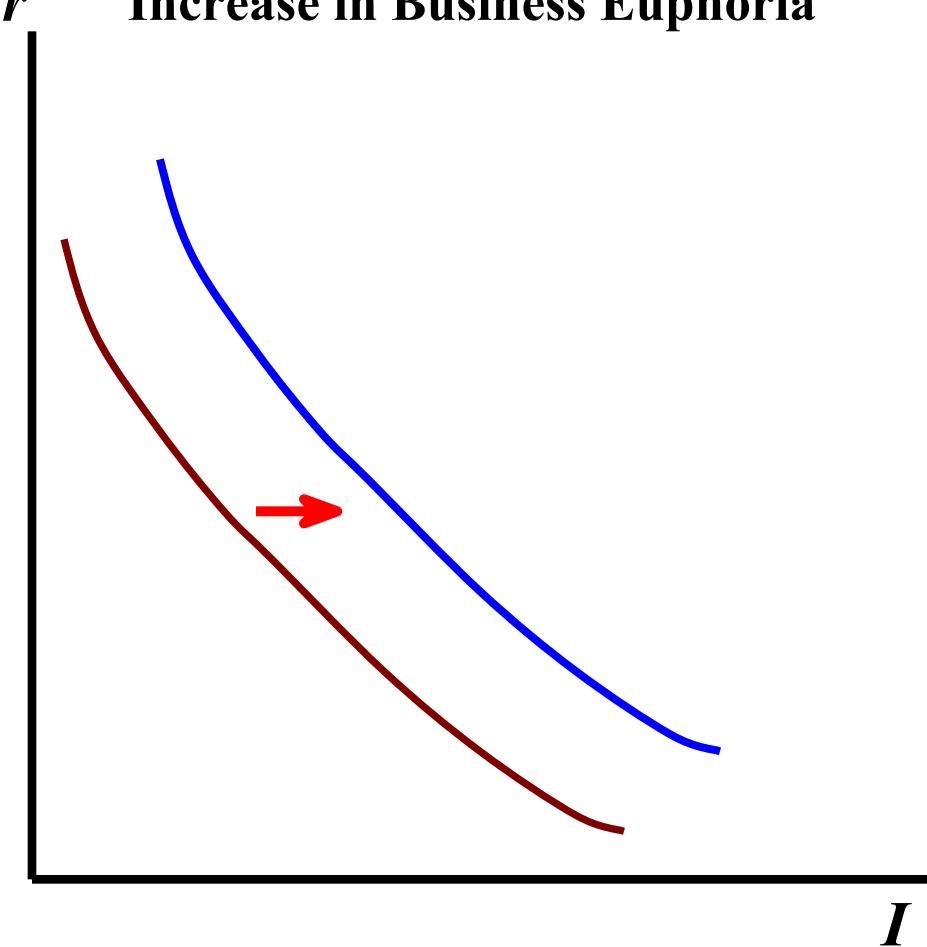


## Real interest rate



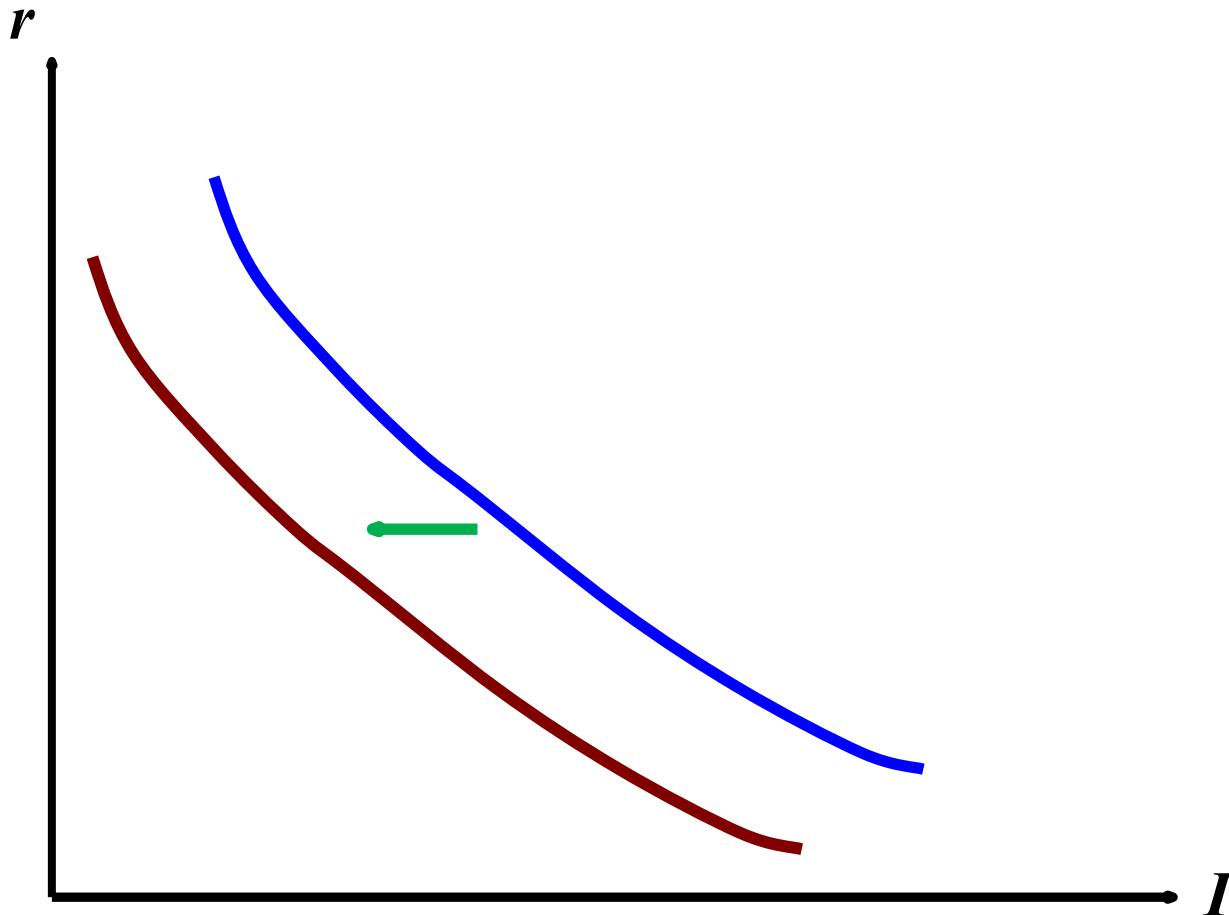
Downward Sloping Investment Function

## Increase in Business Euphoria



Shift in Investment Schedule

## Increase in Corporate Tax



Shift in Investment Schedule

# **Neoclassical Theory**

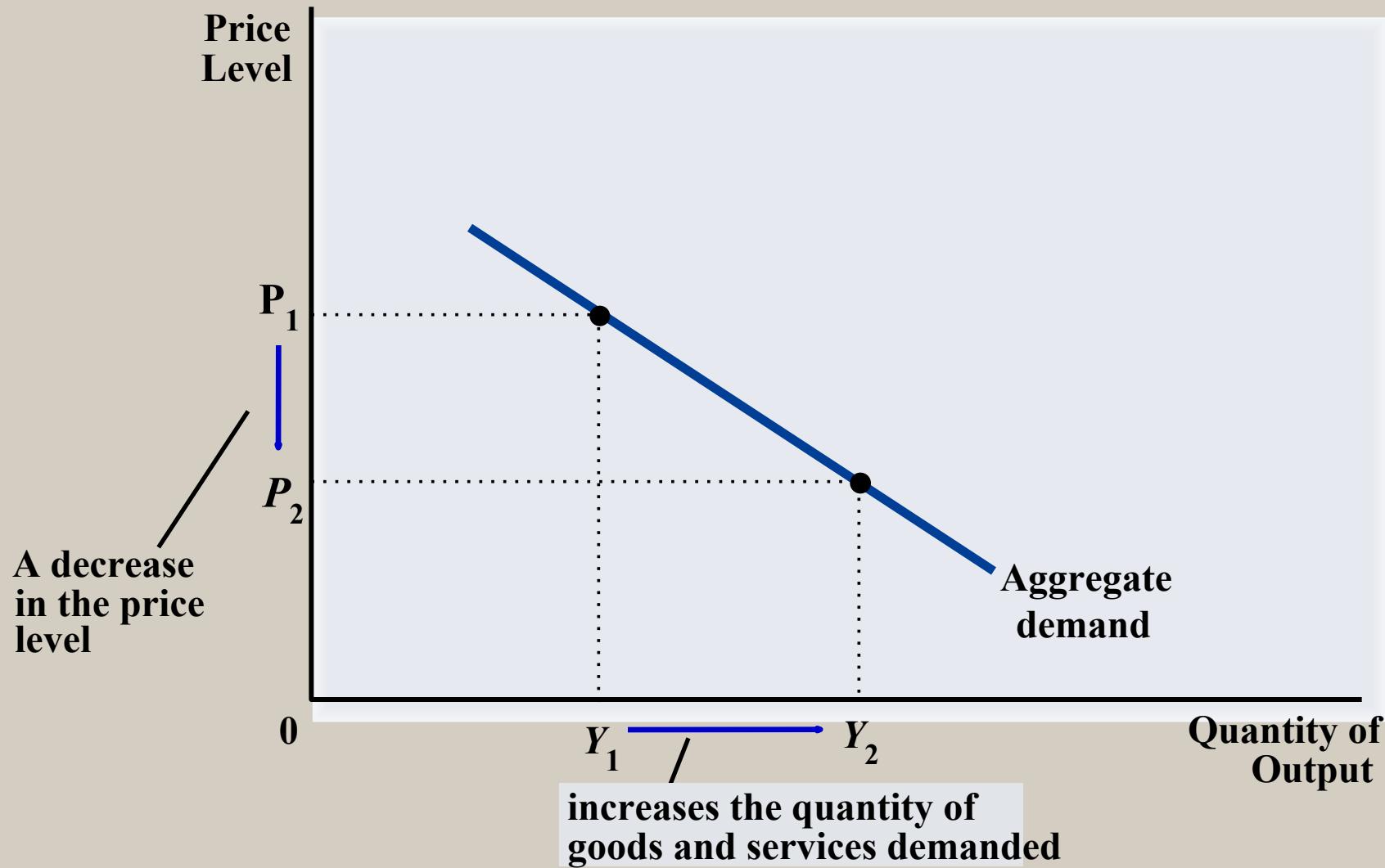
**Dale W. Jorgenson (1963, 1967, 1968, 1971)**

**Primary determinant of investment is ‘*user cost of capital*’.**

**The cost of capital depends on the price of capital, the interest rate, the rate at which capital prices change (capital gain/loss), the depreciation rate, and the corporate tax rate.**

**Consider the cost of capital to a car-rental company. The company buys cars for Rs. 10,000 each and rents them out to other business houses. The company faces an interest rate of 10%, so the interest cost is Rs. 1,000 per year for each car the company owns. Car prices are rising at 6% per year. So, the firm gets a *capital gain* Rs. 600 per year. Cars depreciate at 20% per year, so the loss due to depreciation is Rs. 2,000 per year. Therefore, the company’s cost of capital is {Rs. 1,000 – Rs. 600 + Rs. 2,000} = Rs. 2,400 apart from the price of a car.**

# The Aggregate Demand Curve



# Why the Aggregate-Demand Curve Is Downward Sloping?

- The AD is **not** downward sloping for the reasons a demand curve in microeconomics is downward sloping (*substitution* and *income effects*).

***The AD Curve in Macroeconomics is Downward Sloping because***

- The Price Level and Consumption: **The Wealth Effect**
- The Price Level and Investment: **The Interest Rate Effect**

## The Price Level and Consumption: The Wealth Effect

- A decrease in the price level makes consumers feel more wealthy, which in turn encourages them to spend more.
- This increase in consumer spending means larger quantities of goods and services demanded.

**Intuitive Explanation:** Consider the money that you hold in your wallet and your bank a/c. The nominal value of this money is fixed but its real value is not. When prices fall, these dollars/rupees are more valuable because they can now be used to buy more goods and services. Thus *a decrease in the price level makes consumers/households feel more wealthy, which in turn encourages them to spend more.*

# Price Level and Investment: The Interest Rate Effect

A lower price level *reduces* the interest rate, which encourages greater spending on investment goods. This increase in investment spending means a larger quantity of goods and services demanded.

**Intuitive Explanation:** Lower the price level, the less money households need to hold to buy the goods and services they want. When the price level falls, therefore, households try to reduce their holdings of money by lending some of it out. **A household might deposit its excess money in an interest bearing savings account, and the bank would use these funds to make more loans.** As households try to convert some of their excess money into interest bearing assets, they drive down interest rate. **Lower interest rate encourage borrowing by firms that want to invest in new plants and equipments and by households who want to invest in real estate.**

# **Shifts in the Aggregate Demand Curve**

- The downward slope of the aggregate demand curve shows that a fall in the price level raises the overall quantity of goods and services demanded.

**When one of these other factors changes, the aggregate demand (AD) curve shifts.**

**Shifts arising from —**

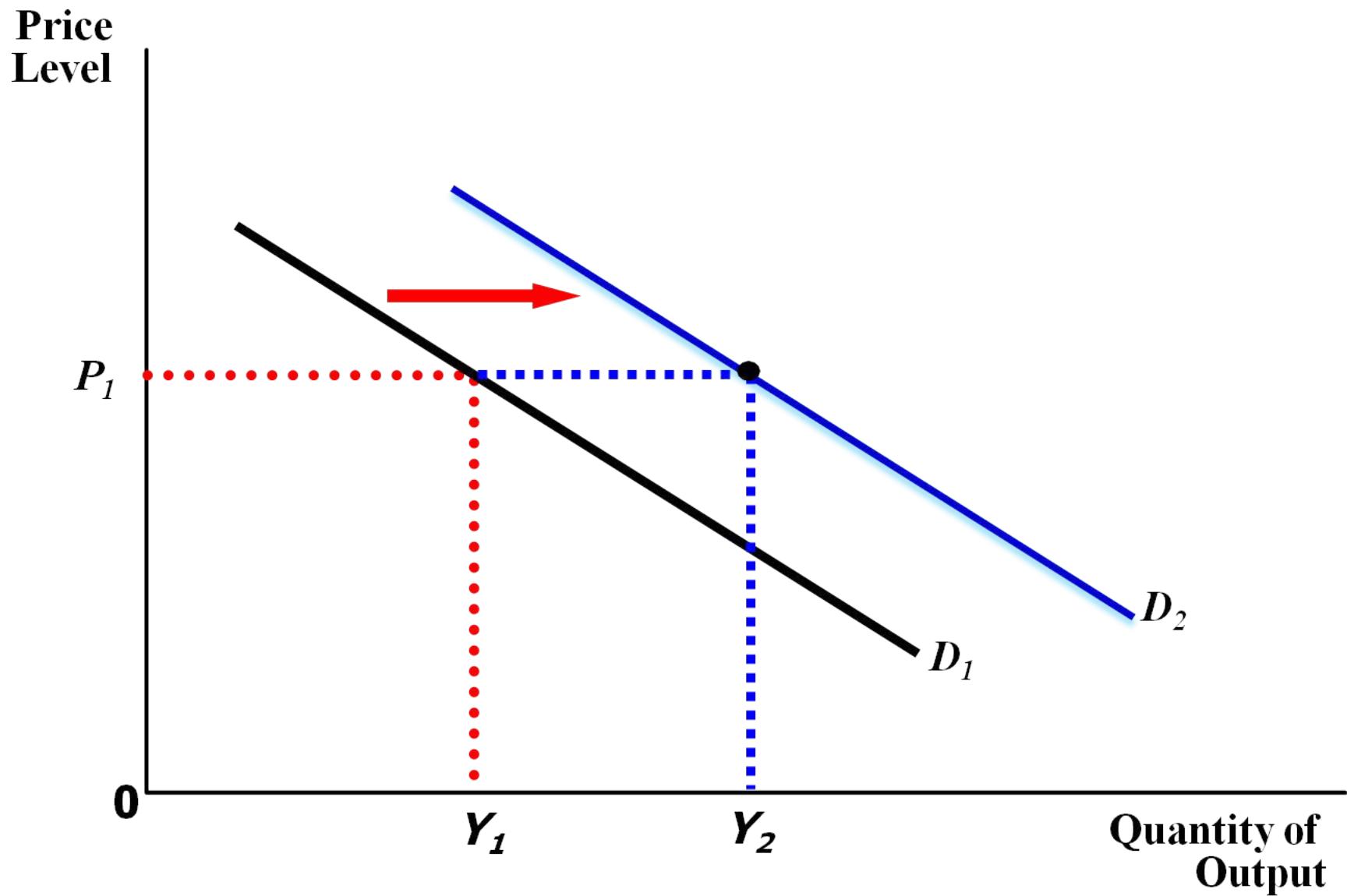
**Consumption**

**Investment**

**Government Purchases**

**Net Exports**

# Shifts in the Aggregate Demand Curve



# MACROECONOMICS

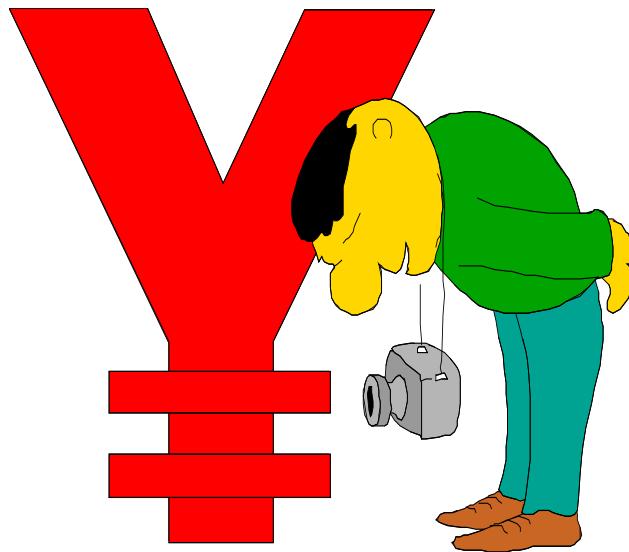
**Readings:**

**Macroeconomics, Rudiger Dornbusch, Stanley Fischer and Richard Startz, McGraw-Hill**

**Macroeconomics, N. Gregory Mankiw, Worth Publishers**

**Principles of Macroeconomics, S. Sikdar, Oxford University Press**

# Exchange Rate: the price of one currency in terms of another



# **EXCHANGE RATE CONCEPTS**

The exchange rate is quoted as the *number of units of the domestic currency required to purchase one unit of foreign currency*. It is the price of foreign currency in terms of the domestic currency.

Dollar-Rupee exchange rate of 48.7 means that Rs. 48.70 is required to purchase 1USD in the foreign exchange market. Similarly, there are exchange rates between the Rupee and Yen, Rupee and the Euro, etc.

A *rise* in the nominal exchange rate is known as *depreciation* of the home currency — more units of the home currency is now required to buy one unit of foreign currency. The opposite change is *appreciation*.

# WHY EXCHANGE RATE IS IMPORTANT?

Suppose the *nominal* exchange rate is 40. That is, Rs. 40 exchanges for 1USD.

And ONIDA TV costs **Rs. 4000**. This will sell for **\$100** in the USA market.

Now there is a *depreciation* of the rupee so that the nominal exchange rate becomes **50**.

Now **Rs. 50** exchanges for **1USD**. The refrigerator in the US market becomes *cheaper (\$80)* and thus become *more competitive in the export market* and therefore, *its demand (India's exports) will increase*.

At the same time, as a result of rise in exchange rate, our imports from the USA (say, cars) will become *more expensive* in rupees and *decline* in volume.

$$\text{Real exchange rate} = \frac{\text{Nominal exchange rate} \times \text{Foreign price}}{\text{Domestic price}}$$

Real exchange is considered as the country's *international competitiveness*.

A rise in Real Ex-rate implies that foreign goods have become more expensive relative to home goods.

A fall in Real Ex-rate thus implies loss of competitiveness.

# Price Level and Net Exports: The Exchange Rate Effect

**Intuitive Explanation:** A lower price level in India lowers the interest rate. Indian investors will seek higher returns by investing abroad. As the Indian investors move their assets overseas, it increases the supply of rupees in the for-ex market. The increased supply of rupees causes the rupee to depreciate relative to other currencies. Because each rupee buys fewer units of foreign currencies, foreign goods become more expensive relative to domestic goods. This increases Indian exports of goods and services and decreases imports of goods and services. Net exports increase.

# The Multiplier Model

The first complete model of *short-run output determination*.

$$AD = C + I + G + (X - M)$$

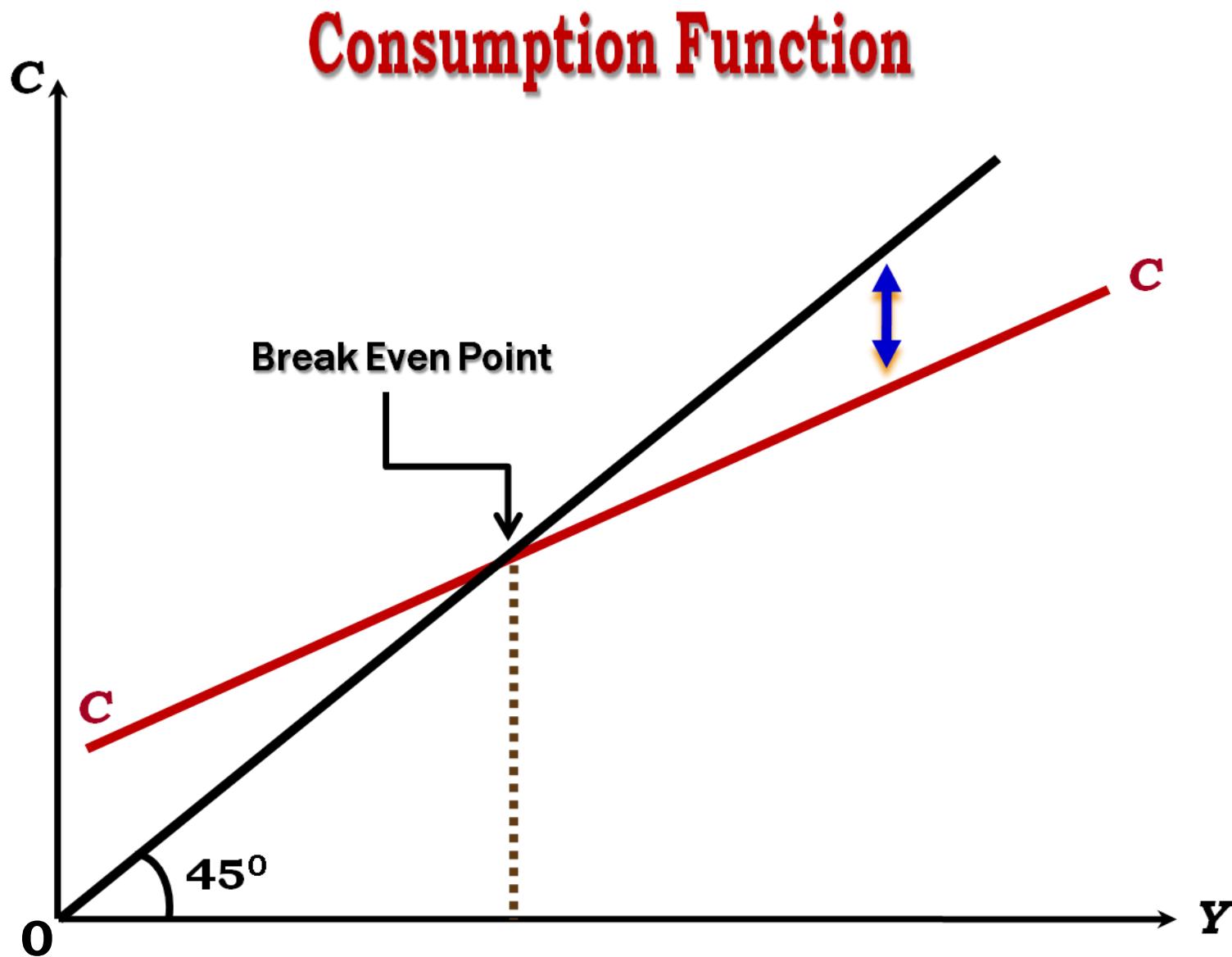
***Output is demand determined***

At equilibrium,  $Y = AD = C + I + G + (X - M)$

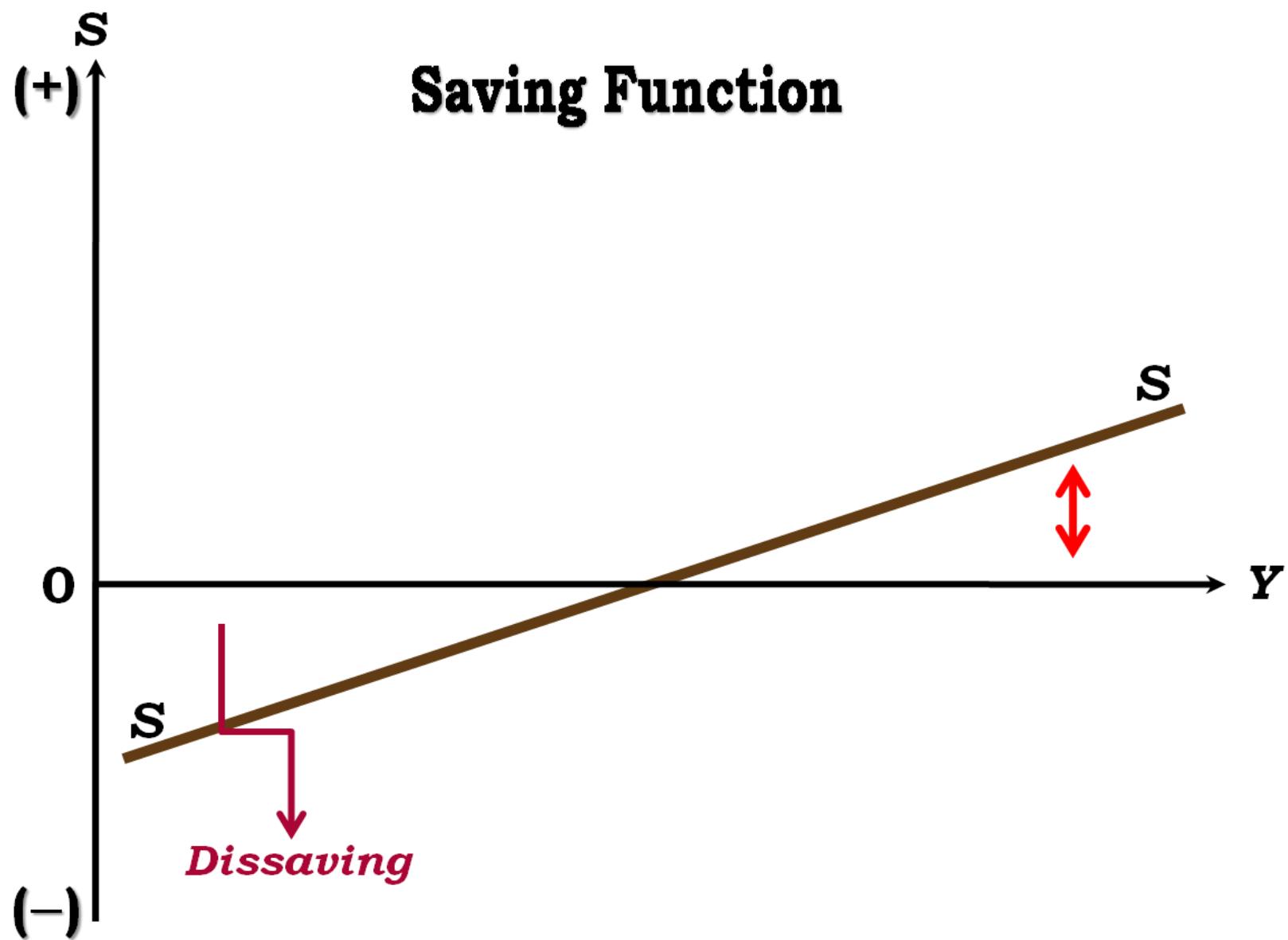
If  $Y > AD$ , there is (excess) *unplanned* investment.

*Excess supply in the goods market, prices will fall, firms cut back on production.*

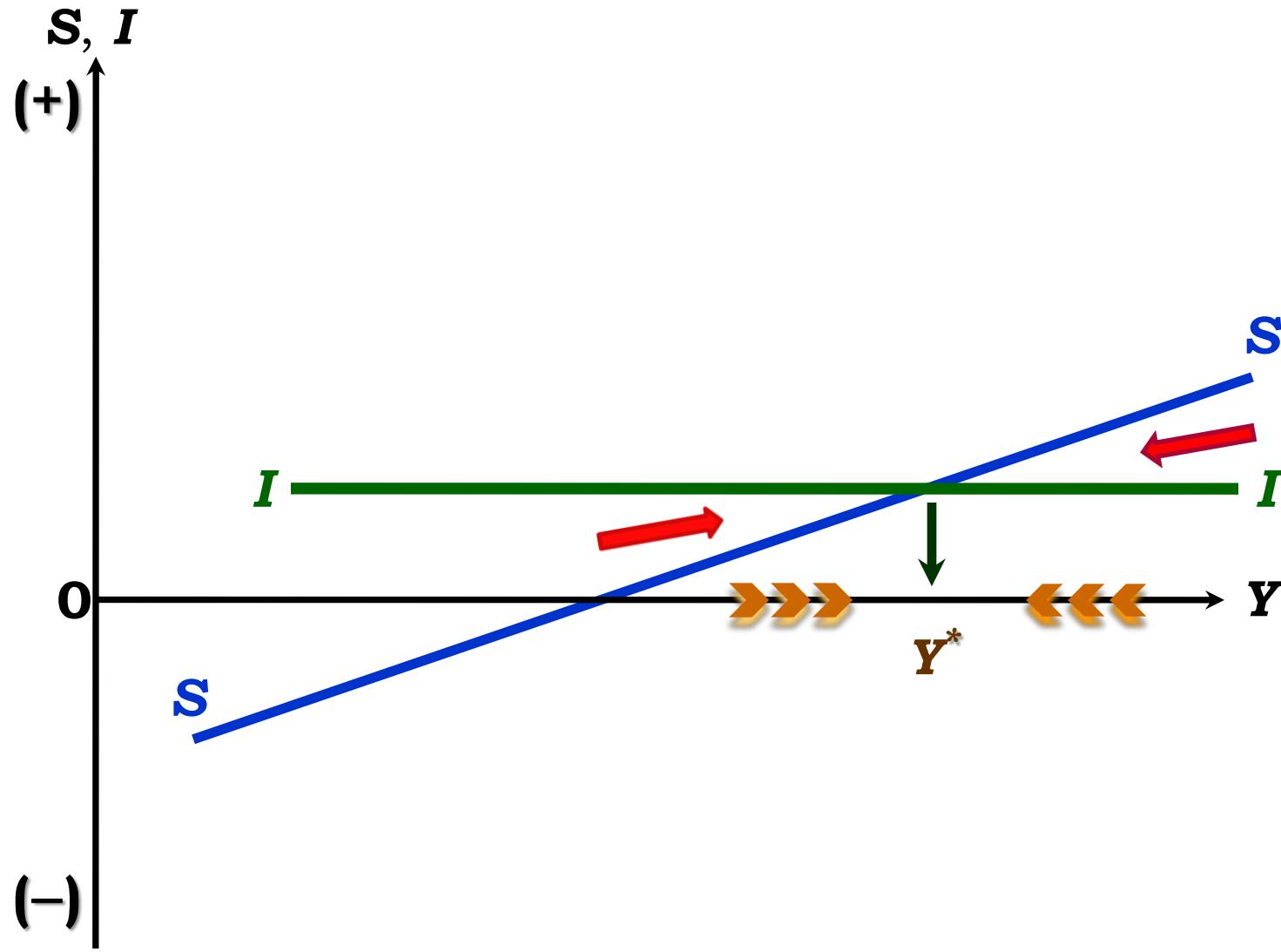
# National Output Determines the Level of Consumption in the Economy



# National Output Determines the Level of Savings in the Economy

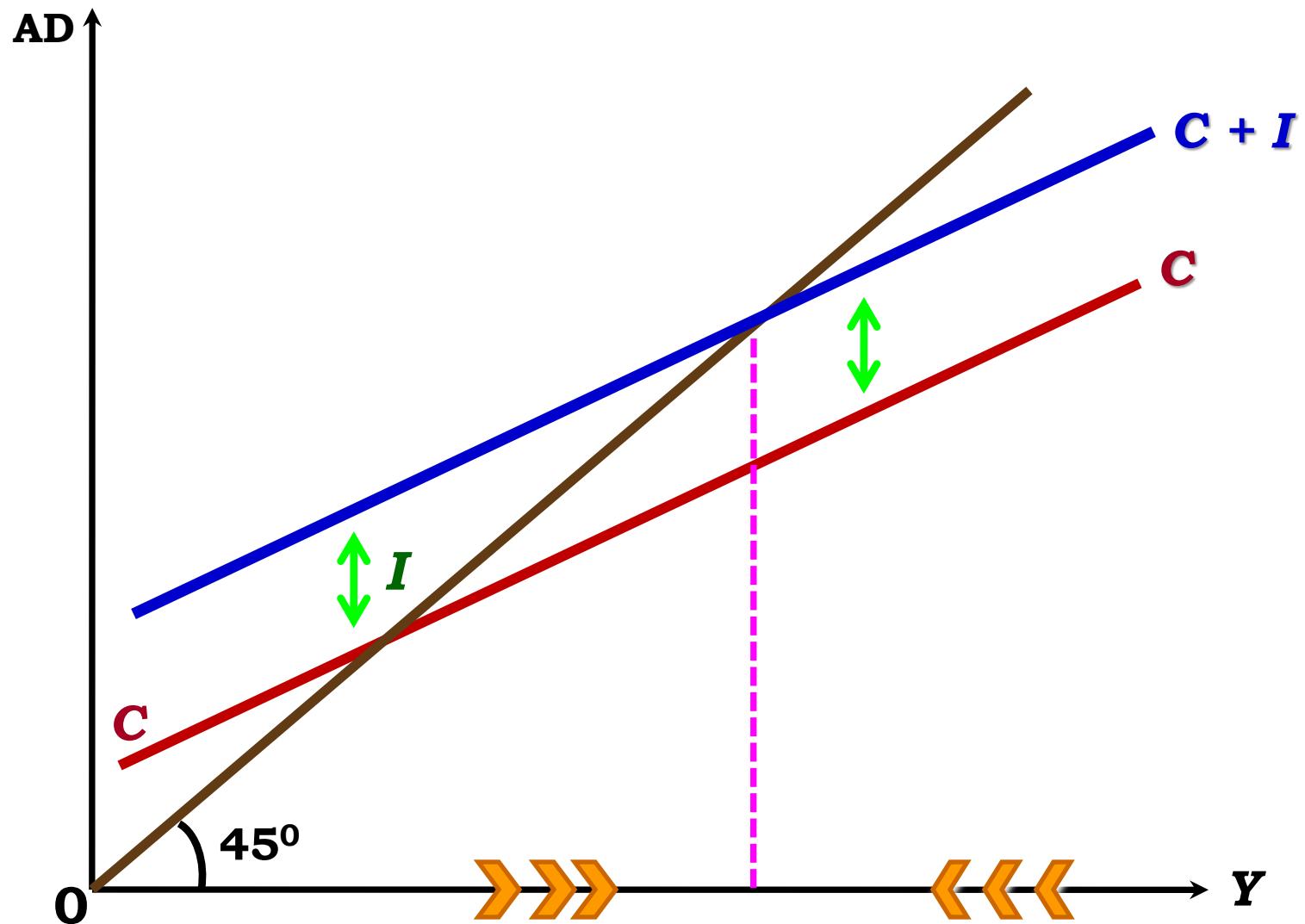


# Saving & Investment Functions



The Equilibrium Output Is Determined by Intersection of S & I

# Total Expenditure / Aggregate Demand



# THE INVESTMENT MULTIPLIER

$$Y = C(Y) + \tilde{I}$$

Suppose,  $\tilde{I}$  increases by 1 unit  $\longrightarrow$  Y increases by 1 unit

Consumption is a rising function of income, so  $C$  increases by  $\dot{C}$  unit

With increase in consumption, income will also rise by  $\dot{C}$  unit

Consumption further rises by  $(\dot{C})^2$  unit  $\longrightarrow$  Income will rise by  $(\dot{C})^2$  unit

With increase in income, consumption will again rise by  $(\dot{C})^3$  unit

With increase in consumption, income will also rise by  $(\dot{C})^3$  unit

**... and this process continues.**

$$\Delta Y = \{1 + (C') + (C')^2 + (C')^3 + \dots\} \Delta \tilde{I}$$

$$\frac{\Delta Y}{\Delta \tilde{I}} = \frac{1}{(1 - C')} \nearrow 1$$

## The (Autonomous) Investment Multiplier

$$\frac{\Delta Y}{\Delta \tilde{I}} = \frac{1}{(1 - C')}$$

Take  $\dot{C} = 0.75$ . Then the multiplier value will be = 4

Take  $\dot{C} = 0.80$ . Then the multiplier value will be = 5

Take  $\dot{C} = 0.90$ . Then the multiplier value will be = 10

Larger the MPC, greater the multiplier effect

# THE G - MULTIPLIER

$$Y = C(Y) + I + G$$

Suppose,  $G$  increases by 1 unit   $Y$  increases by 1 unit.

Consumption is a rising function of income, so  $C$  increases by  $\dot{C}$  unit.

With increase in consumption, income will also rise by  $\dot{C}$  unit.

Consumption further rises by  $(\dot{C})^2$  unit  Income will rise by  $(\dot{C})^2$  unit

With increase in income, consumption will again rise by  $(\dot{C})^3$  unit.

With increase in consumption, income will also rise by  $(\dot{C})^3$  unit.

... and this process continues.

$$\Delta Y = \{1 + (C') + (C')^2 + (C')^3 + \dots\} \Delta G$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{(1-C')} \nearrow 1$$

# The Investment & G - Multipliers

$$\frac{\Delta Y}{\Delta G} = \frac{\Delta Y}{\Delta \tilde{I}} = \frac{1}{(1 - \text{MPC})} \succ 1$$

$$\frac{\Delta Y}{\Delta G} = \frac{\Delta Y}{\Delta \tilde{I}} = \frac{1}{\text{MPS}} \succ 1$$

Larger the MPS, smaller the multiplier effect