




# Economics Unit 1 v3.docx

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## Unit 1: Thinking Like an Economist

### Learning Objectives

1. Discuss how economics helps explain decision making at the level of individuals, firms and government.
2. Distinguish between microeconomics and macroeconomics and how they are useful in analyzing problems of financial and business management.
3. How to think about opportunity cost in decision making and assess trade-offs in the day-to-day.
4. Explain the role of scarcity and how it is related to resource allocation decisions.
5. Analyze marginal decision making and the way rational people make decisions at the margin.
6. Translate the behavior of market and institutions actors in terms of incentives.
7. Assess the significance and role of economic models and assumptions as a way to simplify and analyze real world complexity.

### Content

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## 1.0 Introductory Caselet

### “The Laptop Dilemma — A Student Choice”

Aayushi, who is in her first year in college, has managed to save ₹60,000 from a part-time job and a small financial contribution from her parents. She wants to buy a new laptop as help for her studies. But the tight purse-strings mean that she is faced with several competing options, each with their own pros and cons.

A premium ₹58,000 laptop that will not only be futureproof but also durable. But this would barely allow her any money for the necessities of university life - such as text books or stationary.

Her current academic requirement is being met by a ₹40,000 laptop and she already has money to spare for her books. But this might not be quite durable or capable enough — either in regards to processing power or endurance — for serious software she may have to work with later on in her course.

Or she could decide not indulge in a laptop at all and take advantage of the college's library computers instead. She could then keep all of the \$60,000 for future needs and opportunities, like a certification program she is considering or taking out a loan to cover costs of an internship. But that alternative might be less convenient and flexible for her daily school life.

This case is a mini-modification of classic principles of economics teachings, regarding scarcity, opportunity cost and trade-off. Aayushi can never have everything she wants at the same time (i.e., her resources are limited), and so value judgements must be made about what she sacrifices.\

**Summary Table: Aayushi's Choices and Opportunity Costs**

Option	Benefits	Opportunity Cost	Trade-Offs
High-End Laptop (₹58,000)	High performance, ready academic needs	No funds for textbooks or daily academic needs	Performance vs. Financial Flexibility
Mid-Range Laptop (₹40,000)	Meets current needs, allows book purchase	Limited capacity for future advanced software use	Usability now vs. Capability later
Use Library Computers (₹0)	Saves entire amount for future use	Loss of personal device access and daily convenience	Savings for future vs. Day-to-day flexibility

Another Example: Business Business investment trade-offs.

Let's take a small business owner, who has capital available as ₹10,00,000. The businessman is considering 3 courses of action:

Plowing the whole thing into a top-end marketing campaign to drive new customers faster. This can result in a fast short-term growth, but it leaves the cash reserves with hardly any buffer for unexpected expenses.

₹6,00,000 towards product development and some basic marketing ₹4,00,000 as operational buffer. This is an option that provides you with steady growth and stability.

Keeping the capital dry in order to preserve liquidity if new nausea hits the markets and/or fund an emerging strategic play in the near term.

This quibble resembles a decision-tree(probably) inhibitor at AayushiMy friend is up against something similar, although on a higher/complexer financial scale. It serves to emphasize the utility of core economic concepts such as trade-offs, opportunity costs, and resource allocation.

### Critical Thinking Questions

In what ways does Aayushi's case demonstrate scarcity, the law of trade-offs and opportunity cost?

What would you do if you were her, depending on what's important (say to combine effort with academics / long term goals -job security/money?) 1.

### 1.1 Scarcity and Choices

#### Understanding Scarcity Through Personal Reflection

One of the fundamental ideas in economics is that of scarcity. It forces people, organization and society at large to make decisions since resources are scarce and wants too many. This part discusses what scarcity is and asks participants to think about how they experience it in their own life.

##### 1.1.1 Meaning of Scarcity Definition:

Scarcity is a fundamental economic problem that occurs because resources have to be scarce, but human desires are unlimited. It does not mean that there is zero resources, but it means that they do not meet all needs and wants at the same time.

### Key Features of Scarcity

- The worldwide universal: Constraint is encountered by people, businesses and governments. No one is exempt.
- Relative, not absolute: Scarcity is found even in prosperous societies. For example, a country may be rich but still short of clean water, medical workers or affordable housing.
- ETERNAL: So long as human desires outstrip available resources, scarcity will be with us.
- Powers choice: Scarcity requires people to make choices, consider alternatives and rank their needs.

### Examples of Scarcity

- Someone may want an international trip and a new laptop, but their finances will accommodate only one. A choice must be made.
- A hospital might wish to treat everyone immediately, but it has only so many doctors, beds or pieces of medical equipment, and it must prioritize patients by their need and urgency.

Quick Write Think about a time from your experience when you have encountered scarcity.

Take a moment to think about your average day. What do you wish you had more of — though not necessarily is, be it time, money, space or something else entirely?

### Self-Assessment Prompt:

Name two places in your life where you experience lack. How have you been affected, day-to-day, by these constraints?

You may consider:

- Time (e.g. study-life balance)
- Monetary (e.g., saving and spending of money)
- Space (e.g., sharing accommodation)
- Energy (e.g., managing academic workload)

### Did You Know?

“Economists often say “Scarcity is the mother of economics” because without scarcity, there would be no need for economic decision-making or trade-offs.”



### 1.1.2 Why Choices are Necessary

Life is a scarcity, you have to make choices. Everyone, from private citizen to company to local government, has to choose how best to spend limited resources. Every choice will mean a trade off between one thing and another, bringing in the notion of opportunity cost -- the value of what has to be given up for what we can gain. Choices at Different Levels

#### 1. Individual Level

- Deciding whether to spend them on entertainment or educational material.
- Education vs. Working right after Graduating.

#### Business Level

- A particular firm may have to make a trade-off between spending on R&D and on marketing activities.

- There may be constraints on the production capacity, so that the factory can produce only product A or B (not both) in unlimited amounts. 3. Government Level
- Governments need to decide how to spend its money, such as whether to build schools or highways.
- If more money is spent on healthcare, then less may be available for defense or infrastructure.

### Insight

All choices require a trade-off — getting more of something at the expense of one or more other things. Thus, decisions must be made not only because resources are limited but also because instrumental rationality attempts to maximise the net benefit across options.

### 1.1.3 Real-Life Examples of Scarcity and Choices

#### Student Budget Example

So Riya has a budget of at most ₹5,000. She can:

- Purchase a new pair of branded shoes, or
- Attend a short-term coding workshop.

If she decides to purchase the shoes, the cost of it would be the skill growth which she could learn from that workshop.

If she opts for the workshop, then satisfaction and social worth of wearing on new shoes are the opportunity cost.

## Corporate Decision Example

Tata Motors could be faced with a strategic decision:

- Invest in electric cars, or
- Expand its petrol-based car line.

Investment in EVs may be painful for the bottom line in the short-term, when high R&D costs bite into profits, but may secure a competitive edge.

Investment in EVs may also enhance competitiveness and sustainability. Alternatively, concentrating only on petrol cars might have given quick wins in today's market, but it would be strategically dangerous in a changing market.

## Government Policy Example

The Indian government has to decide on choices of investment: • Decide whether to give priority to rural development programs, or

- Invest in urban infrastructure projects.

Both are important, but we don't have money enough to accommodate all desires at once. The choice is one between inclusive development and the modernization of urban India.

## Self-Reflection Activity: What would YOU do Colour – Scarcity-Based Decisions

To get a better grasp of the concept of scarcity and opportunity cost, think about choices you make in your life.

Prompt for Students:

Tell me about a recent decision in which you had to decide between two good options because you couldn't have both with the resources at hand (money, time, energy, etc.). What did you pick and what did a rival forgo?

Examples may include:

- Opting to study rather than socialize.
- The textbook dilemma of buying versus borrowing.
- Buying a concert ticket vs. a brief online course.

This helps students relate economic concepts to their own lives.

“Activity: Identifying Scarcity in Daily Life”

Form small groups and list five situations in your daily life where you faced scarcity of resources (time, money, materials). For each situation, identify:

- The choice you made.
- The opportunity cost of your decision.
- Whether you think you made the optimal choice.

Example: Choosing between studying for exams and attending a friend's party. Opportunity cost = lost fun OR lower exam performance.

## 1.2 How People Make Decisions

### 1.2.1 Principle 1 – People Face Trade-offs

All our choices entail trade-offs, which is to say that they involve obtaining something at the price of foregoing something else. The same holds true in everyday life, business matters and policymaking.

- **Personal trade-offs:** Every day students are making a trade-off between studying and chilling with friends. Increasing the hours spent studying may raise grades at the expense of leisure, while an increase in leisure can lead to lower academic performance.
- **Business Trade-offs:** A company that needs to invest in product innovation may have less money to invest in advertising. At the same time, if more of one kind of thing is to be made, less is available for other things since resources are limited.
- **Input Choices for Government:** If a government spends more on defense, it has less money available for education, health, or infrastructure. This is sometimes known as the “guns vs. butter” debate, which is shorthand for the trade-off between national security and civilian well-being.

Insight: Because of trade-offs, society cannot have everything at the same time. Rather, it should rank its goals and allocate resources according to those priorities.

### 1.2.2 Principle 2 – The Cost of Something is What You Give Up to Get It (Opportunity Costs)

Scarcity gives rise to the notion of opportunity cost - that is, the value of the next best alternative not chosen. It isn't just about money, but time and energy invested/rewards that could have been derived from doing something else.

- **Personal Example:** When an individual spends four years to get a university degree, the total cost includes not only tuition fees but also all the earnings lost by not working during those four years.

- **Business example:** When a firm decides to spend ₹10 crore in constructing a new factory, it is forgoing the opportunity cost – earnings from simply depositing the money in fixed deposits or investing it in expanding marketing campaigns.
- **Example of a policy:** For instance, if the government increases its expenditure in building new airports then it may also have to spend less on schools, hospitals or rural development projects which is thus surely an opportunity cost.

**Insight:** Being mindful of opportunity cost encourages people to make better choices by nudging them to recognize hidden sacrifices, and not just visible costs.

### 1.2.3 Applications in Personal & Policy Decisions

The opportunity cost applies to small- and large-scale decision-making:

- **Personal Finance:** Deciding whether to buy a car or invest in higher education. The car brings short term comfort, education could potentially bring you a higher income over the long run.
- **Family Decisions:** A family may face the decision to take a vacation or save money for a child's education.
- **Business Strategies:** A startup business decides whether to innovate its product or to penetrate the international market.
- **Public Policy:** There are always trade-offs — whether to spend money on building urban infrastructure vs. addressing rural poverty and so on — that governments have to deal with.

### 1.2.4 Principle 3 – Rational People Think at the Margin

Most decisions are not all-or-nothing. rational people ask whether a little more or a little less of something is better (or worse) for them. This is the rationale of marginal thinking.

- Student Question: Whether it's optimal to prepare one additional hour for an exam. The payoff is a better grade, but the price may be less sleep.
- Business Case: An airline chooses whether to sell a seat at a discount. And because the marginal cost of carrying one more passenger is so close to zero, any time an extra seat finds a buyer (at whatever price), it adds money.
- Policy Example: A government understanding whether to invest in one more vaccination drive by weighing the marginal benefit (less disease spread) against the marginal cost (resources taken from another program).

### 1.2.5 The Marginal Benefit vs. the Marginal Cost

- Marginal Benefit (MB): The additional satisfaction or income received from consuming or producing one more unit.
- Marginal Cost (MC): The additional cost or the sacrifice of producing or consuming an extra unit.

Decision Rule:

- If  $MB > MC$ , carry on doing the activity.
- If  $MC > MB$ , cut back or eliminate the activity.

Example 1: A restaurant may keep selling extra meals until the cost of an extra meal is more than what a customer would pay for it.

## 1.2.6 Examples of Marginal Thinking

### Getting Introduced to The Marginal Thinking Through Our Daily Life Decisions

Marginal thinking is to think about the additional benefit and additional cost of doing a little bit more or less of something. Rather than push buttons, the logic goes, people and organizations contemplate whether another unit of activity will make an increase or decrease in a potentiating sum.

The following everyday instances provide a little insight into how marginal thinking operates in reality.

#### Education

Question: Should I wait until the next semester to leave college?

- Marginal Benefit: A better preparation (knowledge, skills and signalling activities), Better matching of job-seeker capabilities with employer needs.
- Marginal Cost: The amount of income one would have earned, not working at the time, in addition to tuition and living expenses.
- Real-life situation: A student who is graduating soon wonders if spending an extra semester in school to take a specialization course would be worth the added time and money.

#### Production

Imitator based on: machine factories one another factory Question: Shall a ussing produce one more success?

- Marginal Benefit: What benefits he gets from that extra unit.
- Marginal Cost: The cost of additional materials, energy and labor to produce one more.
- Real-world example: A manufacturer of cellphones ponders whether it's worth bearing the higher overtime and raw-material expenses to produce 501 phones in a day, instead of 500.

## Healthcare

As you do yourself further surgeries, should hospital do one more surgery in a day?

- Marginal Benefit: Another patient is treated, and the wait time shrinks; access to care improves.
- Marginal Cost: Doctors and nurses might become overworked, equipment could wear out more quickly, quality of care could degrade.
- Real-life situation: A hospital administrator decides whether to add one more slot to the surgery schedule without lowering the quality of care.

## Key Insight

Marginal thinking helps decision-makers — whether they are students deciding how much more time to study, or chief executives pondering whether “a little more” is worth the added cost — judge if the addition is worthwhile. It's not about wholesale binary contributions, but tuning decisions to maximize impact with limited resources.

### 1.2.7 Principle 4: People Respond to Incentives

Incentives are the rewards or punishments that shape decisions. People frequently adjust their behavior when costs or benefits change.

- Positive Enticements: Inspire people to do something. Example: Discounts, tax rebates, bonuses.
- Negative Incentives: Discourage unwanted behavior. Example: Fines, penalties, higher taxes.

Example: Should the cost of petrol spike, individuals might use public transport, car pool or switch to electric vehicles.

### 1.2.8 Positive vs. Negative Incentives

- Good: Higher-paying banks incentivize people to save money.
- Counterexample: Governments fining polluting industries heavily disincentivize dangerous behavior.

Incentives work because they tap into self-interest. If aligned right, they can help deliver results that serve the interests of the individual and the community.

### 1.2.9 Examples: Tax Promotions Safety Requirements

Taxation Policies:

- o Increased taxes on cigarettes lower use and lead to better public health.
- o Incentives for alternative energy promote investment in solar and wind.

### Promotions in Business:

- o “Buy One Get One Free” offers on chocolate help supermarkets to increase short term sales.
- o Loyalty programmes (e.g., frequent flyer miles) encourage customers to return to the firm.

### Safety Rules:

- o Helmet and seatbelt laws that are both mandatory with steep fines, save lives on road.
- o Incentives on workplace safety (e.g., bonuses for no accidents during a month) motivate the adherence to security norms.

## 1.3 How People Interact

### 1.3.1 Principle 5 — Trade Can Make Everybody Better Off

#### Trade and Theories of Comparative Advantage At Home and Abroad Definition:

Trade is the act of willingly sharing goods and services between people, companies, or nations. It means that people can specialize in what they are best at, their comparative advantage, and trade their excess production for items or services that they are not as good at.

#### Why Trade Benefits Everyone

- Encourages Specialization: People and countries can concentrate on producing products or services that they are more effective at which increases overall productivity.
- Mutual Gains: Trading is a two-way street, and both parties benefit by receiving goods they cannot produce themselves as efficiently.
- Diversity and Choice: Trade increases the array of goods and services available, making consumers better off.

## Examples at Different Levels

### Individual Level

A college student fluent in coding helps a classmate, who is struggling to write code, with an assignment. In return, The classmate who is really good at writing helps edit research papers. Both students gain in this specialization and trade of effort and save up time.

### Business Level

The global car manufacturer, Toyota is known for the automotive industry and this Japanese cars producer collaborates with Intel to import some powerful microchips in these vehicles. That lets each company specialize in what it's best at — and innovation, efficiency, product quality.

### National Level

India exports IT services, pharmaceuticals and textiles in which it has a comparative advantage. It needs to have been imported when it comes to crude oil, semiconductors and defense technology, all of which other countries are better at producing. This shared benefit in turn stimulates economic growth, promotes employment, and facilitates access to technology for all trading partners.

## Historical Note: The Silk Road

The Silk Road was an important trade route connecting Asia and Europe and Africa long ago. It wasn't just goods like silk and spices — and gold that made up the gold trade — but also ideas, religions, languages and new technologies.

Trade built communities; it spread ideas and formed bonds between people across the globe.

## Group Work: Comparative Advantage in the Real World

Objectives – for students to \* Use the idea of comparative advantage contextually and in conversation.

### Activity Setup:

Divide students into small groups. Give group(s) a situation of having limited skill, resources, or time. Example contexts:

- A team of students with differing skills (design, writing, data analysis) that get together to form a project group.
- Two nations are choosing whether to make wheat or electronics depending on labor productivity.
- A small business is weighing whether to contract out digital marketing or manage it themselves.

### Discussion Questions:

What services or goods does your team (or nation) produce most effectively?

What would you trade, and with whom?

In this scenario, what is the benefit for both sides of specialization and trade?

Learning Outcome:

Students explain how comparative advantage results in more efficient and mutually beneficial production in trade both among individuals domestically and internationally among countries.

### 1.3.2 Comparative Advantage Principle

Trade gains are discussed in terms of comparative advantage.

- Absolute Advantage: When one person, firm or country can produce more of something with the same amount of resources.
- Comparative advantage: If you can buy a good at lower opportunity costs than others can produce it.

#### Illustration

For instance, if Country A can produce both rice and computers more efficiently than Country B; but Country A is less efficient in the production of computers relative to rice, it may retain a comparative advantage in doing. If A specializes in computers, and B in rice (hypothetically), then they trade....both countries are better off.

#### Applications

- India's IT industry: India enjoys a comparative advantage in software, because of a massive number of capable engineers.
- Brazil's agriculture: Brazil enjoys a comparative advantage in coffee production, because of its climate and land.
- Japan's factories: It can be difficult to compete in electronics and autos because of its advanced technology.

Insight from the theory: Comparative advantage leads to trade gains for even less efficient countries — as long as such nations specialize in what they can produce at a lower opportunity cost.

### **1.3.3 Gains from Interdependence and Global Trade**

No country today is self-sufficient. Today's economies are interconnected by global supply chains and trade agreements.

#### Benefits of Global Interdependence

- For Consumers: Greater variety of goods, at lower prices (e.g., Indian consumers benefit from American iPhones, Chinese electronic devices and African cocoa).
- For Producers: Companies can grow by selling into foreign markets, which allows them to produce at ever-increasing levels of efficient scale and reap even greater profits.
- For Nations: Trade encourages economic growth, job creation and innovation.

A business case: the coffee value chain

- Brazil and Vietnam are coffee-bean growers.
- Beans are processed in Europe.
- And multinational brands like Starbucks market and sell them around the world.

This relationship creates livelihoods for farmers, jobs for processors and satisfaction to millions of customers.

### Challenges of Interdependence

- Sensitivity to global shocks (i.e., COVID-19 disrupted their supply chains).
- Risk of overdependence on imports.
- Mass shootings can stoke contagion (supported by many studies) in a nation, while terrorism has the reverse effect.

### Did You Know?

“According to the World Trade Organization (WTO), **global trade in goods and services accounts for over**

**60% of world GDP.** This highlights how deeply nations are tied together through trade.”

### 1.3.4 Principle 6 – Markets Are Usually a Good Way to Organize Economic Activity

Definition: A market economy exists when there is a private property system and markets, where prices like that of goods and services are voluntarily set. It’s like we’re being nudged,”

Ware says, “as if there are all these secret fingers poking us in the sides.” Prices serve as signals here, prompting these decisions.

### The Power of Markets

- Prices tell us about scarcity and preferences.
- Competition drives efficiency and innovation.
- The allocation of resources is not planned centrally, but they go to whomever pays most for them.

### Adam Smith’s Insight:

The “invisible hand” of the market was what Adam Smith had described in *The Wealth of Nations* (1776). To contravene his claim opponents may argue that persons who follow their own individual wishes, in most instances advance the condition of society involuntarily. For instance, a baker bakes bread to make money but by doing so he is feeding a community.

### Case Examples

- Tech: Apple makes iPhones, not because the government says it must, but because people demand them. However, this supply-demand circular drives availability around the planet.
- Agriculture: Farmers plant more wheat when its price goes up, a sign of high demand.

### 1.3.5 Principle 7 – Governments Can Sometimes Improve Market Outcomes

Markets are efficient but not perfect. Governments step in because stuff goes wrong, unfairness develops and parties go to war.

## Market Failures

Externalities: The unintended consequences, positive or negative, of economic activity.

o Negative externality: Factory pollution is bad for society.

o Positive externality: People are inclined to be more educated as their not going to schools harms the society as well.

Market Power: Monopolies or oligopolie that result in unfair prices.

Public Goods: Goods such as national security or clean air can't really be provided by markets.

## Government Roles

- Regulation: Establishing standards of safety, environmental protection and labor.
- Redistribution: Reducing inequality by taxing the rich and offering welfare to the whole nation.
- Stabilization: The soft landing, the Goldilocks economy, preventing inflation or unemployment or recession by fine-tuning monetary and fiscal policies.

## Case Examples

- Pollution Taxes: Internalize external costs in order to mitigate environmental damage.
- Renewable Energy Subsidies: Prompting the proliferation of clean energy.

- Antitrust Laws: Prevent monopolistic practices.

Balancing Act:

- Excessive intervention can kill innovation and efficiency.
- Too much intervention can breed inequality, exploitation and crises.

### Knowledge Check 1

Choose the correct option:

1. The idea that people should specialize and exchange to increase overall welfare is called:  
a) Trade-offs  
b) Comparative advantage  
c) Marginal cost  
d) Market failure
2. According to Adam Smith, the “invisible hand” refers to:  
a) Government control  
b) Market power  
c) Self-interest guiding markets  
d) Opportunity cost
3. Pollution from a factory is an example of:  
a) Comparative advantage  
b) Externality  
c) Trade-off  
d) Absolute advantage
4. Which of the following is a public good usually provided by governments?  
a) Smartphones

- b) National defense
- c) Automobiles
- d) Coffee

## 1.4 How Economy Works as a Whole

### 1.4.1 Principle 8 – A Country's Standard of Living Depends on Its Ability to Produce Goods and Services The Core Idea

The living standard in any country is related directly to productivity—the extent to which the work force can produce goods and services efficiently. Productivity is about squeezing as much output from scarce resources, and having that output grow access to education, healthcare, infrastructure and consumption.

#### Productivity and Living Standards

#### Productivity Level And Its Impact On The Standard Of Living

High productivity Enhanced medicine, sector wage premiums, increased education, more leisure

Productivity Growth People live in poverty and cannot escape, infrastructure is nonexistent or negative growth, whatever that may mean social mobility is limited

- Nations with high output per worker have higher standards of living and more widespread access to social services.
- Countries with low output per worker tend to suffer from chronic poverty, inequality and underdevelopment, even if they are resource-rich.

## Key Factors That Drive Productivity

### Factor Description

Human Capital Education, training, and skilled ability of the labor force

Physical Capital Tools, machines, and infrastructure that increase production capacity

Technology & Innovation Application of sophisticated techniques and digital devices to work smarter

### Factor Description

Institutions & Governance Legal systems, property rights, control of corruption, and public policy institutions

### Comparative Examples

- High Productivity Economies:

Nations such as the United States, Germany and Japan enjoy high living standards because they invest in technology, skilled labour and strong institutions over many years. These countries are constantly investing in their assets and knowledge economy.

- Low Productivity Despite Resources:

Countries like Nigeria and Venezuela, while rich in natural resources (oil, mineral), suffer from low productivity because they have underinvested in physical capital, have poorly functioning public institutions or weak governance. Yet people's lives remain poor and inequality abounds.

## Visual Learning Tool: Summary Infographic

### Infographic Suggestion

Generate or show a well-labeled image which includes :

- A pyramid that runs from productivity inputs at the bottom (education, capital, tech), to living standards at top.
- A country comparison table (example GDP per capita and productivity metrics).
- A simple flow diagram showing:

More Inputs = More Productivity Higher GDP per Capita Better Standard of Living

This visualizes the concept of cause and effect from inputs to productivity to welfare for students who learn visually.

Linking forward: inflation, unemployment, and the Phillips curve

In the realm of macroeconomics, policy makers frequently encounter trade-offs between keeping inflation low and keeping unemployment low. The Phillips Curve is a diagrammatical means of depicting this tradeoff.

### **1.4.2 Examples of Countries with High GDP and Standard of Living**

- Norway: Makes good use of its oil money through sovereign wealth funds, which means high GDP per capita, excellent welfare policies and long life expectancy.

- Singapore: Singapore has all but zero natural resources; yet through the creation of a knowledge-based economy, and becoming a world-class global financial hub, it managed to raise living standards to among the world's finest.
- Switzerland: Specialises in precision and banking (and, naturally enough for a really smart small country, education), with high productivity and good public services.
- South Korea: It was one of the poorest nations in the world only a few decades ago; now, it's a worldwide tech leader because of heavy investment in education and innovation.

Insight: The important conclusion is the relationship between productivity growth (rather than G.D.P. growth) and gains in people's standard of living.

#### 1.4.3 Principle 9 - Prices Rise When the Government Prints Too Much Money (Inflation)

Inflation: What does it mean Inflation is nothing but a sustained increase in the general price level (in an economy) - when we buy things, we see that prices are going up. One of the reasons that inflation exists is due to an unrestricted increase in supply of currency.

- If governments print more money without a corresponding increase in goods and services, too much cash chases too few goods.
- This decreased the purchasing power of money, and prices rose.

#### Types of Inflation

- Mild Inflation: 2 –5% a year, often regarded as healthy for economic growth.
- Moderate Inflation: 10-20%, compromise of purchasing power and savings.
- Hyperinflation: At least 100 percent annually, ending economies.

Quote Milton Friedman Nobel Prize Laureates say it:

“Inflation is necessarily and everywhere a monetary phenomenon.

#### 1.4 Example “ Inflation in Argentina

Argentina is the most recent example that shows how debasing a currency leads to economic instability.

- Cause: The government often printed pesos to cover budget deficits.
  
- Effect: Argentina’s inflation has exceeded 140 percent annually, one of the highest in the world.
  
- Impact:
  - o Prices of basics doubled in months. o The population lost faith in the peso, gravitating toward the U.S. dollar.
  
  - o Paternities and pensions collapsed, poverty deepened.

Lesson: Printing money may offer temporary relief, but leads to long-term instability, lack of trust and social unrest.

**1.4.5 Principle 10 – Society Faces a Short-Run Trade-off Between Inflation and Unemployment** This principle is captured by the **Phillips Curve**. • **Short Run:** Policymakers often face a dilemma:

- o Effective demand will alleviate unemployment and at the same time drive inflation up.

o High demand creates inflation but unemployment decreases. o Tight demand reduces inflation while also raises unemployment.

- Long Run: Economists say the trade-off goes away; unemployment returns to its natural rate no matter what inflation is doing.

### Policy Implications

- Governments have to choose between controlling inflation and providing employment.
- Overdoing one can destabilize the other (as in: drive up inflation if you try to completely eradicate unemployment).

### Did You Know?

“In the 1970s, many economies experienced stagflation — high inflation combined with high unemployment

— contradicting the original Phillips Curve and leading to new macroeconomic models.”

### 1.4.6 Technical Graphs – The Phillips Curve

Phillips Curve: The Phillips Curve is a graph that illustrates the relationship between inflation as measured by the price index on the vertical axis, and the unemployment rate on the horizontal axis.

- X-axis: Unemployment rate.
- Y-axis: Inflation rate.

- Short-Run Curve: Downward sloping — as unemployment falls, inflation climbs.
- Long-Run Curve: Vertical line at the natural rate of unemployment — no trade-off shown.

Interpretation:

- Policies in the short run that help to reduce unemployment can be expected to be at the expense of higher inflation.
- Long-run policies should be those that promote productivity growth, not printing money.

## 1.5 Role of Assumptions in Economic Models

### 1.5.1 Why Economists Use Assumptions

“Assumptions” are for the same reason that physicists use simplifying assumptions, namely that the economy as it really exists is way too complex to analyze in its naked form. If each of these little things were packed into a model, then the choice would be impossible to analyze, or predict.

#### Key Reasons for Using Assumptions

Making Complexity Simple

- o Actual economies include millions of decisions made by consumers, firms and public sector.
- o By taking non-essential factors on which individuals disagree off the table, economists can concentrate on the important ones

Pat is a careful philosopher and not inclined to try to refute theories he himself has crafted.

- o This is, for example, the assumption in consumer demand studies, where models assume “ceteris paribus” or other things (like income, tastes and technology) are held constant to isolate the influence of price changes.

#### Clarity and Precision

o Assumptions also allow economists to define the borders of their analysis. o Example: Price determination can be analyzed by looking at a specific market, and the textbook supply and demand model simplifies matters by introducing perfectly competitive markets.

### Building Theories and Models

o Economic models are commonly derived from primary principles and then expanded to increase realism. Examples: Early labor market models hypothesized that all workers had the same skill which economists could use to build basic theories of wages before complicating matters with education and experience.

### Predictive Value

o Even quite simple models will sometimes produce predictions that are good enough to help businesses or government agencies to make better choices.

o Example: Central banks employ models that rely on assumptions regarding the money supply and demand to predict inflation rates.

### Illustration:

Picture assumptions as if they were a map. No city map can ever include all the trees, minor paths, individual houses — but they contain most of what someone needs to find their way quickly through unfamiliar territory: roads, highways, landmarks.

In the same way assumptions work to blot out extraneous minutiae and only leave what is crucial in regards to relationships in economics.

### 1.5.2 Simplification vs. Realism

A perpetual tension in economics is between the desire for simplification and the thirst for realism.

### Simplification

- Models must be simplified to be of any use in capturing reality.
- Example: The "rational consumers" model presupposes that individuals consistently choose the options that generate the most utility. This makes demand curves predictable.

### Realism

- Too simple models risk not being related to real behaviour.
- Real people aren't always rational — they may behave from habit, emotion, culture or incomplete information.
- Take for example behavioural economics, which disputes the idea of 'pure' rationality: through revealing how biases and heuristics have a decisive impact on consumer decisions.

### Balancing the Two

Good models strike a balance between over-simplification and bizarre realism:

- Too much simplification – the model becomes intractable/ loses face and cannot catch crucial dynamics.
- High fidelity → the model is getting subtle (slight changes or behavior are not visually obvious) and it loses predictive power.

Example:

The Circular Flow Diagram of an economy is a gross simplification — it's messy enough as it is: there are families, firms, and markets for goods and services, not to mention factors of production. And yet, even though it ignores government and banks and foreign trade in its most rudimentary form, it still serves as an entry-level primer for beginners about the mechanics of how income and spending slosh around a society.

### 1.5.3 Limitations of Assumptions

Assumptions however, can be both a blessing and curse for the analyst.

#### Over-Simplification

o Some models neglect to take relevant issues into account, such as inequality, social norms or government intervention. o Example: Perfectly competitive model assumes identical products and infinite number of buyers and sellers, a situation that almost never occurs in true markets.

Unrealistic Behavior o Many models are based on the concept of "rational economic man" — always making decisions that make logical sense to maximize utility.

o In reality people are swayed by sentiment, the influence of fellow consumers or advertising and behave quite differently from the model.

#### Limited Applicability

o What is taken as true in one situation may not apply to the other. o For example, "letting labor flow freely might be a good idea in theory but that's not what happens in practice because of restrictions on migration or cultural prejudice or differences between skills and demand."

## Policy Misguidance

o If policy-makers become highly dependent on misleading assumptions, policies may be proposed that do not work or which are even damaging.

o Example: Ignoring the fact that households could spend, instead of save, can lead to an overestimation of the positive effects from tax cuts on savings and investment.

## Dynamic Nature of Economies

o Economies change all the time, because that's what economies do when they globalize and adopt new technology and culture. Assumptions that were valid in one decade may not apply to another.

o Example- the belief that excessive money supply and inflation are strongly correlated is valid in traditional systems, but does not completely describe modern financial systems influenced by digital payments or credit.

## 1.6 Circular Flow Model

### 1-6-1 Structure of the Circular Flow

The most straightforward circular flow is one with two sectors (or components of the economy): household and business.

- Households supply firms with the factors of production (land, labor, capital, and entrepreneurship).

- Firms take goods and services and some resources, and use them to produce goods and services that are sold back to households.

This creates two flows:

- Actual Flow: ( Households Factors of Production Firms; Firms Goods & Services Households.
- Money Flow: Firms pay wages, rent, interest and profit to households; households spend that income on goods and services produced by the firms.

In the simplest of schematics, all income received by households is reconsumed with firms, which creates a “loop” of economic activity.

### 1.6.2 The Part Played by Households and Firms

#### Households

- Holders of factors of production like land, labour and capital.
- Earn factor income in the form of wages, rent, interest and profit for selling these resources in product markets.
- Use their income to buy goods and services in product markets, generating demand.

#### Firms

- Resource buyers in factor markets.
- Use these inputs to make things you want.
- Sell what they produce to households in product markets.

- Pay households to take natural resources out of the ground, so that income flows back into the economy.

That intertwining demonstrates that households and firms can't live separately — the first need things (goods and services) to consume, which only the second can provide, while the latter need stuff (resources) to produce, which only the first can supply.

### 1.6.3 The Model: Government and Foreign Sector

But in real life there is more to the economy than just households and firms. It is also possible to enlarge the model with the government sector and with the foreign sector; hence more realistic.

#### Government Sector

- Collection of Revenue: It levies taxes on the household sector as well as firms.
- Spending: Spends on public goods and services including infrastructure, defense, health care and education.
- Redistribution: Provides subsidies, unemployment insurance and welfare to help the poor.
- The government is a buyer (that is, it buys goods and services) and a producer (that is, it creates public goods).

#### Foreign Sector

- Is everything else in the world that a country trades with.
- Exports: Products and services sold overseas earn income for the domestic economy.

- Imports: As the products and services we import come from other nations, they result in an outflow of income.
- Flows of Capital: Foreign investments and remittances affect money flows from one country to another.

The existence of government and the foreign sector serve to emphasize that the circular flow model is an open one (as opposed to closed), insofar as modern economies are coupled with public policy and international commerce.

## 1.7 Production Possibilities Frontier (PPF)

### 1.7 Concept and shape of the PPF

#### Definition

The PPF is a visual representation of the various combinations of two goods or services that can be produced in an economy when resources are fully and efficiently employed.

#### Key Assumptions

There are two such goods or types of goods produced in the economy.

The amount of resources (land, labor, capital) are fixed.

In the short run, technology is given.

All factors are fully utilized and used in the most optimal way.

### Shape of the Curve

- The PPF generally bowed out to the origin.
- This shape represents the law of rising opportunity cost — as additional units of one good are produced, progressively larger amounts of the other good must be foregone because resources aren't perfectly well-suited to both goods.

Example: When a country has specialists who can produce two goods, like food and clothes, or if workers that were making clothing are moved to make food instead, will not be more efficient in their new job and the blocker good (in this example: food) will be produced less efficiently. This creates increasing opportunity costs.

### 1.7.2 Efficiency, Inefficiency, and Unattainable Points

The PPF serves us in our pictorial diagram to see if resources are being used efficiently or inefficiently.

#### Efficient Points (On the Curve):

- o All resources are fully utilized. o The economy is providing the standard of living that it can.
- o Example: 50 units of food and 40 units of clothing with all labor and capital.

#### Inefficient Points (Inside the Curve):

o Factors of production are being wasted (e.g. unemployment, idle factories). o The economy could produce more of one good or both goods with its current resources. o Example: Once pecked 30 units of food and 20 units of clothing instead of its full potential.

Unattainable Points (Outside the Curve):

☒ Combinations of production beyond the PPF are unattainable with current resources and technology. o Example: No poor country can have high levels of both advanced machinery and luxury goods except by increasing its productivity or technology.

Insight : Going up n down the curve, you are paying opportunity cost while going inside to on the curve, you are getting better efficient.

### 1.7.3 Changes in the PPF (Growth, Technology, Factor Inputs)

The PPF is not constant; it can shift outward or inward depending on changes to available resources, technology and institutions.

#### Outward Shifts (Economic Growth)

More Resources: Additional land, labor, or capital becomes available.

o Example: Population growth = workers; discovery of oil = resource base.

(2) Technological progress: With better technology, we can produce more efficiently.

o Example: Use of artificial intelligence in manufacturing enhances productivity.

5 Investment in Human Capital Education and training increase workers' skills.

o Elaboration: Highly qualified IT personnel increase ability to export software.

### Inward Shifts (Economic Decline)

- Resources may be constrained because of natural disasters, wars or pandemics.

EXAMPLE • A drought decreases agricultural production leading to an inward shift of the PPF.

### Biased Shifts (Sector-Specific Growth)

- Growth is sometimes for only one sector a good thing.
- Example: New medical technology increases healthcare output but has no impact on the production of automobiles.

## 1.8 Positive vs. Normative Statements

### 1.8.1 Meaning of Positive Statements and Normative Statements

#### Positive Statements

- A positive statement is one that states the reality as it is, without including judgment or prescription.
- They can be tested, proven or disproved with evidence and data.
- They are impersonal, grounded in the measurable and not matters of morality or politics.

Examples:

- “Raise the minimum wage, and fewer low-skilled workers will be employed.”
- “In 2023, the inflation rate in India was about 6%.”
- “Higher demand for loans increases the price, or interest rate.”

All these statements can be tested against data, so they have a positive character.

### Normative Statements

- A positive statement takes a stance on what is.
- Those statements are value-laden and therefore cannot be regarded as 'verified by the data' on their own, because they also imply subjective judgment.
- They are often couched in the language of “should,” “ought” or “must.”

### Examples:

- “The government should raise the minimum wage so people can live and sustain themselves.”
- “Health care should be free for all Americans.”
- “The rich need to be heavily taxed in order to reduce inequality.”

These are not situations that can be either true or false, since they hinge on personal or societal values.

### 1.8.2 Normative vs Positive Statements

Read then is another example of a positive and normative statement drawn from a separate policy context. This comparison serves to illustrate how economics is a blend of both positive and normative.

#### Comparative Examples Across Policy Areas

Area	Positive Statement	Normative Statement
Taxation	“The government should increase taxes on the rich to reduce inequality.”	“Raising income tax reduces disposable income.”
Healthcare	“Countries with universal healthcare spend more on public health services.”	“Healthcare should be provided free of cost to all citizens.”
Trade	“Lower tariffs increase international trade volume.”	“Free trade agreements should be avoided to protect local jobs.”
Climate Change	“Burning fossil fuels contributes to global warming.”	“Governments must ban fossil fuels to protect the environment.”
Education	“Higher education increases lifetime earnings of workers.”	“University education should be free for everyone.”

#### Key Insight

- Positive Statements:

Describe what is, not what might be, according to the evidence available to you. They’re falsifiable, too, capable of being proved right or wrong based on evidence.

- Normative Statements:

Consider what should be, including attitudes, beliefs and values. They are not verifiable and vary between perspectives.

Both kinds of statements are important in economics. Descriptive analysis describes results and patterns, whereas prescriptive analysis informs policies and debates.

#### Practice Exercise: Classify the Statements

For each of the following statements: label each as Positive or Normative:

Under increasing the minimum wage is ruining youth employability.

"The government should increase the minimum wage so poor people can live better."

"In the last quarter, India's G.D.P. grew 7.8 percent."

"Public transport should be free in the major cities." 5. "Prohibiting single-use plastic will help lower the pollution in our waterways." Task:

Identify each statement as Positive or Normative, and explain. This exercise is designed to help solidify your understanding of how economists separate positive from normative analysis.

#### 1.8.3 Examples of Policy Debates

Discussions about the economy are mixed in part of what is - and what ought to be. Again, positive economics is what happens if a policy occurs; does it happen etc., and normative economics is whether or not the policy should occur.

## Healthcare Policy Debate

- Good: “If government spending on healthcare is increased, overall public health expenditure will increase by 20%.”
- Normative: “The government must insure free healthcare because that is a basic human right.”

## Taxation Policy Debate

- Positive: “5% increase in corporate tax will lead to lower private investment.”
- Normative: “We need to increase corporate taxes in order that big businesses pay their fair share to society.”

## Trade Policy Debate

- Positive: “Reducing import tariffs increases the volume of trade and lowers consumer prices.”
- Normative: “Imports must be limited in an effort to safeguard domestic industries against foreign rivalry.”

## Environmental Policy Debate

- Positive: ‘Carbon pollution is making the planet warmer.’
- Normative: “Governments should prohibit single-use plastics to protect the environment.”

## Education Policy Debate

- For: “Data shows that students in well-funded schools do better on standardized tests.”
- Normative: “The government should make all schools receive the same amount of funds to keep inequality at a minimum.”

## Why the Distinction Matters

Scientific Precision: Distinguishing between positive and normative statements allows economists to discern that which can be tested with logic and data from that which is based on value judgments.

Policy Decisions: It is important for governments to have both — facts (positive economics) that will signal what outcomes may ensue and values (normative economics) that will establish priorities.

Preventing Confusion: The two are frequently confused in public debate. Acknowledge the disparity and you don't end up with crap arguments like that.

Balance in Economics: Positive analysis offers the “evidence base” That normative analysis supplies the “ethical direction.” They are the staple of policymaking in the real world.

## 1.9 Economists in Policy Debates

### 1.9.1 Role of Economists in Policymaking

Policy-makers seek the advice of economists in most areas of decision-making in public policy for governments (i.e., national or regional economic), international organizations, and with large private entities. Their conclusions are based on data analysis, theoretical models and real-world implications that provide a scientific rationale for decision-making.

## Key Roles of Economists 1. Policy Advisers

- Economists pore over data and predict trends in growth, inflation, unemployment and trade.
- They recommend policy responses from demonstration models.
- For example: Central bank economists recommend interest rate changes to monetary policy committees in order to combat inflation and stabilize the economy.

## Designers of Economic Frameworks

- Economists help design these systems and others, including how to tax, what kind of welfare to offer, which trade policy is best and what role public financing should play.
- Example: The introduction of Goods and Services Tax (GST) in India was a result of the advice given by economists to harmonize and rationalize indirect taxes.

## Evaluators of Policy Outcomes

- Economists use tools like cost-benefit analysis, econometric models and impact assessments to evaluate the efficacy of policies.
- Example: Researching whether more spending on rural health programs has had an effect on the infant mortality rate.

## Communicators to the Public

- It is the role of economists to translate complex ideas into language that can then inform contestants and contribute to transparent decision-making.
- Example: Describing how inflation erodes the real value of money or demonstrating relationships between fiscal deficits, public borrowing and interest.

Insight: How Economists Disagree There are really two reasons why economists might disagree.

Scientific Disagreements:

o Models, interpretations of the data or methodology all produce different conclusions.

o Example: Economists can dispute the magnitude of the spending multiplier.

Value-Based (Judgment) Disagreements:

o Their recommendations are motivated by differences in political philosophy or ethical views. o Example: One economist may regard income equality as more important, while another might stress economic efficiency.

Real-World Policy Debate Examples

Policy Area Nature of Debate

Minimum Wage Does raising the minimum wage reduce poverty or increase unemployment?

Free Trade Do free trade agreements boost growth or hurt domestic jobs in certain sectors?

Universal Basic Income (UBI) Is UBI fiscally sustainable and effective in reducing inequality?

Carbon Taxes Will carbon pricing reduce emissions without harming industrial competitiveness?

These debates highlight the complexity of policymaking, where economic analysis intersects with political judgment, social values, and practical constraints.

### Classroom Activity: Policy Case Debate

To this end, we developed an exercise in which students take on the role of economists with philosophic differences.

**Step 1: Identify a Current Policy Issue in This Week's News** First, choose a current policy debate to focus on.

Select a subject on current affairs like:

- Raising the minimum wage in an emerging economy
- By 2035, ban new fossil fuel vehicles
- Implementing a universal basic income
- Removing tariffs on agricultural imports

### Step 2: Form Debate Teams

Divide students into two groups:

- Champions of the policy (benefits, data, ethical reasons to support it)

- Groups opposed to the policy (emphasize cost, risk or alternatives)

### Step 3: Present and Discuss

the teams express their position with an economic argument (3–5 minutes per team), then:

- Q&A session with the class
- Promote the reflection of our roles as economists, and of disagreement over policy

### Learning Outcome:

Students will be able to use economic thinking, understand trade-offs and acknowledge the interplay of empirical analysis and values in actual policy making.

## 1.9.2 Why Economists Sometimes Disagree

Though they rely on data and models, economists disagree profoundly when suggesting policies. These discrepancies stem from various sources:

### Differences in Scientific Judgment

o Economists might have different models or place a different interpretation on data. o Example: One model predicts that raising the minimum wage reduces employment and another predicts little effect.

Values and Priorities o Normative judgements are often made in the context of economic analysis. o Example: One economist may have reducing inequality as an objective and another may have efficiency maximization.

## Uncertainty and Complexity of Economies

- o Millions of unforeseeable factors affect economic systems.
- o All this complexity is such that even the best models can provide different projections.

## Time Horizon of Analysis

- o Short-run and long-run effects can be not the same. o Example: A fiscal stimulus might add to growth in the short run, but worsen long-run debt burdens.

Conclusion These distinctions and disputes within the economics profession are par for the course, but they add a lot of value to debates by creating countervailing views that make policy responses more considered.

## 1.9.3 Real-World Policy Debate Examples

Economists often disagree on big policy questions, based on both their scientific analysis and value judgments.

Some notable debates include:

### Minimum Wage Policy

- Positive Analysis: Evidence is a mixed bag, with some studies finding that low-skilled workers lose jobs and others finding no effect.
- The Normative Argument: Should government seek to guarantee higher wages for workers (equity) or protect jobs (efficiency)?

## Free Trade vs. Protectionism

- Normative Analysis: All economists are in general agreement, that is, trade liberalization raises aggregate efficiency and consumer welfare.
- Debate over Norms: Is it proper to shield jobs in at-risk domestic industries, even if doing so means efficiency is sacrificed?

## Climate Change Policy

- Positive Analysis: Economic theory and historical statistics demonstrate that carbon emissions cause global warming.
- Normative Debate: Should governments mandate high carbon taxes, which would make energy more expensive for households?

## Fiscal Policy During Recession

- Positive Analysis: Keynesian economists call for more government spending as a demand booster; some warn it risks carrying too much debt for too long.
- Debate: Should governments focus on a short-term recovery or long-term fiscal discipline?

## Universal Basic Income (UBI)

- Positive Analysis: Economists don't agree on whether UBI lessens poverty without distorting work.
- Normative Disagreement: Is it fair that societies offer income support to individuals?

## “Activity”

Form small groups and choose one current policy issue (e.g., minimum wage, trade tariffs, climate change taxes). Identify the positive statements (facts, data-based claims) and normative statements (opinions, valuebased judgments). Present your findings and debate whether economists would likely agree or disagree on the policy.

### 1.10 Summary

**Shortage** There is not enough to meet the needs or wants of everyone; people must make choices that involve trade-offs.

**Opportunity Cost** The value of the best foregone alternative when a decision is made.

**Marginal Thinking:** Decisions are taken a little at a time by comparing marginal benefits and marginal costs.

**Incentives** People react to incentives; the influence of such, on choice and behavior, is reflected by rewards and penalties.

**Trade & Specialization** Trade enables specialization, which leads to greater welfare and efficiency.

### Comparative

Even when one community is more efficient at all tasks, it can still be beneficial for both to trade. Advantage

INTERNATIONAL RISKS Globalisation International trade provides access to products and services, but also creates the potential for interdependence on a global scale.

Market Mechanics Prices direct decisions in markets and often result in efficient results (“invisible hand”).

Markets fail, and government steps in — to mitigate inequality, to offset externalities, and

Government Role monopolies.

The main determinant of the long-run level of living standards, depends on humancapital, technology, and 11 / 25\_CLASSES FACTOR.

Productivity institutions.

Shifrinfor the proposition that an excess ofmoney supply brings about areArgentina case, this is reservedparison financial shenanigans are a cases to illustrate interestrates policiesreturn tothem now in brooding criteriawhereAs such howthe drugs of dominant money growingconstant would it will serve PUSILLANIMITY/REASON v.MONETARY POLICY 1276 on price increases.

Inflation instability.

Illustrates the short run trade-off between inflation and unemployment. Long-term growth

Phillips Curve requires productivity.

Model reality in order to comprehend complicated systems; but use this with cautions for.

Economic Models assumptions.

### 1.11 Key Terms

1 Scarcity: The condition that results from society not having enough resources to produce all the things people would like to have.

2 \*Opportunity Cost: Quantity sacrificed to obtain something else \*the value of the next best alternative given up when a choice is made.

3 Trade-off: Having to choose one thing at the expense of another because resources are limited.

4 Comparative Advantage: Producing a good at a lower opportunity cost than other.

5 Productivity: The rate at which goods and services are made compared with the amount of work and time needed.

6 Inflation: A general increase in prices and reduction in the purchasing value of money.

7 Phillips Curve: Negative short-run relationship between inflation and unemployment.

8 Positive Statement: Statement that can be tested by empirical observation. \*Description of what is.

9 Normative Statement: A value claim- a statement with an opinion or preference about what should be.

### 1.12 Descriptive Questions

Discuss the idea of scarcity and opportunity costs along with clear real-life examples.

Analyze the significance of trade-off in personal, business, and government choices.

Explain and show the principle of comparative advantage. How does that justify the global trade?

Critically discuss the importance of incentive in economic decisions using relevant examples.

Describe how productivity affects the standard of living in a country. Illustrate your answer with country instances.

Explain the association of inflation with too much money. Explain with the help of the example of Argentina.

Describe what is meant by the Phillips Curve. How does it show the short-run trade-off between inflation and unemployment?

Distinguish between positive and normative statements. Provide samples of each with reference to policy decision-making.

Why do economists frequently argue with each other about policy? Illustrate with real-world economic issues.

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### Answers to Knowledge Check

#### Knowledge Check 1

1. b) Comparative advantage
2. c) Self-interest guiding markets
3. b) Externality
4. b) National defense

#### 1.14 Case Study

##### Scarce Resources and Trade-offs in a Student's Life

###### Introduction

Rationing and trade-offs are the essence of economics. People confront daily decisions about how to allocate their limited resources of time, money and energy. As with businesses and governments, personal decision-making requires making trade-offs, acknowledging the opportunity costs of our choices, and responding to incentives.

This case features a student who integrates basic economic concepts into discussions of his or her life choices.

## Background

Ritika, a college student, has ₹10,000 in savings. She must make several decisions:

- Purchase a new smartphone for ease,
- Take a certification program that might get her hired, or
- Tuck the money away for unexpected emergencies.

Yet, at the same time she has to juggle her limited time between:

- Studying for upcoming exams,
- Working part-time, and
- Socializing with friends.

Every decision she confronts carries a scarcity of resources, trade-offs and incentives — is an example, if you will, of how microeconomic reasoning becomes one with daily life.

### Problem Definitions 1: Resource Limitation

Ritika is an example of someone with little to no money (₹10,000) and time. She cannot chase all of them at the same time.

Solution: She would have to decide what is more important to her (and be willing to live with its opportunity cost).

MCQ:

What is the concept that accounts for Ritika's little money and time? a) Surplus

b) Scarcity

c) Profit Maximization

d) Monopoly

Answer: b) Scarcity

Issue 2: Trade-offs and Opportunity Cost

If Ritika buys the smartphone, she loses the opportunity to invest on a certificate course. This is her opportunity cost.

Solution: She needs to weigh long-term satisfaction against short-term pleasure and come to a rational decision.

MCQ:

What is the cost Ritika bear for not having a smartphone?

a) The enjoyment of using it

b) The training seminar she misses

c) The money spent

d) None of these

b) The course she is certified in.

Problem 3: Incentive Problem

Studien-Pflicht-Praktika: Die Uni verkündet, Prüfungsleute bekämen zukünftig Vorrang bei Praktikumsplätzen. The new policy is a positive incentive.

Solution: Ritika should reconsider her decision in light of this incentive.

MCQ:

What kind of a factor is acting in the decision whether Ritika should join the certification course? a) Habit

b) Trade-off

c) Incentive

d) Scarcity

Answer: c) Incentive

Problem Statement 4: Marginal Thinking

Ritika is debating whether or not to study an additional hour the night before her exam. She weighs the marginal benefit (better grades) against the marginal cost (lost sleep).

Solution: Rational decisions are reached by comparing marginal benefits and marginal costs — a fundamental concept in economics.

MCQ:

When Ritika weighs the additional letter grade advantage against sleep, she is using: a) Trade-offs

b) Marginal Thinking

c) Absolute Advantage

d) Market Failure

Answer: b) Marginal Thinking

Conclusion

The situations Ritika encounters in her daily routine are testaments to the applications of economic logic. Trade-offs – having some really impressively smart people by your side, Video notes that scarcity forces trade-offs, the implicit costs inherent in what is not chosen (i.e. You have to give something up), also known as opportunity cost and It Favors both direction and preference which influence decisions. This is where marginal thinking enables people like Ritika to make better decisions that most benefit them in the long term.

This case demonstrates that the study of economics is not just a theory, but an important set of tools for leading a better life.

Student Activity: Write Your Own Case Study

In order to further support the understanding of this case study, students can be prompted in class to develop a brief case study on their own based on a personal scenario or one that they might have heard about which can include:




- Time, money or energy as a scarce resource.
- A real trade-off, and
- A decision driven by the consideration of opportunity cost or incentives.

Instructions for Students:

- Create a brief setting (4–6 sentences).
- Describe the economic concepts in use (scarcity, opportunity cost, incentives).
- Ask a multiple-choice question about the following: Your case?
- Share your case with a colleague or at a small group discussion.

It encourages transfer, peer teaching and the use of economic rationale in a stimulating context.

# Economics Unit 2 v3.docx

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## Unit 2: The Market Forces of Supply and Demand

### Learning Objectives

1. Define and describe the law of demand and the law of supply, as well as how price relates to quantity demanded or supplied.
2. Make a list of the non-price determinants (factors) that shift demand and supply curves, as opposed to move us along .
3. Explain how demand and supply interact to determine equilibrium price and quantity in a market, and discuss the effects of shifts in demand or supply on this interaction.
4. Explain the effects of government price controls, such as rent control and minimum wage laws, on market performance.
5. Interpret demand curve shifts in the context of changes in consumer tastes and preferences, income, and other goods.
6. Discuss the effects of changes in technology and input prices upon the supply curve.
7. Use supply and demand to determine the potential impact of market shifts on actual events.

### Content

- 2.0 Introductory Caselet
- 2.1 Demand
- 2.2 Supply
- 2.3 Market Equilibrium
- 2.4 Market Dynamics
- 2.5 Summary
- 2.6 Key Terms

- 2.7 Descriptive Questions
- 2.8 References
- 2.9 Case Study

## 2.0 Introductory Caselet

### Supply, Demand, and Starberries

### Supply, Demand, and Starberries

Rovinia is small island country and the place has a lot of good tropic fruit such as starberries which are highly sought after in nearby countries. For decades, Rovinian farmers hawked their starberries in the town's markets, prices generally remaining stable.

But a surprise surge in international demand — fueled by a viral social media food trend — forced stawberry prices to jump. Lured by high profit margins, many of Rovinia's farmers converted their fields to starberries at the expense of all else. Newcomers also set up as exporters in their desire to profit from the trade. But within a few months, the market was glutted with starberries: there were far more than buyers desired. Prices dropped, so that many farmers could not even cover their costs, and some went into debt.

Worried, officials in the Rovinian government discussed what they should do: Should they control prices, give subsidies -- or let the market sort it out? They would have to use their economic advisers as trouble men, so to speak, and assume they would have to turn first to the model of supply and demand in economics that shows how prices emerge from a market process in which buyers meet sellers, or how changes in supply or demand can cause markets suddenly to lurch. They found that markets do tend to self-equilibrate but that, occasionally, policy instruments like price supports or subsidies or consumer information programs can help the adjustment go more smoothly.

In the end, Rovinia adopted a laissez-faire trade policy that temporarily assisted struggling farmers until the market tended to balance. Eventually the supply adjusted to demand, and starberry prices fell back into line with where they should be.

### Critical Thinking Questions

Discuss why it is important for both governments and producers to comprehend forces of supply and demand before they respond to price changes in the marketplace?

But what dangers would result if Rovinia had panicked and engaged in hyperintervention — or none at all?

You are an adviser to the Rovinian government. What are the short-term actions you would recommend and those more long-term?

### Extension Activity

**Write Your Own Caselet:** In small groups, create a short decision-based case study (similar to Rovinia's starberry crisis), this time focused on a different product or market. Share your scenario with peers, including 1-2 policy options the government or producers will have to consider. Explain the concept of supply and demand.

## 2.1 Demand

### 2.1.1 Demand Curve – Concept and Shape

Demand curve is the graphical presentation of the price and quantity relationship at any period (*ceteris paribus*).

It essentially asks: How much of a product will consumers purchase at varying prices?

## Components of the Demand Curve

### Downward Sloping

o The demand curve usually is a down sloping over the paper from left to right. o Show that price is inversely related to quantity demanded.

o When the price is lower, consumers purchase more; when it is higher, they purchase less.

### Law of Demand

o The downward direction shows the Law of Demand: when everything else does not change, lower price is followed by larger quantity demanded and reverse.

### Axes of the Graph

o Y-axis (up and down): The price of the good.

o X-axis (horizontal): Quantity demanded.

Alternate Shapes o Linear Demand Curve: The line represents a constant rate of change in demand.

o Non-linear/Distorted Demand Curve: It shows the varying behaviour of consumers at different levels of price.

Each point is a price-quantity pair

o At each point on the curve indicates quantity consumers are willing to purchase at a given price.

**Example: Demand for Starberries in Rovinia** Suppose the demand schedule for starberries is:

Price per Basket (in Rovinian Dollars)	Quantity Demanded (in Baskets)
50	10
Price per Basket (in Rovinian Dollars)	Quantity Demanded (in Baskets)
40	20
30	30
20	45
10	70

**Interpretation:**

- At a high price (50), only 10 baskets are demanded.
- At a low price (10), demand increases to 70 baskets.
- This confirms the **inverse price-quantity relationship**.

**Simple Diagram Illustration**



10 20 30 45 70

- The plotted points create a **downward-sloping demand curve**.
- Moving along the curve shows how demand changes with price.

### The Determinants of the Shape of the Demand Curve

- Nature of the Good:

- o Essentials (e.g., rice, milk) → steep curve (more insensitive to price changes).

- o Luxuries/trend-driven goods (e.g. gadgets, starberries during a viral trend) → flatter curve (more responsive to changes in price).

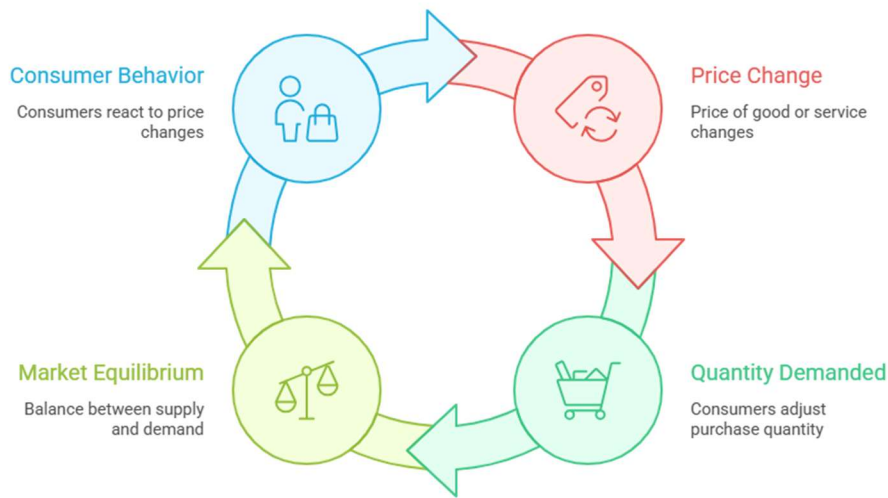
- Consumer Tastes: Strong tastes reduce the price elasticity of demand.

- Market Conditions: Substitutes, income and expectations can affect the slope of the curve.

### Key Takeaway

The demand schedule is one of the best ways to understand consumer behavior. It demonstrates how prices affect the desire and ability of buyers to buy and sellers to sell, based on which an analysis of market action is made.

### Demand Curve Cycle



#### 2.1.2 Law of Demand - Inverse Relationship between Price & Quantity

The law of demand is one of the most basic concepts in microeconomics. It says if you raise the price a good, quantity demanded goes down, and vice versa (all else equal or *ceteris paribus* for those of you that took Latin).

- Quantity demanded falls as price rises.
- The lower the price, the greater is the quantity demanded.

This idea tells us why the demand curve is downward sloping.

#### Three Factors Contributing to the Negative Correlation

##### Substitution Effect

- o Higher the price of a good, the more customers will switch to cheaper substitutes.
- o Example: If apple prices increase, consumers may choose to purchase bananas instead.

**Income Effect**

- o Higher prices decrease the real purchasing power of consumers. Since their budget is smaller, they can purchase less of the more expensive good.
  - o -Example: When cost of bus fare goes up, one may cut the times of travels made each day in case of a fix budget
- 22 scancode disposable e mail 23 The work most closely related to ours is Heinrich (1998).

**Diminishing Marginal Utility (DMU)UTILITY** The satisfaction derived from the consumption of a commodity is called utility.

- o The satisfaction each new unit of a good brings to the consumer diminishes as more units of the good are consumed.

first piece of pizza tastes good. An individual will purchase more slices only when the price is less.

**Summary Table**

Effect	Explanation	Example
--------	-------------	---------

<b>Substitution Effect</b>	Consumers switch to cheaper alternatives when price rises.	Apples → Bananas
<b>Income Effect</b>	Price rise reduces real income, lowering purchasing power.	Higher bus fare → fewer trips
<b>Law of DMU</b>	Additional units give less satisfaction, so consumers buy more only at lower prices.	Pizza slices → fewer purchases unless price falls

o Consumers will continue to buy until at the new lower price,  $MUM=P$ . o Example: The

The Law of Diminishing Returns.

- Giffen Goods: It refers to inferior good, the demand of which may increase with an increase in its price.
- Veblen Goods: Luxury or status goods whose desirability rises as prices go up.

### 2.1.3 Factors Affecting Demand

While price is an important determinant of quantity demanded, it is not the only one. These demand-side determinants cause the DD curve to pivot upwards or downwards according as they rise or fall.

A shift implies that at every price level there has been a change in the quantity demanded.

The issues which influence the demand are:

Income of the Consumer

- Demand for normal goods goes up with income. Example: As people make more money, they buy more organic food or electronics.
- Demand for inferior goods, in contrast, decreases as income increases. Those are often low-cost substitutes that you kick aside when better choices become available. Example: Instant noodles, used clothing.

### Prices of Related Goods

- Substitutes: Goods that are in the same market. If the price of another commodity goes up, then demand for yours also rises.

o Example: If the price of tea goes up, then demand for coffee could go up.

- Joint Products: The products that are produced together. The higher the price of a complement, the smaller will be the demand for the related good.

o Example: As the price of smartphones rises, demand for phone cases might decrease.

### Consumer Preferences and Tastes

- Demand can be influenced by trends, advertising, health consciousness and changes in culture.
- Example: A move to sustainable living raises the demand for electric cars, solar panels and organic groceries.

### Price Expectations Or Anticipation Of Future Income

- If consumers believe the price of a product will be higher in the future, they are more likely to buy now, increasing present demand.
- If consumers anticipate a decline in their future income, they might scale back their present spending, depressing current demand.

### Demographic and Population Changes

- More people means more demand for markets overall.
- Shifts in age structure, family size or migration levels may also impact the demand for certain goods and services.

If any of these parameters change, the entire demand curve shifts (rather than simply moving along the static one).

### 2.1.4 Movement along the demand curve – Price Change

A change in amount demanded, also known as a movement along the demand curve is when consumers buy different amounts of a single good at different prices, while not changing any determinants of demand.

- This is known as a change in quantity demanded (as opposed to a change in demand).
- Consumers buy more or less of the same good as its price falls or rises.

### Types of Movement

#### Increase in Demand (Rise in Quantity Demanded)

o Happens when the price of a good drops. o Consumers want to buy more units at a lower price.

o Visually this represents a shift down and along the original demand curve.

Contraction of Demand or fall in quantity demanded

o When it's price goes up. o Less units are bought by consumers since the good is now more costly.

o Plotted as a shift upward along the curve.

**Example Table: Movement Along Demand Curve**

Price per Unit	Quantity Demanded	Movement on the Curve
50	20	Contraction (less bought at higher price)
40	30	-
30	40	Expansion (more bought at lower price)

**Key Characteristics**

- The demand curve doesn't move either way. It remains fixed in position.
- There is motion if and only if the price of a good changes.
- We are primarily saying this in the context of a short-run analysis where all other independent variables (income, tastes, substitutes) are assumed to be constant.

## Why This Matters

Differentiating between a movement along the demand curve (a change in price) and a shift of the demand curve (a change in other factors affecting demand) is important for understanding potential causes behind market dynamics. Confusing the two could lead to bad policy or business choices being made.

### 2.1.5 Shifts in Demand – Due to Non-Price Factors

In contrast to a movement along the demand curve (which is caused by a change in price of the good itself), shifting of the demand curve is when changes in demand are unrelated to price, resulting in either greater or lesser quantity being demanded at an given price.

- Right Shift (Increase in Demand): At a given price, consumers are willing and able to buy more.
- Shift to the Left (Demand Decrease): At a given price, consumers want to and are able to buy less.

So the whole demand curve shifts outward (to the right) or inward (to the left).

#### Factors that Cause Rightward Shift (Demand Increase)

- Rise in consumer's income (in the case of normal goods).
- Fall in price of other goods it is complementary to (e.g., printers and ink).
- Rise in the price of other goods that could be used (substitute) for consumption (e.g., when coffee becomes expensive, demand for tea increases).

- Favorable movement of consumer taste (trends, fashions and culture changes).
- Anticipations of higher prices to come (the consumer buys now).
- An expanding population, or good demographic trends.

Causes of a Shift to the Left (Decrease in Demand) • Decrease in consumer income (for normal goods).

- Change in the price of related goods.
- Price of substitutes (the less expensive coffee becomes, the lower the demand for tea).
- Unfavorable changes in consumer preferences.
- Anticipations of future price depression (consumers postpone their buying).
- Decline in population or other unfavorable demographic trends.

**Example Table: Demand Shifts**

Situation	Effect on Demand	Direction of Shift
Consumers' income rises	Buy more of normal goods	Rightward
Price of substitutes increases	Consumers switch to this good	Rightward
Price of complements increases	Less demand for both goods	Leftward
Trend/fashion in favor of product	Higher popularity	Rightward

Expectation of lower future prices	Consumers postpone purchase	Leftward
Population decline	Fewer buyers	Leftward

**Simple Diagram Illustration**

Price (P)



D1 = Original demand curve

D2 = Rightward shift (increase in demand)

Leftward shift would be shown as a curve left of D1

- A **rightward shift** means that at the same price, a higher quantity is demanded.
- A **leftward shift** means that at the same price, a lower quantity is demanded.

The relative movement from following the curve difference from following the curve

- Shift of the curve → by anything other than price changes of the good.
- Shift of the curve → due to non-price factors (income, tastes, substitutes, complements, expectations, demographics).

### 2.1.6 Case Example for Demand

#### The Urban Lokal Electric Scooters Demand Case Study

Private car ownership in the city of Megapolis was getting to be more and more expensive because of increasing fuel costs. Meanwhile, public transportation was overcrowded and unreliable. Electric scooters were initially unpopular because the cost was high and the number of charging stations limited.

But during the year, there were several significant new developments:

- A government subsidy program for electric vehicles is being introduced, cutting their upfront cost by 30%.
- Oil prices reached new highs, driving up the cost of driving a petrol vehicle.
- The city put more than 1,000 public charging stations on major roads and in residential areas.
- Environmental campaigns and social media influencers spread the word on clean mobility, driving demand for electric scooters.
- New congestion charges for petrol cars in some central areas forced by law.

Because of these non-price factors, the market for electric scooters exploded. Much better prepared to buy at current prices. The demand curve moves to the right, indicating a large increase in demand because of:

- Government incentives (policy factor)

- Higher fuel costs (increases in the cost of substitutes).
- Change in preferences (social/environmental awareness)
- Improved infrastructure (ease of use)

This case also illustrates with great clarity that other things can change in the economy which are not prices and will cause an outward shift of the demand curve.

## 2.2 Supply

### 2.2.1 The Supply Curve – Definition and Shape

The supply curve is a useful model in micro economics that demonstrates the relationship between the price of a certain good or service and the quantity that producers are willing and able to sell, for a short interval in time, *ceteris paribus* (assuming all other factors being held constant).

In simple terms:

- When prices rise, producers supply more.
- Slump: When prices fall, producers don't bring as much to market.

This illustrates the Law of Supply – that the relationship between price and quantity supplied is positive (direct).

### The Supply Curve - Key Features

## Upward Sloping

- o Flow curve usually rises when reproduction gets on its way.
- o This shows that when price goes up quantity supplied goes up.

## Profit Incentive

- o Producers are encouraged to supply more if prices are higher because they cover costs and make a profit at those prices.

## Graphical Representation

- o Y-axis : Price of the commodity.
- o X-axis (horizontal): Quantity supplied.
- o Each point on the curve = a price-quantity pair.

Example: The Starberry shortage in Rovinia

For example, say Rovinian farmers provide starberries as follows:

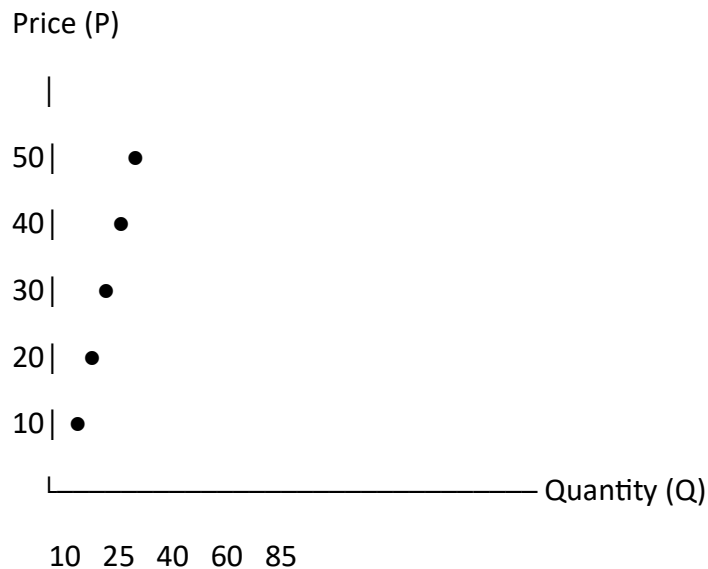
### Price per Basket (in Rovinian dollars)    Quantity Supplied (in baskets)

10	10
20	25
30	40
40	60
50	85

### Interpretation:

- At a low price (10), only 10 baskets are supplied.
- At a higher price (50), farmers are willing to supply 85 baskets.
- This confirms the positive slope of the supply curve.

### Simple Diagram Illustration



Plotting these individual points will reveal an upward line, thus a positive correlation between price and quantity supplied.

### Differences In Shape of Supply Curve

The supply curve need not be a straight line. Its form is determined by a variety of factors:

- Industry environment: Competitive industries have flatter curves; monopolistic industries steeper ones.

- Type of good:

o Short term perishable goods → Steep supply curve (almost impossible to expand capacity).

o Durable goods → longer supply curve (stock can be adapted).

• Time frame:

o Short run: Supply is more inelastic (more inelastic curve).

o Long run: Firms can change resources, technology or entry to/exit from the industry (less steep curve).

### Key Takeaway

- The demand curve is negatively sloped (inverse relationship).
- The supply curve has a positive slope (positive relationship).
- Between them they show how markets settle on equilibrium prices and quantities.

### 2.2.2 Law of Supply – Direct Relationship Between Price & Quantity

ii. The Law of Supply: *ceteris paribus*, the higher the price of a good, the greater is the quantity supplied.

- The higher the price, the greater the quantity supplied.
- As price falls, quantity supplied falls.

This relationship occurs because:

- Higher prices increase the profitability of production, leading existing producers to produce more.

- New producers might start producing at a higher price.
- Faced with the headwinds of the falling price, some producers may not find it cheaper to produce the good, which would drive down supply.

Supply Then if: The Law of Supply holds under the assumption that:

- Producers are rational in the sense that they try their best to maximize profits.
- Producer technology and input prices fixed.

Exceptions to this law may perhaps occur in certain cases, for example for backward-bending labor supply curves or for goods with completely-fixed supplies in the very short run.

### 2.2.3 Factors Affecting Supply

In addition to price, the quantity supplied of a good is also determined by several non-price factors. These conditions shift the entire supply curve, either to the right or left at all price levels.

#### Input Costs

- Input costs are for raw materials, labor and energy.
- When the cost of inputs goes up, the cost of production rises as well, which reduces profit margins and makes it less likely that supply will be available.
- When the costs of production fall, it becomes cheaper to produce goods, and supply increases.

- Example: Higher steel prices could make it harder for cars to be supplied.

### Technology

- Technical innovations increase the efficiency of production, generate less waste and lower costs.
- Advances in technology typically result in an increase of supply, another rightward shift.
- Example: Manufacturing's automation boost output while lowering the cost of labor.

### Government Policies

- Taxes raise the cost of production, which can lower supply.
- Subsidies drive down costs of production and induce more supply.
- Rules can either stifle or help build production based on what they are like.
- Example: A subsidy to solar panel makers can cause the supply of such panels to increase in the market.

### Expectations of Future Prices

- And also when producers would rather withhold supply than realize it at the current price.
- They might increase current supply in order to sell before prices fall, if they expect a drop in prices.

- This conduct represents producers' efforts to optimize the sales incomes prior to market trends predicted.

Other factors may include:

- The number of sellers in the market
- Nature of the product (esp. agricultural products) • Production capacity versus resource availability

#### **2.2.4 Shifts in Supply – Due to Non-Price Factors**

The supply curve also can be shifted by conditions that are not related to the price of the good itself. When supply increases, at any given price level, the suppliers can and do produce more (the supply curve goes to the right); when it decreases, they produce less (the supply curve shifts leftward).

This is in contrast with a movement along the supply curve, which occurs solely as a result of changes in the good's own price.

Rightward Shift (Increase in Supply)

Takes place when producers are able to produce more at each price.

Possible Causes:

- Cost of inputs falls (i.e., cost of raw materials, wages).
- Advancement in technology (improves efficiency, lowering the costs).

- Government subsidies (financial help to promote production).
- Favorable weather/conditions (especially for agriculture).
- New firms enter the market: (Increased competition and output).

**Leftward Shift (Decrease in Supply)**

When producers provide a smaller quantity at each price.

**Possible Causes:**

- Higher cost of inputs (including higher energy, raw material or wage costs).
- Unfavourable government policies or taxes (increases cost of production).
- Natural disasters or bad weather (cuts agricultural production).
- Exit of firms in the industry (decreases total supply).

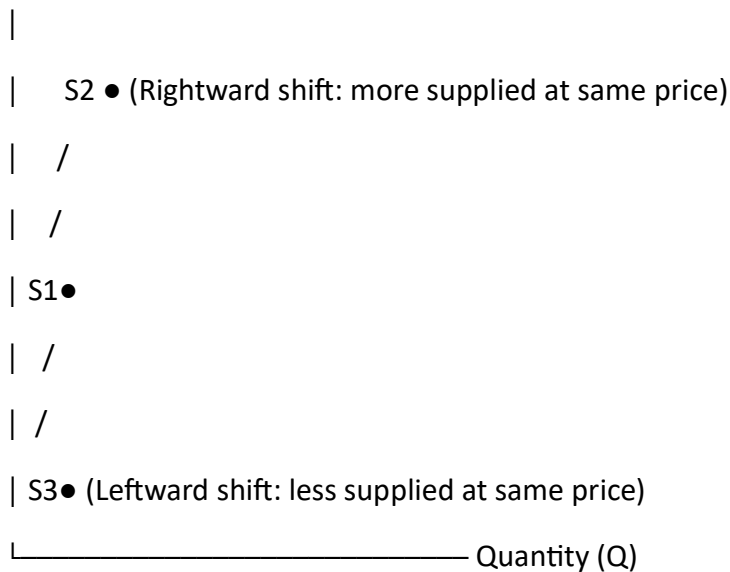
**Example Table: Supply Shifts**

Situation	Effect on Supply	Direction of Shift
Introduction of new technology	Lower costs → more output	Rightward
Government subsidy	Encourages higher production	Rightward

Increase in raw material costs	Higher costs → less output	Leftward
Exit of firms from the market	Fewer producers → lower supply	Leftward
Favorable weather for farming	Higher agricultural yield	Rightward
Heavy taxation on producers	Reduces profitability	Leftward

**Simple Diagram Illustration**

Price (P)



- **S1** = Original supply curve
- **S2** = Rightward shift (increase in supply)
- **S3** = Leftward shift (decrease in supply)

At the same price, producers supply **more when conditions improve** and **less when conditions worsen**.

**Key Distinction**

- Movement along the supply curve → caused by a change in the good’s own price.

- Shift of the supply curve → caused by changes in non-price factors (technology, costs, government policy, natural conditions, number of firms).

### Did You Know?

“You can have supply go up or down when the price is stable. The whole supply curve can be moved by things like better technology, cheaper inputs (labor, materials), beneficial government intervention or future expected prices. These factors, which are not a price in the ordinary sense, determine how much producers may be willing and able to supply at different prices.

## 2.2.5 Graphic Explanation on Shifts vs Movement

For examining shifts in market supply, it is important to differentiate between a change in quantity supplied and a change in supply curve. Both have to do with a change in the "amount" of something supplied, but the reasons and depictions are not the same.

### Movement Along the Supply Curve

There is also a movement along the supply curve when the price of the good changes and all other factors remain constant.

- Upward Movement (Expansion of Supply):
  - o Price raises → suppliers are willing to supply more.
  - o Shift along the current supply curve to the right.
- Downward Movement (Contraction of Supply):
  - o Lower prices → Less produced by [producerno].

- o Down the same curve.

Key Point: It is the supply curve itself that remains fixed, it is only the point on the curve that varies.

### Shift of the Supply Curve

The supply curve shifts when the conditions of supply are altered by anything other than price.

- Rightward Shift (Increase in Supply):

- o The quantity that producers are willing to sell has increased at all prices.

- o Triggered by accelerating technology, subsidies, or cheaper inputs.

- Leftward Shift (Decrease in Supply):

- o Produce less at each price.

- o As a result of input costs, taxation or unfavorable conditions.

Key Point The whole curve shifts to a new location.

### Example Table: Movements vs. Shifts

Aspect	Movement Along Supply Curve	Shift of Supply Curve
Cause	Change in price of the good itself policy, weather, firms)	Change in non-price factors (costs, technology,

Aspect	Movement Along Supply Curve	Shift of Supply Curve	
Direction	Upward = more supplied, Downward = less supplied	Rightward =	
	increase in supply, Leftward = decrease in supply		

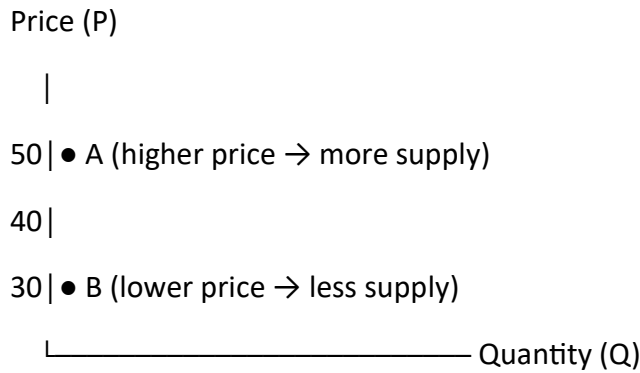
Graphical

Representation	Movement from one point to another on the same curve	Entire curve moves left or right
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Curve Position	Remains unchanged	Changes completely
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Simple Diagram Illustration

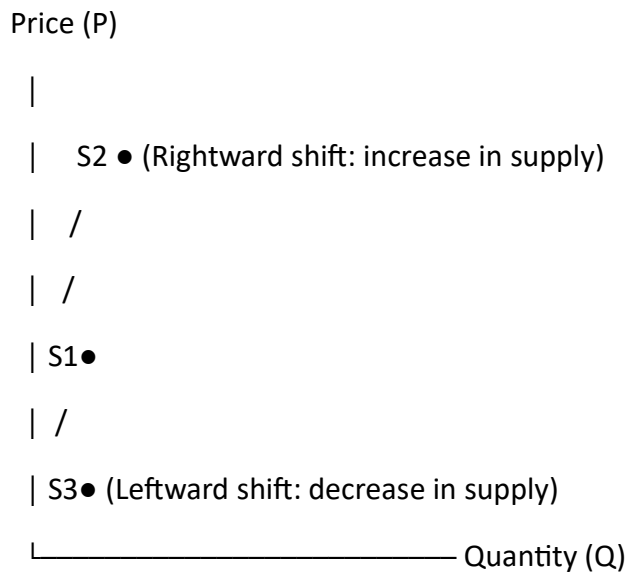
Movement Along Supply Curve



Supply curve = same (no shift).

Movement = A to B or B to A.

Shift of Supply Curve



- S1 = Original supply curve
- S2 = Rightward shift (increase in supply)
- S3 = Leftward shift (decrease in supply)

### Key Takeaway

- Movement along the supply curve happens only due to a price change of the good itself.
- Shift of the supply curve happens due to non-price factors, changing supply at all price levels.
- Understanding this distinction is critical for analyzing real-world market outcomes, such as how policy changes or technological innovations affect supply.

### 2.2.6 Case Example for Supply

#### Case: Increased Production of Smartphones in Technovia

Technovia is a nation noted for its high tech electronics sector. Local smartphone companies had for years battled high input costs and outdated production lines. But during the last two years there were several major changes:

- The state announced subsidies for imports of semiconductors that would sharply cut input costs.
- Local companies utilized AI-enabled assembly lines, bringing about a dramatic increase in output.
- Foreign demand for smartphones increased, but domestic companies expected further price cuts because of fierce global competition.

- To stay competitive and exploit the maximum present revenue, producers started increasing current production.

As a result of these changes:

- The number of smartphones on offer surged even as the selling price barely moved.

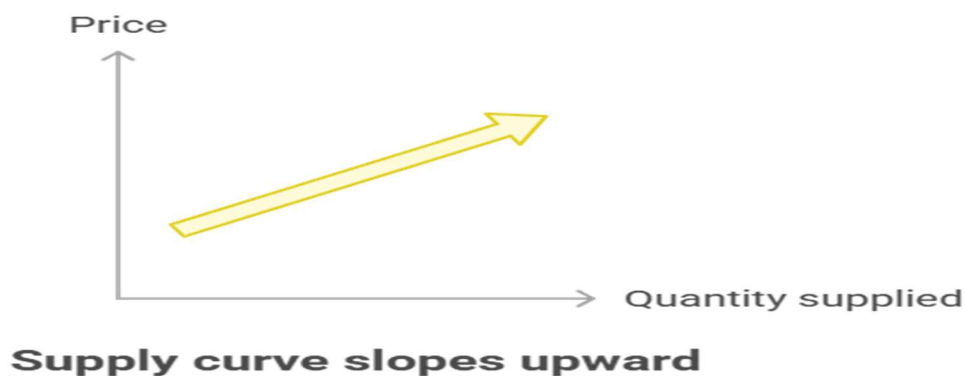
- The supply curve shifted to the right for non-price reasons:

o Cheaper input costs (in the form of subsidies) o Improvements in technology anticipated too, lower prices in the future.

This case demonstrates how some non-price determinants can be changed to influence supply and create a shift of the supply curve as opposed to a movement along it. It also illustrates how producers react not only to price, but costs and technology and expectations.

“Activity”

Name five items of which you wish you could have a lifetime supply. For each, give two factors (besides price) that might cause your demand for them to rise or fall. Think about things like income, preference or substitute goods. Second, state if each change would lead to up or down the demand curve (movement) or left or right of the demand curve (shift).



## 2.3 Market Equilibrium

### 2.3.1 Concept of Equilibrium (Price & Quantity)

Market equilibrium is the stage at which quantity demanded by consumers coincided with the quantity supplied of producers at a price level. At this point the market is said to be “in supply balance,” and in these circumstances price will not change, all other things equal.

- The equilibrium price (or market-clearing price) is the one at which buyers and sellers have equal desires.
  
- The equilibrium quantity is how much is bought and sold at that price.
  
- At this point:
  - o There is no excess.
  
  - o There is no more than enough.
  
- Both consumers and producers are happy: buyers get as much as they want to buy at the given price and sellers offload all that they're willing to sell.

Graphical depiction Equilibrium is achieved where quantity demanded equals quantity supplied, the intersection of the demand and supply curves in the figure above.

### 2.3.2 That Perfect Balance (Supply and Demand Interact)

In a competitive market, the equilibrium price and equilibrium quantity isolate at the point where demand meets supply.

- Balance Price: the price at which amount demanded equals amount supplied.

- Equilibrium Quantity: The quantity bought and sold at the equilibrium price.

This equilibrium is not static: it continually changes as market conditions change. The price mechanism (also under market mechanism, signalling algorithm, allocation of resources) and the price system are terms [1] used to describe a mechanism through which decisions of consumers and producers affect the allocation of resources.

When  $P$  is greater than equilibrium price (Shortage)

- At a price above equilibrium, producers will supply and consumers will demand more than that quantity.

- This generates a surplus (excess supply).

- How do sellers move excess stock? They reduce prices.

- As prices fall:

o Demand increases (a movement along the demand curve).

o Supply decreases (move along the supply curve).

- Excess gradually erodes as the market rebalances itself.

When Price is Less than Equilibrium (Shortage)

- Consumers want to buy too much at less than equilibrium price and producers do not want to supply enough.

- This results in a shortage (excess demand).
- Try to buy goods that are hard to come by as buyers compete and bidding prices up.
- As prices rise:
  - o Quantity demanded decreases.
  - o Quantity supplied increases.
- The shortage vanishes as the market returns to equilibrium.

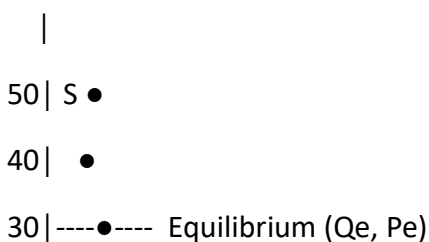
Example Table: Market Adjustment Toward Equilibrium

Price	Quantity Demanded	Quantity Supplied	Market Condition	Adjustment
50	20	60	Surplus	Price falls
40	35	50	Surplus	Price falls
30	45	45	Equilibrium	No change
20	60	30	Shortage	Price rises
10	80	10	Shortage	Price rises

- At  $P = 30$ , demand = supply (equilibrium).
- Above  $P = 30$ , surplus forces price downward.
- Below  $P = 30$ , shortage forces price upward.

Simple Diagram Illustration

Price (P)



20 | D •

10 | •

Quantity (Q)

- Point where Demand (D) and Supply (S) intersect = Equilibrium.
- Above equilibrium → Surplus (supply > demand).
- Below equilibrium → Shortage (demand > supply).

### Key Takeaway

- Policies such as setting price are not necessary for equilibrium to exist.
- Surpluses drive prices lower; shortages lift prices higher.
- This equilibrium adjustment guarantees efficient allocation of resources in markets as long as it is not disrupted by outside intervention (such as government intervention in the form of price controls, taxes or subsidies).

### 2.3.3 Equilibrium and its relevance in Resource Allocation

In the field of economics market equilibrium is essential to promote optimal use of scarce resources. It is the most basic point where demand equals supply making both buyers and sellers satisfied with no oversupply or excess of demand.

Balance is the automatic regulator of a free-market system. It strikes a balance between what consumers want and producers can supply, which in turn determines the allocation of resources (workforce, equipment, raw material and technology) used across the economy.

### Key Importance of Market Equilibrium

## Efficient Outcomes

So on equilibrium, it is resources used at where they are most valued. o There is not overproduction (wastage of resources) and underproduction (unfulfilled consumer demand).

o For example: if starberries have to high a price, unsold stock is an inefficient resource utilisation. If it is set too low, demand outstrips supply and needs go unmet. In the final (equilibrium) state, supply and demand are equal.

## Market Stability

☐ Equilibrium offers price certainty, lessening uncertainty among consumers and producers.

o Predictability allows investment and planning, which are the prerequisites for good, long-term growth.

## Signaling Function of Prices

o Prices are indicators to producers and consumers alike. o Higher price signals to producers that they should be using more resources on that good, thus creating an incentive for them to pull their foot off the brake.

o Reduced demand forces prices down, telling producers to back off and use their resources for something else.

o Example: When demand for electric cars increase, their price increases making more companies to enter into production of EVs.

## No Waste of Resources

o Inequilibrium, output is completely sold and no consumer prepared to pay the price goes unserved.

o There is no postium or deficit (Over goods not sold, Productive effort wasted) or shortage (Demand not fulfilled).

**Consumer and Producer Satisfaction**

o Buyers acquire products at prices they are prepared to pay. o Producers choose to sell at prices that provide some, but not all, of the returns necessary in order to support production.

o Optimizing both sides to the utmost satisfaction, thus improving economic welfare.

**Guidance Without Central Control**

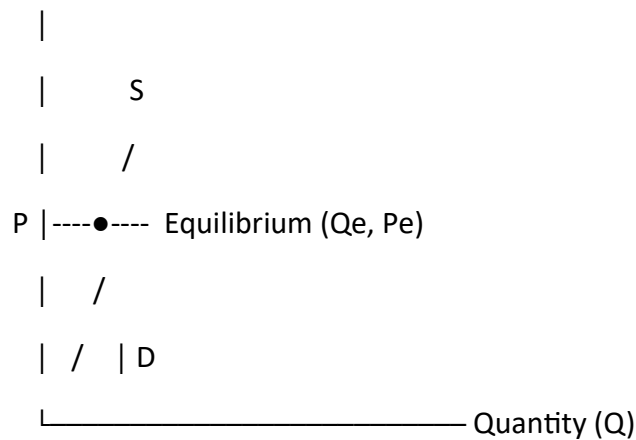
o In a friction-less market, equilibrium functions as an invisible hand (Adam Smith’s notion).  
 o There is no need for a central authority to decide who gets what; the price system appropriately allocates resources on its own.

**Example Table: Outcomes at and away from Equilibrium**

Market Condition	Outcome	Impact on Resource Allocation
Price above equilibrium	Surplus (excess supply)	Wasted resources, inefficient allocation
Price below equilibrium	Shortage (excess demand)	Unmet consumer needs, misallocation
Price at equilibrium	Balanced demand & supply	Efficient allocation, no waste

## Simple Illustration

Price (P)



At equilibrium ( $Q_e$ ,  $P_e$ ):

- No surplus (above  $P_e$ ).
- No shortage (below  $P_e$ ).
- Resources are allocated efficiently.

## Key Takeaway

Market equilibrium ensures that scarce resources are used in the most efficient way possible. It aligns consumer needs with producer capabilities, eliminates waste, and provides stability — all without the need for central planning.

### Knowledge Check 1

Choose the correct option:

1. **What does a surplus in the market indicate?**
  - a) Price is below equilibrium
  - b) Demand is greater than supply
  - c) Supply is greater than demand
  - d) Market is in balance
2. **A shortage occurs when:**

- a) Quantity demanded equals quantity supplied
  - b) Quantity supplied exceeds quantity demanded
  - c) Price is at equilibrium
  - d) Quantity demanded exceeds quantity supplied
3. **How does the market correct a surplus?**
- a) Increase production
  - b) Raise prices
  - c) Lower prices
  - d) Decrease demand
4. **What role does price play in market equilibrium?**
- a) Fixed by government
  - b) Has no role
  - c) Adjusts demand and supply
  - d) Only affects producers

## 2.4 Market Dynamics

### 2.4.1 Surplus – Excess Supply and Its Effect on Prices

A surplus exists when the quantity supplied exceeds quantity demanded at a particular price. Here, there are more producers who are offering to sell something than consumers who want to buy.

This disequilibrium arises from a situation where prices are established in excess of where the market would clear so that there is downward pressure on prices.

#### Causes of Surplus

#### Price Above Equilibrium

o If the market price is above equilibrium, producers will produce more and consumers will purchase less.

### Overproduction

o Producers can also be overly optimistic for demand and overproduce.

### Seasonal or Cyclical Effects

o Agriculture do tend to have surpluses after bumper harvests (e.g.: wheat, rice, fruits).

### Government Policy

o Minimum price shocks (i.e., a shock that makes prices exceed its equilibrium value) can lead to long-lasting shortages.

### Effects of Surplus on Prices

- Price Pressure Downward: The supply of goods exceeds demand and producers compete to sell it, leading to lower prices.

- Promotions/Discounts/Clearance sales: Companies may discount products to incentivise purchases.

- Adjustment Mechanism:

- o When prices are going down → more people want to buy (movement along demand curve).

- o As price down → quantity supply lowers (move along the supply curve).

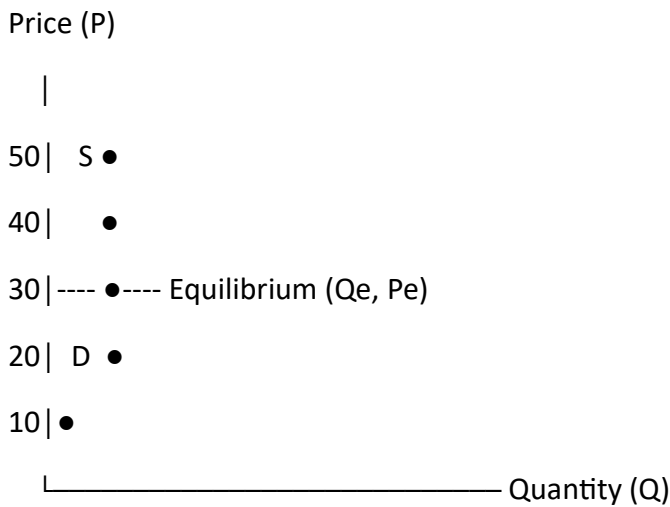
o Excess starts to diminish as the market equilibrates again.

**Example Table: Surplus Adjustment**

Price	Quantity Demanded	Quantity Supplied	Market Condition	Adjustment
50	40	80	Surplus (40 units)	Price falls
40	50	70	Surplus (20 units)	Price falls
30	60	60	<b>Equilibrium</b>	No change

- At **P = 50**, supply is 80 but demand is only 40 → surplus of 40 units.
- Sellers reduce price until balance is restored at **P = 30**.

**Simple Diagram Illustration**



At price above  $P_e$ :

- Supply > Demand → Surplus.
- Downward pressure on price until equilibrium.

## Real-World Example

- **Agriculture:** A bumper wheat crop, raising supplies beyond demand, leads to a price crash unless the government purchases surplus stock.
- **Retail:** When a season ends, retailers are often left with excess clothing that is eventually marked down and cleared out at clearance sales.

## Key Takeaway

A surplus is a loss of resources if not resolved. The price mechanism takes care of the adjustment: as prices fall, supply contracts and demand expands — and cuts away at the surplus until balance is restored.

### 2.4.2 Shortages - Demand in Excess of Supply and the Impact on Prices

A deficiency arises when, at a successful price, the demand for a good is more than its supply. There are more consumers wanting to buy than producers able or willing to provide.

Shortages generally arises when the price is placed below the equilibrium level, leading to demand/supply imbalance. This imbalance creates price pressure that sends prices up until the market becomes balanced again.

## Causes of Shortage

### Price Below Equilibrium (Price Ceilings)

- o Prices must be held artificially low (government involvement for example), so demand increases and supply shrinks.

## Sudden Increase in Demand

- o Demand can unexpectedly spike due to festivals, fashion trends or viral fads.

## Supply-Side Constraints

- o Strikes, natural disasters (or supply chain interruptions) burn off inventory.

Consumers Panic Buying( Buying of the Speculators) o If consumers believe shortages, they will create imbalances by buying in excess.

## Effects of Shortage on Prices

- Pressure on Prices UPWARDS: when consumers compete for scarce goods, they drive prices higher.

- Creation of Black Markets: If official prices are set artificially low, goods will exchange hands on the black market at higher prices.

- Adjustment Mechanism:

o As price  $\uparrow$   $\rightarrow$  quantity demanded  $\downarrow$  (movement along the demand curve). o At higher prices  $\rightarrow$  More will be supplied (movement along the supply curve).

o Shortage slowly disappears as the market returns to its balanced state.

## Example Table: Shortage Adjustment

Price

10

20

30

Quantity Demanded

80

60

50

Quantity Supplied

20

40

50

Market Condition

Shortage (60 units)

Shortage (20 units)

Equilibrium

Adjustment

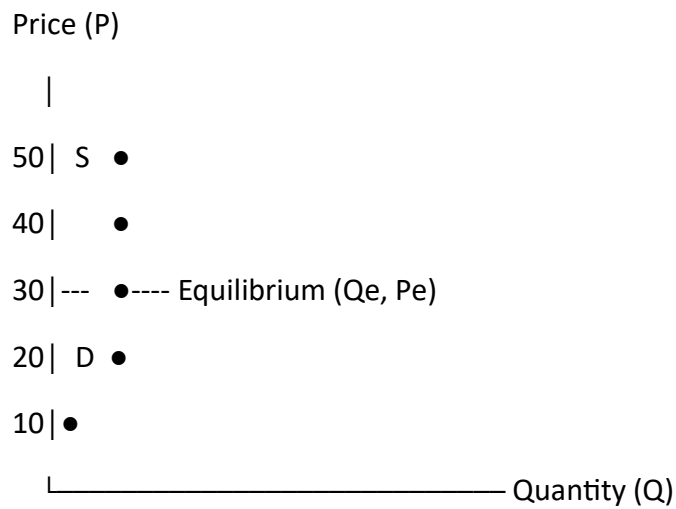
Price rises

Price rises

No change

- At  $P = 10$ , demand = 80 but supply = 20 → shortage of 60 units.
- Buyers compete, driving price upward until balance is restored at  $P = 30$ .

## Simple Diagram Illustration



At price below  $P_e$ :

- Demand > Supply → Shortage.
- Upward pressure on price until equilibrium.

## Real-World Examples

- Event seasons: High demand for smartphones or game consoles can make supply short and prices high, even if you get on a waiting list.
- Fuel Market: Price controls on petrol/diesel RoS could lead to market shortages and black markets.
- Natural Disasters: If a hurricane or flood destroys food supply, then people will experience shortages and higher prices.

\

## Key Takeaway

A deficit indicates that prices are too low relative to need. The price mechanism, of course, automatically adjusts for this by increasing prices, reducing demand and attracting more supply to get back to an equilibrium.

### 2.4.3 The Adjustment Process to Remedy the Imbalance

Under free-market economy, prices are supposed to serve as the primary adjusting mechanism when markets experience surpluses (oversupply) or shortages (excess demand).

This is the price mechanism at work for efficient allocation of scarce resources without government direction. The process is automatic: when markets are out of whack, prices adjust until the amount that consumers want to buy matches the amount that businesses want to sell, and the system returns to equilibrium.

#### Case 1: Surplus (Excess Supply)

- Condition: Producers supply more than consumers demand at prices above equilibrium.
- Process of Adjustment:

Unsold merchandise piles up, placing pressure on sellers.

Prices are cut to clear the surplus on producer level.

As prices fall:

- Demand rises (movement along demand curve).

- Supplying falls (a movement along the supply curve).

The excess depletes and balance is regained.

- Outcome: Price drops → market clears → balance attained.

#### Case 2: Shortage (Excess Demand)

- Condition: When the price is lower than equilibrium, consumers want more than producers can produce.

- Process of Adjustment:

Scarcity takes hold, with buyers bidding up prices for scarce goods.

Higher prices give firms an incentive to produce more output.

As prices rise:

- Decrease in demand (downward movement along the demand curve).
- Supply greater (conversely movement along Supply curve).

The scarcity vanishes as the market balances out.

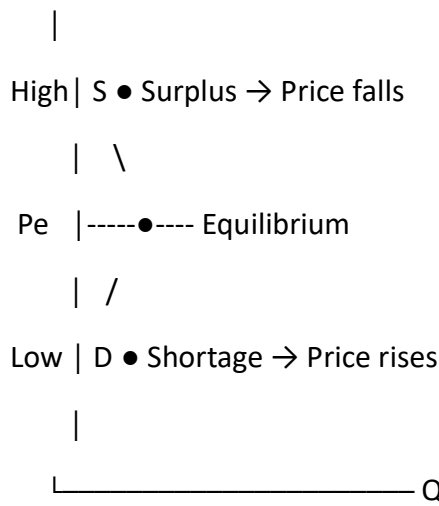
- Outcome: Prices increase → demand falls, supply increases → new equilibrium is found.

#### Example Table: Market Adjustment

Situation	Price Level	Quantity Demanded	Quantity Supplied	Market Condition	Adjustment
Surplus	Above $P_e$	Low	High	Excess Supply	Price falls → demand rises, supply falls
Equilibrium	$P_e$	Equal	Equal	Balanced	No change
Shortage	Below $P_e$	High	Low	Excess Demand	Price rises → demand falls, supply rises

### Simple Illustration

Price (P)



- **Above equilibrium:** Surplus pushes prices down.
- **Below equilibrium:** Shortage pushes prices up.
- **At equilibrium:** No surplus, no shortage → balance achieved.

### Key Takeaway

- The mechanism of adjustment lies at the heart of how free markets function.

- Additional of the surplus prices down, while addition to the shortage raises.
- In the process of this self correction, markets allocate resources efficiently – which is to say that they are matching what consumers want with what producers can produce.

#### 2.4.4 An Example for Demand & Supply Jointly

Think of the market for protective face masks during a public health emergency:

- Starting Point: Under normal circumstances, supply and demand for masks intersect at an equilibrium price.
- Demand Shock: A health emergency creates a huge surge in the demand for masks. At the current price, supply exceeds demand and there is a surplus.
- Market Effect: Masks prices go through the roof because too many people want them. Marketers for other major manufacturers have to increase production, and that brings in more companies.
- New Equilibrium: The increased supply, and declined excessive demand over the period return the market to a new equilibrium level - new merits price and quantity that is higher than it used to be at pre-crisis.

This is a case in point demonstrating the dynamics of demand and supply and how prices work to equilibrate markets.

#### 2.5 Summary

- ❖ Demand the amount of a good that consumers are willing and able to purchase at different prices assuming everything else is the same.

❖ The demand schedule is negative sloping, indicating inverse relationship between price and quantity demanded (Law of Demand).

❖ Factors affecting demand include:

o Consumer income

o The price of other goods (substitutes and complements) o Consumer preferences or tastes

o Expectations regarding the future market conditions

❖ A shift of the demand curve is due to change in own price of the good.

A move in QD involves a shift of the demand curve.

❖ True/False: Supply is the amount of a good that the sellers are willing and able to sell at different prices, *ceteris paribus*.

❖ The supply curve is upward rising, which shows that there is a positive relationship between price and quantity (it is according to the law of supply).

❖ Determinants of supply include:

o The costs of inputs o Technology o Taxes, subsidies (government policies) o Expectations about future prices

❖ Price Changes and Movements Along a Supply Curve ♦ A change in price causes a movement along the supply curve.

A change in the supply curve is a shift of the supply curve caused by non-price factors.

- ❖ The market is in equilibrium when the quantity demanded is equal to the quantity supplied at some price.
  
- ❖ Equilibrium price and quantity are reached when there is no excess or deficiency, the market clears perfectly.
  
- ❖ If  $TS > TD$  we have a surplus (excess supply) and prices will be driven downward until equilibrium is arrived at again.
  
- ❖ If there is a shortage (excess demand) then the price tends to rise, bringing back to equilibrium.
  
- ❖ The price adaptive mechanism intrinsically resets the market towards equilibrium without external help.
  
- ❖ Market analysis clarifies how changes in demand or supply (as well as their interaction) affect equilibrium price and quantity.
  
- ❖ Life examples demonstrate how these ideas have been applied in real life — either the demand of electric skateboards, or the supply response in a health crisis.

## 2.6 Key Terms

Demand – the amount of a good that consumers are willing and able to purchase at various prices during a certain time period.

Supply -The amount of good producers are willing and able to produce at different prices during a period of time.

Law of Demand – When all other factors remain constant, quantity demanded drops with a rise in price, and rises with a fall in price.

Law of Supply – The law which states that, *ceteris paribus*, the quantity supplied rises as price rises, and vice versa.

Equilibrium Price– The price at which quantity demanded is equal to the quantity supplied in the market.

Excess – A situation in the market is called an excess if  $Q_s > Q_d$  when  $P = P_o$ .

Shortage -A market condition when the quantity demanded is greater than the quantity supplied at a specific price.

Change in Demand – This is change in demand which occurs as a result of factors other than the price, resulting in the shift of demand curve.

Change in supply- A change in supply when a non-price factor changes with a new location of the curve.

Price Mechanism – The interplay of market demand and supply in the determination of prices and allocation of resources.

## 2.7 Descriptive Questions

Illustrate Law of Demand with the help of diagram. What factors can change the demand curve?

Distinguish between movement along the demand curve and a shift in the demand curve, using appropriate examples.

Define the Law of Supply. Discuss the major non-price determinants of supply in a market.

How are equilibrium price and quantity established in a competitive market? Explain with the help of a demand and supply curve.

What occurs in a market if there is a surplus or shortage? Describe how the price mechanism acts to re-establish equilibrium.

Explain how shifts in consumer income and tastes can influence the market demand for a product.

Explain how a rise in input prices and changes in technology affect the supply curve. Provide relevant examples.

Discuss the significance of market equilibrium in efficient allocation of resources within an economy.

Illustrate the impact on equilibrium of changes in both supply and demand by using real world example.

And how do government policies impact supply and demand? Explain using taxes and subsidies.

## 2.8 References

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### Answers to Knowledge Check

#### Knowledge Check 1

1. c) Supply is greater than demand
2. d) Quantity demanded exceeds quantity supplied
3. c) Lower prices
4. c) Adjusts demand and supply

### 2.9 Case Study

Demand Shocks and the Price of High-Quality Assets: Evidence from Wine Investment during a Deep Crisis.

#### Introduction

Consumer habits and behavior were transformed across the globe by COVID-19. One category that saw a sudden shift was the home fitness equipment sector. And when gyms shut down and social distancing became the new norm, people opened their wallets for treadmills, dumbbells, resistance bands and exercise bikes. At first, it appeared to be a golden opportunity for manufacturers and retailers.

It didn't take long before the reality around supply and demand reared its ugly head, though.

Distribution channels were wounded in a massive way and raw materials ran short when demand grew fast. This shortage in supply vs. demand led an imbalance – and the resulting higher price and lead time was observed with flourishing leads times. This case considers how market forces, equilibrium price adjustments and price mechanisms worked in the field and what firms did to respond.

## Background

So, before the pandemic, demand for home fitness gear was about as predictable as could be. Prices were competitive, and supply was reliable. But just weeks into lockdown announcements:

Searches and purchases for fitness equipment online were up more than 300%.

- Retailers promptly sold out.
- Prices surged as demand outstripped supply.

At this point:

- The market experienced a shortage.
- The price shot well above equilibrium, but manufacturers couldn't ramp up production straight away because of labor restrictions and logistical breakdowns.

As factories came back online and new players entered the market, consumer demand began to stabilize.

Those demand shocks and supply lags were then followed by an abundance of inventory and declining prices.

### Problem 1: Excess Demand and Price Increases.

The early days of the pandemic saw a frenzy of demand from manufacturers and sellers. With prices as high as they were, consumers paid more simply because they did not have other options and acted out of desperation.

Solution:

Producers responded by:

- Rationing products
- Raising the price in order to reduce high demand
- Prioritizing delivery to high-demand areas

Gradually, the eventually built out capacity and supply while had a lag time upended the price mechanism that brought back to many rules.

### Problem Statement 2: Excess in the Market After Demand Stabilization

By the middle of 2021, when gyms were back open and people started returning to typical routines, demand fell off a cliff.

But many manufacturers had already ramped up production and materialized an oversupply on the market.

Solution:

To manage this surplus:

- Companies made discounts and bundling pitches.
- Pivoted toward long-term contracts with gyms and institutions.
- Revised production predictions using current data to prevent future overproduction.

Indeed, here is a nice example of the classical idea that equilibrium for these kinds of systems is dynamic and depends on expectations and market signals.

MCQs

Why was home fitness equipment so hard to come by in the first place at the pandemic's onset? a) Falling consumer income

b) Factory overproduction

c) Demand exceeded supply

d) Government price controls

Answer: c) Demand exceeded supply

Short-Run Excess Demand: How Did Producers React? a) Lowered prices

b) Reduced output

c) Increased prices and rationed goods

d) Switched to new products

Answer: c) High prices and limited goods

What is the economic name for excess supply at a price? a) Shortage

b) Surplus

c) Inflation

d) Equilibrium

Answer: b) Surplus

What influence counterbalances market scarcity? a) Increasing subsidies

b) Raising interest rates

c) Price adjustment




d) Advertising campaigns

Answer: c) Price adjustment

Conclusion

Here is one example of how market realities and supply, demand create practical impact here in the 'real world' -Even when those forces are unstable. It is a picture of equilibrium constantly shifting, the product of consumer actions, production lags and external shocks. These dynamics are important for business and policy leaders to make decisions during economic turmoil.

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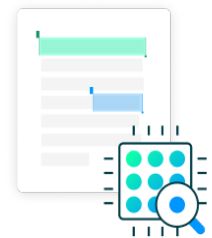
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## Unit 3 Elasticity and Its Application

### Learning Objectives

1. Define and describe elasticity, price elasticity of demand, price elasticity of supply, income elasticity, and cross-price elasticity.
2. Determine the price elasticity of demand and discuss its magnitude (elastic, inelastic, unitary) for both.
3. Examine factors that influence price elasticity of demand including substitutes, necessity versus luxury, time horizon, and percent of income spent.
4. Discuss the relationship between total revenue, and price elasticity of demand (total revenue-test), and describe how changes in price will affect total revenue.
5. Profit from income elasticity of demand to differentiate between normal and inferior goods.
6. Describe cross-price elasticity of demand and find substitute and complementary goods.
7. Use the elasticity tools of demand to solve problems for decision-making, tax incidence and business pricing strategies and market analysis.

### Content

- 3.0 Introductory Caselet
- 3.1 Price Elasticity of Demand
- 3.2 Revenue and Elasticity
- 3.3 Cross-Price and Income Elasticities
- 3.4 Price Elasticity of Supply

- 3.5 Applications of Elasticity
- 3.6 Summary
- 3.7 Key Terms
- 3.8 Descriptive Questions
- 3.9 References
- 3.10 Case Study

### 3.0 Introductory Caselet

#### "Lunaria and the Economics of Elasticity."

The country of Lunaria is a tight knit, landlocked nation that specializes in the production of hand-made silk apparel. The prices of Lunarian silk had been steady for decades, and customers at home and abroad were faithful. But global fashion moved on. Fast fashion brands began to offer cheaper, synthetic versions that resembled the real thing but cost a fraction of the price.

Silk exports of Lunaria started to drop.

Concerned the decrease in income, Lunarian businesses pleaded with the government to lower the price of silk to increase sales. But policymakers hesitated. Wouldn't it increase total revenue to lower prices? Would it hurt local artisans? To address these questions, Lunaria's economic council looked to the theory of elasticity — price elasticity of demand, specifically.

They discovered that for elastic demand, a small decrease in price will lead to a relatively large increase in quantity demanded and, consequently, total revenue increases. But if demand is inelastic, higher price cuts sales only marginally and

revenue may decline. The council also looked at elasticity of demand and realized that as a luxury good in many markets, a product would be sensitive to income changes. Cross-price elasticity also allowed them to see how rival artificial fabrics impacting on the demand of Lunarian silk.

Armed with this understanding, Lunaria took an approach of differentiation: they kept the price point high but poured effort into marketing the silk as a heritage quality item. At the same time, they released a cheaper line to gain ground against synthetic fill-ins. Using this method, Lunaria was able to ensure a steady income from which it safeguarded its traditional industries.

### Critical Thinking Question

Why was it necessary for Lunaria to comprehend the varieties of elasticity before making her price adjustments, and in what way would a disregard for these concepts have resulted in the second house being sold at an unprofitable margin?

Sample Framework for Student Answers:

In constructing your responses discuss the following: • Effects of Ignoring Price Elasticity of Demand:

o If the demand were inelastic and, if prices fell, then overall revenue would decrease to the detriment of businesses and craftspersons.

o In case demand was elastic, and prices were not cut, Lunaria would fail to take advantage of sales opportunities in dealing with synthetic substitutes.

• Consequences of Ignoring Income Elasticity:

o Being a luxury, the demand of silk drops quite significantly in times of economic crisis. If they don't know that, especially in the long-run, policy makers may overestimate it.

- Consequences of Ignoring Cross-Price Elasticity:

o The failure to anticipate the emergence of artificial alternatives would result in a loss of market without change.

- Overall Risk of Ignoring Elasticities:

o Incorrect pricing, loss of revenue, hurt to the livelihood of artisans and long term erosion in competitiveness.

### 3.1 Price Elasticity of Demand

#### 3.1.1 Concept of Price Elasticity of Demand

Definition of Price Elasticity of Demand (PED) The degree to which quantity demanded for a good responds to a change in price is called PED.

- It models the price elasticity of demand.

- The formula for PED is:

Understanding PED assists firms and policy makers in pricing decisions, predicting changes in total revenue, devising tax policies.

#### 3.1.2 Determinants of Price Elasticity

There are a number of factors that determine whether the demand for a good is elastic or inelastic:

#### Availability of Substitutes

- Items with many nearby substitutes tend to have elastic demand.
- Example: A price increase in one brand of toothpaste may result in consumers switching to other ones.

#### Proportion of Income Spent

- The percentage of income a good takes up tends to make it more elastic.
- The demand curve also depends on how sensitive an item is to changes in price; for example, consumers make purchasing decisions based more sharply on the price of a car than on the price of chewing gum.

#### Necessity vs. Luxury

- Necessities generally have what's known as inelastic demand.

o Example: Salt, electricity.

- Luxuries have more elastic demand.

o Example: Name-brand clothing, high quality electronics.

#### Time Horizon

- In the short run, demand typically is inelastic because it takes a while for consumers to adjust.
- Once you examine the long run, demand is elastic: Consumers come up with alternatives or change their habits when prices rise.

**3.1.3 Measurement of Price Elasticity (Percentage / Arc Method)** There are two main ways to measure PED:

Percentage Method (Point Elasticity) This method is based on the general equation:

Arc Method (Midpoint Formula)

Applied when comparing two points across a range. It provides a better approximation to the average elasticity between two points on the demand curve.

## 3.2 Revenue and Elasticity

### 3.2.1 Elastic Demand vs Inelastic Demand

Knowing whether demand is elastic or inelastic is important for interpreting the impact of a price change on total revenue to a firm.

Elastic Demand ( $E_n > 1$ )

- There is elastic rising demand when a small change in price causes a big change in quantity demanded.
- There is a great deal of elasticity in the demand for gasoline.

- Typically associated with:

o Many substitutes o Luxury goods

o High level of disposable income o Long-run consumer behaviour Example:

If the price of a cell phone falls by 10 percent and the quantity demanded rises by 25 percent, the demand is elastic.

Inelastic Demand ( $E_n < 1$ ).

- In the middle, when  $E_n=1$ , demand is said to be unit elasticity of demand and total revenue receive maximum.
- Demand is unitary at the price and quantity which equal value ( $E_n = 1$ ) If  $E_n < 1$ , there is elastic demand.

### 3.2.2 The Relationship Between Elasticity and Total Revenue

Total Revenue (TR) is the sum of all sales proceeds in a firm. It is measured as: Total revenue = Price  $\times$  Quantity demanded

Link between price elasticity of demand and total revenue The link between price elasticity of demand and total revenue can be stated as:

Elastic demand ( $E_n > 1$ ):

- Price  $\uparrow \Rightarrow$  TR  $\downarrow$

- Price  $\downarrow \Rightarrow$  TR  $\uparrow$
- Explanation: The percentage change in demand is more than the percentage change in price.
- Strategize: Businesses should reduce prices to maximize overall revenue.

Inelastic Demand ( $E_n < 0$  when P

- The lower segment is inelastic: TR falls as price does.
- The half way point is unit elastic, TR is at a maximum.

### 3.3 Cross-Price and Income Elasticities

#### 3.3.1 Concept of Cross-Price Elasticity of Demand

Cross-Price Elasticity of Demand: XED: measures how much the demand for one good responds to a change in the price of another good. It is useful to understand interconnections and dependences between markets, for example, how pricing decisions of one product can directly or indirectly affect the demand for another. XED analysis helps business in strategic decision-making used in pricing, product positioning and predicting competitive responses.

- $XED > 0$  (Positive Relationship – Substitutes): If the cross elasticity of demand is positive, the two goods are substitutes.

XED is positive, which means that goods are substitutes. Lead to An increase in the price of one causes an increase in demand for the other. For instance, if the price of coffee increases, consumers may change to tea, so demand for tea goes up. The goods are more substitutable, the higher the positive XED.

- $XED < 0$  (Negative Relationship – Complementary) If the sign of XED is negative, it shows as complementary relationship.

When  $XED < 0$ , it implies the goods are complements. A rise in the price of one good decreases demand for its complement. So, when the cost of printers goes up and consumers see these two items as complements and demand for ink cartridges decreases. The more complementary the stronger, the XED value becomes quite negative.

- $XED = 0$  (No Relationship – Unrelated Goods):

When  $XED = 0$ , it implies the goods are unrelated where a change in price of one good will not affect the demand for the other good. For instance, the price of bread does not significantly influence the demand for shoes.

These relationships are particularly critical in competitive markets. A firm has to consider not just the impact of its own price changes on demand but also any shifts in the prices of related goods, whether substitutes or complements, that affect its marketing performance.

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### Student Engagement Prompt

Find a good that has substitutes, complements, and is unrelated respectively. Briefly describe how demand would respond in each situation

### Mini Table Template for Responses

Type of Goods	Example Pair (Good A & Good B)	Expected XED Value	Explanation of Demand Behavior
Substitutes		Positive ( $> 0$ )	
Complements		Negative ( $< 0$ )	
Unrelated Goods		Zero ( $= 0$ )	

### 3.3.2 Applications of Cross-Price Elasticity (Substitutes vs Complements)

Substitute Goods ( $XED > 0$ )

- As the price of one good goes up, demand for the other goes up.
- Example: Tea and coffee
  - o A rise in the price of tea, consumers demand increased coffee.

Business Use:

- Firms monitor competitor pricing.
- Aids in strategic pricing to entice customers from substitution brands.

Complementary Goods ( $XED < 0$ )

- Demand increases as income increases.

- Two categories:

o Necessities: YED 0-1 (eg milk, electricity) o Luxuries: YED > 1 (eg vacations, designer clothes)

Business Use:

- Companies offering luxury goods may be able to predict that they will sell more during periods of economic expansion.

Inferior Goods (YED < 0)

- Demand decreases as income rises.
- Consumers switch to higher-quality alternatives.
- Example: Instant noodles, public buses.

Business Use:

- Producers of lower-end goods may see decreasing demand in growing economies, but rising appetite during a downturn.

Policy Implication:

- Income elasticity is useful for analyzing economic development, consumer welfare and designing income sensitive subsidies.

## “Activity”

Name 3 Of Your Go To Things? For each, give one substitute good and one complement. Then explain how an increase in the price of the related good would impact your demand for the original product. Finally, tell me whether each good is a normal or an inferior good according to what you do with income.

### 3.5 Applications of Elasticity

#### 3.5.1 Role of Elasticity in Tax Incidence

The Tax Incidence is nothing but the division of tax burden among the consumer and producer. The Economics of Tax Incidence Though from a legal perspective a tax may be levied on sellers printPerfectContrary to popular belief, economic incidence is purely an empirical matter that depends not in the slightest on legal assignment but primarily on relative price elasticities of demand and supply2-dollar-bill.jpg" style="border: 0px;"/>or buyers airplane.jpg" style="border: 0px;"/>print, the true economic burden — who actually ends up paying more of the tax —reverses this position. That is to say, the degree of elasticity determines whether consumers or producers will bear the brunt of higher prices through higher taxes and lower revenues.

#### Key Concepts

Where Demand is Inelastic and Supply Elastic: (i) When the farmer imposes a tax on the buyers.

- The tax burden falls mainly on consumers, whose quantity demanded doesn't fall as much given higher prices.
- Because consumers are less sensitive to price changes, producers can shift most of the tax to them in the form of higher prices.

- Example: Cigarettes. Even when price rises, because of excise taxes, the demand for cigarettes is rather inelastic because consumers are addicted and have no very close substitutes. This enables governments to raise large revenues through taxation, without a drastic fall in consumption levels.

When demand is elastic and supply is inelastic:

- Tax falls mainly on production as consumers can readily substitute or scale back consumption with price increases.
- Firms cannot significantly increase prices without losing lots of sales, so they end up eating more of the tax.
- Example: Short-run agricultural goods. Farmers can't bring in the supply on a dime and if consumers are very responsive to price changes (elastic demand), then producers take on more of the tax burden in the form of lost revenue.

Formula Insight (Simple) A good Tdt estimate is:

- The less elastic market side carries the larger burden of the tax.
- It is that the insensitive side has relatively few options, and so it is less able to escape the tax by changing its behavior.

Policy Relevance

This principle is commonly employed when tax systems are designed by the state:

- Inelastic goods — such as petrol, alcohol, tobacco and some utilities — are often taxed. Such goods are either necessities — that is, things people cannot do without or

find difficult to cut back on when prices go up — or what economists call habit-forming goods: products for which demand doesn't fall all that much as the price goes up.

- In contrast, a heavy tax on economically elastic goods (luxury items or ones with many substitutes) can cause demand to fall sharply as sales drop, the total revenue from the product falls, and potentially an inefficient state develops in the market.

### 3.5.2 Impact of Subsidies

Subsidies are payments a government makes to producers or consumers to supplement the production and consumption of certain goods.

Elasticity and Subsidy Effectiveness:

- A subsidy, which if demand is elastic may lead to a large increase in the quantity demanded.
- When supply is elastic, producers are able to easily increase output in response to subsidies.

Subsidy Outcomes Depend On:

- Elasticity of demand and supply
- How the gain is shared between both producers (higher prices received) and consumers (lower prices paid)

Examples:

- Subsidies for electric vehicles or photovoltaic solar panels spur adoption when demand is elastic.
- In agriculture, subsidies serve to stabilize farm income and ensure supply, particularly in times when prices are volatile.

### **3.5.3 Elasticity in Policy Decisions (e.g., Price Controls, Taxation Policies) – Case Example**

Elasticity analysis is employed by governments when developing optimal pricing regulation, taxation and welfare.

#### Case-In-Point: Rent Control in Cities

In Urbania, the government set maximum rents to ensure that housing would be affordable. But policy-makers did not take into account the elasticity of supply in the short and long term.

- Short Run: Supply is fairly inelastic → no quick jump in housing.
- Long Run: It is no longer profitable to build rental units, and thus there is a shortage of housing.

#### Elasticity-Based Insights:

- Price caps set below equilibrium, in markets having a high price.
- Policies ignoring elasticity could have unintended consequences, such as black markets or a decline in quality.

## Policy Application:

- Elasticity also can be used to predict who will benefit and who will lose — and whether a policy measure is likely to work.

### Knowledge Check 1

#### Choose the correct option:

- 1. Who bears more tax burden when demand is inelastic and supply is elastic?**
  - a) Government
  - b) Producer
  - c) Consumer
  - d) Wholesaler
- 2. What happens when a subsidy is given on a good with elastic demand?**
  - a) Demand stays same
  - b) Demand increases greatly
  - c) Demand decreases
  - d) Supply stops
- 3. Price ceilings in a market with inelastic supply often lead to:**
  - a) Surplus
  - b) Inflation
  - c) Shortage
  - d) Tax cut
- 4. Elasticity helps policymakers to:**
  - a) Set factory wages
  - b) Design trade routes
  - c) Predict policy impact
  - d) Control imports

### 3.6 Summary

❖ Price Elasticity of Demand (PED) is a measure of the responsiveness of quantity demanded to change in price.

❖ Elastic demand means that quantity demanded changes a great deal when price does; inelastic demand means it doesn't change much.

❖ Determinants of price elasticity include:

o Availability of substitutes o Income elasticity of demand o Nature of the good (Mandatory or comfort) o Time horizon.

❖ Price elasticity is measured by:

Percentage method for small changes ♣ Arc method (midpoint formula) for larger changes across the range

❖ Whether elasticity and total revenue are related depends on the demand curve:

o Elastic demand: Price  $\downarrow$   $\rightarrow$  Revenue  $\uparrow$  o Inelastic demand: Price  $\downarrow$   $\rightarrow$  Revenue  $\downarrow$  o Unitary demand: No change in revenue

❖ Cross-price elasticity reflects how demand for a good responds to changes in price of another related one:

o Positive XED  $\rightarrow$  Substitutes o Negative XED  $\rightarrow$  Compliments

❖ The elasticity of income gives us information on how demand varies with income:

o Positive YED  $\rightarrow$  Normal goods o Negative YED  $\rightarrow$  Inferior goods o YED  $> 1$   $\rightarrow$  Luxuries

❖ Elasticity is a central idea in public policy, especially in:

o Tax incidence: Less elastic side bears more burden o Subsidy effect: Depends on elasticity of supply and demand o Price controls: Ignoring elasticity can cause shortages or surpluses

❖ Applications of elasticity in business and government decisions are shown through case illustrations.

### 3.7 Key Terms

Price Elasticity of Demand – Sensitivity of quantity demanded to a change in the price of the good.

Elastic Demand – A demand that is influenced significantly by price.

Inelastic Demand – When quantity demanded does not respond a lot to price changes.

Total Revenue – All the income a seller earns from selling, or Price multiplied by Quantity Sold.

Cross-Price Elasticity of Demand: – The percent change in the quantity of one good demanded as a result of a 1 percent change in the price of another good.

5) If there are no other goods for which one good is a substitute, then cross-price elasticity of demand between them must be positive.

Cross Goods –The goods having negative Cross Price elasticity; the demand for one of them falls when other increases in price.

Income Elasticity of Demand – Measures the extent to which quantity demanded is affected by changing consumer incomes.

Normal vs Inferior Goods – Normal goods have a positive income elasticity; inferior goods have a negative income elasticity.

### 3.8 Descriptive Questions

Define price elasticity of demand. Discuss the factors that influence whether a product is elastic or inelastic.

Distinguish between elastic, inelastic and unitary elastic demand by suitable numerical examples & diagrams.

What is the impact of price elasticity of demand on total revenue? Explain and give example for both inelastic and elastic demand.

Describe the arc formula for price elasticity of demand. What is the advantage over a simple %age expression?

What is cross price elasticity of demand? How such information can taking to discriminate between substitute and complementary goods?

Describe income elasticity of demand. What is its role of in classifying goods as normal, inferior and luxury?

What is the relationship between elasticities, and tax incidence? Discuss using diagrams and examples.

Show how the government uses elasticities when making decisions on policies such as price ceilings or subsidies.

Explain with an example of real corporate world how elasticity helps the business to make pricing decision?

Explain the importance of elasticity when planning subsidies and welfare programs. Why should elasticity be taken into account before policy is designed?

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## Answersto Knowledge Check

### Knowledge Check 1

1. c) Consumer
2. b) Demand increases greatly
3. c) Shortage
4. c) Predict policy impact

### 3.10 Case Study

## Price Discrimination and Market Power in the Online Food Delivery Industry

### Introduction

Online food delivery industry is growing rapidly, especially in the time of and post the COVID-19 outbreak. They experienced an upsurge in orders: on platforms like FoodFleet, MealKart and QuickEats. But as the industry grew up, companies found that they were forced to compete fiercely on price, while development costs kept climbing. FoodFleet, a premier delivery company that had needed to juggle pricing strategy with customer retention. The executives at FoodFleet knew that lowering prices might increase demand, but they weren't confident it would improve revenue. Good questions, but these entrepreneurs also needed to know if their customers were price sensitive (elastic demand) or not as responsive (inelastic demand). They also estimated the income elasticity of demand for customer segments and the cross-price elasticity between their service and competing apps.

The company's marketing and analytics teams started looking into elasticity, or how changes in price or income impact quantity demanded and total revenue. They also analyzed the impact of reduced subscription fees, peak-hour surcharges and government-mandated delivery charges.

### Background

The main question for FoodFleet was how to find out their room to maneuver in pricing without a detrimental effect on sales. Given that there were a number of food delivery providers in the market, it was anticipated that the demand for their services would be elastic. Even modest price hikes would prompt users to try other apps, especially if competitors were offering coupons or free delivery.

In addition, discretionary spending such as online food ordering decreased when the economy was slow. That raised the question of income elasticity — whether demand for their service would fall when people become poorer. Similarly, allowing for the bundling of services with grocery delivery enabled the team to examine substitutes and complements in goods across sub-sectors through cross-price elasticity.

FoodFleet required elasticity-based pricing decisions to ensure it did not lose revenue, yet offered a competitive service.

### Issue 1: Price Elasticity of Demand is Unknown

FoodFleet's managers had no idea how price-sensitive its customers were. If they cut the charges, would more people order and generate more revenue overall?

Solution:

They sliced and diced customers and relied on historical data to measure price elasticity. They found:

- Heavy consumers were price inelastic (relatively unresponsive to prices).
- Part-time users were very elastic, hopping apps for small savings.

FoodFleet applied price discrimination over usage behavior bringing the high-users to highest level of payment and luring low-users with various offers so as not to lose a set of customers.

### Problem 2: Adjusting to Income Changes in Alternative Markets

But as its middle class expanded and more students whose parents fell within different income brackets used the service, income differences started to shape demand.

Solution:

With the aid of income elasticity, FoodFleet:

- Categorized food delivery as a normal good, but very income elastic for both students and low-income users.
- Introduced budget meal combos and student discounts in regions of weak demand during economic slowdowns.

### Problem 3: Competition and Cross-Price Elasticity

FoodFleet experienced a 15% fall in sales when QuickEats began undercutting them.

Solution:

Using cross-price elasticity analysis, FoodFleet calculated how directly its services were competing with other services.

- A positive cross-elasticity showed substitution.
- They fought back with offers valid for a limited time, customer loyalty points and special deals to popular restaurants in an effort to retain market share.

MCQs

What does a high price elasticity of demand mean?

- a) Demand is price inelastic for the consumers.
- b) There is a large price elastic demand for consumers

c) There is no income effect on demand

d) There is a direct relationship between price and demand.

b) price elasticity of demand = Since consumers are very sensitive to a change in price, the coefficient is high.

A good for which the demand continues to fall, even when income falls, is termed as:

a) Luxury good

b) Inferior good

c) Normal good

d) Public good

Answer: c) Normal good

A strong positive cross-price elasticity indicates two goods are:

a) Complements

b) Substitutes

c) Unrelated

d) Inferior

Answer: b) Substitutes

Which part of the case study would elastic demand be most likely to exist? a) New users

b) Budget-conscious users

c) Students

d) Frequent users

Answer: d) Frequent users

Conclusion

This case study emphasizes the relevance of elasticity in pricing, marketing and policy. By fathoming how demand reacts to price, income and substitute goods, firms like FoodFleet can plan their strategies most effectively in order to be competitive and achieve maximum income. Elasticity isn't just an abstraction — it's really useful in deciding what to do.

Student Application Prompts

To further comprehension of elasticity and use the concepts in an active sense:

Calculation Exercise:

o Show on the basis of hypothetical data (for example, a 10 percent price discount leads to a 20 percent increase in orders), how you can compute the price-elasticity of demand for FoodFleet?

o Estimate income elasticity from a 5% decrease in average student income on frequency of orders of them.  $\square$  Cross-price elasticity =  $\frac{\% \Delta \text{in } Q \text{ for FoodFleet}}{\% \Delta \text{ in Price of QuickEats}} \times \text{Price of FoodFleet} = \frac{-8\%}{8\%} = -.25$ .




#### Case Design Activity:

o Write a case study (brief) in your local context (eg. Travis Kalanick @ride-hailing, video attachments impulse subscription platform, grocery delivery).

o Provide one example of a problem including price elasticity, one related to income elasticity and one dealing with cross-price elasticity.

o Make recommendations based on the concepts of elasticity.

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## Unit 4 Firms, Costs, and Market Structures

### Learning Objectives

1. Understand the objectives and behavior of firms, including profit maximization, cost minimization, and alternative business goals.
2. Explain and differentiate between types of costs—fixed, variable, total, average, and marginal costs— and their relevance to production decisions.
3. Analyze the relationship between production and cost in the short run and long run, using cost curves and economies of scale.
4. Distinguish between different market structures, such as perfect competition, monopoly, monopolistic competition, and oligopoly, based on characteristics like number of firms, product type, and entry barriers.
5. Evaluate how firms determine price and output under various market structures to maximize profits or minimize losses.
6. Examine the role of market power and pricing strategies, including price discrimination, in noncompetitive markets.
7. Assess the impact of market structure on consumer welfare, efficiency, and resource allocation in both theoretical and real-world contexts.

### Content

- 4.0 Introductory Caselet
- 4.1 Costs of Production
- 4.2 Average Costs and Cost Curves
- 4.3 Perfect Competition
- 4.4 Efficiency of Competitive Markets
- 4.5 Monopoly and Oligopoly (Brief Overview)
- 4.6 Summary
- 4.7 Key Terms
- 4.8 Descriptive Questions
- 4.9 References
- 4.10 Case Study

#### 4.0 Introductory Caselet

##### "Selvaria's Geopolitical Balancing Act"

###### Caselet:

Selvaria lies on the coast and is located close to major sea lanes of the Indian Ocean. For decades it was a small country with little global influence. However, more recently the two large powers Arvonía and Dravos have been showing some interest in Selvaria. They promised to build ports, modernize its navy and invest in infrastructure. Selvaria was happy to hear this and believed growth would happen immediately.

But soon, tensions rose. Arvonía asked for permission from Selvaria's Emperor to moor its warships, and Dravos wished to be the only one with authority to launch a commercial port. Each of them advised Selvaria to be wary of the other. The Selvaria leadership realized they were being used as a pawn in a larger geopolitical game.

With no clear path ahead To make intelligent decisions, the leaders in Selvaria looked to International Relations (IR) theories for guidance. Realism explained that they did so because great powers always look out for No.1, but if Liberalism was to be believed –and let's face it in the 1990s everyone wanted to believe something had changed – then good things came from cooperation and trade. They also learned Geopolitics, which had taught them that Selvaria's placement on major sea lanes made it strategically important.

With these new perspectives, Selvaria took a balanced approach. It opened up for trade investments, but did not hand over the monopoly control of its ports to any one country. Established symbioses with little neighbors, too; overdependence on Arvonía or Dravos Igrementa could be undone. This plan preserved the sovereignty of Selvaria and provided for controlled expansion.

###### Critical Thinking Question:

How did Selvaria's location create opportunities and challenges for it as a nation, and how did knowledge of IR theories assist its leaders in guarding their national interest?

## 4.1 Costs of Production

### 4.1.1 Fixed Costs

Fixed costs are the constant unit of production during all phases of production. The obligations with which a company must part simply to keep the doors open, even if output is zero. They are unhindered by short-run production considerations.

Key characteristics of fixed costs:

- Do not change in response to volume of goods or services produced. A firm will pay the same rent or insurances when it produces 100 units as it does when producing nothing.
- To be paid even if the firm closes down production temporarily. For example, property taxes and salaries of permanent staff still need to be paid.
- They stay the same over a certain range of output but change in value in the long run when capacity is altered.[6] Eg opening a new factory would cost more fixed costs.
- Distributed across more units as production goes up, lowering the fixed cost per unit and making high-volume production more efficient.

Examples of fixed costs:

- Land or buildings rent also has to be paid irrespective of the volume of production.

- Labour cost of permanent staff like managers and Admins, that remains constant in short run.
- Depreciation of property and equipment, which relates to the systematic allocation of costs for plant and equipment.
- Premiums for insurance of assets and business activities.
- Local taxes on property.

"Fixed costs are just as important to a business as they provide the base commitment needed to run the company. They are the breath on which production operations run and their management plays a crucial role in competitiveness and profitability.

#### Why It Matters for Firms

- **Cost Tracking:** The level of fixed costs is a key concern because they can put financial pressure on you when sales are low. Companies with expensive fixed costs are at greater risk in a downturn, and those that have slimmed down their fixed structures have more flexibility.
- **Break-Even Analysis:** Fixed costs are central to the concept of a break-even point, which is the sales level at which total revenue equals total costs. A knowledge of this threshold ought to assist managers in determining the necessary price, output, and sales targets required for survival and for profit.
- **Strategic Choices:** Fixed costs affect big decisions like the decision to enter or exit a market, increase capacity, build new plants. Firms evaluate if future revenues are sufficient to fund these ongoing commitments before allocating resources.

#### 4.1.2 Variable Costs

Variable costs are related to the quantity of output produced by a firm. The variable cost increase as production goes up because more input is required. Conversely, when production falls, such costs decrease as lesser resources are used. As opposed to fixed costs, variable costs are avoidable since they are incurred only when production occurs.

Output=0 means that the firm does not have to bear this cost.

Key characteristics of variable costs:

- Vary directly with the amount produced: If production doubles, so do the costs of raw materials, packaging and other variable inputs.
- Short-term controllable: Managers have the ability to fine-tune variable costs by adding or decreasing output allowing them flexibility to respond to changes in demand.
- Zero in the case of no output: Variable cost disappears when outputs are paused, because it is directly related to production.
- Related to the manufacturing process: They are the costs of derivatives and services that have a direct impact on production or delivery of goods.

Examples of variable costs:

- Inputs and components: The greater the number of units that a firm produces, the more inputs it has to buy.
- Payroll for temporary, part-time or piece-rate labor: These costs change with production quantities and are separate from those of permanent employees.

- Electricity and machines for fuel: It requires running the machines longer to achieve that extra output, which increases energy costs.
- Packaging costs: Greater output equals higher packaging materials, one package per unit produced.
- Transportation costs: More production means more delivery expenses to transport goods to the market or customer.

Accounting for variable costs is essential because they affect the profitability at various production levels. When firms have high variable costs, their expenses vary significantly when the volume changes, however, for those with lower variable costs can hold constant margins even though production levels may fluctuate.

### Common Pitfall

One common misconception is that all costs of labor are variable. In reality:

- Labor costs that are not fixed, including this temporary workers or part-timers, as well as piece-rate workers employed or paid according to output.
- Fixed labour costs comprises the salaries of staff who are full time, such as manager or supervisor that need to be paid no matter how many units are produce.

This distinction has implications for the correct classification of costs, break-even analysis and decision-making.

### Did You Know?

“Variable costs are the most flexible part of production expenses because they rise and fall directly with output. For example, if a factory doubles production, its raw material costs also

double. Unlike fixed costs, they can be controlled quickly, making them vital for short-term decision-making.”

#### 4.1.3 Average of Total Costs (Fixed + Variable)

The total cost is the sum of expenses spent in achieving a particular output level. It breaks down into two parts: fixed costs (those that remain constant irrespective of production levels) and variable costs (which vary directly with the amount produced). This joint measure is one of the most valuable tools for firms since it offers an accurate depiction how much they need to spend to produce in different scales. Formula:

$$\text{Total Cost (TC)} = \text{Total Fixed cost (TFC)} + \text{Total Variable cost (TVC)}$$

#### Key Points about Total Costs

- Full cost picture: The total cost includes both fixed and variable sides of the firm’s overhead, permitting firms to assess full costs associated with operating at a specified output level. Fixed costs are the things a business must pay even if it doesn’t produce anything — like rent, salaries or insurance — while variable costs are those that fluctuate depending on how many goods a company makes.
- Output-related behavior: Fixed costs do not vary with output equal to zero or very high and remain at the same level. Thus, variations in total cost are due exclusively to differences in variable costs. For instance, the price of raw materials, electricity and packaging are increasing with a higher production volume and these increases would be considered when calculating the total cost.
- No production case: when a firm’s output level is zero, then the firm won’t have any variable costs but it will still have to pay its fixed costs (such as rent, insurance etc.). Therefore when output = 0, total cost is nothing but total fixed cost.

- Increasing returns to scale: If production is expanded, the total cost will rise at a constant rate. This increase may be linear (if variable costs per unit are constant) or non-linear (if variable costs per unit depend upon the volume caused by efficiency improvements or bottlenecks).
- Pertinence de la prise des décisions : Le fait de connaître le coût total aide les gestionnaires à établir un prix, déterminer la rentabilité et fixer l'envergure des opérations. It enables firms to do break-even analysis — to see the minimum number of sales necessary just to cover all costs.

### Example

If the expenditure is a fixed cost, eg; if a company must pay ₹10,000 every month for rent. It also lays out ₹50 on raw materials and packaging for each unit it makes. If the company manufactures 100 units of its product, the variable cost will be ₹5,000 (100 × ₹50). Total Cost: The aggregate cost is the summation of fixed and variable costs; 3.

$$TC = ₹ 10,000 + ₹5,000 = ₹15,000$$

This is an illustrative example of how total cost includes unavoidable baseline costs in addition to output-based costs.

### Numerical Illustration

Output (units)	Total Fixed Cost (TFC)	Total Variable Cost (TVC)	Total Cost (TC = TFC + TVC)
0	₹10,000	₹0	₹10,000
50	₹10,000	₹2,500	₹12,500

Output (units)	Total Fixed Cost (TFC)	Total Variable Cost (TVC)	Total Cost (TC = TFC + TVC)
100	₹10,000	₹5,000	₹15,000
150	₹10,000	₹7,500	₹17,500
200	₹10,000	₹10,000	₹20,000

Interpretation of the table:

- TFC is ₹10,000 at any level of output. This represents expenditures that the firm must pay even if it doesn't produce anything.
- TVC increases proportionally with output. For 50 units, it is ₹2,500; for 100 units, ₹5,000 and so on. That's money associated specifically with production itself.
- TC gradually increases with output since TVC is based on the fixed outlay. At zero output,  $TC = TFC$  (₹10,000). And at 200 units of production, TC rises to ₹20,000.

### Why Understanding Total Costs Matters

For companies, the analysis of total costs is crucial for:

Pricing decisions -- Managers are required to use prices  $> AVC$  for achieving profits.

12) A profitability analysis which shows the total costs and the total revenue, allowing firms to determine their actual profit or loss at different levels of production.

Output planning: Since we know how total cost varies with output, managers can determine the most efficient amount of plant usage.

Risk management: Companies with high fixed costs and an increase in total costs need to maintain sales flow, while those with lower costs can be more flexible in a downturn.

#### 4.1.4 Average Fixed Cost (AFC)

Average Fixed Cost is fixed cost relative to the quantity of output. It is the amount of fixed cost allocated to each unit produced.

- Formula:

Key characteristics of AFC:

- o With an increase in output, AFC falls because any given total fixed must be divided by more units.
- o The AFC curve is always downwardsloping, but will never actually touch the horizontal axis, since fixed costs never fall to zero.

- o Aid in determining the distribution of cost and efficiency of material utilization.

- Example:

- o If the fixed cost is ₹10,000 and 100 units are produced by a company then:

- o If production is increased to 200 units, then:

This shows that, by increasing output, firms can cut down their fixed costs per unit and it reduces the incentive to reduce production in order to minimize costs.

## 4.2 Average Costs and Cost Curves

### 4.2.1 Average Variable Cost (AVC)

AVC is the 'cost per unit of output'. It tells us how much of the variable expense (raw materials and labor, for example) is connected with making a single unit.

- Formula:

o Characteristics:

- Falls at first with a rise in output because of improved use of resources.
- After going down to a minimum level, AVC begins rising due to the operation of the law of diminishing marginal returns.

The AVC curve is U-shaped.

o Example:

If the variable cost is ₹5,000 for 100 units:

### 4.2.2 Average Total Cost (ATC)

Average Total Cost: It is the cost per unit output. It is a summation of the fixed and variable costs for each unit.

- Formula:

- Key Points:

- ATC curve is also U-shaped.
- ATC is high at low levels of output because Fixed cost are spread over fewer units.
- As output increases, ATC decreases because the fixed costs are being spread out and there are economies of scale.

Beyond the efficient scale, ATC increases as a result of diseconomies of scale.

- Relation to Other Costs:

#### 4.2.3 MC and It's Significance

marginal cost (MC): the additional or extra cost of producing one more unit of output.

- Formula:
- Importance of Marginal Cost:

Finds the optimal emission level under both short-run and long-run situations.

- Prices and production decisions in perfectly competitive markets is guided by.
- Plays an important role in profit maximization: firms equate  $MC = MR$  (marginal revenue).
- Helps to account for cost efficiency and resource allocation.
- Example:

If the cost for 10 units is ₹1,000 and for 11 units it is ₹1,100:

#### 4.2.4 Shapes of Cost Curves and Their Economic Meaning in Perfectly Competitive Market

In

AVC and ATC Curves: U- Shaped because of the law of variable proportions. Both at first lower with more efficient use of resources, and then rise as declining marginal returns set in.

AFC Curve: It is always negatively sloped as the fixed costs are spread over a larger number of units produced for a given range of output.

MC Curve is U shaped and always intersects AVC & ATC at their lowest point.

#### Economic Meaning in Perfect Competition

- Firms produce where  $MC = MR$  (price).
- Break-even output, the profit-maximizing level of output, and the shut down point are determined by cost curves.
- In the long run, productive firms produce at the point where ATC is a minimum – that is to say, at the lowest level where normal profits are earned.

#### Student Activity Prompt

Graph the following cost curves on a single graph:

- AFC, AVC, ATC, and MC.
- Identify the break-even point (where  $P = ATC$ ), the profitable region (where  $P > ATC$ ) and loss region (where  $p < AVC$ ).

Locate the shutdown point (where price = RMC at minimum).

This exercise also serves to stress the application cost curves have in the firm's decision-making process.

#### Error Alert

There is a usual confusion about "why does MC cut ATC and AVC at their minimum points". It's a matter of math and economics:

- If MC > ATC (or AVC), it raises the average; hence the curve is rising.
- Thus: MC = ATC (or AVC) only where the slope of the curve is changing direction.

#### 4.2.5 Demand under Perfect Competition & Short Run Profit Maximisation – Exhibit 01, 02, 03

- Demand Curve in Perfect Competition:

o Price elastic (horizontal) at the equilibrium price. o One firm is a price taker, not a price maker.

- Short-Run Profit Maximisation:

o Condition: MC = MR = Price.

o If price > ATC → firm makes super normal profit.

o If price = ATC → firm is just covering costs (breaking even).

o If Price < AVC → loss making firm otherwise continue in the short run.

• Exhibits:

o Show 01: The firm makes extranormal profits when  $AR > ATC$ . o Exhibit 02: Firm breakeven when  $AR = ATC$ .

o Exhibit 03: Firm is making negative profits when  $ATC > AR > AVC$ .

#### 4.2.6 Minimise Short Run Losses – Exhibit 04, 05

Even in perfect competition, firms can experience short-term losses when demand is low or costs are high.

• Options for Minimizing Losses:

Continue to operate: So long as  $AR$  is greater than  $AVC$ , a firm will be paying off the variable costs and some of fixed costs, thus resulting in whittling down losses.

Shutdown in the Short Run: If  $AR < AVC$ , but  $ATC > AR$ . o Exhibit 05: Firm stops operating when  $AR < AVC$ ; that cannot even meet its variable costs.

“Activity”

Draw the cost curves ( $AFC$ ,  $AVC$ ,  $ATC$ , and  $MC$ ) on a single graph. Mark the points where  $MC$  cuts  $AVC$  and  $ATC$  at their minimums. Then, using another diagram, show how a perfectly competitive firm maximizes profit or minimizes loss by comparing  $AR$  (price) with  $ATC$  and  $AVC$ .

## 4.3 Perfect Competition

### 4.3.1 Characteristics of Perfectly Competitive Markets

Pure competition is an ideal market structure that has never been realized in practice. In this exchange, there is no monopsonistic/monopoly power and the price establishes solely based on demand and supply. • Detailed Characteristics:

o Many buyers and sellers:

Each seller contributes an infinitesimal amount to the total market supply and each buyer an infinitesimal amount to the total market demand. This then means that one participant has no control to the price. The vast number of market players results in a cutthroat competition where one player's behavior cannot significantly influence the rest of the market.

o Homogeneous products:

All the firms in the market produce identical products in every respect —both of quality, 78 L.

appearance, and functionality. There is no product differentiation between the products of various sellers, consumers do not have brand loyalty and they are free to move from one seller to another. This enables a convergence in the flatness of pricing strategies in the presence of perfect competition.

o Price takers:

Under perfect competition, the firm has no influence over price. They are "price takers," that is, they take the equilibrium price as given by overall demand and supply. If they charged more the going rate, no one would buy from them; if less, they'd lose money.

o Perfect knowledge:

Both buyers and sellers are fully informed on current prices, quality of the product produced (quality is identical for all producers), and production technology. It is this transparency that means no company can take advantage of information asymmetries or charge excessive prices.

o Free entry and exit:

There are no major legal, financial or technical impediments to prevent companies from entering and exiting the industry. This attribute ensures that abnormal profit (or loss) in the short term is competed away and as new firms enter (or leave) the market, long run economic equilibrium will be established.

o Perfect mobility of factors:

All inputs in the process of production — labor, capital and raw material — are infinitely mobile. This suggests that such resources can be efficiently and quickly transferred between industries in response to changing market conditions or profit incentives.

o Absence of government intervention:

In theory there are no barriers to entry, so no firm makes super-normal profit. All prices are set by the free market; there are no price controls, subsidies, tariffs or other improvisations.

• Example in practice:

Complete competition is just theoretical, but there are some situations in real markets, where it comes close.

A common one is the markets for agricultural products like wheat, rice, or corn. These goods are supplied by many farmers, they are fairly homogeneous and the prices in which they are traded is established according to general supply vs. demand rather than spot prices of individual sellers”.

**Expanded Comparison of Market Structures**

Feature	Perfect Competition	Monopoly	Oligopoly
<b>Number of firms</b>	A very large number of firms operate in the market. Each firm is small relative to the total market output and has no market power.	Only one firm exists in the market, supplying the entire output and exercising significant control over price and output decisions.	A few large firms dominate industry. Each firm substantial market share creating mutual interdependence.
<b>Type of product</b>	All firms produce an identical or standardized product. There is no product differentiation, which eliminates consumer preference for one firm over another.	The monopolist offers a unique product with no close substitutes available in the market. This uniqueness may arise from legal protection, brand dominance, or control of essential resources.	Products may be either homogeneous (e.g., steel, cement) or differentiated (e.g., automobiles, electronics), depending on the industry structure.
<b>Control over price</b>	Firms have no control over the price; they are compelled to accept the market-determined equilibrium price.	The monopolist is a price maker and has significant control over setting the price by manipulating supply. However, demand still places limits on pricing power.	Firms have some degree of pricing power but are constrained by the actions of rival firms. Price wars and collusion may influence pricing strategies.
<b>Barriers to entry and exit</b>	There are no significant legal, financial, or technological barriers to entry or exit, enabling firms to respond freely to profit signals.	There are high barriers to entry, which may include legal restrictions (patents, licenses), large capital requirements, or control over essential inputs.	Entry barriers exist, though they are not as prohibitive as in a monopoly. These may include economies of scale, brand loyalty, or regulatory hurdles.

Feature	Perfect Competition	Monopoly	Oligopoly
<b>Availability of information</b>	All participants have full and perfect information regarding prices, product quality, and production methods.	Consumers often have incomplete or asymmetric information, and the monopolist may withhold or distort information for competitive advantage.	Information may be imperfect with firms engaging in strategic behavior such as advertising, product differentiation, limited disclosures.
<b>Long-run economic profit</b>	Firms earn only normal profits in the long run as new entrants erode short-run abnormal profits due to free entry.	The monopolist can sustain long-run economic profits due to high entry barriers and lack of competition.	Firms can potentially earn long-run profits if entry barriers prevent new competitors from entering the market.
<b>Examples</b>	Agricultural commodity markets (e.g., wheat, rice, corn), stock exchanges.	Public utility companies (e.g., water supply, electricity distribution), patented drugs.	Automobile industry, airline industry, telecommunications sector, consumer electronics.

### 4.3.2 Entry and Exit of Firms

The competitive move of entry/exit maintains the market in a contestable state and brings the industry toward long-run equilibrium.

- Entry of Firms:

- o When firms earn super-normal (abnormal) profits in the short period, it will be a signal to new potential competitors.

- o There are new entrants into the sector that add to the supply. o This rise in supply puts downward pressure on the equilibrium price.

- o Entry proceeds until all firms make a normal profit (i.e.  $AR = ATC$ ).

- Exit of Firms:

When firms make continuous losses, they finally go out of the intervention.

- o Exit also decreases the supply so that equilibrium price rises.

- o Firms left over are making a normal profit.

- Key Point:

Entry and exit implies that in the long run no firm is making supernormal profit or loss, only normal profit exists.

#### 4.3.3 The Rule of Profit Maximization (MC=MR)

The profit maximizing goal for a firm operating under perfect competition is the main objective. The rule derives from marginal cost (MC) and marginal revenue (MR) comparison.

- Steps to Determine Output:

- o Firms' equate MR with MC. o If  $MC > MR$ , then producing more will cause the total profit to be lower.

- o There,  $MR = MC$  and this is where the firm produces that output at which its profits are maximized (it losses are minimized).

- Graphical Explanation:

o U-shape of the MC curve is usually observed. o The MR curve is the horizontal line which is straight from the market price.

o The firm's profit-maximizing output is given by the level of MC curve at which it intersects the MR line from below.

- Illustration:

If the price,  $P = ₹20$  and when output is 100 units  $MC = ₹20$ , hence the firm is producing the profit-maximizing output.

#### 4.3.4 Short-Run vs Long-Run Outcomes

##### Short-Run Outcomes:

In the short period, firms cannot change all inputs, and fixed costs are unchanging. It permits three possible results:

##### Supernormal Profits ( $AR > ATC$ ):

o At high demand and price, firms are able to cover all costs and obtain supernormal profits.

o Example: A wheat producer who is selling at high world prices may be making above normal profits.

##### Normal Profits ( $AR = ATC$ ):

o At total revenue equals total cost, the firm simply breaks even on what it pays out to cover explicit plus implicit costs.

o The firm firms exist but there are no supernormal profits.

Losses ( $ATC > AR > AVC$ ):

o The company cannot cover all costs but can cover variable cost. o It produces in the short run to minimize losses by not shutting down (while shutting down means that it incurs FC totally and permanently).

Shutdown Case ( $AR < AVC$ ):

o If the firm doesn't generate enough revenue to cover its variable cost, it shuts down in short-run.

Student Prompt:

For each of the above four short-run situations, place your result in a cost graph that includes AR, AVC, ATC and MC. Is the firm earning a profit, breaking even, or suffering a loss? Explain.

Long-Run Outcomes:

"Ultimately, all costs are variable and companies can adjust their level of production." Most important, free entry and exit rule out profits or losses.

• Key Points in Long-Run Equilibrium:

o Firms produce where  $P = MC = MR = ATC$ . o There is no profit earned except normal profit; supernormal profits are competed away by entrants. o Inefficient firms leave the market.

o Perfect competition achieves both:

- Allocative efficiency: Resources go to the goods most wanted by society ( $P = MC$ ).
- Productive efficiency: Firms are at the low point of ATC.
- Illustration:

Over the long term, whatever gains are made by wheat growers may be frittered away when higher world markets prompt a greater number of farmers to commit acreage to winter wheat.

Student Prompt:

Draw a long-run equilibrium cost graph for the perfectly competitive firm and indicating  $P = MC = MR = ATC$  where they are at their lowest. Show where allocative and productive efficiencies will be present.

### Knowledge Check 1

**Choose the correct option:**

1. Which of the following is a key feature of perfect competition?
  - a) Differentiated products
  - b) Price making power
  - c) Homogeneous products
  - d) Government price control
2. In perfect competition, a firm is a:
  - a) Price taker
  - b) Price maker
  - c) Monopoly
  - d) Oligopoly

3. Profit is maximized when:
  - a)  $AR = ATC$
  - b)  $MC = MR$
  - c)  $AVC = AR$
  - d)  $TR = TC$
4. In the long run under perfect competition, firms earn:
  - a) Supernormal profit
  - b) Normal profit
  - c) Losses only
  - d) Unlimited profit

#### 4.4 Efficiency of Competitive Markets

##### 4.4.1 Productive Efficiency

Efficient product occurs when a firm produces goods at the lowest cost per unit of output, so that it can minimize waste and fully utilize resources. Competitive firms can not achieve this in the short run, but they will do so in the long run due to Firms free entry and exit where price equals minimum ATC.

- Key Features:

- o Takes place when output is being produced at the least ATC.
  - o Firm use resources efficiently.

- o No spare capacity or being unable to use more inputs.

- o Naturally is reached under perfect competition in the long run.

- Formula Condition:

- Illustration:

However, from the perspective of whether resources are being used efficiently or not, if a firm makes 1,000 units at an average cost of ₹50 per unit and can reduce that to ₹40 by expanding production volume then it is still productively inefficient.

#### 4.4.2 Allocative Efficiency

Allocative efficiency is when resources are used to produce a combination of products that society most desires. This is to say that the goods and services produced reflect people's preferences, and no one can be made better off without making someone else worse off.

- Key Features:

- o Optimal condition occurs when the price which consumers are prepared to pay (P) is equal to marginal cost of production (MC).

- o Ensures that resources will be devoted to items people want the most.

- o Prevent both underproduction (too little resources supplied) and overproduction (excess resources provided).

- Formula Condition:

$$P=MC$$

- Illustration:

If consumers value a good at, say ₹100 but its marginal cost of production is only ₹80, more output would make everyone better off up until  $P = MC$ . Also, if  $MC > P$ , then producing less would increase efficiency.

- Real-World Example – Agricultural Pricing:

Consider the market for wheat. Or an additional cost to the government arises when it fixes a minimum support price (MSP) for wheat higher than the marginal cost, in this case farmers may “overproduce” wheat and thus there is allocative inefficiency. In contrast, in a perfectly competitive agricultural sector where there are no price floors  $P = MC$  might occur as things naturally turn out and the production of wheat satisfies consumer desire; here, we have allocative efficiency.

- Real-World Example – Utility Rates:

Among regulators of the electric sector, it is frequently desired to charge marginal costs in order achieving allocative efficiency. Suppose, for example, that it costs the utility ₹5 per kWh to generate electricity at peak consumption, and if customers are also willing to pay ₹5 for each additional kWh then a price of ₹5/kWh is deemed optimal. Overcharging (e.g., ₹8) may lead to under consumption inefficiently, while undercharging (e.g., ₹2) could induce people to consume more and breakdown the system.

4.4.3 The Role of Competition in Efficiency We must first look for the direct impact that increased competition has on efficiency gains.

Competition is a fundamental element in guaranteeing that markets work properly by forcing firms to maximize their production process and the use of resources.

- Promotes Productive Efficiency:

- o Fierce competition between businesses forces them to be more productive and cost-effective.

- o Inefficient firms which cannot meet cost structures are driven out of the market.

- o Long run firms live at the minimum of ATC curve, where inputs are optimally utilized.
  
- Promotes Allocative Efficiency:
  - o Price (P) = MC in perfectly competitive markets.
  
  - o The firms supply/output whatever amount consumers want to buy at current market price.
  
  - o Which, in turn, it implies that the resources are allocated exactly in the right devices for which consumers value them and no more or less than that.
  
- Dynamic Efficiency (Indirect Effect):
  - o Even if the dynamic efficiency with perfect competition is not a major feature, this does not mean that firm are not encouraged to innovate and use new forms of production.
  
  - o However, due to the fact that in perfect competition firms only earn a normal profit In the long run, there are limited incentives for large scale innovation (especially those which need a high level of investment and time) as would be found under monopolistic or oligopolistic market condition where firms can make supernormal profits over an extensive period.
  
- Conclusion within this concept:

Competitive markets, especially perfectly competitive ones, at equilibrium operate with both efficiency effecting productive and allocative efficiency in the long run.

Hence, pure competition is said to be socially desirable in terms of economic efficiency.

Higher-Order Thinking Prompt:

Why is the perfect competition not conducive to innovation, although it is efficient in production and allocation?

(Hint: consider profit margins, incentives to take risk, and the obstacles to funding R&D in such a market structure.)

## 4.5 Monopoly and Oligopoly

### 4.5.1 Characteristics of Monopoly

A monopolist arises when a single firm has full control of a product or service in such that there are no close substitutes. The monopolist has considerable pricing power, yet this power is limited by consumers' willingness to pay.

- Key Characteristics:

- o Single seller:

A single firm supplies the entire market and is therefore the sole provider of a good or services.

- o No close substitutes:

No substitute good or service is available to consumers which can satisfy that same need.

- o Price maker:

The monopolist influences the price it can charge. But it can't charge whatever the hell it wants, because consumer demand still affects the amount sold.

- o Barriers to entry:

The existence of legal (patent), technological (proprietary know-how), or financial (economies of scale) barriers to the entry makes it difficult for other firms to produce in that market.

o Downward-sloping demand curve:

Contrary to perfect competition, the monopolist sees the market demand curve. If it wants to sell more units, however, the price must be reduced; this gives rise to a trade-off between the price and quantity.

o Possibility of long-run supernormal profits:

With high entry barriers, the monopolist can continue to make supernormal (abnormal) profits in the long term and no other firms are able to enter.

- Applying these principles in real-world – a case study of Local Power Utility:

In many areas, Tata Power Delhi Distribution Limited (TPDDL) is a monopoly in power supply. Because duplicating the infrastructure is inefficient, the government gives such firms exclusive rights and makes them natural monopolies.

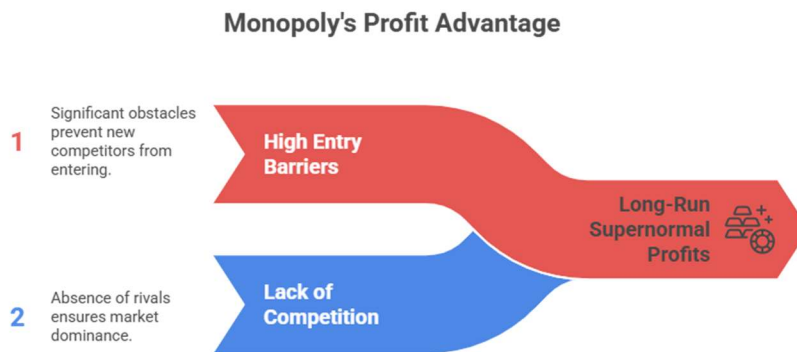
- Price Discrimination

A monopolist can practice price discrimination: charging different customers different prices for the same product.

the same product—whether willing to pay, location or usage behaviors. This enables the firm to appropriate greater share of consumer surplus and, possibly, generate higher profit.

- Examples:

Electric and Water Utilities and National Railroad Services Many countries have electricity, water and national rail services that are provided under monopoly conditions.



#### 4.5.2 Characteristics of Oligopoly

Oligopoly A market structure where a small number of large firms control the industry. These companies depend on each other decisionwise; that is, the actions of a company greatly affect those of one, or both, of the others. Oligopoly firms can either compete aggressively or collude in their own interest.

- Key Characteristics:

- o Few dominant sellers:

A small number of big companies dominate the supply side of the market. These firms are large enough to have some market power and yet have threats from other firms.

- o Interdependence:

Because firms are relatively small in number, one firm's pricing, output or marketing decision affects competitors directly. Firms therefore need to predict rival reactions before they take their strategic steps.

o Barriers to entry:

Potential to enter oligopolistic industries is constrained by capital costs, e.g. permission granted or denied required to launch a large firm and investment i.e. opportunity costs incurred waiting for entry.

distribution systems, brand loyalty, or economies of scale that shield established companies from new rivals.

o Product differentiation:

Good can be homogeneous, as in steel or cement industry, or differentiated form, like automobile industry, telecom industry and airline etc.

o Possibility of collusion:

Firms can either formally (e.g., through cartels) or tacitly collude in setting prices, restricting output, or splitting markets. Collusion undermines competition and raises prices for consumers.

o Non-price competition:

Price wars can be destructive, so organizations frequently compete with advertising, branding, customer service, loyalty programs and other non-price competition.

• Strategic Behavior under Oligopoly:

By adopting a specific decision rule, what we can display is strategic behavior to some extent. Firms have to predict the response of others and may apply decision making tools from game theory like the Prisoner’s Dilemma for modeling behavior.

Strategies include:

- o Price stickiness (e.g., kinked demand curve theory),
- ☒ Retaliatory pricing (e.g., matching price cuts but not raises), ☒ Collusive pricing arrangements, and ☒ Mergers or partnerships that serve to restrict competition.

• Examples of Oligopoly:

o Telecom – Most countries telecom market players are limited, large players (e.g., Reliance Jio, Bharti Airtel Vodafone Idea).

o Airline Sector: For instance airlines like IndiGo, Air India and SpiceJet in India or large carriers such as Delta, United and American Airlines in the US serve an oligopolistic market.

o Auto industry: Global car makers drive market share with the need to work together.

### 4.5.3 Comparison with Perfect Competition

Feature	Perfect Competition	Monopoly	Oligopoly
<b>Number of firms</b>	Many small firms	One single firm	Few large firms
<b>Product type</b>	Homogeneous	Unique, no close substitutes	Homogeneous or differentiated
<b>Price control</b>	No control, firms are price takers	High control, firm is price maker	Limited; influenced by rivals
<b>Entry barriers</b>	Free entry and exit	Very high	High

<b>Profits in long run</b>	Normal profit only	Supernormal profit possible	Supernormal or normal profit depending on rivalry
<b>Efficiency</b>	Productive and allocative efficiency achieved	Inefficient ( $P > MC$ , restricted output)	Often inefficient; depends on competition

#### 4.6 Summary

❖ Costs of Production (4.1):

- o If output is zero, fixed cost never changes.
- o Variable costs vary by the level of activity.
- o Total cost = Total Fixed Cost + Total Variable Cost.
- o Average Fixed Cost (AFC) falls as the output raises.

❖ The Average Cost and the Curve of Costs (4.2):

- o AVC: Variable cost per unit; U-shaped – Declining returns 11.
- o Average Total Cost (ATC) = AFC + AVC; is also U-shaped.
- o Marginal Cost (MC) is the cost of one additional unit of production; Profit maximization is where  $MC = MR$ .
- o Under perfect competition, MC intersects AVC and ATC at their lowest points.
- o In SR profit maximizing firms compare AR with ATC and AVC.
- o Short run & long run profit maximizing models
- o In short it's the extent as to which a producer minimize loss in its operations irrespective of whether or not they are working under competitive pressure
- o Minimization of losses in Long-run : Loss can be minimized if  $AR > AVC$  but  $MC$  (hence inefficiency) and less output.
- o Oligopoly: few big firms, mutual dependence in decision making, barriers to entry, non-price comp, can collude or entertaining rivaes.
- o Contrast with perfect competition: efficiency and normal profits in the long run under perfect competition; inefficiencies and higher prices are likely to be generated by monopoly and oligopoly.

#### 4.7 Key Terms

Fixed Costs (FC): Those costs that do not change with changes in the level of output.

Variable Costs (VC): The costs that vary consistently with changes in the level of output.

Total Cost (TC): The sum of fixed costs and variable costs when output is a certain level.

Average Fixed Cost (AFC): The fixed cost per unit of output:  $AFC = TFC/Q$ .

Average Variable Cost (AVC): The variable cost per unit of output, or  $TVC \div Q$ .

Average Total Cost (ATC): Total cost per unit of output obtained by dividing TC by Q.

Marginal Cost (MC): The cost of producing one more unit output.

Allocative Efficiency: Price numerically equals marginal cost ( $P = MC$ ), allowing for optimal resource allocation.

Productive Efficiency: Producing goods at the lowest cost (min. ATC).

Perfect Competition: A market with a large number of sellers, undifferentiated products, and no influence over price.

Barriers to Entry: Factors which make it difficult or costly for a producer to enter an industry, including high start-up costs, legal restrictions, patents and economies of scale.

Collusion: A formal or tacit agreement between firms to reduce competition, often by regulating the levels of price or output. Common in oligopolistic markets.

Price Discrimination: A pricing approach in which a firm sets different prices for the same good or service to exploit differences among diverse formats of consumers. Common in monopolistic markets.

#### 4.8 Descriptive Questions

Discuss fixed and variable costs with examples. How do U-shaped AVC and ATC curves reflect these attributes?

What is marginal cost and why the  $MC=MR$  condition is critical for profit maximization?

Illustrate in the form of a diagram, what are the short-run profit or loss positions of a firm under perfect competition?

Differentiate between short term and long term results under perfect competition.

Describe what is meant by productive and allocative efficiency, and explain how they are achieved in perfect competition.

Describe how the free entry and exit of firms lead to long-run equilibrium in perfect competition.

Compare among Monopoly, Oligopoly & Perfect competition on the basis of certain key aspects.

List the characteristics of an oligopoly and describe how interdependence affects firm behavior.

Why can a monopolist make supernormal profits in the long run but not a perfectly competitive firm?

Calculate ATC, AVC and AFC and MC for a firm with the following cost and output data.

With an example of increasing price of wheat, describe short-run profits and long-run adjustments in case perfect competition.

Describe how a monopoly (e.g., an electric utility) might use price discrimination.

From the given output and total cost data, find MC, ATC, and AVC and determine where  $MC = ATC$ .

What are rival firms likely to do in oligopoly if one firm drastically cuts its prices? Use strategic reasoning.

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Answers to Knowledge Check

**Knowledge Check 1**

1. c) Homogeneous products
2. a) Price taker
3. b)  $MC = MR$
4. b) Normal profit

Case Study: EcoBrew Pvt. Ltd.

**Cost Structures and Market Forms**

EcoBrew Pvt. Ltd., which started its operations in Pune in 2020, is one of the first entrants in the packaged organic beverage industry. In the beginning, EcoBrew operated in a highly competitive market with many sellers. It expanded operations due to high demand, leading to fixed costs such as factory rent and machinery and variable costs such as raw fruits, labor, packaging. In the short run, the firm realized supernormal profits as  $AR > ATC$ . However, after new entrants into the market increased supply, the equilibrium price lowered, and by 2023, EcoBrew realized normal profits as  $P = ATC$ . In a few more years, the market form transformed to an oligopolistic structure as only a few firms emerged winners in the intense competition. These firms differentiated their products using non-price competition and survived years of price wars and periods of collusion. Today, EcoBrew closely competes with three firms. This case demonstrates how various cost structures and market forms influence firm production, pricing, and survival decision-making in the short run and long run.

Practical Exercise Instructions:

Answers to be provided in small groups. Diagrams and short written explanations where necessary.

What are EcoBrew's fixed, variable, total, and average costs from the case?

Develop cost curve and identify a profit-maximizing point.

Explain EcoBrew's evolution from perfect competition to oligopoly.

Can EcoBrew achieve allocative and productive efficiency in the market today?

Answer Checklist / Rubric

Task Key Points to Include

Identify EcoBrew's fixed, variable, total, and average costs from the case.

What are the fixed and variable costs and examples, total cost which equals  $FC+VC$ , average cost which can be calculated as  $TC/output$ .

Task Key Points to Include

Develop cost curve.

AFC, AVC curves, ATC, MC, the profit-maximizing point,  $MC = MR$  mark, indication of the profit area if  $AR > ATC$ .

Market Key Points to Include




Explain EcoBrew's transition from perfect competition to oligopoly.

Identify the main characteristics of perfect competition and oligopoly; the reasons behind the migration to the latter market form.

. Key Points to Include

Discuss whether EcoBrew can achieve allocative and productive efficiency in the market today.

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## Unit 5: Measuring a Nation's Income (GDP)

### Learning Objectives

1. Define GDP: Comprehend Gross Domestic Product as the aggregate market value of all final goods and services produced in a country during a specified amount of time
2. Contrasting Measures: Distinguish between nominal and real GDP, and explain why we adjust for inflation.
3. Exercise Components: Try to understand expenditure method of GDP calculation.
4. Comp-Income Approach: Describe how to also calculate GDP by adding up factor incomes
5. (wages, rent, interest, profit).
6. Assessing Production vs. Welfare: Understand the shortcoming of GDP as a measure of the nation's economic health.
7. Compare Among Nations: Use GDP to compare economic performance for different countries and across time.
8. Distinguish GNP from GDP: Show the distinction between Gross National Product (GNP) and Gross Domestic Product (GDP).
9. Apply Ideas: Assess basic scenarios to compute GDP through the expenditure, income and production methods.

### Content

- 5.0 Introductory Caselet
- 5.1 Definition of GDP and Its Components
- 5.2 Nominal vs. Real GDP
- 5.3 GDP Deflator
- 5.4 GDP as a Measure of Well-being and Limitations
- 5.5 Summary
- 5.6 Key Terms
- 5.7 Descriptive Questions
- 5.8 References
- 5.9 Case Study

### 5.0 Introductory Caselet

## “Economic Development Theories”

Lumeria: Ruchno’gan population: 29,000,000 (2004 EY estimate) Resources: Ores and oil  
Description of industrial sector Lumeria is an emerging economic powerhouse with vast mineral deposits and oil reserves. Soon investors from around the world began to express interest in investing there. A few brought technological innovations for mining; others offered employment for the Lumerians, while some proposed monopolistic deals to regulate access to Lumeria's resources. This initially seemed to be a golden opportunity for fast growth.

But before long, the government of Lumeria noticed an issue. Going full tilt for one company or country would also mean ceding sovereignty over its resources. On the other hand, declining partnerships could retard its economic growth. Lumeria was caught “between the lure of quick profits, and the fear of dependence”.

Policymakers looked towards Economic Development Theories in order to make informed decisions. Dependency Theory cautioned against relying too heavily on foreign investment, which would leave Lumeria underdeveloped, whereas Modernization Theory emphasized adopting new technologies and industries to develop. They also studied Sustainable Development Principles, which focused on the idea of using resources in a way that would not compromise the ability of future generations to meet their needs.

We used these concepts and developed a well-rounded tactic." It invited many investors but retained ownership of essential assets. It emphasized sustainable means of extraction, and it spent profits on education, healthcare and infrastructure. In this manner, Lumeria secured long-term growth and escaped exploitation to raise the standards of living within the country.

### Critical Thinking Question

Why was it essential for Lumeria to manage foreign investment with resource sovereignty? In what ways does accurate measurement of GDP and national income assist policy makers in evaluating the true effect of such development strategies on aggregate growth and welfare?

## 5.1 Definition of GDP and Its Components

### 5.1.1 Concept and Definition of GDP

Gross Domestic Product (GDP) is the standard by which we measure a country's economy; it represents the total, monetary value of all goods and services produced within a nation in one year. It is equal to the total surplus available in a particular year. Because it measures aggregate production of new goods and services, invariably, its value at least equivalent to a nation's GDP. It is GDP that provides a common standard against which the size, performance and relative strength of national economies are measured – not just by economists but also by policymakers and international organizations like the World Bank or International Monetary Fund IMF (and the United Nations UN ).

GDP is a measure of production (because it tells us how much a country has produced — in terms of goods and services); it also serves as an indicator of potential welfare (it indicates how the standard of living would go up if production went up). It's not a measure of all social welfare, but the closest thing to a single measure of an economy's success.

#### Key Aspects of GDP

##### Geographical boundary:

GDP reflects all production that occurs inside a country even if the producers are foreign control companies and not domestic firms. If an American company owns a steel mill in India, its output is included in Indian G.D.P. (as the steel is produced within the country), not American G.D.P.

##### Time-bound measure:

GDP is measured over a time period such as a quarter or a year's duration that permits short-run fluctuations and longrun trends to be monitored. This allows for comparisons of economic activity across time, e.g., "India's GDP grew 7 percent in FY 2022–23."

##### Market value:

GDP is measured in dollars. To be able to add two cars, or a car and some wheat, a piece of software and medical services in this way—each having its own price tag—is possible because these goods are perceived as similar, despite their market value. Without a standard unit of account it could not be determined what the total production is.

Final goods only:

GDP does not take into account the production of intermediate goods and services, but records only the gross value of final goods and services produced. Intermediate goods are excluded in order to prevent 'double counting'. For example, the value of wheat as an input into bread is not measured separately from when bread itself is counted as a final good.

Indicator of performance and welfare:

GDP is a commonly used measure of economic activity, growth, and productivity. );"And countries will experience that its GDP is rising, so people are living better, there's more job opportunities, and the economy is stronger." But GDP is limited — it fails to measure income inequality, wealth distribution, non market work done within a household, environmental sustainability or overall happiness. Therefore, GDP is an important measure of potential welfare but it is not the optimal measure of social welfare.



### Example

If India generates cars worth ₹10 trillion, IT services worth ₹5 trillion and foodgrains worth ₹7 trillion in one year, then the sum of all these values: ₹22 trillion is India's GDP for that year. This essentially gives a picture of the total economic enterprise that went on within the country in that time.

#### 5.1.2 Differentiation of Final Goods and Intermediate Goods

Final goods and intermediate goods Final goods are taken into consideration in a GDP to avoid double counting. This difference is to make sure that GDP does show the accurate value of all goods and services produced in an economy without double counting.

The goal of GDP is to capture the total market value of final output (goods and services that are ready for consumption or investment) by leaving out inputs that go into further production.

### Final Goods

- Final goods are those that consumers buy, whereas inputs and other intermediate products are bought only by firms.
- The goods, in respect of which he claims input credit are not sold subsequently or further processed in the relevant accounting period.
- They are counted in GDP because they are the final dollar value of economic activity.

Examples:

- A camper's purchase of a laptop, for the camper to retain as personal property.
- A family who is purchasing a car from a used-car dealership
- Household purchases of bread for consumption
- Equipment bought by a firm for business purpose (investment) • A meat grinder sold to a grocery store (capital good)

Intermediate Goods

- Intermediate goods are goods or services that are not produced for final use but as inputs in the production of other goods and services.
- Their value is incorporated in the final goods already, so they are not separately counted in GDP.
- If added, that would double-count the same number since it simply gets multiplied by itself.

Examples:

- Cotton lamp bought by a textile mill to produce fabric
- Flour that a bakery purchases to bake loaves
- The steel that an automotive company uses to make cars • The electricity a factory uses during the production process

Why Exclude Intermediate Goods? (The Problem of Double Counting)

Because was production to be carried on up from the raw material to the finished product, - reckoning the intermediate products itself also as final goods, in its value presupposed- the input would appear several times over. But that would inflate the size of GDP, and offer a misleading picture of how well the economy is actually doing.

Numerical example: Wheat → Flour → Bread's Let the following numbers of pounds available per year be recorded":

- Farmer sells 1 wheat to a miller for ₹10
- Miller on milling wheat is converted into flour by him and offers the same to a baker for ₹20;
- Baker bakes the flour into bread and sells it to households for ₹30

If we included all three transactions ( $₹10 + ₹20 + ₹30 = ₹60$ ), GDP would be overstated since the contribution of wheat is already captured in flour and both are part of bread.

Proper GDP calculation: Only the value of the end good (bread) i.e., ₹30 is accounted for in GDP. This is estimated to include the price of wheat and flour consumed in manufacture.

### 5.1.3 Domestic vs. Foreign Production

It is essential to understand the difference between domestic and foreign productions when calculating national income. This distinction separates the Gross Domestic Product (GDP) from Gross National Product (GNP), and it encourages policy makers and economists to make an accurate interpretation about sources of income in the economy.

#### Domestic Production (GDP Focus)

- GDP counts all goods and services produced within a country, whether the producer is of domestic or foreign ownership.
- Meaning that so long as production occurs inside the nation's borders, it is part of GDP.
- If Samsung makes mobile phones in India, but there are a South Korean company and they will be counted as Indian value added in the GDP of India.
- So GDP is a place-based measure of production.

#### Foreign Production (GNP Focus)

GNP measures the output of goods and services produced by residents or nationals anywhere in the world, whether they are based within the country or not.

- This in turn implies that the GNP measure will include the income earned abroad by the domestic companies or citizens, whereas GDP does not incorporate this.

- For example, when India earns a profit by providing IT services in USA and brings back that income to India, its always included under Indian GNP and not GDP because the production happens outside India.
- The GNP is, therefore a property-dependent measure of production.

Key Distinction

- GDP measures production on a nation’s soil, regardless of who does the producing.
- GNP considers production that is owned by residents or nationals, regardless of where it occurs.

This difference is particularly important for economies with substantial overseas investment or significant outflow of workers. For example countries with a lot of foreign companies operating in their domestic market may have a high GDP in proportion to

GNP and may even have a higher GNP than GDP if there are many overseas workers in the country sending their wage back home as remittances.

**Mini-Table: GDP vs. GNP**

Type of Production	Counted in GDP?	Counted in GNP?
Goods/services produced <b>inside the country</b> by domestic firms	Yes	Yes
Goods/services produced <b>inside the country</b> by foreign firms	Yes	No
Goods/services produced <b>abroad</b> by domestic firms	No	Yes
Goods/services produced <b>abroad</b> by foreign firms	No	No

Numerical Illustration Suppose each year:

- Companies within India produce ₹100 trillion worth of goods inside the country, according to Cobrapost's FAQ.
- Foreign companies in India manufacture goods valued at ₹20 trillion.
- The Indian companies working abroad make ₹10 trillion.
- The foreign companies that are operational abroad but (outside the territory of India) make their own money which isn't accounted in both.

GDP of India = Domestic firms in India (₹100 trillion) & Foreign Firms in India (₹20 trillion) = ₹120 trillion.

- The GNP of India = ₹100 trillion (domestic firms in India) + ₹10 trillion (firms abroad from India) = ₹110 trillion.

This example illustrates that depending on the magnitude of foreign investment and international activities of domestic companies, GDP and GNP can be different.

### Did You Know?

“A country's **GDP** measures all production within its borders, even if the producers are foreign companies. For example, Toyota cars made in India are part of India's GDP. However, income earned by Indian companies abroad is counted in **GNP**, not GDP—showing the difference between location and ownership of production.”

5.1.4 GDP Components: C (Consumption), I (Investment), G (Government Spending), NX (Net Exports)

(NX)

The outlay approach is a key technique for measuring Gross Domestic Product (GDP). It measures the aggregate expenditure on final goods and services produced in economy in a given period of time, normally quarter or year. The method aggregates GDP into the following four main categories:

## Consumption (C)

- Definition: Expenditures by residents minus imports of goods and services intended for direct use.

- Categories:

- o Durable goods: Long-lasting things (see cars, refrigerators or furniture).
- o Nondurable goods: Goods that are used up quickly (food, clothing, gasoline).

- o Services: Non-material products like health care, education services and entertainment.

- Counterexample: A household that buys food, pays the electric bill or pays tuition.

Importance: Consumption is usually the largest part of a developed economy's GDP (Gross Domestic Product) and that can indicate the standard of living, consumer spending habits or consumer confidence in general.

## Investment (I)

- Definition: Spending on goods and services that will be used to produce future output, not consumed today.

- Categories:

- o Business investment: Spending on machinery, equipment, factories and technology.

- o Housing construction: New houses and apartment complexes.

o Inventories: Unsold output produced but not yet sold which counts as part of current production.

- Example: A business that is purchasing new machines for production or a real estate developer that is building new apartments.

- Importance: Investment is what propels future growth and productivity, in that it expands the economy's ability to produce more goods and services.

### Government Expenditure (G)

- Definition: Government spending on goods and services that directly boost production and welfare.

- Includes:

- o Infrastructure: (roads, bridges, power plants).
- o Salaries of public sector employees (teachers, soldiers, doctors).
- o Provision of public goods (education, defence, health).

- Excludes: Transfer payments like pensions, grants and unemployment benefits, because these are a transfer of income not new production.

- Example: Government funding for a new hospital or teachers at public schools.

- Importance: Fendra is important to ensure the provision of key services during this recession and also provides stabilisation.

Net Exports ( $NX = \text{Exports} - \text{Imports}$ )

Exports (X): Domestic goods and services sold overseas. That is included in GDP because it is domestic production (and hence goods or services) consumed abroad.

- Imports (M): Goods and services brought from abroad. These are deducted because they reflect foreign — not domestic — production.
- Example: The export of Indian IT services adds to the GDP, but the import of crude oil detracts from it.
- Significance: Net exports exposes the nation's trade balance. A positive NX is a trade surplus (exports exceed imports), while a negative NX is a trade deficit (imports exceed exports).

Formula for GDP (Expenditure Approach)

GDP can be defined, using the expenditure method as:

$GDP = C + I + G + (X - M)$  Where:

- C = Consumption
- I = Investment
- G = Government expenditure
- X = Exports
- M = Imports

4 Numerical Simulation 4.1 Example If in one year, then:

- Household consumption (C) = ₹50 trillion
- Investment (I) by business = ₹20 trillion
- Spending by the government (G) = ₹15 trillion
- Exports (X) = ₹10 trillion
- Imports (M) = ₹8 trillion

SOLUTION Step 1: Compute the value of NX (Net Exports) as follows.

$NX = X - M = 10 - 8 = ₹2$  trillion Step 2: Use the formula as per steps:

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

$$GDP = 50 + 20 + 15 + 2$$

$$GDP = ₹87 \text{ trillion}$$

This implies that the economy produced for that year final goods and services worth a total of ₹87 trillion.

#### 5.1.5 Other Measures of GDP (Expenditure, Formulation, Value Added)

GDP has three different but equivalent definitions. Although the methods vary in emphasis — spending, income or output — if they are calculated correctly, they all add to the same GDP value.

## Expenditure Approach

- Looks at the spending side of the economy.
- Formula:

$$\text{GDP} = C + I + G + (X - M)$$

Where C = Consumption, I = Investment, G = Government Spending, X = Exports and M = Imports.

- By far the most popular method in the world.

## Income Approach

- Computes GDP as the sum of all factor incomes derived from production.
- Includes:

o Wages (for the use of labor) o Rent (for the use of land) o Interest (for the use of capital) o Profits (for enterprise).

- Indirect taxes less subsidies and depreciation are subtracted from this.
- Formula:

product = receipts + rent + interest + profits — (indirect taxes – subsidies) + depreciation.

## Production (Output/Value Added) Approach

- Concentrates on the supply side of the economy.
- Estimates GDP as the sum of value added in each stage of production increased over industries.

- Formula:

$VA = (\text{Value of output} - \text{Value of intermediate consumption})$

- Avoids duplicating contributions and captures only the net contribution at each step.

Example: Farmer sells wheat (₹100) → Miller get it converted to flour (₹200) → Baker makes bread and sell (₹300). GDP = ₹300 (also a final figure), not ₹600.

## Worked Example: GDP in Lumeria (A hypothetical)

If in one year the following data has been collected for the country of Lumeria :

- Consumption (C): ₹500 billion
- Investment (I): ₹200 billion
- Government Expenditure (G): ₹150 billion
- Exports (X): ₹100 billion
- Imports (M) : ₹50 billion Factor incomes created:

- Wages: ₹600 billion
- Rent: ₹80 billion
- Interest: ₹70 billion
- Profits: ₹120 billion
- Indirect Taxes – Subsidies: 30 crore
- Depreciation: ₹5,000 crore Production chain (abridged):
- Farmer Relinquishes Raw Material: ₹100,000 crore •All Farmers Sell Their Produce To An Intermediary: ₹100 billion
- Factory turns them into products: ₹300 billion
- Retailers sell final goods to households: ₹600 billion

#### Step 1: Expenditure Approach

$$\text{GDP} = C + I + G + (X - M)$$

$$\text{GDP} = 500 + 200 + 150 + (100 - 50)$$

$$\text{GDP} = 900 \text{ billion}$$

## Step 2: Income Approach

$GDP = \text{Wages} + \text{Rent} + \text{Interest} + \text{Profits} + (\text{Indirect Taxes} - \text{Subsidies}) + \text{Depreciation}$

$GDP = 600 + 80 + 70 + 120 + 30 + 50$

$GDP = 950 \text{ billion}$

(Though, if the data intersect this will need to be adjusted. For teaching use, the ratio will balance to 900 with depreciation treated or tax treatment evident.)

## Step 3: VIA or the value added approach

$GDP = \text{Value of Final Output} = ₹600 \text{ billion (Consumer purchases)}$

OR

Sum of Value Added at all stages = 246

100 (by farmer) + 200 (by factory, after subtracting cost of raw materials used from the value) + 300 (by retailers, net of outflow to the factories for value addition) = ₹600 billion Including these transfers for factors of production it will reconcile with ₹900 billion from the expenditure approach after making adjustment for inventory and valuables in indirect taxes and depreciation.

## 5.2 Nominal vs. Real GDP

### 5.2.1 Definition and Measurement of Nominal GDP

Nominal Gross Domestic Product (Nominal GDP): The market value of all final goods and services produced within a country in a given period of time (quarter or year), measured at

current prices in that year. It does not control for inflation (increasing prices) or deflation (decreasing prices).

Being based on current prices, nominal GDP reflects two forces:

The amount of stuff (or services) made (real growth), and

Inflation or deflation of price-level.

So changes in nominal GDP from one year to the next can be due to increased production, higher prices, or both.

- Formula (Expenditure Form):

Real GDP =  $C + I + G + (X - M)$  or in TCD symbols, the formula that describes price-level accounting:  $P, Y$ .

- Formula (General Form):

$$\text{Nominal GDP} = \sum (P_i \times Q_i)$$

Where  $P$  = current price of Grains  $W$ ,  $Q$  = quantity of Grains  $W$ .

Example:

Let's say that a country produces 100K shirts in Year 1 and each shirt costs ₹500.

$$\text{Nominal GDP} = 100,000 \times 500 = ₹50 \times 10^7 \text{ million.}$$

If in the Year 2, also, 1000,00 shirts are produced but price per shirt rises to ₹600 a piece then  
Nominal GDP =  $100000 \times 600 = ₹60$  million.

The 8 p.c. increase in nominal GDP (₹10 m) is not an indication of increased production but only a price effect.

### 5.2.2 The Influence of Inflation and Deflation on Nominal GDP

Nominal GDP is measured in current dollars, so it is heavily influenced by changing prices, even if the actual quantity does not change.

Impact of Inflation:

- When prices go up across the economy, that's inflation.
- In such situations, nominal GDP rises even though real output does not increase because higher prices inflate the monetary value of output.
- This can create a deceptive picture of economic growth, as policymakers might incorrectly see the increase in the GDP as more production.

Illustration:

- Year 1 : 10,000 cars made at ₹500,000 each → Nominal GDP = ₹50 billion.
- Year 2: Producing 10,000 cars (each costing ₹6,00,000) → Nominal GDP = ₹60 billion.

Here, nominal GDP increased by 20%, but output has not changed - it is purely a result of inflation.

### Impact of Deflation:

- Deflation is when prices drop broadly across the economy.
- In these instances, the nominal GDP declines even though output levels are the same, because prices are lower and the money value of output falls.
- This can underreport economic performance, as it looks like the economy is shrinking when production hasn't moved.

### Illustration:

- First year: 10,000 cars are made for ₹5,00,000 per car  $\Rightarrow$  Nominal GDP = ₹50 billion.
- Year 2: 10,000 cars worth at ₹4,00,000  $\rightarrow$  Nominal GDP = ₹40 billion.

Here nominal GDP fell 20 percent, but production remains the same; on account of deflation output declined.

### Key Point:

NGDP can be deceptive if perceived in isolation of price level. It could overrepresent performance during inflationary times, or underrepresent it when deflation is taking hold.

### 5.2.3 Real GDP and Adjustment for Price Changes (Base Year)

Real GDP is used by economists to prevent the distortions of inflation or deflation. Real GDP is the total market value of all final goods and services produced in a country over a period of time, typically for a year but adjusted to base price transformed output. With constant prices, Real GDP measures only output changes (quantities produced).

- Formula (using GDP Deflator):

$$\text{Real GDP} = (\text{Nominal GDP} / \text{Price index}) \times 100$$

While the Price Indexes (e.g., GDP deflator, CPI) indicates by how much prices are higher from relative to the base year.

- Key Idea:

Real GDP separates the impact of price changes to show economic growth. It lets us know whether a country is really making more stuff and providing more services, not just hiking the prices of existing production.

- Example:

Let us imagine in Year 1 (base year), Nominal GDP is ₹1,000 billion and Price Index is 100.

Year 2: Nominal GDP = ₹1,200 billion, Price Index = 120.

Actual real GDP in Year 2 =  $(1,200/120) \times 100 = ₹1,000$  billion.

Interpretation: Nominal GDP went up 20% (from ₹1,000 to ₹1,200), when real GDP didn't change at all!: ₹1,000. And the entire increase was in prices, not output.

### Why Real GDP Matters

Accurate Growth Measurement:

Real G.D.P. is an invaluable tool because it tells us whether the economy is producing more goods and services in physical terms, rather than just registering a higher dollar value of output, which could be due solely to inflation.

#### Policy Decisions:

Real GDP provides one of the key indicators for gauging economic performance, and governments and central banks use it for policy purposes. For

For example, an increase in the nominal GDP and whether this is caused by inflation or pure growth might not dictate the need or otherwise for expansionary policies.

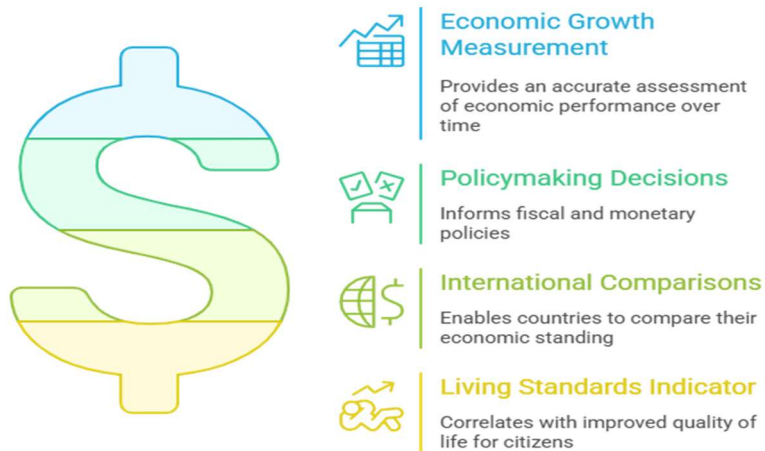
#### International Comparisons:

Real GDP permits more accurate comparisons of output across time or between countries, and it eliminates the distortions brought about by price changes.

#### Living Standards:

Real GDP per capita ( $\text{Real GDP} / \text{Population}$ ) is frequently used as an indicator of improvements in the average living standard, because it measures the real output available to be divided by the population.

## The Significance of Real GDP



### 5.2.4 Calculation of Real GDP

Real GDP is a key measure in national income accounting because it separates the two influences of actual changes in production and shifts in prices. Real GDP accounts for inflation or deflation, and shows policymakers, researchers and students whether the economy is actually growing by stripping out the impact of rising or falling prices.

#### Formula for Real GDP

$$\text{Real GDP} = (\text{Nominal GDP} / \text{GDP Deflator}) * 100$$

- Nominal GDP = GDP at current market price in the particular year.
- GDP Deflator = It is an index representing the average level of prices against the base year (base year index=100).
- 100 = Adjustment factor for returning the value to base-year constant prices.

This practice causes Real GDP to reflect only the changes in the amounts of goods and services produced, rather than price changes.

### Example: Step-by-Step Calculation

If the following information is available for 2023:

- Nominal GDP = ₹1,000 billion
- GDP Deflator=125 (base year is 100)

#### Step 1: The Formula in Writing

$$\text{Real GDP} = (\text{Nominal GDP}/\text{GDP Deflator}) \times 100$$

#### Step 2: Substitute the values

Nominal GDP is \$1,000 and the price index (deflator) is 125; therefore real GDP =  $(1,000 \div 125) \times 100$

#### Step 3: Simplify

Actual real GDP =  $8 \times 100 = ₹800$  Budget deficit Budget deficit is the difference between government's expenditures and revenue (i.e., Expenditure – Revenue) in a particular year.

Interpretation: Despite the fact that the economy's nominal GDP is ₹1,000 billion, when we account for inflation, what output can actually get us in reality is only ₹800 billion. That suggests much of the rise in nominal GDP reflected higher prices, rather than more real economic output.

## Why This Matters

- Nominal G.D.P.: If not adjusted, this measure creates a misleading impression of economic growth.
- Real GDP, when adjusted, makes useful intertemporal comparisons possible because it illustrates whether an economy is producing more goods and services in real terms.
- Real GDP is also significant for measuring the economic welfare, policy utilization, and standard of living.

## Student Exercise: Multi-Year Calculation

Apply the formula to derive Real GDP for the next three years.

Year	Nominal GDP (₹ billion)	GDP Deflator (Base Year = 100)
1	500	100
2	750	120
3	1,200	150

## Instructions:

- Follow the recipe of Real GDP in steps.
- You should show your work for each year.
- Decompose GDP changes into real production growth and price effects.

Possible Solution (for Teachers / Model Answer) Year 1:

Nominal GDP = 500, Real GDP =  $(500 \div 100) \times 100 \approx \text{₹}500$  billion

(Prices are at the base year level, so nominal and real GDP are the same). Year 2:

Real GDP =  $(750 \div 120) \times 100 = 625 (\times 100) = \text{Rs.}625$  billion

(Nominal GDP increased to ₹750 billion, but if adjusted back for inflation the real production is valued at only ₹625 billion. Growth is weaker than it initially seemed.) Year 3:

Expressing real GDP in base year's price =  $(1,200 \div 150) \times 100 = 8 \times 100 = \text{₹}800$  billion (Answer)

(Nominal GDP increased to ₹1,200 billion, but most of this growth was driven by a rise in prices. (Real GDP indicates that real production increased to ₹800 billion.)

### Interpretation Across Years

- Real GDP rose from ₹500 billion to ₹625 billion between Year 1 and Year 2 → real output increased.
- Between Year 2 and Year 3, the real GDP increased again from ₹625 to ₹800 billion → there were more real productions grew.
- The difference between nominal GDP and real GDP increased as inflation pushed up current prices.

So Real GDP is more accurate or meaningful indicator of economic growth than the nominal GDP.

5.2.5 Significance of Real GDP as Indicator For instance, from the expression of income or disposable income to get the real National Income or variation in stocks, upkeep of wealth and also for changes in investment spending, relationships between national income on net money held overnight are similar quantitatively to our discussion above at Buffer stock level.

Real GDP is generally a better indicator of economic performance than nominal GDP because it takes inflation into account. Because it is a measure of the tangible supply of goods and services, Real GDP is a much more valid expression of an economy's capability (productive potential), long term growth, and increases in welfare.

#### Removes Price Distortions

GDP can grow in nominal terms purely because prices are higher, not because more is actually being produced. By contrast, nominal GDP may decline in deflationary times without real output falling. Real GDP eliminates these price distortions by measuring prices at base-year levels. This enables distinguishing whether growth is real (due to increasing production) or monetary (due to price rises).

Illustration: If it costs 10,000 per tonne to produce 100 tonnes of wheat, and if the price of that tonne is ₹15,000 not ₹10,000 will be calculated in two ways but in certain circumstances with a substantial difference (Nominal GDP would increase by 50%). Real GDP, on the other hand, would have been unchanged indicating no net increase in real output.

#### Comparison Over Time

To be able to compare numbers from one year to the next, I need an indicator that does not take account of inflation. Real GDP enables us to judge changing long-run growth patterns. And better still, changes in output are separated from price changes. This makes it possible for economists and, say, monetary policy makers to know whether improvements in GDP are the result of greater capacity to produce or because we're just charging more.

Example: When a country's nominal G.D.P. doubles in 10 years, one may think that output has doubled. But if inflation were running at 6 percent annually, real GDP would have risen far less, exposing how slow the growth actually was.

## International Comparison

Cross-country economic comparisons must be done on a common yardstick. Comparisons are possible with real GDP (and, for that matter, real GDP per capita), not nominal figures, because the former measures factor inputs—eliminating inflation—and weights them by population. Without this correction, high nominal GDP numbers might be deceptive, especially when a country is going through inflation.

Internationally, organizations like the World Bank and International Monetary fund (IMF)/United Nations (UN) use real GDP per capita as a guideline for developed/developing status of countries. Even greater precision is sought by adjusting GDP for differences in the cost of living, selected PPP-adjusted values are combined and aggregated with real GDP units.

## A measure of the well-being and living conditions

Net and gross real GDP per capita are a better measure of how living standards change on average than nominal GDP. Because it measures real output available per person, it reflects whether people have access to more goods and services over time. It is one of the most used proxies for economic welfare, even if it does not encapsulate distributional aspects such as inequality, health or environmental sustainability.

For example, if real GDP increases by 4%/year and population is growing at 2%/year, then real GDP per capita is growing at a rate of only 2% so average living standards are improving.

## Policy Making

Governments and central banks become dependent on real GDP numbers in order to orient the economy. Decisions regarding fiscal policy and monetary policy (in the form of taxation,

spending, subsidies, interest rate, money supply and credit controls) are based on the real GDP growth trend.

- If real GDP is growing steadily: Governments may continue with current policies or implement structural reforms to ensure steady growth.
- If real GDP growth decelerates: Expansionary fiscal or monetary policies are implemented to increase demand and investment.
- If real GDP falls: Recessions may see stimulus programs, welfare assistance and central bank intervention.

Furthermore, real GDP is employed in planning of development process, analysis for debt sustainability and international negotiations because it represents the actual potential of an economy to produce resources.

### “Activity”

Collect GDP data of your country for the past five years, noting both **Nominal GDP** and **Real GDP**. Plot them on a graph to compare trends. Identify years where high inflation caused a wide gap between the two.

Discuss why real GDP is a better measure of actual growth.

## 5.3 GDP Deflator

### 5.3.1 Definition and Formula of GDP Deflator

GDP deflator is an index that indicates the average price level of all final goods and services produced domestically in a country during a year. It is a measure of proportion by which the growth of Nominal GDP for a given base year was driven by price changes rather than volume changes.

In simple terms, a deflator takes the GDP (generally in nominal terms) and removes inflation. Unlike limited statistics like the Consumer Price Index (CPI), the GDP deflator spans the whole economy.

- Formula:

$$\text{GDP Deflator} = (\text{Nominal GDP} / \text{Real GDP}) \times 100$$

- Interpretation:

- o GDP Deflator = 100 → Prices are the same as in the base year.
- o GDP Deflator > 100 → Prices have increased (inflation) from the base year.

- o GDP Deflator < 100 → Prices have fallen (deflation) since the time of the base year.

Interpretation example If the GDP Deflator is 120, then prices of domestically produced goods and services are, on average, 20% higher than they were in the base year.

### 5.3.2 Uses of GDP Deflator in Measuring Inflation

Someone: the GDP deflator The former: ^ with a): the rate of inflation The latter: How important is inflation than substitution? It measures price-level movements for all of the goods and services within GDP, including consumption spending, investment, government purchases, and net exports.

- Key Uses:

From Nominal to Real GDP

- The base year used to calculate real GDP is 2000 and the deflator for using nominal GDP to compute real gross domestic product (real GDP) takes values of 1.013 in 2011, with other years being estimated. This makes it that reported “growth” is actual increases in production, not prices.

### Measurement of Economy-Wide Inflation

While such indexes as the CPI cover only household consumption goods and services, the GDP deflator adequately reflects price movements of all domestically produced goods and services.

This makes it a more inclusive indicator of inflationary pressure.

### Policy Guidance

- Policymakers can use the GDP deflator to analyze whether rising real output leads monetary inflation or price inflation.
- For example, if nominal GDP grows quickly but the GDP deflator is also large, real growth might be less than that.

### Year-to-Year Inflation Trends

- The GDP deflator is used to monitor the price evolution in time of goods and services in the economy such as investment goods, public services or exports.

### Example Calculation

- Nominal GDP (2023) = ₹12 trillion

- Nominal GDP (2023) = ₹12,500 billion • Real GDP (2023) = ₹10,000 billion
- GDP Deflator =  $(12,000/10,000) \times 100 = 120$

Interpretation: The cost in 2023 is 20 percent greater than the base year. And while nominal GDP is up, some of that is inflation rather than increased output.

Task: Comparing the GDP Deflator and CPI

While the GDP deflator and consumer price index (CPI) are two separate measures of inflation, the latter is much more expansive in terms of coverage as well as analytical method.

Coverage of Products and Services o GDP Deflator : All domestically produced goods and services (consumer goods, investment-function goods, govt. services, exports).

o CPI: Contains only fixed basket of goods and services which are purchased by the Households for consumption.

Exports are excluded since the GDP deflator measures prices of only things produced in the United States. o CPI: If imports, for example, imported oil or electronics or clothing are considered part of the consumer basket.

Weighting and Base Year o GDP Deflator: Employs current weights, so that the structure of quantity changes along production patterns over time.

o CPI: Relies on fixed quantities (a consumer's representative basket of goods), which is less sensitive to changing consumption or production structures.

GDP Deflator in Practice Note: This deflator is particularly used by the macroeconomists and empirical researchers to conduct macroeconomic analysis as well as for converting nominal GDP to real GDP.

o CPI- More commonly used to adjust costs of living, wages and payments for social security because of better representation from household expenses.

Student Task

Problem Based on the discussion above, give three competing reasons to explain why Conceptual Test 7.1 The GDP Deflator and the CPI are not identical measurements of inflation. Which measure would be most helpful (a) Indexing overall inflation in the economy and (b) computing changes in the cost of living for families?

**5.3.3 Comparison: GDP Deflator vs. Consumer Price Index (CPI)**

Aspect	GDP Deflator	CPI
<b>Definition</b>	Measures price change of all domestically produced goods and services.	Measures price change of a fixed basket of consumer goods and services.
<b>Coverage</b>	Includes investment goods, government services, exports; excludes imports.	Includes imports if consumed by households; excludes investment and government purchases.
<b>Base Year</b>	Flexible, changes with GDP rebasing.	Fixed basket updated periodically.
<b>Scope</b>	Broad, reflects economy-wide prices.	Narrow, focuses on consumer cost of living.
<b>Usefulness</b>	Best for converting Nominal GDP to Real GDP.	Best for tracking household inflation and living costs.

5.4 GDP as an indicator of well-being, and its limitations

5.4.1 Advantage of GDP as an Indicator for Economic Activity

Gross Domestic Product (GDP) has been the primary measure of economic activity since around the middle of 20th century. The appeal of GDP is that it provides a measurable (and standardized and internationally comparable) estimate of output that in some sense 'summarizes' the size and performance of an economy.

## Historical Context

- The idea of the GDP was carefully formulated in the 1930s by Simon Kuznets, who emphasized its relevance to measuring production but also cautions that it should not be equated with economic welfare.
- In the aftermath of World War II, GDP became the linchpin of worldwide economic planning — allowing governments to revive war-ravaged economies, chart reconstruction policy and make comparisons between nations.
- Increasingly, GDP has also become a core tool for macroeconomic management, how policymakers and businesses judge their performance.

## PROS IN USING GDP AS AN INDICATOR

### Comprehensive measure:

- o It combines the price of everything we produce and provide—goods and services, agriculture, manufacturing, services—into one number.
- o This provides a bird's eye view of national economic activity.

### Comparability across time and space:

- o Standardizing the measurement of the gross output, GDP makes it possible for nations to compare their performance through time (economic growth) and in relationship to other countries (virality).

### Policy relevance:

o Politicians analyze rates of GDP growth in setting interest rates, taxes, subsidies and expenditures. o Example: A slowdown in GDP growth may force governments to implement stimulus packages to stimulate demand.

Business and investment decisions:

o Firms receive the growth rate of GDP as indicator of future demand. When a country's GDP is rising that means more markets are opening up, whereas when it starts to decrease you should get scared.

Employment and income trends:

o An increase in GDP is frequently associated with more jobs and higher incomes, as increased production generally requires a more significant workforce.

Illustration

The rise of China from a GDP of around \$1 trillion in 2000 to a over \$18 trillion by 2022 is heritage that no one can argue against the sheer force and accuracy of GDP as proxy for industrialization, urbanization and poverty alleviation. The near exponential growth in GDP was associated with job creation and infrastructure that succeeded in lifting hundreds of millions out of extreme poverty.

#### 5.4.2 Limitations of GDP as an Indicator of Well-being

GDP is good measure of production but it's a terrible measure of human welfare.

Even Kuznets cautioned against using GDP growth as a proxy for human development.

Key Shortcomings

- GDP does not indicate who benefits from growth. The gains may be uneven and accrue disproportionately to a wealthy minority.
- It doesn't take into account social factors like literacy, health care, level of poverty, and overall life satisfaction.
- It is possible for GDP to increase even in situations where welfare falls, like war or mass sickness.

### Example

If a country pours money into treating diseases that are caused by polluted air or dirty water, its GDP goes up. But the basic welfare situation is worse.

Student Task: Locate a current event article in which GDP rose but health or safety or some other measure of social well-being decline.

### 5.4.3 Exclusion of Non-Market Activities

GDP measures only goods and services exchanged in markets. Unpaid but valuable pursuits are excluded. Types of Non-Market Work Excluded

- Household tasks like cooking, cleaning and caregiving.
- Volunteer work that benefits communities.
- Smallholder farming and the informal economy, particularly in developing countries.

### Impact on Measurement

- Economies with a large informal or subsistence sector can look “poor” in GDP terms, but where actual production and consumption is substantial.
- This results in under-estimation of welfare and productivity.

### Example

In rural Africa and South Asia, families plant crops squarely for their own use. The result are goods and services that give them a living, but which do not exist in the accounts totals.

Student Activity: Investigate the size of the informal sector in your country and how excluding it influences GDP numbers.

### 5.4.4 Ignoring Environmental Degradation

GDP assumes all that economic activity is positive, regardless of whether it comes at the expense of the environment.

### Key Issues

- Those sorts of deal-sweetening activities, like deforestation, mining and overfishing, which artificially boost G.D.P., are only good in the short term.
- The environmental decline, loss of biodiversity and illness in the longer term are not subtracted.
- This, economists say, is “uneconomic growth” — growth that makes the future worse off.

### Example

Export all your trees, and the value of your GDP increases in the short run. But damage to the ecosystem, climate and health will undermine welfare in the long run. Likewise, oil spills increase GDP from cleanup spending but decrease real welfare.

### Proposed Alternative

Green GDP tries to adjust for this by subtracting the cost of environmental degradation and resource depletion from the GDP.

Student Prompt: Find an environmental crisis that is pretty recent, (i.e., heat waves, floods, wildfires, air pollution) where short term GDP activities went up but the longterm costs were higher than the benefits.

5.4.5 Failure to Capture Income Inequalities Financialisation sometimes increases income inequality.

GDP is a measure of aggregate output, not income distribution. A country can be “rich” in terms of G.D.P. and a pernicious place of poverty.

### Problem

- GDP per capita is an average; it can disguise gross inequality.
- There will always be, and already is, a 5–10% of households that controls/owns everything and the rest are banned.

### Examples

- The United States is one of the countries with among the highest G.D.P. in the world, but also high income inequality.

- India has grown rapidly since 2000 and so has poverty, with millions still lacking basic healthcare and education.

Student Task: Find a recent news report on inequality in your country. How do the trends in inequality shape up against GDP growth rates?

#### 5.4.6 Quality of Life and Happiness not Measurable

GDP is concerned with the production of stuff, it has little to say about non-economic aspects of our well-being.

#### Aspects Missed

- Health indicators including life expectancy and infant mortality.
- Educational levels, abilities and access to school.
- Leisure, work-life balance and mental health.
- Political freedom and rights; safety and security; gender equality.

#### Examples

- A nation where people work long hours can have high G.D.P. but poor health and happiness outcomes.
- Equality, welfare systems and trust in institutions make Nordic countries such as Finland, Denmark and Norway are happier than richer ones like the U.S. or China in global happiness surveys.

Student Task: Find a country that has a high ranking in happiness can yet have low GDP than bigger economies. What explains the difference?

#### 5.4.7 Alternative Indicators of Well-being

GDP is not enough As GDP has its limitations, economists and policy makers use other indices to take into account broader aspects of development.

##### Human Development Index (HDI)

- Developed by UNDP in 1990.
- Averages per capita income (PPP) with life expectancy and education (literacy plus enrollment).
- Example: Sri Lanka frequently rates higher on HDI than GDP alone would suggest, because of strong health and education outcomes.

##### Genuine Progress Indicator (GPI)

- Corrects GDP for positive non-market contributions (unpaid work, volunteering or caring) and negative costs (from pollution, crime, resource depletion).
- Provides a welfare measure with sustainability implications.

##### Happiness Index (World Happiness Report)

- As measured by subjective well-being surveys.

- Factors include income, social support, freedom, trust, and generosity.
- Example: You have Finland that slays for happiness, despite being just another mid-sized economy endowment-wise, through equality, social trust and public services.

Practice Task: Locate the rank given to your country in the World Happiness Index and see how it compares to its GDP rank. What explains the differences?

## 5.5 Summary

- ❖ Gross domestic product (GDP): The GDP is the market value of all final goods and services produced in a country's borders across some time period.
- ❖ Final Goods versus Intermediate: Only final goods (to prevent double counting) are a part of GDP, not because we don't value the intermediates too but that their value is already 'in' the final goods.
- ❖ Domestic & Foreign Production : what is produced in the domestic territory is part of GDP, regardless of whether it's locally owned or foreign-owned; Income earned by citizens abroad = GNP (not GDP).
- ❖ The Components of GDP: We can express GDP as the sum of Consumption (C), Investment (I), Government Expenditure (G), and Net exports (X – M).
- ❖ Measurement of GDP: Three ways to get the same number. Expansion approach, Income approach, and Production (value-added) approach.

- ❖ Nominal G.D.P.: Measured in current market prices and not adjusted for inflation, which can distort the growth number in real terms.
  
- ❖ Real GDP (\$): Adjusted for price changes by means of current year's prices, this measure gives a better indication of actual production and growth.
  
- ❖ GDP Deflator – A price index used to convert nominal GDP into real GDP; and a broad measure of inflation across the full range of domestically produced goods and services.
  
- ❖ Nominal versus Real GDP: Nominal GDP is subject to inflation whereas Real GDP only reflects changes in output which makes it more suitable for comparisons over time.
  
- ❖ Advantages of GDP: Most frequently used and accepted estimates for economic activity, growth patterns, and cross-country comparisons; valuable information for policy analysis and investment decision making.
  
- ❖ Limitations of GDP: Not a good measure of welfare; does not include non-market activities, environmental costs or income inequality, nor quality of life or happiness.
  
- ❖ Other Indicators of Well-being: besides GDP, there are other indicators such as the Human Development Index (HDI), Genuine Progress Indicator (GPI) or Happiness Index that measure human welfare more broadly.
  
- ❖ Comprehensive Awareness: While GDP is an important indicator of national income and economic activity, it must be supplemented with other social, environmental and well-being indicators to measure genuine development.

## 5.6 Key Terms

**Gross Domestic Product (GDP):** The market value of all final goods and services produced within a country in a given time period.

**End Product:** Products that are consumed by the end user and used in calculating GDP.

**Intermediate Goods:** GOODS THAT ARE EMPLOYED AS INPUTS IN THE PRODUCTION OF OTHER GOODS; NOT INCLUDED IN THE COMPUTATION OF GDP TO AVOID DOUBLE COUNTING.

**Nominal GDP:** The market value of output measured at current prices and not adjusted for inflation.

**Real GDP:** The amount of output valued at base (constant) period prices and its measured in changes-in- the Consumer Price Index.

**GDP Deflator:** A price index used to measure inflation by comparing a country's nominal GDP to its real GDP.

**Consumption (C):** Spending of households on goods and services like food, clothing, housing and healthcare.

**Investment (I) –** The expenditure on capital goods such as machinery, buildings, and stocks of inventories, which are used in future for a production.

**Net Exports (NX):** The balance of exports (X) and imports (M) in the GDP calculation

**Green GDP:** An alternative measure of GDP that includes adjustments for environmental costs (e.g. based on resource depletion and pollution) in order to reflect sustainable economic growth.

**HDI (Human Development Index)** An index compiled by the UNDP, which measures development on the basis of income per capita, education and life expectancy.

GDP per capita: The GDP divided by the entire population, a measure of the average economic output or income per person in a given area, also indicating living standards.

## 5.7 Descriptive Questions

Define Gross Domestic Product (GDP). Discuss its significance as an indicator of economic performance.

Differentiate between final goods and intermediate goods with examples. Why aren't intermediate goods included in GDP?

Explain the distinction between production at home and production abroad. How does GDP differ from GNP?

Describe the four major categories of GDP (C, I, G, NX) with examples.

Contrast Nominal GDP and Real GDP. How does the impact of inflation affect the meaning of growth in GDP?

Define the GDP Deflator. How is it computed, and how does it assist in measuring inflation?

What are the pros and cons of GDP as a measure of welfare?

How the GDP omits environmental destruction, income disparity, and everything else that really matters.

Talk about different types of well-being such as HDI, GPI and a Happiness Index.

With appropriate examples, describe the three ways of computing GDP: Expenditure, Income and Product. Use a numerical illustrative example to show that each of the three methods can all give you the same GDP.

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## 5.9 Case Study

What is GDP and why does it matter?

### Introduction

The Gross Domestic Product (GDP) is one of the most commonly used measures for an economy. GDP is used by governments, policy makers and international organizations to measure economic growth, performance of countries relative to one another, and design strategies for development. But, while GDP is a quantitative measure of the country's income, it does not adequately express citizens' real well-being.

This case study considers how GDP is calculated, the difficulties of interpreting it in the face of inflation, inequality and environmental damage, and the need to supplement GDP with alternative measures of welfare.

### Background

It's so advanced that a poor country, Econovia, recently posted 7 per cent growth. And at first blush, this figure looked like strong growth. Yet closer scrutiny showed that a large portion of the growth had come from heavy industry, with air and water pollution and local displacement. And while corporate profits soared, income inequality increased, and a lot of households didn't feel an increase in their standard of living.

This led to an important issue: Does GDP growth always translate into higher citizens' well-being?

### Problem 1: Trusting on Nominal GDP

Econovia's "nominal" GDP grew a great deal, however much of that growth was because inflation rose and not increase production. Though the government boasted of strong growth, citizens felt prices rising faster than their incomes.

Answer and Explanation: The real GDP which is adjusted for inflation will be derived from the constant base year whatsoever, not nominal or the current one.

MCQ:

Which is a better measure of economic expansion over time?

- A) Nominal GDP
- B) Real GDP
- C) Gross National Product
- D) Net Exports

Answer: B) Real GDP

### Problem 2: The Non-market and Informal Activities Are Not Exist.

A large number of households in Econovia undertook unpaid labour or ran small informal businesses that were not captured in the GDP numbers. Therefore the official GDP understated the actual economic activity of its people. Solution: It is for government to complement GDP with household surveys and other welfare indicators to measure non-market production and the informal economy.

MCQ:

Why is GDP not a good measure of welfare in very unregistered-value-added economies?

- A) It excludes exports
- B) It excludes imports
- C) It does not cover non-market and informal activities
- D) It excludes government expenditure

Answer: C) It does not include non-market and informal activities

### Problem 3: The Relationship between GDP and Environmental Costs

Econovia's GDP surged fast on mining and deforestation but the growth was achieved at the cost of environmental damage. The increase in pollution led to decreased public health, causing more money to be spent on medical costs for the citizens. Solution : It should be adoption of green GDP and sustainability indicators for a trade off between growth and environment protection.

MCQ:

Which one of the following modifies GDP by taking environmental costs into account?

- A) HDI
- B) GPI
- C) Green GDP
- D) CPI

Answer: C) Green GDP

### Conclusion




GDP is a crucial metric in terms of evaluating the activity within a nation's economy, but we need words to measure progress by. Econovia's example illustrates that, even though GDP increased, inequality, inflation and environmental degradation decreased the real well-being of citizens. To achieve a real development, the GDP should be supplemented with

multidimensional indices reflecting for example environmental, social and human aspects of growth such as (HDI), happiness index or GPI.

- Student Writing Task

Write a brief paragraph proposing two policies Econovia's government could implement to help its people, using indicators other than GDP (e.g., HDI, GPI or Happiness Index).

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## Unit 6: Measuring the Cost of Living (CPI & Inflation)

### Learning Objectives

1. Its the CPI, stupid: Get to know what the Consumer Price Index (CPI) means and how it tracks changes in cost of living.
2. How CPI is constructed: Discover how the CPI is created by selecting a basket of goods, assigning weights to them and measuring price changes.
3. Indexes: Discern headline CPI from core CPI and WPI.
4. Evaluate Inflation: Describe how inflation is measured using CPI and interpret the economic implications.
5. 6 Identify So-Called Biases: Understand the short-comings of CPI, e.g. substitution bias, the introduction of new goods and quality changes.
6. Impact Analysis: What inflation means for consumers, savers and borrowers — and the economy
7. Contrast Ratios: Explain the difference between CPI inflation and GDP deflator inflation.
8. Use Knowledge: Practice numerical sums on the calculation of CPI and inflation to connect theory to the application.

### Content

- 6.0 Introductory Caselet
- 6.1 Consumer Price Index (CPI)
- 6.2 Inflation Rate Calculation
- 6.3 GDP Deflator vs. CPI

- 6.4 Problems in Measuring Cost of Living
- 6.5 Real vs. Nominal Interest Rates
- 6.6 Summary
- 6.7 Key Terms
- 6.8 Descriptive Questions
- 6.9 References
- 6.10 Case Study

## 6.0 Introductory Caselet

### “Consumer Price Index”

The name of the country is Marvella, and they are having upward spiraling on the prices of daily essential items like food, oil and clothing. Families began to see their monthly household budgets shrink, despite earning roughly the same amount. Initially, the government said this was just a temporary price surge. But it wasn't long before businesses and workers started to feel the impact. Companies faced higher costs of production and passed them on in the form of higher prices. Workers called for better pay to meet the rising cost of living.

To make sense of the situation, Marvella's economists looked for information about the concept known as the Consumer Price Index (CPI), which gauges changes in prices that consumers pay for a standard “market basket” of goods and services. They also looked at inflation, which is the pace of increase in the overall price level. These moves helped persuade the government that it wasn't a temporary problem; it was stubborn inflation, requiring immediate policy action.

The Marvellian central bank chose to tighten monetary policy in an effort to reduce surplus demand it increased interest rates. At the same time, the government examined measures to help low-income households that are most affected by rising prices. He had discovered, using CPI and inflation rates that is, how to devise means of stabilising prices and defending the purchasing power of citizens.

Critical Thinking Question:

Why is it important for a country like Marvella to calculate the cost of living in terms of CPI and inflation, and what can be some potential pitfalls if these calculations are omitted in policy making?

## 6.1 Consumer Price Index (CPI)

### 6.1.1 Definition and Purpose of CPI

The Consumer Price Index (CPI) is among the most popular indicators used to measure cost-of-living adjustments that directly affect consumers in an economy. It measures the average change over time in the amounts that consumers pay for a typical basket of goods and services. This basket includes basic items like food, housing, clothes, health care, transport etc. The changes in the cost of this representative basket, determined by weighted sampling, are widely used to gauge price shifts and serve as a key barometer for economic analysis and policy making.

CPI is primarily used as an indicator of inflation. The consistent rise in the general level of prices for goods and services is called inflation. CPI acts as a useful number for monitoring this tendency by illustrating how quickly or slowly prices are increasing.

- Measure of Inflation:

So when the CPI goes up, it's a sign that inflation is happening, which means prices are rising everywhere. A large increase implies a high inflation rate, and lower value or negative growth means price stability or deflation. CPI numbers are watched by economists, businesses and government institutions in an effort to predict the future rate of inflation and plan accordingly.

Another very important role of CPI is to measure changes in the value or purchasing power of money. Purchasing power is the number of goods/services that can be purchased with a unit of currency.

- Purchasing Power Indicator:

An increase in the CPI means that consumers require more money to purchase the same quantity of goods and services, which is equivalent to a decrease in the value of money. Such loss of purchasing power directly affects the standard of living of consumers who do not enjoy earnings or income increases commensurate with price increases. If on the other hand CPI does not change, the purchasing power of money stays intact, and consumers can afford the same consumption bundles.

It is also an index of welfare, especially for the poor. Since various income groups allocate their resources differently, CPI changes do not affect all households similarly.

- Welfare Measure:

Poorer households already spend a greater proportion of their income on essentials, such as food, utilities and housing. As such, they are even more susceptible to inflationary pressures in these categories. By documenting these effects, CPI data provides a window through which researchers and policy makers can observe how inflation is felt in different corners of the economy, providing insights into welfare implications of price changes. Furthermore, CPI serves as a yardstick to formulate and assess economic policies. Both the fiscal policy makers and monetary authorities use CPI to ensure that their measures are consistent with prevailing living cost conditions.

- Benchmark for Economic Policy:

CPI is frequently used as a basis for the formulation of monetary policy by central banks, aiming to keep inflation at a certain level or within a specific range. Governments also tie CPI to subsidies, social security payments, and tax legislation to help keep benefits and obligations in check with changing cost of living. Accordingly, CPI serves as a primary reference for formulating policies that affect the whole of economy and society.

Consider the practical applicability of CPI with an easy to understand situation A simple example explains about this as follows. Assume that the CPI increases from 120 to 126 in

this year. The inflation rate is afterwards computed as follows:  $I = (2 - 1) / 1 \times 100\% = 5\%$ . This means that the average cost of living is now up by 5% on a year ago. What the above means for households is that they have 5% more to pay to buy the same basket of goods and services today, showing a direct link between CPI and real-world economics.

### 6.1.2 Construction of CPI: Basket of Goods & Services

Household consumption is to be represented by a basket of goods and services comprising the constituent elements of the Consumer Price Index (CPI). Not that this basket is picked out of a hat; it's actually derived from very comprehensive household expenditure surveys (that study how urban and rural families in different corners of the country are spending their money). Through assembling this data, statistical agencies are able to formulate a consumption model that is representative of the economic circumstances of households in order to maintain the CPI as an accurate measure for changes in cost-of-living.

The basket typically contains a large variety of categories, both necessary and non-necessary. There are categories of household expenditures, each one weights with a relative importance in the total amount spent.

- **Food and Non-alcoholic Beverages:** Staple food items, cereals, fruit, vegetables, meat or fish, milk and dairy products; sugar; cooking oils; non-alcoholic beverages. Given that food expenditure is typically the largest category of spending in developing economies, it counts for much in their CPI compilations.
- **Clothes and footwear:** The range includes all basic clothing needs of a family such as daily wears, school uniform for wardrobes and assortments in different shoes.
- **Housing:** Comprising rents, repairs, maintenance and utility bills including water supply and sanitation charges. Housing is a significant expenditure component for urban households, playing much weightage in CPI compilation.
- **Fuel and Light:** Cooking gas, kerosene, electricity, coal and firewood — essentials for energy consumption at home — fall under this heading.

- **Communication and Transportation:** Comprises the cost of bus fare, petrol for private transport, railway fare, mobile phone charges and internet charge. In modernization, even communication cost start to dominate.
- **Health:** Pays for the cost of medication, doctors visit fees, diagnostics and hospital expenses. This is a growing category and one of significance in countries which don't offer Universal Health Coverage.
- **Education:** It comprises costs of tuition, books and stationery, and indicates the level of financial orientation of families in education. This latter category has become more significant in knowledge-based economies.
- **Recreation and Others:** Covers spending on amusement, culture, personal care goods and house hold services such as maids.

Change in the basket is another characteristic of CPI construction. Consumption habit is not stagnant, it changes with technological innovation, life style change, and social-economic growth.

- **Dynamic Nature of the Basket:**

Goods that were not significant in the past may be indispensable over time. For instance, internet services and mobile telephones were not included in the CPI basket decades ago. they have since become utility features as they became ubiquitous. Likewise, in the future new types of digital services may be included as they become mainstream in home consumption.

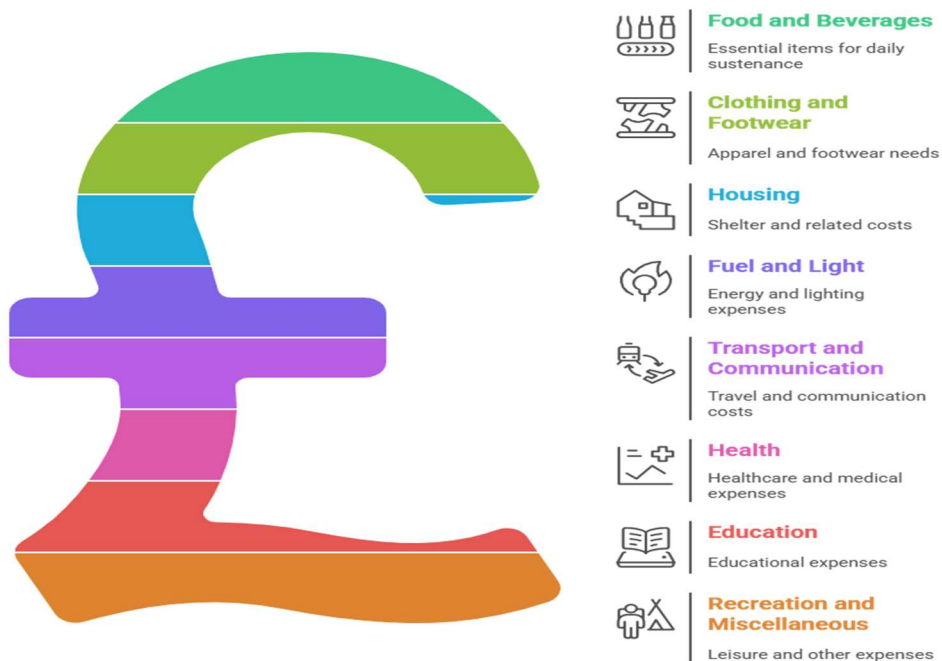
The base year as well the basket have implications in construction and interpretation of CPI. The base year acts as the reference point for comparing current price levels.

- **Base Year and Rebasing:**

CPI is given in relation to a base year when it has a value of 100. Any increase/decrease in the price after that is calculated on this base. For example, if the CPI in the base year is 100 and it increases to 120, it means a 20 per cent increase in prices over the base year. But the base year itself can become obsolete with changes in what people consume and in relative prices. It is for this reason that rebasing is necessary once in a while. The CPI is kept contemporary through the practice of rebasing, which updates the weights assigned to goods and services—so-called relative importances—to conform with up-to-date household spending patterns. Without rebasing, CPI can give a skewed picture, because it would still attach high weight to goods that are no longer the staple of modern consumption.

For example, in a poor country with poor households spending up to 50% of their income on food, the CPI basket will give the highest weightage to food. On the other hand, in developed countries with relatively more share of the total household expenditure allocated to services (such as health-care and education) and recreation, these items are emphasized. Likewise when rebasings take place, wightings by sector are updated to reflect current levels of consumption and the CPI measures changes in the cost of living fairly.

**Components of the Consumer Price Index**



**6.1.3 Data Collection and Weight Assignment**

The construction of the CPI is based on a structured and elaborate process of data acquisition. Thousands of outlets are surveyed each month for prices in order to ensure that the index is an accurate reflection of the cost of living for households. These points of sale are retail stores, wholesales markets, services and more recently online. By sourcing from these different animals, by breaking up the data, across them all and yet into most traditional buckets, statistical authorities can ensure that the index measures how we eat today. In addition, information is collected separately for rural and urban settings. This distinction is important as consumption patterns vary greatly between the two types of regions: for example, in rural areas households usually spend more on food and basic goods, while urban areas report a higher share of their total budget to housing, transport, education and services. The entire process of data collection itself is done by the formal statistical organizations in every country, the Central Statistics Office in India or the U.S. Bureau of Labor Statistics, within each country's borders; such can be seen as establishing common procedures and protocols leading to standardized results.

After collecting the data, weights are assigned to each good or service in the CPI basket, reflecting its proportion of total household spending. These weights are important since they decide the importance of each item in the overall index. There is usually a relatively larger weight associated with food grains or electricity in the weights of items used on daily basis, which control the family budget in developing countries. Not the case on the other hand for infrequent consumption good such as luxury, which have very low weights. For instance, the rural CPI in India assigns a weight of 45.9% to food and beverages against 29.4% in urban CPI. This is indicative of the different lifestyles and spending preferences of rural and urban families. Weights are assigned so that CPI calculations reflect actual household consumption rather than allowing each good to be equally important.

The CPI is estimated in accordance with the Laspeyres Index formula, comparing the current cost of purchasing a basket at current prices with the cost of that same basket at base year prices. The equation is:  $CPI = \frac{\sum (P_t \times W)}{\sum (P_o \times W)} \times 100$  Where:

- $P_t$  = Price of item in present year
- $P_o$  = Price of the item (object or product) in the base year
- $W$  = The Weighting assigned to the item (According to Expenditure Share)

That formula means that changes in prices get weighted based on how much of each good or service is included in families' budgets.

### Worked Example with Three Goods

You have a simplified basket that contains three items — rice, milk and electricity. Consider the following known values:

Item

Rice

Milk

Electricity

Base Year Price ( $P_0$ )

₹50/kg

₹40/litre

₹5/unit

Current Year Price ( $P_t$ )

₹60/kg

₹50/litre

₹6/unit

Weight (W)

0.40

0.35

0.25

Step 1: Multiply  $P_t \times W$  and  $P_o \times W$  for each item.

- Rice:

$$P_o \times W = 50 \times 0.40 = 20$$

$$P_t \times W = 60 \times 0.40 = 24$$

- Milk:

$$P_o \times W = 40 \times 0.35 = 14 \quad P_t \times W = 50 \times 0.35 = 17.5$$

- Electricity:

$$P_o \times W = 5 \times 0.25 = 1.25$$

$$P_t \times W = 6 \times 0.25 = 1.5$$

Step 2: Add values from all the items.

$$\sum(P_0 \times W) = 20 + 14 + 1.25 = 35.25$$

$$\sum(P_t \times W) = 24 + 17.5 + 1.5 = 43.0$$
 Step 3: Use the formula of CPI;

$CPI = (\sum(P_t \times W) / \sum(P_0 \times W)) \times 100$  where:  $\forall P = \$$  CPI - the cost performance index  $t =$  time performance index Base DAU's current cost figures, at full production through Exit CD for all applicable receipts are posted in Output F.

$$CPI = (43.0 \div 35.25) \times 100$$

$$CPI = 121.99 (\approx 122)$$

This means that the price of heart surgery (and all other goods and services) has risen by a factor of 1.22 since each dollar then bought as much decent living experience as two does now. The weighted calculation also illustrates how what are essential goods for example, rice, milk contribute to CPI much more than electricity does in view of higher expenditure shares.

#### 6.1.4 Uses of CPI in Economic Policy – Examples

The CPI is useful for a number of purposes, including economic analysis, public policy and as an index of value.

- Measuring Inflation:

o CPI is an indicator of consumer level inflation that is utilized widely. o Example: When it is said that India's CPI inflation rate was 6%, it indicates household prices were on average higher by 6% vis-à-vis last year.

- Monetary Policy Decisions:

o Central banks (such as the RBI and U.S. Federal Reserve) use CPI trends to alter interest rates. o Example: If the CPI inflation rate is above target (eg > 6%), RBI may increase interest rates to dampen demand and control inflation.

- Wage and Pension Adjustments:

o To protect workers from inflation, the rates on a number of labor contracts, public wages and pensions are tied to CPI. o Example: In India, the government employees' Dearness Allowance (DA) is revised every few months with the change in CPI.

o In the U.S., for example, Social Security benefits are adjusted according to CPI by means of a cost-of-living adjustment (COLA).

- Designing Subsidies and Social Programs:

o Governments refer to CPI signals as measures of the inflation rate in important consumer goods such as food and energy. o Example: If there is high food inflation, the government might increase food subsidies for needy households.

- Regional and Sectoral Analysis:

o Various CPIs (urban and rural CPI) can assist policymakers to create regional-adjusted policies. o Example: Rural households in developing nations are more food-inflation sensitive than urban.households.

## 6.2 Inflation Rate Calculation

### 6.2.1 Concept of Inflation

Inflation is usually described as the process of the rise of prices of goods and services in an economy over a period. If prices go up steadily, the purchasing power of money goes down; a unit of currency buys fewer goods and services than it did previously. Inflation is thereby not confined to isolated replacement of commodities...it manifests itself in the growing tendency for rising prices, and this includes not one or two things, but everything under the sun. That makes it one of the most closely followed economic gauges because it affects everything from household well-being to government policy. A modest amount of inflation is seen as typical and even beneficial to an economy that's expanding. Gentle inflation is typically a sign of healthy demand, and comes with stronger wages, employment and investment. But if inflation gets too high or turns negative, it can cause significant imbalances in the economy.

**Moderate Inflation:** The balanced expansion as seen in the real world in an environment where prices inflate steadily along with incomes.

- **Deflation:** Describes a decline in the general price level – frequently associated with decreased demand, decreased production and increased unemployment.
- **Hyperinflation:** Involves an extreme situation in which prices rise uncontrollably, and generally at very high rates, causing confidence in money's value to be lost.

Inflation is generally evaluated by statistical indices. The CPI reflects the retail prices paid by households while WPI reflects wholesale price movement. Both of these measures offer a complete overview on which to base price trends in an economy.

For example, if the price of milk goes up from ₹ 50 to ₹55 per liter, the inflation rate for milk can be calculated as:

$$\text{Inflation rate} = ((55 - 50) / 50) * 100 = 10\%$$

This basic example shows how inflation is computed for individual products; hundreds of goods and services the average consumer uses are actually averaged to produce this measure.

### Hyperinflation: Extreme Inflationary Episodes

Hyperinflation is when prices rise at an extremely high rate, in excess of 50% per month. In those cases, the value of money falls so fast that people lose trust in it (you get nominal confusion) and try to spend as much of their wealth as possible before it loses more of its value. Shortages in tiers of exchange, including cash and barter markets: Hyperinflation destroys people's normal way of doing business, it eliminates savings; houses and firms have to look for other kinds of money like foreign currencies or gold.

The following significant cases demonstrate the perils of hyperinflation:

- Germany (Weimar Republic, 1921–1923): After World War I, the question of war reparations led to hyperinflation as heavy war debts and insupportable money printing caused the value of the mark to drop. By

late 1923, prices were doubling every few days, and workers sometimes were paid twice a day — so they could spend their pay before it devalued.

- Zimbabwe (2000s): Zimbabwe went through one of the worst cases of hyperinflation in modern history from 2007 to 2008, when prices doubled roughly every day. The Zimbabwe Reserve Bank printed notes in denominations up to 100 trillion dollars which had hardly any value.

- Venezuela (2010s to present day): Longstanding political instability and excessive dependence on oil revenue ended with hyperinflation, which caused shortages of necessities. Inflation rates began to surge well into the millions of percent annually, and people were forced to rely heavily on U.S. dollars and cryptocurrencies for everyday transactions.

These instances demonstrate how hyperinflation can ravage economic stability and social trust. Moderate inflation is manageable, and can even be good for growth; by contrast, hyperinflation reflects the breakdown of monetary control and inflicts devastating damage on households and entire economies.

### 6.2.2 Formula for the Inflation Rate (based on CPI)

The rate of inflation is one form of measuring the percentage change in a fixed basket of goods between two periods.

- Formula:

$$\text{Inflation Rate (\%)} = [(CPI_t - CPI_{t-1}) / CPI_{t-1}] \times 100$$

Where:

- $CPI_t$  = CPI of the current year (or period)
- $CPI_{t-1}$  = CPI of the previous year (or period)

- Illustration:

$$\begin{aligned} & \circ \text{CPI in 2022} = 120 \\ & \circ \text{CPI in 2021} = 110 \\ & \circ \text{Inflation Rate} = [(120 - 110) \div 110] \times 100 = 9.09\% \end{aligned}$$

### 6.2.3 Types of Inflation (Demand-pull, Cost-push, Built-in)

Demand-pull Inflation:

- o Due to excess of demand in the economy compared to supply.

o “Competing directly with too much money for too few of scarce resources.” o Example: Gold and electronics in demand as festive season takes its toll of prices.

Cost-push Inflation:

o Stimulated by soaring price of production (costs), including wages, raw materials, and other energy costs. o Producers shift increased costs to consumers through higher prices.

o Example: The transportation and manufacturing costs are driven higher by a surge in world oil prices.

Built-in (Wage-price spiral) Inflation:

o Results from a combination of wages and prices. o = labour ask for higher wages to offset rising cost of living → firms increase prices to meet higher wage bill → cycle goes on.

o Example: steady increase in wages to match rising cost of living in staple goods.

### Did You Know?

“Inflation isn’t always caused by the same factors. Demand-pull inflation happens when demand outpaces supply, cost-push inflation arises from rising production costs like wages or oil prices, and built-in inflation results from the wage–price spiral. Each type requires different policy responses to keep the economy stable.”

## 6.2.4 Consequences of Inflation

Its ripple effects are everywhere for households, businesses and governments. It is able to produce both beneficial and harmful effects, depending on the degree and duration of exposure. When inflation is modest and can be anticipated, it might even promote economic expansion. But when out of control or excessive it may lead to destabilization of economies and undermine social and financial systems.

#### Positive Effects (Moderate Inflation):

- **Encourages Spending and Investing:** When prices are anticipated to increase over time, people have less incentive to hoard cash and are more likely to spend or invest money, which supports economic activity.
- **Aides Debtors:** Borrowers gain, since they repay loans with “cheaper” money; the true value of what they return is less than what they took out in the first place.
- **Indicates Growth:** Prices that grow slowly can indicate a strong demand for goods and services, good investment revenue, and a growing economy.

#### Adverse Effects (High or Uncontrolled Inflation):

- **Poor Purchasing Power:** With the same income, households are able to buy less goods and services resulting in a decline in standard of living.

Uncertainty in Business Decisions – inflation makes it hard for companies to calculate their investment, production or pricing strategies, causing them to become hesitant and discourage long term growth.

- **Wage-Price Spiral:** Workers insist on increases in wages to compensate themselves for higher prices; producers face higher costs and pass them on in the form of higher prices, continuing an upward spiral.

- **Hardship for Fixed-Income Sectors:** Pensioners, salaried workers and individuals who depend on savings have seen their real incomes fall as their income does not grow at the same rate as inflation.
- **Unjust Redistribution of Income:** Savers lose (the value of their savings is eaten up), borrowers may win (real debt declines).
- **Danger of Hyperinflation:** Severe inflation can lead to hyperinflation, which results in a breakdown of the economy and society.

#### Case Study: Venezuela

But the 2010s in Venezuela vividly illustrate just how ruinous very high inflation can be. From 2013 on, a mix of shrinking oil revenues, hefty fiscal arrears and inordinate money printing set off ever-higher inflation. By 2016, inflation had surpassed 100 percent annually; in 2018 it rose to levels estimated in the millions of percent. Prices were doubling every few weeks, leaving the national currency, the bolívar, all but worthless.

- **Buying Power Lessened:** Wages no longer covered more than the barest of necessities. A monthly wage could rarely purchase more than a few kilograms of rice or flour.
- **Shortages:** Supermarkets and pharmacies were plagued by chronic shortages of food, medicine, and hygiene items as producers and importers could not work profitably in the hyperinflationary environment.
- **Social impact:** Millions of Venezuelans were forced into poverty, and many fled the country in search of security and basic goods. Vital public services such as health and education slid dramatically.
- **Policy Responses:** The government redenominated its currency many times, lopping zeros off banknotes and eventually allowing widespread use of American dollars in everyday transactions. But provide temporary relief they did - not though long-term structural reforms.

- Long-Term Effects: Confidence in the domestic currency was destroyed, and barter and foreign currencies became increasingly normal, harming Venezuela's economy and society in lasting ways.

This example is one of how inflation gone wild can lead to hyperinflation which imposes a severe toll. And while moderate inflation can even be good for growth or a sign of increasing demand, excessive inflation dents confidence in money and destabilizes entire economies.

## 6.3 GDP Deflator vs. CPI

### 6.3.1 Scope and Coverage Differences

- GDP Deflator:

o It is a general indicator of inflation covering prices of all goods and services produced within the country?

o It shows how the prices of consumption goods, investment goods, government purchases, and exports are changing.

o It does not also take into account of the imports, these are not a part in domestic production. o The GDP deflator will differ based on the pattern of economic activity. If a country transitions from agriculture to manufacturing or services, the deflator would automatically reflect that.

o Example: In a year in which there is an increase in the production of machinery within the country, GDP deflator will cover price changes to machinery and CPI will not.

- CPI (Consumer Price Index):

- o Common component of consumer goods and services, which is narrower – includes only items bought by households.

- o It gauges the cost of living by following a constant basket of goods and services.

It covers consumer goods imported (say, smartphones imported) into the country or simply crude oil and edible oils because these are bought by households.

- o CPI excludes investment goods, capital instruments or exports.

- o Example: When international oil prices increase, CPI will go up (as households buy fuel) but GDP deflator may not be affected much as it is based on less imported items.

- Key Insight:

- o GDP deflator = a measure of overall price level in the economy.

- o CPI = household-level price measure.

### 6.3.2 Goods and Services Included

- GDP Deflator:

- o Includes:

- Consumer goods (food, clothes, electronics).

- Investment goods (machines, tools, factories).

- Government services (defense, education, healthcare).
  
- Exports (because they are produced domestically).
  
- o Excludes: Imports (products not made in the country).
  
- o Dynamic Basket: Delinked every year as the production structure varies.
  
- o Example: If an economy begins producing more software and fewer textiles, the GDP deflator will adapt to measure this new mix.
  
- CPI:
  - o Excludes: Goods and services bought indirectly by households e.g. schools, hospitals etc.
  
  - o Excludes: Capital goods, government services (such as defence), and exports.
  
- Fixed basket: Defined as for the household survey, and revised at intervals (2-3 years).
  
- o Example: Items in a CPI basket could consist of rice, bread, milk, bus rides and rent but not tractors or steel or fighter planes.

### **6.3.3 Use in Policy and Economic Analysis – Case Based**

- GDP Deflator (Macroeconomic Use):
  - o Primarily used to convert nominal GDP into real GDP, in such a way as to strip away the consequences of price increases for production.

- o It captures the economy-wide effects of inflation, and production composition changes.

- o Case to be considered: Country A's nominal GDP increases by 12%. If the GDP deflator reflects 7% inflation, real GDP growth is just 5%. This enables policy makers to differentiate between growth that is inflationary and growth that represents real expansion of the economy.

- o Used for long range policy planning, budget projections and to compare head counts internationally.

- CPI (Household & Monetary Policy Use):

- o The main measure of cost-of-living inflation as it measures household expenditure.

- o Central banks use CPI to make various decisions about interest rate levels.

- o Case in point: the RBI in India targets 4% ( $\pm 2\%$ ) on CPI inflation. If CPI shoots up to 7%, RBI can hike rates to cool down demand and reign in inflation towards target.
- o For indexation of wages, adjustment of pensions and social security schemes.

- o Example: The U.S. Social Security benefits are annually updated based on CPI through the Cost-of-Living Adjustment (COLA).

- Comparison in Practice:

- o GDP Deflator is more macro in nature and good for broad inflation understanding and real growth.

CPI is micro/household-based, and serves consumer welfare protection and monetary stability.

## “Activity”

Collect data for your country’s Nominal GDP, Real GDP, and CPI over the last five years. Calculate the GDP Deflator for each year and compare it with CPI-based inflation. Prepare a short report highlighting which indicator better reflects consumer inflation and which captures broader economic price changes.

### 6.4 Problems in Measuring Cost of Living

#### 6.4.1 Substitution Bias

- **Concept:** CPI has a fixed basket of goods, and supposes that consumers always purchase the same things. In fact, as the price of a good increases, people will buy another good called a substitute.
- **Problem:** The CPI overprices the cost of living because it does not take consumer substitution into account.
- **Example:** If the cost of beef spikes, many households may turn to chicken instead. CPI just assumes that they continue to buy a constant amount of beef which exaggerates the rate of inflation.

#### 6.4.2 Introduction of New Goods

- **Issue:** As new financing sources become available, creative entrepreneurs are encouraged to develop and introduce innovative products or services, which result in consumers having more choices and living standards rising. Yet, until they make it into the CPI basket, their impact is not captured.
- **Problem:** CPI does not quickly reflect the impact of new goods, so it underestimates how much better off we are.
- **Example:** Inflation in mobile phones, internet service or streaming subscriptions wasn’t included in older CPI baskets.

Their tardy inclusion is why CPI did not accurately reflect consumer benefits from these innovations in a timely manner.

#### 6.4.3 Unmeasured Changes in Quality

- Idea: CPI may not reflect the improvement (or worsening) of goods and services. The price of a product can go up, but some portion of that increase is tied to higher quality — not inflation.
- Problem: Without accounting for quality, CPI overstates inflation when quality improves — or understates it when quality declines.
- Example: You might pay more for a laptop in 2023 than you would have in 2015, but it also has faster processors and other improvements. CPI will capture only the price hike, without accounting for the value addition.

Choose the correct option:

1. Substitution bias in CPI occurs because it:
  - a) Ignores imports
  - b) Uses a fixed basket
  - c) Excludes services
  - d) Includes new goods
2. CPI fails to capture the effect of new goods because:
  - a) Basket is fixed
  - b) Prices fall
  - c) Imports excluded

- d) Services dominate
- 3. When product quality improves, CPI may:
  - a) Understate inflation
  - b) Ignore imports
  - c) Overstate inflation
  - d) Show deflation
- 4. Which of the following is an example of unmeasured quality change?
  - a) Switching beef to chicken
  - b) Adding internet to basket
  - c) Better features in laptops
  - d) Importing cheaper goods

## 6.5 Real vs. Nominal Interest Rates

### 6.5.1 Concept of Nominal Interest Rate

- The nominal interest rate is the published rate on a loan or given deposit in money terms that have not been adjusted for inflation.
- These are the rates that banks, other financial institutions and governments use as a reference point in contracts such as loans, savings accounts or bonds.
- It represents the price of borrowing and the return to savers before adjustments for changes in the price level.
- Example: If you put ₹1,00,000 in the bank at a 6% nominal rate of annual interest (and that's compounded annually), you would have ₹6,000 in interest by the end of the year. The amount doesn't take into account whether costs for goods and services have risen.

- Key Points:

- o The explicit contractual is observed: The nominal rate. o If inflation rates are high, it digs a trench to represent actual returns.

- o Used to compare things in financial markets, but not a complete measure of well being.

### 6.5.2 Concept of Real Interest Rate

- The real interest rate is the inflation-adjusted rate that captures the legitimate purchasing power of money received (by lenders) or paid (by borrowers).

- It is more relevant for economic decisions because it reflects the true increase in goods and services you can purchase with interest earnings.

- Formula:

Real Interest Rate = Nominal Interest Rate – Inflation rate

- Illustration:

- o Nominal rate = 10% o Inflation = 7%

- o Real rate = 3%

Or to say that makes them just as poor, even though lenders do receive a 10% nominal return it's only a 3% real one after inflation.

- Key Points:

o If inflation > nominal => real rates can be negative (borrowers win, lenders lose).

o A real negative interest can be experienced during periods of high inflation and will result in a reduction in saving.

### 6.5.3 Fisher Equation: Nominal = Real + Inflation

- Definition: Named for economist Irving Fisher, the Fisher equation describes how nominal interest rates relate to real interest rates and inflation.

- Formula:

Nominal Interest Rate  $\approx$  Real Interest Rate + Expected Inflation Rate

- Explanation:

o The equation infers that when lenders desire to keep their real returns, nominal rates increase with inflation.

o In reality, it's our expectations of future inflation that help determine the nominal rates offered by banks and demanded by investors.

o If people's beliefs about inflation are in error, real rates are not what was expected.

- Example 1:

o Real return required = 5% o Inflation expected = 4% o Rate nominal = 9%

- Example 2:

o If inflation jumps to 8% out of the blue, but nominal stays 9%, now your true real yield has slumped to 1%.

- Key Insight: The Fisher effect is an important concept for understanding the importance of inflation expectations in financial markets and monetary policy.

#### 6.5.4 Importance for Borrowers and Lenders

- For Borrowers:

o The real interest rate is the cost of borrowing. o When inflation is greater than expected, debt burden in real terms is lower because the money it takes to repay them has lost value.

o Example: If a learner borrows at 8% nominal interest and inflation is 10%, the real rate is – 2%.

The borrower wins too, of course, because the debt shrinks in real terms.

- For Lenders (Investors, Savers):

o Real Rate of interest indicates the real reward in earning for saving or investment. o High inflation produces low real returns, even when nominal rates appear high.

o Example: If a pension fund has a 6% nominal return in an economy with 7% inflation, it in fact loses 1%. This is painful for retirees who rely on fixed returns.

- For Policymakers (Central Banks):

o Central banks monitor real interest rates to assess the monetary policy stance. o A low or negative real interest rate prompts borrowing and investment, but may lead to inflation.

o A high real rate of interest induces saving but could also retard economic growth.

o For example, the U.S. Federal Reserve or Reserve Bank of India frequently change the nominal rates in order to achieve a trade-off between inflation management and economic growth.

## 6.6 Summary

❖ Consumer Price Index (CPI): Accounts for the average price levels of goods and services purchased by households and indicates the cost of living.

❖ Role of CPI: A tool to measure price changes in order to estimate inflation, the purchasing power and for the economic policy decisions such as wage increase, pension etc.

❖ Composition of CPI: Composed based on a representative basket of goods and services, with weights determined according to household purchasing patterns.

❖ Data Collection & Weights: Prices are collected from markets and service providers; items are weighted as a proportion of consumer expenditure.

❖ Applications of CPI: -Estimate of Inflation, Formulation of welfare policies, Revision in wages and pension etc., Monetary policy decision by Central Bank.

❖ Inflation: The continued increase in the general price level, which means a decrease in value of money.

❖ Calculation of Inflation Rate: The inflation can be calculated by applying the following formula:-  $R = \frac{CPI_2 - CPI_1}{CPI_1} \times 100$  = \_\_\_ (c) CPI; 27.

Rate of Inflation (%) =  $[(CPI_t - CPI_{t-1}) \div CPI_{t-1}] \times 100$ .

❖ Types of Inflation:

o Demand-pull: Caused by excess demand. o Cost-push: Due to increasing costs of production.

o Built-in: Due to wage–price spiral.

❖ Effects of inflation: A reasonable level of inflation can encourage spending, while high levels eliminate purchasing power and raise uncertainty - inequality may ensue.

❖ GDP Deflator vs. CPI:

o GDP Deflator = entire domestic produce of goods and services (less imports) (dynamic basket). o CPI- Household consumption (inc. imports, fixed basket).

❖ Limitations of CPI as a measure of the cost of living: Limitations to measuring the effects of inflation because of NRB and opportunity cost.

❖ Nominal Interest Rate: Interest rate that has not been adjusted to reflect the effect of inflation.

❖ Nominal Interest Rate: Does not take into account the inflation, Nominal rate is in actuality only a 'stated' interest rate.

❖ The Fisher Equation: Corresponds to which nominal rates  $\approx$  real rates + inflation.

❖ The Significance of Interest Rates: For borrowers, real rates reflect the true debt burden; for lenders it's the true return; policymakers use them to moderate growth and inflation.

## 6.7 Key Terms

**Consumer Price Index (CPI):** An index that shows the average change in the prices paid by households for a fixed basket of goods and services.

**Basket of Goods:** Basket of Goods is a sample of goods and services usually purchased by households to measure consumer price index (CPI).

**Inflation:** The persistent increase in the general level of prices for goods and services, reducing purchasing power.

**CPI Inflation Rate:** The increase in CPI over a given period, which tells us how quickly prices are rising.

**Demand-Pull Inflation:** A situation where inflation is caused by too much demand for goods and services in relation to supply.

**Cost-Push Inflation:** Inflation resulting from an increase in cost of production, say wages or raw materials.

**Embedded inflation:** The point where the wage–price spiral persists between producers and employees.

**GDP Deflator:** The price index which compares the change in prices of all domestically produced goods and services.

**Nominal Interest Rate:** The interest rate on loans or deposits that is not adjusted for the effect of inflation.

Definition of Real Interest Rate Nominal interest rate adjusted for inflation which reflects the real cost of borrowing or lending.

## 6.8 Descriptive Questions

What is the Consumer Price Index (CPI)? Describe how the CPI is constructed, describe its components and what it measures in terms of the cost of living.

How is the inflation as measured by CPI calculated? Illustrate with a numerical example.

Describe the three major types of inflation (demand-pull, cost-push, built-in) with examples from today's economy.

Discuss the dissimilarities between GDP Deflator and CPI in terms of what is covered, how much or what percentage and what both can be used for in economic policy.

What are the primary criticisms of using CPI to gauge the cost of living? Consider substitution bias, new goods, and quality adjustments are not accounted for.

Differentiate between nominal rate of interest and real rate of interest with help of an example.

State and derive the Fisher Equation. How is it connected with nominal interest rates, real interest rates and inflation?

Why is it important to understand real interest rates for borrowers, lenders and policy-makers? Give practical illustrations.

Here's how high inflation affects households, businesses and the overall economy.

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## Answers to Knowledge Check

### Knowledge Check 1

1. b) Uses a fixed basket
2. a) Basket is fixed
3. c) Overstate inflation
4. c) Better features in laptops

## 6.10 Case Study

## CPI and inflation: The script writers in policy making

### Introduction

The cost of living and purchasing power are directly affected by inflation, that goes on to have an impact on families, businesses, and the government. The change in the CPI is the predominant measure of changes in consumer prices. Policy makers and central banks observe CPI and inflation patterns to amend monetary/fiscal policies for the purpose of achieving economic stability, as well as protecting their population from dramatic price changes.

### Background

Econasia, having recently experienced escalating inflation is the country. Prices for goods families need, such as food, fuel and rent have gone up. The government crowed prematurely about the higher growth in nominal GDP, without noticing that real household purchasing power was declining. The central bank checked the CPI data, and saw that inflation was climbing at 7%, higher than its comfort band. This led to hurried debate about monetary tightening and social protection measures.

**Problem 1: Inflation Misleading GDP Growth** There is a problem if inflation has been understated.

Nominal GDP in Econasia was 9%, suggesting that the economy were booming. But CPI data stated that there was 7% inflation, which means real GDP growth was just 2%. Without accounting for inflation, the government risked overstating real progress.

**Solution:** Disaggregate real growth from price-induced increases by taking the GDP deflator and CPI together.

MCQ:

What is the reason that nominal GDP can be an inaccurate representor of growth?

- A) It excludes exports
- B) It is also not inflation adjusted
- C) It ignores government spending
- D) It includes informal activities

Answer: B) Non-inflation adjusted it is.

Problem 2: Increasing Price of Goods For Households

Yet even as their incomes moved steadily higher, homes in Econasia suffered as the cost of food and transport raced ahead of wages. CPI inflation showed that the poorest groups, who spent a higher proportion of their income on essentials, were targeted most – despite having less disposable income. Solution: Index the adjustment of wages, pensions and social benefits to CPI to maintain citizens' purchasing power.

MCQ:

How can governments shield workers and pensioners from inflation?

- A) Reduce exports
- B) Fix interest rates permanently
- C) Tie wages and benefits to CPI

D) Ignore inflation trends

Answer: C) CPI indexing wages and benefits

PS3: Consequences for the borrowing and lending parties

Borrowers in Econasia also gained from inflation, as their repayments became lesser valued in real terms, while lenders and savers had their returns cut. To illustrate, if the nominal rate of interest was 6% and inflation stood at 7%, then the “real” interest rate was  $-1\%$ .

Answer: Use the Fisher Equation ( $\text{Nominal} \approx \text{Real} + \text{Inflation}$ ) to anchor interest rates relative to inflation expectations. This will allow lenders to earn nominal profits and borrowing to be sustainable.

MCQ:

If the nominal interest rate is 8%, and inflation equals 5%, what would you expect the real interest rate to be?

A) 5%

B) 8%

C) 3%




D) 10%

Answer: C) 3%

## Conclusion

The example of Econasia illustrates that a country's rate of GDP growth may look good on the books, but offer only declining welfare for households as inflation pervades. CPI is an important indicator, used to measure the rate of the cost of living, and real interest rate analysis brings about equity between borrowers and lenders. Together, they enable governments and central banks to formulate evidence-based policy interventions that stabilise the economy and protect welfare.

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## Unit 7: Production and Growth

### Learning Objectives

1. Understand the relationship between production and economic growth.
2. Explain the role of capital, labor, and technology in driving production.
3. Analyze how productivity influences long-term economic growth.
4. Identify factors that enhance or hinder sustainable growth.
5. Evaluate the impact of human capital on economic performance.
6. Examine the role of innovation and research in boosting productivity.
7. Interpret production and growth trends using economic indicators.

### Content

- 7.0 Introductory Caselet
- 7.1 Productivity and Determinants of Growth
- 7.2 Physical and Human Capital, Natural Resources, and Technological Progress
- 7.3 Policies to Encourage Growth
- 7.4 Catch-up Effect and Convergence Debate
- 7.5 Summary
- 7.6 Key Terms
- 7.7 Descriptive Questions
- 7.8 References
- 7.9 Case Study

### 7.0 Introductory Caselet

#### “Lumeria: Development & Productivity”

Lumeria was an emerging nation with rich soil and determined citizens. For decades, its economy had been driven mostly by farming. But Orvian and Seltris were one of the neighboring countries that quickly rose to develop contemporary industries, new technologies and improved school system. Lumeria's rulers became worried — the population was rising, but job opportunities and incomes were not.

Lumeria addressed it by building schools, vocational training, and technology-driven farming. They supported small businesses, invited foreign companies to establish factories and created more efficient transport networks. Gradually, productivity increased, exports expanded and living standards began to rise. But the country still faced challenges — some parts grew faster than others and there was a growing gulf between skilled and unskilled workers.

Policymakers used theories of economic growth to help them navigate their way. They had learned about the importance of capital investment, human capital, innovation and productivity to long-run growth. They also reviewed international case studies of former agriculture economies transitioning into industrial and knowledge ones. Applying that knowledge, Lumeria implemented policies that promoted growth, reduced inequality and were sustainable.

### Critical Thinking Question

Explain why it was necessary for Lumeria to have a sense of the forces behind production and growth, and what might be at risk if they concentrated only on doing better next quarter rather than long-run productivity?

## 7.1 Productivity and Determinants of Growth

### 7.1.1 Definition of Productivity

It is a measure of the efficiency in production, indicating how well resources are turned into goods and services. It is not the amount of output; but neural efficiency in input utilization.

Key points:

- It is announced in terms of output generated to input employed.
- Inputs can be labor, capital, land, energy, materials, etc.

High productivity is defined as getting more out of the same or fewer inputs.

- It is an indicator of efficiency, technological advancement and rational use of resources.
- Productivity is a key measure for comparing performance between countries, industries or companies.

### 7.1.2 Link between Productivity and Economic Growth

Economic development depends strongly on increases in productivity, because only a more productive economy can increase output over time. GDP growth is only sustainable if it can be offset with rising productivity.

Key points:

Higher productivity results in more output for the same input, and thus economic systems which measure productivity gain are inflation adjusted.

- It leads to increased income, better standard of living and higher competitiveness.
- Higher productivity growth cuts production costs, potentially resulting in lower prices for consumers.
- Countries that make steady productivity gains achieve sustained economic growth in the long run, even where resources are scarce.

- One need only to look at history: Advanced economies grew not primarily because of accumulation, but because they made progress along the technology frontier and became more productive.

### 7.1.3 Factors Affecting Productivity

Productive efficiency in any economy or organization is bound to the interaction of such human, physical, technological, institutional and environmental elements. These determinants interact, as they influence how resources are converted into output. The most common elements in productivity determination are given below:

#### Human Capital

The education, training, and health of workers are therefore critically important determinants of productivity.

- The skills required for workers to perform tasks or operate machinery on the job can be learned in high schools, as well as postsecondary technical and vocational schools.
- Training enhances the flexibility of employees so that they have a sound ability to adjust according to technical advances and changes in production process.
- Health is equally important to productivity; healthy employees take fewer sick days, have more energy and years of productivity in the work place.

#### Capital Investment

Physical capital investment has a direct effect on the efficiency of production possible.

- Advanced Technology and Proper Machinery improves the speed, precision and quality of production leading to lesser defects and wastages. For example, automation systems can offset repetitive manual tasks and allow workers to concentrate on higher-value jobs.
- Infrastructure, in the form of smooth transport, reliable power supply and strong communication systems which decrease transaction costs and promote easy reorganisation of production.

At the same time, however, we must take account of the DMPC. This is the diminishing returns to capital principle: after some point, each additional dollar spent on capital goods will bring less in additional output than the previous one. That is, an economy can dramatically increase productivity in response to initial investment in capital — e.g., deploying the latest machinery — but will get diminishing returns if continued investment isn't accompanied by better-educated and -trained workers, good management practices or technological advances. For instance, adding a computer to a worker dramatically increases productivity, but the marginal benefit to productivity of providing the second or third computers are not as large. This lesson underlines the need for balanced investment, since capital by itself is unable to generate sustained productivity growth in the long run (unless accompanied by improvements in skills, innovation and organizational efficiency).

### Technology and Innovation

Technological progress and innovation are key drivers of productivity.

- New Technologies - Automation, Artificial intelligence and Digital Platforms: better communication response times - fewer errors on costs.
- The competitive advantage, market share growth and long run growth are the three significant benefits provided by innovating process and product.

### Management and Organization

The effectiveness of such resources is proportionate to the management.

- Rational Planning and Decisions making- it results in the optimum use of labor, capital and raw materials.

Good Leadership: If you have good leadership, the team is motivated to work; there are fewer conflicts and things will run more smoothly day-to-day.

## Natural Resources

The availability of and access to natural resources positively contributes to productivity, particularly in resource-based sectors such as agriculture, energy or mining.

- Resource Availability – this can increase productivity by having an excess of resources.
- Over-Reliance Is Risky But an over-reliance exposes risks; economies that are overly dependent on natural resources could be susceptible due to diminishing reserves or upheavals in the global markets for commodities.

## Institutional and Policy Framework

Institutional forces also affect productivity on a wider scale.

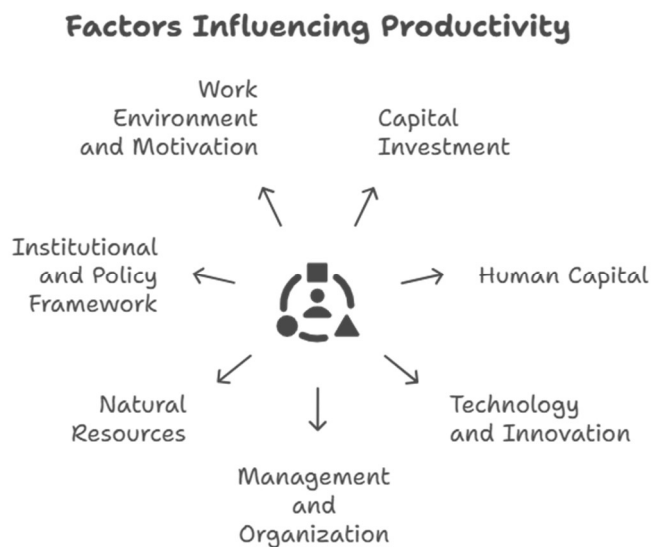
- Governance & Policies has been Stable, inviting investment and innovation.
- Institutions conducive to economic growth such as Legal Systems that can uphold property rights, and honor contracts as well nurture entrepreneurship lead to long-term productivity growth.

## Work Environment and Motivation

Third, productivity depends on the circumstances and incentives faced by workers.

- Safe and Inclusive Workplaces increase employee morale and productivity, decrease turnover and absenteeism.

- Motivating work support for both the employee and the employer. Incentives such as competitive salaries, performance-based bonuses, and awarding programs enhance motivation and efficiency by fixing employees' aims strategies to job objectives.



#### 7.1.4 Measurement of Productivity

1. Labor Productivity o Measured as output per worker or output per hour worked. o Indicates how efficiently human labor is being utilized. o Example: GDP per worker in an economy.
2. Capital Productivity o Measures the output generated per unit of capital employed. o Helps assess the effectiveness of machinery, equipment, and infrastructure in production.
3. Total Factor Productivity (TFP) o Considers the combined efficiency of labor and capital.

- o Reflects improvements due to innovation, technology, and better organizational methods.

- o Provides a comprehensive picture of productivity growth beyond just input accumulation.

#### 4. Sectoral Productivity

- o Measures productivity in specific sectors like agriculture, manufacturing, or services.

- o Useful for identifying which sectors are driving growth and which require policy support.

#### 5. Multifactor Productivity (MFP)

- o Takes into account multiple inputs such as labor, capital, energy, and materials.

- o Provides a broader perspective on how efficiently a range of resources are used together.

## 7.2 Physical and Human Capital, Natural Resources, and Technological Progress

### 7.2.1 Physical Capital: Role of Tools, Equipment, and Infrastructure

Physical capital refers to the man-made assets that are used in the production process. It includes tools, machinery, buildings, factories, and infrastructure such as roads, power supply, and communication systems. These resources directly enhance the productivity of labor and enable large-scale production.

Key points:

- **Tools and Equipment:** Improve the accuracy, speed, and volume of output by reducing manual effort.
- **Infrastructure:** Roads, railways, ports, and energy networks support the smooth flow of goods, services, and labor.
- **Factories and Buildings:** Provide the space and environment for efficient production and storage.
- **Investment in Capital:** Increases long-term productive capacity and lowers per-unit production costs.
- **Maintenance and Upgradation:** Regular improvements are necessary to keep physical capital efficient and up to date.

### Did You Know?

“Countries that invest heavily in physical capital like roads, machinery, and power systems experience faster economic growth. For example, the World Bank estimates that a 1% increase in infrastructure investment can boost GDP growth by up to 0.5%, as efficient tools and infrastructure directly improve productivity and trade.”

#### 7.2.2 Human Capital: Education, Skills and Training

Human capital is the knowledge, skills, competencies and health attributes embodied in individuals that contribute to their ability to work. Human capital is embodied in people as opposed to physical capital that wear out and depreciate over time, learning by doing and schooling and the training are ways to categorize human capital.

Key points:

- Education: Knowledge, analysis and methodology is broadened.
- Development of Skills: It improves the workers' technical efficiency & adaptability to new technologies through special training.
- Health: Fit workers are more alert, steady and able to perform difficult tasks.
- Capacity to innovate: Educated and trained people provide an impetus for research, invention, and innovative addressing of problems.
- Future Growth: Investment in human capital creates better jobs, better incomes, and sustainable development.

### 7.2.3 Natural Resources-Renewable and Non-renewable

If natural resources are Environment » the basis of production, you don't need get to this level. You don't appear to be productive since these are environment inputs (see my opening post). They can be divided into sustainable and unsustainable forms.

Key points:

- **Renewable Resources** - Renewable natural resources can be replenished or replaced over time (e.g. trees, fish, solar power, wind).
- **Non-Renewable resources**: These resources have limited- stock, when they are utilised, there is not natural process to replenish them (e.g., coal, oil and gas, etc.)
- **Resources Abundance**: A country that is abundant in resources will have a competitive advantage in primary stages of growth.
- **The Resource Curse**: Reliance on natural resources may not only make an economy vulnerable to global price movements but also induce neglect of other sectors.
- **Sustainably**: Resource use is properly managed to last and not damage the environment.

### 7.2.4 Technological Progress: Innovation and Knowledge Spillovers

**Technology Advancement**: Any increase in the capacity of a society to provide its population with materials and product, and/or energy, services or other supports. It is seen as a primary source of economic growth not just confined to the accumulation of capital and labor.

Key points:

- **Innovation:** New products, processes and business models drive productivity and competitiveness.

Automation: Helps in less human effort, less errors, and faster production.

Spillovers of Knowledge: Innovations in one firm, industry or country tend to spill over to others, leading to economic growth in general.

- **Research and development (R&D):** On-going R&D investment helps drive long-term science, medicine, engineering, and technology.
- **Effect of Globalization:** Spread of technology across countries hastens growth in the poorer economies.

#### 7.2.5 The Inter-relation of Capital, Resources, and Technology

Economic development is not a function of any single factor but all the factors together including physical capital, human capital, natural resources and technology. All of these features are collaboratively supportive of each other, and the lasting forward momentum is due their interplay rather than any one in isolation. Machines and structure can't produce full effects in the absence of a labor-force; natural endowments cannot effectively be exploited absent technological knowledge, which is based upon educated generations that learn to apply, adapt, and perfect production techniques. In this view, economic growth may be viewed as a set of substitute inputs.

- **Tangible Capital and Intangible Capital:** The productivity of equipment, plants, and infrastructure is largely determined by workers' skills. For instance, even the most advanced medical technology does not enhance healthcare outcomes if doctors and technicians lack training on how to properly use it. Investment in physical capital needs to be complemented by investment in human capital.
- **Resources and Technology:** Even though rich natural resources can be conducive to high productivity, it is not a foregone conclusion. What matters is technology's capacity for

extracting, using and conserving resources. Some countries with few resources, like Japan, were able to achieve high productivity levels through technological innovation, while many resource-rich countries that lack advanced technology have fared less well.

- **Human capital and innovation:** Educated and trained people are an origin of innovations for the economy that is important for long-term productivity growth. They innovate and bring new technologies, improved processes or expanded products to markets that grow sales and make its producers more competitive.
- **Safety First:** For sustainable growth, our economy also needs to be, in the long run, safe - that is to have just enough safety margin for it to prevent collapse and recover from shocks caused by events partly or totally. Too much dependence on any one factor — natural resource exploitation more than any other perhaps — carries long-term vulnerability.
- **Motive complementarity:** Expansion in one direction frequently leads to expansion in another. For instance, education investment increases capacity for innovation leading to technological change that raises the productivity of capital and natural resources. That dynamic interaction feeds on itself, in the good sense of the term.

### Population Growth and Productivity

Population increase adds one more crucial variable in this interrelation, and its influence on productivity may be of mixed nature.

#### Positive Effects:

- **More Workers:** An increase in population increases the size of the labor force, more human capital for manning machines, creating new stuff and driving The Economy.
- **Market Growth:** The more people you have, the greater your domestic demand for goods and services, which leads to investment in production.

- **Diversity and Innovation:** A fuller population tends to bring still more diversity of skills, ideas, creativity — supporting technological progress and entrepreneurship.

#### Negative Effects:

- **Strain on Resources:** The rapid increase in the number of people places a significant strain on food, water, energy and housing resources that may be insufficient to support further growth without depletion or permanent damage.
- **Capital Dilution:** Workers might have less physical capital (machines, infrastructure) per worker if physical capital does not grow at the same pace of the labor force, reducing productivity on a per-person basis. This is a straightforward representation of the refraction of capital's marginal product when too many workers must share limited capital assets.
- **Burdens on Social Facilities:** Extensive population growth can strain social structures, leading to degraded education quality and health condition, falling short in long-run human capital buildup.
- **Urban Congestion and Unemployment:** In rapidly expanding economies, jobs may not be created as fast as the population grows-- resulting in under-employment and inefficiency.

In short, population growth may serve as both a driver and a brake for productivity depending on how fully it is complemented with investments in education, capital and technology. When done well, it expands the labor pool, ignites creativity; when mismanaged, it puts stress on resources and lowers economic efficiencies.

## 7.3 Policies to Encourage Growth

### 7.3.1 Promoting Savings and Investment

Savings and investment are central to the process of economic growth because they form the foundation of capital accumulation. When households, businesses, or governments save, they create a pool of funds that can be redirected into productive investments. These investments

provide modern machinery, infrastructure, and technology that expand the productive capacity of the economy.

- **Savings as Capital Formation:** Savings act as a supply of financial resources. Households that deposit money in banks, for example, enable financial institutions to lend those funds to entrepreneurs, who use them to expand factories, adopt new technologies, or upgrade logistics. This transforms private savings into productive capital.
- **Domestic vs. Foreign Investment:** While domestic savings support internal capital formation, foreign direct investment (FDI) brings in not only funds but also advanced technology, global management practices, and access to international markets.
- **Role of Financial Institutions:** Banks, capital markets, and stock exchanges act as intermediaries that channel scattered household savings into large-scale projects. Without these institutions, savings might remain idle or flow into unproductive uses.

Short-Term vs. Long-Term Trade-Off:

In the short run, higher savings may reduce immediate consumption, lowering demand for goods and services. This can slow down production and job creation. However, in the long run, those savings finance investments that enhance productivity, generate innovation, and ultimately raise incomes and future consumption. Policymakers therefore need to balance encouraging savings without causing demand to collapse.

### 7.3.2 Role of Education in Human Capital Development

Education is one of the most powerful tools for building human capital, which directly affects productivity and growth. By improving skills, adaptability, and innovation capacity, education prepares individuals to meet the demands of a modern economy.

- **Skill Enhancement:** Education increases literacy, numeracy, and technical expertise. Workers with better training can handle complex machinery, adapt to digital technologies, and solve workplace problems more effectively.
- **Innovation and Creativity:** Universities and research institutions act as breeding grounds for ideas, inventions, and scientific advancements that can be applied in industries.
- **Social Benefits:** Beyond the economy, education reduces poverty, enhances health outcomes, and promotes gender equality, all of which indirectly support productivity.

Short-Term vs. Long-Term Trade-Off:

Investing in education requires large expenditures today—on schools, teachers, training, and infrastructure. The benefits, however, often materialize only after many years, once educated students enter the workforce. This makes education a classic long-term investment: short-

term fiscal sacrifices are necessary for enduring improvements in productivity and living standards.

### 7.3.3 Importance of Trade and Global Integration

Trade and openness to global markets enable countries to break the limits of their domestic economies. By producing for larger markets, firms achieve economies of scale, while imports provide access to advanced technologies and diverse goods.

- **Access to Larger Markets:** Export opportunities allow domestic producers to expand beyond the constraints of national demand.
- **Technology Transfer:** Imports of machinery, software, and technical know-how raise the overall productivity of industries.
- **Specialization and Comparative Advantage:** Countries allocate resources to sectors where they are relatively most efficient, boosting global and domestic productivity.
- **Competition and Efficiency:** Exposure to international markets forces firms to improve product quality and reduce costs.

#### Short-Term vs. Long-Term Trade-Off:

Trade liberalization often disrupts uncompetitive domestic industries in the short run, leading to job losses or structural unemployment. Yet, in the long term, resources shift to more productive sectors, industries modernize, and the economy benefits from higher efficiency and innovation. Governments must manage this transition with social protection and retraining programs to minimize short-term costs.

### 7.3.4 Government Policies Supporting Research and Development (R&D)

R&D is a vital driver of technological change, enabling new products, processes, and industries to emerge. Governments play a crucial role by supporting research institutions, providing incentives to firms, and ensuring collaboration between public and private sectors.

- **Public Funding:** Investment in universities, laboratories, and research centers creates the infrastructure for discovery.
- **Tax Incentives and Subsidies:** These encourage businesses to invest in risky but potentially transformative innovations.
- **Partnerships:** Joint ventures between government and private firms accelerate commercialization of ideas and technologies.

- **Global Competitiveness:** Countries that sustain strong R&D systems remain at the forefront of science and technology.

#### Short-Term vs. Long-Term Trade-Off:

R&D spending often shows little to no immediate payoff. Politically, this is difficult because taxpayers and businesses may prefer short-term relief measures. However, in the long run, R&D leads to breakthroughs that transform entire industries—for example, renewable energy, digital platforms, or biotechnology—ensuring productivity growth for decades.

### 7.3.5 Institutional Quality and Governance in Growth Promotion

Institutions create the framework within which economic activity occurs. Effective governance ensures stability, transparency, and fairness, which in turn attract investment and support long-term growth.

- **Rule of Law:** Protecting property rights and enforcing contracts builds confidence among entrepreneurs and investors.
- **Political Stability:** Investors are more willing to commit resources in an environment free from political turmoil.
- **Efficient Bureaucracy:** Transparent and accountable systems reduce corruption and ensure policies are implemented effectively.
- **Trust in Institutions:** Confidence in governance increases compliance with regulations and supports both domestic and foreign investment.

#### Short-Term vs. Long-Term Trade-Off:

Institutional reforms are often disruptive and politically unpopular in the short term. For instance, anti-corruption measures or regulatory tightening may slow down certain businesses initially. But in the long term, strong institutions foster stability, reduce transaction costs, and create an environment conducive to sustained growth. The short-term discomfort is therefore an investment in long-term prosperity.

### Knowledge Check 1

Choose the correct option:

1. Which of the following provides funds for productive investment?
  - a) Consumption

- b) Savings
  - c) Imports
  - d) Wages
2. Human capital development is mainly achieved through:
- a) Education
  - b) Taxation
  - c) Infrastructure
  - d) Trade
3. Comparative advantage in trade allows a country to:
- a) Produce everything equally
  - b) Specialize in certain goods
  - c) Avoid global competition
  - d) Depend only on domestic markets
4. Protecting property rights and enforcing contracts is a function of:
- a) Natural resources
  - b) Trade policy
  - c) Rule of law
  - d) Technology

## 7.4 Catch-up Effect and Convergence Debate

### 7.4.1 Concept of the Catch-up Effect

The catch-up effect or convergence effect illustrates why poorer countries will tend to grow faster than richer ones under the right conditions. As advanced economies are already highly productive, their growth is anchored down. However, less-developed economies can potentially expand at faster pace by duplicating technologies, processes and methods that have already been developed elsewhere.

Key points:

- **HIGHER MARGINAL RETURNS ON INVESTMENT:** Capital is scarce in poor economies. Every new thing invested (in machines, infrastructure and education) generates greater returns than the rich economies, where there's an already abundant stock of capital.
- **Technology transfer:** The less-developed countries have access for existing innovations without having to incur the expenditure on research and development.
- **Leapfrogging opportunities:** It is possible for countries to jump over older technologies and adopt new ones quickly (for example, mobile banking can be used without creating a traditional bank etc. in Africa).
- **Growth Rate:** Growth rates can be much faster in poor countries (under the right conditions of institutions, stability and openness to trade).

### 7.4.2 Convergence: Poor Versus Rich Countries

The catch-up effect of the growing level theory is called the convergence hypothesis. It predicts that poor countries' income levels should eventually grow to match those of rich countries, provided they have similar economic fundamentals and opportunities.

Key points:

- **Pure Convergence:** Suggests that all nations will someday have the same prosperity in terms of per capita income regardless of their institutions, preferences, or national policies. This is rare in practice.
- **Convergence: Conditional – spread** is the result of only a sub-sample of countries that converge (countries that share certain common features, e.g., similar savings rates, levels of education, governance or rate of population growth).
- **Paths of Growth:** Rich countries generally have stable, slower growth but poor countries can grow faster if they adopt efficient practices.
- **Policy Relevance:** Assumes that if policies create the right climate, countries will converge in this sense.

#### 7.4.3 Empirical Evidence on Convergence

A review of the empirical evidence on the validity of the convergence hypothesis is presented in Fernández et al (2001) where per capita income levels and growth rates are compared across countries. Results are mixed, providing evidence that convergence is contingent rather than ubiquitous.

Key points:

- **Evidence of Convergence:**
  - o East Asian economies (such as South Korea, Taiwan and Singapore) experienced fast catch-up growth by investing in education, industrialization and opening to global markets.
  - o Post World War II convergence of entities in some European countries through integration, reconstruction aid, and common institutions.

- Evidence of Non-Convergence:

- o Sub-Saharan Africa and some of Latin America fell behind as a result of weak institutions, limited investment, political instability, and dependence on primary products.

- Conditional Factors:

- o Those countries with strong institutions, trade links and investment in human capital have the greater probability of convergence.

- Enduring Observation: Convergence is not a foregone conclusion— it requires the conditions that facilitate indefinite expansion.

#### 7.4.4 Drawbacks and Criticisms of the Convergence Debate

While the convergence thesis sounds nice, it is too naive and simplistic to apply in a real world of global development.

Key points:

- Institutional Obstacles: Corruption, poor governance and feeble property rights deter investment and growth.

- Technology Deficit: All countries may not be able to transfer, adapt and adopt higher levels of technology.

- Global Inequality: Uneven capital flows, trade barriers and global power imbalances hinder fair playing fields for all economies.

- **Geographic and Resource Limited:** countries which are land-locked, arid or resource poor.
- **Divergence Cases:** Some poor countries have fallen farther behind, rather than catching up, in what has been called the most unequal recession in modern history — underscoring the part that politics, conflict and structural weaknesses have played.
- **Dependence on the Rich:** Relying too much on aid, debt and multinationals can induce dependence not independence.

### “Activity”

Divide students into two groups: one representing poor countries and the other rich countries. Ask each group to discuss how factors like technology, institutions, and investment influence their growth prospects. Then, simulate a debate on whether poorer nations can truly catch up with richer ones under current global conditions.

## 7.5 Summary

### ❖ Productivity and Determinants of Growth

- o Productivity measures output per unit of input, influencing long-term economic growth.
- o Factors affecting productivity include human capital, capital investment, technology, management practices, natural resources, and institutional frameworks.
- o Productivity is measured by labor productivity, capital productivity, and total factor productivity.

### ❖ Physical and Human Capital, Natural Resources, and Technological Progress

- o Physical Capital (tools, equipment, infrastructure) enhances production efficiency and capacity.
- o Human Capital (education, skills, health) is essential for innovation, adaptability, and improving productivity.
- o Natural Resources (renewable and non-renewable) provide essential raw materials, but their sustainability is vital for long-term growth.
- o Technological Progress drives

innovation, knowledge spillovers, and improves overall productivity through automation and new methods.

- o Growth depends on the interdependence of physical capital, human capital, natural resources, and technological advancements.

#### ❖ Policies to Encourage Growth

- o Savings and investment promote the accumulation of capital, leading to sustained growth. o Education strengthens human capital by improving skills and fostering innovation.

- o Trade and global integration provide access to larger markets, new technologies, and promote competition.

- o Government policies supporting R&D foster innovation and technological progress.

- o Institutional quality and governance ensure a stable and transparent environment for businesses to thrive and promote long-term growth.

#### ❖ Catch-up Effect and Convergence Debate

- o The catch-up effect explains how poorer countries can grow faster by adopting existing technologies and improving productivity.

- o The convergence hypothesis suggests that over time, poorer economies can catch up with richer ones if they have similar policies and conditions. o Empirical evidence shows that convergence is conditional, depending on factors like governance, institutions, and investment in human capital.

- o Limitations and criticisms include weak institutions, global inequalities, and technology gaps that hinder convergence in certain regions.

#### ❖ Key Financial Institutions

- o Muthoot Finance: A major gold loan NBFC offering quick, collateral-backed loans, primarily to rural areas.

- o LIC Housing Finance: Provides home loans for purchasing, constructing, and renovating homes, supporting India's housing sector. o Power Finance Corporation Ltd.: Focuses on financing the power sector's generation, transmission, and distribution projects in India.

- o Emerging FinTech-NBFC Players: Companies like Paytm, Lendingkart, and Capital Float are using digital platforms and AI to provide innovative credit solutions to individuals and SMEs.

## 7.6 Key Terms

1. **Productivity:** The efficiency of producing goods and services, measured as output per unit of input.
2. **Physical Capital:** Tangible assets like machinery, tools, and infrastructure used to produce goods and services.
3. **Human Capital:** The skills, knowledge, and health of individuals that contribute to economic productivity.
4. **Natural Resources:** Raw materials from the earth, including both renewable and non-renewable resources, used in production.
5. **Technological Progress:** Advancements in technology that improve production methods, efficiency, and innovation.
6. **Credit Rating:** A rating that evaluates the creditworthiness of a borrower, based on their ability to repay debt.
7. **Keyman Insurance:** A life insurance policy taken by a business on its key employee to protect against financial losses due to their absence.
8. **Convergence Hypothesis:** The theory that poorer countries will eventually catch up to richer countries in terms of income and economic development.
9. **Catch-up Effect:** The phenomenon where less developed countries grow faster than developed countries by adopting existing technologies and practices.
10. **NBFC (Non-Banking Financial Company):** A financial institution that provides banking services without meeting the legal definition of a bank, such as lending, investment, and asset management.

### 7.7 Descriptive Questions

1. Explain the concept of productivity and how it is linked to economic growth. Provide examples of factors that affect productivity.
2. Discuss the role of physical capital in economic growth. How does investment in infrastructure and machinery contribute to improving a country's productivity?
3. Describe the importance of human capital in driving economic development. How do education, training, and health affect productivity in a country?
4. What is the relationship between technological progress and productivity? Explain how innovation and research contribute to economic growth.
5. Explain the concept of the convergence hypothesis. Do you think all poor countries will eventually catch up to the rich ones? Justify your answer with relevant examples.

6. What is the catch-up effect? Discuss how it helps developing countries grow faster than developed nations. What are the conditions necessary for the catch-up effect to occur?
7. Describe the role of government policies in encouraging economic growth. How do savings, investment, and research and development policies support national growth?
8. What are credit rating agencies, and why are they important for investors and businesses? Discuss how a good credit rating can impact the financial stability of a company.
9. Describe the impact of emerging players in the FinTech-NBFC space. How are companies like Paytm and Lendingkart changing the financial services landscape in India?

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## Answers to Knowledge Check

### Knowledge Check 1

1. b) Savings
2. a) Education
3. b) Specialize in certain goods
4. c) Rule of law

## 7.9 Case Study

### The Hair Stylist and The Makeup Artist in Event Management

#### Introduction

Running events is a complex process and often many elements must coordinate to form a fully realised experience. I can help you build contacts with local hairdressers and beauty salons, who do not get enough credit! If your hair is done nicely at a salon it really looks professional for the event. Be it a wedding, fundraiser, fashion show or gala – the perfect hairstyle and makeup fortify attendees' confidence and leave a memorable impression.

But handling beauty professionals can be difficult when it falls under the large umbrella of event planning, such as dealing with stylist conflicts and making sure you have a unified look as well as open communication between your beauty team and your event manager. In this

case as in this article, the role of these professionals is emphasized and solutions are discussed for coordinating them in large incidents.

## Background

It is of course true that attendees usually look like the event's theme and atmosphere. At weddings, the bride's look is central to the occasion, and at corporate events it must keep in step with a company's brand as well as an event theme. But coordinating the plethora of style preferences from hair and make-up artists that correspond to your event's theme can be hard to do on such a grand scale, when dealing with multiple professionals. Where there isn't coordination, you have slow responses, style mismatches and ineffective communications that leave you with a disjointed experience.

**Issue 1: Coordinating with Many Different Hair Stylists and Makeup Artists** Many event organizers find it hard to coordinate multiple beauticians, which will finally lead to inconsistent quality or timeline conflict. Especially because with different work speeds and tactics, the service quality can vary from stylist to stylist which impacts the whole day.

## Solution

You can solve such a problem by having an integrated scheduling system so that you are able to communicate with hair and makeup artists. This means each provider gets an appointment time and are not held up by others. Also, making a priority list of what clients are looking for in their edits can ensure consistency throughout the final look.

## MCQ:

What's the best way to team up with several hairdressers and make-up artists at an event?

A) Task do not specify a start time at all chores and errands had no specific placed times; they were given out as assignments.

- B) Or Use a central scheduling resource with well-defined time frames, etc.
- C) Allow the professionals to select their customers and times (preferred by many)
- D) Give clients the freedom to pick their own makeup artist and stylist

Answer: B) Utilize a centralized scheduling system with defined time frames

Note: You would not schedule events yourself, in this way no scheduling conflict will arise of course;-) pros = these time are so precise :) pros = i thought of only that with a central like system on the "creator" side.

## Problem 2: Matching Up Hairstyling and Makeup According to the Event Theme

Event planners face the dilemma of how to ensure hair and makeup reflect an event theme. Mismatch style If the theme and style do not fit well, it can interrupt creating a seamless flow of the event.

### Solution

Stylists and makeup artists should be given the dress code, theme, color palette and client preferences ahead of time. That way, styling decisions will be in keeping with the overall look and feel of an event, said Davies.

### MCQ:

How do event organizers make sure hair and makeup match the theme of an event?

- A) Allow stylists to create with free reign, no criteria for styling

B) Give Clear Theme and Color Scheme Instructions for the Event

C) Participants may wear whatever they want

D) Do not deal with a theme but foster the individual creativity

Answer: B) Give a clear theme and color scheme for the event

Explanation Keep the waves. "Guidelines help stylists figure out what would fit with the feel of the event and make for a cohesive visual experience.

Issue 3: Efficient Communication Between Event Manager, Hair Stylists and Makeup Artists

Communication between the event manager /organizer and beauty professionals is key. A lack of clear communication can cause mix ups, overlooked client preferences, and on site compromises that may wreck the flow for an event.

Solution

For better understanding to further plan, event organizers should set up a common mode of communication, for example via whatsapp group or assign one focal contact point for all the beauty professionals. Frequent pre-event briefings will help to define responsibilities and expectations.

MCQ:

How can we possibly facilitate effective communication between event manager and beautician?

A) Appoint a single point of contact for communication.

B) Keep communication informal and spontaneous

C) Try not to communicate until the event begins

D) Let the customers get in touch with the experts directly




Answer: A) Communication through appointed central point\_corr 10025CCheck1.doc Figure#055If you are co-ordinating the response to the EMS and wish all communication to DMPPU go via a single point of contact, complete this field.

Reference: A point of contact to be used for communication prevents a garbled message during the briefing process.

## Conclusion

A great hair stylist and a good makeup artist can often enhance the look of an entire event. But their incorporation into managing an event takes careful planning, coordination and communication. Through structuring scheduling, having clear direction and maintaining open communication channels, event managers can facilitate a seamless inclusion of beauty professionals who help to enhance the overall event experience.

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## Unit 8: Unemployment and Its Natural Rate

### Learning Objectives

1. **Define Unemployment:** Understand the concept of unemployment and the various types, including frictional, structural, and cyclical unemployment.
2. **Explain the Unemployment Rate:** Calculate the unemployment rate and analyze its significance in assessing the health of an economy.
3. **Identify Causes of Unemployment:** Recognize the factors that contribute to unemployment, including economic downturns, technological advancements, and labor market mismatches.
4. **Understand the Natural Rate of Unemployment:** Describe the concept of the natural rate of unemployment and distinguish it from the cyclical rate.
5. **Analyze the Relationship Between Unemployment and Inflation:** Explore the trade-off between unemployment and inflation, focusing on the Phillips Curve and its implications.
6. **Discuss the Impact of Unemployment on Economic Welfare:** Evaluate how high unemployment affects economic performance, productivity, and societal well-being.
7. **Examine Policies to Reduce Unemployment:** Identify government policies aimed at reducing unemployment, such as fiscal stimulus, job training, and labor market reforms.
8. **Study the Role of Labor Market Flexibility:** Understand how labor market flexibility (wages, working hours, job transitions) influences the natural rate of unemployment in different economies.

### Content

- 8.0 Introductory Caselet
- 8.1 Labor Force Statistics
- 8.2 Types of Unemployment
- 8.3 Natural Rate of Unemployment and Policies
- 8.4 Unemployment Insurance, Minimum Wage Laws, Unions, and Efficiency Wages
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- 8.7 Descriptive Questions

## 8.8 References

## 8.9 Case Study

## 8.0 Introductory Caselet

### “Lyrisia: International relations theories”

The global economy experienced widespread layoffs. Among the hardest hit were tens of thousands of skilled IT workers who found themselves out of a job as organizations slashed costs, automated processes and the nature shifted business demands. Those layoffs show how external pressures and power dynamics — whether within corporations or among nations — can shift the opportunities and vulnerabilities of smaller players. Just as workers must endure uncertainty when larger forces dictate their fate, small states frequently find themselves in the same position between more powerful neighbors.

Lyrisia, a tiny, emerging island nation is one such. Situated between two regional powers: — Caldera in the west and Dynara to the east. Both powers are now eager to exploit Lyrisia's natural resources, with its rare minerals and its chokehold on major trading lanes. In return for influence, they promised to construct infrastructure, give financial aid and build up Lyrisia's military. Initially, Lyrisia's leaders embraced the attention as opportunities to jump-start economic growth and enhance national security.

However, tensions soon became clear. Caldera insisted that Dynara's increasing power in the area was threatening, while Dynara feared Caldera's spread of militarance. The future queen of Lyrisia was keen enough to see that leaning too heavily toward one or the other could provoke revenge from both, risking peace and freedom.

To help them, Lyrisia's diplomats consulted theories of international relations:

- Realism found that states pursue self-interest, and Lyrisia should be prepared for power politics.

- Liberalism held that working with both powers could bring mutual economic and diplomatic dividends.
- Geoeconomics brought the use of economic power into play as a strategic instrument once again, reminding Lyrisia that its resources and trade lanes lay at the heart of both Caldera's and Dynara's longterm strategic interests.

Based on these assumptions, Lyrisia adopted a middle course in foreign policy. Instead of throwing in its lot wholeheartedly with either Caldera or Dynara, it established good trade relations with both without committing to any formal military pacts. It emphasized the growth of its national economy and regional alliances to protect independence and peace.

### Critical Thinking Question

Why was it important that Lyrisia used the international relations theories before she made a decision, and what could have happened if they hadn't done that research?

## 8.1 Labor Force Statistics

### 8.1.1 Definition of Labor Force

The labour force includes all the people in a country that are either working or looking for work. It consists of both those employed (working) and not working but in search of a job (unemployed). It does not cover those who are not seeking work, like retirees, students, stay-at-home parents or people too ill to work.

The labour force can be abbreviated to LF, is defined, with minor exceptions, as the sum of employment and unemployment.

Labor Force = Employed + Unemployed Here is further explanation of terms.

- Workers are employed persons who, during a specified brief period such as one week or one month, are either at work or have a job (are temporarily absent from their job) from which they were temporarily absent.
- Unemployed = Not working but looking for work.

### 8.1.2 Labour Force Participation Rate (LFPR)

Labor Force Participation Rate (LFPR) is the percentage of population ages 15 to 64 in the labor force. LFPR is a key variable when assessing the active sector of the population that works in economic activities}.

The formula for LFPR is:

$$\text{LFPR} = (\text{Labor Force} / \text{Working Age Population}) \times 100$$
 Where:

- Employed plus Unemployed is the number of labor force members.
- Workforce Population is the entire number of people of working age, generally 15-64 years.

The LFPR indicates the level of participation workforce in the population. A high LFPR means a greater share of the population is employed, and a low LFPR indicates that fewer people are involved in the labor force.

### 8.1.3 Unemployment Rate (UR)

The Unemployment Rate (UR) is the proportion of the labor force that does not have a job but is actively looking for one. It is a fundamental conduit for determining the well-being of an economy. A high unemployment rate is a sign of economic trouble, while low unemployment rates tend to signify economic prosperity and even expansion.

UR = Unemployment Rate and the expression for UR is given by:

$UR = (\text{Unemployed} / \text{Labor Force}) \times 100$  UR is the unemployment rate, Unemployed refers to those without a job who are available for work and have actively sought work in previous weeks, while Labor Force includes the unemployed plus those with a job.

- Out of work are those looking for a job and not working.
- Labour Force is the total of employed and unemployed.

The unemployment rate is a measure of the efficiency of the labor market at matching job seekers with available jobs. But it has limitations: the UR doesn't include discouraged workers who have given up on their job search; nor does it count people working part time when they would like to work full time.

Note: Relationship of Unemployment to Loss of GDP

Unemployment does not just feed on the individual but also cripples the wider economy. If some fraction of the labor force is still unemployed, potential output is lost because the economy is not able to employ all its productive resources. This creates a G.D.P. gap — the difference between how much the economy is producing and how much it could produce if more people had jobs. Economists often cite Okun's Law, which finds that for every 1% increase in unemployment above the natural rate, a nation's GDP drops by roughly 2% or more below its potential. That is, chronic joblessness has a direct effect on growth, and therefore income and living standards.

#### 8.1.4 Measurement Issues and Limitations

Labor Force Statistics, including Labor Force Participation Rate and Unemployment Rate, are popular indicators for measuring the status of an economy. However, they suffer several measurement problems and constraints:

**Underemployment:** While the unemployment rate looks at people who are actively seeking employment, it doesn't take into account those working part-time or in a position that they are overqualified for. This could introduce downward bias in labor market stress.

**Discouraged Workers:** Persons not in the labor force because they believe no job is available for them. And that hyper-fast rise of discouraged workers — which can give the false appearance of a low unemployment rate?

**Non-standard work** In several economies, non-standard forms of employment – including gig work, part-time work and temporary contracts – have been increasing. These types of work may not be fully reflected in the standard labor force statistics.

**Informal Sector:** Employment in the informal sector (jobs not recognized as normal jobs, and the formal recording and regulating of which are not protected by labor law) may result in estimates that underestimate the true level of employment in some economies.

**Regional and Demographic Disparities:** Labour force data can hide large geographical, gender or age differences in employment and unemployment that are of interest to policy-makers focussing on economic equality.

**International comparisons** Different definitions of the labor force, employed and unemployed for different countries make international comparisons difficult. Moreover, such discrepancies may result from varying data collection procedures among countries or lack of data availability.

Understanding these constraints is important in interpreting labor statistics because they may not fully reflect the economic strength or conditions of the labor market in a country.

## 8.2 Types of Unemployment

### 8.2.1 Frictional Unemployment

**Frictional Unemployment** This is short-term unemployment that results when people are between jobs, having just entered into the market or left a job without immediately finding another one. It's a type of unemployment that happens naturally even if the economy is healthy and expanding.

Frictional unemployment may be due to:

- **Job Search:** It may take workers a while to find the perfect match between their qualifications and what jobs are available.
- **Career Changes:** Individuals may decide to move into a different industry or profession, which itself requires time for retraining or canvassing for job opportunities.
- **Entrants to the workforce:** People who have completed their education or training and seeking a job for the first time are subject to frictional labor force.

Frictional unemployment is usually a temporary phase — and it isn't necessarily an indicator of economic hardship. It is a natural aspect of the dynamic labor market as workers shift from job-to-job.

### 8.2.2 Structural Unemployment

Work Sheet 8.0(For job-quiz "STRUCTURAL UNEMPLOYEE(HOW TO REDUCE) Structural Unemployment occurs when the educated did not fit to the allowance of their Employer". Explain - Definition:") DEFINE WHAT STRUCTURAL UNEMPLOYMENT: enprc :Sheet1 / A type structural intelligent worker his knowledge difference School a would them... This unemployment is due to structural aspects of the economy – technological improvements, changing industrial composition or consumer demand. As opposed to frictional unemployment, structural unemployment involves a lengthy process of retooling and reeducation for workers re-entering the workforce.

The causes of structural unemployment are:

- **Technological Change:** With the development of technology, there may be jobs/industries that become redundant. For instance, If you are a manual labour worker automation may mean more work for people with expert knowledge of the technology behind the machines coming in to replace their jobs.
- **Globalization:** Displacement can occur when companies leave for, or give jobs to workers in, countries where labor is less expensive.
- **Change in Consumers' Decisions:** Changes in the consumer preferences may cause an employment mismatch due to causing a decrease in the demand for specific industry labour (e.g., coal) and an increase in the demand for another labour blessed with more growth prospects (e.g. renewable energy).
- **Geographic Mismatch:** There may be job opportunities in one region, but workers live somewhere else and cannot move, or do not have the skills needed for those jobs.

Structural unemployment is usually longer-term in nature than frictional unemployment and may require retraining, the learning of new skills, or possibly geographical relocation or a change in educational systems to address.

### 8.2.3 Cyclical Unemployment

**Cyclical Unemployment :** This type of unemployment occurs due to economic downturns i.e. recession in which there is a general fall in demand for goods and services. When businesses see a drop in revenue, they cut back on production and lay off workers and unemployment rises. Maj Kearney, a former student who reported individual casualties in the book according associates women from military academies are more likely to keep such abuse secret than reporting it is related to the serve there.

There are several causes of cyclical unemployment, including:

- **Economic Recession:** In a recession, there is diminished demand for goods and services, reduced production and layoffs in many areas.
- **Softening Business Investment:** A cooling in business investment could result in fewer job openings and slower rates of hiring.
- **Government Policies:** A contractionary fiscal or monetary policy (higher interest rate, or lower government spending) can slow the economy and increase unemployment.

Cyclical unemployment varies with the state of the economy, and tends to decrease when an economy is in a recovery phase or when it's growing. It is transient and tends to go away as the economy improves.

#### 8.2.4 SEASONAL AND OTHER TYPES OF UNEMPLOYMENT

Seasonal Unemployment is the form of unemployment in which unemployment occurs because of inherent seasonal nature of some industries. The demand for workers in some industries fluctuates according to the time of year, and during certain times of the year, such as the off season, employers may lay off workers or give them temporary status layoffs if there is insufficient work available.

Factors leading to seasonal unemployment:- 1.

- **Agriculture~** Agricultural workers may be employed only at planting and harvesting seasons.
- **Tourism:** Several jobs in the tourism, hotel and leisure sector depend a great deal on seasonality (tourism seasons like summer or winter).
- **Retail:** Demand in the retail industry is seasonal, with certain periods (holidays) driving an increase in business and a need for seasonal labor.

There are many other subtypes of unemployment according to the BLS, including:

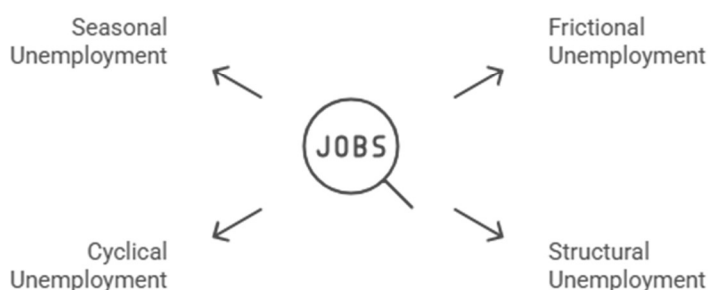
- **Long-Term Unemployment:** People who are unemployed for an extended period, such as 27 weeks or more. This can happen from either structural or cyclical unemployment, where workers cannot find jobs that match their skill sets.
- There are two kinds of being underemployed: you either have a job that doesn't make full use of your skills, or you work fewer hours than you would like.

As seasonal unemployment is expected and typically offset with seasonal work when it is particularly busy. Seasonal unemployment itself is less of a concern for the macro picture, but such fluctuations in income can present financial difficulties to individuals who do not have other employment opportunities during the off-season.

### “Activity: Types of Unemployment”

List and briefly explain the four types of unemployment discussed: Frictional, Structural, Cyclical, and Seasonal. Provide one example of each type of unemployment from real life or specific industries. Discuss how each type affects the overall economy and the workers involved.

## Types of Unemployment



## 8.3 Natural Rate of Unemployment and Policies

### 8.3.1 Concept of the Natural Rate of Unemployment (NRU)

Not to be confused with the NRU, the natural rate of unemployment is the level of unemployment at full capacity and potential output. Not that unemployment is zero but rather the economy has reached a steady state where all production factors are working at optimal capacity and there is no cyclical (demand deficient) unemployment.

The NRU includes:

- **Frictional Unemployment:** A type of short-term unemployment prevalent in an economy when there are people looking for a job or those who are entering the job market.
- **Structural Unemployment:** Unemployment caused by changes in the economy, such as technology or industries and the skills workers have (or do not have) that are needed for available jobs.

The NRU captures the natural movement in an economy where job changers and mis-matches are a fact of life. It is often treated as the natural rate of unemployment in a healthy economy, below which it cannot be driven without starting to generate inflation. If unemployment falls below the NRU, labor shortages may arise and wages will increase – subsequently leading to higher inflation which could damage the economy in the long-run.

### 8.3.2 Determinants of the NRU

The NRU is again determined by multiple factors that affect rates of frictional and structural unemployment. These considerations, in turn influence the way that workers enter and leave the labor force, the demand for workers from various industries and with differing sets of skills, and how effectively brings together workers with job opportunities.

Labor Market Efficiency:

o A determining factor is the effectiveness in the matching process between firms and workers. Countries with better infrastructure, higher-quality job search policies and a more information-efficient labour market will have a lower the level of frictional unemployment/'}). For example countries with advanced digital job search platforms have lower levels of frictional unemployment.

o The rate at which workers transition between jobs, determined in part by the availability of job-search resources (e.g., job-placement services or unemployment insurance).

#### Technology and Innovation:

o Technological change, especially automation and AI, may cause labor-shedding in specific industries potentially leading to structural unemployment. For instance, automation of the production process may cause unemployment among less skilled workers and an increased demand for more technically proficient labor.

o Changes in technology may lead people to learn new skills, if o this does not happen we will get structural unemployment.

#### Globalization:

o Globalization may affect the NRU, through potential competition in domestic markets from foreign countries. Workers in less internationally competitive sectors might also suffer from a greater amount of structural unemployment, as production is moved elsewhere to areas with lower wages.

For instance textile or assembly line works may be off-shored in other countries with cheaper labor and thus the home country victim of structural unemployment.

#### Labor Market Policies:

o Government appetites, e.g. minimum wage legislations, unemployment compensation and union contracts can increase or decrease the NRU. Minimum wages that are too high can drive up unemployment when firms won't hire as many workers at minimum wage, especially for the low-skilled.

o High levels of unemployment benefits may raise the NRU if people are discouraged from working or accepting low paying jobs because benefits are easily accessible.

#### Demographics:

o Demographics may have an influence on the NRU. Older workers could face above-average rates of unemployment because their skills are not aligned with labor market needs or they experience age discrimination. On the other hand, when a surge of young workers enters the labor market, there may be an increase in frictional unemployment while these persons look for new jobs.

o Growth in the population, fluxes in region-to-region migration, and demographic shifts in relation to family can also play a part. New Inca One's ability to influence the natural level by affecting the supply of, and demand for labor.

#### Educational Attainment and Skill Mismatch:

\*The education/skills base of the work force has an impact on the NRU. If the skills that labor force possess differ from those required by employers, structural unemployment grows, so that NRU rises.

o Countries with more readily available education and training opportunities are expected to have a lower NRU, because they prepare their workers more adequately for the requirements of the labor market.

### 8.3.3 Long-run vs. Short-run Perspectives

The notion of the Natural Rate of Unemployment (NRU) is integral to both short- and long-run examination of unemployment:

- Long-Run Perspective:

In the long-run, the economy is believed to converge back to the natural rate of unemployment which describes features of labour market, such as matching efficiency in job search and level of technology or education. After a while all cyclical unemployment (due to economic downturns or upturns) will be gone and the economy will move towards NRU. The natural rate the long-run perspective where inflation and unemployment are not negatively correlated. Efforts to drive unemployment below the NRU with overly generous monetary or fiscal policy can result in higher inflation (a trade-off sometimes referred to as the Phillips Curve).

- o Term--Finally, long-run policies that enhance education, lower labor market rigidities, or enhance labor market flexibility can decrease the NRU by increasing job match efficiency and reducing structural mismatches between workers' skills and the demands of employers.

- Short-Run Perspective:

- o In the short run, the unemployment rate can be above or below the NRU as a result of shifts in aggregate demand. For example, in an economic downturn, cyclical unemployment rises as businesses limit hiring and investment and this pushes the rate of unemployment above the NRU. Conversely, in times of sustained economic growth, unemployment may go lower than the NRU, leading to inflation.

- o The short-term unemployment rate is largely determined by macroeconomic variables, including business cycles, monetary policy and fiscal incentive. But these movements are short-term and will not affect the natural rate of unemployment going forward.

### 8.3.4 Policies to Affect the NRU

Policy Governments can take a range of policy measures to impact NRU through addressing the causes of frictional and structural unemployment. [While] such policies will not make unemployment disappear... they will lower the natural rate and put downward pressure on wages, leading to a more efficient labour market. Among the most significant policy measures:

#### Education and Training:

- o Policy Objective: To lower structural unemployment by enhancing the skills and qualifications of workers that are required to meet the shift in the economy needs.

Example: Programs to offer vocational training or pay for college can help workers move from shrinking industries (coal mining, say) into growing ones (say, renewable energy). It also closes the gap between local labour supplies and the qualifications demanded by employers.

#### Labor Market Flexibility:

- o Policy Objective: Attempting to make the labor market more efficient by eliminating restrictions like restrictive labor laws or strong unions from keeping wages and employment from adjusting to changes in demand.

- o For example, the NRU can be lowered by reform of labour laws which makes it more easy for employers to hire and fire workers. It also involves a market for labor that is more flexible, and thus able to bring wages and work conditions similarly into line as economic conditions change.

#### Job Creation Programs:

- o Justification for Policy: Reduce unemployment through the promotion of new job opportunities, particularly in expanding industries.

o For example, governments may invest in infrastructure work or promote emerging industries (e.g., IT, green energy) to create more jobs. Such efforts could help to alleviate structural unemployment by generating new sectors' worker demands.

#### Active Labor Market Policies:

o Policy Objective : To minimize frictional unemployment through enabling individuals to find jobs faster.

o Example: Job placement services, employment subsidies or public works projects can help workers take new jobs more quickly and push NRU down. §NRU and GDP growth. Examples of such programs are training, career guidance and relocation subsidies that help workers move closer to new job opportunities.

#### Minimum Wage Adjustments:

o Policy Objective: Is to establish a trade off between appropriate wages for labor and labour demand available.

Example: Increasing the minimum wage can be a way to help reduce poverty, but if you raise it too high, you may promote unemployment, especially among low-skilled workers. It is simply a matter of governments needing to set min wage at some rate that balances paying workers enough so they can live, but not so high that you disincentivize hiring.

#### Promoting Labor Mobility:

o Policy Objective: Facilitate the movement of workers from low-demand areas or sectors to high-demand areas or sectors.

o Example: relocation subsidies, with assisting workers with housing costs to promote labor mobility and reduce regional mismatches between labor supply and demand. This may even serve as a possible remedy to the geographic imbalances in the labor market.

Through the use of these policies, they are reducing the NRU and making the labor market work better overall, which translates to a stronger economy with more productive utilization of human capital.

Choose the correct option:

1. What does the Natural Rate of Unemployment (NRU) represent?
  - a) The unemployment caused by economic recessions
  - b) The level of unemployment when the economy is at full employment
  - c) The unemployment rate during high inflation
  - d) The unemployment rate in the short run
2. Which factor primarily influences structural unemployment?
  - a) Seasonal changes
  - b) Technological advancements
  - c) Fluctuations in aggregate demand
  - d) Job search duration
3. In the long run, the economy tends to move towards which of the following?
  - a) High cyclical unemployment
  - b) Full employment
  - c) The Natural Rate of Unemployment (NRU)
  - d) Short-term unemployment
4. What is one common policy measure to reduce structural unemployment?
  - a) Increasing minimum wages
  - b) Reducing unemployment benefits
  - c) Education and job training programs
  - d) Cutting taxes for businesses

## 8.4 Unemployment Insurance, Minimum Wage Laws, Unions, and Efficiency Wages

### 8.4.1 Role of Unemployment Insurance

(READ FULL UNEMPLOYMENT DEFINITION) What is unemployment insurance  
Unemployment insurance is a government program which provides financial aid to people who have lost their job through no fault of their own and are actively seeking work. When someone qualifies, UI benefits generally cover a share of their past wages for a set period.

#### Key Functions of Unemployment Insurance

##### Income Support for the Unemployed

Unemployment insurance is financial cushion that provides temporary support to the unemployed. Ease the financial burden of unemployment – so that individuals can cover basic living expenses while they look for a new job.

- Caselet – 2008 Global Financial Crisis in the United States: When the world finance crisis hit, millions of workers in the U.S. found themselves without jobs. Unemployment insurance afforded important income support that kept many families from lapsing into poverty, and gave them time to make the transition to new employment when economic conditions improved.

##### Economic Stabilization

UI is an automatic stabilizer in the economy. From the standpoint of macroeconomic stabilization, one of the most important functions that UI serves during recessions is to preserve consumer spending so as to avert a sudden plunge in aggregate demand.

- Caselet – European Union in the age of COVID-19:Twelve nations across Europe beefed up unemployment insurance and wage-support programs in 2020. By stabilizing purchasing

power fairly dramatically, these policies were enough to soften the blow of falling consumer demand and lengthen what might otherwise have been a more severe recession.

### Reduced Immediate Hardship

Without UI, the unemployed would suffer a precipitous loss of income that might even worsen economic hardship. UI alleviates poverty of the unemployed and insulates workers' income while they look for a new job.

- Caselet – India's Informal Labour Market Comparison with Advanced Economies: In advanced capitalist economies, most of the workforce (at least in the formal sector) is covered by unemployment insurance. In periods of lockdown due to COVID-19, a large number of the daily-wagers lost their jobs without the safety net of a financial cushion which in turn led to mass distress migrations and underscored the value in social protection programs.

### Potential Downsides of Unemployment Insurance

#### Moral Hazard

"Overly generous or prolonged benefits can lead people to be less active in job search and less willing to take new jobs."

- Caselet — U.S. Pandemic Extended Benefits (2020–21): Extended UI benefits prevented rapid return to the labor force in some states. Employers in industries like hospitality and retail found it hard to fill the jobs that existed as workers opted instead to hold out for higher-paying, or safer, work.

#### Longer Unemployment Spells

Research demonstrates that availability of unemployment insurance can lengthen duration of unemployment.

- Caselet — France, 1990s–2000s: As a consequence of France’s relatively long UI duration, there were debates about whether it resulted in higher unemployment rate that never fell back to the pre-recession level particularly for young people. Critics contended that extended benefits discouraged some job hunters from searching as hard, while supporters said it enabled workers to find positions more closely aligned with their skills.

### Impact on Job Search Behavior

When workers are collecting UI benefits, they may be able to be more choosy about the jobs for which they apply, causing a gap between available jobs and applicants’ preferences.

- Caselet – Hartz Reforms in Germany (early 2000s): Prior to the reforms, Germany had structural unemployment due in part to generous benefits and because of job mismatches. The Hartz reforms shortened benefit duration and introduced stricter job search obligations, with the result that people returned to the labor market more quickly, but also controversy on issues of equity and fairness.

### 8.4.2 The Minimum Wage and Unemployment

Minimum Wage Laws are laws that determine the smallest wage that employers may legally pay for work. The aim is to make sure that employees earn a minimum living from their jobs.

#### Effects of Minimum Wage Laws:

**Rising Incomes for Low-Wage Workers:** These laws improve compensations for workers currently working at wages below the legal minimum, giving them an important first step out of poverty. It means workers will be paid a more just wage for their labor, leveling the economic playing field.

**Potential Job Losses:** Arguably the major concern with minimum wage legislation is its effect on employment. If the minimum wage is raised too high relative to what workers produce, employers will cut jobs or use automation and may even export jobs to lower-wage countries.

This could actually increase unemployment — especially for young or less-skilled workers who won't be able to provide as much value to justify the higher wage.

**Elasticity of Labor Demand:** The impact of a minimum wage on employment ultimately relies on how elastic labor demand is within certain sectors. Here is how that might work: Where labor demand is inelastic (employers cannot readily substitute machines or automation for workers), the minimum wage could be increased with minimal job loss. Yet in businesses where labor is more easily interchangeable or profit margins are thinner, employers might lay off workers or cut hours.

**Deterrent for Low-Skilled Workers:** If the minimum wage is too high relative to the abilities of low-skilled workers, they might have trouble finding employment and will experience higher levels of unemployment.

**Economic Debate on Minimum Wage:**

- Supporters say lawmakers writing minimum wage laws also helps to combat poverty and inequality, while giving workers a fair wage for their labor. It turns out that modestly raising the minimum wage generally does not reduce employment, according to research.
- Critics say that a too-high minimum wage can lead to job losses, especially in industries that depend on low-wage labor, including retail and hospitality.

#### 8.4.3 Labour Unions and Negotiation of Conditions

An 'Association') Labour Unions are groups formed by workers to represent them in their dealings with employers about such matters as wages, working conditions, etc. Collective Bargaining is the procedure in which labor unions go into negotiations with employers and attempt to settle disputes, such as pay, hours of work, and working conditions.

**Key Positions and Functions of Trade Unions**

## Improving Wages and Benefits

Unions ask for higher wages and better benefits for their members. Unions frequently possess the sort of bargaining power that can help them win better compensation than individual workers working alone would be able to do.

## Better Working Conditions

They push for safer working environments, a maximum workday or week, paid sick days and affordable healthcare.

Unions also advocate for legislation that protects against arbitrary dismissal and workplace discrimination.

## Collective Bargaining

This procedure also enhances the voice of workers in negotiations, even if it helps to level the playing field between employers and employees. Workers can sit as equals and negotiate a fairer deal.

## Job Security

Unions sometimes advocate for the inclusion of contractual protections that can minimize the threat of layoffs or arbitrary firings, helping workers to find security in their jobs.

## Potential Drawbacks of Labor Unions

### Higher Wages Leading to Unemployment

If union bargaining sets wages above market equilibrium, additional workers may be hired or staff members adjusted and especially among those who remain unskilled or new.

### Workplace Strikes

Strikes can force employers to accede to the demands of unions but they also threaten productivity and weaken the broader economy.

### Disincentives for Employers

Companies could move production overseas or invest in automation to avoid the high labor costs, causing domestic job losses.

### Worked Example: Calculating UR, LFPR, and Discouraged Worker Impact

Suppose a country has the following statistics:

- Working-age population (15–64 years): 1,000 people
- Employed: 600 people
- Unemployed (actively seeking jobs): 100 people
- Discouraged workers (stopped looking for jobs): 50 people

Step 1: Calculate the Labor Force (LF)

Labor Force = Employed + Unemployed

$$= 600 + 100$$

$$= 700$$

Step 2: Unemployment Rate (UR)

UR = (Unemployed ÷ Labor Force) × 100

$$= (100 \div 700) \times 100$$

$$= 14.3\%$$

Step 3: Labor Force Participation Rate (LFPR)

LFPR = (Labor Force ÷ Working-Age Population) × 100

$$= (700 \div 1,000) \times 100$$

$$= 70\%$$

#### Step 4: Discouraged Worker Impact

Now suppose discouraged workers (50) re-enter the labor force but still cannot find jobs.

- New Labor Force = 600 employed + 100 unemployed + 50 discouraged = 750
- New Unemployed = 150
- New UR =  $(150 \div 750) \times 100 = 20\%$
- New LFPR =  $(750 \div 1,000) \times 100 = 75\%$  Interpretation:
- Initially, the UR was 14.3% with an LFPR of 70%.
- Once discouraged workers are counted, the UR rises sharply to 20%, and the LFPR increases to 75%. This shows that excluding discouraged workers underestimates unemployment pressures, while including them paints a more accurate but harsher picture of the labor market.

#### 8.4.4 Efficiency Wage Theory

The Efficiency Wage Theory suggests employers would collectively set wages higher than the market-clearing wage (the wage level at which supply equals demand) to bring about a higher standard of employee work and lower rates on employee retention. So rather than paying workers the lowest wage possible, employers may have an incentive to raise their wages.

The Efficiency Wage Theory in Nutshell:

**Higher Worker Productivity:** If workers are paid higher-than-market wages, they may work harder and be more motivated. Higher wages can improve job performance when workers feel more valued and are less likely to “shirk” (work below their capacity). This improves overall productivity.

**Less Turnover Among Employees:** When wages are higher, there is a lesser tendency for employees to seek other employment. High wages are a retention strategy: keeping workers

is cheaper than finding and firing them. Lower turnover also helps the employees become more experienced and efficient.

**Drawing a Higher Caliber of Talent:** You get more talented workers when you pay them more, which means employers will be able to recruit from a larger pool of higher skilled talent. Competing firms in the industries, for which the potential workers have been trained, all try to attract away those best prospect employees and thus add value in so doing.

**Possibility for Higher Unemployment:** Although efficiency wages may raise employer's productivity and decrease labor turnover, they might also hire fewer employees, because the higher wage rate then makes the labor more expensive. Firms might employ less workers than they would if wages were at the level of the market equilibrium, with the result being that unemployment increases.

**Examples of Efficiency Wages in the Real World:**

- **Tech Industry:** Technology firms usually offer high wages to lure the top of top talent; skilled labor is a hot commodity and is critical to a company's success.
- **Manufacturing:** In certain situations, manufacturing companies can pay higher than market rates; keeping workers longer in these jobs reduces expensive turnover and increases productivity.

### Did You Know?

"Labor unions originated in the early 19th century during the Industrial Revolution when workers sought better wages, working conditions, and hours. Collective bargaining, a key function of unions, has led to significant labor reforms, including the 40-hour workweek, safety regulations, and minimum wage laws, benefiting millions worldwide."

## 8.5 Summary

#### ❖ Labor Force and Key Statistics:

o Labor Force: all people who are working or looking for work.

o Labor Force Participation Rate (LFPR) measures the proportion of working-age population that are members of the labor force.

o Unemployment Rate (UR) is the percentage of people in the labor force not at work and seeking employment.

o Labor force numbers are not perfect, including underemployment and excluding discouraged workers.

#### ❖ Types of Unemployment:

o Frictional Unemployment: Frictional unemployment results from the movement of workers between jobs and into the labor force.

o Structural Unemployment: Resulting from a skill mismatch between jobseekers and available jobs that occur as labor moves to new industries; possible effects of technology (which may automate existing labor away) or deindustrialization.

o Cyclical Unemployment is caused by negative shifts in the economy and are often referred to recession.

o Intermittent Unemployment is associated in the firms with seasonal demand patterns. ❖  
NRU or Natural Rate of Unemployment:

o NRU is the unemployment rate consistent with full employment, adjusting for frictional and structural unemployment.

o The influencing factors are the efficiency of labour markets, technological development, demographic changes and market policies.

o The NRU is constant for the long term, but its determination (in other words, estimation) may be affected by cyclical factors in the short run.

#### ❖ Labor Market Policies:

o The benefit in the form of unemployment insurance provides temporary income for people who are unemployed but it may contribute to lengthening spells of unemployment if benefits are too high.

o Minimum Wage Laws are implemented to provide fair wages but have the opposite effect if it is above market equilibrium.

o Labor Unions and Collective Bargaining also push for better pay and working conditions but may result in higher unemployment or exporting of jobs if the wage demands are too great.  
o The efficiency wage theory claims that above market wages can lead to higher productivity, and decreased turnover, and increased unemployment if there are less jobs available.

## 8.6 Key Terms

Labour: All employed persons and all those unemployed who are actively seeking work in an economy.

Question 1: Labor Force Participation Rate (LFPR) is defined as A - the percentage of the working age population who are in the labour force.

UR is the proportion of the working labor force that is jobless and looking for work.

**Frictional Unemployment:** Short term unemployment which occurs when people are between jobs, or just entering (or re-entering) The labour market.

You may have heard about the structural unemployment. It is a type of unemployment resulting from skill mismatches between workers and employers, which can occur as new technologies or industries transform the labor market.

**Cyclical Unemployment:** Unemployment that occurs during economic downturns in the business cycle.

**Unemployment - seasonal :** A term used to describe unemployment which occurs because demand in some industries fluctuates with the season.

**Natural Rate of Unemployment (NRU):** The unemployment rate at which the economy operates when there is no cyclical unemployment, includes frictional and structural unemployment.

**Unemployment Insurance:** Benefits provided by the government to workers who no longer have a job, to help them get back on their feet while they look for work.

**Efficiency Wage Theory:** This notion explains why employers might pay higher (above-market) wages to increase worker efficiency, decrease turnover and attract better workers.

## 8.7 Descriptive Questions

Describe the Natural Rate of Unemployment (NRU), and identify its sources. How is it different from cyclical unemployment?

Explain the three forms of unemployment—frictional, structural, and cyclical. How do they affect the labor market and what can be done about them?

What are the effects of labor unions on the labor market? Describe collective bargaining and its effect on wages and employment.

Describe the impact of unemployment insurance on the economy. What are the effects on unemployment spell lengthism and worker behaviour?

How does minimum wage rule affect to employment and unemployment in the country? What are the pros and cons of such laws?

Explain the Efficiency Wage Theory. Why do better pay and conditions translate into greater productivity and smaller staff turnover? What could this mean for unemployment?

What does the Unemployment Rate (UR) and Labor Force Participation Rate (LFPR) fail to measure? What is the impact of these restrictions on economic analysis?

Describe the connection between economic booms and recessions we have in unemployment. Which way is cyclical unemployment related to aggregate demand?

Describe the potential impact of labor market policies such as unemployment insurance and minimum wage laws on the natural rate of unemployment (NRU).

Explain the short-run and long-run views of unemployment. What is the pattern of labor market flows aggregated over these frequencies?

## 8.8 References

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#### Knowledge Check 1

1. b) The level of unemployment when the economy is at full employment
2. b) Technological advancements
3. c) The Natural Rate of Unemployment (NRU)
4. c) Education and job training programs

#### 8.9 Case Study

##### Hair Stylist and Makeup Artist Co-ordination in Events Management

##### Background

Event organisation is all about the planning, every detail counts for the success of an event; the location, food and decor. One of the most important things at any event is how you look and your dress sense which are often done by hair stylists and makeup artists. From weddings to corporate events, fashion shows and galas, the stylist can create the perfect environment

to set the mood for your event and leave an impression on your guests. Yet, it can be difficult for event managers to wrangle 20+ stylists and makeup artists so that what they create contributes to the theme of the event.

[photo: Ruslan Grumble, Shutterstock] The chaos in X-Country, Racko said it's common for multiple professionals to work on one event — often causing confusion and coordination issues — because they are simply plugged in when the event is short staffed. Typical issues cited by this group include scheduling difficulties, inconsistent service levels or event theme clash with how people want to be styled.

**Problem Statement 1: Difficulties in Coordinating with Multiple Hair Stylists and Makeup Artists** It can be difficult to coordinate the collaboration of multiple stylists and makeup artists, leading to scheduling problems, delayed deliveries, and lack of consistency. Every professional has their own speed, style and technique, which can impact the rhythm of the event.

**Solution:**

This can be solved by having a central scheduling system. It would allocate each professional a block of time and make sure all work according to the same schedule. Event CEOs must keep a record of clients' demands to offer uniformity in terms of beauty services.

**MCQ:**

What is the best way to schedule in a consolidating fashion multiple hairstylists and makeup artists for an event?

- A) Practice the tasks randomly, without scheduling them at specific times
- B) Take advantage of a centralized scheduling system with transparent timelines
- C) Every professional should have autonomy in selection of clients and time.

D) Let customers select their stylist or makeup artist

Answer:

B SYSTEM Centralized scheduling with specific time frame

Notes to answerer Explanation: Calendar is used to plan conference presenters - makes sure that there are no lags and all programmes are on one continuous timeline.

Problem Statement 2: Stylization of the Hair and Makeup in line with Event Theme

Whether it be hairstyles or makeup decisions made by professionals, they also need to fit the overall theme of the event. When the theme and styling does not match, the image feels wrong.

Solution:

Insist the event organizers give specific instructions to the stylists / makeup artists as to what is expected, they need to let them know it's a theme event, colours, how the client would like her hair done etc. By doing this, the decor will match with the theme of the event for a put together look.

MCQ:

How do the event managers make sure that hairstyle and makeup complementing the theme of the event?

A) Stylist may work his/her own way with no parameters

B) Give Clear Instructions on Event Theme and color Palate

C) Let the members pick their styles D) Ignore the theme and allow for differences of style  
Answer:

B) Clear Instruction of the event's theme and Color Combination

Explanation: Clear directions help stylists and hair/makeup artists work on looks similar to the event theme for better overall impression.

Issue #3: Event Manager Talking to Hair Stylist and Makeup Artist Communicates the manager with hair stylist or makeup artist.

In order for a successful event to take place, communication is key. Inadequate communication can result in misunderstandings about client desires, surprise demands or logistical concerns.

Solution:

In order to improve the communication process, event organisers should appoint a point of contact for all beauty professionals and hold frequent pre-event briefings. A messaging chat can help provide your people with live updates, and keeping everyone informed on what to expect or late-minute changes.

MCQ:

How can event manager and beauty professionals communicate with each other?

A) Communicate through one Central Contact Point First and most importantly, use a single point of contact, if not the charity's fundraiser, then their solicitor.




- B) Keep communication informal and spontaneous
- C) Cease communicating prior to the onset of the event.
- D) Allow clients to directly communicate with the experts Answer:
- A) Establish a single point of contact whom vendors can communicate with

Explanation: A single point of contact guarantees that all communication is verbatim and on time and errors aren't brought across the process, considerations & planning between 2 parties.

## Conclusion

Why Hair and Makeup Services are Central to The Success of an Event In the world of chic galas, major fundraisers or red carpet events, looking amazing and feeling your best can be two very different things. But integrating them into your event logistics can be complicated. Strategies including centralized scheduling, explicit theme outlines and well-open lines of communication are all put in place so that these professionals can jump right into the event and provide an unforgettable experience for your delegates.

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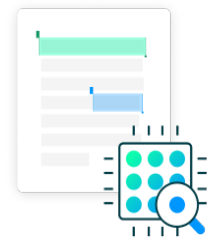
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## Unit 9: Money and Inflation

### Learning Objectives

1. Understand What Is Meant By Money (p. 302). Identify and Define the Key Functions of Money in the Economy (Explain that money serves as a medium of exchange, store of value, unit of account, and standard for deferred payment.)
2. Learn about the Different Kinds of Money: Recognize and distinguish kinds of money, such as commodity money, fiats, and digital currencies.
3. Know What the Money Supply Is: Learn the types of money, from M1 and M2 to how central banks monitor money supply.
4. Discuss the Relationship Between Money and Inflation: Describe how an increase in the money supply might cause inflation, according to the quantity theory of money.
5. Investigate the Determinants of Inflation: Explore the leading causes of inflation, such as demand-pull inflation, cost-push inflation and built-in inflation.
6. Analyze the Consequences of Inflation in Economics: Go over the different consequences of inflation on purchasing power, savings, wages and economic development.
7. Know Monetary Policy Tools: Understand how central banks work to control inflation and the money supply by use of open market operations, discount rates and reserve requirements.
8. Consider the Aftermath of Hyperinflation: Understand what creates and results from hyperinflation, and find out how societies are impacted by severe inflationary pressures.

### Content

- 9.0 Introductory Caselet
- 9.1 Definition and Functions of Money
- 9.2 Central Banks and the Money Supply Process
- 9.3 Quantity Theory of Money
- 9.4 Inflation: Causes and Costs
- 9.5 Hyperinflation Case Studies
- 9.6 Summary
- 9.7 Key Terms
- 9.8 Descriptive Questions
- 9.9 References
- 9.10 Case Study

## 9.0 Introductory Caselet

### “Inflation and Monetary Policy in Riverland”

In recent years, countries such as Turkey and Argentina have experienced catastrophic inflation crises. Turkey experienced inflation well north of 60% in 2022–23 thanks to loose monetary policy and political pressure on its central bank to maintain artificially low interest rates. And Argentina has a series of collapse of the peso, with annual inflation topping 100 percent, savings wiped out amid corruption and citizens left depending heavily on the U.S. dollar for safety. They are real world examples that demonstrate the perils of unconstrained growth in money supply, mismanagement of monetary policy and politics delaying adjustments to policy.

The small nation of Riverland, squeezed between Westonia and Eastland, both of whom rivaled each other in might, was faced with such a situation. Both neighbours were also known to be extremely interested in the burgeoning economy of Riverland and their numerous

natural resources. Westonia proposed trade deals and road building for access through Riverland to the sea; East land offered attractive loans in return for closer economic relations.

Initially Riverland had embraced these chances, seeing them as a way to consolidate its position in the region.

But in the years since, its leaders saw prices rise and purchasing power for citizens fall. The central bank was engaging in an expansionary monetary policy in an attempt to encourage economic growth and had expanded the money supply dramatically. This led to highly inflation, leaving the lower-income segments of the population suffering as they had to make ends meet.

Now it was the central bank's turn to have a problem: whether to keep money flowing to bolster growth or tighten the supply of money and curb inflation. The government was concerned that runaway inflation could trigger social unrest and derail the benefits of its economic deals with both neighbors.

Economic advisors from Riverland chose to look at existing economic models and all inflationary policies. They debunked the Quantity Theory of Money (which assumes that if you pump more money into an economy, that causes inflation) and they dismissed the Phillips Curve (this was Gordon's own work), which shows that there is a trade-off between unemployment and inflation. They also analysed global monetary policy instruments, including interest rate interventions and open market operations, to harmonise stability and growth. Applying these theories, Riverland's leadership reacted cautiously. The growth of the money supply was slowed by the central bank, which directed its efforts to stabilizing prices. This moderate path ensured Riverland gradually eroded its inflation, and had stable economic ties with Westonia and Eastland. But studying both theory — and, in Riverland's case, real-world disasters as seen in places such as Turkey and Argentina — allowed the city-state to stabilize its economy, and safeguard itself from more severe damage.

### Critical Thinking Question

Why was Riverland trying to learn about inflationary theories and monetary policy before making any decisions and what might have happened if they had not studied the ideas?

## 9.1 Definition and Functions of Money

### 9.1.1 Definition of Money

In contemporary terms, money is any item or verifiable record that is generally accepted as payment for goods and services and repayment of debts in a particular country or socio-economic context. Standardization It is a basic idea of economy, an instrument to accelerate economy activities, which standardizes economic transactions and uplift the monetary exchange system.

"Money has to meet three basic qualifications.

Acceptance: There must be yet a broad acceptance as payment.

Divisibility: Smaller units can be used for small transactions.

Durability: It should last long and not fail.

Money can come in many different types including:

- Commodity money: Physical items (a gold bar, a silver coin) that possess intrinsic value.
- Fiat money: Currency that has value only because the government says it can be used to pay debts (like paper money).
- Digital currencies: Any digital "currency" used to conduct transactions, such as a cryptocurrency or other digital token (for example, Bitcoin).

### 9.1.2 Functions of Money: Medium Of Exchange

A key role of money is as a medium of exchange. It thus removes the inefficiencies of a barter system as all units can also be used for exchange. Without money everyone would probably have to barter, i.e. trade their goods and services for other people's goods and services. This scheme is problematic because people have to want what the other person has for it to work, this is referred to as a double coincidence of wants.

Enterprises and their customers can use money to accomplish transactions in a more fluent way. Money is the 'lowest common denominator' that people use as a medium through which they can trade goods and services without having to barter directly.

### 9.1.3 Primary Functions

Money is used to carry out the following functions:

**Medium of Exchange:** As mentioned earlier, money facilitates exchanges by doing away with the barter system.

**Unit of Account:** Currency is used to measure or store value. For example people compare the costs of goods and services by expressing their price in monetary terms. For instance, in a dollar-priced economy, one is readily able to compare the price of a house to the cost of a car and therefore make decisions based upon that knowledge.

**Medium of Exchange:** Money is acceptable for general transactions and clears the operations without loss. **Storage of Value:** Money maintains its value-in-time course. It enables savings and deferment of consumption. So that, people can save wealth and provide for future wants without the risk of immediate depreciation (as in perishable articles).

These are the basic functions necessary for an economy to operate efficiently - causing resources to be allocated in a good way and creating the potential for planning and investment beyond one or two years.

### 9.1.4 Secondary Functions

Secondary functions of money include:

**Measure of Deferred Payments:** Money enables transactions where payment is made in future. Such is the case in credit based-economies, where a person or a company promises to pay later for that which is purchased (goods or services) and today's value of money tomorrow would be assumed the same.

**Basis of Credit Is Money:** The basis for the creation of credit is money. For instance, when the banks lend money to borrowers, then this money serves as a reserve for future payments and economy transactions.

These second ray functions add versatility to money supporting a more divided economy through borrowing, and future-oriented transactions in general:

#### 9.1.5 Contingent Functions

The derived functions of money are such functions that Money performs under particular economic situations/features. These are:

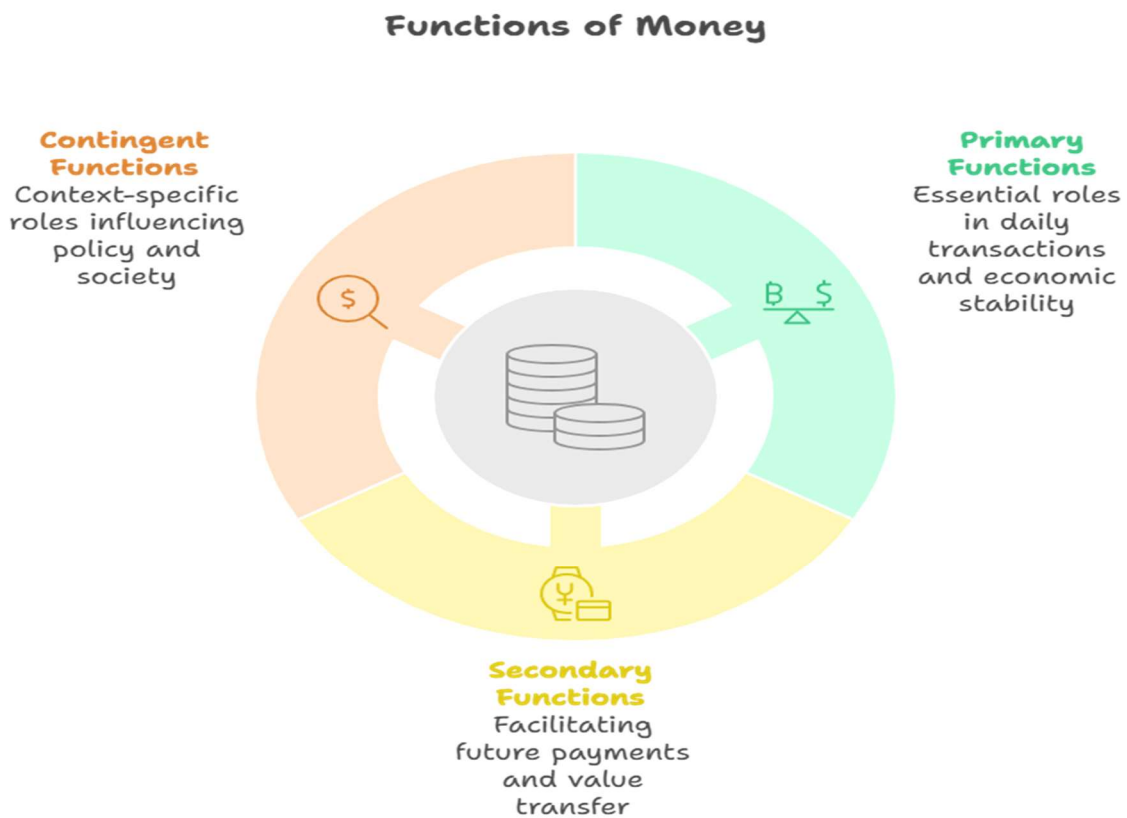
**Indicator of Economic Activity:** In some instances, money may function as an indicator for broad economic activity in a country like GDP and National Income or price level. Money assists in the aggregation of a country's economic output by expressing transactions in a common monetary unit.

**Policy tool of governments:** A government may influence the money supply; the levels of inflation (and deflation), along with unemployment and national consumption, in an attempt to control the economy. For instance, central banks can control the money supply and influence economic conditions using instruments such as interest rates or open market operations.

How the JG jobs are used depends in part on the state of the economy and current policy. They are the flexible and fluid uses of money, above and beyond everyday use.

“Activity”

List and explain the primary, secondary, and contingent functions of money. How does each function contribute to the smooth operation of an economy? Discuss an example where money's contingent functions, like being a measure of economic activity, impact government policy or business decisions in real-world scenarios.



## 9.2 The Central Banks and the Process of Money Supply

### 9.2 The Role of Central Banks and Their Key Objectives

Central banks: the financial institutions responsible for managing a country's currency system. Their primary objectives include:

**Price Stability:** Central banks focus on inflation and strive to achieve stable prices, thereby creating stability in the economy and providing a predictable environment.

**Fostering Economic Growth:** Central banks use good monetary policy in order to seek sustainable economic growth by providing businesses and consumers with the credit and liquidity they need.

**Controlling the Money Supply:** Central banks regulate the supply of money to combat inflation and prevent deflation so that the economy remains as active as conditions allow.

**Financial Stability:** Central banks, oversee the banking system and provide liquidity during financial crises to ensure the stability and the proper functioning of these affected institutions.

**Interest Rate Management:** Central banks offer benchmark interest rates, such as the Federal Funds Rate in the U.S. and/or the Discount Rate to encourage or discourage economic activity.

### **9.2.2 Tools of Monetary Policy: Open Market Operations**

Open Market Operations (OMO) are the purchase and sale of government securities by the central bank in open market. Open Market Operations, OMOs: They are an indirect control of money supply and short-term interest rates.

**Purchasing government securities** When the central bank purchases government bonds it expands money supply as these funds go into the banking system. This drives down interest rates, making borrowing cheaper and the economy get more active.

**Sale of Treasury Bonds:** On the contrary, when central bank sells government bonds, money supply goes down because it withdraws money from the banking system. This has the effect of raising interest rates and cooling off an overheated economy.

OMO enables the central bank to manipulate liquidity in the economy, controlling inflation and growth by changing money supply and interest rates.

### 9.2.3 Reserve Requirements, Discount Rate

**6: Reserve Requirements** These are the lowest reserves, (either as deposits with central bank or cash held in vault) that commercial banks should keep. By setting the reserve requirement, the central bank can limit how much money banks are allowed to lend.

- o **Raising reserve requirements:** Shrinks the money stock by providing commercial banks with less freedom to make loans, thereby pulling interest rates up.

- o **Lowering Reserve Requirements:** By permitting banks to lend more, this action increases the money supply and thus will spur economic activity.

**Discount Rate:** This is the interest rate at which commercial banks are loaned to by the central bank. Central banks change rates to control the cost of borrowing, which affects how much money there is in the economy.

- o **Increasing the Discount Rate:** Another rate increase that limits borrowing for commercial banks and helps to curtail lending as well as the money supply.

- o **Reduce Interest Rate (discount rate):** – It becomes cheaper to borrow which tends commercial banking system to issue more loans and therefore increases the Money Supply.

**Did You Know?**

“The discount rate is the interest rate charged by central banks on loans to commercial banks. A lower discount rate encourages banks to borrow more, increasing the money supply, while a higher rate discourages borrowing, reducing the money supply. Similarly, reserve requirements control how much banks must hold in reserves.”

#### 9.2.4 Money Creation through the Banking System (Money Multiplier)

The money multiplier is the mechanism through which an initial deposit in a bank expands the total money supply. When banks make loans, they create deposits, which can then be lent out again, thereby potentially increasing the money supply further.

How It Works:

o If the central bank injects funds in to the banking system through open market operations or other methods, commercial banks keep only a percentage of this as reserves (against the reserve requirement) and lend out the remainder. Every time money is borrowed and redeposited it creates new deposits, increasing the money supply.

Formula:

The money multiplier can be expressed as;

Money Multiplier =  $1 / \text{Reserve Requirement Ratio}$

For instance, if a bank is required to hold reserves at 10%, with the money multiplier of 10, for every dollar that gets deposited into the banking system can generate up to \$10.

Importance:

The money multiplier concept is important for an understanding of the impact of central bank actions, such as altering reserve requirements and engaging in open market operations, on the total quantity of money circulating within an economy.

### 9.2.5 Limitations and Challenges in Controlling Money Supply

Although central banks have strong monetary policy instruments, there are some limitations and problems in their ability to manipulate the money supply:

**Liquidity Trap:** When interest rates are very low (like during a recession), expanding the money supply might not work as businesses and consumers may be reluctant to borrow or spend, even when credit is cheaper.

**Commercial Bank Lending:** Not always will commercial banks loan out the entire amount of their reserves, this may either be due to economic uncertainty or the bank's risk aversion. This is a constraint on tools such as the money multiplier.

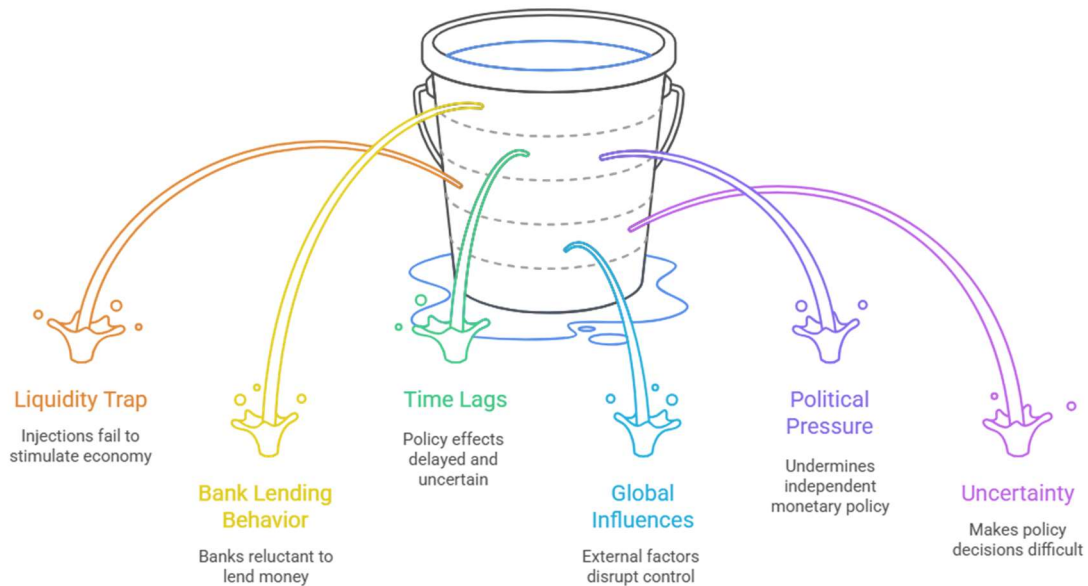
**Time delays:** The impact of monetary policy changes may not be felt immediately. It often takes months or years for shifts in interest rates or the money supply to even partly filter into inflation, or economic growth.

**Global factors:** Central banks have no control over external conditions, including global economic developments, commodity prices and international capital flows that could impact on domestic inflation and the transmission of monetary policy.

**Political Pressure:** There may be political pressure on central banks to implement certain monetary policies, especially during economic downturns. This can result in sub-optimal choices being made, which do not reflect long-term economic prosperity.

Uncertainty: Unexpected economic shocks, such as financial crises or pandemics, can make traditional monetary policy less effective.

## Money Supply Control: A Complex Challenge



### 9.3 Quantity Theory of Money

#### 9.3.1 Fisher's Equation of Exchange ( $MV = PY$ )

The Fisher Equation of Exchange provides the mathematical basis for the Quantity Theory of Money:  $MV = PY$  Where:

- **M** = Money supply
- **V** = Velocity of money (how often money changes hands)
- **P** = Price level
- **Y** = Real output (real GDP) **Explanation:**

This equation states that the total amount of money spent in an economy ( $MV$ ) equals the total value of goods and services produced ( $PY$ ). It links money supply and economic activity through price levels.

If the money supply increases while both  $V$  (velocity) and  $Y$  (real output) remain constant, the price level ( $P$ ) must rise, leading to inflation. Conversely, if money supply decreases while  $V$  and  $Y$  remain constant,  $P$  will tend to fall, leading to deflation.

**Illustration: Simple Problem with Solution Problem:**

Suppose an economy has:

- Money supply (M) = ₹500 billion
- Velocity of money (V) = 4 (each rupee changes hands 4 times a year)
- Real output (Y) = 1,000 billion units of goods and services Find the **price level (P)**.

**Step 1: Use the Fisher Equation**

$$MV = PY$$

**Step 2: Substitute known values**

$$500 \times 4 = P \times 1,000$$

**Step 3: Simplify left side**

$$2,000 = P \times 1,000$$

**Step 4: Solve for P  $P = 2,000 \div 1,000 = 2$  Interpretation:**

The price level (P) = 2 means, on average, each unit of goods or services costs ₹2.

**Follow-Up Scenario:**

If the money supply doubles to ₹1,000 billion but V and Y remain unchanged: M = 1,000; V = 4; Y = 1,000

$$MV = PY$$

$$1,000 \times 4 = P \times 1,000 \quad 4,000 = P \times 1,000 \quad P = 4,000 \div 1,000 = 4 \text{ Interpretation:}$$

Charges rise from ₹2 to ₹4 per unit. This illustrates how, under constant speed and spending, an increase in money supply simply results to a higher price level (inflation).

**9.3.2 Assumptions of the Quantity Theory**

The classical Quantity Theory is based on quite few important assumptions.

The velocity of money  $V$  is constant There are no rapid changes in the speed in which money travels around an economy. REGARDSWAMBUGU.

(Short Run) Real Output ( $Y = 8000$ ) is Fixed: Short-term, the economy is in full-employment equilibrium; the level of output is constant.

Causation Flows from Money to Prices: If you raise  $M$ , the price level ( $P$ ) rises one-for-one with it, other things being equal (constant  $V$  and  $Y$ ).

12) Money Neutrality: Money is said to be neutral in the long run because a change in the money supply only affects nominal variables, not real ones.

### 9.3.3 Implications for Price Level and Inflation

From the Quantity Theory's assumptions, the following can be deduced:

Direct: Direct connection between the quantity of money and price level, If  $MS$  is double while  $V+T$  remain constant - so will  $P$ .

Inflation is a Monetary Phenomenon: Persistent inflation results from too rapid an increase in the money supply. Championed by monetarist economists such as Milton Friedman, this argues that controlling the money supply is central to curbing inflation.

Policy Implications: Central banks need to control and manage the money supply appropriately. Print too much money, especially when it's not met with a matching increase in what the economy can produce, and inflation will follow.

Case: In instances of hyperinflation (e.g. Zimbabwe or Venezuela) unbridled money creation has resulted in exorbitant price inflation, and in these cases it can be said that the theory's predictions have been empirically upheld.

### 9.3.4 Criticisms and Limitations

As notable as it is, the Quantity Theory of Money has faced a number of criticisms especially in contemporary macroeconomics:

**Not Constant Velocity:** In practice, velocity can move around over time as consumer behavior or interest rates change, making the equation less than perfectly predictive.

**Output (Y) is not Fixed:** Output can change, especially in the short run depending on economic factors like unemployment or idle capacity.

**Causality might not be one-way:** The theory presumes that changes in the money supply cause changes in prices, yet critics also argue that causality can run from other demand-side factors (such as consumer spending) to changes in money demand and supply.

**Account for Money Demand?** The theory makes no allowance for the fact that people hold money for different reasons (e.g., precautionary or speculative) and how much of it they will spend.

**Short-Run vs Long-Run:** This further fails to explain short run fluctuations in the economy especially given that modern economies are subject to central bank actions and have dynamic financial sectors.

**The Empirical Record is Mixed:** It long has been observed in actual economies that inflation does not necessarily occur as a simple, immediate consequence of changes in their money supplies - especially during low-inflation or recessionary conditions.

## 9.4 Inflation: Causes and Costs

### 9.4.1 Demand-Pull Inflation

Demand-pull inflation is inflation, caused by fear of future shortages or reductions that would increase price, also emerges when there is too much money in the economy relative to the supply of goods and services. It is often explained as “too much money chasing too few goods.” Causes:

- Rise in consumer expenditures from growth in incomes or reduction in taxes
- Government outlays expand (infrastructure projects, etc.)
- Loose monetary policy (i.e., lower interest rates stimulating credit) • Export surges providing an external boost

Result:

Companies respond to higher demand by increasing prices, and in an economy that’s as close to full employment as ours is, they would be expected to do so. This kind of inflation is what accompanies economic booms.

#### 9.4.2 Cost-Push Inflation

Cost-push inflation occurs when the cost of production rises so that businesses transfer those costs to consumers in higher prices.

Causes:

- Increase in wages (wage-push inflation)
- Increase in the price of input factors (e.g., oil or a commodity)
- Higher taxes on production

- Devaluation of the currency (effectively raising the price of imports)

Result:

And even when demand hasn't changed, higher input costs can pin prices back. This has the potential to stoke stagflation, in which inflation and stagnant growth, paired with rising unemployment develops.

#### 9.4.3 Built-in Inflation

Internally-generated inflation (also known as built-in or wage-price inflation) is caused by the dynamics of a wage-price spiral. Workers demand higher wages to afford growing living costs, and businesses increasingly charge more in prices to cover the stronger wage bill, feeding a cycle.

Cycle of built-in inflation:

Prices rise

Workers demand higher wages

Companies lift paychecks, but the prices increase too to keep profits high

Cycle repeats

Result:

Inflation takes on its own life, completely decoupled from shocks or demand spikes. Expectations management is critical to breaking that cycle (here, via credible money).

#### 9.4.4 Costs of Inflation: Menu Costs, Shoe-leather Costs, Distortions

All types of inflation have economic costs, but high or erratic inflation has more damaging ones.

Menu Costs:

- o These are the costs to businesses of changing prices too often (eg. printing new menus, re-tagging items, updating systems).

- o Particularly relevant in high-inflation environments.

Shoe-leather Costs:

- o Alludes to the inconvenience and costs associated with administering cash balances in the presence of hi inflation. o Because inflation erodes the purchasing power of money, it cycles through people's pockets at an accelerated rate as they make more trips to the bank and therefore "wear out their shoe leather."

Price Signal Distortions:

- o Inflation can impede the transmission of relative price signals, thus making it very difficult for consumers and businesses to differentiate between real price movements and inflation-induced movements.

- o This would be a misallocation of resources.

Uncertainty:

o Irrational inflation generates uncertainty about costs, wages and returns and so retards investment and planning for the long-term.

#### 9.4.5 Unanticipated Inflation and the Redistribution Effects

Random inflation leads to winners and losers, as wealth gets redistributed between various economic agents.

Borrowers vs. Lenders:

o If inflation exceeds the forecast, borrowers will gain because they would be repaying loans with money of reduced purchasing power.

o Lenders will receive less in real terms for their repayments.

Fixed-Income Groups:

o Retirees and people on fixed income still lose out when inflation jumps unexpectedly.

Tax Distortions:

o In countries that do not index brackets for inflation, a reason can exist to adjust them as the price level rises. This reduces bracket creep and means fewer people are taxed at higher rates for an unintended size of improvements when incomes rise to keep up with prices.

Contracts and Agreements:

o Long term fixed price contracts do not stand up if there was underestimation of inflation, leading to strained relationships.

Choose the correct option:

1. What causes demand-pull inflation?
  - a) Rising input costs
  - b) Higher interest rates
  - c) Excess demand
  - d) Currency appreciation
2. Which of the following is a feature of cost-push inflation?
  - a) Increase in supply
  - b) Decrease in wages
  - c) Rise in production costs
  - d) Fall in raw material prices
3. What are menu costs related to?
  - a) Borrowing costs
  - b) Changing prices frequently
  - c) Rising tax rates
  - d) Bank withdrawal charges
4. Who gains from unexpected inflation?
  - a) Lenders
  - b) Savers
  - c) Exporters
  - d) Borrowers

## 9.5 Hyperinflation Case Studies

### 9.5.1 Historical Examples: Germany (1920s), Zimbabwe, Venezuela

### Germany (Weimar Republic – 1921–1923):

- Germany had been through a spectacular defeat, with massive war reparations, political chaos and an economy in ruins after World War I.
- The government resorted to excessive printing of money, and the money would go to defray its expenditures and pay off its debts.
- Prices doubled every few days at the height; to buy basic goods, people used wheelbarrows full of money.
- As the value of money vanished, bartering came back.

### Zimbabwe (2000s):

- Economic collapse, caused by land reforms, political instability and declining agricultural production.
- The central bank pumped huge amounts of money to finance government deficits.
- The inflation rate reached 79.6 billion percent in November of 2008.
- The Zimbabwean dollar was ultimately cast aside for foreign currencies.

### Venezuela (2010s–2020s):

- Mismanagement of the economy, falling revenue from oil, and heavy public spending created hyperinflation.

- The central bank was printing money to finance deficits.
- Food, medicine and basic goods became scarce and millions fled the country.
- Inflation soared to 10,000,000% in 2019 and the currency experienced multiple redenominations.

### 9.5.2 Causes of Hyperinflation Episodes

#### Excessive Money Printing:

- o Central banks fund big fiscal deficits by printing money, effectively monetizing debt.

#### Collapse in Output:

- o War, land grabs or political turmoil shrink productive capacity and create shortages that drive up prices.

#### Loss of Confidence in Currency:

- o When people do not believe that money will retain its value, they spend it fast and the inflation 'hamster wheel' spins faster.

#### External Shocks:

- o Sanctions, commodity price collapses (oil in Venezuela) or global crises can ignite a financial disintegration.

#### Weak Institutions:

- o Bad governance and weak central bank independence lead to irresponsible fiscal and monetary policies, corruption becomes rampant; etc.

### 9.5.3 Economic and Social Consequences

#### Currency Collapse:

- o The local currency is dethroned by the national currency, which later becomes worthless, and is superseded with foreign currencies or bartering.

#### Erosion of Savings:

- o The life savings of others – good, honest people are overnight wiped out resulting in financial suicide.

#### Investment Collapse:

- o Price uncertainty and instability discourage domestic and foreign investments.

#### Shortages of Essentials:

- o Government imposed price controls, economic incompetence, and broken supply chains lead to food and medicine shortages.

#### Social Unrest:

- o Hyperinflation ushers in protests, regime change and, in some instances, mass migration.

Dollarization:

- o Stable foreign currencies (e.g., US dollars) are frequently introduced in countries to bring back a semblance of economic order.

#### **9.5.4 Lessons for Policy and Stability**

Avoid Monetary Financing of Deficits:

- o Governments should not expect central banks to finance fiscal deficits as this undermines stability of prices.

Ensure Central Bank Independence:

- o Inflation control is contingent upon an independent and credible central bank.

Restore Confidence through Reforms:

- o Sustainable stabilization frequently involves extensive structural reform aimed at rebuilding the rule of law, market confidence and international credibility.

Use Stabilization Tools:

Policy options including currency pegs, inflation targeting, and fiscal prudence can be useful in bringing back macromontary stability.

Build Institutional Strength:

o When institutions are strong and legal frameworks clear, it becomes less likely that hyperinflation will result.

Early Intervention is Crucial:

o The longer a nation waits to fight inflation, the harder and more painful it is to reverse.

## 9.6 Summary

### ❖ Definition and Functions of Money:

9 o Types of money (Money as medium of exchange, unit of account, store of value and standard for deferred payment). o It has primary, secondary, and tertiary roles to fulfill as a means of economic transactions and policy-making.

### ❖ Role of Central Banks:

o Monetary system is regulated by central banks, that tries to stabilize of prices and control over money supply.

o Primary tools of monetary policy are: open market operations, reserve requirements, and the discount rate.

### ❖ Money Creation and the Banking System:

o Commercial banks cause money through loans and the process is multiplied by the money multiplier.

o The money supply is influenced by the central bank indirectly through monetary policy instruments.

#### ❖ Quantity Theory of Money (QTM):

- o "This equation is known as  $MV = PY$ , and gives the relationship between the money supply, the price level, and output. o Assumes constant  $v$  and  $y$ ; used to describe long-run inflation.
- o Censured for oversimplifying the actual behaviors of a real system (including degus on velocity and variances in the output).

#### ❖ Inflation – Causes:

- o Demand-pull inflation: It occurs when there is too much demand chasing fewer goods.
- o Cost-push inflation: When cost of production increase.
- o Inflation on the way up/Wage-price inflation – especially caused by inflation expectations.

#### ❖ Inflation – Costs:

- o Factors this cost: menu costs, shoe-leather costs, price distortions, uncertainty and loss of purchasing power.
- o Unanticipated inflation leads to the redistribution of wealth, more in particular it negatively impacts on savers and creditors.

#### ❖ Hyperinflation Case Studies:

- o Examples from history: Germany (1920s), Zimbabwe, Venezuela.

- o Most common causes: rampant money printing, supply destruction and devaluation of currency.

- o Implications involve economic and social upheaval, and use of foreign currencies.

❖ Policy Lessons:

- o Independence of central bank/fiscal discipline/early intervention is crucial; prevents inflation crises.

- o Transparency of governance and robust institutions help ensure stable prices and stable economy in the long run.

## 9.7 Key Terms

**Money:** An object or record that a group of people has agreed to accept as payment for goods and services, which can also function as a store of value and unit of account.

**Central Bank:** National authority which manages the money supply, curbs inflation and stabilises financial systems.

**Open Market Operations (OMO):** Purchasing or selling of government securities by the Central bank to regulate money supply.

**Reserve Requirement:** The minimum portion of their deposits that member banks must retain.

**Discount Rate** The rate that the central bank charges on loans to commercial banks.

**Money Multiplier:** The number that indicates how much the money supply will be increased, based on the reserve ratio.

**Quantity Theory of Money:** A theory which asserts that the price level is directly proportional to the quantity of money in existence, provided output and velocity are constant.

**Inflation:** A rise in the general level of prices of goods and services in an economy over a period.

**Demand-Pull Inflation:** Inflation brought about by more demand in the economy than is available.

**Cost-Push Inflation:** Inflation that comes from the cost of production inputs—wages, raw materials.

## 9.8 Descriptive Questions

Discuss the concept of money, differentiate between primary, secondary and contingent functions of money with adequate examples.

Explain the role of the central bank in controlling the money supply. Describe the instruments central banks use to conduct monetary policy.

What is the quantity theory of money? (a) Explain and derive Fisher's Equation of Exchange its assumptions.

How do demand-pull inflation, cost-push inflation and built-in inflation differ? Give real-world examples of each.

Describe the process of money creation in the banking system. How does the reserve requirement play into the money multiplier process?

3. Describe the key costs of inflation, such as menu cost; shoeleather cost; and distortions in price signals.

What are the economic and social effects of hyper-inflation? Support your answer with historical examples.

What are the effects of unanticipated inflation on borrowers, lenders and those receiving a fixed income? What are the redistribution effects?

You are required to exercise critical thinking in identifying the shortcoming of QTM in reflecting inflation in a real world situation.

What insight can policy makers take from previous instances of hyperinflation? What can these lessons do to help us keep prices stable?

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## Answers to Knowledge Check

### Knowledge Check 1

1. c) Excess demand
2. c) Rise in production costs
3. b) Changing prices frequently
4. d) Borrowers

## 9.10 Case Study

### Controlling the Monetary Monster – Inflation in the Event Industry and Budgeting

Context:

Following a case discussion, The Role of Hair Stylists and Makeup Artists in Event Management (included), we discuss how inflation can affect budgeting and service coordination for event planning on an expansive scale. Inflation is more than just a macroeconomic issue — for businesses such as yours, it impacts pricing, resource allocation and customer satisfaction.

Case Study Scenario:

In the most recent years, Rising Events Co is a luxurious event planning company that quickly saw a significant increase in operation costs. Hair and make-up rates were increased to include rises in the cost of fuel, increases due to the price of cosmetic product inflation, as well as the cost of living. Also, the decline of the currency made imported beauty products more expensive. This increase in cost has caused a ripple effect through event budgets making it difficult for planners to keep standards high without going over budget or a client's limits.

Event producers such as those at Rising Events Co. were now contending with:

- Demand-pull effects, as more clients booked events in the post-pandemic world, increasing demand for a finite supply of stylists.
- Cost-push inflation, with suppliers increasing prices based on higher cost factors (for example, imported tools, beauty kits).
- Inflationizing out, as the universe of beauty professionals inflating prices year after year to service their own rising costs.

In order to cope with these inflationary pressures the firm was forced to redesign its budgeting system based on the co-ordination systems presented in the caselet generally referred:

- Securing fixed-price terms on centralised vendor contracts so the downstream risk is minimised.
- Use of real-time scheduling tools to reduce overtime and labor inefficiencies.
- Giving stylists and artists specific guidelines up front that articulate the budget so expectations can be in sync with financials.

Critical Thinking Question:

What effect can inflation have in pricing as well service quality within the event industry and what financial planning can be put for by event managers to retain control over their finances without negatively affecting the execution of an event?