

MEC-107 (International Trade and Development) — Solutions

Assignment Questions

Answer the following questions in about 700 words each. Each question carries 20 marks.

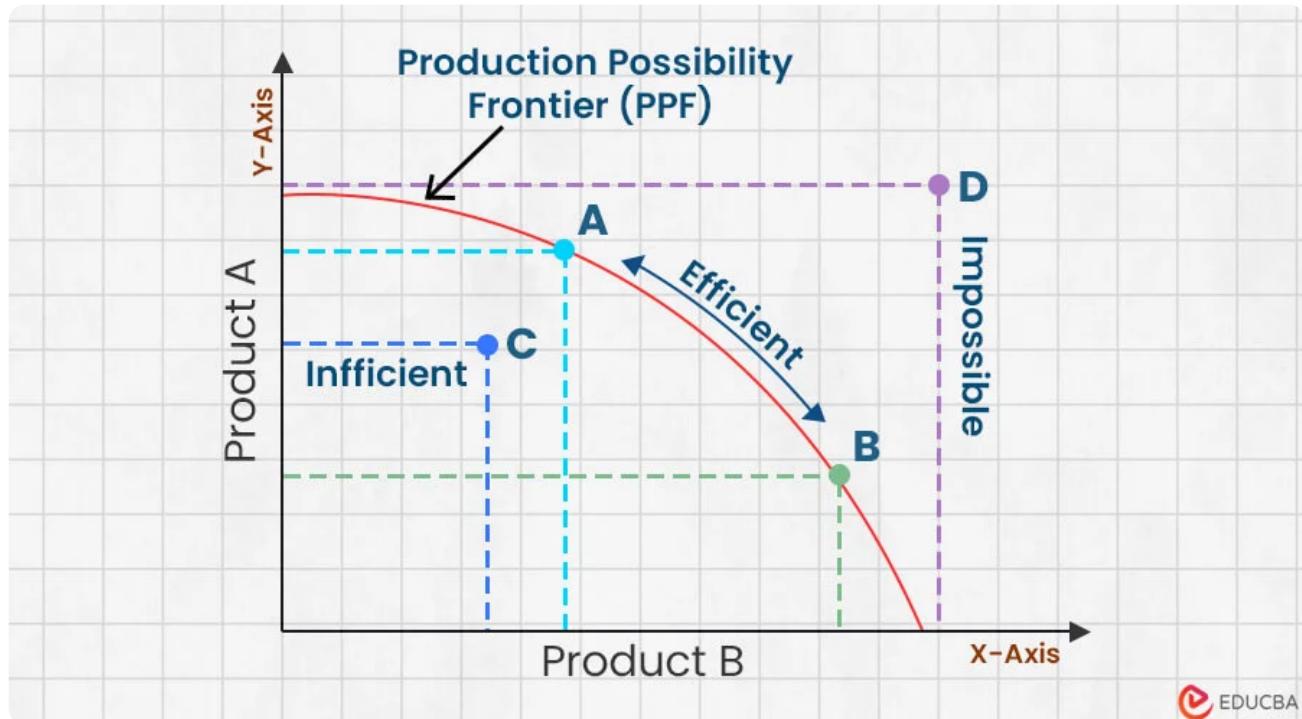
1) (a) Why is ‘free trade’ between two countries considered to be better than no trade? Explain with the help of a diagram. (b) Using the Ricardian theory of international trade as a framework, illustrate how nations derive benefits from engaging in trade.

(a) Why is ‘free trade’ between two countries considered better than no trade?

Free trade refers to a situation where countries exchange goods and services **without restrictions** such as tariffs, quotas, or bans. Economic theory strongly supports the idea that **free trade is superior to no trade** because it allows countries to use their resources more efficiently, expand consumption possibilities, and improve overall welfare.

The fundamental reason why free trade is beneficial lies in **specialisation and exchange**. Different countries have different resource endowments, technologies, climates, and skills. When each country specialises in producing goods in which it is relatively more efficient and trades for others, **total world output increases**.

Explanation with the help of a diagram (PPF framework)



Consider a two-good world where a country produces **cloth** and **wine**.

- The **Production Possibility Frontier (PPF)** shows the maximum combinations of cloth and wine that a country can produce with given resources and technology.
- Under **no trade (autarky)**, the country must consume what it produces. Its consumption point lies **on the PPF**.
- When **free trade** is allowed, the country can specialise in the good it produces more efficiently and trade it for the other good at international prices.

As a result:

- The country's **consumption point moves outside the PPF**, which was

impossible under autarky.

- This outward movement represents **gains from trade**, reflected in higher consumption of both goods or more of at least one good without reducing the other.

Thus, free trade expands consumption possibilities and increases economic welfare, whereas no trade forces countries to remain constrained by domestic production limits.

Additional benefits of free trade

- Better allocation of global resources
- Lower prices and greater variety for consumers
- Encouragement of competition and innovation
- Higher economic growth and productivity

Hence, free trade is considered superior to no trade from both efficiency and welfare perspectives.

(b) Ricardian theory and how nations gain from trade

The **Ricardian theory of international trade**, developed by David Ricardo, provides one of the earliest and most powerful explanations of the benefits of trade. The theory is based on the principle of **comparative advantage**.

Core assumptions of the Ricardian model

- Two countries and two goods
- Labour is the only factor of production
- Constant returns to scale

- Perfect competition
- Labour is immobile internationally but mobile domestically
- Technology differs across countries

Absolute vs comparative advantage

A country has:

- **Absolute advantage** if it can produce a good using fewer labour hours than another country.
- **Comparative advantage** if it can produce a good at a **lower opportunity cost**, even if it has no absolute advantage.

Ricardo showed that **comparative advantage—not absolute advantage—is the basis of trade**.

Illustration of gains from trade

Suppose:

- Country A requires fewer labour hours to produce cloth than wine.
- Country B is relatively more efficient in producing wine.

Even if Country A is more efficient in producing both goods, it still benefits by:

- Specialising in the good where its **relative efficiency is highest** (lowest opportunity cost)
- Importing the other good from Country B

Through specialisation and exchange:

- **World production increases**
- Both countries consume more than before trade
- Labour is used more efficiently in both countries

Why both nations gain

- Each country focuses on what it does best relatively
- Trade allows access to goods at a lower real cost
- Consumption possibilities expand beyond domestic production limits
- Productivity gains arise from specialisation

Relevance for developing countries

For developing nations, the Ricardian framework highlights:

- The importance of identifying sectors with comparative advantage (e.g., agriculture, textiles, services)
- The role of trade in promoting growth and employment
- The possibility of gains from trade even with lower overall productivity

However, critics argue that the Ricardian model:

- Ignores transport costs and trade barriers
- Assumes full employment
- Does not account for dynamic gains, income distribution, or unequal power relations

Despite these limitations, the Ricardian theory remains foundational in understanding **why trade can be mutually beneficial**.

Conclusion

Free trade is superior to no trade because it allows countries to specialise according to comparative advantage, expand consumption possibilities, and improve economic welfare. The Ricardian theory clearly demonstrates that **mutual gains from trade are possible even when countries differ in productivity**

levels. While real-world complexities exist, the core insight—that trade based on comparative advantage benefits all participating nations—remains central to international trade theory.

2) What factors prompted the development of intra-industry trade? Explain. How does this theory contribute to our understanding of international trade?

What factors prompted the development of intra-industry trade? How does this theory contribute to our understanding of international trade?

Introduction

Traditional theories of international trade—such as Ricardian comparative advantage and the Heckscher–Ohlin model—explain trade based on **differences between countries** in technology or factor endowments. However, after World War II, economists observed a rapidly growing volume of trade **between similar countries**, especially among developed nations, involving **similar goods** such as cars, electronics, chemicals, and machinery. This phenomenon could not be adequately explained by classical theories and led to the development of the theory of **intra-industry trade (IIT)**.

Intra-industry trade refers to the **simultaneous export and import of similar or differentiated products within the same industry**.

Factors that prompted the development of intra-industry trade theory

1. Empirical evidence of trade among similar countries

One of the most important factors was the observation that:

- Countries with **similar factor endowments, income levels, and technologies** were trading heavily with each other.
- For example, Germany exports cars to France while importing cars from France.

Such trade could not be explained by comparative advantage based on factor differences, prompting the need for a new theoretical framework.

2. Product differentiation and consumer preferences

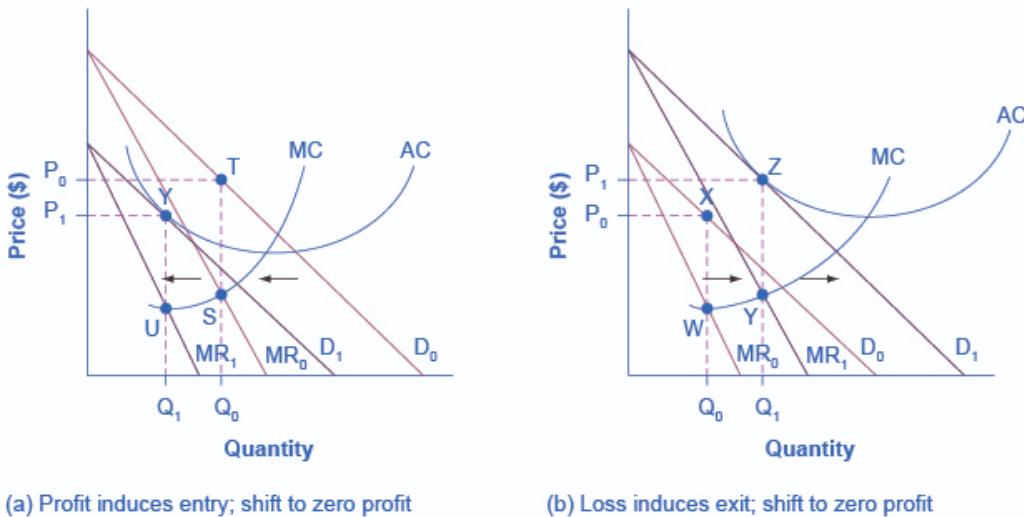
Consumers increasingly demand **variety rather than uniformity**. Products within the same industry differ by:

- Brand
- Quality
- Design
- Technology
- Features

For instance, consumers may prefer German luxury cars and Japanese fuel-efficient cars. This demand for variety encourages countries to both **export and import differentiated products** from the same industry.

3. Economies of scale

(https://saylordotorg.github.io/text_international-trade-theory-and-policy/section_09/25d6b6135da56e5b876bee18b8f11f96.jpg)



Modern manufacturing industries often exhibit **economies of scale**, where:

- Average cost declines as output increases
- Large-scale production becomes more efficient

By specialising in a **limited range of varieties** and producing them on a large scale, firms can lower costs and then trade with other countries. This encourages IIT even among identical economies.

4. Imperfect competition and monopolistic competition

The development of IIT is closely associated with **monopolistic competition**, where:

- Many firms produce differentiated products
- Firms have some price-setting power
- Entry and exit are relatively free

Theoretical models developed by economists such as **Paul Krugman** showed that trade can arise **even when countries are identical**, purely due to scale economies and product differentiation.

5. Trade liberalisation and regional integration

The post-war period saw:

- Reduction of tariffs under GATT and WTO
- Formation of trade blocs such as the EU

Lower trade barriers made it profitable for firms to operate across borders, leading to increased IIT, particularly within regional groupings.

6. Technological progress and global value chains

Advances in:

- Transport
- Communication
- Production technology

Have allowed different stages of production to be spread across countries.

Components and intermediate goods are traded back and forth within the same industry, increasing intra-industry trade.

How intra-industry trade theory contributes to our understanding of international trade

1. Explains trade not based on comparative advantage

IIT theory shows that:

- Trade does not require differences in factor endowments
- Even identical countries can gain from trade

This marks a significant departure from traditional theories and broadens the scope of trade analysis.

2. Highlights the role of scale economies and firm behaviour

The theory brings firms—not just countries—into trade analysis by emphasising:

- Cost structures
- Market size
- Strategic behaviour of firms

This provides a more realistic understanding of modern industrial trade.

3. Explains welfare gains from variety

Consumers gain from:

- A wider choice of products
- Better quality
- Lower prices due to competition

Thus, welfare gains from trade arise not only from efficiency but also from **variety and innovation.**

4. Helps understand trade among developed countries

Intra-industry trade theory successfully explains why:

- Most trade among advanced economies is IIT

- Manufactured goods dominate global trade

It aligns closely with real-world trade patterns observed in Europe, North America, and East Asia.

5. Policy relevance

The theory has important policy implications:

- Trade liberalisation may cause **less disruption** than inter-industry trade, since workers move within the same industry
- Adjustment costs are lower compared to traditional trade models
- Encourages policies supporting innovation and competitiveness

6. Relevance for developing countries

For developing countries, IIT theory:

- Highlights the importance of moving up the value chain
- Encourages industrial diversification
- Explains participation in global production networks

Conclusion

The development of intra-industry trade theory was prompted by real-world trade patterns that traditional theories failed to explain. By incorporating product differentiation, economies of scale, and imperfect competition, the theory provides a deeper and more realistic understanding of modern international trade. It demonstrates that trade can be mutually beneficial even

among similar countries and offers valuable insights for trade policy in both developed and developing economies.

Answer the following questions in about 400 words each. Each question carries 12marks.

3) How would you apply technological gap model to explain the pattern of international trade? Explain.

Application of the Technological Gap Model in Explaining International Trade

The **technological gap model** explains international trade as a result of **differences in technological innovation and diffusion** between countries. The model was developed by **Michael Posner** and is also known as the **Posner model of international trade**. Unlike classical trade theories that focus on factor endowments or comparative costs, this model emphasizes **innovation, imitation, and time lags** as key determinants of trade patterns.

Basic idea of the model

According to the technological gap model, countries trade because:

- New products or production techniques are first developed in one country (innovating country)
- Other countries lag behind in adopting the same technology
- This **temporary technological advantage** creates export opportunities for the innovating country

Trade arises due to two important time lags:

1. **Imitation lag** – the time taken by other countries to copy the new technology
2. **Demand lag** – the time required for consumers in foreign markets to develop demand for the new product

As long as these lags exist, the innovating country enjoys a **monopoly in exports** of the new product.

How the model explains the pattern of trade

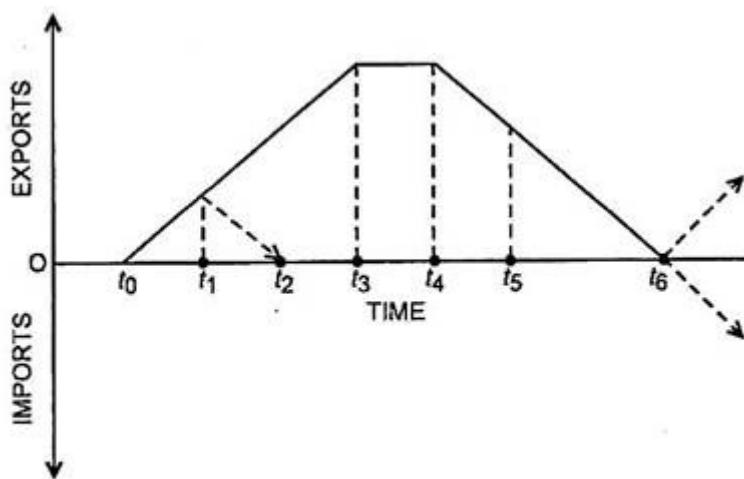


Fig. 9.7

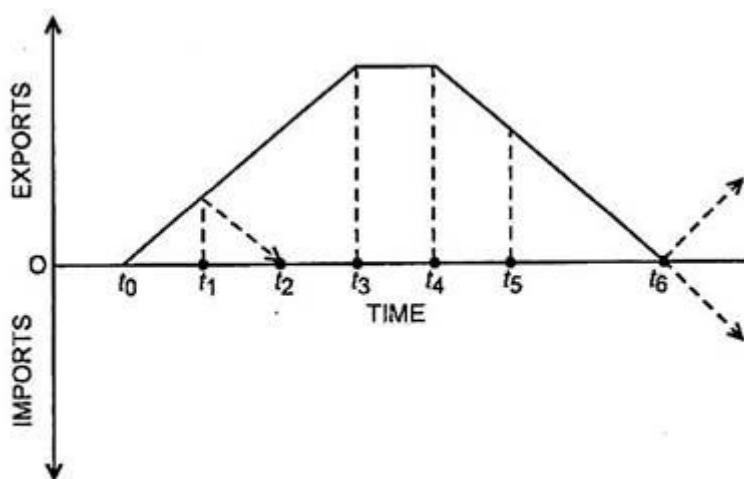


Fig. 9.7

1. Initial stage (innovation phase)

A technologically advanced country introduces a new product using

superior knowledge and R&D. During this phase:

- The innovating country exports the product
- Other countries import it due to lack of technological capability

2. Expansion stage (technological gap phase)

As foreign demand grows, exports increase. The innovating country continues to benefit from:

- Cost advantages
- First-mover advantage
- Intellectual property protection

3. Imitation stage

Over time, other countries begin to imitate the technology. Once imitation occurs:

- The technological gap narrows
- Export advantage of the innovating country declines

4. Standardisation stage

Eventually, the product becomes standardized and widely produced.

Developing countries with lower labour costs may even become exporters, reversing the trade pattern.

Contribution to understanding international trade

The technological gap model improves our understanding of trade by:

- Explaining **dynamic changes** in trade patterns over time
- Highlighting the role of **innovation and R&D**
- Accounting for trade between countries with similar factor endowments

- Showing how **temporary monopolies** influence exports

It is particularly relevant for modern industries such as electronics, pharmaceuticals, and information technology.

Limitations of the model

- Assumes easy imitation of technology
- Ignores trade barriers and transport costs
- Overemphasizes technology while underplaying factor endowments
- More applicable to manufactured goods than primary products

Conclusion

The technological gap model provides a dynamic explanation of international trade based on innovation and technological differences. It shows that trade patterns are shaped not only by comparative costs but also by the **timing of technological advances and diffusion**, making it highly relevant in the modern global economy.

4) Examine the impact of environmental standards and logistics cost on the location of the production and international trade.

Impact of Environmental Standards and Logistics Cost on Location of Production and International

Trade

Introduction

In the modern global economy, the location of production and the pattern of international trade are influenced not only by traditional factors such as comparative advantage and factor endowments but also by **environmental regulations and logistics costs**. Differences in environmental standards across countries and variations in transportation, infrastructure, and coordination costs play a significant role in determining where firms locate production and how trade flows are organized.

Impact of environmental standards on production location and trade

Environmental standards refer to government regulations aimed at controlling pollution, protecting natural resources, and ensuring sustainable production. Countries differ significantly in the **strictness and enforcement** of these standards.

- **Strict environmental regulations** increase production costs for firms due to:
 - Pollution control equipment
 - Compliance and monitoring costs
 - Use of cleaner but more expensive technologies
- As a result, pollution-intensive industries (such as chemicals, steel, and cement) may **relocate production** to countries with relatively **lenient environmental standards**. This phenomenon is often described by the **“pollution haven hypothesis.”**

World Trade Organization debates have highlighted concerns that lax environmental rules can distort trade and lead to “race to the bottom”

competition among countries.

- Conversely, countries with **high environmental standards** tend to specialise in:
 - Cleaner technologies
 - Environment-friendly products
 - Knowledge-intensive and high-value industries

Thus, environmental regulations influence comparative advantage and shape trade patterns.

Impact of logistics cost on production and trade

Logistics cost includes:

- Transportation costs
- Storage and warehousing
- Port handling and customs procedures
- Time delays and coordination costs

High logistics costs reduce a country's **trade competitiveness** by raising the delivered price of exports.

- Countries with **efficient logistics systems**, good infrastructure, and faster customs clearance attract:
 - Export-oriented industries
 - Foreign direct investment (FDI)
 - Integration into global value chains
- High logistics costs discourage trade in:
 - Low-value, bulky, or perishable goods

- Time-sensitive products such as electronics or fashion items

Firms often locate production closer to markets or ports to minimize logistics costs, leading to the clustering of industries near transport hubs.

Combined impact on international trade

Together, environmental standards and logistics costs:

- Influence **comparative costs across countries**
- Affect **location decisions of multinational firms**
- Shape the composition and direction of trade flows

For developing countries, lower environmental compliance costs and improving logistics infrastructure can enhance export competitiveness. However, long-term growth requires balancing cost advantages with **sustainability and efficiency**.

Conclusion

Environmental standards and logistics costs are crucial non-traditional determinants of international trade and production location. While lenient environmental regulations and low logistics costs may attract industries in the short run, sustainable trade competitiveness increasingly depends on efficient logistics systems and environmentally responsible production practices.

5) What would be the effect of tariff on the volume of trade and terms of trade in the case of (i) a small country and (ii)

a large country? Use a diagram to explain

Effect of Tariff on Volume of Trade and Terms of Trade: Small and Large Country Cases

Introduction

A **tariff** is a tax imposed on imports. Its effects on **volume of trade** and **terms of trade (ToT)** depend crucially on whether the importing country is **small** or **large** in the world market. A small country cannot influence world prices, whereas a large country can. This distinction leads to significantly different outcomes.

(i) Effect of tariff in the case of a **small country**

A **small country** is one whose demand for imports is too small to affect the world price of the commodity.

Effect on volume of trade

- The world price remains unchanged after the imposition of a tariff.
- The domestic price rises by the full amount of the tariff.
- Higher domestic prices reduce imports.
- Therefore, the **volume of trade declines**.

Effect on terms of trade

- Since the world price does not change, the ratio of export prices to import prices remains unchanged.
- Hence, the **terms of trade remain unchanged** for a small country.

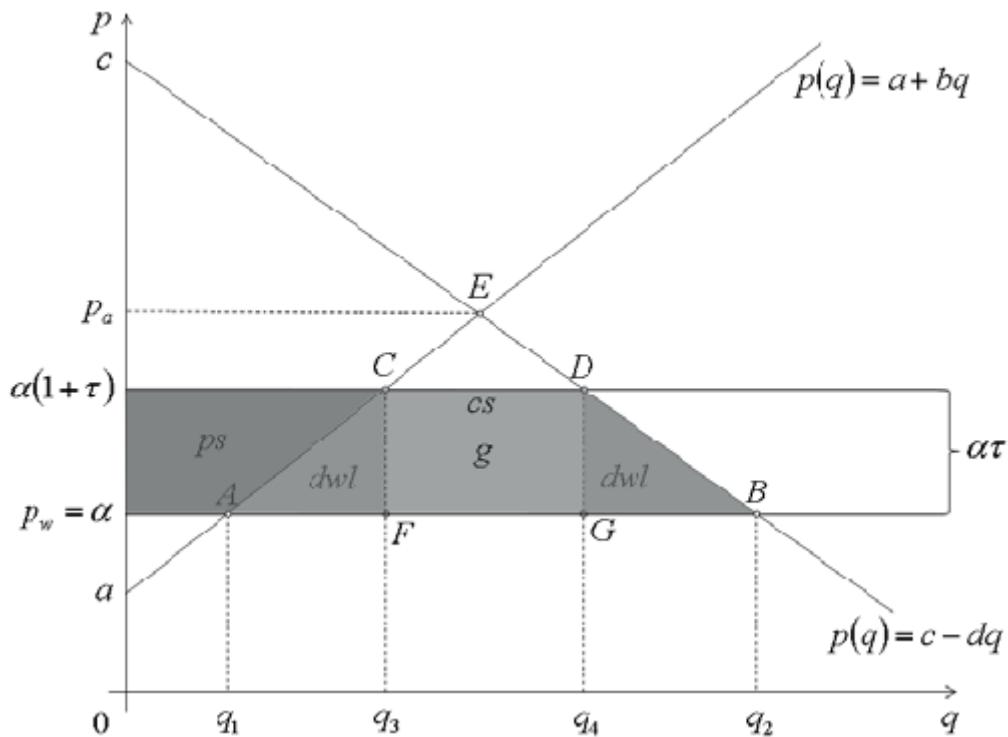


Diagram explanation (small country):

- The world price line is horizontal.
- After tariff, the domestic price rises above the world price.
- Imports contract, but there is **no improvement in terms of trade**.
- Welfare loss arises due to consumption and production distortions.

Thus, for a small country, a tariff only reduces trade and causes welfare loss without any ToT gain.

(ii) Effect of tariff in the case of a **large country**

A **large country** has sufficient market power to influence world prices through its trade policies.

Effect on volume of trade

- The tariff reduces the country's demand for imports.
- Reduced demand leads to a **fall in the world price** of the imported good.

- Imports still decline, but not by as much as in the small country case.
- Hence, the **volume of trade falls**, though the effect differs in magnitude.

Effect on terms of trade

- The fall in the world price of imports means the country now pays less per unit of imports.
- Export prices relative to import prices rise.
- Thus, the **terms of trade improve** for the large country.

Diagram explanation (large country):

- The foreign export supply curve is upward sloping.
- Imposition of tariff reduces import demand.
- World price falls, domestic price rises by less than the tariff.
- The gap between old and new world prices represents **terms of trade gain**.

However, excessive tariffs may reduce trade sharply and lead to retaliation, offsetting gains.

Conclusion

In the case of a **small country**, a tariff reduces the volume of trade without affecting terms of trade, resulting in pure welfare loss. In contrast, a **large country** may gain through an improvement in terms of trade, even though trade volume declines. Thus, the impact of tariffs critically depends on a country's ability to influence world prices.

6) How is capital account convertibility (CAC) different from current account

convertibility? In the case of developing countries, what are some situations when capital account convertibility can have adverse effects?

Capital Account Convertibility vs Current Account Convertibility and Its Adverse Effects in Developing Countries

Introduction

Convertibility of a currency refers to the freedom with which it can be exchanged for foreign currencies. In the context of international trade and finance, a distinction is made between **current account convertibility (CACu)** and **capital account convertibility (CAC)**. While current account convertibility is widely accepted and relatively safe, capital account convertibility involves greater risks, especially for developing countries.

Difference between current account and capital account convertibility

Current account convertibility refers to the freedom to convert domestic currency into foreign currency for transactions related to:

- Trade in goods and services
- Income receipts such as interest, dividends, and remittances
- Transfers like gifts and donations

It facilitates smooth international trade and is considered essential for economic integration. Most developing countries, including India, have adopted current account convertibility under the IMF framework.

Capital account convertibility, on the other hand, allows free movement of capital across borders. It covers:

- Foreign direct investment (FDI)
- Portfolio investment
- Loans and borrowing
- Acquisition of financial assets abroad

Capital account convertibility enables residents and non-residents to freely convert currency for capital transactions without restrictions.

Adverse effects of capital account convertibility in developing countries

While CAC can attract foreign investment and deepen financial markets, it can have serious adverse effects under certain conditions.

1. Capital flight and financial instability

In times of economic or political uncertainty, capital can move out rapidly, causing:

- Depletion of foreign exchange reserves
- Sharp depreciation of the domestic currency
- Banking and balance of payments crises

2. Volatility of short-term capital flows

Developing countries often receive **speculative portfolio flows** rather than stable long-term investment. Sudden inflows can overheat the economy, while sudden outflows can trigger financial crises.

3. Loss of monetary policy autonomy

With free capital mobility, central banks find it difficult to:

- Control interest rates
- Manage exchange rates
- Conduct independent monetary policy

This problem is often explained by the **impossible trinity** or trilemma.

4. Weak financial systems

Many developing countries lack:

- Strong banking supervision
- Robust financial regulation
- Effective risk management

Premature CAC can expose fragile financial systems to global shocks.

5. External debt and currency mismatch

Easy access to foreign borrowing may lead to excessive external debt. If loans are denominated in foreign currency, exchange rate depreciation increases repayment burden.

Conclusion

Current account convertibility promotes trade and economic integration with minimal risk, while capital account convertibility involves free cross-border capital flows and carries significant risks for developing countries. In the absence

of strong institutions, stable macroeconomic conditions, and sound financial regulation, capital account convertibility can lead to financial instability, capital flight, and economic crises. Therefore, a **cautious and gradual approach** to capital account liberalisation is essential for developing economies.

7) List the different types of international financial markets. Explain the importance of international instruments and financial markets.

Types of International Financial Markets and Their Importance

Introduction

International financial markets facilitate the **cross-border movement of capital** by connecting borrowers, investors, governments, and financial institutions across countries. With increasing globalisation, these markets play a crucial role in financing trade, investment, and economic development, especially by mobilising savings internationally and allocating them efficiently.

Types of international financial markets

1. International money market

The international money market deals in **short-term funds**, usually with maturity of less than one year. It includes instruments such as:

- Treasury bills

- Commercial paper
- Certificates of deposit

A prominent segment is the **Eurocurrency market**, where currencies are deposited and lent outside their country of origin (e.g., Eurodollars).

2. International capital market

This market provides **long-term finance** for governments and corporations. It consists of:

- **International bond market** (e.g., Eurobonds, foreign bonds)
- **International equity market**, where shares are issued and traded across borders

These markets help finance infrastructure, industrial expansion, and development projects.

3. Foreign exchange (forex) market

The foreign exchange market facilitates the **exchange of one currency for another**. It is essential for:

- International trade payments
- Capital flows
- Hedging exchange rate risk

It is the largest and most liquid financial market globally.

4. International derivatives market

This market deals in financial contracts such as:

- Futures
- Options
- Swaps

Derivatives are used to **manage risks** related to exchange rates, interest rates, and commodity prices.

5. International credit market

This includes:

- International bank lending
- Multilateral and bilateral loans

Institutions such as **International Monetary Fund** and the World Bank play a major role in providing credit to countries facing balance of payments problems or development financing needs.

Importance of international financial instruments and markets

1. Mobilisation of global savings

International markets channel surplus savings from developed countries to capital-scarce developing countries, supporting investment and growth.

2. Facilitation of international trade

Trade requires financing mechanisms such as letters of credit, foreign exchange contracts, and short-term loans, all provided by international financial markets.

3. Efficient allocation of capital

Capital flows to sectors and countries offering higher returns, improving global resource allocation and productivity.

4. Risk diversification and management

International instruments allow investors and firms to:

- Diversify portfolios across countries
- Hedge against exchange rate and interest rate risks

5. Support to economic development

Developing countries benefit through:

- Access to foreign capital
- Technology transfer
- Improved financial integration

6. Promotion of financial integration

International financial markets integrate national economies into the global system, enhancing competitiveness and financial depth.

Conclusion

International financial markets—money, capital, foreign exchange, derivatives, and credit markets—play a vital role in supporting global trade, investment, and economic development. By mobilising savings, managing risks, and facilitating capital flows, these markets have become an indispensable component of the modern international economic system.

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