International Economic Cooperation

Lecture II

Theory of Absolute Advantage: Adam Smith

- The mercantilist's static view of the world economy where trade was regarded as Zero Sum Game was challenged by Adam Smith with his publication in "Wealth of Nations" 1776.
- According to Smith (1723-1790), International trade is actually a positive sum game where the nations take advantage of specialization and the division of labor which increases the general level of productivity within a country and thus increases world output.
- According to the dynamic view of Smith regarding trade both the trading partners could simultaneously enjoy higher levels of production and consumption.

Key Concept

❑ **Trade Based on Absolute Advantage:** A nation specializes in producing goods where it is more efficient (absolute advantage).

- Trades for goods where it is less efficient (absolute disadvantage).

❑ **Mechanism**

1. Specialization:

Each nation focuses on producing goods with lower production costs.

2. Trade Exchange:

Nations trade part of their specialized output for other goods.

3. Efficient Resource Utilization:

Maximizes global productivity

❑ **Outcome**

- **Increased Output:**
  - Total production of both goods rises globally.
- **Gains from Trade:**
  - Benefits are shared between nations, enhancing economic welfare.

Example

- Because of climatic conditions, Canada is efficient in growing wheat but inefficient in growing bananas (hothouses would have to be used). On the other hand, Nicaragua is efficient in growing bananas but inefficient in growing wheat.
- Thus, Canada has an absolute advantage over Nicaragua in the cultivation of wheat but an absolute disadvantage in the cultivation of bananas. The opposite is true for Nicaragua.
- Under these circumstances, both nations would benefit if each specialized in the production of the commodity of its absolute advantage and then traded with the other nation.
- Canada would specialize in the production of wheat (i.e., produce more than needed domestically) and exchange some of it for (surplus) bananas grown in Nicaragua. As a result, both more wheat and more bananas would be grown and consumed, and both Canada and Nicaragua would gain.
- Under these circumstances, both nations would benefit if each specialized in the production of the commodity of its absolute advantage and then traded with the other nation.

Illustration of Absolute Advantage

- Table shows that one hour of labor time produces six bushels of wheat in the United States but only one in the United Kingdom. On the other hand, one hour of labor time produces five yards of cloth in the United Kingdom but only four in the United States.

- Thus, the United States is more efficient in the production of wheat, whereas the United Kingdom is more in the production of cloth.

	U.S.	U.K.
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	5

Trade Exchange
U.S. exchanges **6 bushels of wheat (6W)** for **6 yards of British cloth (6C).**

- **Gains for the United States:**
- **Domestic Production Trade-Off**:
  - 6W would only get **4C domestically.**
- **Through International Trade**:
  - U.S. gains **2 additional yards of cloth (2C).**
- Saves **30 minutes of labor time** (1/2 hour).

- **Gains for the United Kingdom:**
- **Labor Requirement Without Trade**:
  - 6W requires **6 labor-hours** to produce in the U.K.
  - Same 6 hours can produce **30C** in the U.K. (**5 yards/hour**).
- **Through International Trade**:
  - Produces only **6C** (takes 1+ labor-hour in U.K.).
  - Gains **24 additional yards of cloth (24C).**
- Saves **~5 labor-hours**.

Key Insights

Mutual Gains:	U.S. and U.K. benefit through specialization and trade.
Labor Efficiency:	Both nations save significant labor time and resources.
Illustration of Absolute Advantage:	U.S. excels in wheat, U.K. in cloth – trade maximizes efficiency.

Comparative Advantage Theory

- In 1817, Ricardo published his *Principles of Political Economy and Taxation*, in which he presented the law of comparative advantage.
- According to the law of comparative advantage, even if one nation is less efficient than (has an absolute disadvantage with respect to) the other nation in the production of *both* commodities, there is still a basis for mutually beneficial trade.
- The first nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller (this is the commodity of its *comparative advantage*) and import the commodity in which its absolute disadvantage is greater (this is the commodity of its *comparative disadvantage*).

Examples of Comparative Advantages in International Trade

Country	Product
Canada	Lumber
Israel	Citrus fruit
Italy	Wine
Jamaica	Aluminum ore
Mexico	Tomatoes
Saudi Arabia	Oil
China	Textiles
Japan	Automobiles
South Korea	Steel, ships
Switzerland	Watches
United Kingdom	Financial services

Assumptions

1. The world consists of two nations, each using a single input to produce two commodities.
2. In each nation, labor is the only input. Each nation has a fixed endowment of labor, and labor is fully employed and homogeneous.
3. Labor can move freely among industries within a nation but is incapable of moving between nations.
4. The level of technology is fixed for both nations. Different nations may use different technologies, but all firms within each nation utilize a common production method for each commodity.
5. Costs do not vary with the level of production and are proportional to the amount of labor used.
6. Perfect competition prevails in all markets. Because no single producer or consumer is large enough to influence the market, all are price takers. Product quality does not vary among nations, implying that all units of each product are identical.

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7. Free trade occurs between nations; that is, no government barriers to trade exist.
8. Transportation costs are zero. Consumers will thus be indifferent between domestically produced and imported versions of a product if the domestic prices of the two products are identical.
9. Firms make production decisions in an attempt to maximize profits, whereas consumers maximize satisfaction through their consumption decisions.
10. There is no money illusion; that is, when consumers make their consumption choices and firms make their production decisions, they take into account the behavior of all prices.
11. Trade is balanced (exports must pay for imports), thus ruling out flows of money between nations.

Statement of the Law

- the United Kingdom now has an absolute disadvantage in the production of *both* wheat and cloth with respect to the United States

	U.S.	U.K.
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	2

- In case of United States, absolute advantage is greater in wheat (6:1) than in cloth (4:2), *the United States has a comparative advantage in wheat*.
- Similarly, the United Kingdom's absolute disadvantage is smaller in cloth, so its comparative advantage lies in cloth.
- According to the law of comparative advantage, both nations can gain if the United States specializes in the production of wheat and exports some of it in exchange for British cloth.

Production Possibilities Schedules

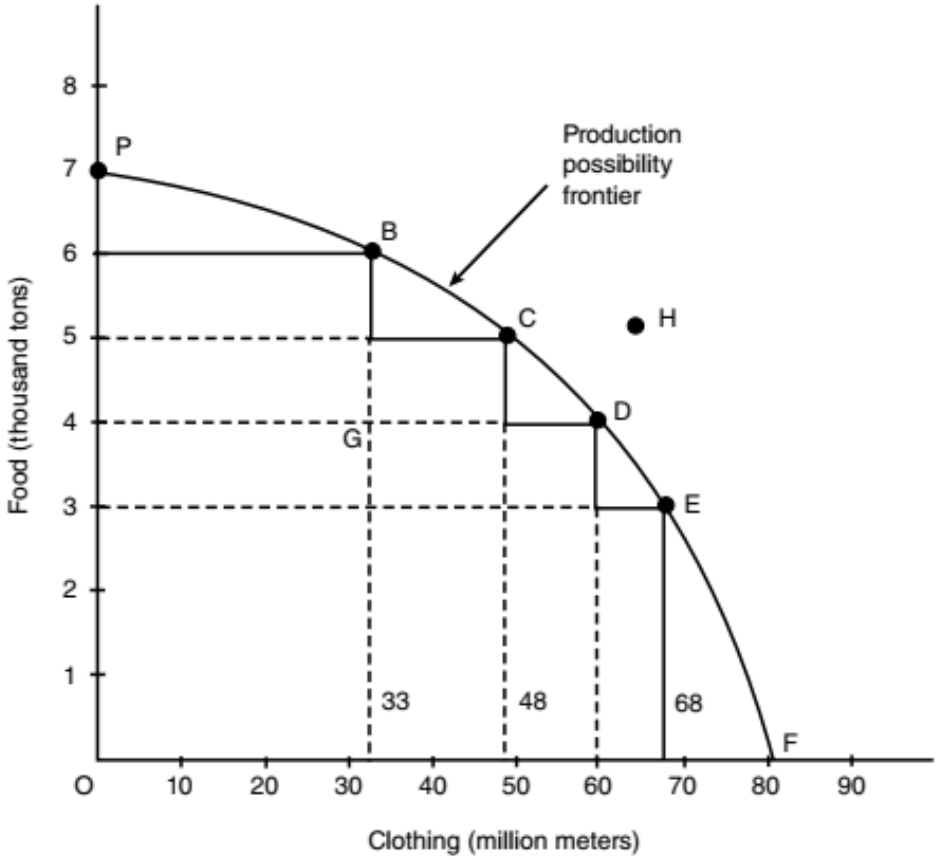
Ricardo’s law of comparative advantage depended on the restrictive assumption of the labor theory of value, in which labor was assumed to be the only factor input. However, in practice, labor is only one of several factor inputs.

Recognizing the shortcomings of the labor theory of value, modern trade theory provides a more generalized theory of comparative advantage. It explains the theory using a production possibilities schedule, also called a transformation schedule.

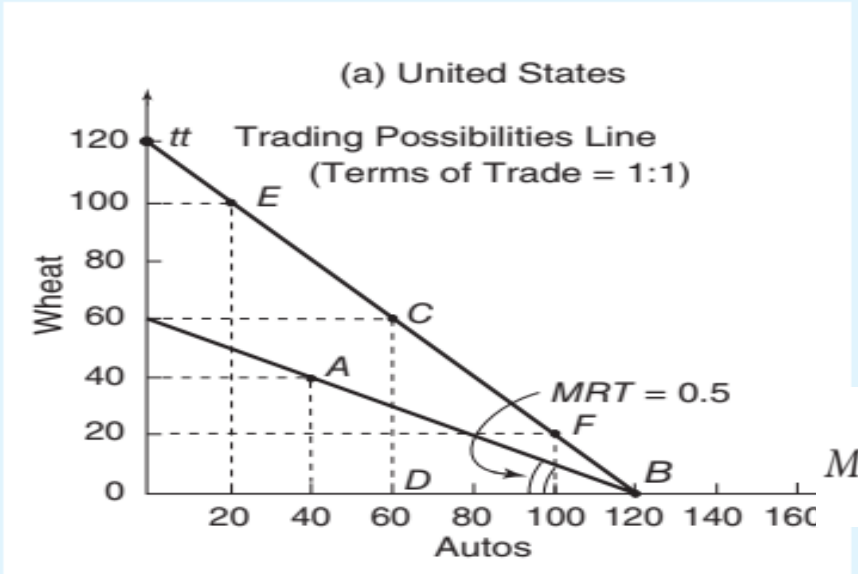
This schedule shows various alternative combinations of two goods that a nation can produce when *all* of its factor inputs (land, labor, capital, entrepreneurship) are used in their most efficient manner.

Alternative Production Possibilities

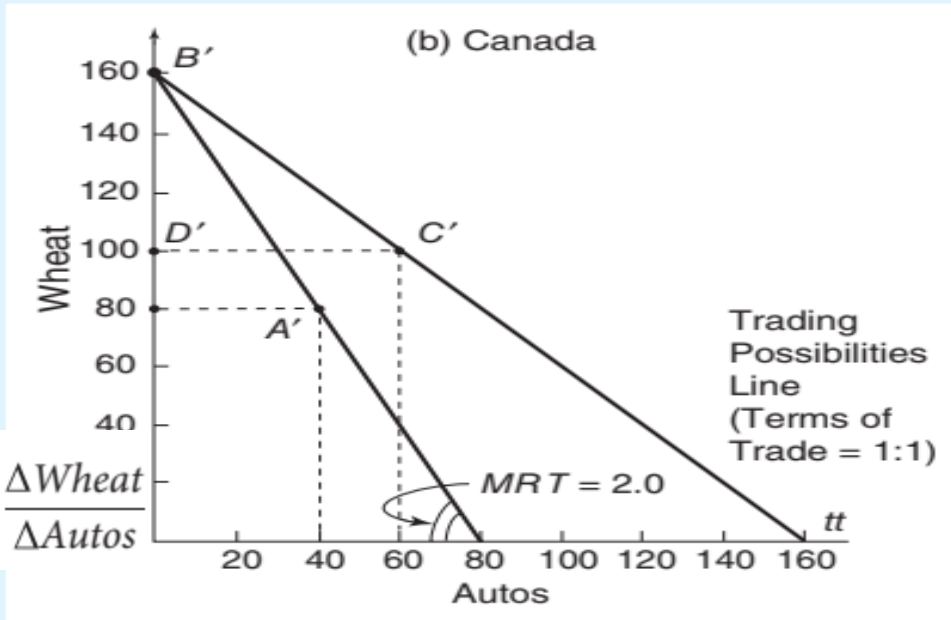
Point of Goods Combination	Food (thousand tons)	Clothing (Million Meters)
A	7	0
B	6	33
C	5	48
D	4	60
E	3	68
F	0	80



Trading under Constant Opportunity Costs



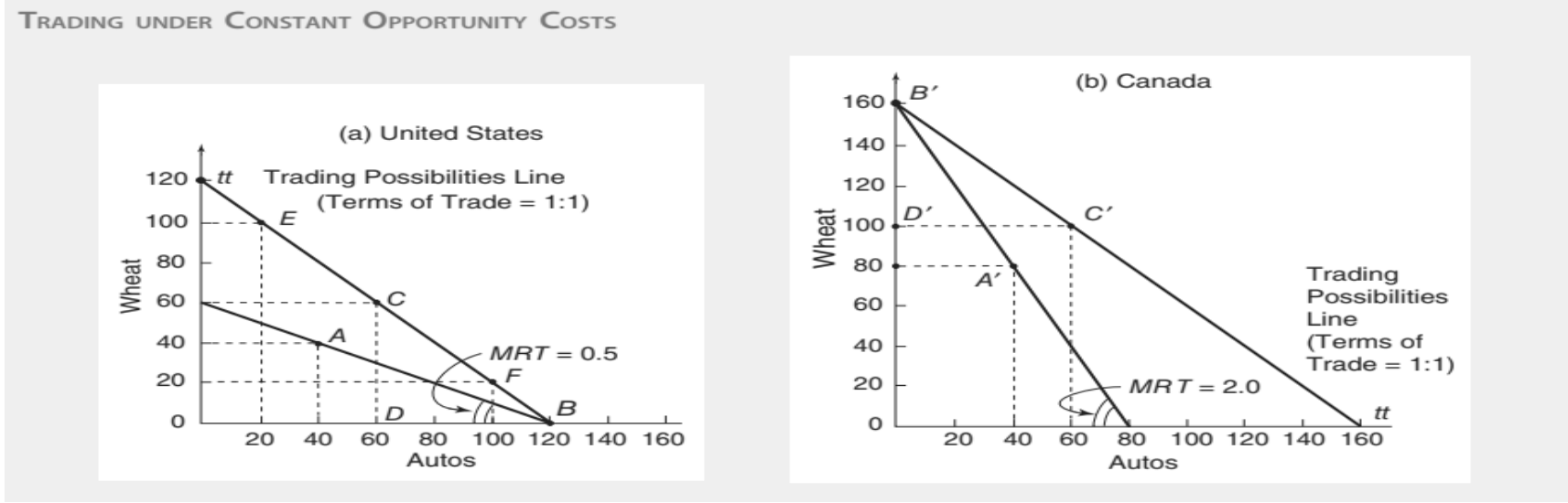
$$MRT = \frac{\Delta Wheat}{\Delta Autos}$$



- The slope of the production possibilities schedule, which is referred to as the **marginal rate of transformation** (*MRT*) shows the amount of one product a nation must sacrifice to get one additional unit of the other product:

$$MRT = \frac{\Delta Wheat}{\Delta Autos}$$

Comparison: MRT



- **In case of The United States:**
- Movement along the Production Possibilities Schedule (PPS):
  - 120 additional autos produced.
  - 60 bushels of wheat sacrificed.
- MRT Calculation:
  - MRT = Wheat Sacrificed / Autos Produced.
  - MRT = 60 / 120 = 0.5 bushels of wheat per auto.

- **In case of Canada:**
- Movement along its Production Possibilities Schedule:
  - Relative cost of each auto produced = 2 bushels of wheat sacrificed.
- MRT Calculation:
  - MRT = Wheat Sacrificed / Autos Produced.
  - MRT = 2.0.

Conclusion

1

The United States has a lower Marginal Rate of Transformation (0.5) than Canada (2.0).

2

The United States sacrifices less wheat per auto, indicating a comparative advantage in auto production.

3

Canada sacrifices more wheat per auto, reflecting a comparative advantage in wheat production.

Trading Under Constant-Cost Conditions

First, what are the basis for trade and the direction of trade?

Second, what are the potential gains from trade, for a single nation and for the world as a whole?

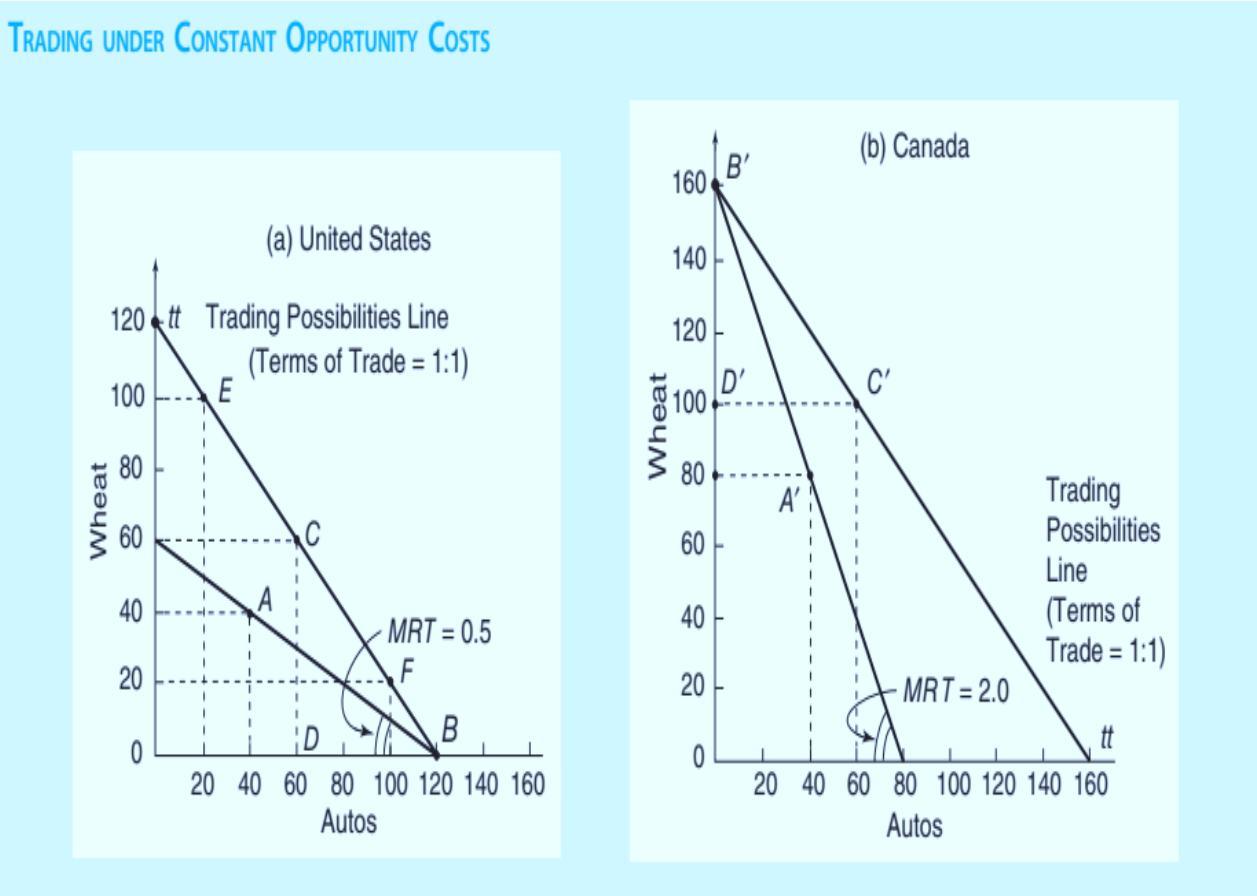
Reasons for constant costs

The factors of production are perfect substitutes for each other.

All units of a given factor are of the same quality.

Basis for Trade and Direction of Trade

- Assume a situation of **autarky** (the absence of trade).
- Both countries produce and consume at their production possibilities without trade.
- United States (Point A):40 Autos40 Bushels of Wheat
- Canada (Point A):40 Autos80 Bushels of Wheat



Relative Costs of Production

United States:
Cost of 1 Auto = **0.5 Bushels of Wheat**

Canada:
Cost of 1 Auto = **2 Bushels of Wheat**

Conclusion:

The U.S. has a **lower opportunity cost** of producing autos.

Canada has a **higher opportunity cost** of producing autos.

Comparative Advantage Principle

- Comparative advantage exists when a country can produce a good at a lower opportunity cost.
- United States: Comparative Advantage in Autos.
- Canada: Comparative Advantage in Wheat.
- **Direction of trade:**
  - United States → Produces and exports **Autos**
  - Canada → Produces and exports **Wheat**
- **Mutual Benefit:**
  Both countries can consume beyond their production possibilities with trade.

Key Benefits of Trade

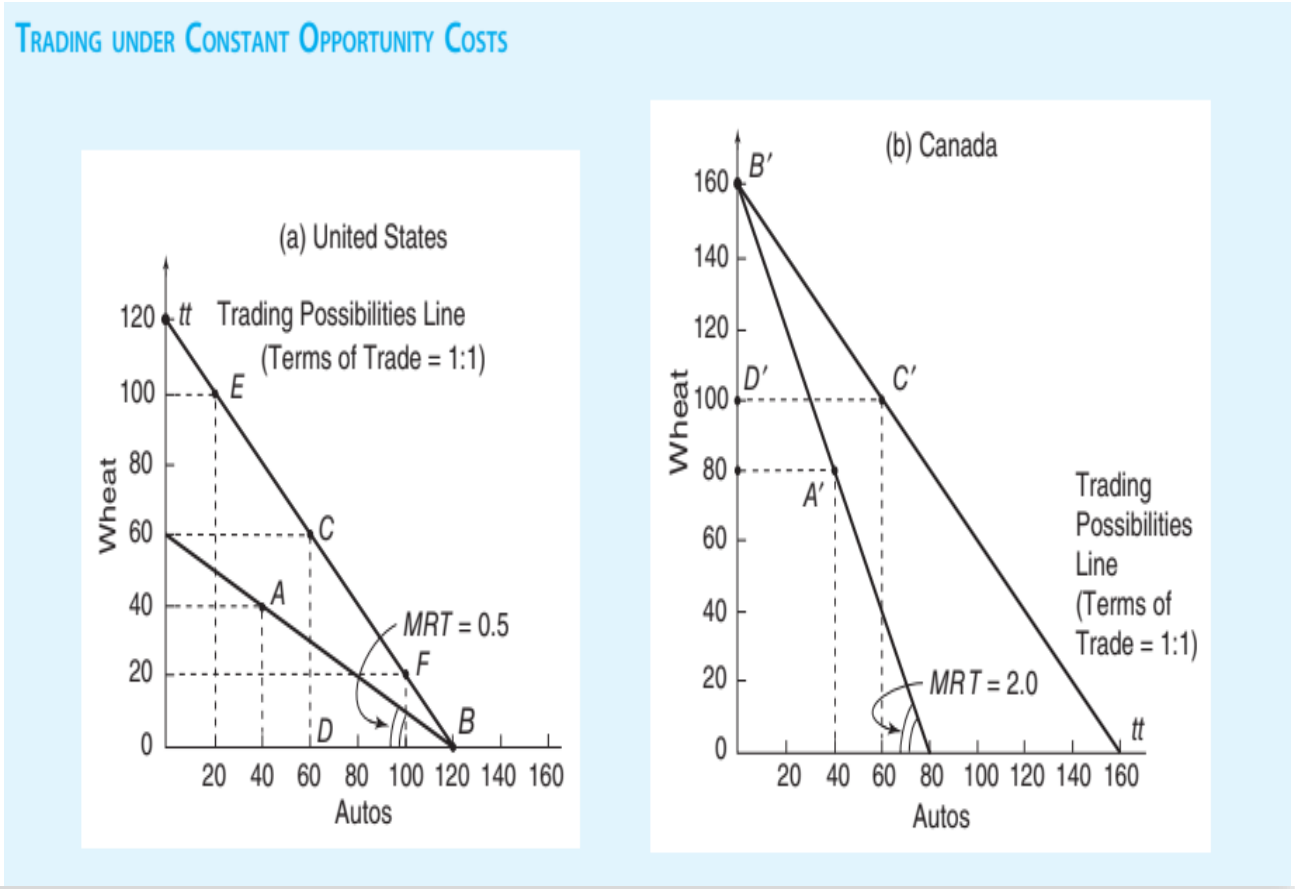
Specialization increases overall output.

Trade allows countries to consume more than in autarky.

Comparative advantage ensures mutual gains.

Production Gains from Specialization

- The United States moves from production point *A* to production point *B*, totally specializing in auto production. Canada totally specializes in wheat production by moving from production point *A* to production point *B* in the figure.
- Taking advantage of specialization can result in **production gains** for both countries.



Gains from Specialization and Trade: Constant Opportunity Costs

(a) Production Gains from Specialization

	BEFORE SPECIALIZATION		AFTER SPECIALIZATION		NET GAIN (LOSS)	
	Autos	**Wheat**	**Autos**	**Wheat**	**Autos**	**Wheat**
United States	40	40	120	0	80	–40
Canada	40	80	0	160	–40	80
World	80	120	120	160	40	40

(b) Consumption Gains from Trade

	BEFORE TRADE		AFTER TRADE		NET GAIN (LOSS)	
	Autos	**Wheat**	**Autos**	**Wheat**	**Autos**	**Wheat**
United States	40	40	60	60	20	20
Canada	40	80	60	100	20	20
World	80	120	120	160	40	40

Terms of Trade
International Trade and Consumption Gains
Terms of Trade: 1 auto = 1 bushel of wheat (1:1 ratio).
Trading Possibilities Line (tt): Represents international terms of trade with a slope of –1

- The set of post-trade consumption points that a nation can achieve is determined by the rate at which its export product is traded for the other country's export product. This rate is known as the **terms of trade**.
- The **terms of trade** define the **relative prices** at which two products trade in the marketplace.

U.S. Trade Scenario:	Canada's Trade Scenario:
• **Exports:** United States exports 60 autos to Canada. • **Imports:** Receives 60 bushels of wheat in return. • **Post-Trade Consumption (Point C):** • Compared to pre-trade (Point A): • **Consumption Gains:** 20 additional autos and 20 additional bushels of wheat. • **Trade Triangle (BCD):** Illustrates U.S. exports, imports, and terms of trade.	• **Exports:** Canada exports 60 bushels of wheat to the United States. • **Imports:** Receives 60 autos in return. • **Post-Trade Consumption (Point C):** • Compared to pre-trade (Point A): • **Consumption Gains:** 20 additional autos and 20 additional bushels of wheat. • **Trade Triangle (B'C'D'):** Same as the U.S., reflecting balanced trade.

Static Gains

- Production gains arising from the reallocation of existing resources according to comparative advantage when the economy open to international trade.

❑ **Example: Japan's Opening to Trade**

- In 1859, Japan ended 200 years of economic isolation and opened its ports to international trade responding to pressure from the United States.
- Leveraged comparative advantage, exporting tea and silk while importing woolen and cotton goods.
- Achieved static gains from specialization, increasing GDP by 8-9%.
- Long-run gains included improved productivity and technology adoption.

Static Losses

- Loss incur by the country when it initially opens to trade, and later, trade is eliminated and replace the allocation of resources to produce the imported commodities

❑ **Example: U.S. Embargo of 1807**

- To counter British and French harassment, the U.S. closed its ports to international trade.
- Shifted production from exported agricultural goods (comparative advantage) to import-replacement manufactured goods (comparative disadvantage).
- Resulted in inefficient resource utilization and a loss of 8% of gross national product.
- The unpopular embargo was terminated in 1809.