Chapter 15

- *Absolute advantage and comparative advantage*
- *Some of the advantages and disadvantages of trade*
- *Economic impacts of protectionism*
  - *Tariff*
  - *Quota*
  - *Subsidy*

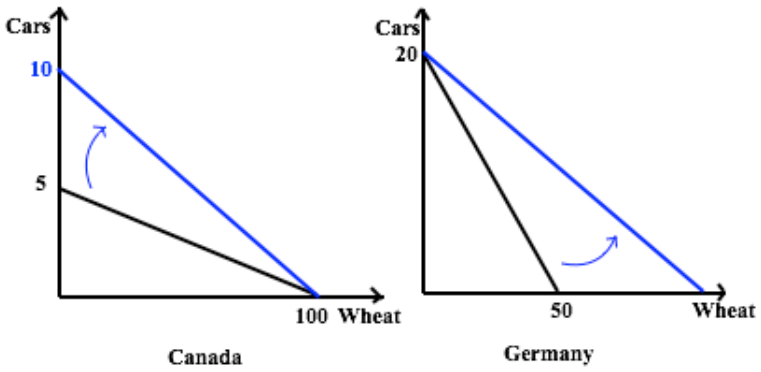
In chapter one, we talked about the concept of opportunity cost and how specialisation and trade benefits both parties. We can apply the same idea to countries and explain some of the advantages that benefit both countries. In this chapter, we introduce two concepts: absolute advantage and comparative advantage, then use these two concepts to show how both countries benefit from trade even if one country is better at producing everything.

Despite the benefits of trade, sometimes governments use policies to protect domestic suppliers from the effects of trade. Next, we introduce some of these policies and their economic impacts.

- *Absolute advantage and comparative advantage*

Suppose Canada and Germany are producing cars and wheat and they can produce the following quantities per hour.

	Canada	Germany
Car	5	20
Wheat	100	50



Refer to the above graph. The black lines are the two countries' production possibilities frontiers. Given the same resources, Canada produces more wheat than Germany and Germany produces more cars than Canada. So Canada has an *absolute advantage* in producing wheat and Germany has an *absolute advantage* in producing cars. If they specialise:

Canada specialises in producing wheat. → total quantity of wheat: 100kg
Germany specialises in producing cars. → total number of cars: 20

Suppose the terms of trade are defined as 1 car is traded for 10kg of wheat.
Now, if the two countries start trading, each country's production possibilities frontier (PPF) rotates to the right (the blue line). That is, as a result of trading and given the same amount of resources, both countries have access to more combinations of cars and wheat, a *consumption gain*.

Another example:

Suppose Canada and the US are producing meat and corn. The numbers in the table are production in 24 hours.

	Canada	US
Corn	12	24
Meat	72	96

The US is producing more corn and meat per day than Canada. So Canada does not seem to do anything better. In this situation, do they benefit from specialisng and trading?

To solve this puzzle, we need to look at the principle of *comparative advantage*. As a first step we need to find out which country produces corn/meat at a lower cost.

There are two ways to look at this question:

1. To compare the inputs required to produce meat/corn (*Absolute advantage*)

To produce 1kg corn: 2 hours in Canada versus 1 hour in the US → Less costly in the US
To produce 1kg meat: 20 minutes (24/72) in Canada versus 15 minutes (24/96) in the US → Less costly in the US

➔ The US has an absolute advantage in producing both products.

Absolute advantage: if one economy uses fewer inputs than another economy to produce a good or service, then that economy has an absolute advantage in its production.

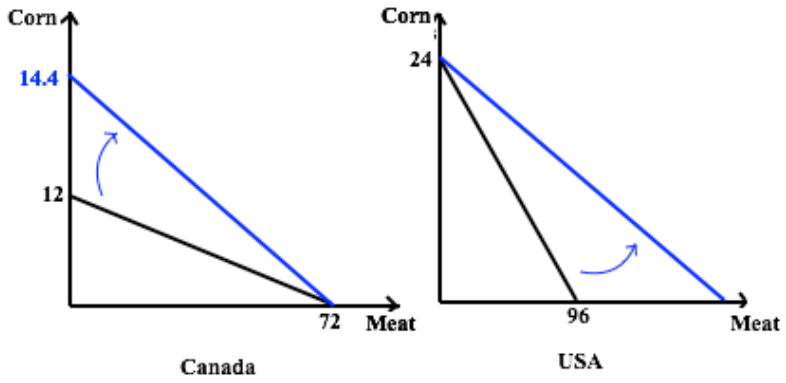
2. To compare opportunity costs (recall from chapter 1): time spent producing one product takes away from time available for producing the other product. (*Comparative advantage*)

Canada:	12 Corn ___ 72 Meat	→	1 Corn → 6 Meat
US:	24 Corn ___ 96 Meat	→	1 Corn → 4 Meat

Comparing opportunity costs:
Producing corn is less costly in the US → the US specialises in producing corn
Producing meat is less costly in Canada → Canada specialises in producing meat

➔ the US has a *comparative advantage* in producing corn and Canada has a *comparative advantage* in producing meat.

Suppose they specialise and the terms of trade are: 1 Corn ___ 5 Meat
Total corn production: US 12 units
Total meat production: Canada 72 units



Refer to the graph: the black line shows each country's PPF before trade. However, after trading, both countries' PPFs shift to the right, meaning that they have access to more combinations of meat and corn (a *consumption gain* for both countries).

To conclude, even when one country is better at everything, both countries still gain from specialisation and trade.

Comparative advantage: Countries specialise in the production and export of products that they produce at a lower *relative cost* to other countries.

Another example:

Suppose to produce one computer and a bottle of wine, the USA and France have to work the following number of hours: (Notice that the number in this table are costs, so lower is better.)

	France	USA
Wine	4	8
Computer	24	32

France spends fewer hours on producing both products; therefore, France has an absolute advantage in producing both products.
One way to solve this is to transform the cost table to a production table and then solve it the same as before.

How much does each country *produce* in one hour?

	France	USA
Wine	1/4	1/8
Computer	1/24	1/32

France: 1/4 W ___ 1/24 C → 1W __ 1/6C → France specialises in producing wine
USA: 1/8 W ___ 1/32 C → 1W __ 1/4C → the US specialises in producing computers

➔ France has an absolute advantage in producing both products.
Moreover, France has a comparative advantage in producing wine and the US has a comparative advantage in producing computers.

- *Sources of comparative advantage*

- Endowments: economies are naturally endowed with different advantages
- Endowments as a result of investment, higher knowledge and skills
- Economies of scale: specialisation in particular goods and services within a broader product group.

- *Some of the advantages and disadvantages of trade*

Other advantages of trade, in addition to consumption gains, include

- Access to more variety and choices
- Better quality
- Lower prices
- Access to bigger markets
- Greater economies of scale (ie, the possibility of reaching minimum efficient scale).
- Higher efficiency through more competition

Therefore, many countries have been moving towards less trade barriers, increased globalisation and more/larger free trade zones, (eg, the World Trade Organisation (WTO), European Union, North American Free Trade Agreement (NAFTA), Trans Pacific Partnership (TPP) and Transatlantic Trade and Investment Partnership (TTIP).

Does everyone within a country gain from trade?

- Domestic consumers gain from free trade in goods that are imported but domestic producers lose. Vice versa, domestic consumers lose from free trade in goods that are exported but domestic producers gain. In both cases, the gains outweigh the losses, so society as a whole benefits from exporting *and* importing.
- So, while some of the sectors might lose out, some survive and benefit accessing larger markets and economies of scale.
- These specific sectors lose profits and jobs and this imposes different costs such as high unemployment, unemployment insurance, retraining programs for the unemployed workers etc.
- For these reasons some argue that these industries need to be protected from trade.
- A popular argument is the *infant industries* argument. Newer (ie, infant) industries should be protected to grow, learn and expand until protection is not required anymore. However, these industries have no incentive to become mature and temporary protection usually becomes permanent.
- Therefore, countries may use other ways to protect its domestic industries, including tariffs (a tax on imports), quotas (a quantity limit on imports), subsidies and/or non-tariff barriers (eg, safety standards and regulations).

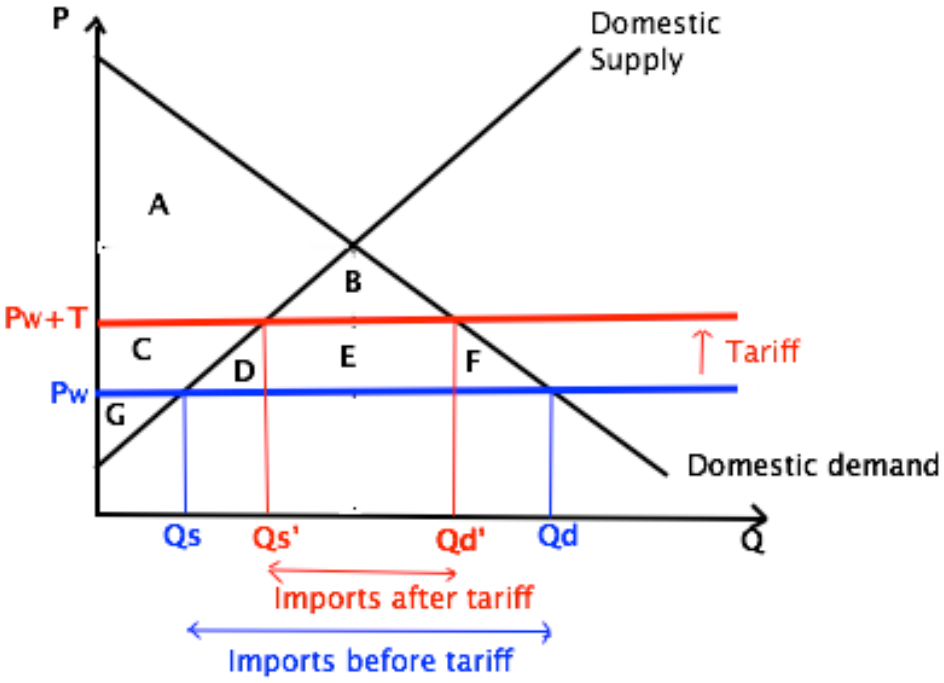
❖ *Economic impacts of protectionism*

In this section, we talk about the economic impact of three types of protection: tariffs, quotas and subsidies

▪ *Tariffs*

A tariff is a tax on imported goods.

Refer to the graph:
- Domestic supply and demand are S_d and D_d. If this is a closed economy, supply and demand sets the price and quantity that is produced and sold in the economy.
- Suppose this is a small open economy (ie, an economy open to trade that faces the world (P_w) instead of domestic price).
- Quantity supplied by domestic producers: Q_s
- Quantity demanded by domestic consumers: Q_d
- Imported quantity: $Q_d - Q_s$



Now, suppose the government levies a tariff of *$T* to protect domestic suppliers. Therefore, the new price is (P_W+T).

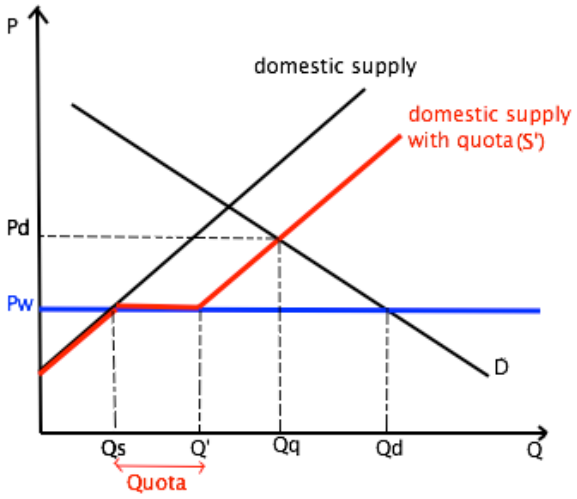
- After the tariff, domestic producers produce Q_S' (greater than before)
- Domestic consumers purchase Q_D' (smaller than before)
- After the tariff, imports are $Q_D' - Q_S'$
- The table below shows the welfare effects of the tariff policy.

	Before Tariff	After Tariff	Change
Consumer Surplus	A + B + C + D + E + F	A + B	-(C + D + E + F)
Producer Surplus	G	C + G	C
Government Revenue	None	E	E
Total Surplus	A + B + C + D + E + F + G	A + B + C + E + G	***-(D + F)***

- (*D+F*) is the fall in total surplus and represents the deadweight loss of the tariff.

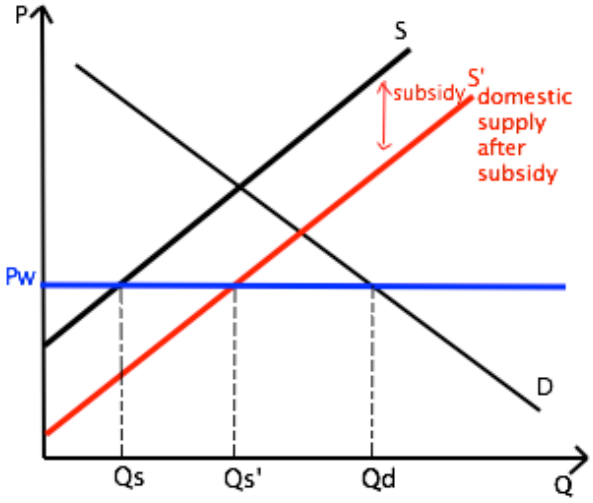
- *Quota*

- A quota is a quantity control that the government places on an imported product.
- The graph shows a small open economy where domestic supply and demand are S_d and D_d and the world price is P_W.
- The government places a quota, q_{Quota}, on imports that is less than $Q_d - Q_s$
- S' shows the domestic supply with the import quota.
- Total domestic supply are Q_s and $Q_q - Q'$.
- Domestic demand is Q_q, smaller by ($Q_d - Q_q$) than if trade were free.



- *Subsidy*

- The government subsidises domestic suppliers so that the domestic supply shifts to the right and their market share increases.
- Suppose this is a small open economy: domestic demand and the initial supply are D and S, respectively, and the world price is set at P_W. Sales happen at the world price.
- Suppose the government pays a subsidy of *$S* per unit to the domestic supplier. After subsidy supply is *S'.*
- Quantity demanded: Q_d
- Quantity supplied before the subsidy: Q_S and quantity supplied after the subsidy is Q_S'.
- Quantity imported after the subsidy: $Q_d - Q_s$,



❖ *Practice*

The domestic demand in the market for appliances is given by $P = 512 - 2Q$; the market supply of domestic suppliers is given by $P = 92 + 4Q$, and the

a. Solve for the equilibrium quantity and price for this country if there is no trade.

Answer: Q = 70, P = 372

Suppose the country is open to trade and world price is $120 and the country is open to trade.

b. Graph this country. What is the quantity traded? How much is produced domestically? How much is imported?

Answer: Q_d = 196, Q_s = 7, import = 189

Suppose government imposes an import quota of 20 units.

c. Does this quota affect the domestic price? Why? What is the domestic price? What is the quantity traded (including quota)?

Answer: P = 345.3, Q = 83.33

Continue with part b, suppose government puts $10 tariff per unit …

d. What is quantity traded? What is the imported quantity? Calculate government revenue.

Answer: Q_d = 191, Q_s = 9.5 → import = 181.5

Government revenue = 1815