**Production Possibility Frontier – NOTES**

As we have already discussed, resources are scarce and therefore only a finite amount can be produced over a given period of time (1 year, for example). An economy may only have enough resources to produce 30 manufactured goods and 30 non-manufactured goods. If this economy wanted to produce more manufactured goods, it would have to give up some production of non-manufactured items. This is because the production of a manufactured item has an opportunity cost – in this case you have to give up non-manufactured items.

This can be shown on the diagram, in which the curved line is called the production possibility frontier (PPF) and it shows the different combinations of economic goods with an economy is able to produce if all resources are fully employed. The following points on the diagram mean:

* Point A: Devoting all resources to the production of non-manufactured goods.
* Point B: 15 manufactured goods and 45 non-manufactured goods are able to be produced.
* Point C: 30 manufactured goods and 30 non-manufactured goods are able to be produced.
* Point D: 35 manufactured goods and 20 non-manufactured goods are able to be produced.
* Point E: Devoting all resources to the production of manufactured goods.
* Point F: 20 non-manufactured and 25 manufactured goods are being produced, but most importantly this point is inside the PPF curve and there this scenario has spare, unutilised resources.
* Point G: This situation is currently impossible, as the PFF shows the maximum output of the economy and this point is beyond the PPF curve.

 **Opportunity cost – Marginal analysis**

The PPF clearly illustrates the concept of opportunity cost. Assuming that the economy is producing at point C and then moves to point D, this means that the output of manufactured goods will increase from 30 to 35 units. However, the opportunity cost of that (ie what has been given up in order to gain 5 extra manufactured goods), is the lost output of non-manufactured goods, falling from 30 to 20 units. The opportunity cost at C of increasing manufacturing production by 5 units is 10 units of non-manufactured goods.

Another away to express this is to **marginal analysis.** In economics, marginal means ‘one more’ and you will come across it throughout the course. Therefore in this situation just mentioned (moving from C to D) the marginal opportunity cost of producing 1 manufactured good is 2 non-manufactured goods (10 divided by 5).

 **Economic growth or decline**

As previously mentioned, the economy cannot produce outside its existing PPF curve as this represents the maximum output of the economy. However, in order to reach point G, the economy might be able to produce more if the PPF curve shifts (experiences economic growth). An increase in the productive potential of the economy is shown in the diagram, allowing the economy to move from point A to point B and thus producing more of civilian and more of military goods (without incurring any opportunity cost).

Economic growth can happen if:

* The **quantity** of resources (land, labour capital) available to the economy increases; for instance there might be an increase in the number of workers in the economy, or new factories and offices are built.
* There is an increase in the **quality** of resources; education will make workers more productive. Technological advancements will allow machines (capital) to produce more with the same amount of resources.

PPF curves can shift inwards as well if the productive potential of the economy can fall. For example, war can destroy economic infrastructure. A rapid fall in the number of workers in a population can reduce potential output. Some environmentalists predict that global warming will devastate world agriculture, as the productive potential would fall as a result of changes to the climate. Global warming would therefore lead to a shift inwards of the world’s PPF.

When we consider at the real-world application of this theory, it is unlikely to expect all economies to operate on the PPF curve, as they experience levels of unemployment of workers. Factories and machines may lie idle when this occurs and as such production occurs **within** the boundary on **not on** the boundary. If all of the factors of production did become fully employed, only then would the economy be operating on the PPF curve.

**Capital goods and consumer goods**

* **Capital goods:** goods that are used in the production of other goods (usually consumer goods) such as factories, offices, roads, machines and equipment.
* **Consumer goods:** goods and services that are used by people to satisfy their wants and needs.

There is potential conflict between consuming consumption goods now and fuelling future economic growth by investment in capital goods. If an economy produces an extra £10bn worth of restaurant meals (consumer goods) for consumers, then they are better off today. If that £10bn is instead spent on new factories, offices or machinery (capital goods) or spends £10bn on improving education, the productive potential of the economy is likely to increase. As a result, consumers would then be better off and have more consumer goods in the future.

This therefore means that economists and governments must use their finite resources to make decisions regarding the short-term and long-term. Without considering the long-term, future needs of consumers will not be met as the future productive capacity of the economy will not be great enough. But if capital goods *are* invested in, then in the long-term the PPF will shift outwards and the productive potential of the economy will increase and thus will be able to meet future demand from consumers.