DP IB Environmental Systems & Societies (ESS): HL

10.4 Economic Growth & Impacts

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Economic Growth

Economic Growth

- Economic growth refers to the **increase** in the **total market value** of **goods** and **services** produced within a country over a given time period
  - It is usually measured **annually** as the percentage change in **gross domestic product (GDP)**

Gross domestic product (GDP)

- GDP is the **monetary value** of all goods and services produced within a country's borders over a given time period (usually a year)
  - It acts as an important **indicator** of a country's **economic performance** and **productivity**
  - For example, in 2021, the UK's GDP grew by 7.5%, showing an increase in economic activity despite challenges of the pandemic
- It can be measured using the following approaches:
  - **The expenditure approach:** adds up the value of all the expenditure in the economy
    - This includes consumption, government spending, investment by businesses and net exports (exports - imports)
  - **The income approach:** adds up the value of all the income or "rewards" for the economy
    - Wages from labour, rent from land, interest from capital and profit from entrepreneurship
- Both approaches should provide the **same overall figure** for GDP, as one group's expenditure is another group's income

Per capita GDP

- Per capita GDP = **GDP ÷ the population**
- This means that per capita GDP measures the **average income per person** in a country
- It provides a more accurate assessment of **living standards** and makes it easier to compare standards of living between countries
  - For example, Switzerland has a much higher per capita GDP than Burundi
- However, it does not take into account **inequalities** in the actual distribution of income among the population

- For example, whilst the UK has a relatively high per capita GDP, income inequality remains a significant issue, with some regions experiencing lower standards of living (and lower per capita GDP) compared to others

Measurement of economic growth

- Economic growth is commonly measured through the year-on-year **percentage change** in GDP and per capita GDP
  - It indicates the overall health and expansion of a country's economy
  - A country experiencing sustained economic growth may see improvements in employment rates, infrastructure development, and living standards over time
- The rate of GDP growth (year on year) refers to the percentage change in a country's gross domestic product from one year to the next
  - This measurement shows the pace at which an economy is **expanding** or **contracting** over time
  - Positive rates of GDP growth indicate economic **expansion**, while negative rates signify economic **contraction**
  - For example, if a country's GDP grew by 2% in 2023 compared to the previous year, it indicates a positive rate of GDP growth for that period

Linear economy and environmental impact

- Economic growth is influenced by the interaction between supply and demand and is often seen as a measure of prosperity
- This more traditional approach to economic growth follows a **linear model**
  - This means that businesses, industries or whole countries mainly focus on increasing production and consumption **without considering the environmental consequences**
  - This linear economy model tends to overlook issues such as waste, pollution, and environmental degradation

Circular flow model

- The circular flow model is a simplified representation of the flow of goods, services, and money between households and firms (businesses) within an economy
  - It illustrates how households provide factors of production (such as labour and capital) to businesses in exchange for **income**, which is then used to purchase goods and services produced by businesses
  - In turn, businesses use **revenue** from selling goods and services to pay for factors of production and generate **profits**, completing the circular flow of economic activity

- This model helps to demonstrate the interconnectedness and flow of resources and money within an economy

- Economic growth affects different parts of the circular flow model for society and the environment
  - These impacts, known as externalities, can be both positive and negative but **often tend to be negative**
  - A negative externality, such as pollution, arises when the cost of production or consumption is not fully covered by the producer or consumer but is instead passed on to **society** or the **environment**
  - Externalities are also referred to as **third-party effects or spill over effects** and occur due to **market failures** or misallocation of resources

Environmental Impacts of Economic Growth

- Economic growth is generally seen as a positive indicator of a country's **prosperity** and **development**
- It is associated with higher incomes, improved living standards, and increased employment opportunities
- However, economic growth has implications for the environment
- As economies expand, they interact more extensively with natural resources and ecosystems, leading to various environmental impacts

Positive and negative impacts on environmental welfare

- **Positive impacts:**
  - Economic growth often brings about advancements in **technology** and **innovation** that can benefit the environment (or at least reduce the damage caused to it)
    - For example, the development of **renewable energy sources** like solar and wind power can reduce reliance on fossil fuels
  - Higher incomes from economic growth can also lead to increased investment in **environmental protection measures**
    - For example, governments might provide greater funds for **wastewater treatment plants** to reduce water pollution
- **Negative impacts:**
  - Increased consumption of non-renewable resources, such as coal and oil, by economies leads to their rapid depletion
    - This can lead to scarcity and **higher prices**, negatively affecting the economy
    - This also results in greater **greenhouse gas emissions**, leading to global warming and climate change, with negative consequences such as rising sea levels and extreme weather events
  - **Pollution** levels may rise due to **increased industrial activity** and **transportation**
    - For example, factories emitting pollutants into the air or rivers can harm ecosystems and human health
    - China's rapid economic growth over the past few decades has led to severe air and water pollution in many cities due to increased industrial activity and reliance on coal for energy production

- As economies grow, the **loss of natural habitats** happens as land is cleared for urbanisation, agriculture, or industrial development
    - This threatens biodiversity and **disrupts ecosystems**
    - For example, cattle ranching and soybean farming in the Amazon rainforest contribute to deforestation, threaten biodiversity and worsen climate change

- **Impacts on vulnerable communities:**
    - The environmental impacts of economic growth and increasing consumption of natural resources unfairly affects marginalised communities (i.e. these communities feel the impacts more strongly)
    - For example, industrial pollution tends to be concentrated in poorer neighbourhoods, leading to **environmental injustice** (as this may negatively affect the health of people living in these communities)
- Communities reliant on natural resources for their livelihoods, such as Indigenous peoples, may suffer from environmental degradation caused by economic activities like mining or deforestation
    - For example, Indigenous communities in the Amazon often rely on the forest for their livelihoods, including hunting, fishing, gathering, and agriculture (as well as the cultural and spiritual significance the forest holds for them)
    - Deforestation reduces the availability of these resources, threatening their traditional way of life, cultural identity and food security

Eco-Economic Decoupling

- Eco-economic decoupling refers to the idea of **separating** economic **growth** from environmental **degradation**
    - In other words, it involves achieving economic prosperity without harming the environment
- Whilst eco-economic decoupling is desirable, achieving it is very challenging

Possibilities and limitations

- **Absolute decoupling:**
    - This refers to the theoretical concept of achieving **indefinite** economic growth with **zero increase** in environmental degradation
    - Some argue that technological advancements and efficiency improvements could one day make this possible. For example:
        - Advancements in energy-efficient appliances, vehicles, and industrial processes can reduce energy consumption per unit of economic output, potentially leading to decoupling
        - Developments in renewable energy technologies such as solar panels and wind turbines enable cleaner energy production, reducing reliance on fossil fuels and carbon emissions
        - Strategies like smart grids and sustainable urban planning can improve resource efficiency and reduce environmental impact while supporting economic growth
    - However, achieving absolute decoupling on a global scale remains a seemingly impossible task
- **Relative decoupling:**
    - In relative decoupling, economic growth is accompanied by a **reduction** in the rate of environmental degradation
    - Although this is a more **feasible** scenario, it is a compromise as it still allows for some level of environmental impact
- **Resource constraints:**
    - Continuous (indefinite) economic growth faces limitations due to **finite** natural resources
    - For example, fossil fuel resources will not be available forever, even with technological improvements in the efficiency of locating and extracting them
    - Sustainable development aims to **balance** economic growth with **environmental preservation** by considering the finite nature of resources and the need to protect ecosystems

Real-world examples of eco-economic decoupling

- **Renewable energy transitions:**
  - Countries investing in renewable energy sources like wind, solar, and hydroelectric power aim to decouple economic growth **from carbon emissions**
  - For example, Denmark has made significant progress in wind energy production whilst maintaining its economic growth
- **Circular economy initiatives:**
  - Some companies and even whole countries are adopting circular economy principles, which emphasise resource efficiency, recycling, and waste reduction
  - For example, the Netherlands has introduced policies to encourage the use of circular economy-type strategies in various industries, aiming to decouple economic growth **from resource depletion**
    - These policies mainly promote recycling and reuse of materials in industries like manufacturing and construction