Economic Growth

Assessment Objectives

Specific Expectations	
2.B	Define measures and determinants of economic growth.
2.B	Explain (using graphs and data as appropriate) the determinants of economic growth.
2.B	Calculate (using graphs and data as appropriate) per capita GDP and economic growth.
1.C	Explain (using graphs as appropriate) how the PPC is related to the long-run aggregate supply (LRAS) curve.

Economic Growth

- **Economic Growth** increases in total real output produced by an economy (real GDP) over time; may also refer to increases in real output (real GDP) per capital (or per person).
  - Economic growth is an increase in an economy's actual and potential output over time.
  - Growth is achieved when a country's full employment level of output increases.

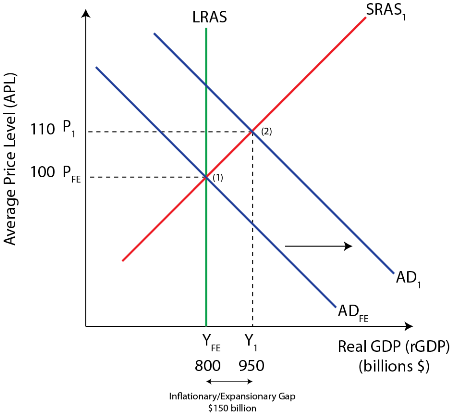
$$\%\Delta\text{Real GDP} = \frac{\text{Final Real GDP} - \text{Initial Real GDP}}{\text{Initial Real GDP}} \times 100$$

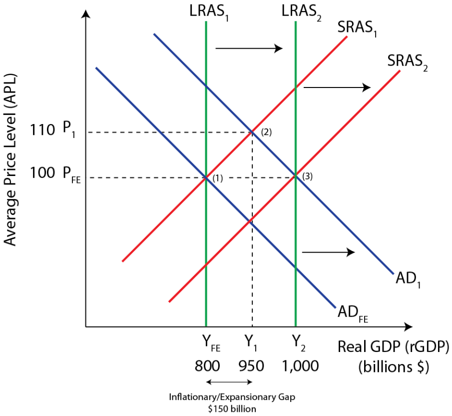
$$\%\Delta\text{Real GDP per Capita} = \%\Delta\text{Real GDP} - \%\Delta\text{Population}$$

Economic Growth

- **Short-term growth** growth of an economy (growth in real output) over relatively short periods of time.
  - Short-term growth mainly caused by increases in aggregate demand (and to a lesser extent increases in short-run aggregate supply).
  - Movement of a point inside the production possibilities curve (PPC) to a point closer to the PPC (**actual growth**)
  - By upturns in the business cycle usually due to increases in aggregate demand
- **Long-term growth** growth of an economy (growth in real output) over long periods of time.
  - Shown by rightward shifts of the long-run aggregate supply (LRAS) curve corresponding to long-term growth trend of the business cycle
  - Outward shifts of the production possibilities curve (PPC).

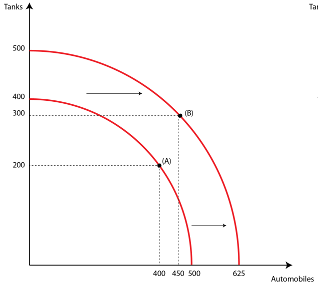
Economic Growth

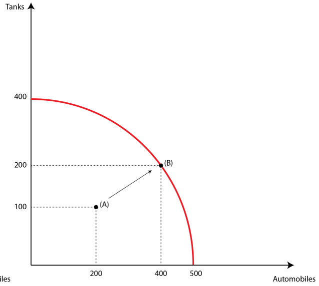




Economic Growth

- Actual growth is **short-term growth**, because it can occur over short periods of time and is due to reductions in unemployment or inefficiency in production.
- Growth in production possibilities is **long-term growth**, because it usually requires long periods of time and is due to increases in quantity or improvements in quality of factors of production.





Long-term Economic Growth

- The factors that lead to long-term economic growth and increases in production possibilities are:
  - Increases in the quantity of resources (factors of production) or improvements in the quality of resources in the economy.
- The economic theory of an aggregate production function states that a country's rate of economic growth is a function of the allocation of the factors of production, including labour, capital, land, and technology.
  - According to the aggregate production function, real GDP is a function of the available input in a country including:
    1. **Physical capital:** the machines and tools entities use to producer goods and services.
    2. **Labor:** the amount of human work in the production of goods and services

Long-Term Economic Growth

3. **Human capital:** the level of skills and education of the country's workforce
4. **Knowledge:** the availability and accessibility of scientific and other know-how
5. **Social infrastructure:** the regulatory, business, legal, and cultural environment.
6. **Natural resources:** the availability of raw materials (minerals, forest resources, energy resources, etc.)

- Increase in any of the preceding factors will bolster a country's real GDP and create economic growth' decreases in any of these will cause real GDP to fall.

1. **Productivity** is the amount of output attributable to a single unit of input (labour or capital)
   - **Labour productivity** is the output per worker and is directly related to income. The more productive a country's workers, the higher their real income.

Long-Term Economic Growth

2. **Human capital:** is generally the skills, knowledge, and experience of an individual or the people of a country
   - For this reason, investments in human capital can contribute to economic growth and increase in a country's actual and potential output over time.
   - As human capital improves, productivity increases and the total output and income of a population will also rise.
   - Immigration can improve an economy's output by increasing the availability of labor.
   - The difference between economic growth from increases in the quantity of labor and growth from improvements in the quality of human capital is that while both will increase total output over time, only the latter will increase per capital real GDP.
   - Greater productivity will drive up average income while more workers who are no more productive will only increase total income.

Long-Term Economic Growth

- Increased quantities of labour are unlikely to be a source of economic growth over long periods, but improvements in the quality of labour arising from investments in human capital, are among the most important sources of growth.

3. **Physical capital:** investment in physical capital will make the tools, technologies, and machines employed in the production of a country's output more productive and increase the actual and potential output in the economy.

   - **Physical capital** is the man-made factors of production employed in the production of other goods and services in the economy.
   - Technological advancements drive economic growth. So, when private firms invest in new and better capital equipment and technology, the potential and actual output of the economy should increase.
   - Increasing the ratio of capital-to-labour in an economy will drive is labour productivity, further fueling economic growth.

Long-Term Economic Growth

- Investments in new technologies increase not just aggregate demand and short-run output through rising expenditures, but aggregate supply and full employment output through increasing the quantity and the quality of an economy's man made factors of production.
- When private sectors investment in capital decreases or capital is allowed to depreciate without being replaced, the rate of economic growth can be expected to slow as the amount of capital or the productivity of capital is allowed to diminish over time.
- A sustained period of low capital investment can trigger a recession as potential output decreases due to diminished capital stock.
- **Research and development (R&D)** refers to the activities undertaken by private firms or by the government to improve existing technologies of products, or that lead to the introduction of new technologies or products.
- R&D may focus improving the means by which goods and services are produced or may investigate introducing new products.

Long-Term Economic Growth

- Development new or better products through R&D can open new markets for firms. When industries succeed in developing new products, it can lead to more employment and output.
- The development of better production methods can increase productivity in already existing industries and drive economic growth.
- Governments also undertake R& D, often in industries that are under-researched by the private sector such as transportation, defence, energy, and healthcare.
- Government-funded research can lead to breakthroughs that contribute to private-sector investment booms.
- There is a positive correlation between the level of private and public sector R&D and the extent of economic growth experienced in a country or region.
- The innovation resulting from R&D increases labor and capital productivity which in turn increases actual and potential output in the economy.

Long-Term Economic Growth

4. **Natural resources:** when thinking about the contribution of natural resources (natural capital) to economic growth, it is useful to make the distinction between **marketable commodities** (commodities bought and sold) and **common pool resources**.

   - Marketable commodities can contribute to growth, but are not essential.
   - Common pool resources are crucially important to long-term growth.
   - Long-term economic growth depends critically on the ability of countries to maintain, and if possible improve, environmental quality, and therefore natural capital that includes common pool resources.

Consequences of Economic Growth

- Economic growth impact upon many aspects of the economy, and some of the possible consequences are positive while others are negative.

  1. **Standards of living:** refer to the levels of income, wealth and consumption of goods and services including healthcare and education.
     - A basic assumption of economics is that rising incomes lead to higher standards of living.
     - Important factors that allow economic growth to have a positive impact on standards of living include the following:

     i. **The distribution of income** – the greater the share of income going to poorer households, the greater the potential for contributing to improvements in living standards as the poorer households are those with the greatest deprivations.

     ii. **Household spending** – the greater the share of household income spent on goods and services such as food, education and healthcare, the greater the improvements in living standards.

Consequences of Economic Growth

iii. **The share of income controlled by women** – the greater this is, the stronger the impact.

iv. **Government spending on merit goods** – this relates to the share of the government budget allocated to priority areas like education, health care and infrastructure.

vi. **Contributions by non-governmental organizations (NGOs)** – because of their poverty orientation and their general effectiveness in reaching the poor, NGOs contribute to increasing the impact of growth on higher standards of livings.

- However, while economic growth offers the potential to achieve improvements in the standards of livings, these improvements do not occur automatically as a result of economic growth, but require appropriate policies to make effective use of the resources growth makes available.
- Economic growth is a driving factor in economic development, which is the general increase in standards of living over time.

Consequences of Economic Growth

2. **Increased Employment:** total output and employment are directly related because firms need to employ more workers in order to produce more output
   - Economic growth creates more jobs, which in a population that is growing over time is necessary to keep unemployment low and to ensure a typical household can sustain itself through work.
3. **High Income Levels:** per capita GDP measures income of the average resident of a country, a per capita growth is the best measure economists have of increased economic well-being.
   - If real GDP increases faster than a country's population, it will result in an increase in a country's per capita GDP and higher standards of living.

Summary

- **Enduring Understanding**
  - The economy fluctuates between periods of expansion and contraction in the short run, but economic growth can occur in the long run.
  - The production possibilities curve (PPC) model is used to demonstrate the full employment level of output and to illustrate changes in full employment.
- **Essential Knowledge**
  - Economic growth can be measured as the growth rate in real GDP per capita over time.
  - Aggregate employment and aggregate output are directly related because firms need to employ more workers in order to produce more output, holding other factors constant. This is captured by the aggregate production function.

Summary (Continued)

- Output per employed worker is a measure of average labour productivity.
- Productivity is determined by the level of technology and physical and human capital per worker.
- The aggregate production function shows that output per capita is positively related to both physical and human capital per capita.
- An outward shift in the PPC is analogous to a rightward shift of the long-run aggregate supply curve.