2.2 Aggregate Demand and Aggregate Supply

**Aggregate Demand (AD):** the total spending on all goods and services in an economy at a given price level over a period of time.

The macroeconomic concept of aggregate demand considers the economy as a whole, including all goods and services demanded.

- Not just the market for one good as with the microeconomic concept
- Demand for all possible sectors in the economy
- Illustrates the inverse relationship between the APL and the real output demanded

**Negative Slope**

1. **Wealth effect**
   - As APL increases, the real value of people’s wealth (the assets they own) falls
   - People cut down on spending, and so real output falls

2. **Interest rate effect**
   - As APL increases, consumers and firms need more money to carry out purchases and transactions, so demand for money increases
   - Interest rates increase, therefore fall in C, I, and fall in real output

3. **International trade effect**
   - As APL increases, exports become more expensive for foreign consumers and imports become cheaper for domestic consumers
   - Net exports falls, and real output decreases

**The Components of AD**

- **Consumption (C):** total spending by consumers on goods and services
  - Largest component of AD
  - Durable and non-durable goods
- **Investment (I):** the addition of capital stock to the economy
  - Goods used to produce other goods
  - Replacement investment: spending to maintain productivity of existing capital
  - Induced investment: when firms spend on capital to increase their output to respond to higher demand in the economy
- **Government Spending (G):** total spending by all levels of government
  - Capital expenditure: spending on capital stock of the economy, such as building roads, schools, hospitals
  - Current expenditure: ongoing spending (e.g. payment of workers to public sector employees)
  - Transfer payments: any benefits paid to people in the economy in which no goods and services are produced in return
- **Net exports (X-M):** export revenue – import expenditure
  - Exports: domestic goods and services bought by foreigners
  - Imports: foreign goods and services bought by domestic consumers
Determinants of AD/ Shifts in the AD Curve

Changes in consumption
1. **Change in consumer confidence** (expectations of economic future)
   - Spend more now if they are optimistic about future economy and incomes
2. **Changes in income (+ personal income taxes)**
   - As income rises, consumption rises
3. **Changes in wealth** (assets people own: houses, art, jewelry, shares)
   - If house prices increase: more wealthy, spend more
   - If value of stocks increase: feel more wealthy, spend more
4. **Changes in interest rates**
   - If interest rates increase, less borrowing, more incentive to save, fall in AD
5. **Changes in household indebtedness**
   - Extent to which households are willing and able to borrow
   - Easy credit, low interest rates, more loans, higher consumption
   - Pay back in long run, ultimately less money to spend, fall in consumption

Changes in investment
1. **Change in business confidence** (expectations of economic future)
   - Increase investment now if they are optimistic about future economy/consumer demand, increase potential output
2. **Changes in national income**
   - As national income rises, consumption rises, pressure on firm capacity
   - Invest in new plants and equipment to meet demand (induced investment)
3. **Changes in interest rates**
   - If interest rates increase, keep retained profits for saving rather than borrow for investment, fall in AD
4. **Changes in technology**
   - Competitive firms need to keep pace with the dynamic changes in technology

Changes in government spending: depends on government objectives like political and economic priorities

Changes in net exports
1. **National income of trading partners/domestic consumers**
   - If national income of trading partners rise, X↑
   - If national income of domestic consumers rise, M↑
2. **Exchange rates**
   - If exchange rate rises, X↓, M↑ (well depends on Marshall Lerner)
3. **Level of protectionism**
   - Free trade/protectionist policies
4. **Relative inflation rates**
   - If relative inflation increases, X↓, M↑
2.2 Aggregate Demand and Aggregate Supply

**Aggregate Supply (AS):** the total amount of all goods and services produced in an economy at a given price level over a period of time.

The macroeconomic concept of aggregate supply considers the economy as a whole, including all goods and services produced.
- Not just the market for one good as with the microeconomic concept
- Sum of supply for all possible industries in the economy
- Illustrates the positive relationship between the APL and the real output produced

**Positive Slope**

1. **Costs of production**
   - As production increases, there are higher average costs of production (eg. overtime wages)
   - Pass on costs in higher APL
2. **Higher profits**
   - As APL increases, more profits to be earned by firm
   - More willing to produce, higher real output

**Determinants of SRAS/ Shifts in the SRAS Curve** (f.o.p fixed in SR)
Change in anything other than APL will lead to shift in the whole curve, known as supply-side shocks, usually influenced by factors that cause a change in the costs of factors of production. (decrease in costs, SRAS shifts right)

1. **Change in wage rates/labor costs**
   - Increase in wages results in increased costs of production (eg. minimum wage, labour union negotiations)
2. **Changes in the costs of raw materials**
   - Increase price of significant, widely used raw materials (eg. rubber, oil)
   - Supply side shocks – eg. rise in oil prices due to OPEC cartel 1973
3. **Change in the price of imports**
   - If capital or raw materials used by a country’s industries are imported, then costs of production will increase
   - (also affected by exchange rates)
4. **Changes in business taxes/ government indirect taxes or subsidies**
   - Taxes increased, increased costs of production
   - Subsidies increased, decreased costs of production

**Alternative views of AS**

**Monetarist/neo-classical model**
- Minimum government intervention
- Self-regulating economy – wage flexible
- Believed in the efficiency of the free market

**Perfectly inelastic LRAS curve**
- Level of potential output (full employment level) if economy was operating at full capacity
- Aggregate supply is independent of the price level in the long run, based entirely on the quality and quantity of the factors of production
- Can work beyond LRAS in short run (eg. overtime wages) but not in the long run: limit to what can be produced
2.2 Aggregate Demand and Aggregate Supply

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Keynesian model
- Believed that aggregate demand determined the level of overall activity in the economy

Three phases of the AS curve
1. Perfectly elastic AS curve
   - Producers can raise output without incurring extra cost because of existence of spare capacity in the economy
   - High level of unused factors and under-utilised capital
   - Can be used to their fullest capacity with constant average costs
2. Decreasing elasticity
   - As the economy reaches potential output, spare capacity is “used up” and increasingly scarce
   - Producers bid for increasingly scarce factors, therefore costs of production starts to rise and the price level has to compensate
3. Perfectly inelastic AS curve
   - It is impossible to increase production further due to all factors of production being fully employed
   - Cannot increase without increasing quality or quantity of f.o.p
   - But APL can increase – easy to increase wages but sticky downwards

Determinants of AS/ Shifts in the LRAS Curve
Anything that increases quantity/ quality of factors of production

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td></td>
</tr>
<tr>
<td>Land reclamation</td>
<td>Technological advancements</td>
</tr>
<tr>
<td>Increased access to resources</td>
<td>Fertilisers</td>
</tr>
<tr>
<td>Discovery of new resources</td>
<td>Irrigation</td>
</tr>
<tr>
<td>Labor + Entrepreneurship</td>
<td></td>
</tr>
<tr>
<td>Increase in birth rate</td>
<td>Education</td>
</tr>
<tr>
<td>Immigration</td>
<td>Training/ Retraining</td>
</tr>
<tr>
<td>Decrease in NRU</td>
<td>Apprenticeship programs</td>
</tr>
<tr>
<td>Capital</td>
<td></td>
</tr>
<tr>
<td>Investments increase</td>
<td>R&amp;D, more efficient capital</td>
</tr>
</tbody>
</table>

Many supply-side changes come naturally through market forces (eg. students attracted to entrepreneurship, scientific research, etc.) and governments also have an important role to play (eg. supply-side policies).
Short-run equilibrium

- SRAS = AD, producing Y at price P
- Output produced by economy = total AD
- No reason for producers to change level of output
- No upward/downward pressure on price level
- No inflationary/deflationary pressure

Long-run equilibrium (monetarist model)

- Long run equilibrium always occurs at full employment level
- Impact of AD will only be on price level in the long term
- May be short term fluctuations in output (can work beyond full employment in the SR; or work less)
- When there is an increase in APL, all prices have risen (including that of factors of production to increase output), therefore SRAS shifts left and although firms initially supplied more at higher APL, back to \( Y_{eq} \)
- Similarly, when AD falls and APL falls, all prices including that of f.o.p falls, therefore SRAS shifts right, restoring full employment level of output in the long run
2.2 Aggregate Demand and Aggregate Supply

Shift in LRAS
- Increase in LRAS results in the increase in the full employment level of output \((Y_f \rightarrow Y_{f1})\) and fall in APL \((PL_1 \rightarrow PL_2)\)
- Monetarists are often called “supply-side” economists as supply-side policies are the most efficient way of achieving macroeconomic goals

Equilibrium (Keynesian model)
- Equilibrium occurs where \(AD=AS\), can be at different output levels
- If economy is at equilibrium at a level of output below full employment level of output, then there is spare capacity (businesses do not necessarily employ all factors of production in the long run)

Price sticky downward – unlike monetarist model, if there is insufficient AD in the economy, doesn’t mean that costs of f.o.p will fall and wages have fallen, so factors of production will remain unemployed – if insufficient AD continues, can remain in a deflationary gap in the long run (unlike monetarist where SRAS shifts to adjust to full equilibrium level of output again)
Shift in LRAS
- Depends on initial equilibrium position of the economy
- If operating below full employment level of output, increase in LRAS has no effect on output as AD is not enough to buy up this potential

The Multiplier Effect
The multiplier effect is when any injection into the economy results in a proportionately larger increase in national income (real GDP). [See diagram of circular flow of income, 2.1]
- Injections are multiplied through the economy as people receive their income and spend another part of what they receive (a cycle)
- Percentage that is used to consume is the marginal propensity to consume (proportional of additional income used for consumption)
- Four marginal propensities add up to 1

\[ \text{The Multiplier} = \frac{1}{1 - \text{mpc}} \] or \[ \frac{1}{\text{mpw}} \]
where \[ \text{mpw} = \text{mps} + \text{mpt} + \text{mpm} \]

Eg. When $100 injected into system (eg. due to gov. expenditure), the national income increases by the amount of injection at first. If mpc = 0.5, then 50% of additional household income is spent on consumption, and another $50 is spent as consumption expenditure. Firms gain $50 and again pay $50 as factor income to households, and households spend $25 of that, so total income generated by process is sum to infinity of geometric series.

There can also be the negative multiplier effect (in reverse). If the government cuts spending, there will be an initial fall in national income. As some public sector employees lose their jobs and there is higher unemployment, the unemployed workers will also spend less, leading to lower consumption in the economy as well, and so on...