# AP Macroeconomics Models

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****NOTE: The reader is assumed to understand basic economic terminology such as shifts, movements, models, and more. This is just a comprehensive review of the models tested on the AP Macro Exam. Also remember that shocks only happen when exogenous determinants changes. Shocks cause shifts, cause variable to change.**

# 1 Supply and Demand (Market)

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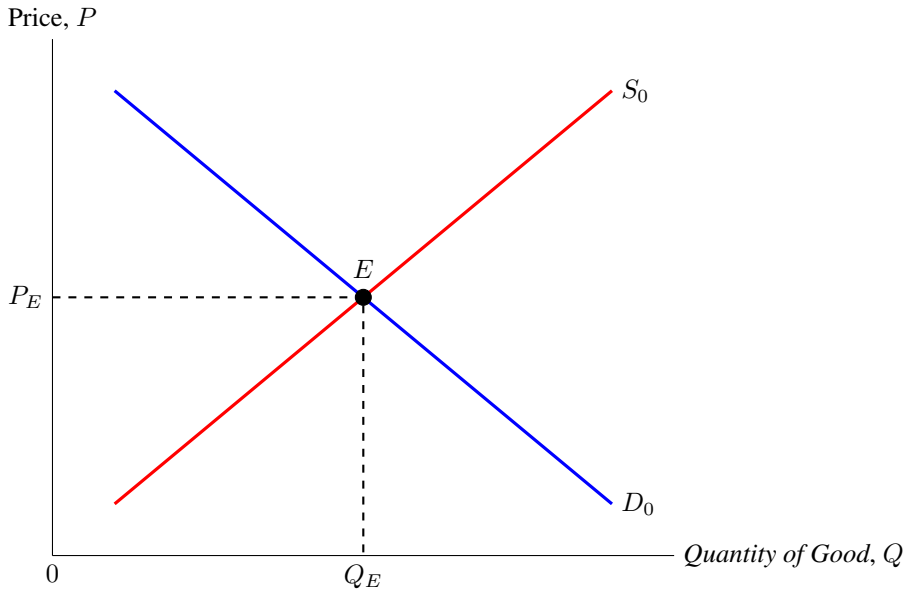
**Model:**




**Determinants of Demand**: Demand, otherwise known as consumer preference for that good, has factors exogenous to the Market that shift it.

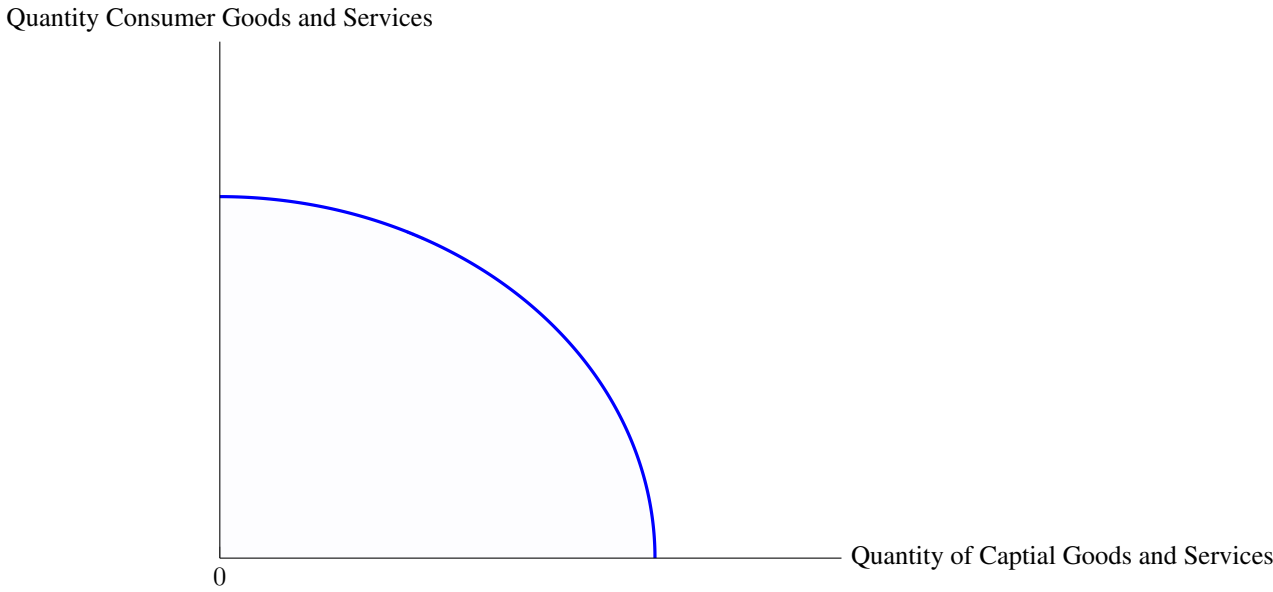
1. **Consumer Income**: The more money consumers make the more they will buy more of the good at every price point, representing a shift
2. **Consumer Taste/Preference for the good**: When consumers have more liking for a good, they will buy more of it at every price point
3. **Prices of Substitutes**: When a ”rival” good’s price changes it has a negative correlation with the demand for this current good.
4. **Prices of Complements**: When the price of a ”grouping” of goods changes, it has a positive correlation with the demand for this good
5. **Number of Consumers**: More consumers = more demand
6. **Consumer Expecations of Price:** When consumers expect the price to increase, they will buy more now

**Determinants of Supply**:

1. **Costs of Production**: When a good costs more to produce, the supply of it will decrease
2. **Improvement in Technology**: As the production technology improves, supply will increase
3. **Prices of Substitutes in Production**: An increase in the price of substitute goods decreases the supply of the current good
4. **Production regulations**: An increase in regulations leads to a decrease in supply
5. **Changes in taxes/subsidies**: Increase in taxes = decrease and supply; increase in subsidies = increase in supply
6. **Number of Suppliers**: More suppliers = more supply
7. **Supplier Expecations of Price:** When suppliers expect the price to increase, they will supply less now.

## 2 Production Possibilities Frontier (PPC or PPF):

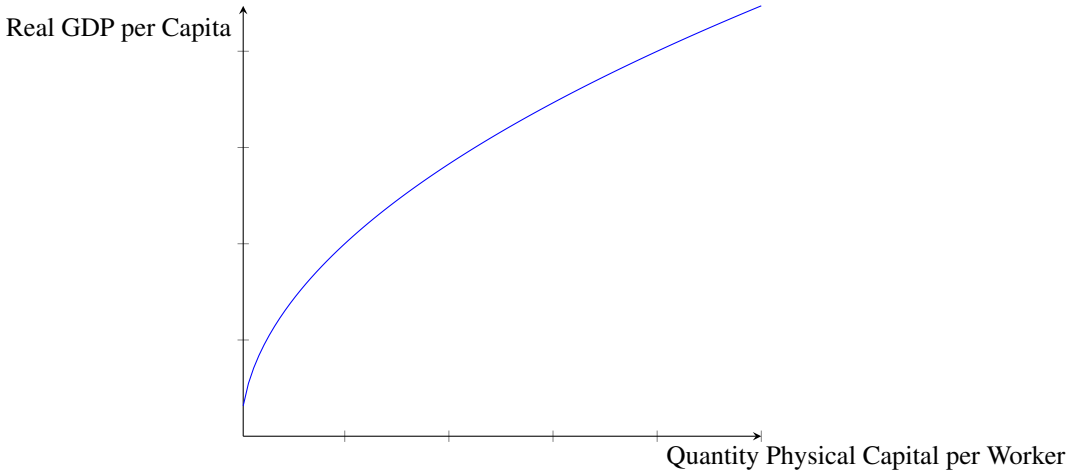
**Model:**




**Things to know about the PPC**:

1. It follows the Law of Increasing Opportunity Costs, where the benefit of each additional good decreases
2. The PPC is also used to determine allocative efficiency and terms of trade between two countries or individuals. This is based on the opportunity costs of production for each country.
3. Points on the PPC are at maximum efficiency,
4. Points inside the PPC are not (recession)
5. Points outside of the PPC are not feasible without any economic growth
    (a) Economic growth is caused by:
        i. Increases in resources (land, labour, capital, and entrepreneurial ability)
        ii. Productivity, which is increases in Human, Physical, and Technological capital

# 3 Aggregate Production Function:




**Model:**

We can see the Law of Dimishing returns here, as the function increases by a decreasing amount with each extra increase in physical capital per worker. **Causes of Shifts:** Changes to quality of human capital, and technological capital will shift the curve. For example better education and productional technology will shift it upwards.

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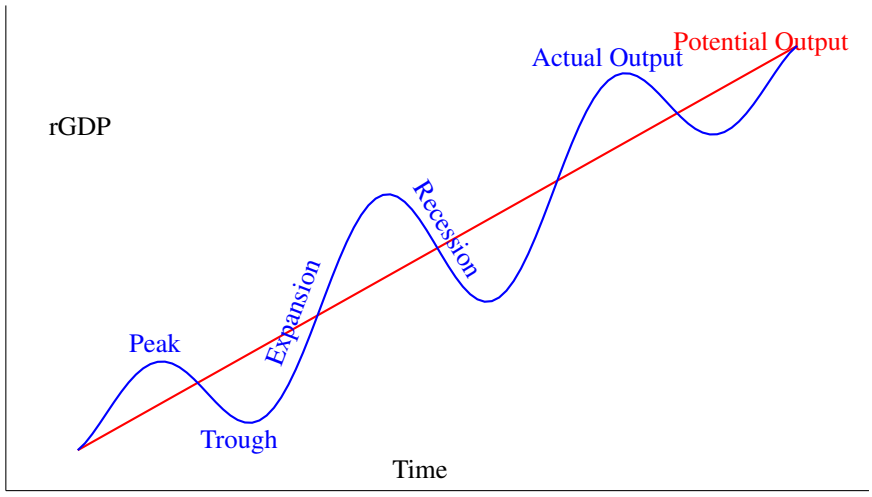
# 4 The Business Cycle

**Model:**

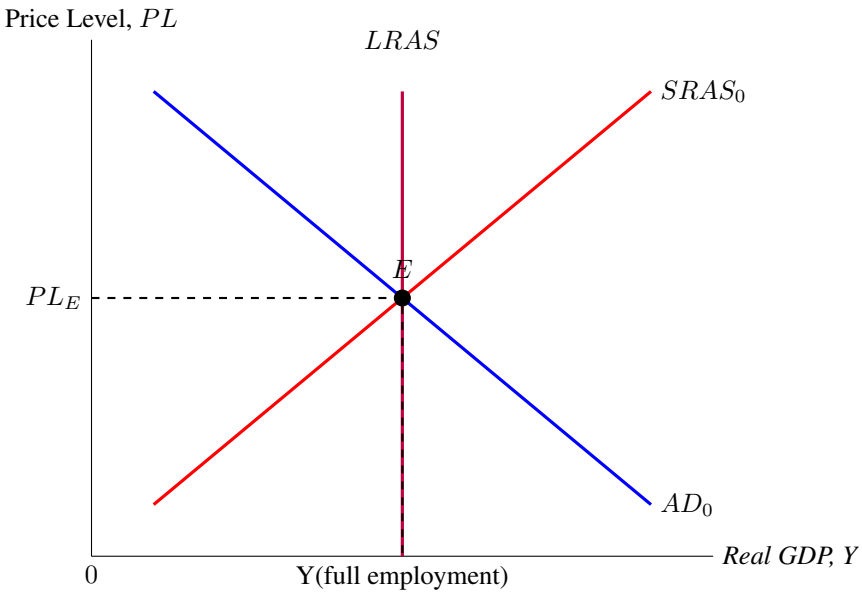



**Important Connections**:

1. **The Business Cycle follows these two cycles**:
   (a) Bust Cycle (Actual $<$ Potential):
      i. Consumer Confidence decreases
      ii. Less spending
      iii. More inventory
      iv. Lowering Price Level
      v. Less revenue from businesses leads to firing
   (b) Boom Cycle (Actual $>$ Potential):
      i. Consumer and Business Confidence Increases
      ii. More spending
      iii. Less inventories
      iv. Increase in the price level
      v. More revenue leads to hiring

# 5 AD/AS Model

**Model:**




**Determinants of AD (Total Spending)**: Recall that AD = C+I+Gp+(Exports-Imports), which means that changes in any of these factors.

vi. **Changes in Consumption**:

A. Consumer Expectations

B. Changes in Wealth

C. Changes in Disposable Income (Fiscal Policy)

vii. **Changes to Investment**:

A. Business Expected Real Rate of Return

B. this could be because something caused it to change, could be expected inflation rates to be higher, which would lower investment

C. Interest rate

viii. **Government Policy (Gov Spending)changes due to legislation (Based on state of economy, also known as Fiscal Policy)**

ix. **Changes in Net Exports**:

A. National Income of trading partners, determines the price stability of that country

B. Exchange Rates

C. Depreciation = more exports

**Determinants of SRAS (Total Production)**:

A. Changes in Nominal Wages

B. Changes in prices of Commodity Goods

C. Production Technology

D. Production regulations

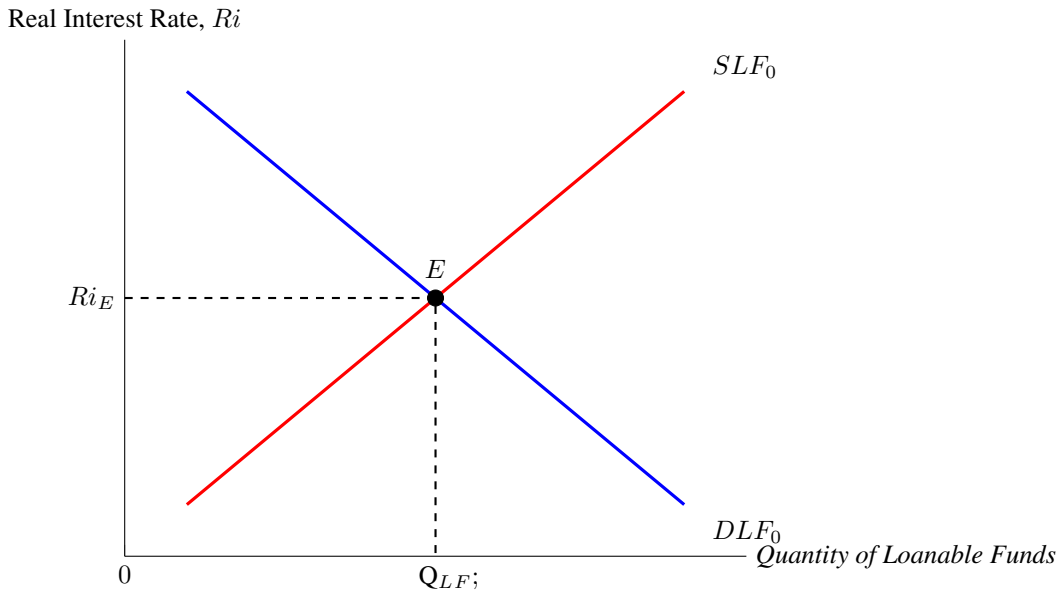
E. Inflationary Expectations

F. Prices of goods (revenue)

**Note that the Equilibrium always returns to LRAS due to flexibility of costs of production (Wait for wages to catch up). Or, through shifting of AD, through government policies. Therefore, the LRAS is anchored at full employment, which reflects the PPC, any points on the border are at full employment and is efficient.**

# 6 Loanable Funds Market

**Model:**




**Determinants of Demand for Loanable Funds**:

A. Changes in Expected Real Rate of Return (see above for more information)

B. Government Policies (Deficits)

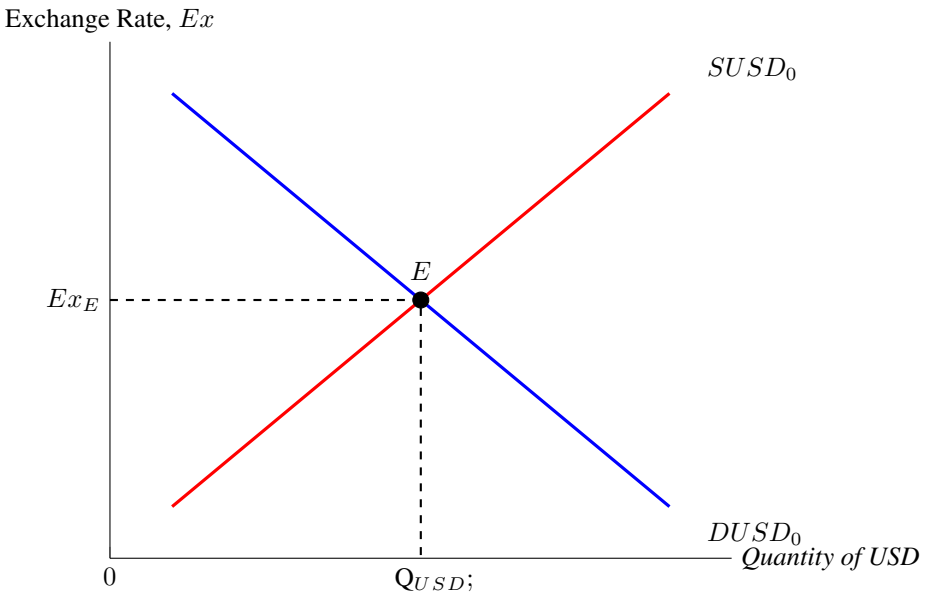
**Determinants of Supply for Loanable Funds**:

A. Saving Behaviour

B. Changes In Capital Inflows/Outflows

# 7 Foreign Exchange Market

**Model:**




**What causes the Foreign Exchange Market to shift**:

A. Interest Rates of a country

B. Preferences and Taste for goods/services

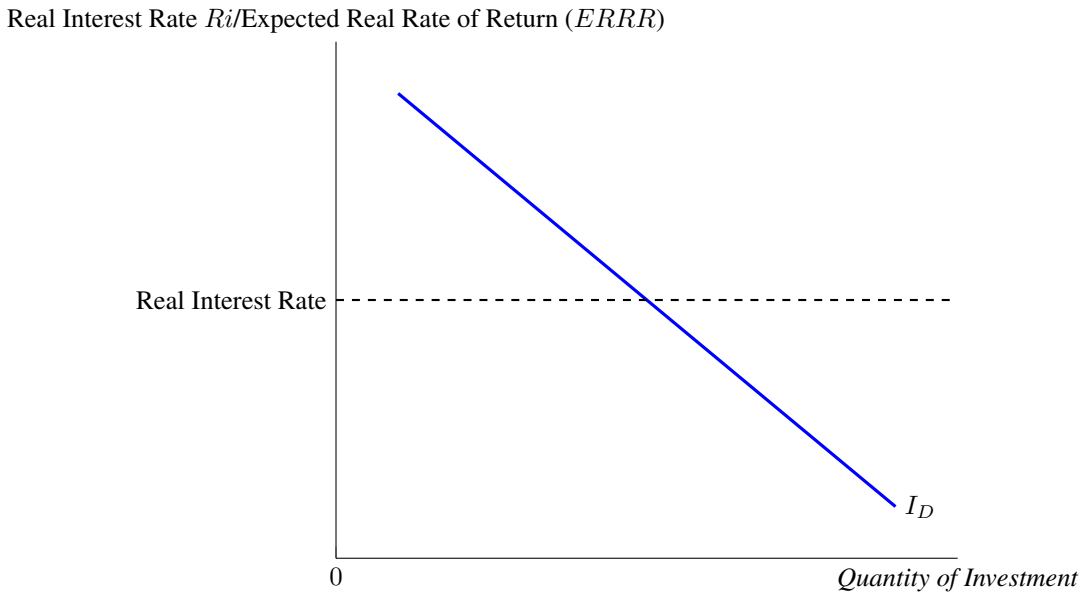
C. Relative Income Levels

D. Changes in Price Level through inflation rates

**Note that in this market D and S shift in opposite directions all the time, try and think about why.**

# 8 Investment Demand Graph

**Model:**



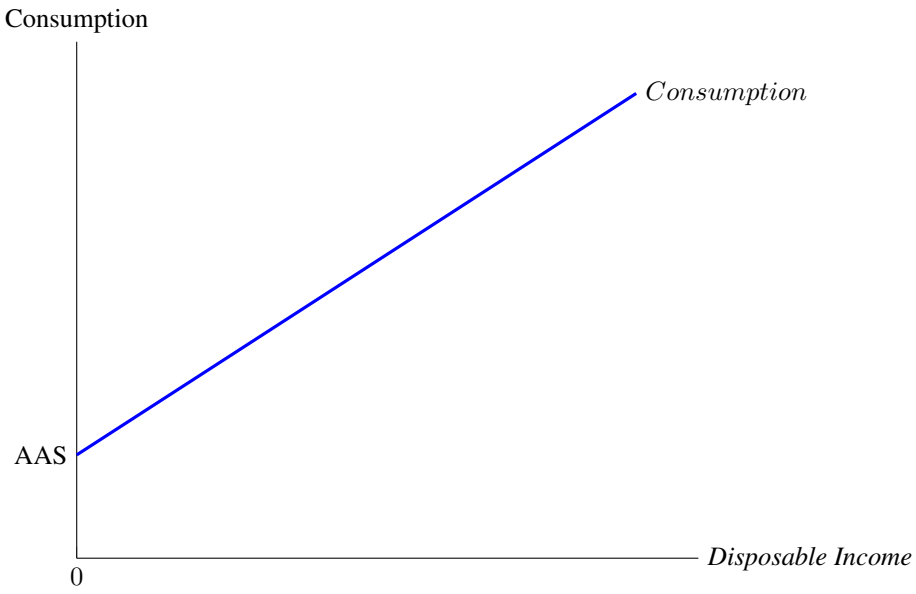

**Things to know**:

A. Business Expectations shift the curve

B. Anywhere investment project where the ERRR is higher than the Ri, will be done because the business gains from it.

# 9 The Consumption Function

**Model:**




**Things to know**:

A. C(DI) = MPC(DI)+AAS

B. MPC = $1 - MPS$

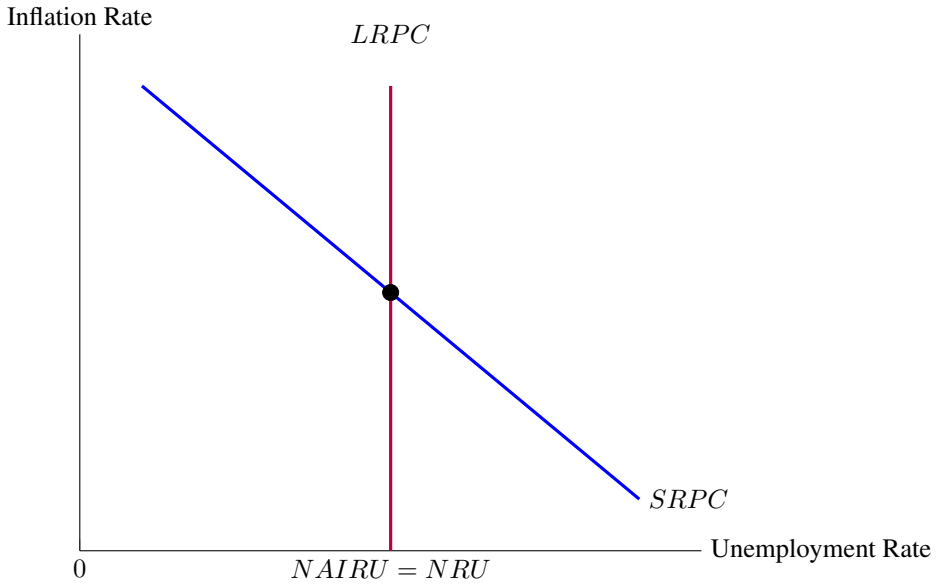
C. DI = Disposeable Income

D. AAS = Aggregate Autonomous Spending

E. Gets shifted by increases in wealth and changes to MPC, AAS

# 10 The Phillips Curve

**Model:**




**What shifts the SRPC**:

A. Negative correlated with SRAS

B. If the point is on the left of the LRPC, it's a boom, whereas on the right is bust

**Movements happen negatively with AD**

**The LRPC is rooted in the Non-Accelerating-Inflation-Rate-of-Unemployment** This is where the inflation rate will not accelerate upward. If the actual unemployment rate was below this, then inflationary expectations will increase, which cause the SRPC to accelerate upwards. This is bad because not only does the price level increase, but the fed will have to engage in disinflation. Disinflation can be very bad for the economy if it results in a hard landing, meaning a strong recession, caused by the changing in expectations. However, it can be positive if the there is no recession. So while it is generally avoided, it can be positive from an economists' perspective.

# 11 Liquidity Preference Model (Money Market)

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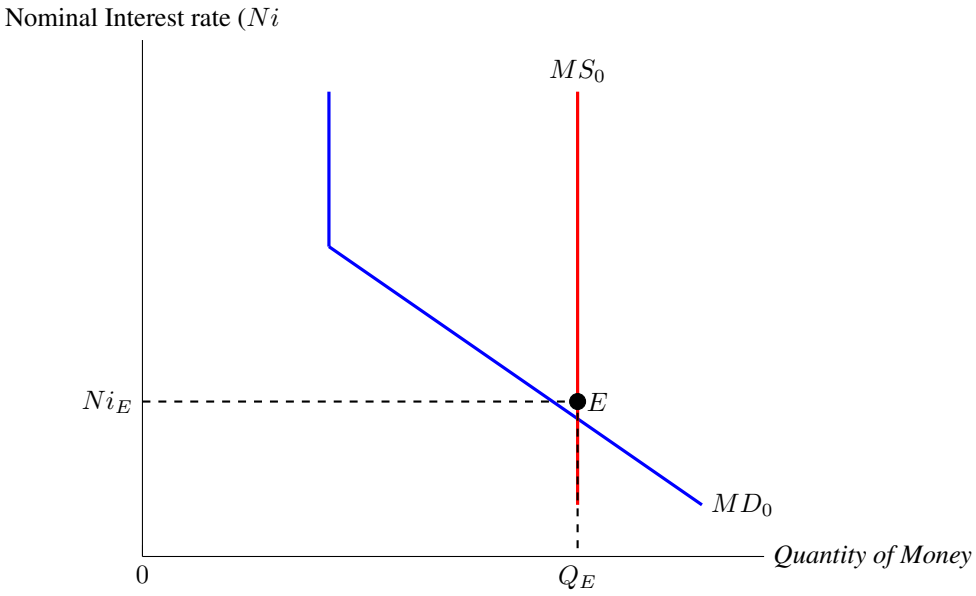
**Model(In Limited Reserve Framework):**




**Determinants of MS**: MS is vertical because it's controlled by the Fed through monetary policy (Open Market Operations), and the Fed is insensitive to the interest rate.

**Determinants of MD**:

A. The vertical part at the start represents our Transaction Demand for money. This is is the amount of money we need to do basic transactions, like food and housing.

B. If technology improves, less money will be held

C. If Price Level increases, MD shifts right

D. If rGDP increases, MD shifts right

# 12 Market for Bank Reserves

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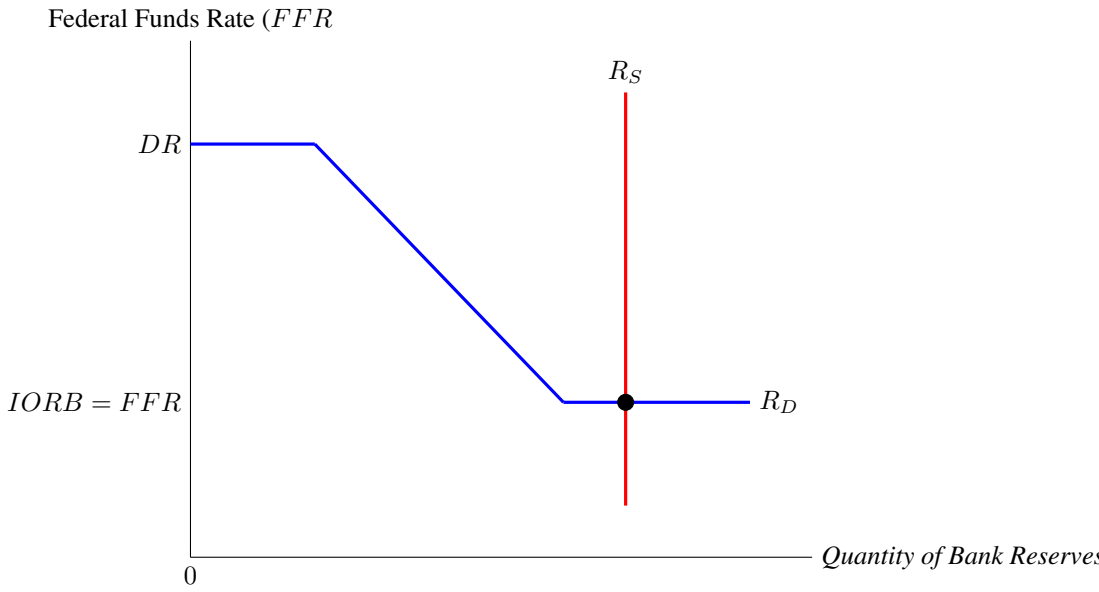
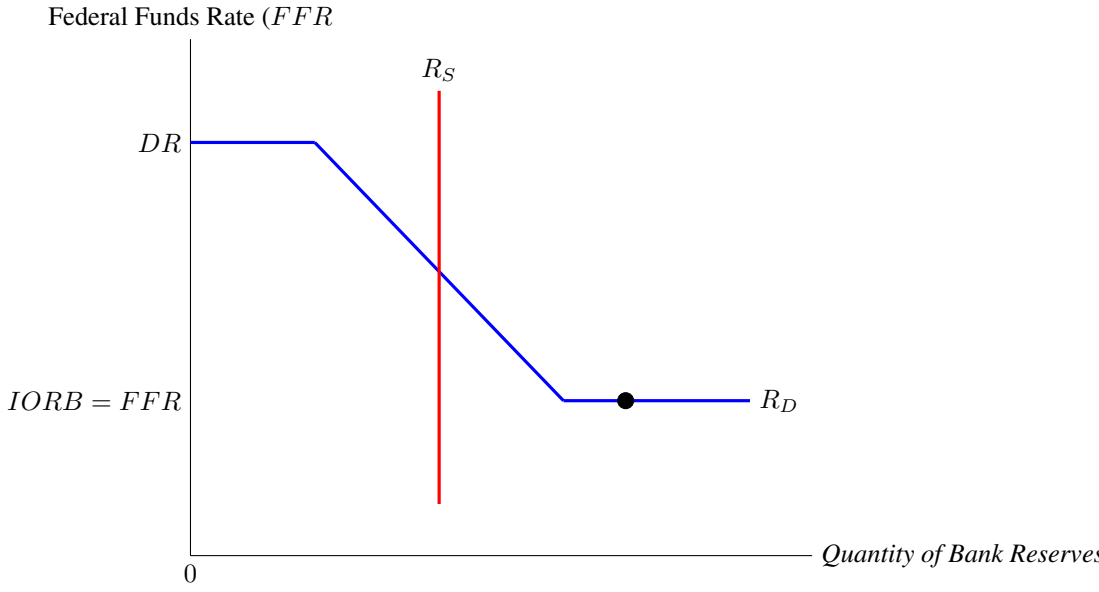
**Model for Ample Reserve Framework:**




**Model for Limited Reserve Framework:**



**Determinants of RS**: RS is vertical because it's controlled by the Fed through monetary policy. For Reserved Framework, through OMOs. **If the RS is on the far right of the graph, the bank has ample reserves. Recall that a bank has Ample Reserves when they have no additional benefit of holding extra reserves.**

**Determinants of RD**:

A. IORB, Discount Rate as they set a floor and ceiling for the reserves that banks will hold.