

Detailed Explanations of Macroeconomic Concepts

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Real and Nominal Interest Rates

- ▶ **Nominal Interest Rate:** The stated interest rate on a loan or investment, not adjusted for inflation.
- ▶ **Real Interest Rate:** Adjusts the nominal rate to remove the effects of inflation.

$$\text{Real Interest Rate} = \text{Nominal Interest Rate} - \text{Inflation Rate}$$

Effect on Consumption

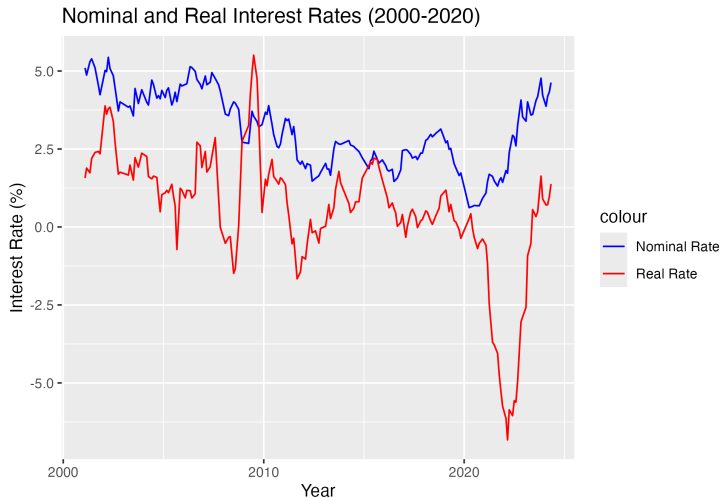
- ▶ **Low Real Interest Rates:**

- ▶ Borrowing is cheaper, encouraging loans for consumption and investment.
- ▶ Increases overall consumer spending.

- ▶ **High Real Interest Rates:**

- ▶ Borrowing is more expensive, discouraging loans.
- ▶ Increases savings, reducing current spending.

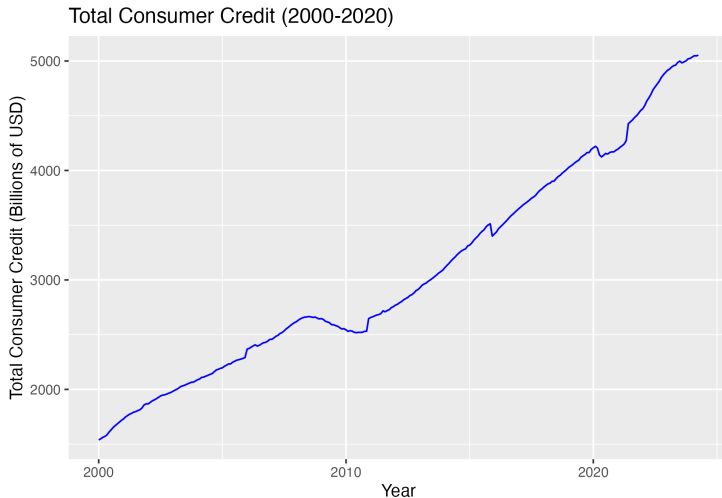
Graph: Real and Nominal Interest Rates



Debt Constraints

- ▶ **Debt Constraints:** Limitations on consumers' ability to borrow money.
- ▶ **Assuming No Debt Constraints:**
 - ▶ Policies may overestimate the impact of fiscal or monetary measures.
 - ▶ Can lead to ineffective policy measures, increased inequality, and economic instability.

Graph: Total Consumer Credit



Nominal and Real Exchange Rates

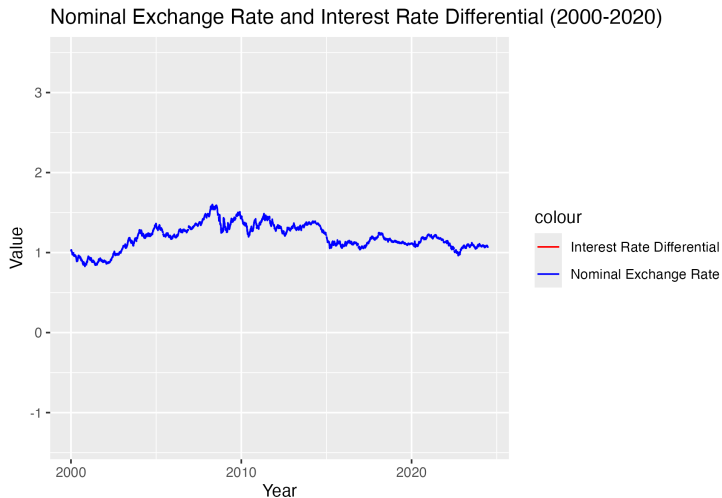
- ▶ **Nominal Exchange Rate:** The rate at which one currency can be exchanged for another.
- ▶ **Real Exchange Rate:** Adjusts the nominal rate for differences in price levels between countries.

$$\text{Real Exchange Rate} = \frac{\text{Nominal Exchange Rate} \times \text{Domestic Price Level}}{\text{Foreign Price Level}}$$

Uncovered Interest Rate Parity (UIP)

- ▶ UIP suggests that the difference in interest rates between two countries should equal the expected change in exchange rates.
- ▶ Higher interest rates in one country lead to expectations of currency depreciation relative to a country with lower interest rates.

Graph: Nominal Exchange Rate and Interest Rate Differential



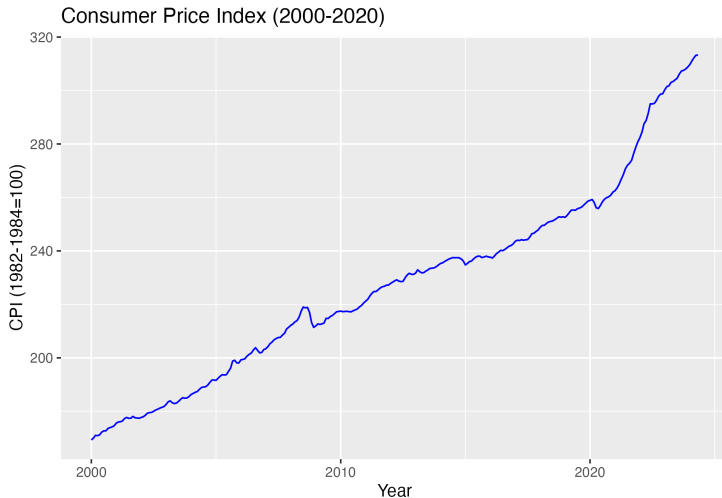
Realistic Market Assumptions

- ▶ **Monopolistic Competition:** Many firms sell similar but not identical products.
- ▶ **Oligopoly:** A few large firms dominate the market.
- ▶ **Market Imperfections:** Includes price stickiness, information asymmetries, and varying degrees of market power.

Price Rigidity and Market Power

- ▶ **Price Rigidity:** Prices do not adjust immediately to changes in supply and demand.
- ▶ **Market Power:** Firms can set prices above marginal cost, leading to price rigidity.
- ▶ **Macroeconomic Implications:** Prolonged disequilibrium, unemployment, or shortages, and slower response to economic shocks.

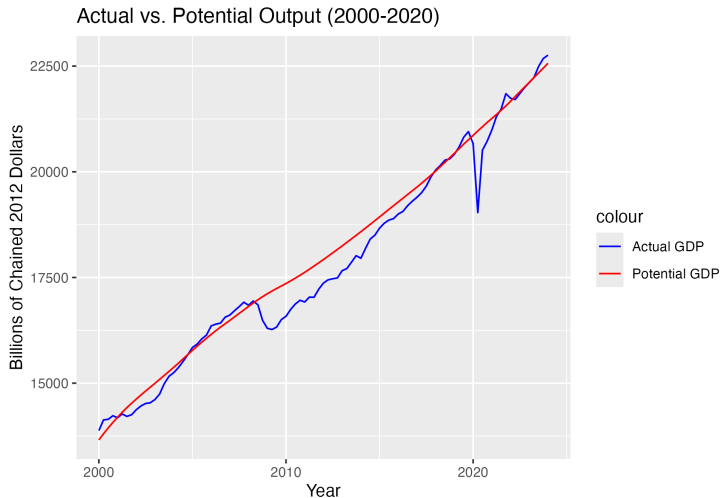
Graph: Consumer Price Index



Natural Level of Output and Output Gap

- ▶ **Natural Level of Output:** The level of production when the economy operates at full capacity.
- ▶ **Output Gap:** The difference between actual output and potential output.
 - ▶ Positive Output Gap: Actual output exceeds potential output.
 - ▶ Negative Output Gap: Actual output is below potential output.
- ▶ **Natural Rate Hypothesis:** The economy tends towards the natural rate of unemployment and output in the long run.

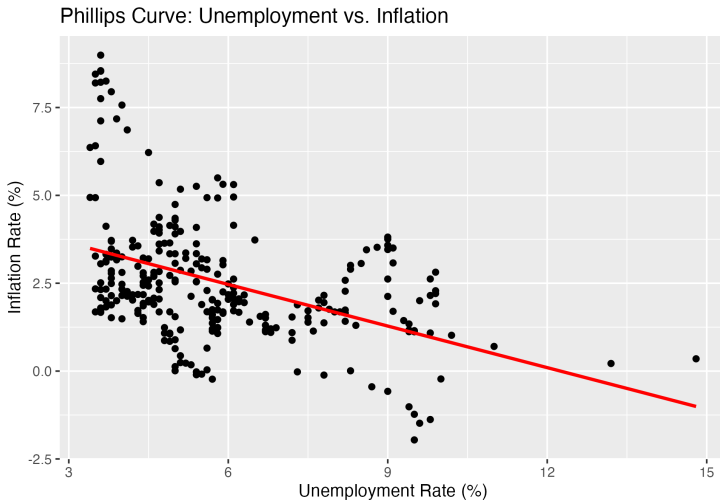
Graph: Actual vs. Potential Output



Phillips Curve

- ▶ **Phillips Curve:** Represents the inverse relationship between inflation and unemployment in the short run.
- ▶ Named after economist A.W. Phillips.

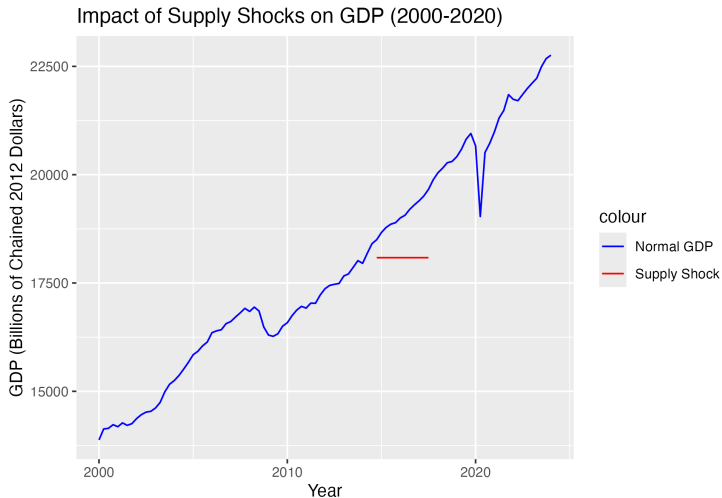
Graph: Phillips Curve



Shocks in Macroeconomics

- ▶ **Shock:** An unexpected event affecting the economy.
- ▶ **Types of Shocks:**
 - ▶ Supply Shock: Affects the supply side (e.g., oil price increase).
 - ▶ Demand Shock: Affects the demand side (e.g., increase in consumer confidence).

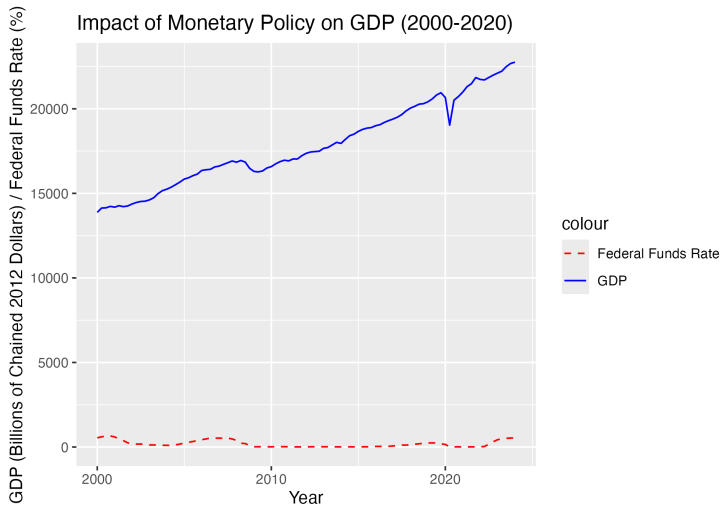
Graph: Impact of Supply Shocks on GDP



Monetary Policy Shock as an AD Shock

- ▶ **Monetary Policy Shock:** An unexpected change in monetary policy.
- ▶ **Aggregate Demand (AD) Shock:**
 - ▶ Expansionary Policy: Lower interest rates or increased money supply boost consumption and investment.
 - ▶ Contractionary Policy: Higher interest rates or reduced money supply reduce consumption and investment.

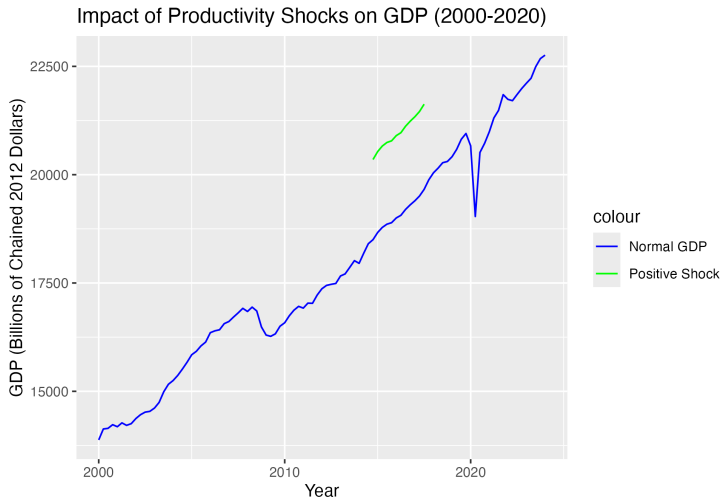
Graph: Impact of Monetary Policy on GDP



Productivity Shock Mechanism

- ▶ **Productivity Shock:** A sudden change in the productivity of labor or capital.
- ▶ **Mechanism:**
 - ▶ Positive Productivity Shock: Increases output, lowers prices, and can lead to higher wages and employment.
 - ▶ Negative Productivity Shock: Reduces output, raises prices, and can lead to lower wages and employment.

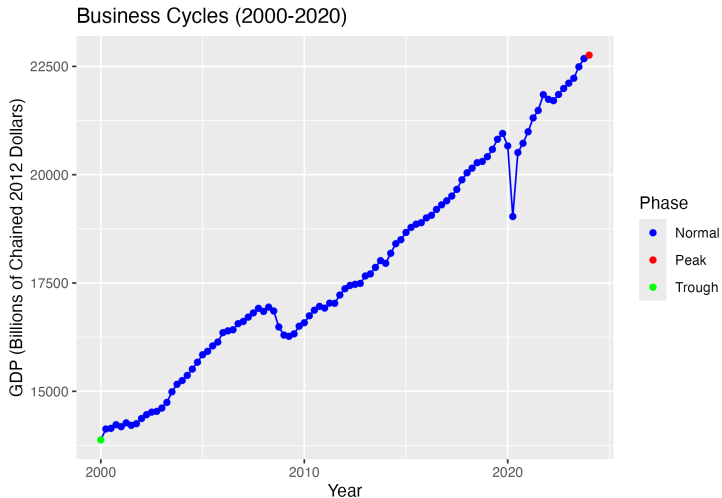
Graph: Impact of Productivity Shocks on GDP



Business Cycles

- ▶ **Business Cycles:** Fluctuations in economic activity characterized by periods of expansion and contraction.
 - ▶ Expansion: Increasing economic activity, rising GDP, and falling unemployment.
 - ▶ Peak: The highest point of economic activity before a downturn.
 - ▶ Contraction: Decreasing economic activity, falling GDP, and rising unemployment.
 - ▶ Trough: The lowest point of economic activity before a recovery begins.
- ▶ **Importance for Macroeconomic Policy:** Policymakers aim to smooth out these cycles to achieve stable economic growth, low unemployment, and stable inflation.

Graph: Business Cycles



HP Filter and Cyclical Variables

- ▶ **HP Filter:** A statistical tool used to separate the cyclical component of a time series from its trend component.
- ▶ **Procyclical vs. Countercyclical Variables:**
 - ▶ Procyclical Variable: Moves in the same direction as the overall economy (e.g., investment, consumer spending).
 - ▶ Countercyclical Variable: Moves in the opposite direction to the overall economy (e.g., unemployment, government spending on social programs).

Graph: HP Filter Applied to GDP

