Aggregate Supply and Aggregate Demand

Econ 120: Global Macroeconomics

Goals

- Specific Goals
  - Be able to explain GDP fluctuations when the price level is also flexible.
  - Explain how real GDP and the price level are related in the short run.
- Learning Objectives
  - LO5: Use the model of aggregate demand and supply to evaluate the short-run and long-run impacts of fiscal and monetary policy on production, employment, and the price level.
  - GELO1: Students will be able to use mathematical and logical methods to solve problems.
  - GELO2: Students will be able to construct and use models to analyze, explain, or predict phenomena.

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Reading and Exercises

- Modules 30, 31, and 32
- **Canvas Quiz due FRIDAY 11:59 PM**.
  Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
- **Homework/In-class Exercise due NEXT WEDNESDAY 11:59 PM**. We will work together in class on Thursday.

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Aggregate Demand

- **Aggregate demand**: schedule or curve that shows the quantities of real GDP that buyers collectively desire to purchase at each price level.
- Aggregate demand is downward sloping - *but not for the same reason the demand curve for a single product is downward sloping*.
- Recall demand curves for single goods slope downward because of the substitution effect and the income effect.

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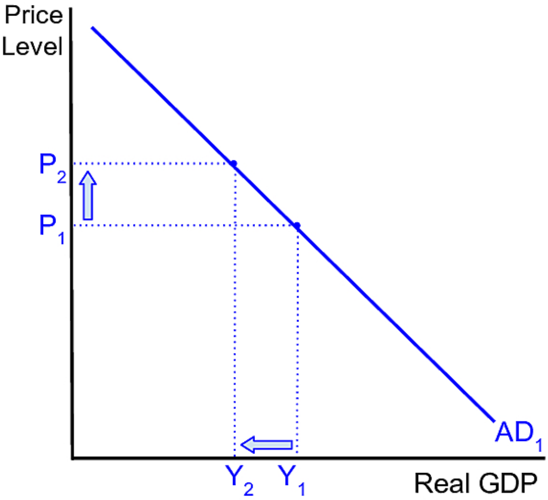

Downward sloping AD

- **Real balances effect**: when the price level increases, the purchasing power of the consumers' accumulated savings balances decreases.
  - With a lower real savings balance, consumers decrease consumption.
- **Foreign purchases effect**: When the price level rises relative to the price level in foreign countries, the foreign demand for U.S. products decreases. Similarly, the demand for imports increases.
  - This causes exports to fall and imports to rise.

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Determinants of AD

- When something *besides the price level* affects the AD, this causes the AD curve to shift.
- The following affect *consumption* and therefore shift AD.
  - Consumer wealth: financial assets such as savings accounts, stocks, and bonds, and physical assets that consumers can borrow against like houses and land.
    - When consumer wealth increases, aggregate demand increases, causing it to shift to the right.
  - Household indebtedness: if household debt increases, AD shifts to the left.
  - Taxes: Increase in taxes decreases consumption, AD shifts to the left.
  - Consumer expectations: expectations about future income or future taxes can shift AD.
  - Real interest rate: an increase in the real interest rate decreases consumption which shifts AD to the left.

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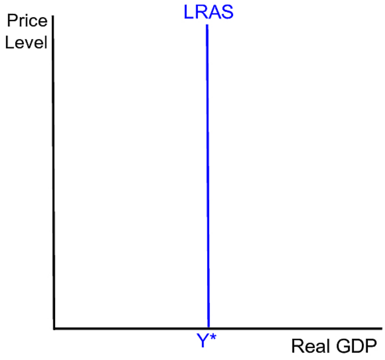
Long-Run Aggregate Aupply

Long-run aggregate supply:
In the long run the economy uses all factors of production efficiently.

Vertical line at **potential GDP**.

Price level does not affect production *possibilities.*



Short-Run Aggregate Supply

- In the short run, wages in labor markets are slow to adjust.
- Increases in price level lead to higher marginal revenues for firms
- Sticky wages: Biggest chunk of firms' marginal costs do not change
- Higher marginal revenue + sticky marginal costs $\rightarrow$ increase production
- Short-run aggregate supply curve is upward sloping.

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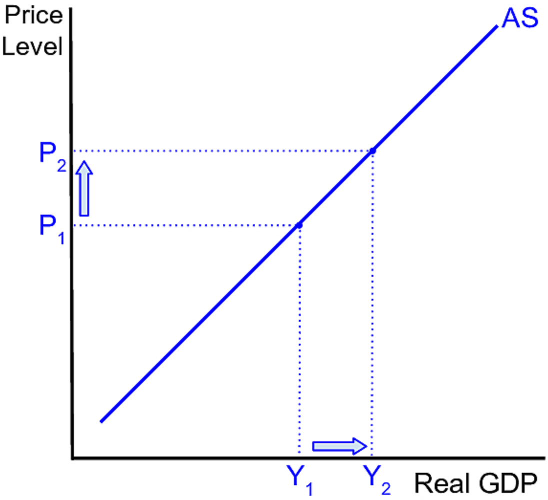

Determinants of AS

- When something *besides the price level* affects AS, this shifts AS.
- Prices of factors of production: when the price of labor, capital, or land increase, this shifts AS to the left.
- Technology: an increase in technology shifts AS to the right.
- Business taxes can affect output decisions of firms and shift AS.
- Other government regulation.

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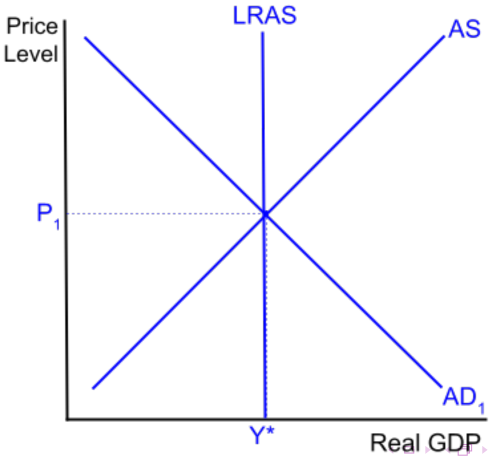
Equilibrium

In equilibrium, real GDP and the price level are determined by the intersection of AS and AD



Inflation

- Inflation can come from two sources, excess demand or increases in production costs.
- **Demand pull inflation**: when increases in demand cause inflation.
- **Cost push inflation**: when increases in production cost cause inflation.

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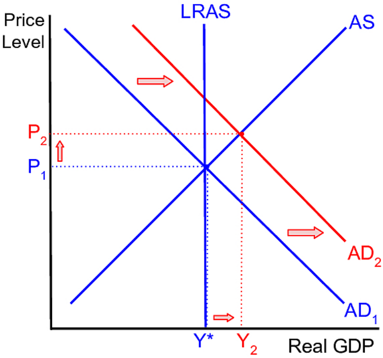
Demand pull inflation

- Demand pull inflation begins when AD increases.
- Causes real GDP to increase and the price level to rise.
- Recall: **inflationary gap**: when aggregate expenditures is equal to real GDP above potential GDP.



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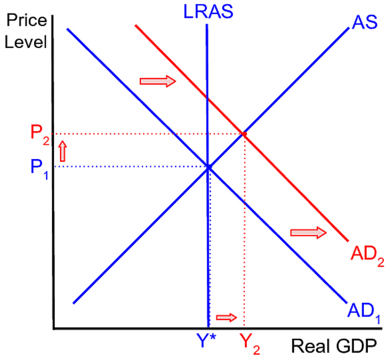

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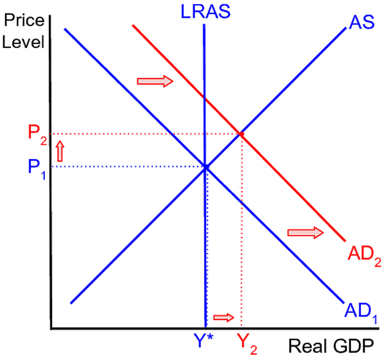
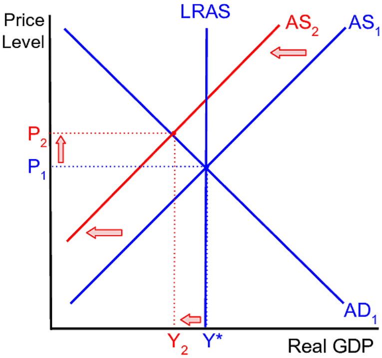


Cost push inflation

- Cost-push inflation begins when an increase in production cost shifts SRAS to the left.
- Causes real GDP to fall and price level to rise.
- **Stagflation**: when there is unemployment and high inflation at the same time.



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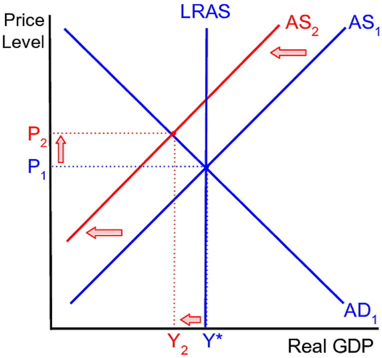

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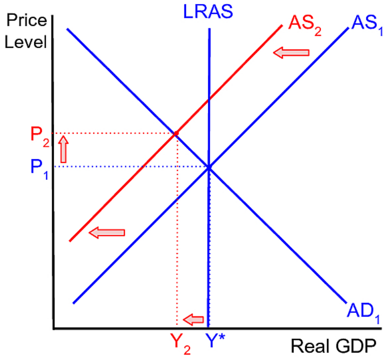

Scholar Spotlight: Veronica Guerrieri

Monetary Policy in Times of Structural Reallocation

Prepared for the 2021 Jackson Hole Economic Policy Symposium

(with Guido Lorenzoni, Ludwig Straub, and Iván Werning)

Stagflation in 2021

- During COVID, demand decreased for *services*, increased for *durable goods*
- *Downward sticky prices*: Unemployment increases in services sector
- *Upward flexible prices*: Durable goods more expensive
- *Slow to increase production*: Shortages in durable goods
- Outcomes: Unemployment, inflation, and shortages, all at once

Dr. Veronica Guerrieri
Ronald E. Tarrson Professor of Economics
William Graham Faculty Scholar
Booth School of Business
University of Chicago

Long-run equilibrium

- Recall why the short run aggregate supply curve is upward sloping.
- Suppose AD shifts to the right.
- Firms will be able to sell more goods. Firms hire more labor and produce more goods.
- Firm's per-unit labor costs do not increase because wages are fixed in the short run.
- In the long run, there is an excess demand for labor, wages will increase.
- This shifts the SRAS curve to the left.

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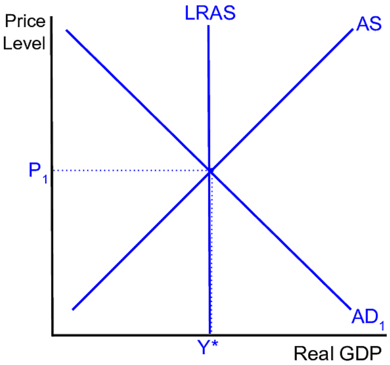
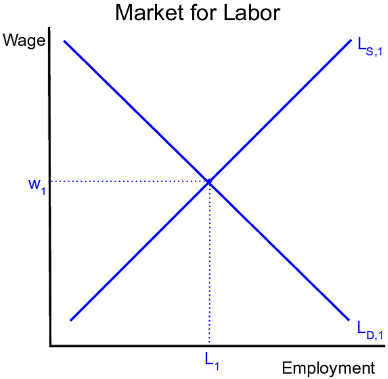
Example: Increase in Aggregate Demand

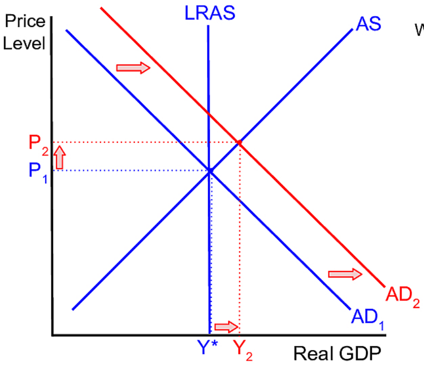


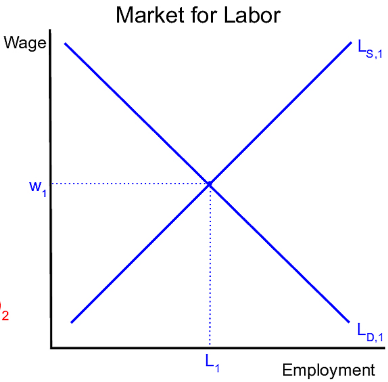


Suppose there is an improvement in consumer confidence

→ higher consumption demand

Example: Increase in Aggregate Demand





Aggregate demand shifts right

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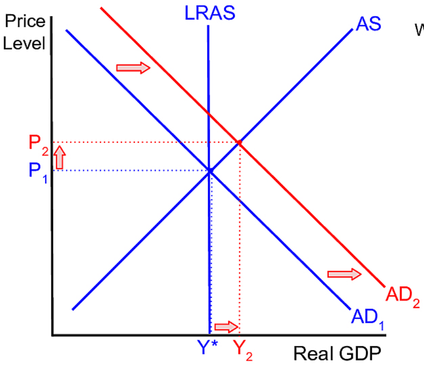

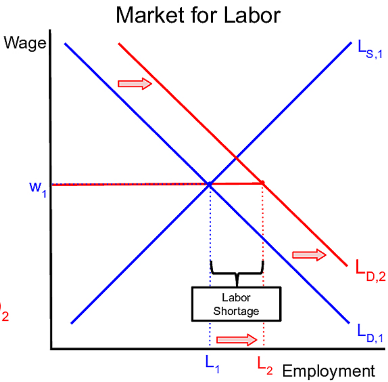

Businesses are producing more → labor demand shifts right
Sticky wages lead to labor market shortage

Short-run outcomes: ↑ real GDP, ↑ employment, ↑ price level

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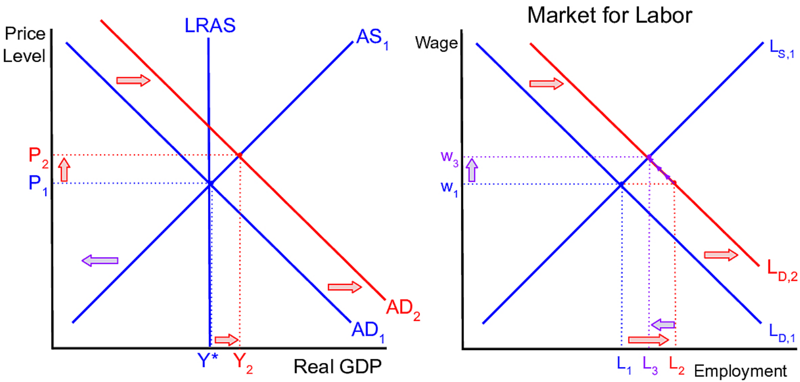

Wages increase over time, in transition from short-run to long-run

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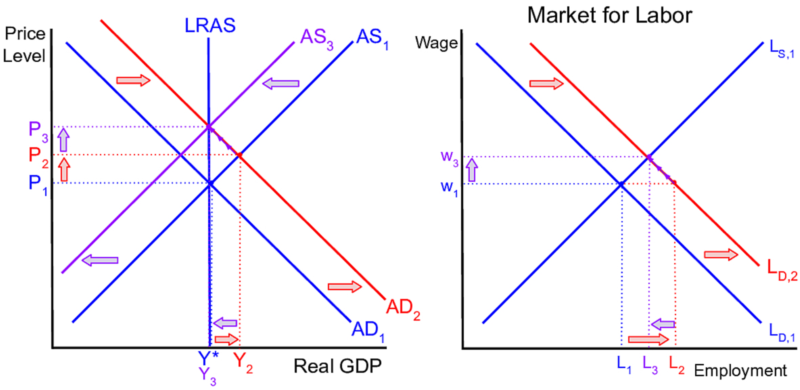

Increase in wages is an increase in production costs → Aggregate supply shifts left

Short-run outcomes: Real GDP at potential, ↑ wages, ↑ employment, ↑ price level

Examples

For each of the following, show (a) the short-run outcome for price level and real GDP, (b) the short-run and long-run outcomes in the market for labor, and (c) the long-run outcome for price level and real GDP.

1. Suppose business confidence drops, leading to an decrease in capital investment.
2. Suppose an increase in energy prices leads to an increase in the costs of production.
3. Suppose the U.S. dollar appreciates, leading to a(n) ______ in exports and a(n) ______ in imports.
4. Suppose the government increases spending.
5. Suppose the government cuts income taxes.
6. Suppose the government cuts business taxes.