

AD Shifts & Aggregate Supply

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Outline: Unit V, Section SF3

- I. Shifts of AD curve
- II. Long Run Aggregate Supply (LRAS)
- III. Short Run Aggregate Supply (SRAS)
 - A. Theories for SRAS slope
 - B. Shifts of SRAS Curve

I. Shifts of AD curve

$$AD = C + I + G + NX$$

- Expansionary Fiscal Policy
 - $G \uparrow$
 - $T \downarrow \Rightarrow Y_D \uparrow \Rightarrow C \uparrow$
- Contractionary Fiscal Policy
 - $G \downarrow$
 - $T \uparrow \Rightarrow Y_D \downarrow \Rightarrow C \downarrow$
- Fiscal policy does not affect money supply
 - Gov plans to issues more T-bonds to build a bridge
 - Issuing T-bonds $\Rightarrow M^S \downarrow$
 - Building bridge $\Rightarrow M^S \uparrow$

AD Curve

Monetary Policy

- Fed is independent from other parts of Gov
- Fed's Expansionary Monetary Policy
 - $M^S \uparrow \Rightarrow i \downarrow \Rightarrow r \downarrow \Rightarrow C \uparrow, I \uparrow, NX \uparrow$
 \Rightarrow AD curve shifts out
- Fed's Contractionary Monetary Policy
 - $M^S \downarrow \Rightarrow i \uparrow \Rightarrow r \uparrow \Rightarrow C \downarrow, I \downarrow, NX \downarrow$
 \Rightarrow AD curve shifts in

Liquidity Market

AD Curve

I. Long Run Aggregate Supply (LRAS)

$$Y = AF(L, K, N, \dots)$$

- $Y^{\text{LR}} = Y^{\text{POT}} = \text{Potential GDP} = \text{Natural output} = \text{LR output}$

A = TFP = Technology, Human capital, Intangible factors

L = Labor Force (unemployment)

K = Physical Capital (LF model)

N = Natural Resources

- Assume (L, K) are employed at their “normal” or “natural” rates

II. Short Run Aggregate Supply (SRAS)

SRAS curve

- Relationship between:
 - P = Price level
 - Y = Quantity of (real) output supplied/produced, in the economy
- SRAS curve slope: If $P \uparrow \Rightarrow Y \uparrow$

SRAS Curve

SRAS Slope Overview

- Three different theories for upward slope
 - Misperceptions Theory
 - Sticky-Wage Theory
 - Sticky-Price Theory
- P = Overall price level
 - P_i = Firm i 's price
- Y = Total quantity of output supplied
 - Y_i = Firm i 's output

II.A. Theories for SRAS Curve Slope

- Misperceptions Theory
 - Assume firms are irrational
 - If $P \uparrow \Rightarrow$ Firm i misperceives $P_i \uparrow$ as a real price increase $\Rightarrow Y_i \uparrow$
 - E.g. $\pi = 10\% \Rightarrow P_i$ increases by 10% \Rightarrow Firm i thinks there is more demand for its output
 - What have we just shown about the SRAS curve?

Theories for SRAS Curve Slope

- Sticky-Wage Theory
 - Long-term contracts make wages “sticky”
 - Assume $w = \$20/\text{hr}$, and fixed in labor contracts
 - Based on $E[P]$
 - If $P \uparrow \Rightarrow P_i \uparrow \Rightarrow \text{Firm } i\text{'s } \left(\frac{\text{profit}}{\text{unit}}\right)_i \uparrow \Rightarrow Y_i \uparrow$

Sticky Price Theory

Assume Heterogeneous Menu Costs

- Firm j: Low menu costs
 - E.g. Seafood restaurants. Completely flexible prices
 - If $P \uparrow \Rightarrow P_j \uparrow$ (& Y_j does not change)
- Firm i: High menu costs
 - E.g. Italian restaurants. Completely inflexible prices
 - If $P \uparrow \Rightarrow P_i$ does not change $\Rightarrow P_i$ low compared to other firms $\Rightarrow Y_i \uparrow$
- Mixture of firm j's and firm i's. If AD increases \Rightarrow
 - Firm j: prices increase
 - Firm i: output increase
 - \Rightarrow If $P \uparrow \Rightarrow Y \uparrow$

Why do firms rarely change prices?

Evidence: Approximately 50% of firms change prices once a year or less. Blinder (98)

- (50%) Customer relations: Customer prefer contracts with fix prices
 - E.g. Prices of coffee, vending machines, lunch
- (60%) Coordination failure & Staggered price setting
 - If Firm i chooses $P_i \uparrow \Rightarrow$ Firm i loses large market share \Rightarrow Firm i reluctant to raise prices
- Actual menu costs

II.B. Shifts of SRAS Curve

- All factors that affect the LRAS Curve
 - Real variables A, L, K, N, \dots
 - If $K \uparrow \Rightarrow$ SRAS curve shifts on
- Input prices. E.g. $P_{oil} \uparrow$, oil price shocks
- $E[P]$ = Price expectations & Sticky-wage theory
 - Fix P . If $E[P] \uparrow \Rightarrow w \uparrow$ in labor contracts
 - \Rightarrow Firm i 's $\left(\frac{profit}{unit}\right)_i \downarrow \Rightarrow Y_i \downarrow$

SRAS Curve shift

Shifts of SRAS Curve

- $E[P]$ = Price expectations & Sticky-price theory
 - Fix P . If $E[P] \uparrow \Rightarrow$ Firms adjust prices higher $\Rightarrow Y \downarrow$
- $E[P]$ = Price expectations & Misperceptions theory
 - Fix P . If $E[P] \uparrow \Rightarrow$ Firm i misperceives that P_i is a relatively lower real price $\Rightarrow Y_i \downarrow$
- All theories show that when $E[P] \uparrow \Rightarrow$ SRAS curve shifts in