

Macroeconomic Theory and Policy

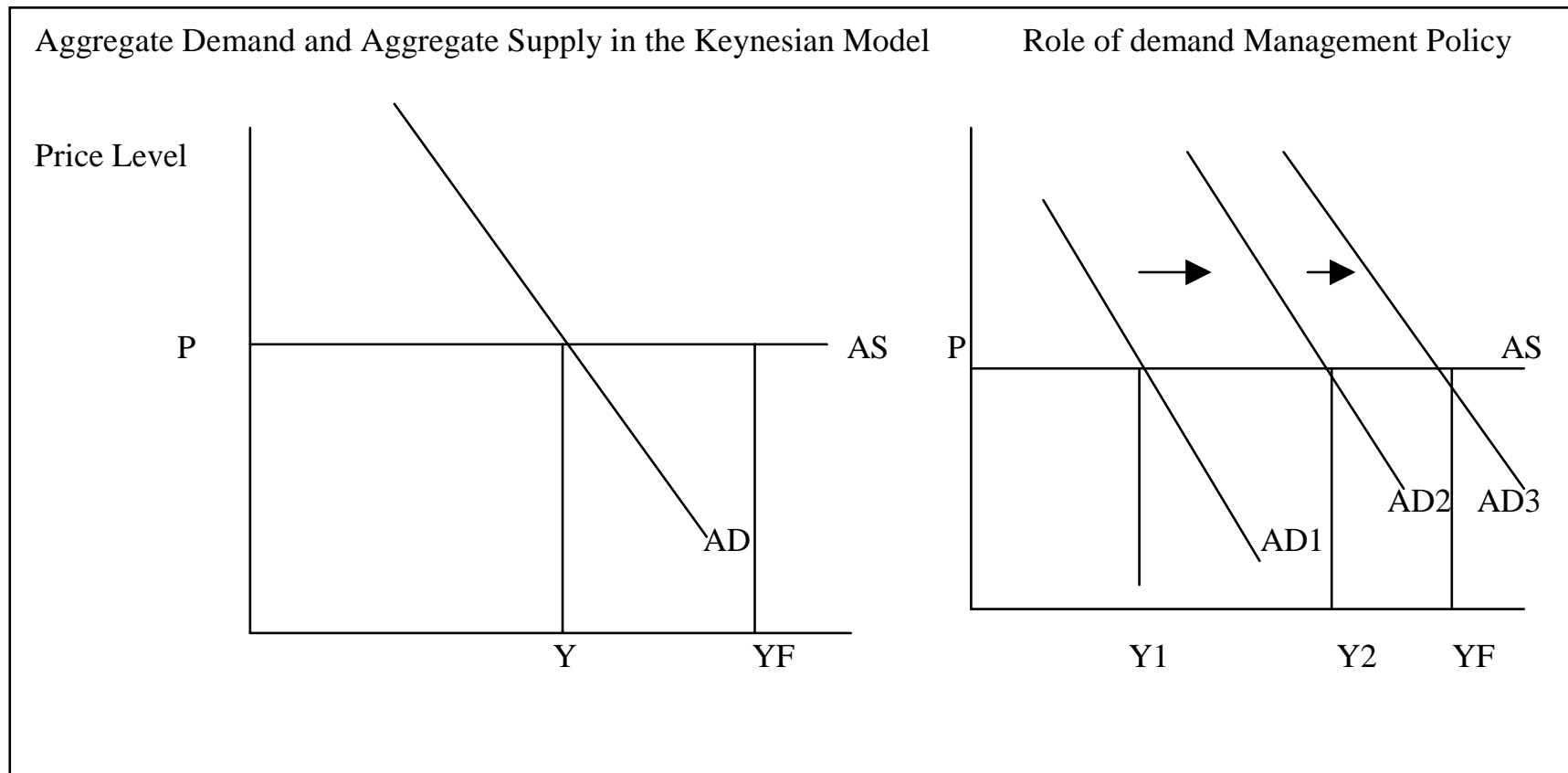
Lecture 6

New Keynesian Theory of Aggregate Supply

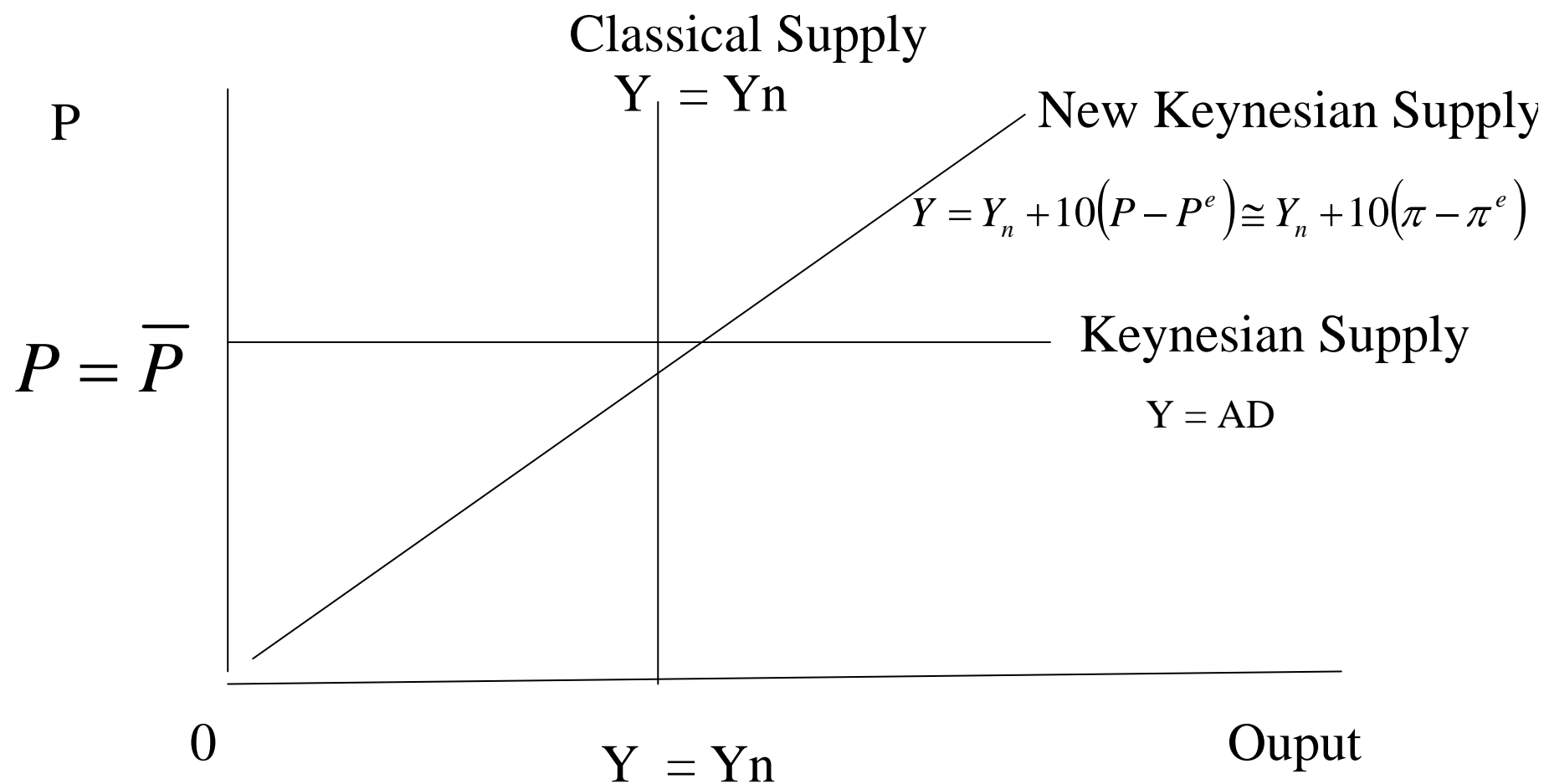
New Keynesian Theory of Aggregate Supply

- Keynesian Supply curve
- Short-run and Long-run Aggregate Supply
- New Keynesian aggregate supply equation
- Adaptive and rational expectation view of AS
- Phillips' curve and Okun Curve and AS
- Four theories on why AS is upward sloping
- Price setting and Wage-setting process
- Natural rate of unemployment
- Level of Employment and Aggregate supply

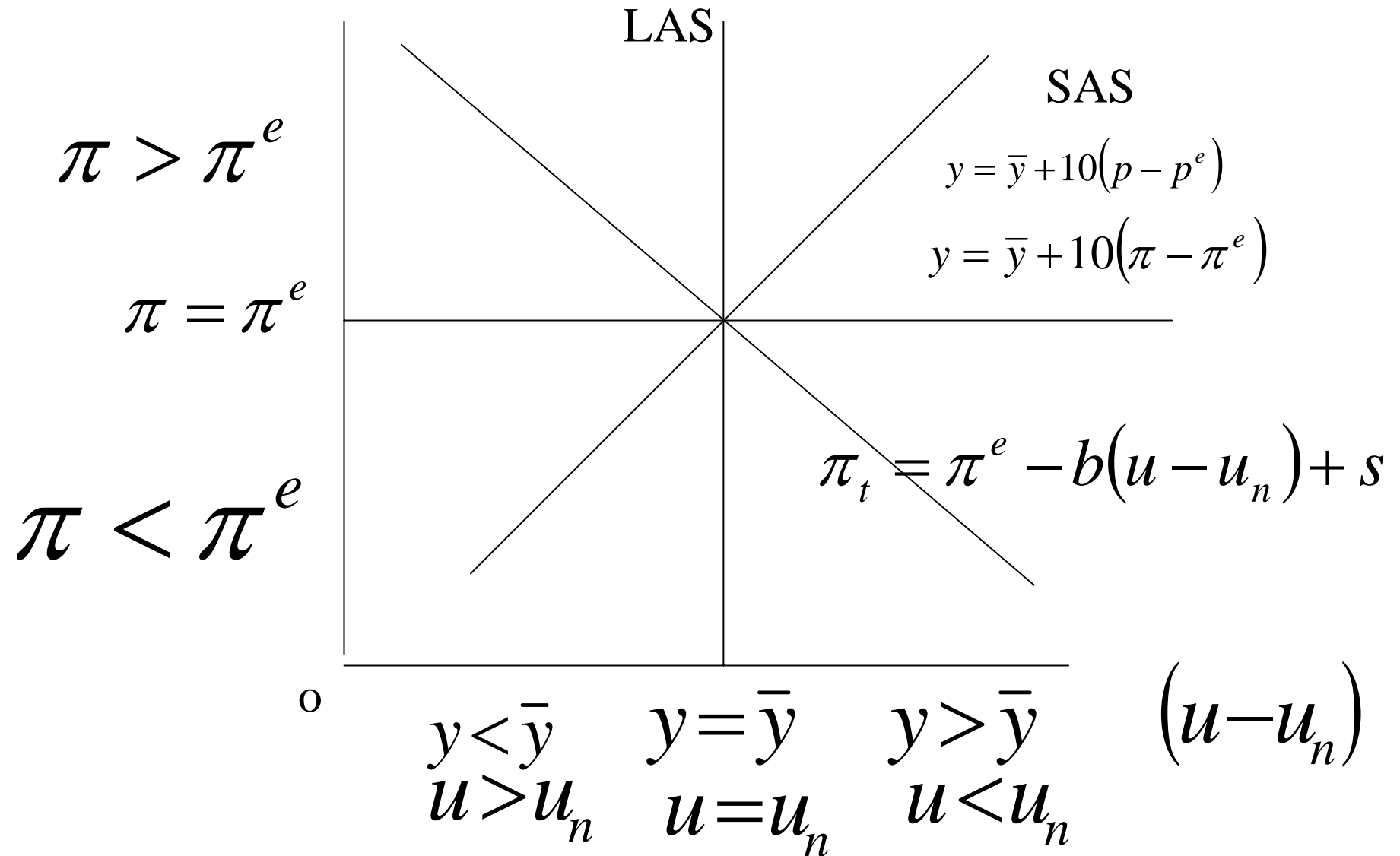
Role of Aggregate Demand and Aggregate Supply in the Keynesian Model



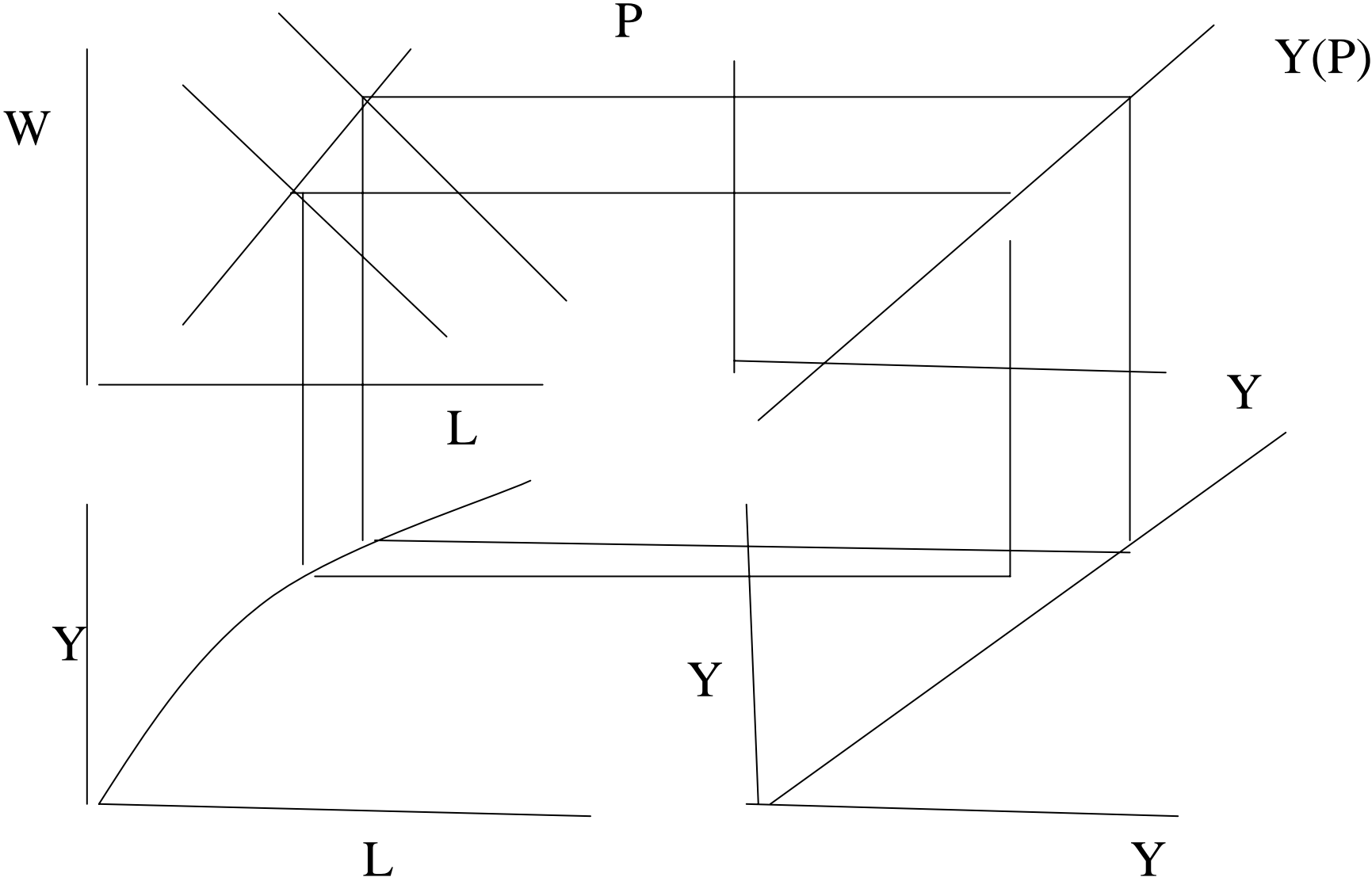
Classical, Keynesian and New Keynesian Aggregate Supply curves



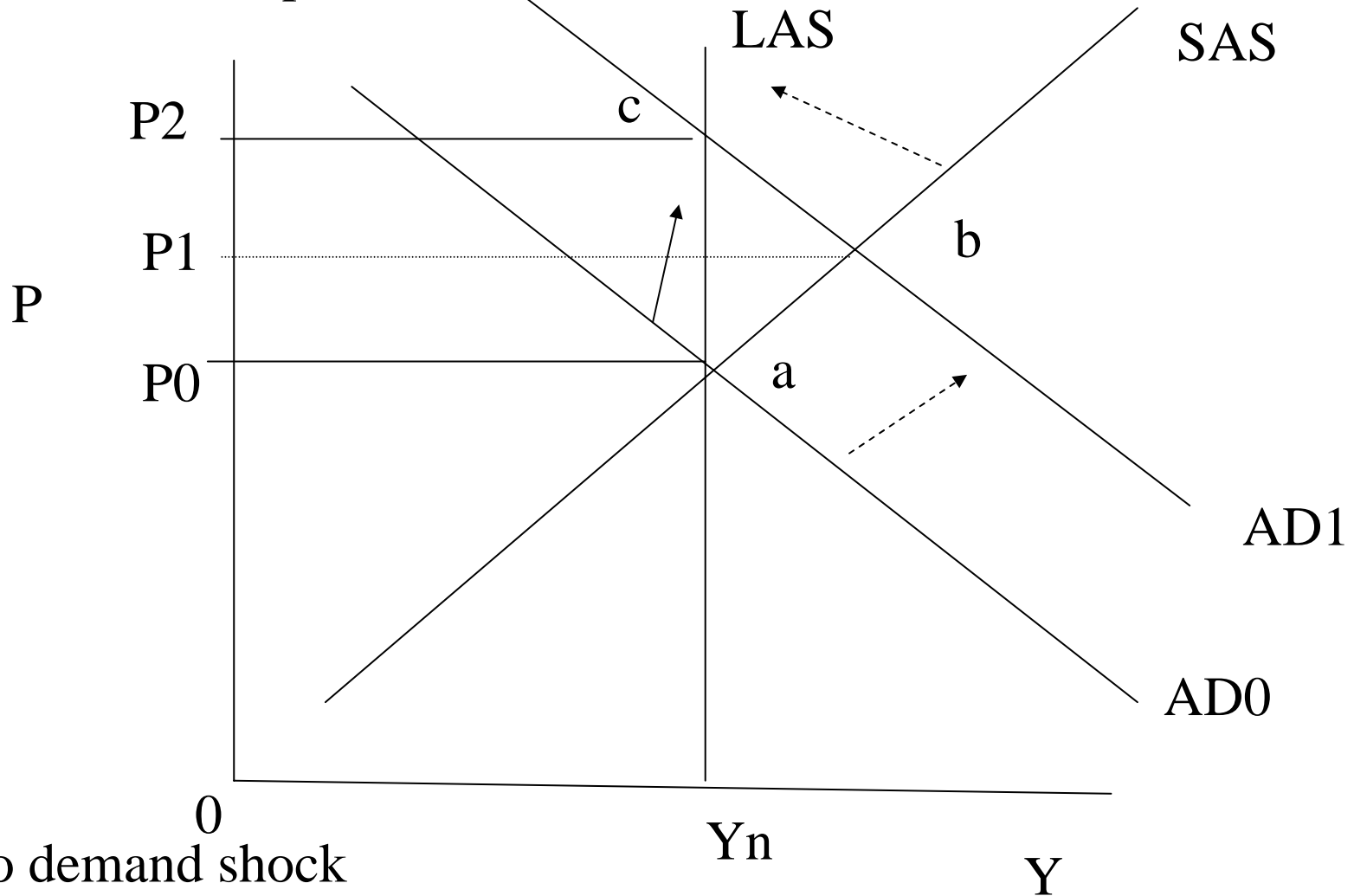
Aggregate Supply, Inflation and Unemployment in the Short Run



Derivation of the Aggregate Supply Curve



Adaptive and Rational Expectation Views on AS in Response to a Positive Demand Shock



Reply to demand shock

Adaptive Expectation: a to b to c

Rational expectation: a to c

Four theories about the existence of upward-sloping aggregate supply in the short run (see Mankiw)

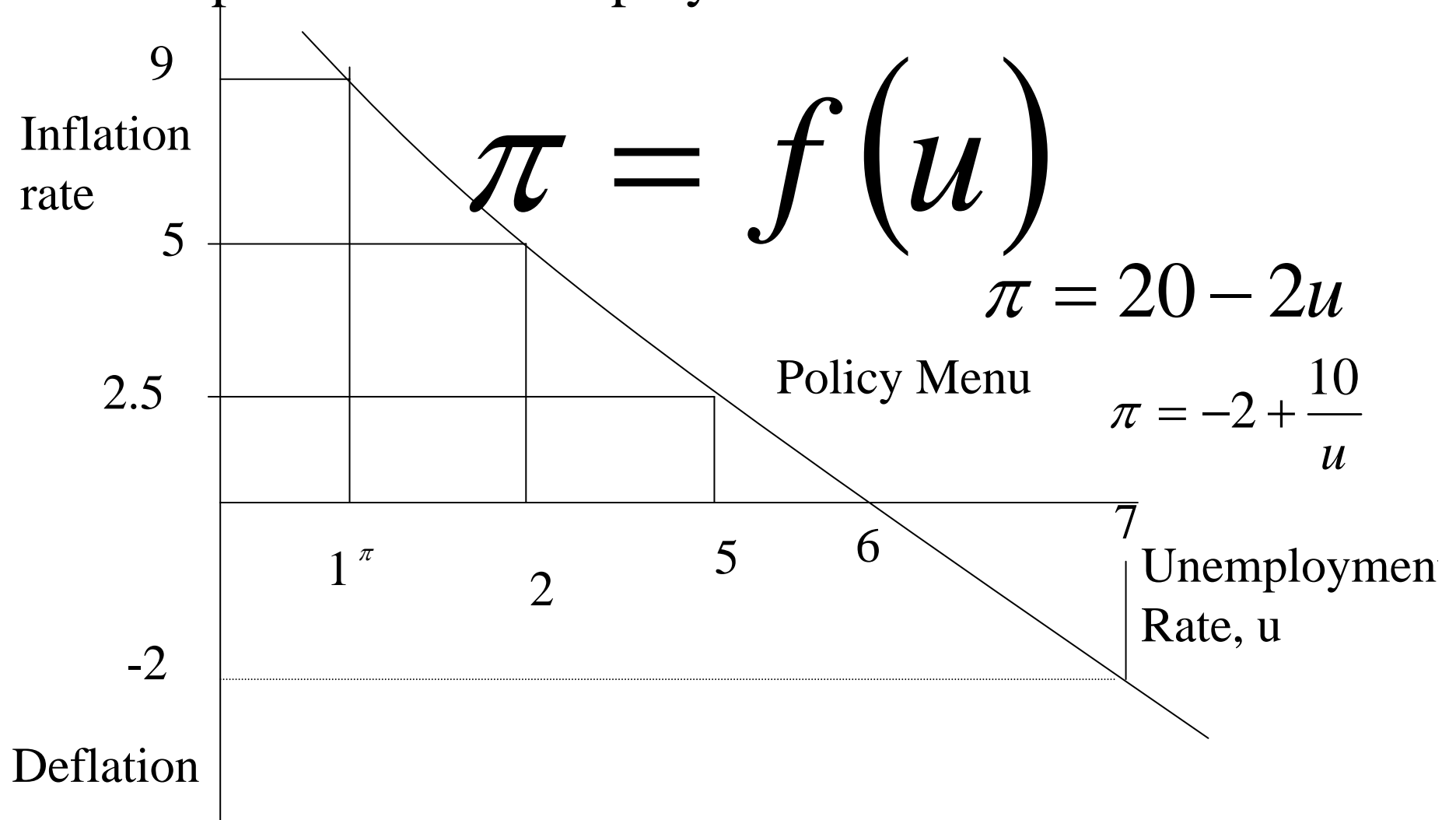
Sticky wage model: $W = \omega P^e$ or $\frac{W}{P} = \omega \frac{P^e}{P}$

Worker misperception model: $L^D = L^D\left(\frac{W}{P}\right); L^S = L^S\left(\frac{W}{P^e}\right); \frac{W}{P^e} = \frac{W}{P} \frac{P}{P^e}$

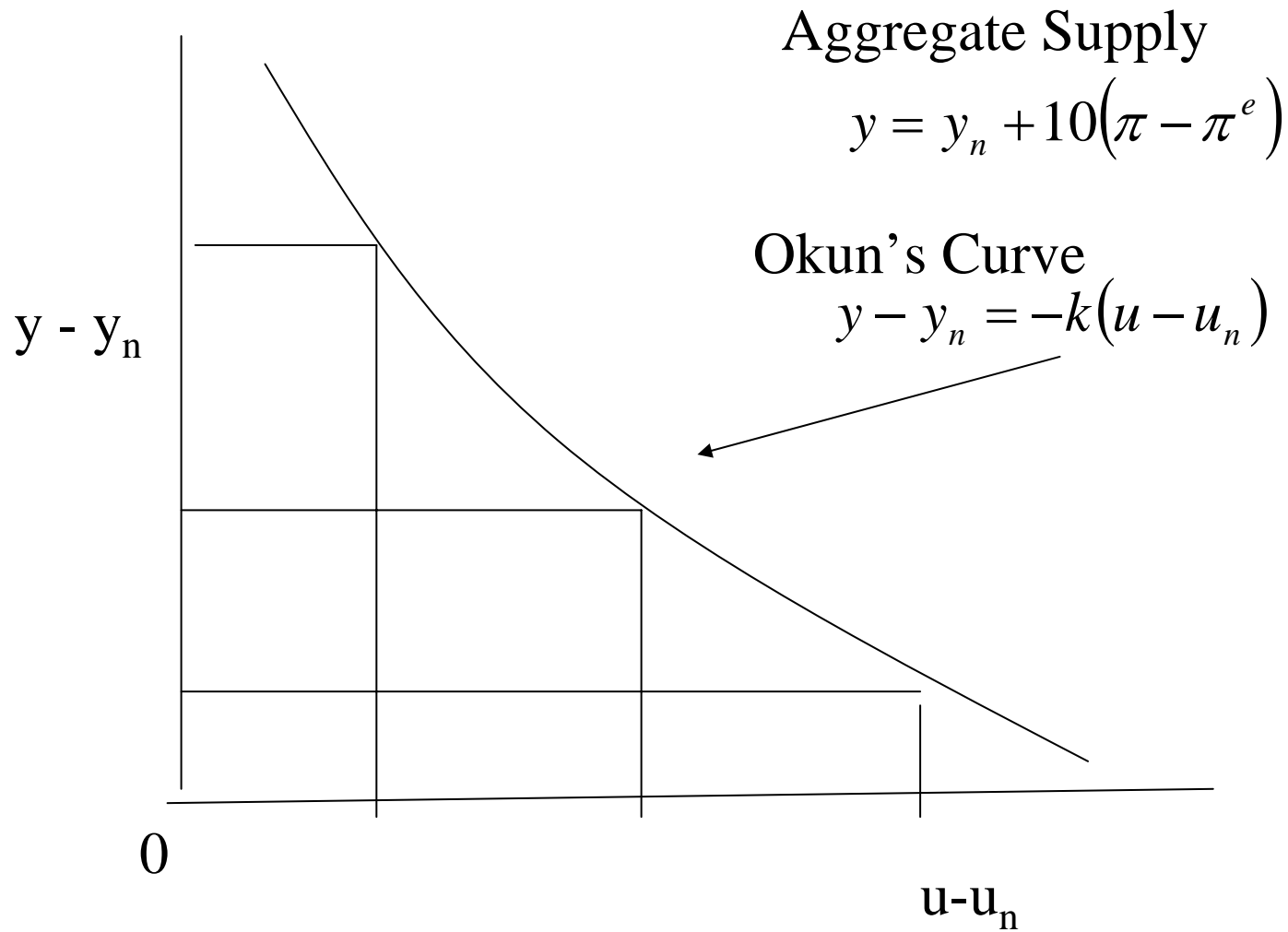
Imperfect information model (agents, both workers and firms, know only their own prices but not others, there are too many. They expect lower prices from own experience): $Y = Y_n + \alpha(P - P^e)$

Sticky price model (firm's desired price, menu costs, long term contracts)
 $p = P + a(Y - \bar{Y})$

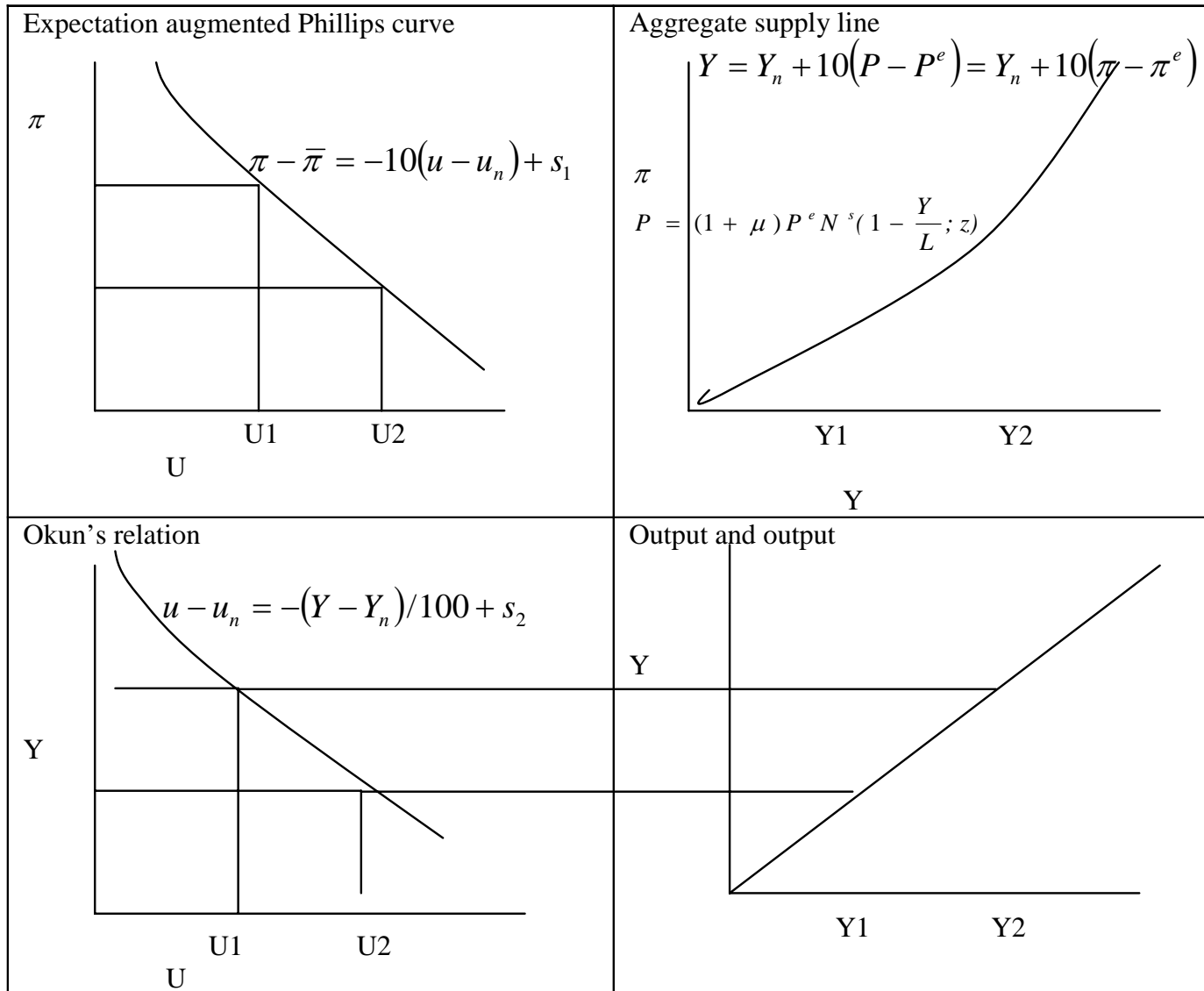
Phillips' Curve: Unemployment Inflation Trade-Off



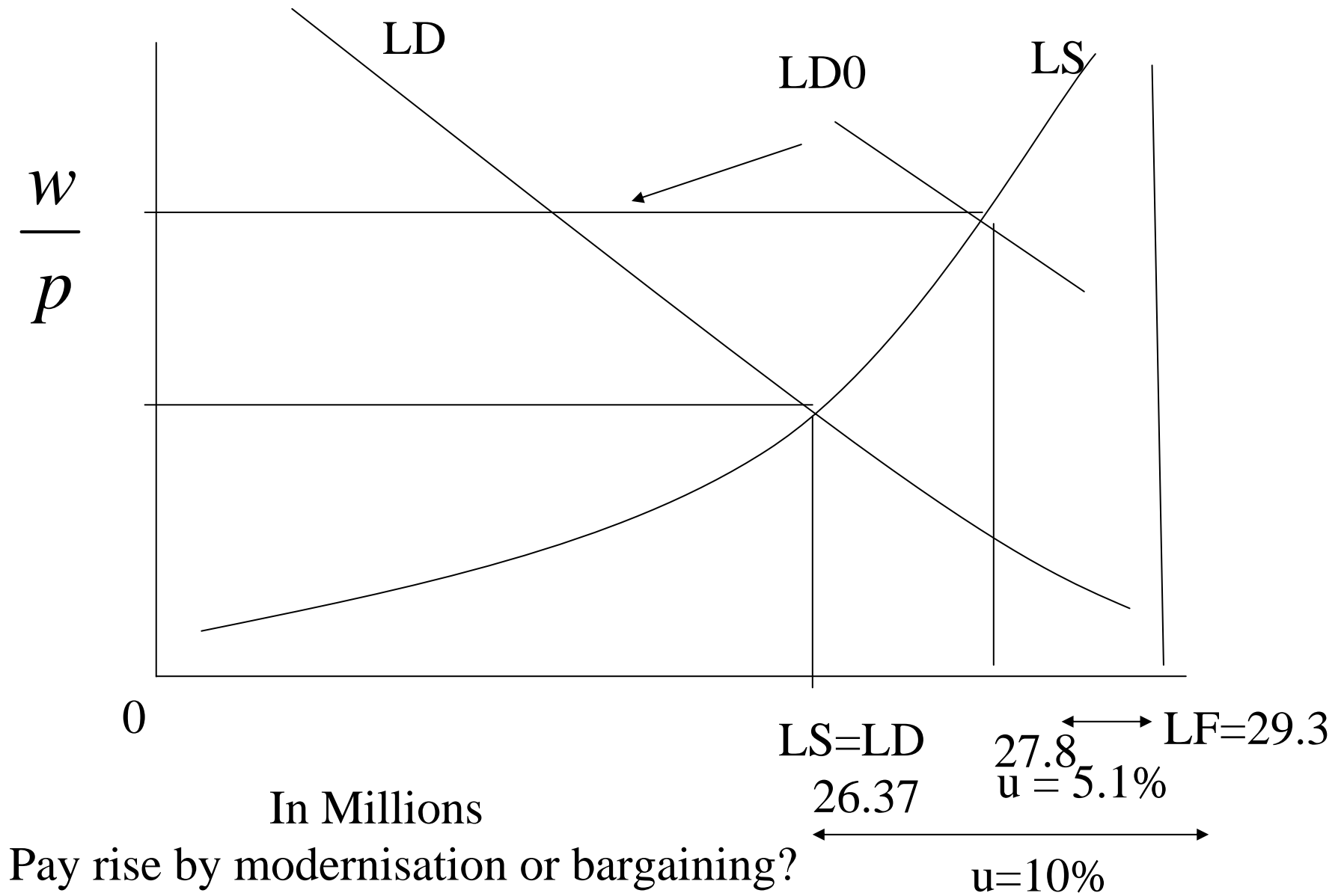
Okun's Curve: Output gap and Unemployment Rate



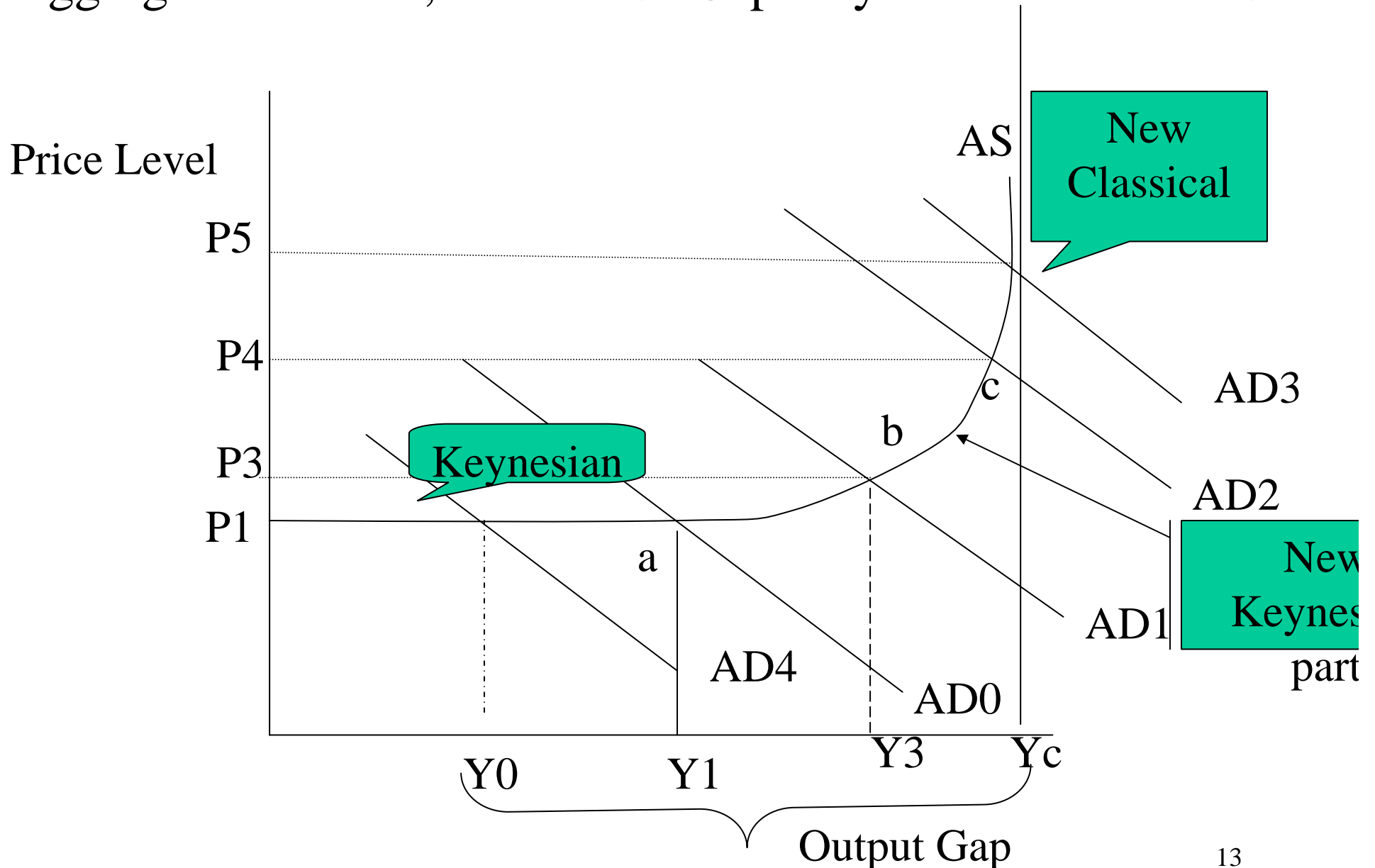
Deriving Aggregate Supply Using Phillips and Okun Curves



Total Labour Force and Unemployment Rate in the UK in February 2003



Aggregate Demand, Productive Capacity and the Price Level



Higher Wage Rate Translates into Higher Prices after Y3

Wage Price Spiral: Modernisation or Negotiation?

Price Mark up by firms:

$$P_t = (1 + \theta)W_t \quad (1)$$

Wage Mark up by unions

$$W_t = (1 + \gamma)P_t^e \quad (2)$$

Price Wage Spiral

$$P_t = (1 + \theta)(1 + \gamma)P_t^e \quad (3)$$

Both mark-ups θ and γ increase in the boom time and decrease in the slump.

$$\theta + \gamma = a(y - \bar{y}) = -b(u - \bar{u}) \quad (4)$$

Price Level to Inflation Rate

$$\frac{P_t}{P_{t-1}} = (1 + \theta)(1 + \gamma) \frac{P_t^e}{P_{t-1}}$$

$$1 + \pi_t = (1 + \theta + \gamma + \gamma\theta)(1 + \bar{\pi}) \quad (5)$$

$\bar{\pi}$ is the expected or the core inflation that firms and unions use while settling the wage rate.

$$\pi_t = \theta + \gamma + \gamma\theta + \bar{\pi} + \bar{\pi}\theta + \bar{\pi}\gamma + \bar{\pi}\gamma\theta \quad (6)$$

Inflation to Aggregate Supply or Expectation Augmented Phillips Curve

$$\pi_t = \theta + \gamma + \bar{\pi} \quad (7)$$

$$\pi_t = \bar{\pi} + a(y - \bar{y})$$

Or

$$\pi_t = \bar{\pi} - b(u - \bar{u}) \quad (8)$$

$$\pi_t = \bar{\pi} + \left\{ \begin{array}{c} a(y - \bar{y}) \\ \text{or} \\ -b(u - \bar{u}) \end{array} \right\} + s \quad (9)$$

References

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- Rankin Neil (1992) Imperfect competition, expectations and the multiple effects of monetary growth, the Economic Journal 102: 743-753.