

Lecture 9

Chapter 11: The AS/AD Model

- Derivation of AD curve from IS curve and Fed rule
- AS and AD together
- Shape of AS curve and the effects on policy responses
- Reduced form equation for AS/AD model—optional

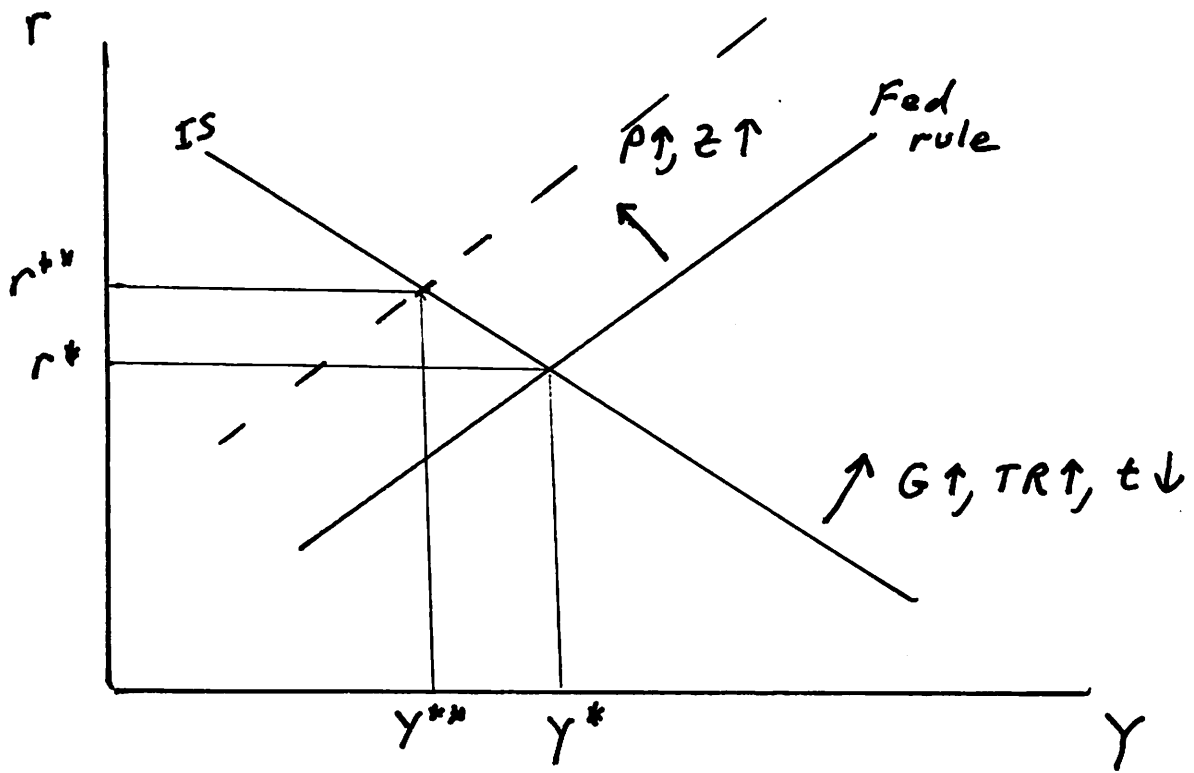
NOTATION

- Y output or income
- C consumption
- I investment
- G government purchases of goods and services—exogenous
- TR government spending on transfer payments (a negative tax)—exogenous
- t tax rate—exogenous
- TAX taxes
- T net taxes ($TAX - TR$)
- Y_d disposable income ($Y - T$)
- r interest rate
- P price level
- PM price of imports (cost variable)—exogenous
- Z “Z” variables in Fed rule—exogenous

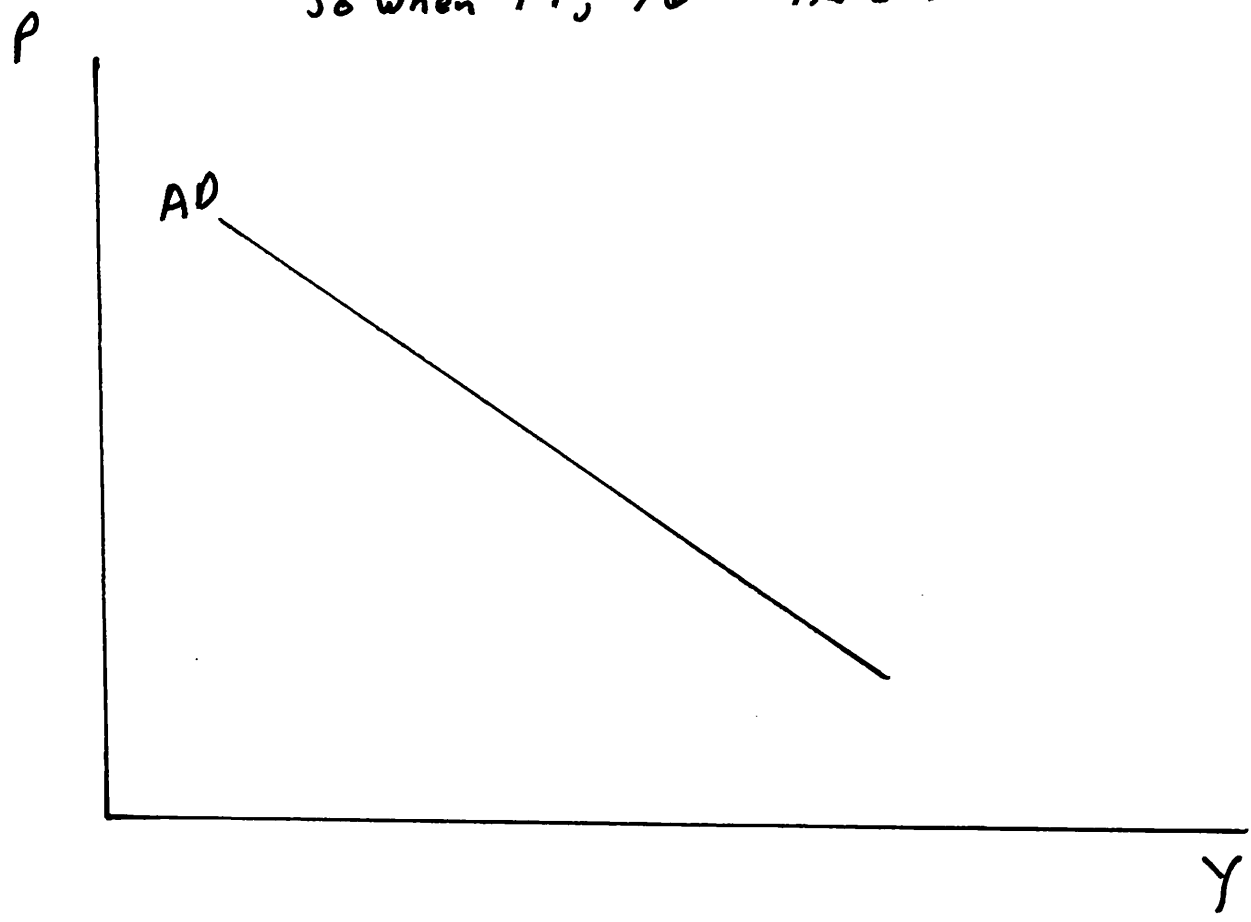
AS/AD MODEL

- $Y_d \equiv Y - T$ Definition
- $C = a + bY_d$ Behavioral (households)
- $I = d - e \cdot r$ Behavioral (firms)
- $Y = C + I + G$ Equilibrium condition
- $TAX = tY$ Behavioral (government)
- $T \equiv TAX - TR$ Definition
- $P = \delta + \epsilon Y + \zeta PM$ Behavioral (AS curve, firms)
- $r = \alpha Y + \beta P + \gamma Z$ Behavioral (Fed rule)

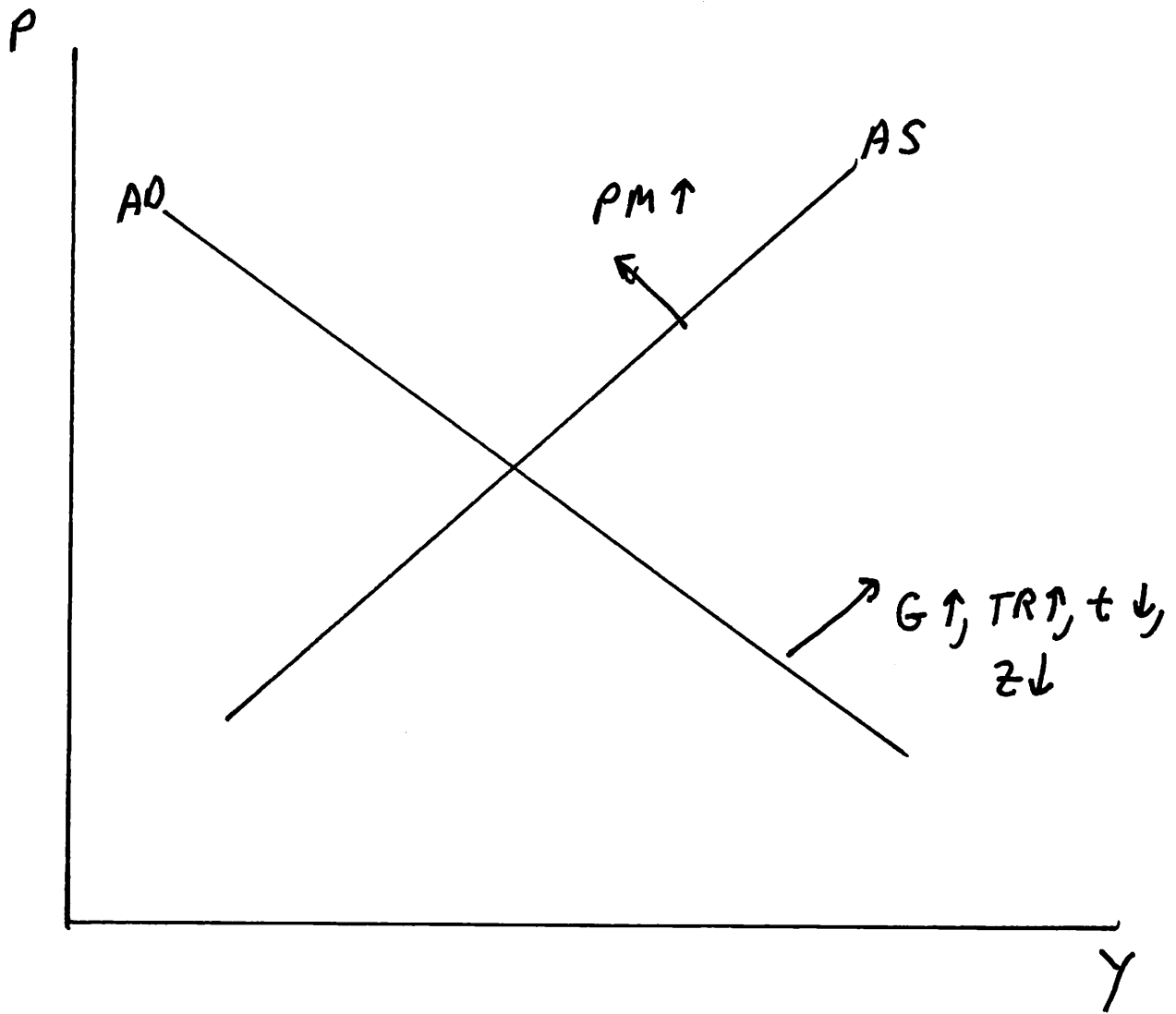
Derivation of AD curve



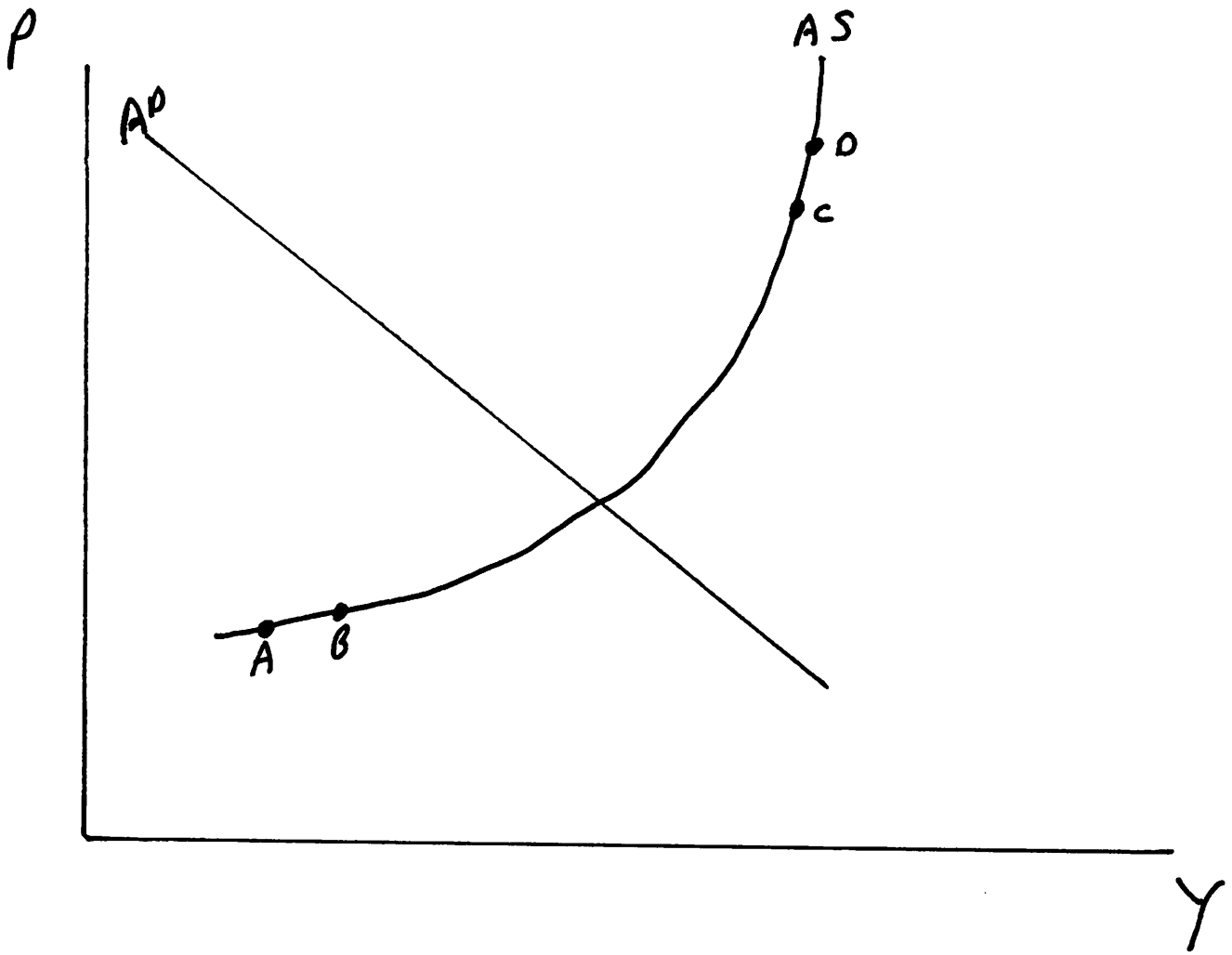
So when $P \uparrow, Y \downarrow$ -- AD curve



AS/AD



SHAPE OF AS CURVE



SOLUTION of AS/AD MODEL

$$\begin{aligned} Y &= C + I + G \\ &= a + b(Y - tY + TR) + d \\ &\quad - e \cdot (\alpha Y + \beta[\delta + \epsilon Y + \zeta PM] + \gamma Z) + G \end{aligned}$$

Let $q = 1 - b + bt + e\alpha + e\beta\epsilon$.

Reduced form equation is:

$$= \frac{a}{q} + \frac{b}{q}TR + \frac{d}{q} - \frac{e\beta\delta}{q} - \frac{e\beta\zeta}{q}PM - \frac{e\gamma}{q}Z + \frac{1}{q}G$$

If $b = .75, t = 1/3, \alpha = .3, e = .3, \epsilon = .3, \beta = .3$, then $q = 0.617$, so $\frac{1}{q} = 1.62$. This compares to $\frac{1}{1-b+bt} = 2.0$.

Why is the government spending multiplier smaller when the AS curve and/or the Fed rule are added to the model?