Outline AS-AD

1. Aggregate supply (AS)
   a. curve.
   b. shifting curve.

2. Aggregate Demand (AD)
   a. curve.
   b. shifting curve.

3. Putting curves together.
   (a.) Medium run equilibrium 4-8 years.
   (b.) Short run. 1-3 years.
   (c.) Disequilibrium dynamics
   (d.) Businesses pessimistic about their investments.
   \[ \Rightarrow \text{Crowding out } \Rightarrow \text{supported in medium run.} \]

Oil shock ~ 1970's, jump in oil prices.
**Price setting**

\[ P = (1 + \mu) W \]

**Bargaining**

\[ W = P^e F(u, z). \]

\[ U = 1 - \frac{Y}{L} \quad \text{labour force which does not move much}. \]

\[ P = P^e F \left( 1 - \frac{Y}{L}, z \right) \quad \text{Asc}(P^e) \]

Medium run: \( P^e = P \)  

\[ F(u, z) = \frac{W}{P} = \frac{1}{1 + \mu} \]

Disequilibrium dynamics:

\( P > P^e \)  
\( P < P^e \)  

Medium run
\[ \frac{W}{P} = \frac{1}{1 + u} \]

\[ F(u, z) \]

\[ U = 1 - \frac{Y_0}{L} \]

\[ p \]
Expectations ($pe$) adjust in medium run.

1970s 1980s.

Prices rise sharply.

Prices eased down in 1980s.

Other variables that shift AS:

- $AS(pe)$
- $ASC(pe)$

Unemployment ins. improves.

\[ U_n = 1 - \frac{\gamma_n}{L} \]
\[ P = C(1+\mu)W \]
\[ u = P^e F(u, z) \]
\[ u = 1 - \frac{y}{L} \]
\[ P = (1+\mu) P^e F(1 - \frac{y}{L}, z) \]

Median run \( P = P^e \)

\[ \frac{1}{1+\mu} = F(1 - \frac{y}{L}, z) \]

Oil price rise \( \Rightarrow \mu \uparrow \).
Aggregate Demand

LM: comb. \( i, y \) \( \frac{M^s}{\rho} = y \times L(i) \)

\( M^s \uparrow \)
Reduce $P$.

[Diagrams showing relationships between variables $i$, $l$, $F$, $H$, and $P$ with various curves labeled as IS, LM, AD, and other functions.]
Shocks to AD, AS

\[ P \]
\[ AS \]
\[ AD \]
\[ Y \]

Y ↑ how to tell if AD, AS?
Y ↑ AD ↑ then P ↑
AS then P ↑

GV.

multiplier in IS-LM model.
\[ AS(p^e) \]

Short run, medium run.

\[ i \]
\[ LM(\frac{M}{p}) \]
\[ IS \]
Medium run equilibrium.

Goods, asset markets in equil. (i.e. AD)
Price/wage setting equations satisfied (i.e. AS)

$p^e = p$

 Disequilibrium dynamics.
If off AS curve, $p$ moves towards AS curve (slow)
Goods market $Z \geq Y \Rightarrow Y \uparrow$ (slow)
Asset market $\frac{\beta}{p} \downarrow > \frac{\beta}{p} \uparrow$ (immediately).

Short run: $p^e$ fixed.
Medium run: $p > p^e \Rightarrow p^e \uparrow$
$p < p^e \Rightarrow p^e \downarrow$. 

$p = (1 + \mu) W$
$\omega = p^e F(1 - \frac{\mu}{W}) Z$
1 → 2  short run.

2 → 3  in medium run.

Medium equilibrium.

G ↑, Y nothing.

C + I + G = Y

Nothing ↑ √ nothing