INTRODUCTORY MACROECONOMICS

ECON10003

LECTURE SUMMARY NOTES

The University of Melbourne

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Lecture Contents

LECTURE 16 – Inflation and AD-AS (2)

Lecture Outline
- Factors causing AD curve shift
Change to monetary policy in relation to inflation
Shock to AD (G, I, X, T, M)
- Consequences of shifts in AD curve
- Inflation Shock (SRAS shock)
- LRAS Shock (Potential output shock)

Factors causing AD curve shift

Any change in factors that influences PAE, apart from change in inflation rate and interest rates

$$PAE = C + I + G + X - M$$

1. Change in RBA's Taylor Rule

- At prevailing rate of inflation, RBA changes nominal interest rate
- Change in interest rates affect borrowing costs and spending
- E.g. Increased interest rates increases borrowing costs, reduces spending (C)

2. Changes in C, I, G, X or M components

- Change in consumer confidence ($\bar{C}$)
- Change in profit expectations (I^P)
- Change in G or T
- Change in X or M

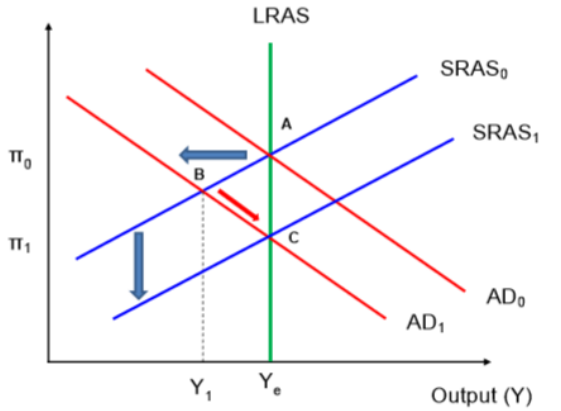
3. RBA deliberately lower inflation

- Raise interest rates and deliberately create a contractionary gap to reduce inflation

(AD shift left, contractionary gap, inflation decrease, SRAS shift right due to expectation, inflation decrease more, closes output gap)

- RBA lower the rate of inflation ("disinflation"), but to achieve this it has to create a situation of low output and high unemployment and this may be quite costly.

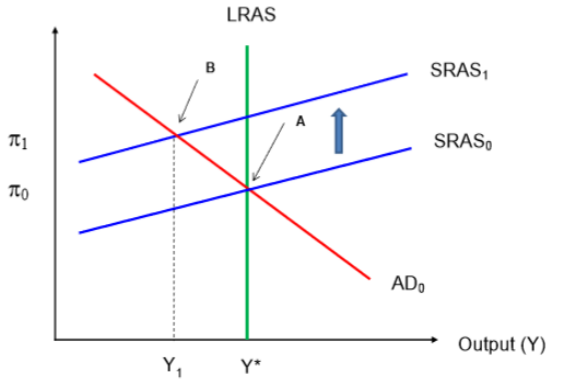
$AD \uparrow$, $AD_0 \rightarrow AD_1$
$Y_1 > Y_e$, **expansionary gap**
$\pi_t = \pi_{t-1} + output\ gap$
$\pi_t > \pi_{t-1}$ **since output gap is positive**
Inflation increased, π_t^e **increases**
$AD \downarrow$, $SRAS_0 \rightarrow SRAS_1$



SRAS Shocks (Inflation Shocks)

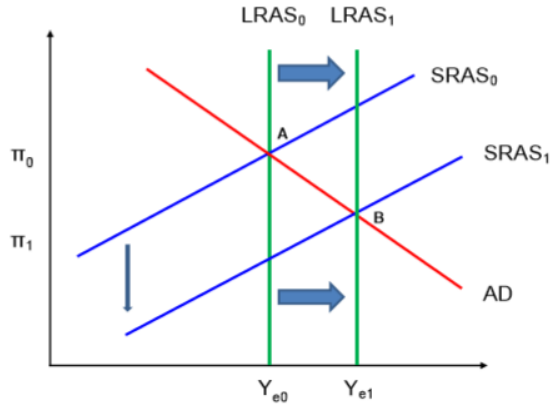
- Increase in inflation which was not caused by an expansionary output gap
- This shifts SRAS to the left, creating contractionary gap, Y<Y*
- Given sufficient time, contractionary gap will lower inflation and the economy will eventually return to its long-run equilibrium (self-correct) but may take a long time (long recession, high unemployment)
- To reduce gap and unemployment, RBA introduce monetary policy, lowering interest rates, shifting AD curve to the right
- However, here, inflation is extra high

****Trade-off → high inflation or long recession (high unemployment)**



LRAS Shocks (Potential Output Shock)

- E.g. Changes in technology, shifts LRAS to the right
- New Y* is now larger than old Y*, so Y<Y*, creating a contractionary gap
- At contractionary gap, new inflation < old inflation, inflation expectations decrease, SRAS shifts to the right, to new LRAS equilibrium.



LECTURE 18 – Solow-Swan Model (1)

Lecture Outline
- Rules for growth rates and exponents
- Y/POP, Y/L, L/POP
- Assumptions of Solow-Swan Model
- Key Solow-Swan equation
- "Steady State" or equilibrium outcome
- "Ultimate" determinants of Y/L

Rules for growth rates and exponents

If $Y = \frac{X}{Z}$ $\rightarrow \frac{\Delta Y}{Y} = \frac{\Delta X}{X} - \frac{\Delta Z}{Z}$

$$\frac{\Delta(\frac{K}{L})}{(\frac{K}{L})} = \frac{\Delta K}{K} - \frac{\Delta Z}{Z}$$

** rate of growth of the capital-labour ratio is equal to the difference between rate of growth of the capital stock (K) and the rate of growth of labour input (L)

1. $A(XZ)^{\alpha} = AX^{\alpha}Z^{\alpha}$
2. If $Y^{\beta} = X$, then $Y = X^{\frac{1}{\beta}}$
3. $Y^{\beta} = X^{\alpha}$, then $Y = X^{\frac{\alpha}{\beta}}$

Modelling Y/POP, Y/L, L/POP

$$\frac{Y}{POP} = \frac{Y}{L} \times \frac{L}{POP}$$

Assumptions of Solow-Swan Model

1. L/POP is constant

2. Government-less, closed economy, so Y=C+S=C+I

3. Only one good is produced

4. I is the production of new capital goods

5. Each period some existing goods depreciate and have to be replaced (depreciation rate "*d*", exogenous)

6. All savings demanded for investment, S=I, θ is proportion of Y saved (savings ratio), S = θY

7. All labour is fully employed

8. Population and labour supply grows at rate "*n*" per period, "*n*" is exogenous.

9. A Cobb-Douglas Function

$$\frac{Y}{L} = AK^{\alpha}L^{-\alpha}$$
$$\frac{Y}{L} = A(\frac{K}{L})^{\alpha}$$

The Solow-Swan equation

$$\theta\frac{Y}{L} = (d+n)\frac{K}{L} + \Delta\frac{K}{L}$$

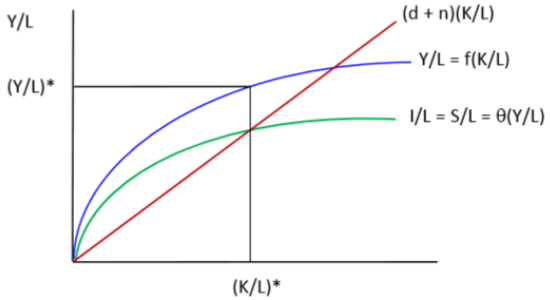
$\boldsymbol{\theta\frac{Y}{L}}$**:** Prevailing level of investment (new K, including replacement investments) relative to number of workers in the economy

$\boldsymbol{(d+n)\frac{K}{L}}$**:** Replacement investment per worker, for K/L ratio to be constant

$\boldsymbol{\Delta\frac{K}{L}}$**:** New capital investments

The model is at equilibrium, or **steady-state**, when K/L is constant (when $\Delta\frac{K}{L}$ is 0),

$\boldsymbol{\theta\frac{Y}{L} = (d+n)\frac{K}{L}}$



** (A, θ, d and n) are the 'real or 'ultimate' determinants of equilibrium Y/L (and thus Y/POP)

In equilibrium,

$$\frac{Y}{L} = A(\frac{K}{L})^{\alpha}, \qquad \theta\frac{Y}{L} = (d+n)\frac{K}{L}$$
$$\frac{K}{L} = \frac{\theta}{(d+n)}\left(\frac{Y}{L}\right)$$
$$\frac{Y}{L} = A(\frac{\theta}{(d+n)}\left(\frac{Y}{L}\right))^{\alpha}$$
$$\boldsymbol{\frac{Y}{L} = A^{\frac{1}{1-\alpha}}\left(\frac{\theta}{(d+n)}\right)^{\frac{\alpha}{1-\alpha}}}$$