Macro for exams

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Scope.

Questions

question 6 in the exam

General equations

Short run

Money supply formula

Demand = Demand for currency + Demand for reseves

- = cMd + θDemand for cheque deposits
- = cMd + θ (1-c)md
- $= (c + \theta(1-c))Md$

$Md = YL(i)$

Aggregate demand function.

$(a_1 + \frac{md_r}{md_y})r = a_0 + md_0$

Goods market equilibrium

$Y = \alpha_0 - a_1 r$ where $\alpha_0 = \frac{c_0 - c_1 t_0 + i_0 + G + X - M}{1 - c_1(1-t_1) - i_y}$ and $a_1 = \frac{i_r}{1 - c_1(1-t_1) - i_y}$

- $Y = c_0 + c_1(Y - t_0 - t_1 Y) + i_0 - i_r r + i_y Y + G + (X - M)$

Finiancial market equilibrium.

$Y = \beta_1 r - \beta_0$ * $Y = \frac{md_r r - md_0 + M_s}{md_y}$ * $M_s = md_0 + md_y Y - md_r R$

Aggregate supply function.

General Formula

- $P_e F(u, z) = P \frac{1}{1+m}$
- $P = P_e(1+m)F(u, z)$ **Solving the production function for Y, nd then solving for p**

Wage setting

- $W = P_e F(u, z)$

Price setting

- $\frac{W}{P} = \frac{1}{1+m}$

Medium Run

Start by linking the two markets

- $P = P_e(1+m)F(1 - \frac{Y}{L} z)$

Medium ISLM or aggregate deamnd with no expected inflation

Even in the short run price rise can be considered as moving the lm curve inwards in the ad as model.

A chnge in monetary stokes.

Eventual price change so thier is no change in real money suply. this means intrest returns to its prechange level

Replace money supply with money supply over price levels. As over the long run prices rise reducing Money supply which increases intrest rates at any given level of employment moving the LM curve to the left.

Prices = expected Prices ## Changes in price of other inputs(natural reasoureses)

Change the value m and assume no change in the aggregrate demand

Phlips curve and medium run with expected inflation

Start with the aggregate supply relation

$$P_e F(u,z) = P\frac{1}{1+m}$$

Than use a linear function for F

$$F = 1 - \alpha u + z$$

This solves to give

$$\pi = \pi_e + m + z - \alpha u$$

Original philips curve

Assume pi_e is always zero as inflation was not 2

Augmented Philips curve

Replace π_e with $\pi_t - 1\theta$

If we replace θ with one we get

$$\Delta pi = m + z - \alpha u$$

Natural rate of unemployment

Gives a constant inflation rate and assume $\theta = 1$ $U_n = \frac{m+z}{\alpha}$

Plugining this back into the equation we get

$\Delta\pi = -\alpha(u_t - u_n)$

Nutrality of money

A natural rate of unemployment implies a natural rate of output irrespective of money supply.

Wage indexation

Some wages are indexed directly on current inflation.

$\pi_t = \lambda pi_t + (\lambda - 1)pi_t - 1 + m + z - \alpha u$

This gives

$\delta\pi = -\frac{1}{1-\lambda}u_t - u_n$

when wage indexation is common small changes in employment yeiled large changes in inflation

Okun law

$\Delta u = -\alpha(g - \beta)$ where g is growth rate. becouse output and employment are not infact one to one becouse of labour hording.

The natural rate of growth is one with no change in unemployment.

Aggregate demand relation

Take the function $Y = Y(\frac{M}{P}, G, T)$

and replace it with

$Y = \gamma\frac{M}{P}$

Solving this gives that the real output growth rate is the nominal output growth rate - the inflation rate

Lucas crituque

If π_e is based on credible policy declaration to a larger extent rather than only on previous inflation the cost of disinflation is reduced.

Point year of execss inflation the difference between the actual and the naturl unemployment rate of 1 percent for one year

Summary

- $ut - u_{t-1} = -a(g_{yt} - g_{yn})$ **Okuns law**
- $\pi_t - \pi_{t-1} = -u_t - un$ **Philips curve**
- $g_{yt} = g_{mt} - \pi_t$ **Aggregate demand**