

A The linearised model

The linearised economy is given by a set of 15 equations in 15 unknowns, y_t , c_{1t} , c_{2t} , π_t , z_t , d_t , r_t , r_t^D , r_t^F , r_t^z , n_{1t} , n_{2t} , w_{1t} , w_{2t} , mc_t

Aggregate demand

The Euler equation for unconstrained consumers:

$$c_{1t} = E_t c_{1t+1} - \frac{1}{\sigma_c} (r_t - E_t \pi_{t+1}) \quad (40)$$

The debt evolution equation for constrained consumers

$$c_{2t} = y_t - \delta r_t^D + \delta (\Delta d_{t+1} + \pi_{t+1}) + \delta \frac{R^D}{1 + R^D} (y_t - d_t - r_t^D) \quad (41)$$

where we exploit the fact that the redistributive nature of the tax on profits and lump-sum transfers results in type 2 factor income being in constant proportion to total income, hence $y_{2t} = y_t$.

The resource constraint (30) becomes

$$y_t = \lambda c_{1t} + (1 - \lambda) c_{2t} \quad (42)$$

Aggregate supply

The Phillips curve with a term in lagged inflation to generate inflation persistence

$$\pi_t = \eta \pi_{t-1} + \beta_1 (1 - \eta) E_t \pi_{t+1} + \gamma mc_t + u_t \quad (43)$$

Labour supply curves for type 1 and type 2 households, from (11)

$$\vartheta n_{1t} = w_{1t} - \frac{1}{\sigma_c} c_{1t} \quad (44)$$

$$\vartheta n_{2t} = w_{2t} - \frac{1}{\sigma_c} c_{2t} \quad (45)$$

where $\frac{1}{\vartheta} = \sigma_n \frac{1-N}{N}$

Labour demand for the two types of labour from (25) and (26)

$$w_{1t} = mc_t + y_t - n_{1t} \quad (46)$$

$$w_{2t} = mc_t + y_t - n_{2t} \quad (47)$$

and combining these with the linearised production function gives an expres-

sion for the firm's marginal cost

$$mc_t = \kappa w_{1t} + (1 - \kappa) w_{2t} \quad (48)$$

Financial institutions

The optimal nominal value of a new debt contract arising from the optimising behaviour of financial institutions

$$z_{t+1} - E_t p_{t+1} = E_t \left\{ \frac{[1 - B(1)] F}{B(F)} \pi_{t+1} \right\} \quad (49)$$

a process for aggregate debt

$$d_{t+1} + p_{t+1} = \frac{A(1)}{A(L)} z_{t+1} \quad (50)$$

the optimal rate on a new contract

$$r_t^z = E_t [\phi r_{t+1} + (1 - \phi) r_{t+1}^z] \quad (51)$$

the average rate on a fixed rate contract

$$r_t^F = \phi r_t^z + (1 - \phi) r_{t-1}^F \quad (52)$$

the average rate on all debt

$$r_t^D = \Psi r_t^F + (1 - \Psi) r_t \quad (53)$$

Monetary policy

The monetary policy rule is

$$y_t = \zeta \pi_t \quad (54)$$

A conventional "dynamic IS-LM" model (such as that presented in McCallum, 2001) comprises four equations: a forward-looking IS curve, a Phillips curve, a rule for monetary policy and a resource constraint. Equations (40) to (54) of our model correspond to this, though to enable us to focus on the distributional effects of inflationary shocks we replace McCallum's Taylor rule with an output rule. We add three features to the model. Firstly, the presence of credit constrained consumers whose consumption is given by their budget constraint (44). This heterogeneity in consumption leads to heterogeneity in labour supply so we have to consider the labour market in more detail in equations (44) to (47). Secondly, the presence of a level of a level of debt derived