

Recap Information 11: Transparency of monetary policymaking

“Monetary Economics: Macro Aspects,” Spring 2004

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The lecture slides associated with this part of the course provide the most comprehensive information about what I find of relevance. Nevertheless, this note briefly lists the key concepts that you are supposed to know and be able to explain. An example of a sample exam question is included at the end of the note. This is a question that is slightly “outside” the curriculum, but with your skills, together with what you have learned during the course, it should not be too difficult for you to answer.

Key concepts you should know

Simple model of transparency

- The two-period model
- The New-Keynesian Phillips curves
- Intentions for demand versus actual demand
- The social loss function and the central bank’s loss function
- The definition of more transparency in model: More information revealed about the control error
 - Policy intentions can to a larger extent be distinctly seen

Solution with full information

- Inflation bias if initial credibility problems
- Efficient discretionary shock stabilization

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Solution with informational asymmetries

- The determination of period 2 inflation expectations conditional on observed period 1 demand
- The private sector's signal extraction problem
- More transparency => less noise in this problem => changes in demand causes larger changes in inflation expectations and actual inflation
- The impact of more transparency on central bank behavior:
 - More emphasis on inflation stabilization, as the marginal cost of an increase in demand becomes higher
 - Disciplines a central bank *with* credibility problems
 - Constrains unnecessarily a central bank *without* credibility problems
 - Conventional “credibility versus flexibility” trade-off in the choice of the degree of transparency

Sample question 4

Consider the following model for a closed economy:

$$y_t = \pi_t - \mathbb{E}[\pi_t | I_{t-1}] + \varepsilon_t, \quad (1)$$

$$\pi_t = m_t - m_{t-1} + v_t, \quad (2)$$

$$m_t = m_{t-1} + g - nv_t - h\varepsilon_t, \quad n > 0, \quad h > 0, \quad (3)$$

where y_t is log of output in period t , π_t is inflation in period t , $\mathbb{E}[\cdot]$ is the rational expectations operator, I_{t-1} is the information set in period $t-1$, ε_t is a supply shock (it is assumed that $\mathbb{E}[\varepsilon_t | I_{t-1}] = 0$ and $\mathbb{E}[\varepsilon_t^2 | I_{t-1}] = \sigma_\varepsilon^2 > 0$), m_t is the log of the nominal money supply in period t (the policy instrument of the central bank), v_t is an inflation shock (it is assumed that $\mathbb{E}[v_t | I_{t-1}] = 0$ and $\mathbb{E}[v_t^2 | I_{t-1}] = \sigma_v^2 > 0$), and g is the average growth rate in the nominal money supply.

- Describe briefly the relations of the model.
- Find the solution for $\mathbb{E}[\pi_t | I_{t-1}]$, and describe the economic intuition behind the result.
- Find next the solutions for y_t and π_t . Describe intuitively the results, and evaluate whether the policy irrelevance hypothesis in the strong form applies.
- Assume that the central bank's objective is to maximize

$$U_t = -\frac{1}{2}y_t^2 - \frac{1}{2}\pi_t^2.$$

Find the optimal values of g , n and h , which maximizes U_t . Explain the results, and compute the associated value of $\mathbb{E}[U_t | I_{t-1}]$.

The central bank now wants to increase the *transparency* about its policy conduct.¹ In this model, this can be modelled by assuming that the private sector, when forming inflation expectations in period $t - 1$, are provided with full information about the supply shock in period t . Equation (1) is therefore replaced by

$$y_t = \pi_t - \mathbf{E}[\pi_t | I_t] + \varepsilon_t. \quad (1')$$

- (v) For this modified model, find the solutions for $\mathbf{E}[\pi_t | I_t]$, y_t , and π_t . Describe differences and similarities with the solutions found under (ii) and (iii). Does the the policy irrelevance hypothesis in the strong form apply now? Explain.
- (vi) With transparency in monetary policy conduct, what are then the optimal values of g , n and h (again when evaluated according to U_t)? Does the associated value of $\mathbf{E}[U_t | I_{t-1}]$, compared with the value found under (iv), provide a case for transparency in monetary policymaking? Explain.

¹This and the following draws on H. Gerschbach (1998): “On the Negative Social Value of Central Banks’ Transparency,” mimeo, University of Heidelberg.