

程序代写代做 CS 编程辅导
The University of Sydney
School of Economics
ECON6002

Practice Final Exam

The actual final exam is 120 minutes (+30 minutes upload time) during the university exam period. The practice final exam is 120 minutes (+30 minutes upload time).



Examinable Material and Expectations:

1. The final exam will cover material from the whole course, although focusing mostly on material since the mid-semester test. Anything covered in the lectures, in the tutorials, or in the problem sets is examinable.
2. I will provide relevant formulas such as production functions to be used in answering a question (see questions below to see examples of what sort of material will be provided and what you might be assumed to know).
3. You will be expected to understand the “economics” behind any equations provided.
4. In answering questions, be precise, showing all of the steps, and indicate if you are making any assumptions along the way.

Practice Final Exam Questions:

1. Consider the role of nominal rigidities and market imperfections in explaining the effects of monetary policy shocks.
 - (a) Explain whether you agree or disagree with the following statement: “Nominal rigidity can cause monetary policy shocks to have sizeable real effects on output.” (3 points)

In the Lucas imperfect-information model the aggregate demand curve is: $y = m - p$ and the aggregate supply curve is: $y = \frac{1}{\gamma-1} \frac{\sigma_z^2}{\sigma_z^2 + \sigma_m^2} (p - E[p])$ where $\frac{1}{\gamma-1} > 0$ is the elasticity of labour supply with respect to the real wage, $\sigma_z^2 > 0$ is the variance of the good-specific taste shock, $\sigma_m^2 > 0$ is the variance of the aggregate demand shock.

- (b) Is there a distinction between the aggregate demand curve and the good-specific demand curve? Explain how different factors influence the good-specific demand curve in the Lucas imperfect-information model. (3 points)
- (c) Suppose that the volatility of aggregate demand shocks σ_m^2 increases relative to the volatility of good-specific taste shocks σ_z^2 . How would the slope of the aggregate supply curve change? Explain by providing an economic interpretation. (3 points)
- (d) Discuss the validity of the following statement within the context of the Lucas imperfect-information model: “Money growth, whether observed by economic agents or not, raises the price level which consequently translates into higher output.” (3 points)

2. Consider the IS curve and New Keynesian Phillips curve

$$\tilde{y}_t = E_t[\tilde{y}_{t+1}] - \frac{1}{\theta} r_t$$

$$= \beta E_t[\pi_{t+1}] + \kappa \tilde{y}_t + u_t^\pi$$

where $u_t^\pi = \rho_\pi u_{t-1}^\pi + u_t^{\pi, \text{shock}}$ is a cost-push shock. Assume that there is no serial correlation so that $\rho_\pi = 0$. The IS model takes the form $\tilde{y}_t = a_\pi u_t^\pi$, $\pi_t = b_\pi u_t^\pi$ and $r_t = c_\pi u_t^\pi$. Suppose that u_t^π corresponds to expected inflation and expected output gap such that: $r_t = E_t[\tilde{y}_{t+1}]$.

- (a) Use the method of undetermined coefficients to solve for a_π , b_π and c_π and explain how a positive cost-push shock affects the output gap, inflation, and the real interest rate. (4 points)
- (b) How would an increase in κ affect the response of the real interest rate and inflation to an unfavourable cost-push shock? (2 points)

Assume instead that monetary policy responds to current inflation and current output gap such that: $r_t = \phi_\pi \pi_t + \phi_y \tilde{y}_t$.

- (c) Use the method of undetermined coefficients to solve for a_π , b_π and c_π . What is the effect of a positive cost-push shock in this case? (4 points)
- (d) How would an increase in ϕ_π affect the response of the real interest rate and inflation to an unfavourable cost-push shock? (2 points)

3. Consider the time-inconsistency model of monetary policy. The central bank has a loss function that is different to the social loss function. In particular, the central bank, subject to an aggregate supply constraint, sets inflation π in order to minimize:

$$L^{CB} = \frac{1}{2}(y - y^*)^2 + \frac{1}{2}a'(\pi - \pi^*)^2$$

where π^* is the central bank's inflation target, y^* is socially optimal output, and $a' > 0$ reflects the central bank's preference for stabilizing inflation. The social loss function is:

$$L^{\text{society}} = \frac{1}{2}(y - y^*)^2 + \frac{1}{2}a(\pi - \pi^*)^2$$

where $a > 0$ reflects society's relative preference for stabilizing inflation around π^* .

Suppose that the aggregate supply curve takes the form $y = y^n + (\pi - \pi^e)$ where y is aggregate output, y^n is flexible-price output, and π^e is inflation expectations.

- (a) What are the equilibrium levels of output, y , and inflation, π , if the central bank has discretion, i.e., chooses policy taking expectations as given? (3 points)
- (b) Using the expressions derived for y and π , compute the social loss function in terms of y^n , y^* , and the parameters of the model. What value of a' minimizes social loss? (2 points)

Suppose instead that the economy is hit by aggregate supply shocks and that the aggregate supply curve takes the form $y = y^n + (\pi - \pi^e) + \varepsilon$. Assume that the aggregate supply shock is i.i.d. with mean $E[\varepsilon] = 0$ and variance $\text{var}(\varepsilon) = \sigma^2$.

(c) Solve for the equilibrium levels of output, y , and inflation, π , if the central bank has discretion in this case. **(3 points)**

(d) Using the expressions derived for y and π , compute the social loss function in terms of y^n , y^* , ε and the parameters of the model. **(2 points)**

(e) Explain why a central bank with $a' \gg a$ would introduce a trade-off between credibility and output in the presence of aggregate supply shocks. **(2 points)**

4. Consider an individual with foresight who lives from 1 to T , and whose lifetime utility is given by $U = \sum_{t=1}^T \beta^{t-1} u(C_t)$ where $u'(\cdot) > 0$, $u''(\cdot) < 0$. The individual's intertemporal budget constraint is $\sum_{t=1}^T \left(\frac{1}{1+r}\right)^t C_t \leq A_0 + \sum_{t=1}^T \left(\frac{1}{1+r}\right)^t Y_t$ where $A_0 > 0$ is initial wealth, r is the real interest rate and Y_t is the individual's income. Assume that $\beta(1+r) = 1$.

(a) Using the first order condition of the individual's optimization problem with respect to consumption, show that optimal consumption each period is constant. **(3 points)**

Assume now that $\beta = 1$ and $r = 0$. Suppose also that the individual's income is constant in each period such that $Y_t = Y$ for all t .

(b) What is the individual's utility-maximizing level of consumption and savings in each period? **(3 points)**

(c) Are savings positive or negative? Explain why. **(3 points)**

(d) Suppose the individual decides to leave a bequest (or gift) B for the future generation only in the last period of life. Compute the individual's consumption in each period in this case. **(3 points)**

5. Consider the "Q" model of investment with adjustment costs. Equilibrium suggests that capital $K(t)$ evolves as $\dot{K}(t) = C'(I(t)) \cdot (q(t) - 1)$ (normalizing the number of firms $N = 1$ and assuming no depreciation), while the marginal value of capital, $q(t)$ evolves as $\dot{q}(t) = r q(t) - \pi(K(t))$, where r is the real interest rate. Note that the capital adjustment cost function, $C(I(t))$ satisfies $C(0) = 0$, $C'(0) = 0$, and $C''(\cdot) > 0$ and the real profit function, $\pi(K(t))$, satisfies $\pi'(\cdot) < 0$. Assume the transversality condition $\lim_{t \rightarrow \infty} e^{-rt} q(t) \kappa(t) = 0$, where $\kappa(t)$ is the representative firm's capital stock. Assume initially that the economy is in steady-state.

(a) Draw the phase diagram for this model, explaining the location of the saddle path. **(3 points)**

(b) Explain the economics behind the assumptions that $C''(\cdot) > 0$ and $\pi'(\cdot) < 0$. **(3 points)**

At time t_1 aggregate output rises unexpectedly to a new level.

(c) If the sudden rise in aggregate output is permanent, explain both the short-run and long-run dynamics of $q(t)$ and $K(t)$ and draw the transition path for the economy using a phase diagram. **(3 points)**

(d) Assume now that this unexpected rise in aggregate output is temporary instead of permanent, i.e. it is expected that at some future time $t_2 > t_1$, aggregate output will return to its original level. Explain both the short-run and long-run dynamics of $q(t)$ and $K(t)$ and draw the transition path for the economy using a phase diagram. **(3 points)**