

SIMON FRASER UNIVERSITY  
Department of Economics

Econ 305  
Intermediate Macroeconomic Theory

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Fall 2008

PROBLEM SET 4  
(Due December 1)

1. Consider a world with just two countries, a ‘large’ one (e.g., the USA) and a ‘small’ one (e.g., Canada). The two countries have flexible exchange rates and open capital markets. What happens in the short-run to the small country’s output when the large country increases its money supply? What about when the government of the large country increases its spending?
2. Suppose that prices are fully flexible and that output fluctuates because of technology shocks, as ‘real business cycle’ theory claims.
  - (a) If the central bank holds the money supply constant, what happens to the price level as output fluctuates? (*Hint:* Use the AS-AD model.)
  - (b) If the central bank adjusts the money supply to stabilize the price level, what happens to the money supply as output fluctuates?
  - (c) Many economists have observed that fluctuations in the money supply are positively correlated with fluctuations in output. Is this evidence against real business cycle theory?
3. Suppose the ‘expectations-augmented Phillips Curve’ describes the relationship between inflation and unemployment. Let  $u$  denote the rate of unemployment,  $u^n$  denote the natural rate of unemployment,  $\pi$  denote the rate of inflation, and  $\pi^e$  denote the expected rate of inflation. Then unemployment is determined by:

$$u = u^n - \alpha(\pi - \pi^e)$$

Suppose the Bank of Canada likes low unemployment and low inflation. Specifically, suppose the Bank of Canada sets the inflation rate in order to minimize the following loss function:

$$L(u, \pi) = u + \gamma\pi^2$$

where  $\gamma$  is a parameter representing how much the Bank of Canada dislikes inflation relative to unemployment.

- (a) What are the equilibrium unemployment and inflation rates if the Bank of Canada can commit to follow a fixed rule?
- (b) What is the outcome if the Bank of Canada cannot commit to follow a rule?
- (c) Why does commitment to a rule lead to a better outcome?