

SIMON FRASER UNIVERSITY
Department of Economics

Econ 305
Intermediate Macroeconomic Theory

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PROBLEM SET 4
(Due April 3)

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. According to the Mundell-Fleming model, 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? Illustrate your answers with a graph.
2. Consider the following simple version of the Diamond-Dybvig model discussed in Chapter 15. There are three periods: 0, 1, and 2. The economy consists of a large number, N , of consumers, each endowed with one unit of a good in period 0. This good can be used as an input in production, but the production process is ‘illiquid’ in the following sense: If one unit is invested in period 0 then $1 + r$ units of the good are produced in period 2. However, if the production process is interrupted in period 1, then only one unit is produced in period 1, and nothing more is produced in period 2.

Consumers have random needs for cash. In particular, with probability t each consumer may need to consume in period 1. With probability $(1 - t)$ a consumer is patient, and will only need to consume in period 2. Initially, in period 0, when investment decisions are made, consumers do not know which type they will be. They do not discover this until period 1.

- (a) Describe the outcome when each individual acts on his own.
 - (b) Describe how a bank could be set-up to exploit the ‘law of large numbers’ to produce potentially better outcomes. Under what conditions on utility functions would the bank produce a Pareto superior outcome? Describe the bank contract that maximizes a typical consumer’s expected utility (i.e., before he learns which type he is). Illustrate this contract with a graph.
 - (c) Explain why the bank is susceptible to a ‘bank run’?
 - (d) Now suppose the banking contract includes a ‘suspension of convertibility’ clause, which states that only the first tN depositors in line in period 1 can withdraw their deposits. Will there still be a bank run equilibrium? Why or why not?
3. Consider the job search model discussed in class and in Chapter 16. In this model, suppose the government introduces an unemployment insurance program in which benefits are financed by taxes on employed workers. Describe the effects of this program on the reservation wage and on the long-run unemployment rate. Use the appropriate graphs to illustrate your answer.