ECONOMIC INTEGRATION IN THE AMERICAS **T.J. KEHOE**
ECON 4421 **FALL 2002**

PROBLEM SET #3

1. Consider an economy with the following input-output matrix:

	Agr.	Mfg.	Con.	Inv.	Exp.	Total
Agriculture	2	3	8	2	5	20
Manufacturing	6	6	10	4	4	30
Imports	4	5				9
Tariff Revenue	2	1				3
Labor Compensation	3	10				13
Returns to Capital	3	5				8
Total	20	30	18	6	9	

(a) Suppose that consumers and producers regard domestic goods and imports of goods as imperfect substitutes and that the Armington aggregators are Cobb-Douglas. Calibrate these Armington aggregators. Calibrate the tariff rates.

(b) Suppose that all tariff revenues are transferred in lump-sum fashion to a representative consumer. Suppose that this consumer's utility function is Cobb-Douglas. Calibrate the consumer's utility function and endowments.

(c) Suppose that net domestic production of each good is governed by a nested production function that produces value added by combining labor and capital using a Cobb-Douglas function and combines intermediate inputs of the other good and value-added in fixed proportions. Calibrate the two production functions.

(d) Suppose that there is a production function that produces the investment good using agriculture and manufactured goods in fixed proportions. Calibrate this production function.

(e) Suppose that the representative consumer in the rest of the world has a Cobb-Douglas utility function. Calibrate this utility function.

2. (a) Define an equilibrium for the economy in question 2 and calculate the benchmark equilibrium. (Hint: You know the equilibrium of all of the variables).

(b) Describe how you would use this model to evaluate the impact of a trade reform.

(c) Describe how to modify this model to include monopolistic competition in the manufacturing sector. In particular, explain how the specification of the environment and the definition of equilibrium would change.