

## Problem Set 4

### Specific Factors Models

1. In the Extreme Specific Factors Model,
  - a. What does a country's excess demand curve look like?
  - b. What determines the relative price at which the excess demand curve crosses the vertical axis?
  - c. Suppose a world of two countries that are trading freely, with the home country importing good  $X$ , and exporting good  $Y$  to Foreign. Suppose now that Home (only) experiences an improvement in its technology so that the factors employed in its  $X$  industry become more productive by, say, 10%. What will this do to
    - i) its excess demand or supply curve,
    - ii) the world equilibrium relative price of  $X$ ,
    - iii) the real wage of labor in Home's  $X$  industry
    - iv) the real rental price of capital in Foreign's  $Y$  industry?
  
2. In the (Standard) Specific Factors Model of a small open economy that initially exports good  $X$ , analyze the effects on
  - i) outputs of the goods,  $X$  and  $Y$ ,
  - ii) the real wage of labor,
  - iii) the real rental price of capital in the  $X$  industry, and
  - iv) the quantity of  $X$  exporteddue to the following changes (one at a time):
  - a. A fall in the price of good  $Y$ , holding the price of good  $X$  constant.
  - b. An increase in the size of the labor force.
  - c. Destruction of a part of the capital stock employed in the  $Y$  industry.

3. The figure below shows an initial production equilibrium in the (standard) Specific Factors Model. It differs from what we usually assume, however, in that the marginal product of labor in the Y-industry is assumed to drop to zero at a certain industry size, and the initial equilibrium has it at that size.
- Show what the production possibility frontier looks like for this economy, where on the PPF it is operating in this initial equilibrium, and what the budget line of consumers in the aggregate must look like.
  - Suppose now that the relative price of good Y,  $p_Y$ , rises. What will happen to outputs of X and Y and to the real wage of labor?

