

External economies and trade

Suppose that there are two economies 1 and 2 that produce two goods Y and X employing only labour (L) as factor of production. The two economies are equal in terms of technology, factors endowments and preferences.

We assume that the production of good Y require a technology with constant return to scale *CRS*, while the technology to produce X is with increasing return to scale (*IRS*). The production function are the following:

$$Y = L_Y \tag{1}$$

$$X = L_X - L_0 \tag{2}$$

- a. Write the resource constraints, assuming that there is full employment.
- b. Derive the transformation curve for both economies.
- c. Draw the graph of the transformation curve.
- d. Assume now that there is NO TRADE and that the preferences for the consumption of the two goods is 1 unit of Y for each unit of X . Draw in the graph the equilibrium in autarky.
- e. Suppose now that the two economies start to trade. Which economy has a comparative advantage in the production of Y and in the production of X ?
- f. Assume that country 1 specializes in the production of X and country 2 specializes in the production of Y , and that term of trade is the segment that connect the two points of production. What is the new equilibrium with trade?

- g. Draw in the graph the two triangles of trade (i.e. the triangles denoting the import and the export of both countries).
- h. Assume now that the propensity to consume X is higher when the income increases. In this latter case, is the term of trade that connect the two points of production an equilibrium?
- i. Is there a country that benefits more from this model of specialization?
- l. Is it possible that a country does not benefit from this model of specialization?

