國立臺灣大學
National Taiwan University

Economy Simulation: Inequality

Documentation

Ricard Milà Bou

Department of Economics

National Taiwan University

Professor: Hendrik Rommeswinkel

2.2 Producer problem

To solve the producer problem we have to found the allocation of good and factors, which maximizes the producer profit.
With the production function, we obtain the number of goods that can be produced as a maximum with a certain amount of resources and with the minim cost.
Y = f(L,K)

- Production Technologies
  - Factor f used in the production of good g: rgf
  - Aggregate amount of good g produced: X^g • Production Function for good g:
  - $X^g = \phi^g(rg1,...,rgF)$ or $X^g = \phi^g(rgf)$

  - Production Fuction for good g:

$$\phi^g(r_{gf}) = \sum_f^f \psi_{gf} \frac{(r_{gf})^{1-\xi_g}}{1-\xi_g}$$

Definitely the profit function is the objective that has to be maximized in the producer problem.

max π ($\vec{x}^{\rightarrow\rightarrow}$, $\vec{v}$)

$x_g v f$

$s.t.\ \vec{x}^{\rightarrow\rightarrow} fg$ = Øg (r fg)

$\vec{x}^{\rightarrow\rightarrow}$:$vector\ of all\ goods\ g$

$\vec{v}$:$vector\ of factor supply of all factors\ f$

3.2 Producer class

This class models a producer of the economy. A producer is someone who creates and supplies goods or services. Producers combine labor and capital—called factor inputs—to create—that is, to output—something else.

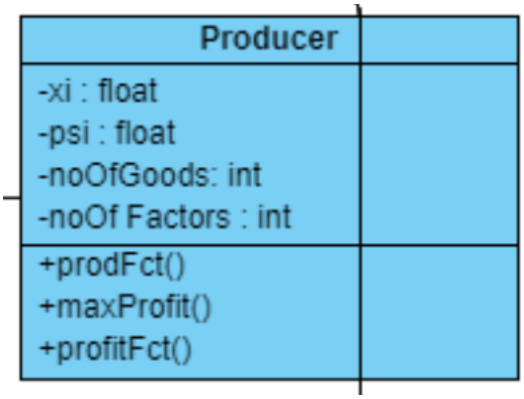

Figure 2 Producer Class Diagram

3.2.1 Instance variables

The instance variable noOfGoods and noOfFactors are used to pass on to the producer object how many goods and factors in the economy exists. The ultimate goal of the producer is to maximize their benefits, that's why we create the benefit function and maximize it.

Max profit(r,p)

$\pi = (X^{g} \cdot P^{g}) - (v_f \cdot r)$

r= price of goods
p= price of factors