

Master APE - Economics of Inequalities

Final Exam, January 28, 2014 - 14h00-16h00. No document allowed.

Exercise 1: Income Inequalities (5 points)

We consider a very simple framework where the production function of an economy is defined by :

$$Y = F(L_s, L_u) = L_s^\alpha \cdot L_u^{1-\alpha}$$

w_s and w_u are respectively the wages of the high-skill labor L_s and the low-skill labor L_u . The price of the output Y is set to one.

- 1) What is the implication of the Cobb-Douglas function choice on the skilled and unskilled labor shares ? (1 points)
- 2) Determine the relative wage of high-skill labor $\frac{w_s}{w_u}$ (1 point).
- 3) How would this analysis change with a CES production function ? Discuss the economic intuitions and the policy implications. (1 point)
- 4) According to this model, what is the role that market forces may have played in the evolution of income inequalities in the USA since the 1970s ? (1 point)
- 5) According to you, how could the institutions reduce or limit the evolution of pre-tax income inequalities ? (quote at least two factors) (1 point)

Problem : Wealth Inequalities (10 points)

Part 1 : Questions (5 points)

1) Describe the evolution of wealth concentration during the 20th century in France. (1 point)

2) According to you, what are the factors that could explain this evolution ? (1 point)

3) According to the pure lifecycle model of Modigliani, what is the rationale for wealth inequalities ? (1.5 points)

4) According to the pure dynastic model with two class of dynasties, what is the rationale for wealth inequalities ? (1.5 points)

Part 2 : The random-shocks model (5 points)

Consider an individual from a dynasty i and generation t that maximizes the following utility function:

$$V_{it}(c_{it}, w_{it+1}) = c_{it}^{1-s_{it}} \cdot w_{it+1}^{s_{it}}$$

. In this framework, w_{it} represents the wealth received from the previous generation and w_{it+1} , the wealth left to the next generation. For simplicity, we suppose that each individual i receives the same labor income $y_{Lit} = y_{Lt}$ and the same annual rate of return $r_{it} = r_t$. Thus, the individual allocates his total resources $y_{Lt} + (1 + r) \cdot w_{it}$ between consumption c_{it} and end-of-life wealth w_{it+1} .

1) What is the budget constraint of an individual i at time t . (1 point)

2) Determine the optimal level of consumption c_{it}^* (1 point)

3) Determine the individual-level transition equation for wealth : w_{it+1}^* (1 point)

4) What is the meaning of the parameter s_{it} ? (1 point)

5) Compare the rationale for wealth inequalities in this model and in the pure dynastic one ? (1 point)

Exercise 2 : Capital-income ratio (5 points)

1) How has the capital-income ratio evolved during the 20th century in Europe and in the USA ? (1.5 points)

2) According to you, what are the factors explaining the different evolution of the capital-income ratio in the United Kingdom and in the USA during the period 1910-1950.

3) How can the Harrod-Domar-Solow steady-state formula explained the variation of the capital-income ratio during the period 1970-2010 ? (2 points)