

Ec453 Theories of Growth and Development
Fall 2001, Final Exam

Prof Erinç Yeldan

YOU HAVE 2 HOURS FOR THIS EXAM. THUS TIME IS AN EXTREMELY
SCARCE GOOD. USE IT **OPTIMALLY**
(You know what this means as an economist, by now)

1) *Knowledge as an Economic Good* (15 points)

- a) Discuss “knowledge/ideas” as an economic good. What are the key properties of knowledge (ideas) as an economic good? What are the implications of these properties in providing implications for answering questions such as: “why economies grow, and why are some nations richer than others?”
- b) Romer (1990) specifies the following relationship for the knowledge function:

$$\dot{A} = \delta L_A A$$

where A is stock of knowledge (ideas), δ is productivity of research-personnel; and L_A is the amount of labor allocated to knowledge production. Discuss the implications and shortcomings of this specification in explaining the nature and rate of growth of real world economies.

- c) What are the implications of the above formulation for development policy? Discuss briefly. In particular, can the above formulation be supported in a competitive setting? Is the market equilibrium socially optimal in allocating labor supply between production of final goods and production of knowledge? What could be the role of governments in effecting this allocation?

2) (30 points)

- a) Discuss the concept of *steady state* as a condition for long run equilibrium in economic theory. What are the weaknesses and strengths of the steady state concept as a depiction of long run equilibrium?
- b) State and discuss briefly the stylized facts of growth and development outlined by Kaldor, Easterly, Levine, and Prescott, among others.

3) (30 points)

Consider the following Romerian economy: Per capita output per firm j is given by:

$$y_{jt} = k_{jt}^\alpha A_t^\eta \quad \text{where } 0 < \alpha < 1 \text{ and } A_t = A_0 \sum_j k_{jt} / N.$$

Where y and k are output and capital per worker, and N is the number of firms. Suppose that s is the constant saving rate, n is the constant population growth rate and δ is the rate of depreciation of physical capital.

- a) Find the differential equation for the capital labor ratio, k , when the firms are all identical.
- b) Show graphically how this economy behaves if (i) $\alpha + \eta < 1$; (ii) $\alpha + \eta = 1$; and (iii) $\alpha + \eta > 1$.

4) (15 points)

Consider the AK model of endogenous growth due Rebelo (1990). Suppose that a given economy is endowed with this type of technology, and that the households are currently saving s percent of national output. Suppose that labor force is normalized at 1.00, and that there is no further population growth. Capital is known to depreciate at the rate δ .

Solve the steady state rate of growth of capital per labor in this economy. Depict the steady state of this economy graphically. What are the fundamental deficiencies of this model for portraying the growth of real world economies? Discuss briefly.

5) (10 points)

Discuss the main components of the Turkish 2000 Disinflation program. What were the structural assumptions and deficiencies of the program which eventually led to the demise of the Turkish stabilization efforts in February 2001?