

## Exam in SØK2007 Development Economics (Spring 2016)

Make the assumptions you find necessary.

### Problem 1 (33 $\frac{1}{3}$ %)

- a) Explain what a *Lorenz curve* is.
- b) What does the *Gini coefficient* measure and why must it have a value between zero and one?
- c) Why can *GDP per capita* be an insufficient measure of poverty?
- d) Which factors do empirical analyses find to be important for a positive impact of aid on economic growth?

**Problem 2 (33 $\frac{1}{3}$ %)** A developing country consists of three cities, A, B, and C. Workers will not commute from city A to city B or vice-versa. People living in city C can commute to both city A and to city B. City A has low-skilled workers. City B has high-skilled workers, while city C has medium-skilled workers. Let  $q$ ,  $0 \leq q \leq 1$ , measure the skill-level. Here  $q_A < q_C < q_B$ , where the subscripts refer to the city.

A company plans to build a factory in the country. If the factory is located in city A it will need workers from city A and from city C. If the factory is located in city B it will need workers from city B and from city C. It will build either a factory in city A for making paper clips or a factory in city B for making smartphones.

The net profits from producing paper clips and smartphones are given by

$$\pi_{pc} = q_A + q_C$$

and

$$\pi_{sp} = (1 + q_B)q_C,$$

respectively.

If the company decides to start production of paper clips, what factors may have led to this decision? What consequences may this decision have for the country's economy?

**Problem 3 (33 $\frac{1}{3}$ %)** Assume that productivity growth ( $\hat{A}$ ) is given as:

$$\hat{A}(t) = g(H) + c(H) \left[ \frac{T(t)}{A(t) - 1} \right],$$

where  $A$  and  $T$  are the domestic productivity level and the productivity level at the technological frontier, respectively,  $g$  and  $c$  are positive functions of the human capital level  $H$ , and  $t$  is time. The frontier productivity level is assumed to grow at a constant rate.

- a) Explain the given productivity growth specification and show the effects on an increase in the human capital level.
- b) How can the specification of productivity growth in a) be changed to allow for income divergence? Show the effects of an increase in the human capital level here as well.