

Written Exam for the M.Sc. in Economics summer 2012

**Advanced Development Economics: Micro Aspects**

Final Exam

29 May 2012

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students’ self-service system.

### Question 1: Labor/Migration

Consider the Harris-Todaro model specified as follows: The labor market consists of two sectors, the modern sector (M) and the agricultural sector (A). Wages in both sectors are exogenously given as  $W_M$  and  $W_A$  with  $W_M > W_A$ . There are  $L$  workers in the economy, who allocate themselves between job search and employment in either the urban or the rural area. Employed workers in the city work in the modern sector and receive the wage rate  $W_M$ , while unemployed workers in the city receive nothing. Employed workers in the rural area work in the agricultural sector and receive the wage  $W_A$ . Workers in the urban area are employed with probability  $p$  and unemployed with probability  $1-p$ . Modern sector jobs are filled randomly such that each worker in the urban area has the same probability of being hired.

Employment in the modern sector is given by the demand function

$$E_M = KW_M^{-0.5}, \text{ where } K \text{ is a constant}$$

With  $L_M$  workers in the urban area, the expected wage for a worker in the urban area is

$$E(W_U) = pW_M + (1-p)W_A = (E_M/L_M)W_M$$

Workers migrate between the urban and rural areas until the expected wage rate in both areas is the same.

Questions:

- a) Give the equilibrium level of unemployment in the model as a function of the two wage rates.
- b) Consider a policy by which labor demand in the modern sector is increased from  $KW_M^{-0.5}$  to  $K'W_M^{-0.5}$  with  $K' > K$ . Illustrate the impact of this policy on unemployment, inequality (measured by the Lorenz curve), and the income distribution.
- c) Consider a policy by which the wage rate in the modern sector is initially 50% above the wage rate in the agricultural sector and subsequently lowered to be 40% above the wage rate in the agricultural sector. Illustrate the impact of this policy on unemployment, inequality (measured by the Lorenz curve), and the income distribution.
- d) The Harris-Todaro model assumes a constant probability of employment for all migrants. Discuss how and why the probability of employment may vary with the number of earlier migrants.

**Question 2: Fertility/AHM**

- a) Discuss how the increase in provision of free public schooling may have kept fertility high in developing countries
  
- b) Explain how high fertility and child labor may be considered as (bad) labor market equilibrium outcome.
  
- c) Explain why the households size and other demographics may have a negative impact on labor productivity in an agricultural household.
  
- d) Discuss two approaches to empirical tests of the hypothesis that the household size has an impact on labor productivity.

### Question 3: Education

a) One of the UN MDGs is to reach 100% primary school gross enrolment worldwide. Discuss the potential problems (both in relation to quantity and quality of schooling) of focusing on gross enrolment rates only.

b) Students often travel long distances to attend school. One way of increasing quantity of schooling is to reduce travel time to schools. Between 1973 and 1978, the Indonesian government therefore engaged in one of the largest school construction programs on record, and Duflo (2001) evaluate the effect of the project on education and earnings in Indonesia. Results are shown in the Table below. Outline the basic idea behind the identification strategy followed in Duflo (2001), and describe the conclusions that can be deduced from the Table. (Hint: Remember to describe the importance of the control experiment in panel B).

c) Explain how Duflo (2001) improves the precision of the impact estimates.

TABLE 3—MEANS OF EDUCATION AND LOG(WAGE) BY COHORT AND LEVEL OF PROGRAM CELLS

	Years of education			Log(wages)		
	Level of program in region of birth			Level of program in region of birth		
	High (1)	Low (2)	Difference (3)	High (4)	Low (5)	Difference (6)
<i>Panel A: Experiment of Interest</i>						
Aged 2 to 6 in 1974	8.49 (0.043)	9.76 (0.037)	-1.27 (0.057)	6.61 (0.0078)	6.73 (0.0064)	-0.12 (0.010)
Aged 12 to 17 in 1974	8.02 (0.053)	9.40 (0.042)	-1.39 (0.067)	6.87 (0.0085)	7.02 (0.0069)	-0.15 (0.011)
Difference	0.47 (0.070)	0.36 (0.038)	0.12 (0.089)	-0.26 (0.011)	-0.29 (0.0096)	0.026 (0.015)
<i>Panel B: Control Experiment</i>						
Aged 12 to 17 in 1974	8.02 (0.053)	9.40 (0.042)	-1.39 (0.067)	6.87 (0.0085)	7.02 (0.0069)	-0.15 (0.011)
Aged 18 to 24 in 1974	7.70 (0.059)	9.12 (0.044)	-1.42 (0.072)	6.92 (0.0097)	7.08 (0.0076)	-0.16 (0.012)
Difference	0.32 (0.080)	0.28 (0.061)	0.034 (0.098)	0.056 (0.013)	0.063 (0.010)	0.0070 (0.016)

Notes: The sample is made of the individuals who earn a wage. Standard errors are in parentheses.