Written Exam at the Department of Economics summer 2019

Development Economics

Final Exam

15. August 2019

(3-hour closed book exam)

Answers only in English.

This exam question consists of 4 pages in total

Falling ill during the exam
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- contact an invigilator who will show you how to register and submit a blank exam paper.
- leave the examination.
- contact your GP and submit a medical report to the Faculty of Social Sciences no later than five (5) days from the date of the exam.

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You cheat at an exam, if during the exam, you:
- Make use of exam aids that are not allowed
- Communicate with or otherwise receive help from other people
- Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text
- Use the ideas or thoughts of others without making use of source referencing, so it may appear to be your own idea or your thoughts
- Or if you otherwise violate the rules that apply to the exam

Problem A

Please provide short answers to the following questions and statements:
1. Please explain briefly the difference between exchange rate conversion and PPP conversion of GDP.
2. Please explain why global poverty is measured by the PPP $1.90-a-day line and describe, briefly, how it was constructed.
3. Please explain briefly, why intra-household inequality may be a source of bias in estimates of inequality and state if the bias is positive or negative.
4. Please explain what is meant by a "dual economy"
5. What are the possible channels through which growth reduces fertility?
6. In "Why doesn't capital flow to poor countries?" Robert Lucas proposes an answer to the question he raises. Please, explain what his answer is.
7. Please explain how donations of food to a country can hurt local farmers by undermining the incentives for them to produce food.

Problem B: Development Accounting

1. Assuming final goods are produced according to the Cobb-Douglas production function $Y = AK^{\alpha}(hL)^{1-\alpha}$, illustrate how development accounting decomposes relative income differences into factors of production and productivity and discuss the relative order of magnitude observed across countries using *two* different development accounting formulations (say a "short run" and "steady state" type decomposition).

2. Nicolai Kaarsen (Cross-country differences in the quality of schooling. Journal of Development Economics, 107, 215-224. 2014) incorporates the quality of schooling into a development accounting exercise. This gives rise to changes in the development accounting as shown in his Table 4, reproduced below (where $yKH = k^{a}h^{1-\alpha}$ is GDP per capita as predicted by the pure input factors model. Please explain the results given in the first five rows of the Table.

Table 4
Decomposition of income differences, 72 countries.

Includes quality of human capital:	No	Yes
	(1)	(2)
Var(lny)	0.84	0.84
Var(lnh)	0.05	0.27
Var(lnyKH)	0.21	0.39
Var(lnh)/Var(lny)	0.06	0.32
success1 = Var(lny$_{KH}$)/Var(lny)	0.25	0.47
y90/yi0	10.55	10.55
h90/hi0	1.74	3.30
yKH,90/yKH,10	3.12	5.26
(h90/h10)/(y90/y10)	0.16	0.31
success2 = (yKH,90/yKH,i0)/(y90/yi0)	0.30	0.50

Notes: y is GDP per capita, h is human capital, y$_{KH}$ is GDP per capita predicted by the factors-only model. Subscript 90 indicates the 90% percentile and subscript 10 indicates the 10% percentile. In the first column, human capital is computed under the assumption that there are no differences in education quality. The second column takes differences in education quality into account. See the main text for details on how the human capital stocks are constructed.

3. Illustrate how productivity can be further decomposed into technology and efficiency and consider Table 5 from Jerzmanowski (2007), given below, in which Jerzmanowski uses the steady-state type development accounting to decompose the cross-country variation in (log) output per worker. Please explain the results given the Table.

Table 5
Fraction of cross-country variation in output per worker accounted for by variation in available technology (T), efficiency (E), and accumulated factors (F)

Variation in output per worker explained by	1995 (%)	1985 (%)	1960 (%)
Efficiency	43	41	28
Technology	26	23	27
Factors	31	36	45

4. Finally, consider Figure 4 and Figure 5 in Jerzmanowski (2007), given below. Please explain why it may be problematic for developing countries that the technology frontier T(K/H) as estimated by Jerzmanowski is only increasing for fairly high levels of the ratio of physical capital to human capital.
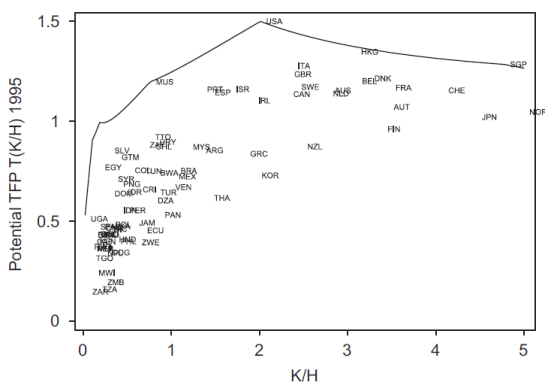

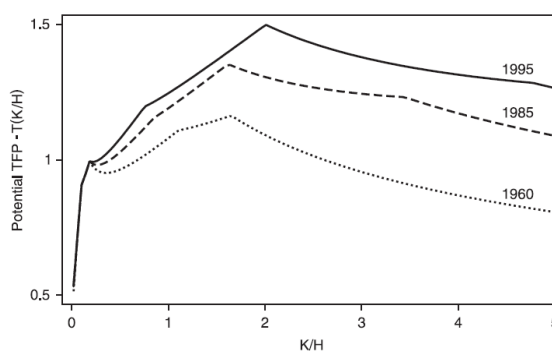Fig. 4. Technology frontier: 1995.

Fig. 5. Shifts of the technology frontier $T(k/h)$ 1960–1995.

Problem C: Long-run Development

1. Sub-Saharan Africa (SSA) is one of the most impoverished areas on the planet. It is also an area characterized by relatively poor health. Please, explain what should mainly be the cause of poor health and income under the "income view" and the "health view", respectively.

2. Slavery has most likely had a detrimental impact on long-run development in SSA. (i) Please, explain how the transatlantic slave trade might have an impact on economic development today. (ii) What evidence supports the mechanism you have just outlined? (iii) Does the "slavery

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mechanism'' support the "income view" or the "health view" discussed in Question C1 above?

3. The TseTse fly has been singled out as a factor hampering development on the (Sub-Saharan) African continent. (i) Please, explain how the TseTse fly may have influenced long-run development in Africa. (ii) How can one test the mechanism you have just outlined? (iii) Does the "TseTse fly mechanism'' support the "income view" or the "health view" discussed in Question C1 above?

4. Another factor, which has been singled out as influencing long-run development, is the intensity of ultraviolet radiation (UV-R). (i) Please, explain why UV-R may have influenced long-run development and which places on the planet are most likely to have been affected by the adverse effects of UV-R. (ii) How can one test the influence of UV-R on long-run development? (iii) Does the UV-R mechanism support the "health view" or the "income view"?