Written Exam at the Department of Economics summer 2020

Development Economics

Final Exam

August 18, 2020

(3-hour open book exam)

Answers only in English.

This exam question consists of 4 pages in total

The paper must be uploaded as <u>one PDF document</u>. The PDF document must be named with exam number only (e.g. '127.pdf') and uploaded to Digital Exam.

This exam has been changed from a written Peter Bangsvej exam to a take-home exam with helping aids. Please read the following text carefully in order to avoid exam cheating.

Be careful not to cheat at exams!

You cheat at an exam, if you during the exam:

• Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text. This also applies to text from old grading instructions.
• Make your exam answers available for other students to use during the exam
• Communicate with or otherwise receive help from other people
• 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
• Use parts of a paper/exam answer that you have submitted before and received a passed grade for without making use of source referencing (self plagiarism)

You can read more about the rules on exam cheating on the study information pages in KUnet and in the common part of the curriculum section 4.12.

Exam cheating is always sanctioned with a warning and dispelling from the exam. In most cases, the student is also expelled from the university for one semester.

Problem A

Please provide short answers to the following questions and statements:

1. Empirically, there is a strong negative correlation between fertility rates and income per capita across countries. One explanation could be that higher income works to reduce fertility. Provide a theoretical argument for why rising income may lower fertility.
2. Please explain which of the following income distributions is more unequal:
    a. (2,4,5,7,10)
    b. (3,3,5,7,10)
3. Please briefly discuss which market failures may explain credit rationing.
4. What is the primary source of differences in health and income across countries, according to the "income view"?
5. Please describe briefly what a randomized control trial is and discuss what the main advantage of using randomized control trials in development economics is.
6. Please explain how tamper-proof cameras can be used to achieve better schooling outcomes.

Problem B: Agriculture

1. Please describe how the following aspects of agriculture in developing countries can restrict agricultural productivity.
    a. A failure in the insurance market for agricultural output.
    b. An unequal distribution of land.
2. Suppose agricultural productivity increases. Using the neoclassical two-sector model proposed by Eswaran and Kotwal as an analytical framework, what are the effects of this on sectoral labor allocation and on economic growth?
3. Please discuss how the term "backward linkage" relates to the model of Eswaran and Kotwal. How can the strength of backward linkages be analyzed empirically?
4. Please give a brief overview of how climate change may affect agriculture and how this in turn can affect poverty.

Problem C: Growth and development

1. The Solow growth model augmented with human capital and population growth can be described using the equations *(i) - (iv)*. Please explain the economic intuition behind the equations. Please be as precise as you can.

$$f(k_t) = A k_t^\alpha h_t^{1-\alpha} \ (i)$$

$$\Delta k_t = i_t - d_t \ (ii)$$

$$i_t = \gamma * f(k_t) \ (iii)$$

$$d_t = (n + \delta)k_t \ (iv)$$

2. Please discuss whether the Solow Growth model is an adequate framework for understanding growth and development.

3. Jones & Klenow (2016)[1] use an alternative approach to measure development, using equation 1 as their starting point. Please discuss the intuition behind their approach, referring to equation 1.

$$U = E\left[\sum_{a=1}^{100} \beta^a * u(C_a, l_a)S(a)\right] \ (1)$$

4. What are the benefits of using the method of Jones & Klenow? What criticisms can be raised against the Jones & Klenow framework?

5. The main results table of Jones & Klenow is shown in table 1. Please discuss the main findings of the table. In your discussion, you may focus only on the first row for each country (i.e. ignore the "micro" results).

[1] Jones, C., & Klenow, P. (2016). Beyond GDP? Welfare across Countries and Time. The American Economic Review, 106(9), 2426-2457.

Table 1

	Welfare λ	Income	log ratio	Decomposition				
				Life exp.	C/Y	Leisure	Cons. ineq.	Leis. ineq.
US	100.0	100.0	0.000	0.000	0.000	0.000	0.000	...
(micro)	100.0	100.0	0.000	0.000	0.000	0.000	0.000	0.000
UK	87.4	75.2	0.150	0.088	0.009	0.010	0.044	...
(micro)	96.6	75.2	0.250	0.086	−0.143	0.073	0.136	0.097
France	86.4	67.2	0.251	0.164	−0.080	0.061	0.106	...
(micro)	91.8	67.2	0.312	0.155	−0.152	0.083	0.102	0.124
Italy	75.4	66.1	0.132	0.190	−0.148	0.025	0.065	...
(micro)	80.2	66.1	0.193	0.182	−0.228	0.078	0.086	0.075
Spain	73.0	61.1	0.178	0.136	−0.045	0.038	0.049	...
(micro)	73.3	61.1	0.182	0.133	−0.111	0.070	0.017	0.073
Mexico	22.0	28.6	−0.261	−0.085	−0.045	−0.008	−0.123	...
(micro)	21.9	28.6	−0.268	−0.156	−0.021	−0.010	−0.076	−0.005
Russia	20.9	37.0	−0.572	−0.507	−0.129	0.007	0.058	...
(micro)	20.7	37.0	−0.583	−0.501	−0.248	0.035	0.098	0.032
Brazil	11.2	17.2	−0.428	−0.227	−0.036	−0.007	−0.157	...
(micro)	11.1	17.2	−0.436	−0.242	0.004	0.005	−0.209	0.006
South Africa	6.7	16.0	−0.869	−0.499	−0.030	0.087	−0.427	...
(micro)	7.4	16.0	−0.771	−0.555	0.018	0.054	−0.283	−0.006
Indonesia	5.6	7.8	−0.340	−0.302	−0.091	0.039	0.015	...
(micro)	5.0	7.8	−0.445	−0.340	−0.178	−0.001	0.114	−0.041
China	5.6	10.1	−0.592	−0.141	−0.230	−0.066	−0.155	...
(micro)	6.3	10.1	−0.468	−0.174	−0.311	−0.016	0.048	−0.014
India	3.5	5.6	−0.470	−0.339	−0.170	0.052	−0.013	...
(micro)	3.2	5.6	−0.559	−0.440	−0.158	−0.019	0.085	−0.028
Malawi	1.1	1.3	−0.152	−0.184	0.074	0.033	−0.075	...
(micro)	0.9	1.3	−0.310	−0.389	0.012	−0.020	0.058	0.028

Notes: The first row for each country reports the welfare decomposition obtained using our macro data sources. The second row repeats the micro results provided earlier. The year varies by country and corresponds to the latest year for which we have household survey data.