WILFRID LAURIER UNIVERSITY
WATERLOO, ONTARIO

Session: Winter 2014

Course no: EC207 *Name:* _____

Title: Economic Development *I.D. #:* _____

Professor(s): Brian McCaig *Section:* _____

Number of pages: 2
Length of examination: 2.5 hours
Examination aids allowed: non-programmable calculator

The doors of the examination room will be opened approximately 10 minutes before the start of the examination. Candidates will be permitted to enter the examination room quietly up to one half hour after the scheduled start of the exam. Candidates arriving late will not be allowed any extra time.

*Candidates must **not begin** the examination or attempt to read the examination questions **until instructed** to do so.*

***THE UNIVERSITY IS NOT RESPONSIBLE FOR THE LOSS OF VALUABLES BROUGHT INTO THE EXAM LOCATIONS OR CLASSROOMS WHERE EXAMS ARE BEING WRITTEN.*

*Candidates once having entered, may **not leave** the exam room before completing and submitting the exam **unless accompanied by a Proctor**. Candidates are **not** permitted to submit their examination and **leave the examination room until 1 hour** after the examination has begun, and in no case before their attendance has been taken. In no case may a candidate leave the room temporarily, for any reason, until 30 minutes after the start of the examination. In order that remaining candidates are not disrupted, candidates must remain seated and may not leave the examination room during the last 15 minutes of the examination session.*

*At the close of the examination period, candidates must stop writing immediately. The Presiding Officer may seize the papers of candidates who fail to observe this requirement, and a penalty may be imposed at the discretion of the instructor. Candidates must **submit all their work**, according to the instructions of the Presiding Officer, including all materials and a copy of the examination paper with their name and student ID number written on it. Unused examination booklets may not be taken from the examination room.*

A candidate who leaves before the examination is over must hand in all completed and attempted work, notes made during the exam, and a copy of the examination paper with their name and student ID number on it.

*Talk or any form of **communication between candidates** is absolutely **forbidden**. No information of any kind is to be written on the question paper or on scrap paper for the purpose of assisting other candidates. Responses to questions must not be done in an exaggerated way or in a manner that will involve transmission of information to others.*

*Candidates must remain seated during the examination period. A candidate needing to speak to the proctor (e.g. to ask for additional supplies or to request permission to leave the examination room for any reason) should so indicate by **raising** his or her **hand**.*

Questions concerning possible errors, ambiguities or omissions in the examination paper must be directed to the proctor who will investigate them through the proper channels. The proctor is not permitted to answer questions other than those concerning the examination paper.

*Candidates must **not use** or attempt to use any **improper source of information**. No candidates for an examination may bring into the examination room any books, notes or other material containing information pertaining to the examination unless the examiner has given instructions that such material will be allowed and this instruction is specified on the examination paper. Any item brought into the examination room is subject to inspection.*

***No briefcases, backpacks or other bags and carriers may be brought to the desk** site where the candidate is writing the examination. These bags should be left outside the examination room. If books, notes etc. cannot be left outside the examination room, they must be put at the front of the examination room in a place designated by the proctor before a candidate takes a seat. Candidates are advised not to bring valuables to the examination room.*

***No electronic or communication devices will be allowed** in the examination room, including cell phones, smartphones, pagers, etc. Cell phones will be taken away if found and an Irregularity notice will be filed with the Integrity Office. Calculators are not allowed unless specified by the instructor and indicated on the examination paper. Only non-programmable models authorized by the instructor will be allowed. It is the candidate's responsibility to ascertain whether the use of calculators is permitted, and, if it is, whether any restrictions are imposed on the types of calculators that may be brought to the examination.*

*Translation **dictionaries** (e.g. English-French) or other dictionaries, (thesaurus, definitions, technical) **are not allowed unless specified** by the instructor and indicated on the examination paper. Electronic dictionaries are never allowed.*

***Except for bottled water, no food or drink** is allowed in the examination room. Candidates with health problems that warrant relaxation of this regulation should provide medical documentation to the presiding officer prior to the beginning of the examination. Such students should restrict themselves to those items and packaging that will least distract other examinees.*

*Candidates are expected to write their examinations in an honest and straightforward manner. Where there are reasonable grounds for believing a **violation of exam protocol** has occurred, the candidate will be **subject to the disciplinary procedures** and sanctions according to the University Calendar.*

Only currently registered students will be permitted to write the final exam.

Examinations conducted at Wilfrid Laurier University will be bound by WLU regulations, regardless of where the candidate is registered.

Approved by Senate (Oct 27/2003) Updated Sept 2011

You are to answer all questions. [85 marks]

1. Corruption [14 marks]:

a) Consider the model of corruption that we studied in class that featured one good and one monopolistic supplier. Explain using graphs why corruption with theft could either decrease or increase the quantity of the good purchased. For both cases (an increase in the quantity purchased and a decrease in the quantity purchased) show or describe who are the winners and losers from corruption relative to no corruption. [6 marks]

b) Referring to the model from part (a) explain why eliminating corruption can be very difficult. [2 marks]

c) Consider now the case where two complementary goods are sold subject to corruption. Explain why "decentralized" corruption leads to higher bribe rates and lower purchases of both goods relative to "centralized" corruption. How can this explain why corruption seems to be more damaging to growth in some countries than others? [6 marks]

2. In class we discussed a modified version of the Solow model where a constant fraction of output was saved but only for output above a minimum level. It featured a poverty trap. Graph the Solow diagram for this modified model and use the graph to demonstrate the existence of a poverty trap. [6 marks]

3. a) Describe either moral hazard or adverse selection in the context of credit markets in low-income countries. [3 marks]

b) Give a numerical example of how either collateral or monitoring can reduce moral hazard in credit markets. [3 marks]

c) Provide one theoretical explanation for why the interest rate charged to different borrowers in the same local market, such as a village, can vary so much in low-income countries. [3 marks]

d) A common innovation in microcredit is group liability. Consider a two person group with members A and B. Suppose each member can choose between a safe and a risky project that each requires an investment of $50. The safe project has a payoff of $75 with probability 1 and the risky project has a payoff of $150 with probability 0.5 and a payoff of $0 with probability 0.5. What project does A prefer to choose? What project does A prefer B to choose? How can a group help to reduce moral hazard? [6 marks]

4. a) Explain why estimating the causal effect of another year of education on earnings can be very challenging from an econometric point of view. [3 marks]

b) Duflo (2001) provides evidence on the rate of return of education on earnings using a natural experiment from Indonesia – a large school building program. Approximately what was her estimate of the rate of return of an additional year of school? [2 marks]

c) One approach that Duflo uses to estimate the return to education is a difference-in-difference estimator. Suppose that without the school construction program earnings would have grown more slowly in treatment areas (regions of Indonesia that saw a large number of schools built) than in

control areas (regions of Indonesia that saw a small number of schools built). Does this mean her estimate of the return to education is overestimated or underestimated? Explain why. [5 marks]

5. Many healthcare products are preventative in nature and cheap. Despite this, many individuals in developing countries do not make use of these products, but do spend a lot of money on curative interventions of dubious quality.

a) Describe three theoretical explanations for this behaviour. [6 marks]

b) What evidence do we have that is consistent or inconsistent with these possible explanations? [6 marks]

6. Define counterfactual and provide two examples of empirical strategies discussed in the course for trying to construct a valid counterfactual. You do not need to describe how these strategies construct the counterfactual. [5 marks]

7. a) Describe the estimation strategy used by Acemoglu, Johnson, and Robinson (2001) to estimate the magnitude of the causal impact of institutions on GDP per capita. Why do they use this strategy (i.e., what econometric problems are they worried about in this context)? [3 marks]

b) The Acemoglu, Johnson, and Robinson (2001) regression results suggest that institutions have a positive effect on ln(GDP per capita). In particular, the estimated coefficient is 0.94 with a standard error of 0.16. Is this result statistically significant (i.e., is it different from 0)? [3 marks]

c) Suppose a country improved its institution by 2 points. What would be the expected difference in GDP per capita levels in the long-run based on the coefficient estimates described in (b)? [3 marks]

8. Throughout the course we have discussed various strategies for estimating the casual relationship between two variables (for example, the causal effect of institutions on long-run GDP per capita, the causal effects of malaria eradication for adult earnings, among others). In the second half of the course we studied numerous examples of randomized control trials.

a) What is a randomized control trial? [2 marks]

b) What are the pros and cons of randomized control trials relative to conventional regression analysis? Please list a total of three pros and cons with at least one pro and one con. [9 marks]

c) In some of the randomized control trials we studied randomization was done at an individual level whereas in others randomization was done at a more aggregate level, such as a school or community. Theoretically, why could randomization at the individual level lead to an incorrect estimate of the causal effect of the program? [3 marks]

END OF EXAM