WRITTEN PRELIMINARY Ph.D EXAMINATION

Department of Applied Economics

Summer – 2018

Trade, Development and Growth

For students taking the new sequence for 2017-18:

Apec 8701 (new version), 8702 (new version), 8703 (new version) and 8704

Instructions

· Identify yourself by your code letter, not your name, on each question

· Start each question's answer at the top of a new page

· You are requested to answer a total of FOUR questions

· There is NO CHOICE for the questions: Answer all FOUR questions

· You have four hours to complete this examination
Question I. International Trade

Consider the theoretical and empirical literatures in international trade. Describe how the questions addressed in the literature have evolved over time, and how the journal articles reflect this evolution. Be sure to make reference to at least 10 terms noted below and also link your discussion to at least 6 journal articles.

- Economic development
- Economic growth
- Economies of scale
- Endogenous policy
- Endogenous product cycle
- Foreign direct investment
- Gravity model
- Heterogeneous firms
- Innovation
- Intellectual property rights
- Inter-firm trade
- Inter-industry trade
- Intra-firm trade
- Intra-industry trade
- International technology transfers
- Monopolistic competition
- Technology licensing
Question II. Poverty and Market Failures

Persistent poverty and economic underdevelopment are almost always the result of multiple market failures. Explain how the Stiglitz (1974) model of sharecropping illustrates that fact. In writing up your answer, you need to pay equal attention to the “multiple market failures” and “persistent poverty and economic underdevelopment” parts.
Question III. Education and Life Cycle Wages

Consider a model of a teenage child deciding whether to drop out of secondary school or to finish secondary school. Note that this model is different from the models covered in class, although there are some similarities. The following variables are used in the model:

- PE = parents’ level of education, in terms of years of schooling
- PVE = parents value of education, which is part of parental preferences
- \( \theta_1 \) = ability of the child when he or she is a teenager
- A = child’s cognitive skills learned while in school
- e = child’s academic effort if he or she decides to stay in secondary school

a) If the child decides to stay in secondary school, he or she will have to exert some effort (e) to study, which generates disutility as follows:

\[
\text{Disutility of effort} = \gamma e - e^2/2, \quad \text{where} \quad \gamma > 0
\]

There is a minimum level of effort, which can be denoted by \( e_{\text{min}} \). The disutility of effort should be decreasing (becoming more negative) as effort increases. What is the lowest value of \( e_{\text{min}} \) that ensures that this property holds?

b) Let \( V_s \) be the child’s life-cycle utility if he or she stays in school. \( V_s \) depends only on the disutility of effort and the discounted value of lifetime earnings:

\[
V_s = \gamma e - e^2/2 + \tau_s \text{PE} + \beta n w_s
\]

where \( \tau_s \text{PE} \) is the transfers that the child receives from the parent if he or she finishes school, which is a linear function of parents’ education, \( \beta \) is the discount rate for wages during the child’s working years, \( n \) is the (exogenously determined) number of years worked, and \( w_s \) is the wage if one graduates from secondary school. That wage depends on academic skills (A), and academic skills depend on effort (e), as follows:

\[
w_s = \alpha_0 + \alpha_1 \theta_1 + \alpha_2 A
\]

\[
A = \psi_0 + \psi_1 e + \psi_2 \text{PE} + \psi_3 \theta_1 + \psi_4 \text{PVE}
\]

The only variable the child controls is effort (e). What is his/her optimal effort?

c) If the child drops out of school, his or her life cycle utility, \( V_d \), will be:

\[
V_d = \tau_d \text{PE} + (1 + \beta n) w_{\text{min}}
\]

where \( \tau_d \text{PE} \) is the transfers from the parent to the child if he or she drops out of school, which is a linear function of parents’ education, \( w_{\text{min}} \) is the minimum wage, and the child gets one more year of (undiscounted) wages by working instead of staying in school. Define \( I = V_s - V_d \), so that if \( I > 0 \) then the student chooses to stay in school, but if \( I < 0 \) the student chooses to drop out. Using your answer to b), express I as a linear function of PE, \( \theta_1 \), PVE, and various exogenous parameters. Note that it is NOT a function of e.

d) Using your answer to c), what is the impact on the probability of dropping out (the change in I) of an increase in the discount factor \( \beta \)? What is the impact of an increase in the minimum wage? Lastly, what is the impact of an increase in parental education (PE)? Assume that all parameters (Greek letters) are \( > 0 \). Give the intuition for your answers.
IV. Early-Childhood Health

a) Describe the evidence we discussed in the course for the claim that early-life health shocks have long-term economic consequences.

b) Explain how Jayachandran (2009) estimates the effect of the Indonesian wildfires on fetal loss and child mortality. What crucial problem does her approach avoid?

c) How does the model in Dow et al. (1999) predict that parental health investments will respond to public health campaigns?

d) Below I reproduce two of the key figures from Geruso and Spears (2018). Explain the “puzzle” that is illustrated in Figure 2, and how Figure 5 resolves this puzzle.