BACHELOR OF ECONOMICS
THAMMASAT UNIVERSITY

(Take home exam) Final Examination: EE 461 SEM 2/2019

Subject: Development Microeconomics

Instructor: Ajarn Sunsiree Kosindesha

Date and Time:25 May 2020, 11 am to 27 May 2020, 11 am, Bangkok time

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Instructions:

1. This is a TAKE-HOME exam. Books, notes and calculator are allowed.

2. There are 5 questions and 100 points in total. This is equal to 50 percent of semester's total scores.

3. **Do not consult with other students.** Students should be honest with themselves. If you are caught doing so, you will automatically receive an "F" for that course and be suspended for one academic year.

4. Before taking an exam, please do the followings:

    a. Please read carefully **The Honor Pledge:**

    "I pledge on my honor that
    I will not give or receive any unauthorized assistance on this examination."

    b. It is recommended to first read all questions carefully and allocate time efficiently for each question. No need to hurry to answer. Students should answer questions using the theory and knowledge you have learned.

5. Students must attempt all of the questions by typing in word document using the template provided here. However, if necessary, you can write your answers on iPad/Tablet, or A4/Letter paper and then scan them. If you write down on A4/Letter paper, put page number and ID number for every page,

and indicate **your id number and how many pages** your answer is on the front page of your answer.

6. You can type answers for one question and write on iPad or paper for another question. BUT, the most preferred method is for you to type in a word document.

7. You will save answers to each question separately. So you will have 5 files to be submitted. Name each file: "yourname_EE461_your student id_QuestionNo". For example, I will have to hand in 5 files:
   Sunsiree_EE461_4904680330_Q1.docx
   Sunsiree_EE461_4904680330_Q2.docx
   Sunsiree_EE461_4904680330_Q3.docx
   Sunsiree_EE461_4904680330_Q4.docx
   Sunsiree_EE461_4904680330_Q5.docx

8. To electronically submit the exam, you **must do both** of the followings.

8.1 Students must upload Microsoft Word® (DOC and DOCX), Google Docs via Google Drive™, or Portable Document Format (PDF) to the **Google Classroom Exam for EE 461** before May 27, 2020, 11 am, Bangkok time.

Your answer will be checked for plagiarism via google originality report.

8.2 Students must also upload Microsoft Word® (DOC and DOCX), Google Docs via Google Drive™, or Portable Document Format (PDF) to the **turnitin.com** before May 27, 2020, 11 am, Bangkok time.

To do so, please do the followings:
8.2.1 Go to turnitin.com and create a new student profile or choose 'enroll in a class' if you already have a Turnitin account, with the class ID and enrollment key below:

Class ID: 24942707
Class enrollment key: 0461 (zero-four-six-one)
You will have class "EE461_final exam sem 2/2019" on your Turnitin page.

8.2.3 Upload your answer to each assignment (corresponding to each question). Select "Single file upload" for each assignment.

Your answer will also be checked for plagiarism via turnitin similarity report.

Keep your files or your hardcopy of answer sheets in case that you are requested to show the original copy.

BEST OF LUCK!!! ☘

(1.) [25 points] *"Poor but efficient, Poor but neo-classical, Poor but rational?"*

The following questions are based on a paper by Esther Duflo in 2003 on "Poor but rational?" and its insights' applications. The paper was provided on the bemoodle, or you can access it here.

Please provide answers clearly and as concisely as possible. You can also use any knowledge we have learned in this semester to supplement your answers.

Concept

(1.1) Explain the concepts of (a.) 'poor but efficient' (b.) 'poor but neo-classical' (c.) 'poor but rational**?**'. What are the differences between these concepts? And, how does each concept say about developmental policies?

Insurance

Full risk sharing within a household or intra-household full insurance happens when household members fully insure each other against variation in income of each household's member. It's when individual income shocks only affect individual consumption through its effect on the pooled budget constraint. In other words, in a household with two members, husband and wife, individual own income shock and spouse's income shock equally affect individual consumption.

(1.2) Based on "Poor but rational" view, why should intra-household risk-sharing arrangement offer full insurance? And, based on "Poor but neoclassical?" view, why can intra-household insurance be limited? From the concept on intrahousehold full risk sharing stated above, briefly explain how you can construct a test whether there is full risk sharing within a household.

Health

(1.3) From the study by Dupas and Robinson(2013), discussed in class, on "Why Don't the Poor Save More? Evidence from Health Savings Experiment" , which features, in "poor but rational**?**" view, of saving devices could help increase savings for health purposes? Briefly explain why such features worked.

(1.4) If you were to use the lesson learned from Dupas and Robinson(2013)'s paper, which feature can you supplement the lockbox in order to make it useful in helping increase saving for preventive health? Briefly explain why your suggestion should work.

Psychological burden of poverty

(1.5) If you were to use the understanding on how living in poverty can affect cognitive capacity to inform public policies, provide one policy suggestion to improve current government policies in helping the poor in the time of COVID-19. You can pick government of any country you have insight on.

(2.) [20 points] "*Banking with the poor*"

(2.1) Consider a setting that there are only two types of borrowers: high-risk (risky type) and low-risk (safe type) borrowers. Suppose each type needs a loan of size L to invest in some project or activity. The safe type always obtain a secure return of R, where $R>L$. That is, the safe type earns R with probability equal to 1.

The risky type can obtain a higher return of R' , where $R' > R > L$, with probability p or possibly get zero return with probability 1- p. The moneylender can freely set the interest rate i.

Assume that there is asymmetric information between moneylender and borrowers. That is, the moneylender doesn't know the type of the borrowers. Explain the problem of (a.) adverse selection and (b.) credit rationing in this setting.

(2.2) Microfinance institutions(MFI) exploit local information that villagers have on each other via group lending. Borrowers know each other's types, specifically each other's probability of success and return, even though the MFI who is an outsider does not.

(2.2.1) Continuing from (2.1) but now let's suppose two individual borrowers form a group to borrow from an MFI. Each borrower gets the same loan amount L with interest rate i, and is responsible to pay a fixed amount z if her co-borrower defaults. If a borrower's project fails, she won't have to pay anything back to the MFI. This is the case when a borrower defaults. There is no profit sharing between the two borrowers in a group. Calculate expected net profit for a safe borrower of taking a loan together in the following cases: (i.) a safe borrower with a safe borrower,

(ii.) a safe borrower with a risky borrower. Will there be positive assortative matching in this case? Please explain.

(2.2.2) Briefly explain why positive assortative matching and joint liability can help increase access to credit of the poor.

(2.3) To evaluate the impact of microfinance on the average borrowers, what would be the problem of comparing the outcomes of interest between borrowers and nonborrowers ? How would you design an empirical study to learn the causal effect of having access to microcredit from microfinance on (a.) entrepreneurship (b.) household resource allocations? How would you incorporate the role of gender in your study? Based on what we have learned in classes, please state your hypotheses that you want to test. Please also provide brief explanation for each hypothesis.

(3.) [15 points] "*Floods and Farmers*"

With climate change, floods, a type of climatic events, can be more extreme and frequent.

(3.1) Discuss how risk management strategies and risk coping strategies of farmers would be different between when they are insured and when they are not insured for flood risk.

(3.2) Do you think that IRSA(Informal Risk Sharing Arrangement) in local communities will be useful for insurance against flood risk? Why?

(3.3) Briefly explain what agricultural Index-Based Flood Insurance is and how we can design optimal index-based flood insurance for farmers.

(3.4) Designing optimal index-based flood insurance has many practical challenges, such as the lack of full understanding of adaptive behaviors. Below is the comparison of self-reported flood effects and objectively measured flooded area from table 1 in a study by Guiteras et al (2015) on "Satellites, Self-reports, and Submersion: Exposure to floods in Bangladesh". This table shows the number of households answering "Yes" and "No" in each category of flood effects, and corresponding estimated average flood exposure across all households saying "Yes" and "No" in each category. What would be the problem of the design of index-based flood insurance for farmers if it fails to take into account adaptive behaviors?

TABLE 1—COMPARISON OF SELF-REPORTED FLOOD EFFECTS AND OBJECTIVELY MEASURED FLOODED AREA

	Answered "YES" to survey question		Answered "NO" to survey question	
	No. of HH answered YES	Satellite-derived flood proportion average	No. of HH answered NO	Satellite-derived flood proportion average
Survey question				
Affected by July '04 floods	900	0.118	892	0.065
House damaged/lost	534	0.155	366	0.063
Latrine damaged/lost	307	0.152	593	0.100
Water source damaged/lost	142	0.169	758	0.108
Food stocks damaged/lost	64	0.248	836	0.108
Crops damaged/lost	667	0.114	233	0.130
Farm destroyed	197	0.076	703	0.129
Livestock died	67	0.169	833	0.114
HH members sick	49	0.239	851	0.111
HH members died	3	0.094	897	0.118
Lost employment/inc. source	102	0.096	798	0.121

Notes: Values in the YES and NO columns represent the objectively measured flood extent in July 2004 as a proportion of total sub-district area, averaged over the number of households who reported either an effect or no effect. Each row is a separate question asking about self-reported damages from flooding in July 2004.

(4.) [20 points] "*Learning from disruptive education*"

Because of COVID-19 pandemic, the normal education systems are interrupted. Many students have to learn through online platforms. This situation might offer opportunities to test which design of educational platform can help students to learn better.

(4.1) From a paper by Muralidharan, Abhijeet, and Alejandro(2019) "Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India", how would you apply the lessons learned from the paper to help build educational platform that can improve learning of students in the time of COVID-19 and even after normal education system can be resumed?

(4.2) Instead of using ITT or LATE estimations, how might you use the difference-in-difference(DD) method to evaluate the effectiveness of your newly designed learning platform?

(4.3) How will you test whether your design increase or decrease inequality in education quality between poor students and rich students?

(5.) [20 points]"*the Harris-Todaro model*"

Consider the Harris-Todaro model in which there are three sectors: rural sector(A), formal urban sector(F), and informal urban sector(I). Potential migrants in rural agricultural sector choose between a relatively safe option, which is to stay in the agricultural sector, and the gamble of moving to the urban sector, where a high-paying formal job may or may not be attainable. The

probability of getting such a job, p, is determined by the ratio of formal job seekers to available formal jobs.

The wage rate in urban formal sector is fixed at $\bar{w}$, which is higher than the fixed wage rate in urban informal sector w_I. Endogenously determined in the equilibrium are the income from agricultural sector, w_A; the amount of labor in urban formal sector $\bar{L}_F$, urban informal sector L_I, and agricultural sector L_A. Assume that there is no unemployment in this economy.

Please answer the following questions.

(5.1) In the Harris-Todaro model, do you agree or disagree with the statement:
"The expansion of urban formal sector will decrease the size of urban informal sector."?
Please use the model above to explain why you agree or disagree.
Hint: Analyze the equilibrium condition of the Harris-Todaro model

(5.2) Suppose that government is imposing universal basic income program by giving additional fixed income b to everyone in all sectors. Use the Harris-Todaro model to analyze the effect of the universal basic income on migration and the incidence of poverty in this economy.