

Make-Up Midterm Exam

EC 390 – Development Economics

Fall 2025

Give every question your best attempt.
Best of luck.
You got this!

Name: _____ 95#: _____

The maximum amount of points on this exam is 100 points. You have a total of 1h 20min (80 minutes) to complete the exam, unless otherwise noted. The only items allowed on your desk at any time are a pen and/or pencil, scratch paper, a 3x5 note card, and a calculator. Everything else must be stored in your bag underneath your desk. Any form of cheating will result on a zero on the exam.

There are three sections to be completed:

- **Multiple Choice:** 5 Questions
- **Short Answer Questions:** 2 Questions
- **Multi-Part Analysis Questions:** 1 Question (5 parts)

Point totals and question specific instructions are listed for each section. Please ask for clarification if a question is not clear to you.

The exam is a total of 10 pages. There are 8 pages of questions + 2 pages for scratch paper. **Please verify you have all 10 in your exam. If you do not, let me know immediately.**

Multiple Choice - 40 Points

Circle or "X" the answer you think most correctly answers the following questions. If you mark a choice and would like to change it, **clearly indicate which one is your correct answer**.

1. [4 points] Country A reports their GDP to be \$8 Billion. Residents earn \$2 Billion abroad, non-residents earn \$1.5 Billion domestically. If domestic firms save \$3 Billion this year, what is the **Gross National Income (GNI)** of Country A?
 - A. \$14.5 Billion
 - B. \$ 11.5 Billion
 - C. \$8.5 Billion**
 - D. \$10 Billion
2. [4 points] The "Education Basket" contains: 1 textbook, 3 pens, 2 notebooks. Prices for **Richland** and **Poortown** are given below:

Item	Richland	Poortown
Textbook	30	13
Pen	2	1
Notebook	5	3
Backpack	50	42

What is the **Purchasing Power Parity** between **Richland** and **Poortown** ($PPP_{Rich.,Poor.}$)?

- A. $37/17 = 2.17$
 - B. $87/59 = 1.47$
 - C. $46/22 = 2.09$**
 - D. $22/46 = 0.47$
3. [4 points] Suppose that Chile follows the **Harrod-Domar** model of economic growth. What will happen to the growth rate of Chile if an earthquake strikes the country and their **capital efficiency falls**, assuming the **savings rate** does not change?
 - A. Growth rate \uparrow , because it now takes more capital to produce one unit of output
 - B. Growth rate \downarrow , because it now takes more capital to produce one unit of output**
 - C. Growth rate does not change, because the savings rate does not change
 - D. Capital efficiency does not factor in the Harrod-Domar model

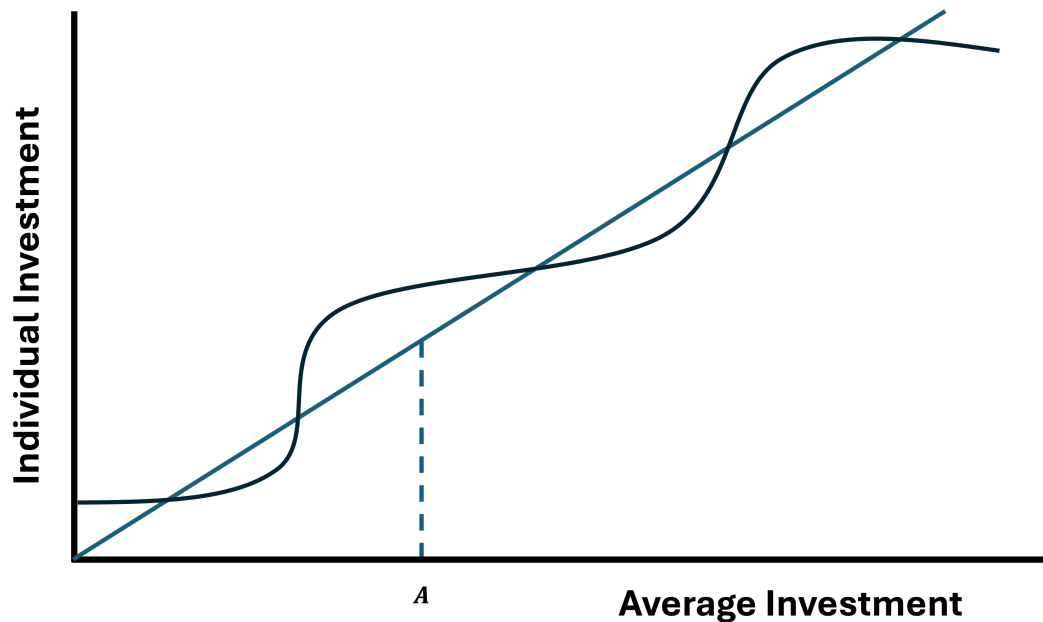
4. [4 points] **Conditional convergence** implies that:
- A. The ratio of income between poor and rich countries remains constant over time
 - B. All countries converge to identical y^*
 - C. Absolute convergence exists
 - D. Countries converge conditional on country characteristics**
5. [4 points] Consider the **Two-Sector Lewis Model**. Assume that the agricultural (traditional) sector has surplus labor, and the industrial (modern) sector reinvests all profits. Suppose that **productivity in the agricultural sector rises due to technological improvements**.
- Which of the following statements best describes the dynamic effect of this productivity increase on the process of structural transformation?
- A. It slows the transfer of labor to the modern sector by raising the equilibrium subsistence wage, reducing the modern sector's profit rate**
 - B. It accelerates the transfer of labor to the modern sector because rural wages remain fixed while agricultural output rises
 - C. It delays the Lewis turning point because higher agricultural productivity increases profits in the modern sector, sustaining capital accumulation
 - D. It has no long-run effect on structural transformation since labor migration depends only on the savings rate in the modern sector
6. [4 points] Which of the following statements is correct?
- A. When there is perfect inequality in a country, the Lorenz Curve is a 45° line
 - B. Gini coefficient of 1 for a country indicates perfect equality
 - C. Gini coefficient of 0.5 for a country indicates perfect inequality
 - D. None of the above**
7. [4 points] Lorelai values future payoffs more than Rory. This means:
- A. Lorelai has a higher discount rate than Rory
 - B. Lorelai has a lower discount rate than Rory**
 - C. Lorelai and Rory have the same discount rate
 - D. Rory is more wealthy than Lorelai

8. [4 points] In a developing economy, multiple sectors require electricity to operate profitably. However, the power company can only cover fixed costs if enough firms demand electricity. Because no firm wants to invest until reliable power is available, the economy remains stagnant. Which of the following government actions would most effectively address this **coordination failure**?
- A. Publicly invest in the power grid and guarantee initial energy supply constraints**
 - B. Offer firms short-term credit at the market rate
 - C. Reduce income taxes for high-income households
 - D. Alter the savings rate through their central bank
9. [4 points] In the article “*To Do With the Price of Fish*”, access to cellphones led to price stabilization in the market for fish because
- A. Cellphones led to a reduction in the number of fishermen, which increased the price of fish and led to higher profits
 - B. Cellphones allowed fishermen to sell directly to customers, rather than sell their fish to intermediaries
 - C. Fishermen sold their phones for better fishing equipment, which led to higher profits
 - D. Cellphones allowed for fishermen to overcome a coordination failure**
10. [4 points] A country has abundant foreign savings and low inflation. However, **private investment remains very low**. Data shows that: (1) Real interest rates are very high; (2) Firms report difficulty obtaining loans despite strong profitability; (3) Returns to education are low and unemployment among skilled workers is high.
- According to the growth diagnostics approach, which of the following is most likely the **binding constraint** to growth?
- A. Low human capital accumulation
 - B. Macroeconomic instability
 - C. Poor access to financing**
 - D. Low social returns to infrastructure

Short Answer - 20 Points

Answer the following questions to the best of your ability. For full credit, show all of your work and clearly indicate your final solution for each part by circling the answer.

11. Consider the following graph



- (a) [8 points] **Identify and label the equilibria points** on the graph. In the space below, **categorize each equilibrium as stable or unstable.**

- (b) [2 points] On the graph, **draw the path that investment takes** (i.e. the dynamics of the investment) if average investment began at A and show where investment would eventually end up.

12. In the **O-Ring Model**, a firm's output is given by $BF(q_i, q_j) = q_i q_j$ where $0 \leq q_i, q_j \leq 1$ and $B > 0$ is some positive constant.

Let $B = 20$ and $q_i = 0.8$ and $q_j = 0.5$.

- (a) [3 points] A firm has two choices: Hire a **2-person team** of q_i workers or hire a **4-person team** of q_j workers. Compute the output for both possibilities.

- (b) [3 points] If the firm can add another worker to the **2-person team** and their $q = 0.7$, what happens to output? Compute it

- (c) [4 points] Explain intuitively why increasing the team size is not necessarily a good outcome for firms

Multi-Part Analysis - 40 Points

Answer the following questions to the best of your ability. For full credit, show all of your work and clearly indicate your final solution for each part by circling the answer.

13. You are hired by the government of Stars Hollow to analyze economic growth in the country. Taylor Doose, the government official that hired you, wants you to use the **Solow Model** of growth to predict what will occur in the economy under the following scenarios.

(a) [5 points] What will happen to **capital per worker** (k) and **output per worker** (y) in population growth in Stars Hollow decreases? Show graphically.

(b) [5 points] What will happen to **capital per worker** (k) and **output per worker** (y) if workers save less of their income? Show graphically.

- (c) [15 points] Starts Hollow is particularly concerned about one situation: What will happen to **capital per worker** (k) if *both* population growth decreases *AND* the savings rate decreases? Show graphically and explain your answer.

Hint: There may multiple cases to analyze - be sure to discuss each one.

- (d) [5 points] Stars Hollow always competes with Hartford, a neighboring country. The Solow model predicts that countries with the **same savings rate and population growth** should converge to the same **income per worker** (y). Why would it be the case that **convergence between** Stars Hollow and Hartford may not occur?
- (e) [10 points] Models of economic growth that emphasize savings have been shown to consistently overestimate economic growth in developing countries. **Identify the key assumption(s) of savings.** Explain how the failure of the critical assumption(s) in these models result in an overestimate of economic growth.

Scratch Paper

Scratch Paper