

Economics 102 — Winter 2025

Globalization

Midterm 1 Exam

January 28, 2025

Time: 50 minutes

Total score: 50 points

Last Name, First Name: _____

Seat Number: _____

Student ID: _____

Permissible objects during the exam: pencils, pens, one ruler, one eraser, student ID.

All other objects, including any other electronic devices, calculators, and any smart watches, must be outside your immediate reach at all times.

A violation of these exam rules will result in a zero score on the exam.

Carefully read the instructions of each question.

Words in **bold** indicate that you need to respond to the request or question.

If you answer with “yes” or “no”, also provide an explanation.

If you become aware of a potential academic integrity violation, campus offices and the economics department encourage you to alert the instructor or to make an anonymous report to the Academic Integrity Office at *academicintegrity.ucsd.edu*.

Pledge of Academic Integrity

Read the statement below, then write “I pledge to excel with integrity” word by word on the line below, sign, and date.

I pledge to complete this exam honestly and fairly so that the exam submitted represents my own knowledge and abilities. I also pledge to not facilitate the dishonesty of others by, for example, sharing with others this exam or the contents herein.

“I pledge to excel with integrity”

Signature

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1 Ricardian Trade: 10 minutes

Suppose there are two countries—Home (no asterisk) and Rest of the World (RoW, asterisk)—and two industries: manufacturing (M) and services (S). Both industries' products are tradable and markets are perfectly competitive. There is one factor, labor. Productivities (unit labor requirements) in the two industries in Home and RoW are constant. The following table shows the maximum number of manufactures and service projects that a country can complete in a day.

	RoW*	Home
Manufactures	10,000	18,000
Service projects	5,000	6,000

- 1.1. **State** the region with the *absolute* productivity advantage in manufacturing **and** the country with the *absolute* advantage in services.
- 1.2. **State** the opportunity cost of manufactures M in terms of service projects at Home (no asterisk).
- 1.3. **State** the industry in which RoW (asterisk) has a *comparative* advantage.
- 1.4. Hypothetically suppose the relative price of manufactures in terms of service projects were $p_M/p_S = 1$ under free trade. **Which** industry would locate at Home? **Which** industry would locate in RoW?
- 1.5. For an equilibrium with free trade and complete specialization to exist, **state** the possible range of the relative price of manufactures in terms of services p_M/p_S .
- 1.6. In equilibrium with free trade and complete specialization, **which** industry locates at Home? **Which** industry locates in RoW?

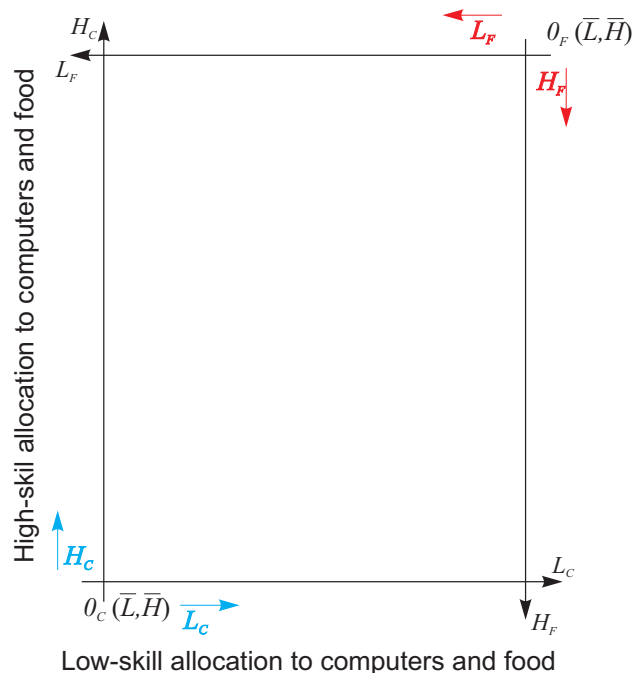
2 Trade and Large-scale Outward Migration: 10 minutes

Suppose the Home country is relatively abundantly endowed with *high-skilled labor*. Computer production is relatively high-skill intensive, while food production is low-skill intensive. There *is* free trade already.

- **Depict** an equilibrium in the Edgeworth box, consistent with the production intensities.
Note: The arrow for the computer industry is steeper than the diagonal of the box.
- According to the Stolper-Samuelson Theorem, **how** (if at all) does the relative factor price w_H/w_L change when the relative computer price P_C/P_F *increases*?
- **How** (if at all) does the relative factor price w_H/w_L change when free trade keeps P_C/P_F constant?

Now suppose there is large-scale outward migration of low-skilled labor from the Home country but free trade in final goods keeps P_C/P_F constant.

- **How** (if at all) do the slopes of the production arrows change?
- **Depict** outward migration of low-skilled labor by shrinking the Edgeworth box *from the left* (moving O_C right).
- **Depict** the new equilibrium in the Edgeworth box.
- **How** do computer and food production change?

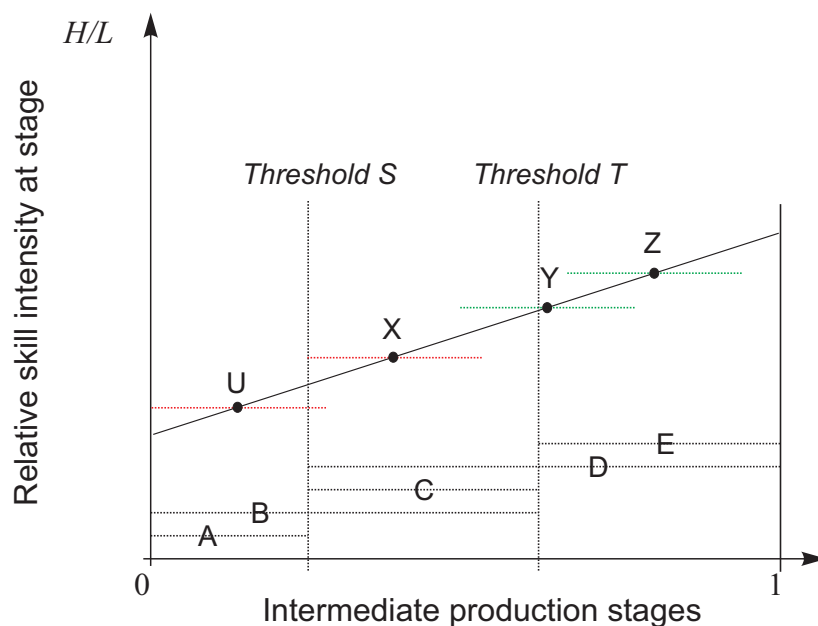


3 Offshoring: 10 minutes

There are two regions—North (no asterisk) and South (asterisk)—and two factors of production: High-skilled labor H and low-skilled labor L . The Southern economy is relatively abundant in low-skilled labor L . There are multiple stages of production, each with a different and fixed intensity of employing high-skilled labor H relative to low-skilled labor L . There is trade in intermediate goods from these production stages. Some production stages locate in the North (“onshore”), others in the South (“offshore”).

Suppose additional economies in the South integrate into the world economy and that those additional economies are relatively more abundant in low-skilled labor L than both the already integrated economies in the South and the economies in the North. The diagram below shows the initial and subsequent equilibrium.

- 3.1. **Explain** why the threshold in the subsequent equilibrium with additional low-skill abundant economies in the South shifts from S to T , referring to the changing wage premium w_H/w_L in the South.
- 3.2. In the initial equilibrium *before* the integration of additional economies in the South, **what** is the range of production stages that are located offshore in Foreign (A, B, C, D or E)?
- 3.3. In the subsequent equilibrium *after* the integration of additional economies in the South, **what** is the range of production stages that are located offshore in Foreign (A, B, C, D or E)?
- 3.4. **What** is the average skill demand in the South in the initial equilibrium *before* the integration of additional economies (U, X, Y or Z)?
- 3.5. **What** is the average skill demand in the South in the subsequent equilibrium *after* the integration of additional economies (U, X, Y or Z)?
- 3.6. Ignoring the labor supply shock from integration in the South, **does** the offshoring outcome (the shift from S to T) raise wage inequality in the South?



NAME:

SEAT:

STUDENT ID:

4 Revealed Comparative Advantage: 10 minutes

In a paragraph or two, **explain** to a freshman college student in words **what** the Balassa (1965) index of *Revealed Comparative Advantage* (of industry i in country C)

$$RCA_i^C \equiv \frac{X_i^C / \sum_k X_k^C}{X_i^{\text{World}} / \sum_k X_k^{\text{World}}}$$

(where X_i are exports) measures, and **why** there needs to be a pair of ratios.

NAME:

SEAT:

STUDENT ID:

5 True or False: 10 minutes

Evaluate each of the following statements as true or false. For each statement, **also provide** a brief reason (in one or two sentences).

- 5.1. Suppose there are two unequal countries, producing two goods with local technologies and labor. Then free trade reduces the income gap between the poor and rich country.

- 5.2. Suppose there are two unequal countries, producing two goods with local technologies and labor. One country's productivity improves in the export sector, while the other country has no productivity change. Then free trade causes a prosperity loss in the non-growing country.

- 5.3. Suppose there are two unequal countries, producing two goods with smooth global technologies and two factors of production. Then free trade generates sufficient gains so that all factors can strictly benefit from trade.

- 5.4. Suppose there are two unequal countries, producing intermediate goods with fixed local technologies and two factors. Then a reversal in offshoring ("nearshoring") of production stages reduces inequality in both countries.