Economics of Globalization

Final Exam

The exam lasts 2h. Written and printed materials are authorized. Any other type of materials is not authorized. The exam is 5-pages long.

Multiple Choice Questions (6 points)

Multiple answers are possible. 0.75 point per question. No negative points.

1. In the simple framework analyzed in class, if a small country imposes a tariff, it will:
    A. Decrease the surplus of domestic producers
    B. Increase the surplus of domestic consumers
    C. Generate terms-of-trade gains
    D. Decrease overall national welfare

2. Leakage effects of environmental policies correspond to the fact that:
    A. The policy generates an increase in pollution in foreign countries because they are not regulated.
    B. The policy generates a decrease in pollution because it increases green innovation and its diffusion.
    C. The policy generates a decrease in pollution because it makes the price of energy higher.
    D. The policy generates an increase in pollution because it makes the price of energy lower.

3. A firm will prefer to serve a market by exporting rather than opening a foreign affiliate when:
    A. Its plants have increasing returns to scale
    B. Its plants have constant returns to scale.
    C. The comparative advantage of the foreign country is large.
    D. The comparative advantage of the home country is large.

4. In the Heckscher-Ohlin model, opening up to trade
    A. has no distributional effects.
    B. benefits owners of the relatively scarce factor.
    C. benefits owners of the relatively abundant factor.
    D. benefits the owners of both factors

5. In the 2-factor, 2 good Heckscher-Ohlin model, the two countries differ in:
    A. Tastes.
    B. Size.
    C. Relative availabilities of factors of production.
    D. Labor productivities.

6. What is the Most-Favoured-Nation (MFN) principle in the context of tariffs?

A. A rule requiring countries to grant non-discriminatory tariff treatment to all WTO members whenever a tariff reduction is offered.

B. A rule allowing countries to impose higher tariffs on their largest trading partners to protect domestic producers.

C. A rule permitting developing countries to receive special preferential tariffs from high-income countries.

D. A rule that obliges countries to eliminate all tariffs on goods originating from their main political allies.

7. If an economy increases its participation to global value chain:

A. Its ratio of value-added to gross exports increases.
B. Its ratio of value-added to gross exports decreases.
C. Its specialization increases
D. Its specialization decreases

8. In the following payoff matrix:

	Player 2		
Player 1		Regulate	Not regulate
	Regulate	(4,5)	(6,2)
	Not regulate	(2,6)	(3,3)

A. There is no nash equilibrium
B. The Nash equilibrium is (Regulate;Regulate)
C. The Nash equilibrium is (Don’t regulate;Don’t regulate)
D. The Nash optimum corresponds to the Pareto optimum

Exercise (9 points)

This exercise draws on the Financial Times article of November 2025, “The costs of India’s hunger for cheap steel”, which discusses the environmental and competitiveness challenges posed by India’s steel industry. We will analyze these issues using the tools developed during this semester.


The costs of India’s hunger for cheap steel

Booming production may buoy the domestic economy, but is causing environmental damage and trade tensions

Part 1. A comparative Advantage in polluting industries?

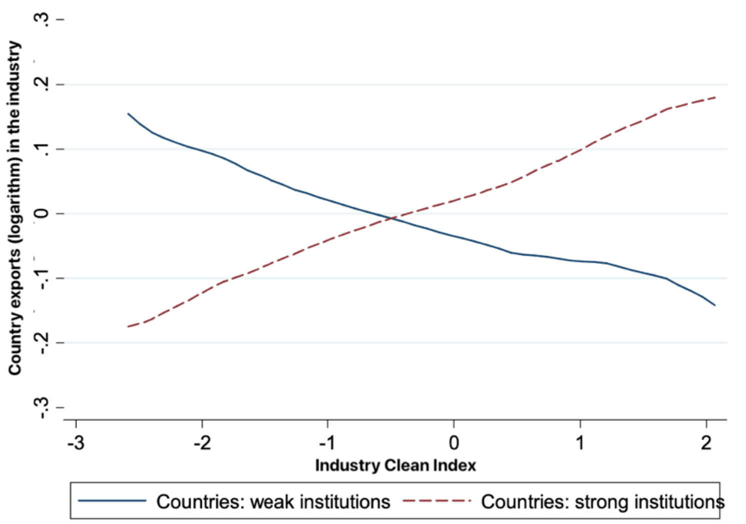
I. Ricardian Comparative Advantages

This part follows the traditional Ricardian framework with labor as the only factor of production. The total amount of labor available is the same in both countries. The two areas that we consider are India and the European Union (EU). They both produce steel and pharmaceutics which have the following unit labor requirements.

Steel: EU: 1 hours of labor per unit of steel
India: 1 hours of labor per unit of steel

Pharmaceuticals: EU: 2 hours of labor per unit of pharmaceuticals
India: 5 hours of labor per unit of pharmaceuticals

1) (1 point) Determine which country has a comparative advantage in each good.
2) (1 point) Determine the plausible range of the international relative price for steel under trade, in terms of pharmaceuticals.
3) (0.5 point) Is the comparative advantage determined in 1) consistent with the graph below? Justify your answer.



Note: The Industry Clean Index measures how "clean" in terms of CO2 emissions an industry is. A negative value for the logarithm does not mean that exports are negative, only that they are small.

II. The role of energy prices

We now abstract from the simple Ricardian comparative advantage framework to study the role of the price of energy. A steel plant has the following annual emission sources:

- Combustion of coal and natural gas in the production plant: 1600 kg of CO_2.
- Chemical reactions during the production process: 700 kg of CO_2.
- Electricity consumption: 500 kWh.

The emission of CO2 from electricity production is 0.10 kg CO_2 per kWh and India: 1 kg CO_2 per kWh.

a) (1 point) Provide the definitions of Scope 1 and Scope 2 CO2 emissions, and then classify each of the emission sources above accordingly.
b) (0.5 point) What are the total emissions in each country following Scope 1 and Scope 2 emissions?
c) (0.5 points) If the UE imposes a carbon price while India does not, explain how this affects comparative advantages?
d) (1 point) What are the potential sources explaining a comparative advantage on India in the steel industry?

Part 2. Strategic Environmental Regulation and Collective Action

At the COP 30, France and India have to choose simultaneously whether to adopt strict environmental regulations for the steel industry (Regulate) or maintain lax standards (Not Regulate).

Interpreting payoffs as economic welfare net of environmental damages, consider the matrix:

	India		
France		Regulate	Don’t regulate
	Regulate	(5,5)	(1,7)
	Don’t regulate	(7,1)	(2,2)

I. Interpreting the Payoff Matrix

1) (1 point) What is the Nash equilibrium.
2) (1 point) Explain why this outcome represents a collective action problem.

II. The CBAM and Its Effects on Strategic Regulation

The 2025 Financial Times article also notes: “Over one-third of India’s 6.4mn metric tonnes of annual steel exports go to Europe, which will implement its divisive carbon border adjustment mechanism (CBAM) on January 1, a tax on polluting overseas producers aimed at protecting EU industry from being undercut by cheaper but dirtier imports.”

The EU’s Carbon Border Adjustment Mechanism (CBAM) requires EU importers to pay the carbon cost differential between the EU and the exporting country.

1) (0.5 point) How does the CBAM affect India’s prices when exporting steel to France.
2) (1 point) How does the CBAM help resolve the collective action problem? What are its limitations?

Essay (6 points)

Select one of the two essay topics below. Your essay should be approximately 1-2 pages in length. Support your arguments using both theoretical frameworks and empirical evidence discussed in class, as well as relevant insights from your own knowledge and research.

Suggested Structure

Introduction: Explain why this topic is economically significant, define the key terms and concepts in the question, state clearly the main question or argument your essay will address

Body: Develop a series of paragraphs, each presenting a distinct argument or perspective. Use economic theory, empirical evidence, and real-world examples to support your position Consider counterarguments where relevant. Ensure logical flow between paragraphs.

Conclusion: Summarize your main argument in 2-3 sentences and provide a clear, direct answer to the question posed in your introduction

1. EU and India have recently reaffirmed their shared ambition to conclude negotiations on a free trade agreement by the end of this year. In your opinion, should the EU sign such an agreement that will decrease trade barriers between India and the EU?

2. What are the obstacles to effective multilateral cooperation, and possible solutions to overcome them?

ANONYMOUS COURSE QUALITY SURVEY

Please take a few minutes to provide honest feedback about this course. Your responses are completely anonymous and will help improve future courses. Please detach this sheet before handing in the exam.

Question 1: How would you rate the overall quality of this course?

☐ Very Good ☐ Good ☐ Fair ☐ Poor

Question 2: To what extent did you find the course material interesting and relevant to your learning goals?

☐ Very interesting and relevant
☐ Moderately interesting and relevant
☐ Neutral
☐ Not at all interesting or relevant

Question 3: How well did the exam/assessments align with the material covered in the course?

☐ Perfectly aligned - exam covered what was taught
☐ Well aligned - mostly covered course material
☐ Somewhat aligned - some gaps between teaching and testing
☐ Poorly aligned - significant mismatch
☐ Not aligned at all - exam covered different material

Question 4: How effective was the instructor in explaining concepts and facilitating your learning?

☐ Extremely effective ☐ Very effective ☐ Moderately effective ☐ Slightly effective ☐ Not effective at all

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Question 5: Was the workload for this course appropriate for the credit hours/course level?

☐ Too light - needed more challenging work
☐ Appropriate - well-balanced workload
☐ Somewhat heavy - manageable but demanding
☐ Too heavy - excessive for the course level
☐ Unreasonable - unmanageable workload

ADDITIONAL COMMENTS If you have any additional feedback or suggestions for improving this course, please share below: