

UNIVERSITY OF COLORADO  
BOULDER, COLORADO

Economics 4413  
International Trade

the second half.

The topics and readings follow Many sections of the new book are advanced and written more for master's and MBA students. Which sections to skip will be announced in class. Students are responsible for all announcements made in class. I will not be continually updating the website with announcements, etc.

## MM chapter 14

### PART III: FACTOR TRADE AND DIRECT FOREIGN INVESTMENT

The final section of the course looks at ~~trade~~ factors of production and direct foreign investment by multinational firms.

1. Trade in Factors of Production  
MM chapter 15
2. Direct Foreign Investment  
MM chapter 16
3. Migration  
MM chapter 17

### PART IV: TRADE POLICY

This part of the course analyzes the principal tools that governments use to influence trade. We analyzed the effects of the policies and try to understand the reasons that governments choose the policies they do.

1. Tariffs  
MM Chapter 18
2. Quotas  
MM chapter 19
3. Imperfect Competition, Increasing Returns, and Strategic Trade Policy.  
MM chapter 20
4. Political Economy of Trade Policy - class notes

# Economics 4413-001, International Trade, Prof Markusen

## Review questions for Chapters 2-8

Please note that these questions can be answered with varying “tools”: algebra, geometry, careful and logical verbal (words) argument.

Similarly, the degree of rigor and quality of the explanation can vary. Approach the questions as if you are trying to explain the material to another student who has had intermediate micro but missed the class.

I give substantial points for the quality and clarity of the answer.

1. Derive the curvature of the production frontier (two goods) when (1) there is a single factor of production and constant returns to scale.
2. Derive the curvature of the production frontier (two goods) when (1) there is a single factor of production and increasing returns to scale in both industries.
3. Derive the curvature of the production frontier graphically using the Edgeworth box for the “Heckscher-Ohlin” model: two goods, two factors, both factors mobile between industries.
4. Define the economy’s social optimal output levels for given goods prices. Prove: given perfect competition and the absence of distortions such as taxes or externalities, profit maximization by individual firms results in the socially optimal output levels for given goods prices.
5. Define homogeneous preferences. Why is this a useful assumption for analyzing trade?
6. Discuss the pitfalls of using a national or “community” indifference curve to analyze the welfare effects of trade; specifically, aggregate consumption versus individual welfare.
7. Explain the fundamental difference facing an open versus a closed (autarky) economy.
8. Explain or show the following: the condition that a country satisfy trade balance is equivalent to the value of production equals the value of consumer expenditure.
9. Explain or show the following: if a country is running a balance-of-trade deficit, then consumption spending exceeds the value of production.
10. Illustrate (graphically) how to derive a country’s excess demand function. What is the interpretation of the “zero” point, the price at which excess demand is zero?
11. Explain why the free-trade price ratio for two countries must lie in between their autarky price ratios.



27. Use the Ricardian model to suggest a response to the argument that “high wage countries should not trade with low wage countries because the high wage country will lose jobs”.
28. In the Ricardian model, discuss how differences in country size are an important determinant of the division of the total gains from trade between two countries.
29. Discuss how the “intersection” of a country's relative factor endowment with the relative factor intensities of two goods determine its comparative advantage.
30. State the Heckscher-Ohlin theorem. Work through the steps of the proof.
31. State the Stolper-Samuelson theorem. Work through the steps of the proof.
32. State the Rybczynski theorem. Work through the steps of the proof.
33. State the Stolper-Samuelson theorem. What does it suggest about the politics of trade liberalization? Who should we expect to lobby for or against free trade?

sector on production, welfare, and exports (include a diagram and a careful verbal explanation).

6. Suppose that a small country faces fixed world prices that happen to be equal to its (undistorted) domestic autarky prices. The government wishes to reduce consumption of good Y (e.g., cigarettes). Contrast a consumption and a production tax on Y in achieving this goal.
7. Suppose that we have two identical countries and so free trade involves no trade (free trade prices equal autarky prices). Show the effect of a subsidy in one country to X on production and welfare in both countries.

Questions 8-13 involve a model with a constant-returns, competitive sector Y, an imperfectly competitive sector producing a homogeneous good X, and a single factor of production L.

8. Derive the formula for marginal revenue and therefore for the optimal markup for a producer of a homogeneous good under Cournot competition. Contrast the markup when this firm is a monopolist versus when there are two firms in the market.
9. Suppose that there are two identical economies each with a monopoly producer of X. Show and explain how the opening of trade leads to gains from trade. Use the Cournot markup formula presented in class and in the book.
10. Consider the technology we have used several times: there is a fixed cost to production and a constant marginal cost. Show why such technologies are incompatible with perfectly competitive outcomes with large numbers of firms.
11. Show graphically what an equilibrium will look like when there is free entry and exit of firms so that firms earn zero profits in equilibrium.
12. Show what happens following the opening of trade between two identical economies given free entry and exit in each country. Is it possible that trade allows consumers to consume more of both goods?
13. How is it that the opening of trade can reduce the number of firms in each country yet create more competition for the consumer?

Questions 14-19 involve a world where the X sector consists of many firms producing differentiated products.

14. Write down the Dixit-Stiglitz "love of variety" utility function. Show that this implies that consumers value diversity, and that having double the number of products is better than having twice as much of each existing product.
15. "Gains from trade in the presence of scale economies can be taken either in the form of the same number of products at lower prices, or more products at the same prices." Explain this statement.

16. Outline the “love of variety” approach to product differentiation. How can the opening of trade between two identical economies make consumers better off? Why are scale economies vital to the argument?
17. Apply the “love of variety” approach to specialized intermediate goods. How can allowing trade in differentiated intermediate goods improve the productivity of final goods production?
18. Outline the “ideal variety” approach to product differentiation. Define ideal and compromise varieties. Under what circumstances might the compromise variety be preferred to each of two groups getting their ideal variety?
19. In the ideal variety model, how can the opening of trade between two identical economies make consumers better off? Why are scale economies vital to the argument?
20. State the "Linder Hypothesis". What empirical facts are this theory suppose to explain? Why can't the Heckscher-Ohlin model explain these facts?
21. Explain Vernon's product-cycle model. What empirical facts are this theory suppose to explain? Be sure to indicate how it is a natural extension of the Linder Hypothesis.
22. Suppose that goods with high income elasticities of demand are also capital or skilled-labor-intensive goods. How does this help us understand the volume (amount) of trade among the high-income countries versus “north-south” trade between the high-income countries and the low-income countries?

## Review questions for Chapters 15-16, 18- 20

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I give substantial points for the quality and clarify of the answer.

1. Discuss trade in goods versus trade in factors of production (capital and labor). Discuss to what extent trade in goods and factors could be thought of as substitutes.
2. Explain the welfare equivalence of three types of trade:
  - (A) US exports-capital intensive goods to Mexico and imports labor-intensive goods.
  - (B) US exports capital to Mexico and imports goods.
  - (C) US imports Mexican workers and exports goods.
3. Discuss trade in goods versus trade in factors of production (capital and labor). Discuss to what extent trade in goods and factors could be thought of as complements.



4. With increasing returns to scale, equal relative endowments of factors across countries (e.g., countries identical) is generally not optimal (e.g., it leaves unexploited gains from trade). Explain.
5. The traditional view of multinationals was that they moved capital from capital abundant to capital scarce countries. Yet most multinational investment takes place in the capital abundant countries. What new theory explains this?
6. Outline the OLI view of multinational firms. In these terms, why is Nike not a “true” multinational?
7. What properties of knowledge capital as opposed to physical capital help explain why the former is highly correlated with multinational firms?
8. Outline a model which explains the conditions under which a firm will under take a “horizontal” strategy, building plants in both of two countries.
9. Outline a model which explains the tradeoff between owning a foreign subsidiary versus outsourcing production to a local firm.
10. An import tariff on X can be duplicated by a production subsidy on X and a production tax on Y. True/False, explain.

19. Present and analyze one set of assumptions under which an export subsidy must be welfare reducing for the subsidizing country. Present an alternative model in which the export subsidy could be welfare improving.

## Policies, Etiquette

E-mail policy: you may email me with small questions, but I tend not to answer questions that have been answered twice in class. You are responsible for what is presented in class, including revisions to the syllabus and changes in mid-term dates. I don't respond to emails and questions like "what did I miss in class last Friday [when I blew off class to go skiing]".

Class attendance policy: I don't take attendance unless there is particularly poor attendance on a given day. But you are responsible for everything said in class and I will not repeat it for you. On adjusting marginal marks (e.g., D+ to C-), I do consider your attendance and class participation.

Cell phones and private conversations: Phone and related devices cannot be used, nor do I tolerate private conversations in the back of the room. These are all very distracting to those around you and to myself.

My mother bought me a plane ticket without asking: no, don't even bother to ask. The final exam time and date is set by the registrar and is already known: Sunday Dec 14, 19:30. - 21:00.

indicate legally mandated reasonable accommodations. The syllabus statements and answers to Frequently Asked Questions can be found at [www.colorado.edu/disabilityservices](http://www.colorado.edu/disabilityservices)

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Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at <http://www.colorado.edu/policies/classbehavior.html> and at [http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student\\_code](http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code)

