

An Introduction to International Trade Theory

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This short course will focus on the theory of international trade, with some reference to empirical evidence. I will not present a highly technical course, but aim for a balance between a comprehensive presentation of the breadth of existing topics and more formal approaches to central questions. It is my goal that students will come away from the course with the ability to successfully tackle professional journal articles with an understanding of the place and the importance of the topic in the larger scheme of things.

There will be two textbooks referred to throughout the course. Students who have not had an undergraduate course in trade theory are strongly advised to read through the Markusen et al. textbook prior to the course. Lectures will be accompanied by computer slide presentations, and all of these notes will be available well before the course starts (this frees students from more extensive note taking).

Material and References

Feenstra, *Advanced International Trade*, Princeton University Press, 2003. This is a graduate level book.

Markusen, Melvin, Kaempfer and Maskus, *International Trade: Theory and Evidence*, McGraw Hill, 1995. This is an advanced undergraduate, master's level book that provides a comprehensive guide to the subject of trade theory.

Detailed class notes, prepared by myself, will be available well before the course begins.

Supplementary reading list of journals articles will be available in late November (or see my syllabus the Colorado Economics website given below).

For details about my own interests and research, see <http://spot.colorado.edu/~markusen>

For a look at the class notes, see <http://www.colorado.edu/Economics> Click on "courses", click on "Fall 2005 Courses", click on "ECON 8413-001 International Trade Theory". You will see 19 .pdf files which contain my course notes.

Assessment

Methods of course assessment are not set at this time, but will likely include several exams plus daily exercise assignments.

Course Outline: Organized by Topic into 19 Lectures. One lecture does not always correspond to one day (course presented over 10 days)

Part I: Tools of General-Equilibrium Analysis

Lecture 1: Review of Production Theory

1. Production: Functions, Set, Frontier: Transformation Function
3. Production Frontier (2 good case)
 - (A) Position
 - Factor endowments
 - Real factor productivities (technology)
 - Scale economies
 - (B) Slope
 - Relative factor productivities
 - Relative endowments
 - Scale Economies
 - (C) Curvature
 - Factor intensity effects
 - Scale economies
4. Competitive Equilibrium
5. The gains from trade theorem

Lecture 2: Review of Consumer Theory, General Equilibrium

1. Equilibrium for the single consumer
 - Utility function
 - Budget Constraint
 - Equilibrium
2. Market Demand
 - The aggregation problem
 - Identical homothetic utility
 - Quasi-homotheticity
 - Positive, normative interpretations of aggregate indifference curves

3. Equilibrium in the closed economy
Equilibrium as the solution to an optimization problem
Equilibrium as the solution to a system of inequalities

Lecture 3: Duality, Excess Demand and Offer Functions

1. The national product or revenue function
2. The expenditure function
3. Excess demand functions
4. Offer functions

Lecture 4: Gains from Trade

1. The gains from trade theorem - free trade versus no trade (autarky)
2. Restricted/subsidized trade versus autarky
3. Free trade versus restricted trade
4. Failures of the gains from trade theorem
"non-convexities"
"non-tangencies"
5. Distribution of gains between countries
Equilibrium prices relative to autarky prices
6. Distribution of gains between individuals within countries
Identical endowments, different preferences
Identical preferences, different endowments

Part II: Bases for Trade

The No-Trade Model

- (A) Identical production functions in all countries
- (B) Same relative factor endowments in all countries
- (C) Constant returns to scale
- (D) Identical, Homogeneous preferences in all countries
- (E) No Distortions (imperfect competition, externalities, taxes).

Lecture 5: Ricardian Models - Technology as a basis for Trade

1. A one-factor model of technology differences
2. Comparative versus absolute advantage
Existence of trading opportunities depends only on comparative Advantage.
3. Production frontier, closed-economy equilibrium
4. Comparative advantage and autarky price ratios
Pattern of comparative advantage reflected in autarky prices
6. Excess demand and international equilibrium
Constructing the excess demand curve
Specialization
8. The distribution of gains between countries
Big versus small countries
More productive versus less productive countries
7. Real wage comparisons across countries
The role of equilibrium prices
The role of absolute advantage

Lecture 6: Heckscher-Ohlin Theory

1. Basic assumptions
2. The production set
Define factor intensities
The Edgeworth Box
Strict convexity of the production set
Slope
3. The Heckscher-Ohlin Theorem
4. The Factor-Price-Equalization Theorem
5. The Stolper-Samuelson Theorem
6. The Rybczynski Theorem
7. Policy Implications

Lecture 7: The Specific-Factors Model (Ronald Jones), Generalizations of Factor-Proportions Models

1. Production functions, convexity of the production set.
2. The direction of trade - modification of the Heckscher-Ohlin theorem.
3. Factor endowments and outputs- modification of the Rybczynski theorem.
4. Commodity prices and factor prices - modification of the FPE and Stolper-Samuelson theorems.

Lecture 8: Government Policies and Distortions as Determinants of Trade

1. Distinguishing among producer, consumer, and world prices.
2. Autarky equilibrium, where does tax revenue go?
3. Small economy facing fixed world prices: distortions as a basis for (bad) trade.
4. Two identical economies, except one has a distortion.
5. Gains-from-trade analysis: the expansion condition revisited.
6. Factor market distortions.

Lecture 9: External Economies of Scale

1. Firm and industry production functions
2. Non-tangency and non-convexity
3. Country size as a determinant of trade
4. Possible multiple equilibria and low-level traps
5. International external economies
6. A note on factor prices

Lecture 10: Oligopoly Models with Homogenous Goods

1. Trade between identical countries in a Cournot duopoly
2. The “linear” model: linear demand and constant marginal cost
3. Cournot duopoly in the linear model
4. A free-entry version of the Cournot linear model
5. Positive trade costs: the “reciprocal dumping” model with segmented markets
6. The “home-market effect”: per capital welfare difference in the presence of trade costs and country size differences
7. Notes on segmented versus integrated markets

Lecture 11: Monopolistic - Competition

1. Dixit-Stiglitz preferences - “love of variety”
The basic Krugman model - variable markups
Fixed markups (“large-group” monopolistic competition)
2. Differentiated intermediate inputs and the “division of labor”
Ethier’s model
Extensions - traded and non-traded intermediate inputs
3. Differentiated goods and the volume of trade - zero trade costs
The Helpman-Krugman FPE analysis
Intra-industry and inter-industry trade volumes
Extensions - non-homothetic demand
4. Transport costs and home-market effects
Differences in country size, real wages and Linder effects
Two-sector models
Factor-price and agglomeration effects
5. Lancaster’s “location” model - “ideal variety”

Lecture 12: Demand, Linder Hypothesis, Vernon's Product Cycle, Gravity, Grubel-Lloyd Indices, Miscellaneous

1. Different tastes between countries as a determinant of demand
2. Differences in per-capita income as a determinant of trade
3. The Linder hypothesis, product cycles, and extensions
4. The gravity equation, intra-industry trade indices

Lecture 13: Trade in Factors

1. A gains-from-trade theorem
2. The Jones-Coelho-Easton two-factor, one-good model.
3. The Heckscher-Ohlin Model: trade in goods and factors as substitutes
Zero trade costs, specialization
Positive trade costs
4. Possible different results in the three-good specific-factors model
5. Trade in goods and factors as complements
Countries differ in technology
Product market distortions
Increasing returns.
6. Home market effects in models with scale economies and transport costs.

Lecture 14: Multinational Firms

1. Review of empirical evidence
2. Dunning's OLI, joint inputs, firm versus plant-level scale economies
3. A model with endogenous multinationals
4. Pattern of trade in goods and services
5. Motives for internalization
6. A model of internalization

Part III: Trade Policy

Lecture 15: Tariffs

1. Tariffs, prices and welfare in a small economy
2. Equivalence of an import tariff and export tax
3. $\text{Tariff} = \text{consumption tax} + \text{production subsidy}$
4. Export subsidies
5. Existing distortions, second best, “infant industry argument
6. Terms of trade and the optimal tariff
7. Tariffs and retaliation, trade wars
8. Effective protection, internal income redistribution

Lecture 16: Quotas and Other Barriers

1. Methods of instituting a quota
 - auctions
 - domestic give-away
 - VER
 - red tape, DUPS
2. Comparison of methods
3. Non-equivalence of tariffs and quotas
 - distributional effects within countries and between countries
 - retaliation, Nash equilibria in tariffs versus quotas
 - foreign monopolist supplying the import good
 - domestic monopoly producer of the import-competing good.
 - economy is growing
 - fluctuations, “shocks”

Lecture 17: Strategic Trade Policy

1. Definition: Trade policy with increasing returns and imperfect competition
 - Domestic distortions, profit shifting

2. Cournot competition - production subsidy
One firm in each country
Firm numbers fixed, but > 1
Add domestic consumption
Free entry
Foreign ownership
3. Bertrand competition
5. Import protection as export promotion
6. Voluntary export restraints, facilitating collusion
7. Monopolistic competition
8. Complementarity of domestic and imported intermediate inputs
9. Segmented versus integrated markets

Lecture 18: Preferential Trade Areas

1. Inherent difficulties of second-best problems
2. Traditional approach: trade creation and diversion
3. Problems with traditional approach
4. Kemp-Wan theorem

Lecture 19: Political Economy

1. Basic postulates
2. Median-voter model
3. Participation costs, free riding, logrolling
4. Status-quo bias
5. Multi-issue bargaining and exchange of market access
6. Mayer's median voter model
7. Grossman-Helpman protection for sale

Reading List

Below is the list of chapters in Feenstra and in Markusen et. al. I have also included "classic" articles for each topic, but I will not expect students to master these in such a short course.

Lecture 1, Lecture 2, Lecture 3:

Markusen, Melvin, Kaempfer and Maskus, Chapters 2-4, Appendices 1-2
Feenstra, Chapter 1, 3
Dixit and Norman, Chapters 1-3

Lecture 4:

Markusen, Melvin, Kaempfer, and Maskus, Chapter 5
Feenstra, Chapter 6
Corden, "The Normative Theory of International Trade", in Jones and Kenen.
Dixit and Norman, Chapter 3, parts 2-4.

Lecture 5:

MMKM, Chapters 6, 7.
Feenstra, Chapter 1
Jones and Neary, "The Positive Theory of International Trade", in Jones and Kenen.
Dornbusch, Fischer, and Samuelson, "Comparative Advantage, Trade, and Payments in a Ricardian Model with a Continuum of Goods", *American Economic Review*, December 1977.

Lecture 6:

MMKM, Chapters 8.
Feenstra, Chapters 1-3.
Dixit and Norman, Chapter 4.
Jones, "The Structure of Simple General-Equilibrium Models," *Journal of Political Economy*, 1965.

Lecture 7:

MMKM, Chapter 9.
Jones, "A Three Factor Model in Trade, Theory and History", in Bhagwati et. al. (editors), *Trade, Balance of Payments and Growth*, North Holland, 1971.
Mayer, "Short-Run and Long-Run Equilibrium for a Small Open Economy," *Journal of Political Economy*, 1974, 955-968.
Ethier, "Higher Dimensional Trade Theory," in Jones and Kenen.

Lecture 8:

MMKM, Chapter 10, 11
Melvin, "Commodity Taxation as a Determinant of Trade," *Canadian Journal of Economics*, February 1970.

Lecture 9:

MMKM, Chapter 12.
Feenstra, Chapter 5.

Lecture 10:

MMKM, Chapter 12.
Feenstra, Chapter 5.
Brander and Krugman, "A Reciprocal Dumping Model of International Trade", in Grossman, Readings.
Markusen, "Trade and the Gains from Trade with Imperfect Competition," *Journal of International Economics*, 1981, 117-134, in Grossman, Readings.

Lecture 11:

MMKM, Chapter 12
Feenstra, Chapter 5.
Krugman, "Increasing Returns, Monopolistic Competition and International Trade," *Journal of International Economics*, 1979, 469-479. In Bhagwati, Readings.
Helpman, "International Trade in the Presence of Product Differentiation, Economies of Scale Monopolistic Competition: A Chamberlinian-Heckscher-Ohlin approach," *Journal of International Economics*, 1981, 304-340. In Grossman, Readings.
Ethier, "National and International Returns to Scale in the Modern Theory of International Trade", *American Economic Review*, 1982, 389-405. In Grossman, Readings.

Lecture 12:

MMKM, Chapter 13.
Linder, *An Essay on Trade and Transformation*, Almqvist and Wiksell, 1961.
Markusen, "Explaining the Volume of Trade: An Eclectic Approach", *American Economic Review*, December 1986.
Bergstrand, "The Heckscher-Ohlin Theorem, the Linder Hypothesis, and the Volume and Pattern of International Trade", *Economic Journal*, December 1990.
Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, May 1966.

Lecture 13:

MMKM Chapter 21.
Feenstra, Chapter 4.
Mundell, "International Trade and Factor Mobility," *American Economic Review* 1957, 321-335. In Bhagwati Readings.
Markusen, "Factor Movements and Commodity Trade as Complements," *Journal of International Economics*, 1983, 341-356, in Neary Readings.

Lecture 14:

MMKM, Chapter 22.
Feenstra, Chapter 10
Markusen, MIT press book.
Markusen and Venables, "The General Theory of Inter-Industry-, Intra-Industry-, and

Multinational Trade", *Journal of International Economics* 52 (2000), 209-234.
Markusen and Venables, "Multinational Firms and the New Trade Theory", *Journal of International Economics* 46 (1998), 183-204.
Helpman, "A Simple Theory of International Trade with Multinational Corporations," *Journal of Political Economy*, 1984, 451-471.
Markusen, "The Multinationals, Multi-Plant Economies, and the Gains from Trade", *Journal of International Economics*, 1984, 205-226. In Bhagwati Readings.
Horstmann and Markusen, "Endogenous Market Structures in International Trade", *Journal of International Economics* 1992, 109-129, in Neary Readings.

Lecture 15:

MMKM, Chapter 15.
Feenstra, Chapter 7
Dixit and Norman, Chapters 4, 5.
Corden, "The Normative Theory", in Jones and Kenen, Chapter 2.

Lecture 16:

MMKM, Chapter 16.
Feenstra, Chapter 8.
Corden, "The Normative Theory", in Jones and Kenen, Chapter 2.

Lecture 17:

MMKM, Chapter 17.
Feenstra, Chapter 8.
Spencer and Brander, "International R&D Rivalry and Industrial Strategy," *Review of Economic Studies*, 1983, 707-722.
Dixit, "International Trade Policy for Oligopolistic Industries," *Economic Journal Supplement*, 1984, 1-16.
Eaton and Grossman, "Optimal Trade and Industrial Policy under Oligopoly", *Quarterly Journal of Economics*, 1985, 383-406. In Grossman, Readings.
Harris, "Why Voluntary Export Restraints are Voluntary", *Canadian Journal of Economics*, 1985, 799-809.
Horstmann and Markusen, "Up the Average Cost Curve: Inefficient Entry and the New Protectionism", *Journal of International Economics*, 1986, 225-248, in Neary Readings.

Lecture 18:

MMKM, Chapter 18.
Feenstra, Chapter 6.
Kemp and Wan, "An Elementary Proposition concerning the Formation of Customs Unions", in Murray Kemp, *Three topics in the theory of international trade: distribution, welfare, and uncertainty*. North Holland, 1976.

Lecture 19:

MMKM, Chapter 17
Feenstra, Chapter 9.

Hillman, *The Political Economy of Protection*, Harwood, 1989.

Grossman and Helpman, "Protection for Sale", *American Economic Review*, 1994.

OTHER REFERENCES

Dixit and Norman, *Theory of International Trade*, Cambridge.

Bowen, Hollander, and Viaene, *Applied International Trade Analysis*, Michigan.

Bhagwati (ed.), *International Trade: Selected Readings*, MIT Press, second edition.

Grossman (ed.), *Imperfect Competition and International Trade*, MIT Press.

Jones and Kenen (ed), *Handbook of International Economics*, Volume I, North-Holland.

Helpman and Krugman, *Market Structure and Foreign Trade*, MIT Press.

Neary (ed), *International Library of Critical Writings in Economics: International Trade*, Edward Elgar.

Markusen, *Multinational Firms and the Theory of International Trade*, MIT Press, 2002.

Fujita, Krugman and Venables, *The Spatial Economy*, MIT Press 1999.

Choi and Harrigan, *Handbook of International Trade*, Blackwell, 2003.