

# International Trade

3<sup>rd</sup> module, 2019-2020

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## Course information

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**Course Website:** my.nes.ru

**Instructor's Office Hours:** tbc

**Class Time:** tbc

**Room Number:** tbc

**TA:** tbc

## Course description

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**The objective of this course:** to study how international trade affects the national economies and what benefits and risks it brings to participating countries.

**Course methodology:** the course covers both theoretical and empirical aspects of classical and neo-classical theories, new theory and heterogeneous firms' theory of international trade.

**The learning goal:** at the end of the course, the students will be able to discuss the major economic theories of international trade, to analyze the economic implications of globalization process, to understand the important redistributive effects of international trade and use instrumental approaches to trade analysis.

## Course requirements, grading, and attendance policies

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This course is a prerequisite for the course "International Trade Policy".

The final grade is based on a final exam (70%), home assignments (20%) and presentation (10%).

10% for presentation is credited subject to participation in presentation class (last week of the module).

The topic for presentation should be approved by lecturer (no later than 4<sup>th</sup> week of the module).

Final exam format: closed book+ A4; 2 hours; exit – no; questions – yes.

## Sample tasks for course evaluation

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### Sample topics of presentations

Market of Production and Distribution of Video Games  
The Icelandic weather comparative advantage  
Visa regimes and export  
Evolution of Chinese trade  
New trends in energy market: shale gas, heavy crude oil  
World market of post stamps  
World wine market

### Sample: Final exam, 2018-2019

You have 2 hours to answer 4 questions.

A necessary condition for a satisfactory grade is positive points for any three questions.

Do not waste time on proving results obtained in lectures and seminars.

Good luck!

### Question 1 (30 points)

**A) (10 points)** "Chinese workers earn only \$.50 an hour; if we allow China to export as much as it likes, U.S. workers will be forced down to the same level. You can't import a \$10 shirt without importing the \$.50 wage that goes with it." Discuss.

**B) (10 points)** Why countries gain from international trade

- in classical theory;
- in new trade theory;
- in heterogeneous firms' theory?

**C) (10 points)** Discuss similarities and differences in the outcomes of trade liberalization in the frameworks of these three theories.

### Question 2 (15 points).

A country's output vector is  $X = (2,2,1)^T$ , the world's output vector is  $\bar{X} = (55,100,110)^T$ , the price vector is  $p = (4,4,3)^T$ , and the commonly used input-output coefficients are:

$$A = \begin{pmatrix} 1 & 2 & 1 \\ 1 & 1 & 1 \\ 2 & 1 & 1 \end{pmatrix},$$

where the first row describes labor coefficients, the second row describes land coefficients, and the third row describes capital coefficients. All countries have identical homothetic preferences and balanced trade.

- a) Describe the country's pattern of commodity trade.
- b) Describe its pattern of trade in factor content.
- c) What are the equilibrium factor prices?

### Question 3 (25 points).

Consider a world of two symmetric countries that use labor to produce varieties of a single differentiated product. The utility function of country  $i$  is

$$U^i = \left[ \int_{\omega \in \Omega^i} q^i(\omega)^\alpha d\omega \right]^{1/\alpha}, \quad 0 < \alpha < 1$$

where  $q_i(\omega)$  is its consumption of brand  $i$  and  $\Omega$  is the set of available brands in country  $i$  (domestic plus imported). Each brand  $\omega$  is produced with one unit of labor per unit output and labor endowment equals  $L$  in every country. The elasticity of substitution in consumption equals  $\epsilon = 1/(1 - \alpha) > 1$  and the consumer price index in country  $i$  is

$$P^i = \left[ \int_{\omega \in \Omega^i} p^i(\omega)^{1-\epsilon} d\omega \right]^{\frac{1}{1-\epsilon}}$$

where  $p_i(\omega)$  is the price of brand  $\omega$  in country  $i$ . The wage rate is the numeraire, so that in a symmetric equilibrium the wage rate is  $w^i = 1$  in country  $i$ . As a result, real income of a worker in country  $i$  equals

$$w^i/P^i = 1/P^i$$

Labor markets are competitive while product markets exhibit monopolistic competition with free entry. There are symmetric entry costs. All manufactured varieties are traded internationally with the variable trade cost  $\tau$ . That is, if it costs  $w^i = 1$  to produce a product in country  $i$ , the cost of delivery to the foreign country is  $\tau w^i$ , which includes manufacturing costs and trade costs.

- a) Show that the number of products produced in every country,  $n^i = n$ , is proportional to the labor force  $L$  and independent of the trade cost  $\tau$ .
- b) Consider a proportional decline in the variable trade cost,  $\hat{\tau} = d\tau/\tau < 0$ . Show that its impact on the proportional rate of change of real income in country  $i$ ,  $(\widehat{w^i/P^i})$ , is proportional to the share of imported brands in consumption. In other words, by knowing the share of imports in consumption you can estimate the impact of the variable trade cost on real income, without knowing the elasticity of substitution  $\epsilon$ .

**Question 4 (30 points).**

Baldwin (2005) solves Melitz (2003) model for the case of Pareto distribution of firms' productivities. Based on the explicit model solution Baldwin offers a number of testable predictions. Two of them are below. Explain them. Make all necessary assumptions. You can refer to the results obtained in lectures and seminars.

- A. (15 points)** "Due to the existence of market-specific entry fixed costs, the likelihood of observing a zero bilateral trade flow should increase with variable trade costs, e.g. as proxied for by distance, when one controls for other factors such as the size of the import market. It is possible that the size of the market entry cost and the market size are correlated, so one might observe an interaction between distance and market size that is either positive or negative. The estimated coefficient on distance should diminish during a liberalization of other variable trade costs."
- B. (15 points)** "Trade liberalization agreements that focus on fixed market entry costs should reduce the positive impact of distance on the likelihood of a zero. If the agreement is reciprocal (most are), the impact should occur in both directions in the affected sectors."

## **Course materials**

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### **Required textbooks and materials**

There is no formal textbook for the course, I will refer in some cases to the following monographs and papers:

Krugman, P., M. Obstfeld, M. Melitz, *International Economics: Theory and Policy*, Pearson Education, 2011 (KO)

Helpman, E. and P.R. Krugman, *Market Structure and Foreign Trade*, MIT Press, Cambridge, 1985. (HK)

Grossman, G.M. and K. Rogoff (eds.), *Handbook of International Economics*, Vol. III, (Amsterdam, North Holland), 1995 (HB3)

Gopinath, G., E. Helpman and K. Rogoff (eds.), *Handbook of International Economics*, Vol. IV, (Amsterdam, North Holland), 2014 (HB4)

Feenstra, R., *Advanced International Trade: theory and evidence*, Princeton University Press, 2004 (F)

Melitz (2003), "The impact of trade on intra-industry reallocations and aggregate industry productivity", *Econometrica*, 1695

Melitz, Redding (2014) "Heterogeneous Firms and Trade" in Gopinath, Helpman, Rogoff (eds.) *Handbook of International Economics*, vol. IV

Costinot, Rodríguez-Clare (2014) "Trade Theory with Numbers: Quantifying the Consequences of Globalization", in Gopinath, Helpman, Rogoff (eds.) *Handbook of International Economics*, vol. IV

Head, Mayer (2014) "Gravity Equations: Workhorse, Toolkit, and Cookbook", in Gopinath, Helpman, Rogoff (eds.) *Handbook of International Economics*, vol. IV

Bernard, Jensen, Redding, Schott (2012), "The Empirics of Firm Heterogeneity and International Trade," *Annual Review of Economics*, *Annual Reviews*, vol. 4(1), pages 283-313, 07.

## **Course contents and additional materials**

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### **1. Dynamics and structure of international trade flows**

F, pp.56-60

Estevadeordal, Frantz, Taylor (2003). "The Rise And Fall Of World Trade, 1870-1939," *The Quarterly Journal of Economics*, MIT Press, vol. 118(2), pages 359-407"

*International Trade Statistics*, 2009

### **2. Why do countries trade -I: comparative advantage theory**

HK, Ch. 1-3.

F, Ch.1-3.

#### ***Gains from trade and basic law of comparative advantage***

F, pp.179-188.

Bernhofen, D.M. and J.C. Brown, "An Empirical Assessment of the Comparative Advantage Gains from Trade: Evidence from Japan," *American Economic Review* 95(1), 2005, 208-225.

#### ***Ricardian model***

Dornbusch, R., S. Fischer and P.A. Samuelson, "Comparative Advantage, Trade and Payments in a Ricardian Model with a Continuum of Goods," *American Economic Review*, 1977, 823-39.

Eaton, J. and S. Kortum, "Technology, Geography, and Trade," *Econometrica*, 70 (5), 2002, 1741-1779.

Costinot, A. D. Donaldson and I. Komunjer and Ivana Komunjer, "What Goods Do Countries Trade? A Quantitative Exploration of Ricardo's Ideas", *Review of Economic Studies*, 2012, vol. 79, issue 2, pp. 581-608

Balassa (1963) "An Empirical Demonstration of Classical Comparative Cost Theory", *Review of Economics and Statistics*, 231-238

### ***Heckscher-Ohlin model***

Leontief (1953), «Domestic Production and Foreign Trade: the American Capital Position Re-examined», *Proceedings of the American Philosophical Society*, 97, 332-349.

Leamer (1980), "The Leontief Paradox, Reconsidered", *Journal of Political Economy*, 495-503

Bowen H., E. Leamer and L. Sveikauskas (1987) "Multicountry, Multifactor Tests of the Factor Abundance Theory," *American Economic Review*, Vol . 77, No. 5, 791-809

Trefler (1993), "International Factor Prices: Leontief Was Right!," *Journal of Political Economy*, Vol. 101, No. 6, pp. 961-987

Trefler (1995), "The Case of the Missing Trade and Other HOV Mysteries," *American Economic Review*, Vol. 85, No. 5, pp. 1029-1046

Trefler, D. and S.C. Zhu (2010). "The Structure of Factor Content Predictions," *Journal of International Economics* 82: 195-207

### **3. Why do countries trade -II: monopolistic competition, increasing return to scale, and differentiated goods.**

#### ***New theory***

HK, Ch. 6-11.

F, Ch. 5.

Krugman (1979), " Increasing Returns, Monopolistic Competition, and International Trade", *Journal of International Economics*, 469-479

Krugman (1980), "Scale Economies, Product Differentiation, and the Patterns of Trade", *American Economic Review*, 950-959

Head and Ries (1999), "Rationalization Effects of Tariff Reductions", *Journal of International Economics*, 295-320

Trefler (2004) "The Long and Short of the Canada-U.S. Free Trade Agreement", *American Economic Review*, v94(4,Sep), 870-895

#### ***Heterogeneous firms theory***

Bernard, Eaton, Jensen, Kortun (2003), "Plants and productivity in International Trade", *American Economic Review*, 1268

Melitz (2003), "The impact of trade on intra-industry reallocations and aggregate industry productivity", *Econometrica*, 1695

Melitz, Redding (2013) "Heterogeneous Firms and Trade" in HB4

Pavcnik (2002), "Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants", *The Review of Economic Studies*, 245-276.

Bernard, Redding and Schott (2007), "Comparative Advantage and Heterogeneous Firms", *Review of Economic Studies*, 74, 31–66

Freund, Pierola, (2012) "Export Superstars", *Review of Economics and Statistics*, Vol.97, Is.5, pp. 1023-1032

Bernard, Jensen, Redding, Schott (2011), "The empirics of firm heterogeneity and international trade", NBER WP17627

Fajgelbaum, P., G. Grossman and E. Helpman, "Income Distribution, Product Quality, and International Trade," *Journal of Political Economy* 119: 721- 765, 2011.

Melitz, M.J. and S.J. Redding, "New Trade Models, New Welfare Implications," *American Economic Review* 105(3): 1105-1146, 2015.

Bernard A., M. Grazzi and C. Tomasi, 2015, "Intermediaries in International Trade: Products and Destinations", *Review of Economics and Statistics*, Vol. 97, No. 4: 916–920

Bernard, Jensen, Redding, Schott (2012), "The Empirics of Firm Heterogeneity and International Trade," *Annual Review of Economics, Annual Reviews*, vol. 4(1), pages 283-313, 07.

#### **4. Gravity model of international trade**

Helpman (1987), "Imperfect Competition and International Trade: Evidence from Fourteen Industrial Countries", *Journal of the Japanese and International Economies*, 62-81

Deardorff (1997), "Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?" in J. Frankel ed. *The Regionalization of the World Economy*, University of Chicago Press

Hummels and Levinsohn (1995), "Monopolistic Competition and International Trade: Reconsidering the Evidence," *Quarterly Journal of Economics*, Vol. 110, No. 3, pp. 799-836

Debaere (2005), "Monopolistic competition and trade, revisited: testing the model without testing for gravity", *Journal of International Economics*, 249– 266

McCallum (1995), "National Borders Matter: Canada-U.S. Regional Trade Patterns," *American Economic Review*, Vol. 85, No. 3, pp. 615-623

Anderson and Wincoop (2003), "Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review*, v93, 170-192.

Baier and Bergstrand (2001), "The Growth of World Trade: Tariffs, Transport Costs and Income Similarity," *Journal of International Economics*, Volume 53, Issue 1, Pages 1-27

Gorodnichenko and Tesar (2005), "A Re-Examination of the Border Effect", NBER Working Paper 11706

Helpman, E., M. Melitz and Y. Rubinstein, "Trading Partners and Trading Volumes" *Quarterly Journal of Economics* 2008, 123, 441—487.

Head, Mayer (2014) " Gravity Equations: Workhorse, Toolkit, and Cookbook", in Gopinath, Helpman, Rogoff (eds.) *Handbook of International Economics*, vol. IV

#### **5. Multinational firms (time permitting)**

Brainard (1997), "An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade," *American Economic Review*, 520-544.

Antràs, P., "Firms, Contracts, and Trade Structure," *Quarterly Journal of Economics*, 2003, 1375-1418.

\*Helpman, Melitz and Yeaple (2004), "Exports versus FDI with Heterogeneous Firms," *American Economic Review*, vol. 94, no. 1, pp. 300-316

Markusen. and Venables (2000), "The Theory of Endowment, Intra-industry and Multinational Trade," *Journal of International Economics*, 209-234.

Antràs, P. and E. Helpman, "Global Sourcing," *Journal of Political Economy* 112(3), 2004, 552-580.

Antràs, Pol and Esteban Rossi-Hansberg, "Organizations and Trade," 2008, *Annual Review of Economics*, Annual Reviews, vol. 1(1), pages 43-64, 05.

Bernard, Andrew B., J. Bradford Jensen, Stephen J. Redding and Peter K. Schott, "Firms in International Trade," *Journal of Economic Perspectives*, 2007, 21(3), 105-130.

Nunn, Nathan, "Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade," *Quarterly Journal of Economics*, May 2007, CXXXII (2), 569- 600.

Fajgelbaum, P., G.M. Grossman and E. Helpman, "A Linder Hypothesis for Foreign Direct Investment," *Review of Economic Studies* 82: 83—121, 2015.

### **Academic integrity policy**

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Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.