

Lecture 1: Course Introduction and Basic Facts

Ec 2535: Advanced Topics in International Trade

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Harvard

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What Is This Course On?

- Course focuses on a firm-level approach to the study of international trade...
- ... and on selected topics in trade.
- First part of the course (Marc): Theoretical and empirical studies of the decisions to export
- Second part (Pol): Theoretical and empirical studies of the decisions to produce abroad
- Third part (Pol): Various topics including the effects of institutions on trade, sorting models, and models with financial frictions

Should I Be Here?

- Course is targeted to G2+ Econ students
- Students are expected to have completed first-year micro and macro theory courses (Econ 2010a-b or equivalent)...
- ... as well as an introductory graduate course in International Trade (Econ 2530a or equivalent).
- You should probably not be here if you don't expect to write at least one Ph.D. Chapter in International Trade.

- How is this course different from Econ 2530a?
 - less and less so over the years
 - but here we're going to study some of the topics covered in Econ 2530a in much more detail
 - this is particularly useful if one intends to do research in the area.

If You Are Planning on Taking the Course for Credit...

- 1 Register for the course.
- 2 Send an email to me (and Marc, when applicable) prior to each class on the paper to be covered (20%):
 - Why is the paper important (or why not)?
 - A description of the main features that best summarize the model.
 - What you liked – or did not like – about the paper.
 - What parts of the paper were not clear or need further explanations.
- 3 Write 3 referee reports on papers that are on the syllabus but not those you would typically be sending emails about (45%).
- 4 Prepare a brief (10-15 minute) presentation on a new project related to the topics in the course and write up a 3-5 page-long proposal (25%).
- 5 PARTICIPATE in class discussion (10%).

Highlights of Reading List

- See Syllabus and Tentative Schedule
- ① International Trade and Firm Heterogeneity
 - Ricardian Models of Producer Heterogeneity
 - Monopolistic Competition Models of Producer Heterogeneity
 - Theoretical Extensions of Monopolistic Competition Models
 - Connecting Models Back to Aggregate Trade Patterns, Gravity, and the 'Margins' of Trade
- ② Firms and the Decision to Invest Abroad: Causes and Effects
 - Horizontal FDI
 - Vertical FDI
 - Contract Enforcement and Institutions as Determinants of Location
 - The Boundaries of the Multinational Firm
- ③ Other Topics (Sorting in Trade and FDI, Trade and Capital Market Frictions)

BROAD INTRODUCTION

Neoclassical Trade Theory (1817-today)

- Insightful models that still constitute the core of what we teach undergrads
- **Key Assumptions:** constant returns to scale, perfect competition, homogeneous goods and factors
- **Key Results:** cross-country differences (technology, endowments) drive trade ; emphasis on intersectoral trade flows; robust factor content predictions
- Useful tool to analyze certain aspects of fragmentation...
- ... but of limited use when studying firm-level issues in international trade

New Trade Theory (1979-today)

- First revolution in the field, begins with Krugman (1979) and culminates with Helpman and Krugman (1985)
- **Key Assumptions:** increasing returns to scale, imperfect competition, product differentiation
- **Key Results:** intraindustry specialization and intraindustry trade flows; helps explain large volumes of trade between similar countries
- Preferences, technology and market structure pin down size of the firm/plant...
- ... but all firms within a sector are treated symmetrically, so not great models for firm-level approaches to trade
- Furthermore: most New Trade Theory models make strong assumptions
 - on preferences (symmetric Dixit-Stiglitz CES aggregators)
 - on technology (positive fixed cost and common constant marginal cost)
 - on market structure (industries feature a continuum of firms with market power)

'New New' Trade Theory

- Second revolution in the field, begins with Melitz (2003) and culminates with
- Motivated by firm-level empirical facts inconsistent with New Trade Theory models
 - Firms appear to be heterogeneous in productivity, factor inputs, and trade behavior
 - Only a small fraction of firms export
 - Most exporting firms sell only to few markets
 - Extensive margin of trade plays a significant role in shaping cross-sectional variation in aggregate exports
 - Exporters appear to be systematically different from non-exporters: larger, more productive, more skill intensive
 - Trade liberalization leads to market share reallocations towards more productive firms, thereby increasing aggregate productivity

'New New' Trade Theory

- **Key Assumptions:** same as New Trade Theory plus heterogeneity in (revenue-based) productivity across firms; fixed/sunk costs of exporting
- **Key Results:** able to account for firm-level facts and delivers interesting predictions for the importance of extensive margin for aggregate trade flows
- Benchmark models use strong functional form assumptions - no 'Helpman-Krugman (1985)'-equivalent yet (it's hard!)
- Functional forms deliver qualitative and quantitative predictions of the model that line up well with data

KEY EMPIRICAL FACTS

Some Empirical Facts

- ① Firms appear to be heterogeneous in productivity, factor inputs, and trade behavior
- ② Only a small fraction of firms export
- ③ Most exporting firms export little and to few markets
- ④ Largest exporters account for a disproportionate share of exports (skewness)
- ⑤ Exporters appear to be systematically different from non-exporters: larger, more productive, more skill intensive
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Heterogeneity in the Data

- Standard deviation of log sales

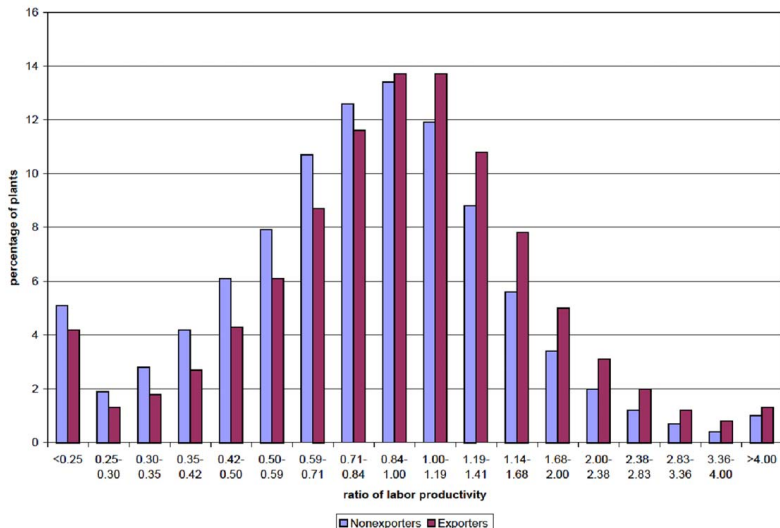
Country	# of producers	Overall	Within Sector (52 Manufacturing Sectors)
France	76,456	1.82	1.70
Italy	39,704	1.33	1.29
Spain	31,446	1.26	1.18
U.S. (plants)	224,009	1.67	

TABLE 2—PLANT-LEVEL PRODUCTIVITY FACTS

Productivity measure (value added per worker)	Variability (standard deviation of log productivity)	Advantage of exporters (exporter less nonexporter average log productivity, percent)
Unconditional	0.75	33
Within 4-digit industries	0.66	15
Within capital-intensity bins	0.67	20
Within production labor-share bins	0.73	25
Within industries (capital bins)	0.60	9
Within industries (production labor bins)	0.64	11

Notes: The statistics are calculated from all plants in the 1992 Census of Manufactures. The “within” measures subtract the mean value of log productivity for each category. There are 450 4-digit industries, 500 capital-intensity bins (based on total assets per worker), 500 production labor-share bins (based on payments to production workers as a share of total labor cost). When appearing within industries there are 10 capital-intensity bins or 10 production labor-share bins.

Heterogeneity in the Data Even Among Exporters



Some Empirical Facts

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Exporters are a Minority

Table 2
Exporting By U.S. Manufacturing Firms, 2002

<i>NAICS industry</i>	<i>Percent of firms</i>	<i>Percent of firms that export</i>	<i>Mean exports as a percent of total shipments</i>
311 Food Manufacturing	6.8	12	15
312 Beverage and Tobacco Product	0.7	23	7
313 Textile Mills	1.0	25	13
314 Textile Product Mills	1.9	12	12
315 Apparel Manufacturing	3.2	8	14
316 Leather and Allied Product	0.4	24	13
321 Wood Product Manufacturing	5.5	8	19
322 Paper Manufacturing	1.4	24	9
323 Printing and Related Support	11.9	5	14
324 Petroleum and Coal Products	0.4	18	12
325 Chemical Manufacturing	3.1	36	14
326 Plastics and Rubber Products	4.4	28	10
327 Nonmetallic Mineral Product	4.0	9	12
331 Primary Metal Manufacturing	1.5	30	10
332 Fabricated Metal Product	19.9	14	12
333 Machinery Manufacturing	9.0	33	16
334 Computer and Electronic Product	4.5	38	21
335 Electrical Equipment, Appliance	1.7	38	13
336 Transportation Equipment	3.4	28	13
337 Furniture and Related Product	6.4	7	10
339 Miscellaneous Manufacturing	9.1	2	15
Aggregate manufacturing	100	18	14

Sources: Data are from the 2002 U.S. Census of Manufactures.

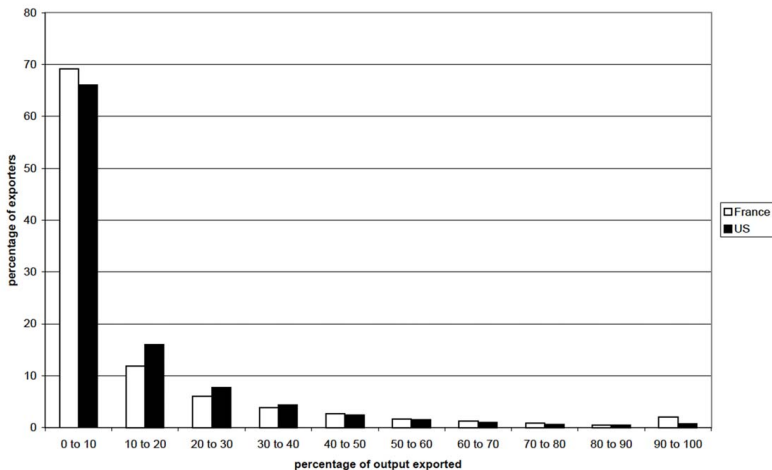
Notes: The first column of numbers summarizes the distribution of manufacturing firms across three-digit NAICS manufacturing industries. The second reports the share of firms in each industry that export. The final column reports mean exports as a percent of total shipments across all firms that export in the noted industry.

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Exporters Export Relatively Little

Figure 1: Export Intensity Distributions



Exporters Sell to Very Few Markets

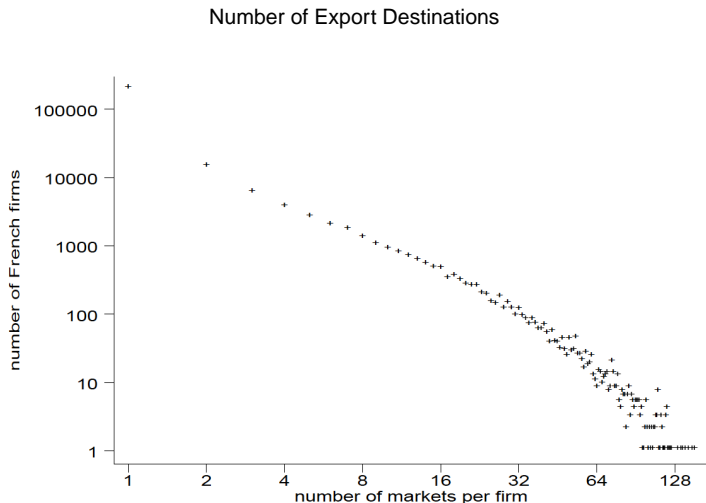
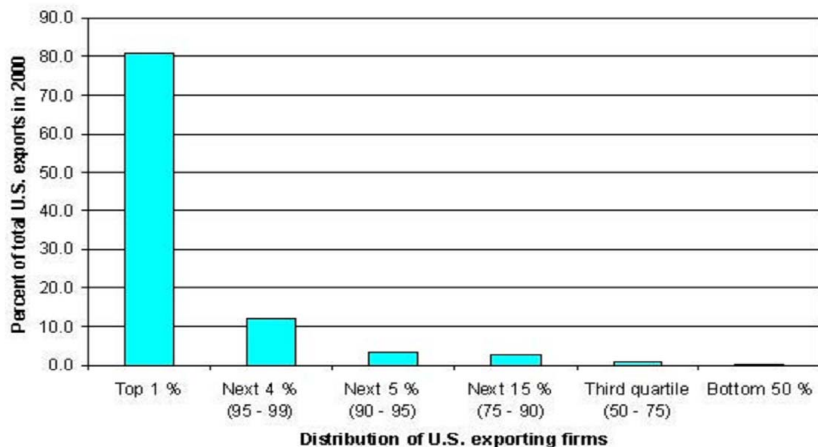


Figure 1A: Entry of French Firms

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Skewed Distribution of Exports



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Exporters are Different Animals

Table 3
Exporter Premia in U.S. Manufacturing, 2002

	<i>Exporter premia</i>		
	(1)	(2)	(3)
Log employment	1.19	0.97	
Log shipments	1.48	1.08	0.08
Log value-added per worker	0.26	0.11	0.10
Log TFP	0.02	0.03	0.05
Log wage	0.17	0.06	0.06
Log capital per worker	0.32	0.12	0.04
Log skill per worker	0.19	0.11	0.19
Additional covariates	None	Industry fixed effects	Industry fixed effects, log employment

Sources: Data are for 2002 and are from the U.S. Census of Manufactures.

Notes: All results are from bivariate ordinary least squares regressions of the firm characteristic in the first column on a dummy variable indicating firm's export status. Regressions in column 2 include industry fixed effects. Regressions in column 3 include industry fixed effects and log firm employment as controls. Total factor productivity (TFP) is computed as in Caves, Christensen, and Diewert (1982). "Capital per worker" refers to capital stock per worker. "Skill per worker" is nonproduction workers per total employment. All results are significant at the 1 percent level.

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Extensive Margin is Important

$$\ln X_{US,j} = \ln \left(N_{US,j}^{\text{firms}} \right) + \ln \left(N_{US,j}^{\text{prod}} \right) + \ln \left(\frac{O_{US,j}}{N_{US,j}^{\text{firms}} \times N_{US,j}^{\text{prod}}} \right) + \ln \left(\frac{X_{US,j}}{O_{US,j}} \right)$$

$O_{US,j} \equiv$ number of firm-product obs. with $X_{US,j} > 0$

TABLE 1—CROSS-SECTIONAL DECOMPOSITIONS, 2003

Margin	Exports			Imports		
	Full sample	RP	AL	Full sample	RP	AL
Firms	0.694 (0.016)	0.591 (0.017)	0.711 (0.017)	0.580 (0.016)	0.475 (0.015)	0.619 (0.017)
Products	0.588 (0.015)	0.598 (0.017)	0.605 (0.016)	0.543 (0.016)	0.511 (0.016)	0.577 (0.018)
Density	-0.508 (0.015)	-0.500 (0.016)	-0.527 (0.015)	-0.441 (0.013)	-0.398 (0.013)	-0.476 (0.015)
Intensive	0.226 (0.017)	0.311 (0.018)	0.211 (0.017)	0.318 (0.018)	0.412 (0.018)	0.279 (0.020)
Countries	231	207	231	227	214	224

Notes: Table reports OLS decompositions of US exports and imports across trading partners along extensive and intensive margins. Each cell reports the mean contribution and standard error from a different regression. Data are for 2003. First column is for the full sample; second and third columns are restricted to related-party and arm's-length trade, respectively.

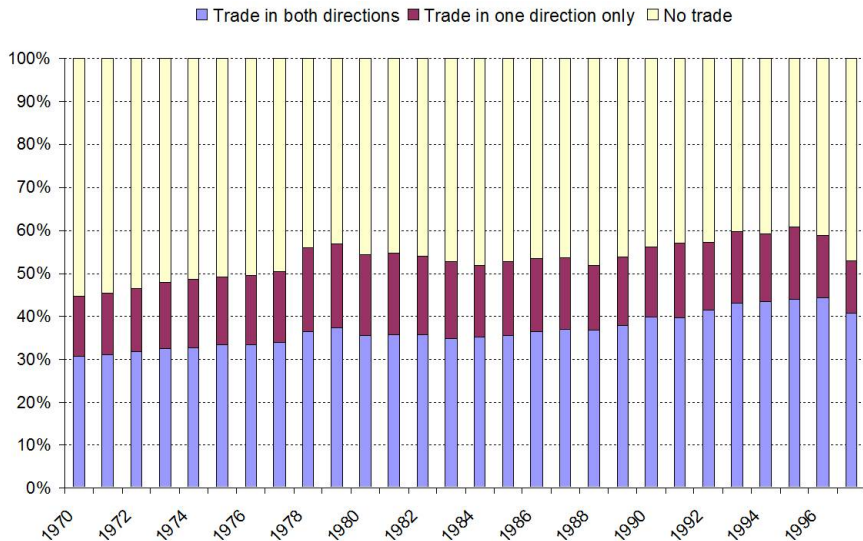
Extensive Margin is Important

Table 3: Gravity and the Margins of U.S. Exports

	$\ln(\text{Value}_c)$	$\ln(\text{Firms}_c)$	$\ln(\text{Products}_c)$	$\ln(\text{Density}_c)$	$\ln(\text{Intensive}_c)$
$\ln(\text{Distance}_c)$	-1.37 0.17	-1.17 0.15	-1.10 0.15	0.84 0.13	0.05 0.10
$\ln(\text{GDP}_c)$	1.01 0.04	0.71 0.03	0.55 0.03	-0.48 0.03	0.23 0.02
Constant	7.82 1.83	0.52 1.59	3.48 1.55	-2.20 1.37	6.03 1.07
Observations	175	175	175	175	175
R^2	0.82	0.76	0.68	0.66	0.37

Notes: Table reports results of country-level OLS regressions of U.S. exports or their components on trading-partners' GDP and great-circle distance (in kilometers) from the United States. Standard errors are noted below each coefficient. Data are for 2002.

A Lot of Zero Bilateral Trade Flows in the Data



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Relocation Effects

- In the U.S., on average each year, 1 in every 10 jobs are created and destroyed by entering, exiting, expanding, contracting firms
- Less than 10% of these job “reallocations” reflect shifts across 4-digit sectors (true for other countries)
- For other variables too, (4-digit) industry fixed effects explain little variation in firm dynamics

Table 1

Fraction of Variance of Establishment-Level Growth Rates: Four-Digit Industry Effects

Dependent Variable	R^2
Employment growth	0.057
Capital equipment growth	0.062
Capital structures growth	0.052
Output (gross) growth	0.089
Labor productivity growth (gross output per hour)	0.086
Total factor productivity growth	0.095

- Evidence for U.S. (Bernard & Jensen, 2004 OREP):
 - 40% of U.S. manufacturing TFP growth is related to exporters growing faster than non-exporters (in terms of both shipments and employment)
- Evidence for other countries
 - Mexico: Tybout & Westbrook (1995 JIE)
 - Taiwan: Aw, Chen, & Roberts (2000 WBER)
 - Chile: Pavcnik (2002 REStud)
 - Between 1979-86, productivity grew by 19.3% (trade liberalization)
 - 6.6% accounted for by increased productivity within plants
 - 12.7% accounted for by reallocation towards more efficient producers
- Trefler (AER, 2004) for Canada following Canada-U.S. FTA

- Empirical evidence suggests that successful theoretical frameworks for studying firms and the decision to export should include two features:
 - ① Within sectoral heterogeneity in size and productivity.
 - ② A feature that leads *only* the most productive firms to engage in foreign trade:
 - This could be a sunk cost of exporting as documented by Roberts and Tybout (1997) and Bernard and Jensen (2004), and formalized by Melitz (2003);
 - an alternative demand structure that leads to nonconstant markups (as in Melitz and Ottaviano, 2008); or
 - an alternative formulation of competition (as in BEJK 2003).

- An obvious question at this point is: Do differences in performance generate selection into exporting, or does exporting generate differences in performance?
- Not straightforward to tease out empirically because firms make joint decisions concerning both export status and technology choice:
 - Verhoogen (2009, QJE): quality upgrade and exports in Mexico
 - Bustos (2010, AER): new exporters in Argentina spend more on technological upgrades
 - Lileeva and Trefler (2010, QJE): similar for Canada
 - see Burstein and Melitz (2011) for overview of theoretical approaches

FDI AND GLOBAL PRODUCTION

Firms and the Decision to Invest Abroad

- Another important fact that traditional trade theory neglects is that firms have (at least) two modes of servicing a foreign market.
- The first mode is the exporting option, which was discussed above.
- An alternative mode, however, is to service the different foreign markets via FDI (Horizontal FDI)
- MNEs may also arise when a producer finds it optimal to fragment the production process and undertake different parts of the production process in different countries (Vertical FDI).
- Current international production patterns are not well captured by models where production happens in only one location.

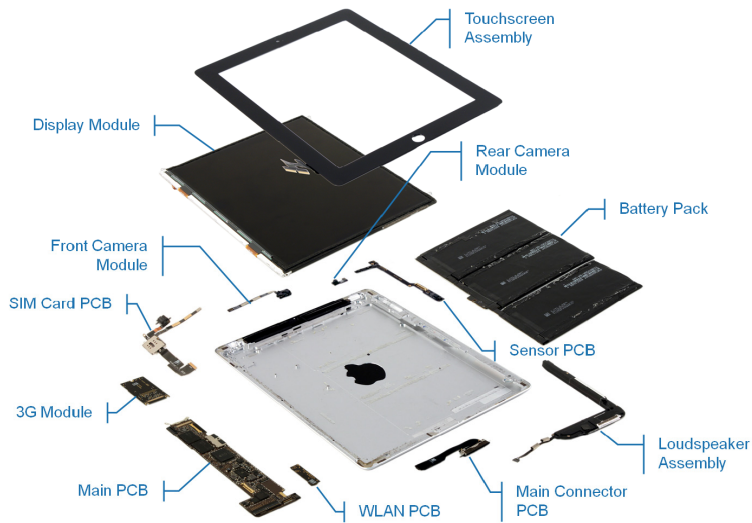
Everybody's Favorite Toy



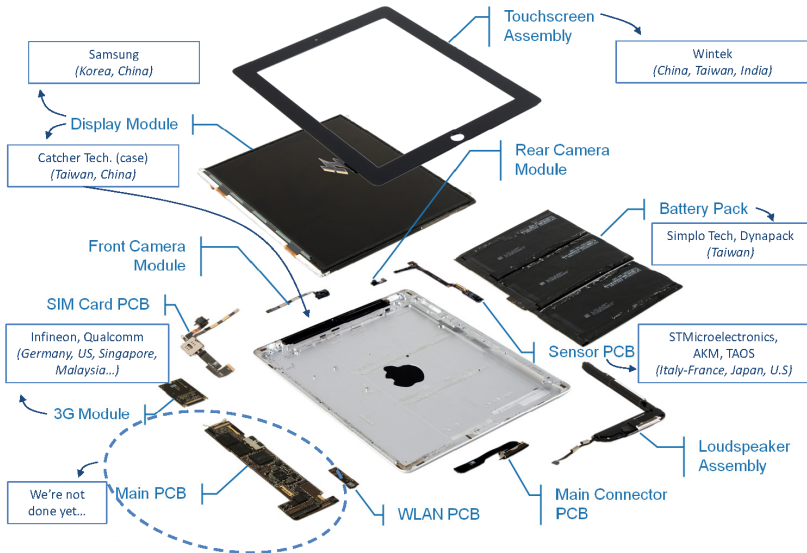
Designed by Apple in California, Assembled in China

Assembled in China (and now also in Brazil) by Taiwan-based Foxconn and Pegatron

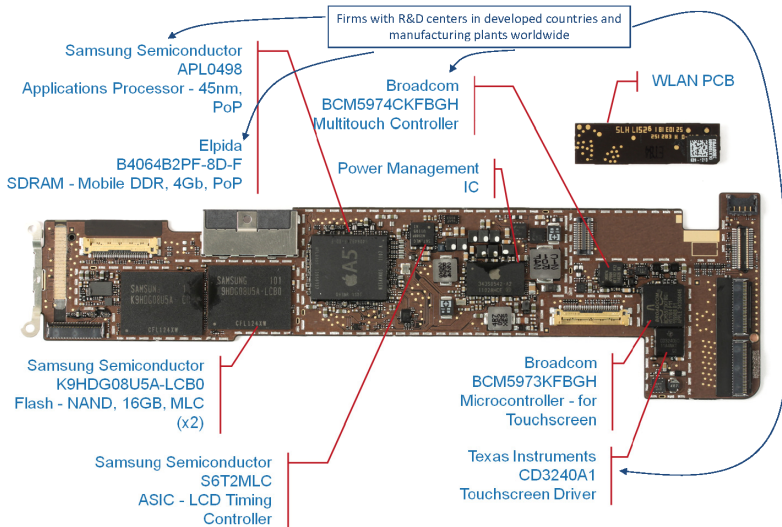
Tearing Down an iPad 3



Tearing Down an iPad 3

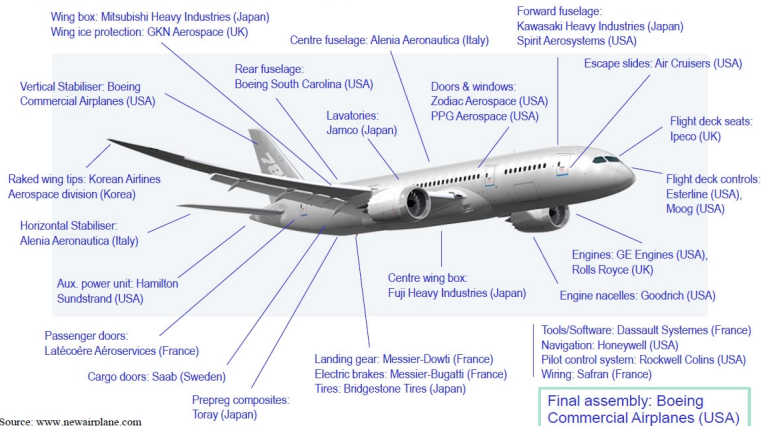


An Even Closer Look



It's Not Just North-South Fragmentation

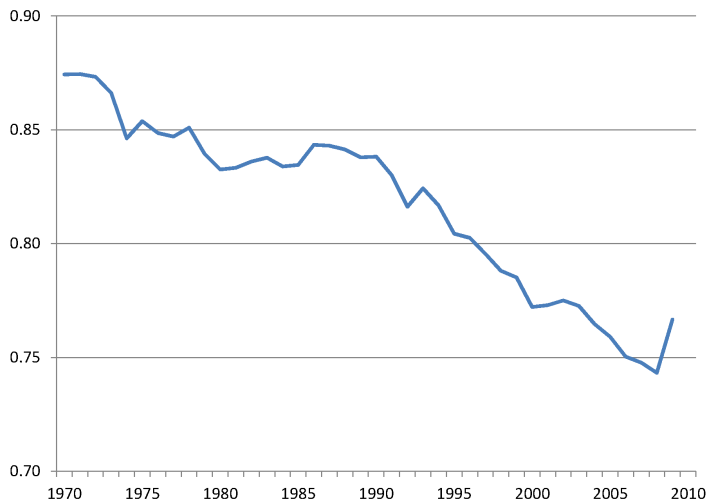
Fragmentation of production: the example of the Boeing 787 Dreamliner



Quantifying Global Production Sharing

- Phenomenon large enough to be salient in aggregate statistics
- Feenstra and Hanson (1996) used U.S. I-O tables to infer the share of imported inputs in total U.S. input purchases
 - this share had already increased from 5.3% in 1972 to 11.6% in 1990
 - Campa and Goldberg (1997) provided similar evidence for Canada and U.K. (but not Japan)
- Hummels et al. (2001) constructed a measure of vertical specialization capturing the value of imported inputs embodied in exported goods
 - this accounted for up to 30% of world exports in 1995, having grown by as much as 40% since 1970
- Johnson and Noguera (2012) have computed a *global* Input-Output table from which one can back out the value-added and intermediate input contents of gross trade flows

Ratio of Value Added to Gross Exports (VAX), 1970-2009



Source: Johnson and Noguera (2012b)

- Although, a nontrivial share of vertical fragmentation has occurred at arm's-length, multinational firms have played a key role in these developments
- Some figures suggestive of the quantitative importance of MNEs
 - Value added of all MNEs (including parent firms) is roughly 25% of world GDP
 - Sales of domestically produced goods to foreign customers accounts for only 25 percent of the sales of large American firms (BEA); remaining 75 percent is accounted for by the sales of foreign affiliates of American multinationals (Yeaple, 2012)
 - Roughly 90 percent of U.S. exports and imports flow through multinational firms, with close to one-half of U.S. imports transacted *within* the boundaries of multinational firms rather than across unaffiliated parties (Bernard et al., 2009)
 - The 700 largest MNEs account for roughly 50% of world R&D spending and close to 70% of world business R&D spending

Multinationals in U.S. Trade

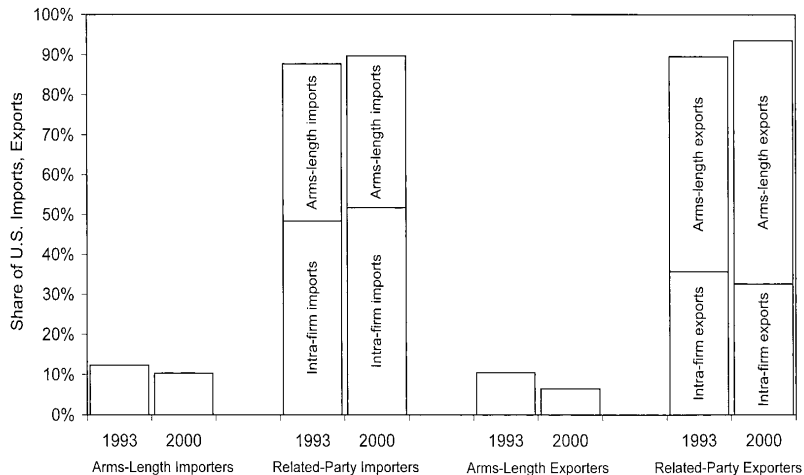


Fig. 14.1 The share of U.S. trade that flows through multinational firms

SIX STYLIZED FACTS ABOUT MNEs AND FDI

- 1 Foreign direct investment data from the balance of payments
 - Foreign direct investment (FDI) occurs when a firm from one country obtains an operating stake (usually 10 percent) in an enterprise in another country or when a financial flow occurs between parties that are resident in different locations but related by ownership
- 2 Government survey data that distinguish between national firms and the parents and affiliates of multinationals firms
 - For example, census data on U.S. parents and their foreign affiliates collected by the Bureau of Economic Analysis (BEA) of the United States.
- 3 Related Party Trade data which records whether transactions occur within or across firm boundaries
 - For example, U.S. Intrafirm trade data provides data on related and non-related party U.S. imports and exports at the six-digit Harmonized System (HS) classification and at the origin/destination country level

A Word of Caution: Multinationals vs. FDI

- Multinational firm is “an enterprise that controls and manages production establishments – plants – located in at least two countries. It is simply one subspecies of multiplant firm” (Caves, 1996, p. 1).
- A Foreign Direct Investment (FDI) flow is made up of equity capital, reinvested earnings, and other capital associated with an intercompany debt transaction (10% requirement).
- It can be misleading to measure multinational activity through FDI flows.
 - MNE borrow from local markets.
 - An FDI flow does not always entail control.
- The first caveat suggests that FDI flows may underestimate the importance of multinational firms, while the second one suggests that they might overestimate it.
- In testing theories of the multinational firm, using data on the **operations** of multinational firms is much more appropriate. Unless you have a theory of the capital structure decisions of affiliates!

Stylized Facts About Multinational Activity: #1

- Fact One:** Multinational activity is primarily concentrated in developed countries where it is mostly two-way. Developing countries are more likely to be the destination of multinational activity than the source

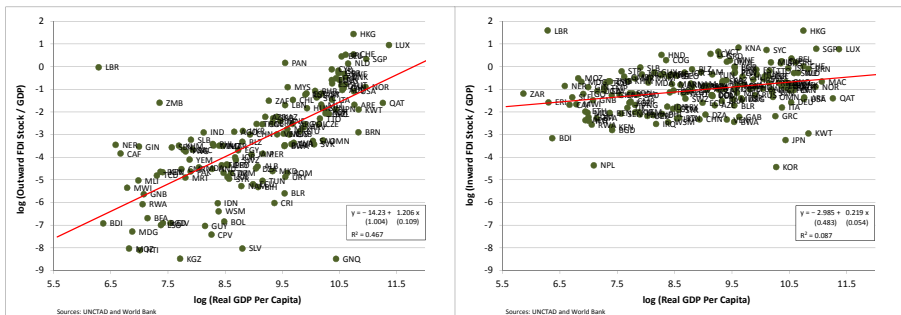


Figure: Aggregate FDI Stocks and Development

Stylized Facts About Multinational Activity: #1

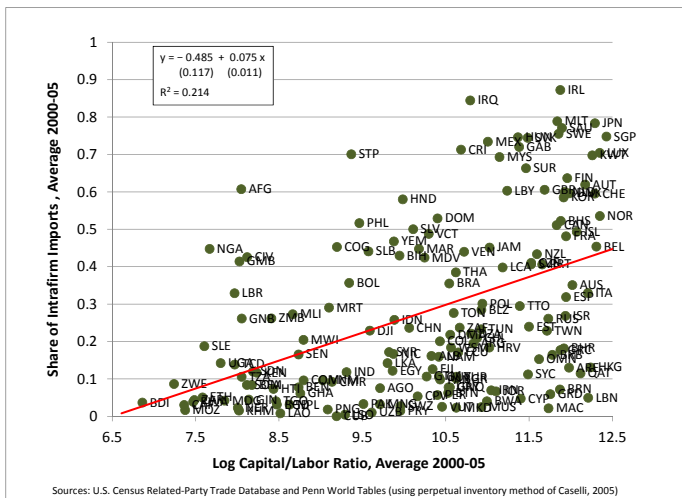


Figure: Share of U.S. Intrafirm Imports and Physical Capital Abundance

Stylized Facts About Multinational Activity: #1

- Two-way flow nature of FDI flows

Table 1. Grubel-Lloyd Indices for Bilateral FDI Stocks

Partner	Belgium	Canada	Chile	France	Japan	Mexico	Poland	UK	USA
Developed	44	55	16	57	51	8	30	47	46
Developing	25	24	24	33	15	4	21	24	13

Source: OECD Stan. Data is for 2010.

$$GL_{ij} = 100 \times \left(1 - \frac{|S_{ij} - S_{ji}|}{S_{ij} + S_{ji}} \right),$$

Stylized Facts About Multinational Activity: #2

- **Fact Two:** The relative importance of multinationals in economic activity is higher in capital intensive and R&D intensive goods, and a significant share of two-way FDI flows is intraindustry in nature

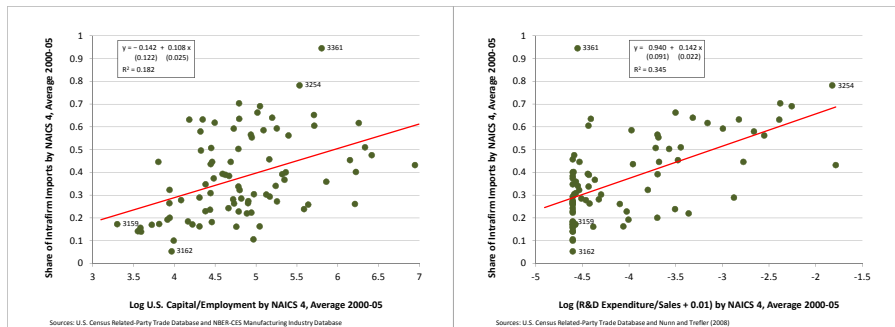


Figure: The Share of Intrafirm Imports, Capital Intensity and R&D Intensity

Stylized Facts About Multinational Activity: #2

Table 2. Share of Foreign Affiliates in Domestic Employment by Country

Partner	France	Germany	Holland	Norway	Poland	Spain	Denmark
Total Manufacturing	26.2	15.4	25.1	7.3	16	26.4	2.3
Food, Beverages, Tobacco	14.9	7.6	21.3	3.0	10.3	14.6	2.2
Textiles, Clothing, Leather, Footwear	13.9	8.8	11.3	3.2	14.8	4.5	1.3
Wood and Paper	21.6	9.0	20.7	4.8	15.3	12.8	1.4
Chemicals	37.6	24.8	43.2	17.5	20.9	39.5	6.6
Non-Metallic Mineral Products	27.6	13.7	43.8	21.9	16.7	14.4	3.6
Basic and Fabricated Metals	25.1	12.0	22.5	6.3	16.1	17.3	1.4
Non-electric Machinery	40.6	17.3	24.3	9.0	13.3	27.4	3.2
Electrical and Electronic Machinery	37.6	16.4	12.4	13.2	23.5	41.4	3.7
Scientific Instruments	24.8	21.3	28.7	6.4	15.0	23.8	3.8
Motor Vehicles	28.6	16.4	50.1	8.3	38.9	73.3	8.2
Other Transport	19.4	52.5	16.6	9.2	15	31.7	1.3
Year	2004	2004	2003	2001	2004	2004	2002

Source: OECD Stan.

Stylized Facts About Multinational Activity: #2

- Intraindustry, two-way flow nature of FDI flows

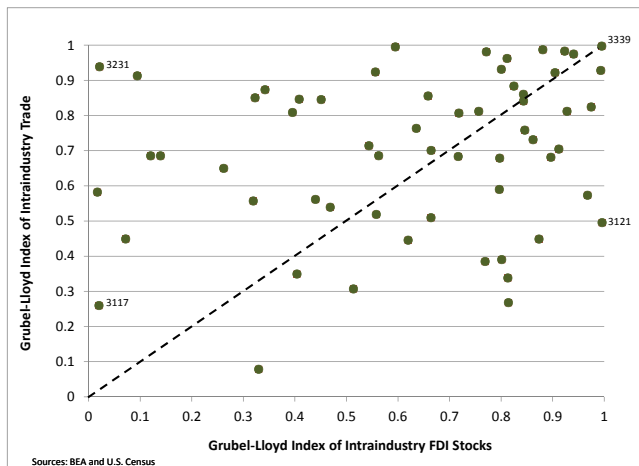


Figure: Intraindustry FDI flows

Stylized Facts About Multinational Activity: #3

- **Fact Three:** The production of the foreign affiliates of multinationals falls off in distance, but at a slower rate than either aggregate exports or parent exports

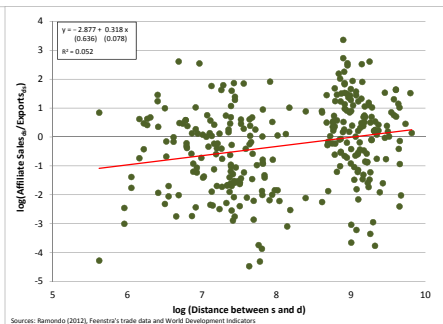
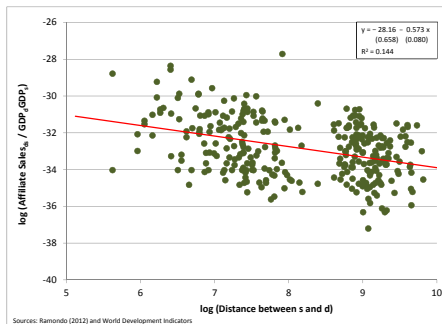


Figure: Gravity, FDI Sales and Trade Flows

Stylized Facts About Multinational Activity: #3

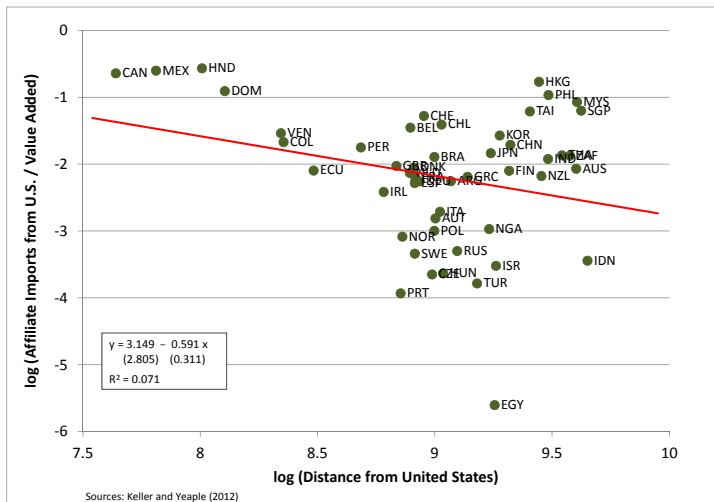


Figure: Affiliate Imports from US relative to Local Value-Added

Stylized Facts About Multinational Activity: #4

- **Fact Four:** Both the parents and the affiliates of multinational firms tend to be larger, more productive, more R&D intensive and more export oriented than non-multinational firms

Table 3. U.S. Parent Firms Percent Shares of US Activities

	Manufacturing	All Industries
Enterprises	0.4	0.04
Value Added	62.3	17.6
Employment	58.2	16.9
R&D Expenditure	72.1	69.2
Exports	44.4	54.7

Source: Barefoot and Mataloni (2011), U.S. Census

Stylized Facts About Multinational Activity: #4

Table 4. Affiliates Relative to Local Firms

	Finland	France	Ireland	Holland	Poland	Sweden
Enterprises	1.6	2.0	13.4	3.4	16.0	2.8
Employment	17.2	26.2	48.0	25.1	28.1	32.4
Sales	16.2	31.8	81.1	41.1	45.2	39.9
R&D Expenditure	13.1	27.4	77.3	35.8	20.9	52.0
Exports	17.5	39.5	92.3	60.0	69.1	45.8

Source: OECD (2007).

Stylized Facts About Multinational Activity: #4

- Some evidence from Spain

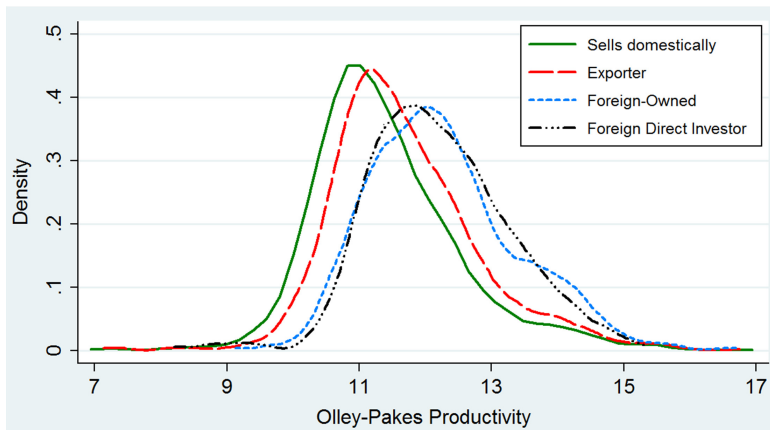


Figure: Intraindustry FDI flows

Stylized Facts About Multinational Activity: #5

- **Fact Five:** Within multinational enterprises, parents are relatively specialized in R&D while affiliates are primarily engaged in selling goods in foreign markets, particularly in their host market.

Table 5. Share of US Multinational Activity Due to Parent Firms

	1999	2009
Sales	74	65
Value Added	78	68
Employment	75	68
R&D Expenditure	87	84

Source: BEA

Stylized Facts About Multinational Activity: #5

Table 6. Destination of Affiliate Sales by Industry

	Host Country	Other Foreign	United States
Total Manufacturing	55	34	11
Textile and Apparel	45	35	19
Metals and Minerals	60	32	8
Chemicals and Plastics	58	36	6
Machinery	49	36	15
Computers and Electronics	40	43	16
Electronic Equipment	47	40	13
Transport Equipment	47	35	19
Other	66	26	8

Source: 2009 Benchmark Survey of U.S. Direct Investment Abroad, BEA.

Stylized Facts About Multinational Activity: #6

- **Fact Six:** Cross-Border Mergers and Acquisitions make up a large fraction of FDI and are a particularly important mode of entry into developed countries.

Table 7. The Value of Mergers and Acquisitions Relative to FDI Flows

	2005	2006	2007	2008	2009	2010
World	0.47	0.43	0.52	0.41	0.21	0.27
Developed	0.65	0.54	0.68	0.60	0.34	0.42
Developing	0.19	0.21	0.18	0.16	0.08	0.14

Source: UNCTAD

Why Do Multinational Firms Exist?

- A multinational firm emerges when a firm decides to:
 - Locate part of the production process in a foreign country, **and**
 - Take a “controlling” equity stake in the foreign production facility
- We can rephrase these two decisions as follows:
 - 1 Location: why is a good produced in two countries rather than in one country and then exported to the second country?
 - 2 Internalization: why is production in different locations done by one firm rather than by separate firms?
 - Key part of pinning down multinational firm boundaries

Internalization: The Make-or-Buy Decision

- MNEs have played a key role in the disintegration of the production process, but they choose not to internalize a sizeable volume of their transactions.
 - Example: Intel vs. Nike
- In developing their global sourcing strategies, firms not only decide on where to **locate** the different stages of the value chain, but also on the extent of **control** to exert over them.
- The issue of internalization or control is crucial for the existence of MNEs.
- But technological theories of the multinational firm share a common failure to properly model the crucial issue of internalization.
- Why does some trade occur within firm boundaries, and some trade across firm boundaries?
 - The share of intrafirm trade exhibits clear patterns in the data, which we will explore in future lectures

Institutions and Comparative Advantage

- Contractual frictions may not only matter for the form that trade takes (intra-firm vs. arm's-length), but also for whether trade occurs at all (i.e., comparative advantage).
- Countries with a poor contracting environment may specialize in (standardized) industries which are not "contract-dependent."
 - see Nunn (2007) for empirical evidence.
- In a similar vein, cross-country differences in financial and labor institutions can be a source of comparative advantage:
 - Manova (2007), Cuñat and Melitz (2007).
- Key Question: What are the consequences of trade when comparative advantage is partly shaped by institutional features?