

Lecture 1: Globalization in the Data

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Overview of the Course

- ① Introduction: Stylized Facts
- ② Neoclassical Trade Models
 - ▶ Ricardo (2 goods, continuum)
 - ▶ Heckscher-Ohlin-Samuelson (2x2x2, more goods and factors)
 - ▶ Eaton-Kortum
- ③ Imperfect Competition Trade Models
 - ▶ Krugman
 - ▶ Melitz and extensions
- ④ Gravity Equations and Gains from Trade
- ⑤ Fragmentation

- Slides are downloadable from
<http://www.isabellemejean.com/teaching/ENSAEinternationaltrade.html>
- Main references:
 - ▶ Robert C. Feenstra (2003), *Advanced International Trade: Theory and Evidence*, Princeton University Press, ISBN: 9780691114101
especially Chapters 1-3, 11
 - ▶ Gita Gopinath, Elhanan Helpman and Kenneth Rogoff (eds.) (2014), *Handbook of International Economics*, Volume 4 (2014), North-Holland, ISBN: 9780444543141
especially Chapters 1, 3, 4
- Additional material online

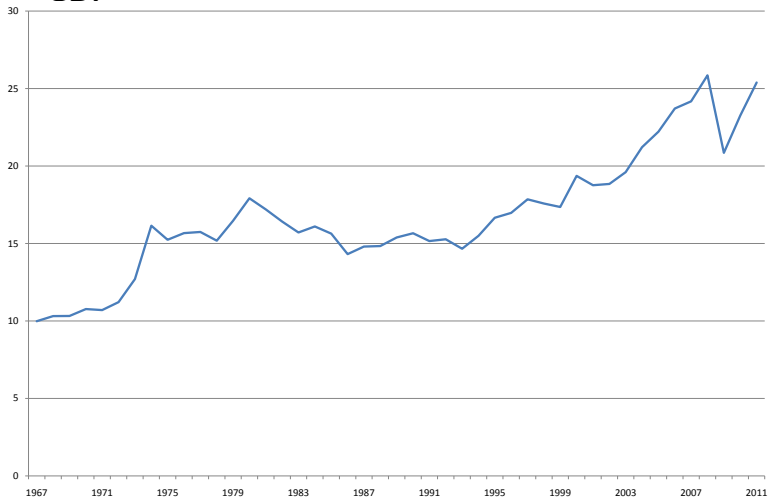
Globalization: Historical perspective

Definition

- What does globalization mean?
 - ▶ Increased exchange of goods, services, assets, labor, technology and knowledge across national borders
 - ▶ Globalization results in economic integration: market prices converge
 - ▶ Microeconomic impact: Firms' strategy in a globalized environment (export/domestic sales, international supply chain, etc.)
 - ▶ Macroeconomic impact: Interdependence between countries, Transmission of shocks (eg. financial crisis)

World trade over time: Rising openness

World exports of goods and services, % of world GDP



Source: IMF, World Development Indicators

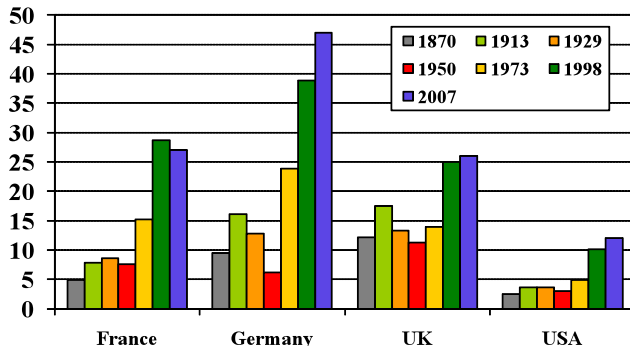
World trade over time: Longer perspective

World merchandise exports as a % of GDP

1850	1880	1913	1950	1973	1985	1993
5.1	9.8 ^(a)	11.9 ^(a)	7.1	11.7	14.5	17.1

World trade over time: Non-smooth process

Exports of goods (% GDP)

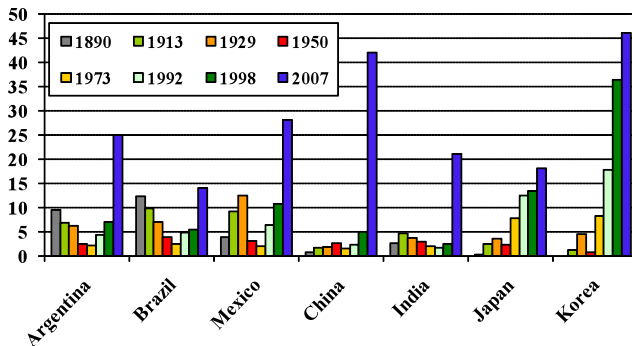


Source: Baldwin & Martin (1999), CEPII-CHELEM database.

- Globalization is not entirely new: 1870-1914, 1960-?
- Globalization is not irreversible: Aftermath of Great Depression

World trade over time: Heterogeneous across countries

Exports of goods (% GDP)



Source: Baldwin & Martin (1999), CEPII-CHELEM database.

- Evolution more recent in emerging countries

Geography of Globalization

	North Amer.	Latin Amer.	West. Eur.	CEECs ^(a)	Africa	Mid. East	Asia	Total
North Amer.	36.9	14.1	18.9	0.8	1.5	2.6	25.2	100
Latin Amer.	48.4	20.2	17.8	0.8	1.2	1.0	9.4	100
West. Eur.	8.2	2.5	68.1	4.2	2.8	3.0	9.5	100
CEECs	5.2	1.7	59.5	15.9	1.6	1.8	13.7	100
Africa	14.6	2.2	52.7	1.1	9.7	1.4	12.1	100
Mid. East	13.0	2.8	23.2	1.5	1.9	9.1	45.6	100
Asia	25.9	2.5	16.3	1.0	1.3	2.5	48.5	100

^(a) CEECs: Central and Eastern European Countries and former USSR

Source: Table 4, Chapter 1, Appleyard and Field (1998) *International Economics*, Third Edition

- Large trade flows within North America, within Europe and within Asia
- North-South trade between North and South America, West and East Europe, West Europe and Africa

⇒ Geography matters...

Standard theories of international trade

A Refresher on the History of Trade Theory

Reference undergraduate textbook: Krugman, Obstfeld & Melitz, *International Economics*, Pearson, 2015

Neoclassical trade theories (under perfect competition):

- ▶ Explains international trade flows by differences in
 - Technology (Ricardo, comparative advantage)
 - Endowments (Heckscher-Ohlin, Specific factors)
- ▶ Predicts *inter-industry* trade between different countries
- ▶ Welfare gains from trade through an enhanced allocation of resources. Unequally shared across factor holders
- ▶ Well-suited to explain the first wave of globalization (1870-1914), eg trade of US agricultural goods against European manufactured goods

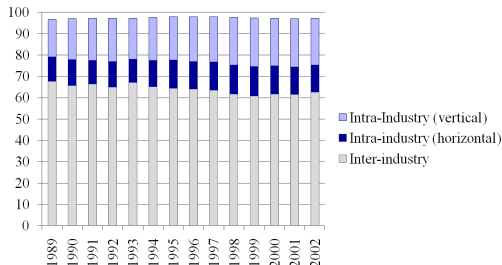
International trade under imperfect competition:

- ▶ Explains international trade flows by
 - Preference for diversity (Krugman)
- ▶ Predicts trade between similar countries (horizontal intra-industry trade)
- ▶ Welfare gains from trade through increased diversity (and eventually the pro-competitive effect of trade)
- ▶ Gravity equation
- ▶ Well-suited to explain the second wave of globalization (post WW2), eg trade within the European Economic Community (reciprocal trade in cars between France and Germany)

None of those theories really explains the “third wave of globalization” (emergence of China, India, Brazil, Eastern European countries)

Inter-Industry vs Intra-Industry Trade

Decomposition of trade (% total)



Source: Fontagné L., Freudenberg M., Gaulier G. (2006). Definitions: Intra-industry trade is identified as simultaneous exports and imports within the same industry. Distinction of vertical and horizontal relies on price differences.

- Around 40% of trade flows are intra-industry
- This share is growing over time (especially vertical)

The gravity equation

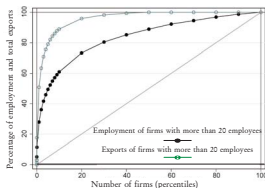
	(1)	(2)	(3)	(4)	(5)	(6)
ln Pop, i	0.978 ^a (0.006)	0.893 ^a (0.009)	0.290 ^a (0.046)			
ln Pop, j	0.837 ^a (0.006)	0.835 ^a (0.008)	0.962 ^a (0.040)			
ln GDP/Pop, i	1.118 ^a (0.007)	0.921 ^a (0.010)	0.732 ^a (0.015)			
ln GDP/Pop, j	0.945 ^a (0.007)	0.702 ^a (0.010)	0.634 ^a (0.015)			
ln Dist (avg)	-1.035 ^a (0.014)	-1.197 ^a (0.015)				
Shared Language	0.506 ^a (0.034)	0.522 ^a (0.038)				
Shared Legal Origins	0.313 ^a (0.026)	0.160 ^a (0.029)				
Colonial History	1.560 ^a (0.380)	2.605 ^a (0.206)				
RTA	0.958 ^a (0.044)	0.593 ^a (0.026)	0.521 ^a (0.027)	0.400 ^a (0.029)	0.411 ^a (0.034)	0.317 ^a (0.033)
Both GATT	0.125 ^a (0.020)	0.155 ^a (0.016)	0.159 ^a (0.017)	0.244 ^a (0.038)	0.368 ^a (0.041)	0.206 ^a (0.042)
Currency union	0.688 ^a (0.091)	0.483 ^a (0.064)	0.486 ^a (0.068)	0.499 ^a (0.047)	0.469 ^a (0.056)	0.309 ^a (0.089)
Tetrads: Fixed Effects:	None	Dyads(RE)	Dyads	GBR,FRA Tetrads	USA,DEU Tetrads	CHE,CAN Tetrads
# Obs.	618233	618233	618233	665531	651603	633190
RMSE	2.165	1.480	1.473	1.677	1.722	1.832

Source: Head, Mayer & Ries (2008).

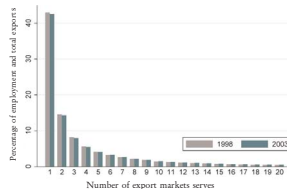
- Bilateral trade flows are higher between larger, richer countries (Krugman)
- Trade costs matter.
- Excellent survey by Head and Mayer (Handbook, chap. 3)

Some empirical challenges

Heterogenous behaviors in international trade



Interpretation: amongst the French firms with more than 20 employees, the 20% biggest exporters are responsible for 94% of total exports, but the 25% biggest employers only represent about 75% of total jobs.
Source: French Customs and Excise statistics and Annual Business Survey (INSEE), CEPII calculations.



Interpretation: more than 42% of French exporters only trade with one foreign market; about 15% only export to two countries.
Source: French Customs and Excise statistics, CEPII calculations.

Source: Mayer & Ottaviano (2008).

- Less than 20% of French firms do export (similar in other developed countries)
- 57% of French exporters are present in one or two markets
- 1% of exporting businesses are responsible for 68% of exports

⇒ **Heterogeneity in trade**

Heterogenous behaviors in international trade

Table: Exporter premia, Bernard & Jensen (1999), 1992 US data

	(a) All plants (%)	(b) Small plants (%)	(c) All Firms (%)	(d) All plants (%)	(e) Small plants (%)	(f) All Firms (%)
Total employment	88.1	66.3	92.5	.	.	.
Shipments	112.6	88.4	115.0	18.8	18.3	17.3
Value-added per L	18.9	16.4	16.7	18.0	17.3	16.9
TFP	13.0	12.0	8.6	13.5	13.3	12.4
Non-prod./total L	3.3	3.8	3.6	3.5	3.8	3.6
Average wage	11.9	10.7	11.0	9.3	9.3	9.6
Production wage	9.0	7.2	7.0	6.6	6.2	16.9
Non-production wage	11.4	10.5	12.4	4.6	5.1	5.8
Capital per worker	20.2	14.4	13.5	13.6	11.9	8.8
# of Plants/Firms	224,009	211,555	175,400	224,009	211,555	175,400

Numbers in columns (a)-(c) (*premia*) are coefficients on an export dummy in a regression of the form:

$$\ln X(i) = a + b * EXPORT(i) + c * INDUSTRY + d * STATE + e(i)$$

and the numbers in columns (d)-(f) are coefficients on an export dummy in a regression of the form:

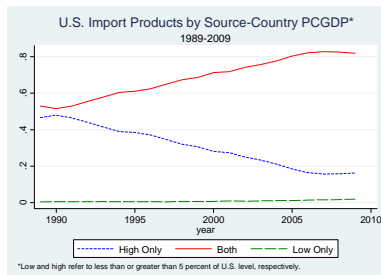
$$\ln X(i) = a + b * EXPORT(i) + c * INDUSTRY + d * STATE + f * \ln EMPLOYMENT + e(i)$$

where i indicates the plant/firm, $EXPORT(i) = 1$ if the plant/firm is an exporter, $INDUSTRY$ is a vector of industry dummies, $STATE$ is a vector of U.S. state dummies, and $EMPLOYMENT$ is the number of employees at the firm/ plant. All firm regressions exclude state and industry dummies.

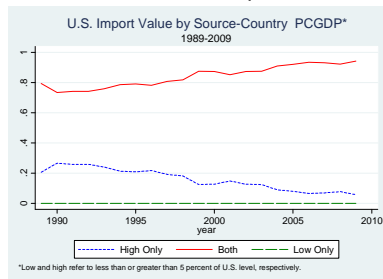
Small plants have fewer than 250 employees. All differences are significant at the 1% level.

Vertical vs horizontal differentiation

Share of All U.S. Import Products



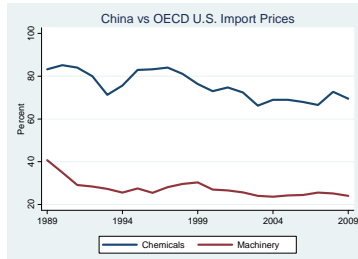
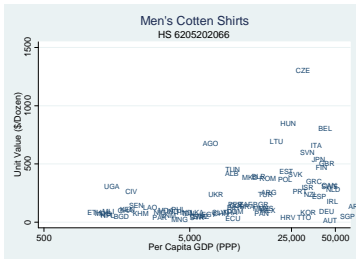
Share of All U.S. Import Value



Source: Schott (2004).

- High- and low-wage countries increasingly export the same products

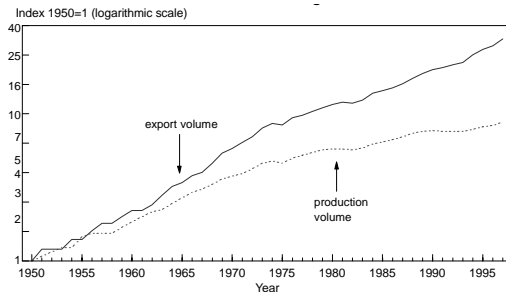
Vertical vs horizontal differentiation



Source: Schott (2004, 2008).

- Within highly disaggregated product categories, unit values vary widely.
 - Chinese goods imported by the US are cheaper than OECD imports
- ⇒ **Quality differentiation**

Vertical fragmentation

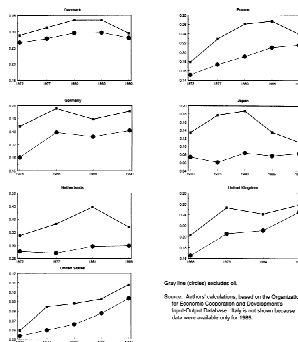


Source: Yi (1999).

- Over the last 50 years, trade has grown faster than output.

Vertical fragmentation

Table: VS exports as a percentage of total merchandise exports



Source: Hummels, Ishii & Yi (1999) from OECD IO tables.

- Increasing vertical specialization (imported input content in exported goods)

Trade and Inequality

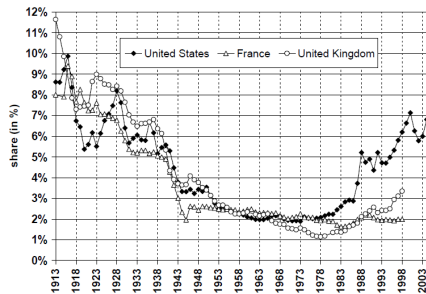


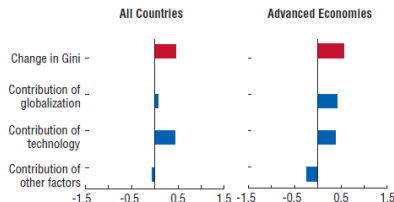
FIGURE 12

Top 0.1% Income Shares in the U.S., France, and the U.K., 1913-2005

Source: Piketty and Saez (2005)

Trade and Inequality

Regression of Gini coefficient on globalization and technology-related variables



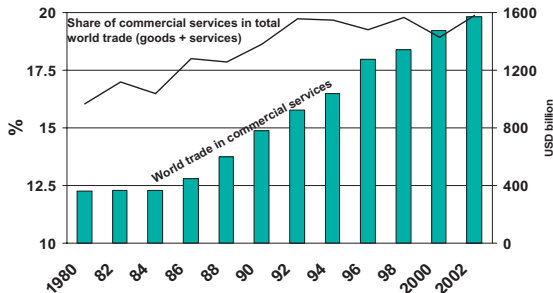
Average annual % change of Gini coefficient

Source: IMF, World Economic Outlook

- International trade may contribute to inequality

Trade in Services

Commerce mondial de services, Exportations, 1980-2002
(USD billion and percentage)



Source: UNSD/ International Trade Statistics Section

Table 1.3: World exports of merchandise and commercial services, 2005-12
(US\$ billion and annual percentage change)

	Value	Annual percentage change			
	2010	2010	2011	2012	2005-12
Merchandise	18,323	22	20	0	8
Commercial services	4,345	10	11	2	8
Transport	885	16	9	2	7
Travel	1,105	9	12	4	7
Other commercial services	2,350	8	12	1	10
of which:					
Communications services	100	3	10	-3	8
Construction	110	-4	8	3	10
Insurance services	100	1	0	2	11
Financial services	300	7	12	-4	8
Computer and information services	265	12	14	6	14
Royalties and licence fees	285	8	14	-2	9
Other business services	1,145	9	13	2	9
Personal, cultural and recreational services	35	14	13	3	7
Memo: Goods and commercial services (BOP)	22,520	19	18	1	8

Conclusions

We have uncovered several stylized facts:

- Second wave of globalization.
- Geography matters.
- Large firm heterogeneity.
- Quality differences.
- Fragmentation.
- Growing services trade.

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