

International Economics

Course Overview



- #1. Globalization and comparative advantage**
- # 2. The neo-classical model of international trade**
- # 3. International trade under imperfect competition**
- # 4. Trade policies**
- # 5. Economic geography**
- # 6. Intertemporal choice and the balance of payments**
- # 7. The foreign-exchange market**
- # 8. The equilibrium exchange rate**
- # 9. Foreign-exchange crises**

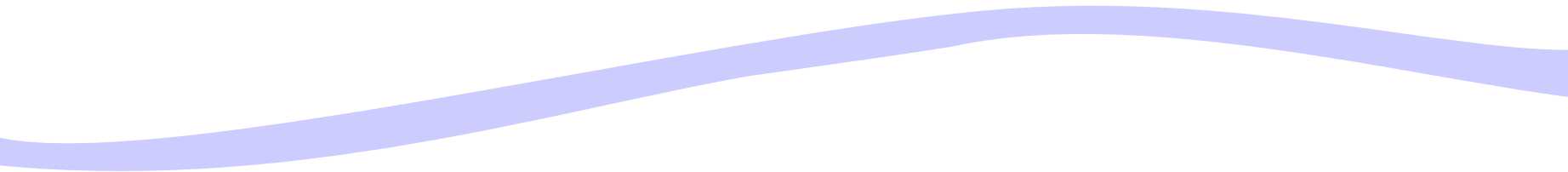
International Economics #1

Globalization and comparative advantage

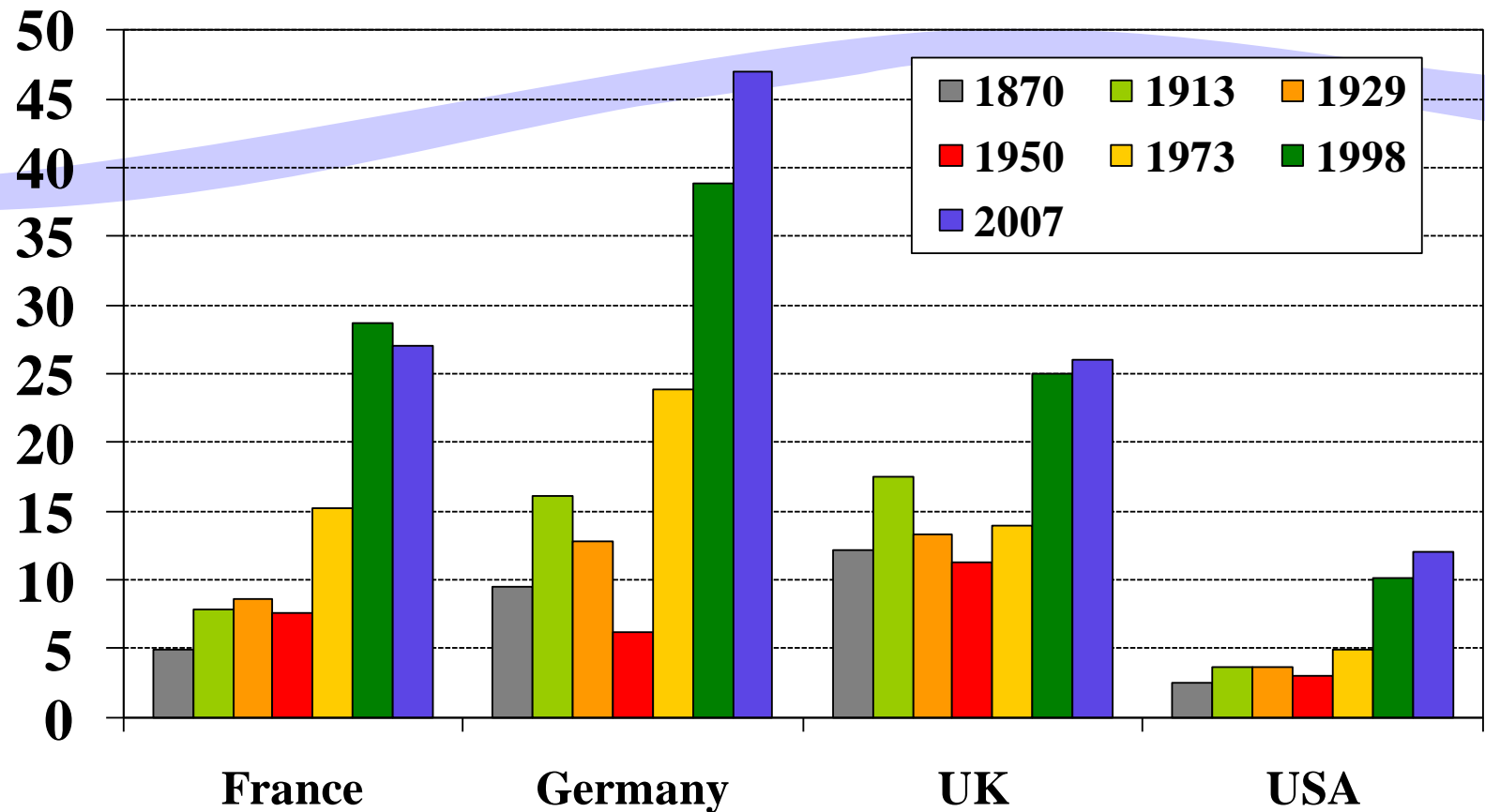
1. Globalization in a historical perspective
2. Globalization today
3. Questions raised by globalization
4. The theory of comparative advantage



1. Globalization in a historical perspective

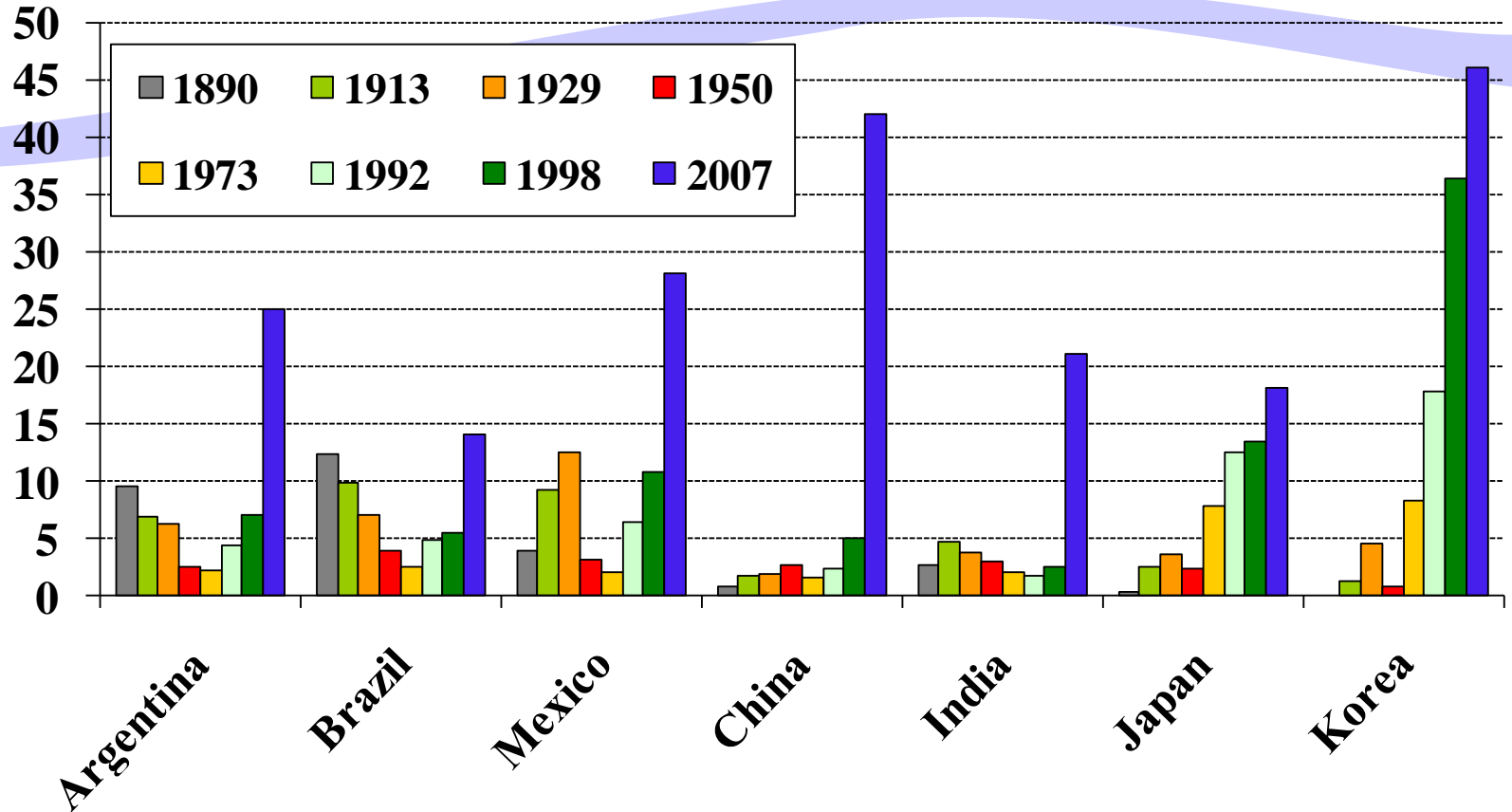
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- What does ‘globalization’ mean?
 - ✓ Exchange of goods, services, assets, labor
 - ✓ Firms’ strategies (markets, but also supply chains)
 - ✓ Interdependence between countries (ex. the ‘decoupling’ debate)
 - Globalization is:
 - ✓ not (entirely) new: 1870-1914 / 1960-??
 - ✓ not irreversible: ex. aftermath of Great Depression

Exports of goods, % of GDP



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

Exports of goods, % of GDP



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

Two episodes of globalization

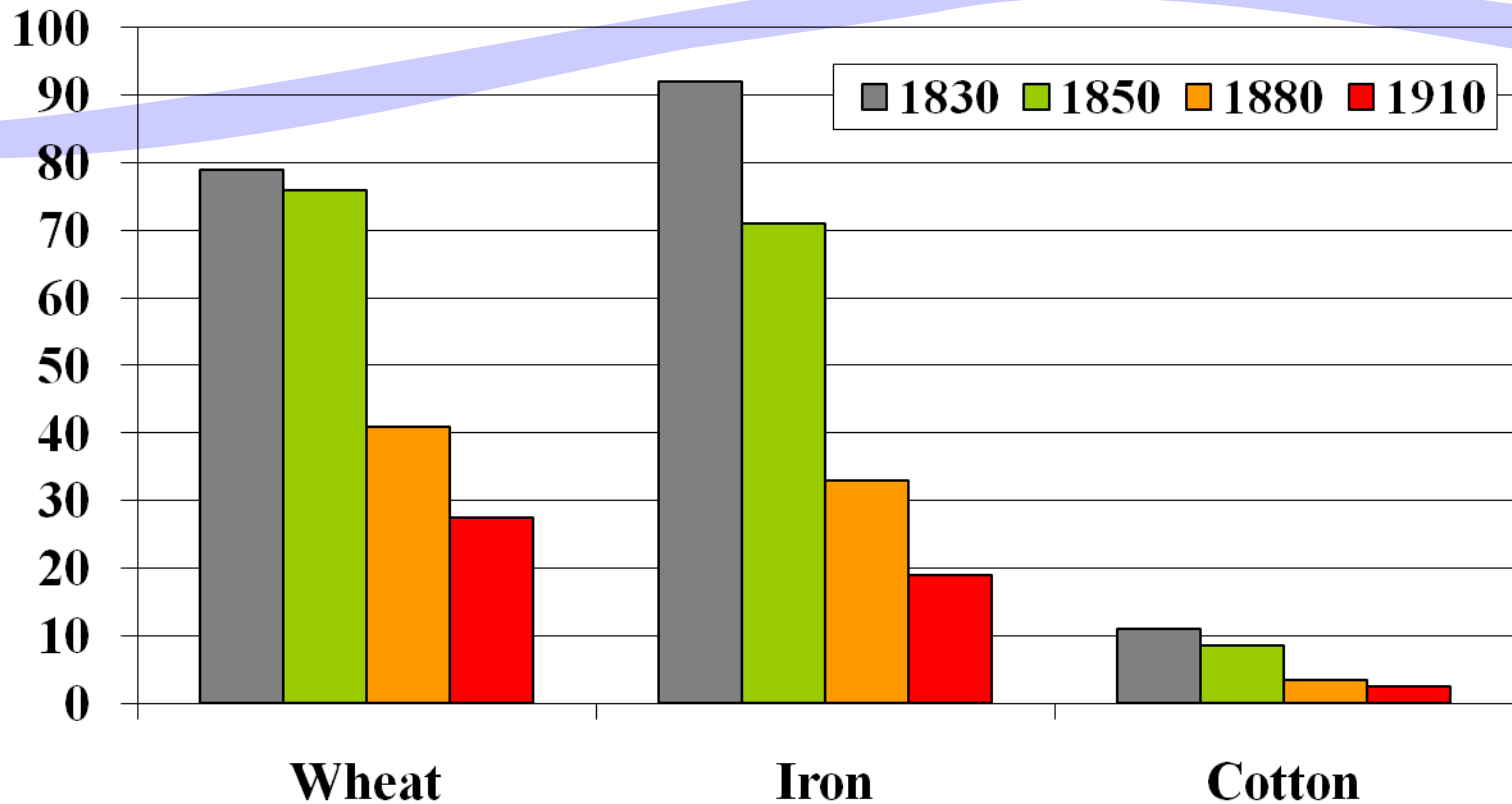
- **1870-1914**

- Fall in transportation costs (railway, steamboat, telegraph)
- Colonies → raw material, agriculture
- Industrialization in the North, dis-industrialization in the South
- Long-run capital flows (railway)
- Gold Standard

- **1960-**

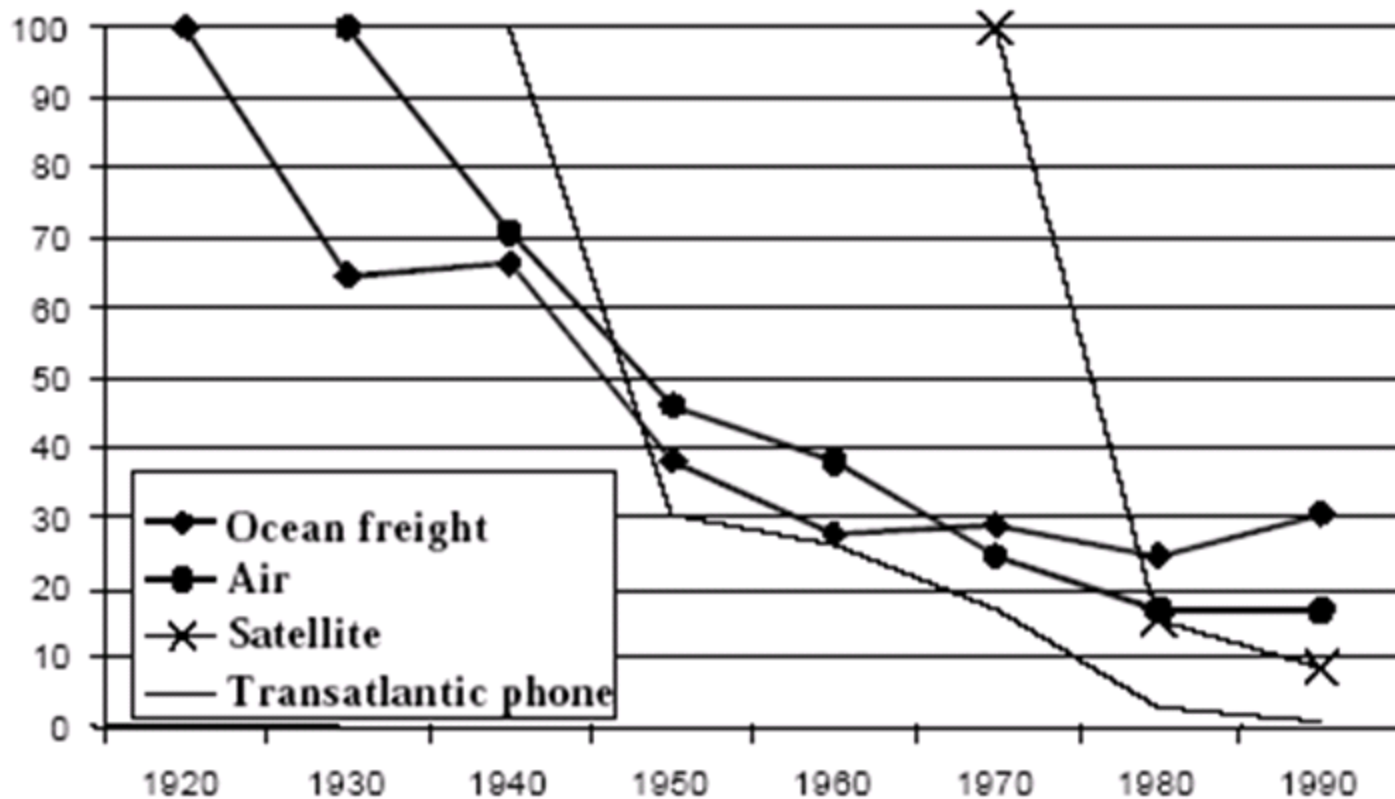
- Fall in transportation costs (telecom, internet)
- Manufactured goods, North-North intra-industry trade
- Industrialization in the South, multinationals, intra-firm trade
- Financial liberalization from 1980: from 1990 on, trade of capital increases three times faster than goods trade
- Regional trade
- Fixed exchange rates until 1973 only

Transportation costs (% of production cost)



Source: Baldwin & Martin (1999).

Transportation and communication costs, 1920-1950



Source: World Bank (1995).

Average, non-weighted tariff for 35 countries, 1860-2000



Source : Baldwin & Martin (1999).

Average tariff for three countries: 1913-2004 (manufactured goods)

	1913	1931	1950	1980	1999	2004
France	20	30	18	8.3	4.1	2.5
Germany	13	21	26	8.3	4.1	2.5
USA	44	48	14	7	4.5	2.2

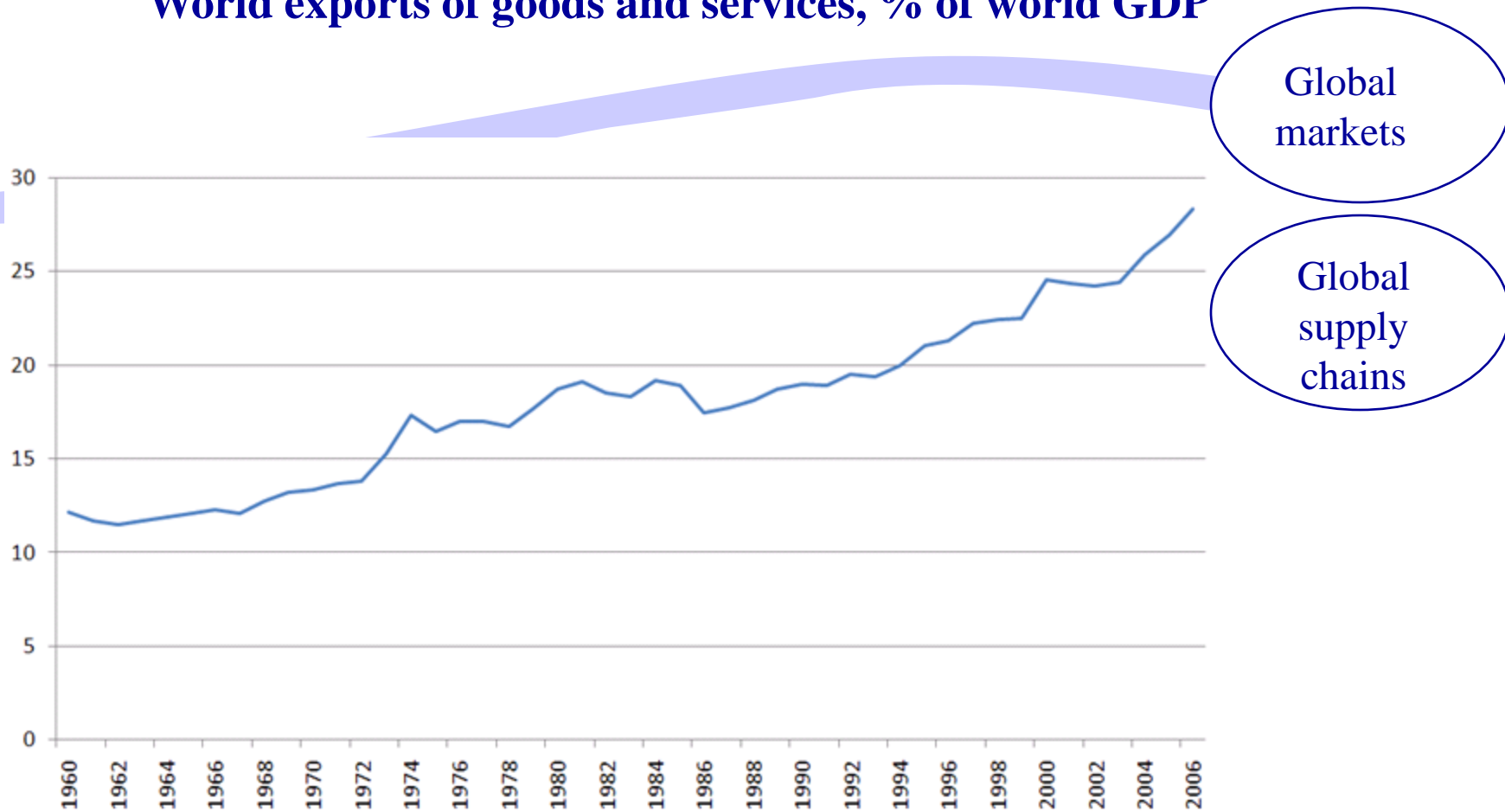
Sources: Mayer and Martin (2008), Boumellassa et al. (2009).



2. Globalization today

Rising openness

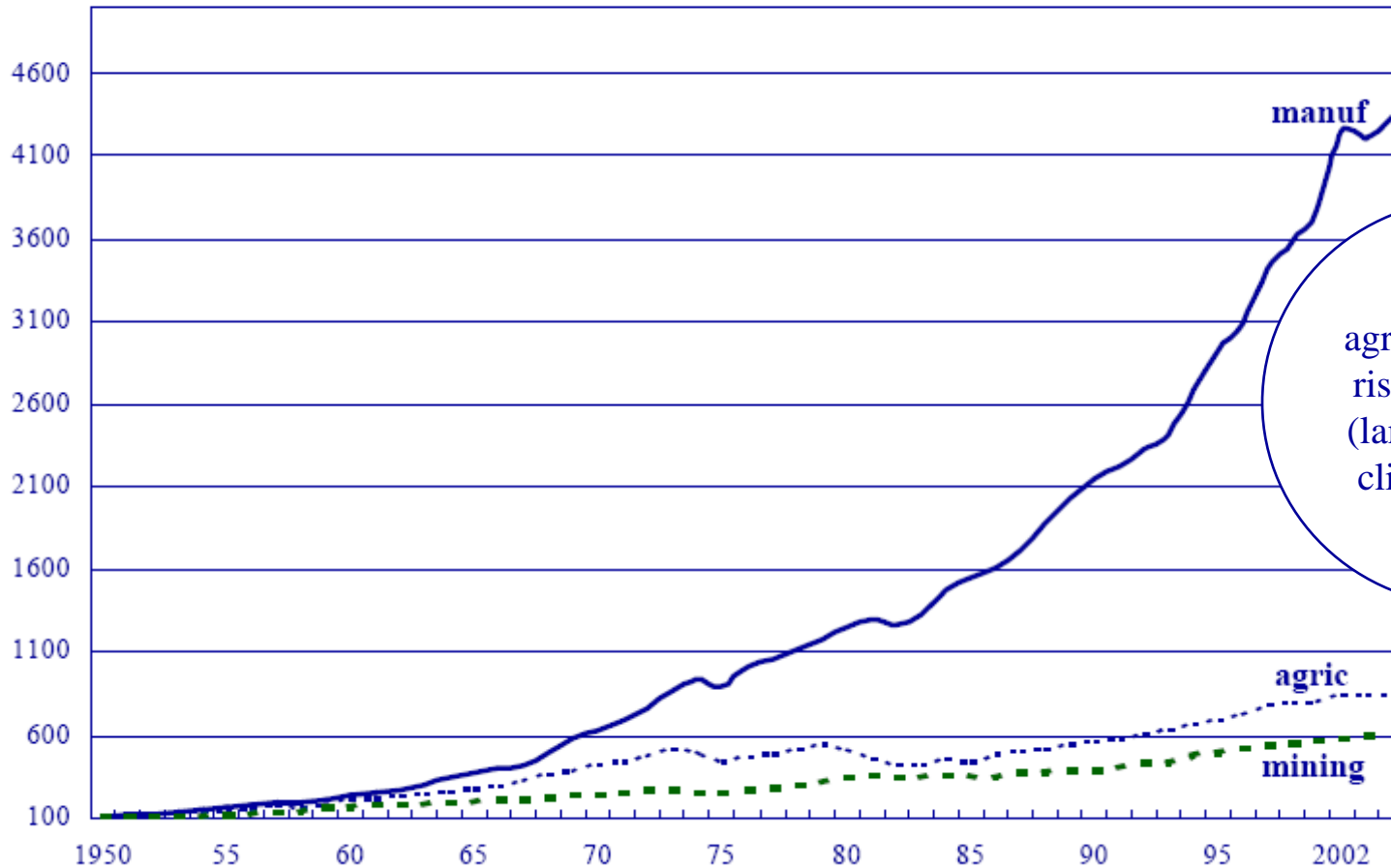
World exports of goods and services, % of world GDP



Source: IMF, World Development Indicators.

Agriculture lagging behind

Volume indices, 1950=100



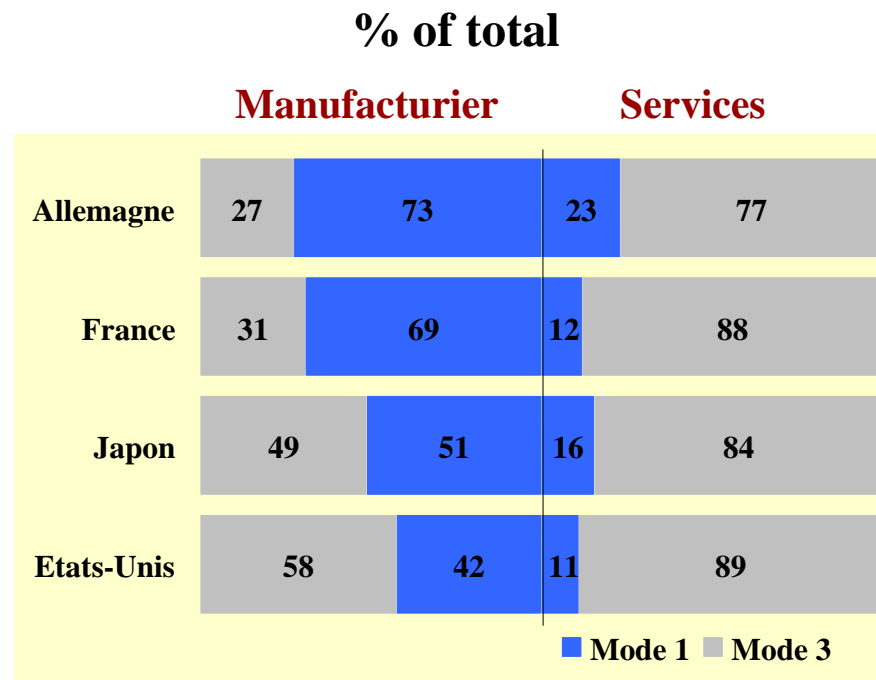
Trade in agriculture due to rise in the future (land resources + climate change)

Source: WTO.

Bénassy-Quéré & Coeuré –
International Economics 2009-2010

Services also lagging

**Trade in services and sales by affiliates
in manufacturing and services sectors**
(average inflows and outflows – average 2000-2001)



Source : CEPII

Mode 1: the service crosses the border (ex. insurance)

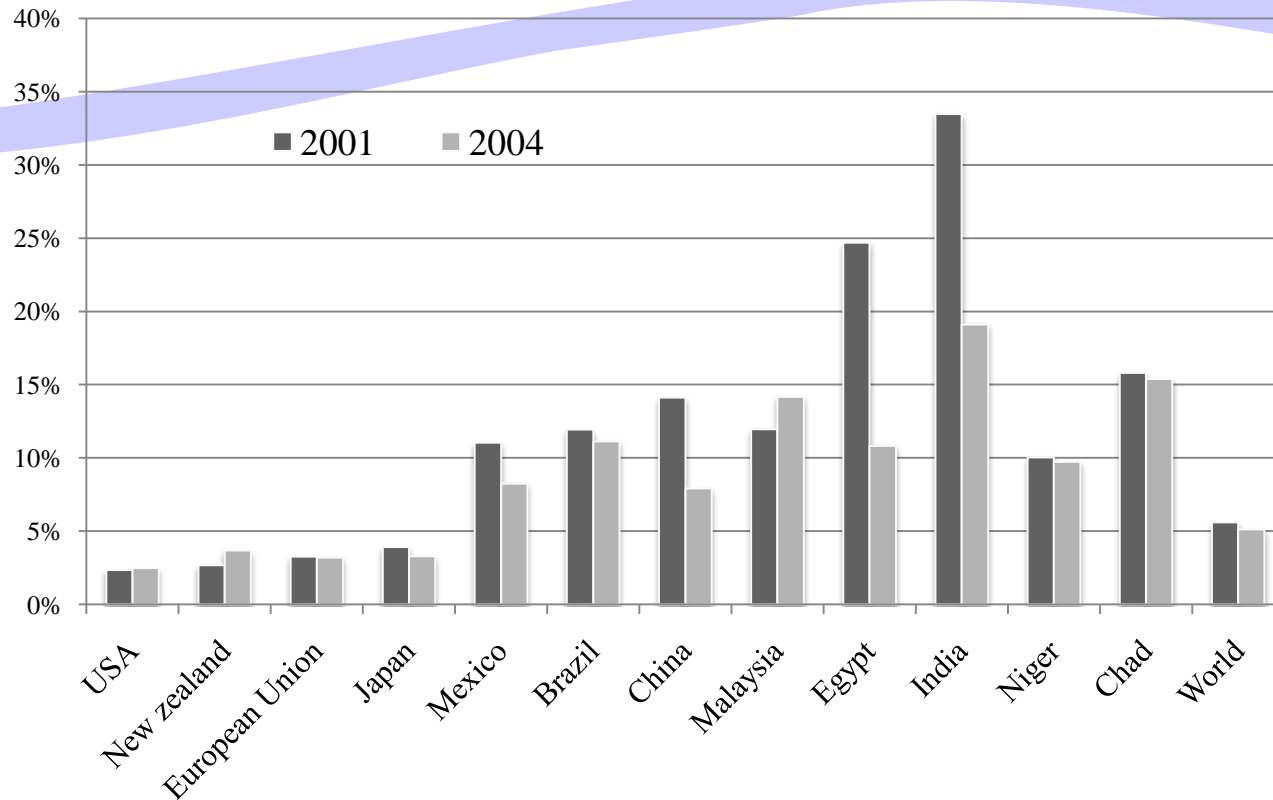
Mode 2: the consumer crosses the border (ex. tourism)

Mode 3: the firm crosses the border (branch or subsidiary)

Mode 4: the worker crosses the border (ex. construction)

Unachieved liberalization

Average protection in selected countries, % in 2001 and 2004



Source : MacMaps-HS6-v2 database, Boumelassa, Laborde and Mitaritonna (2009).

Unachieved liberalization

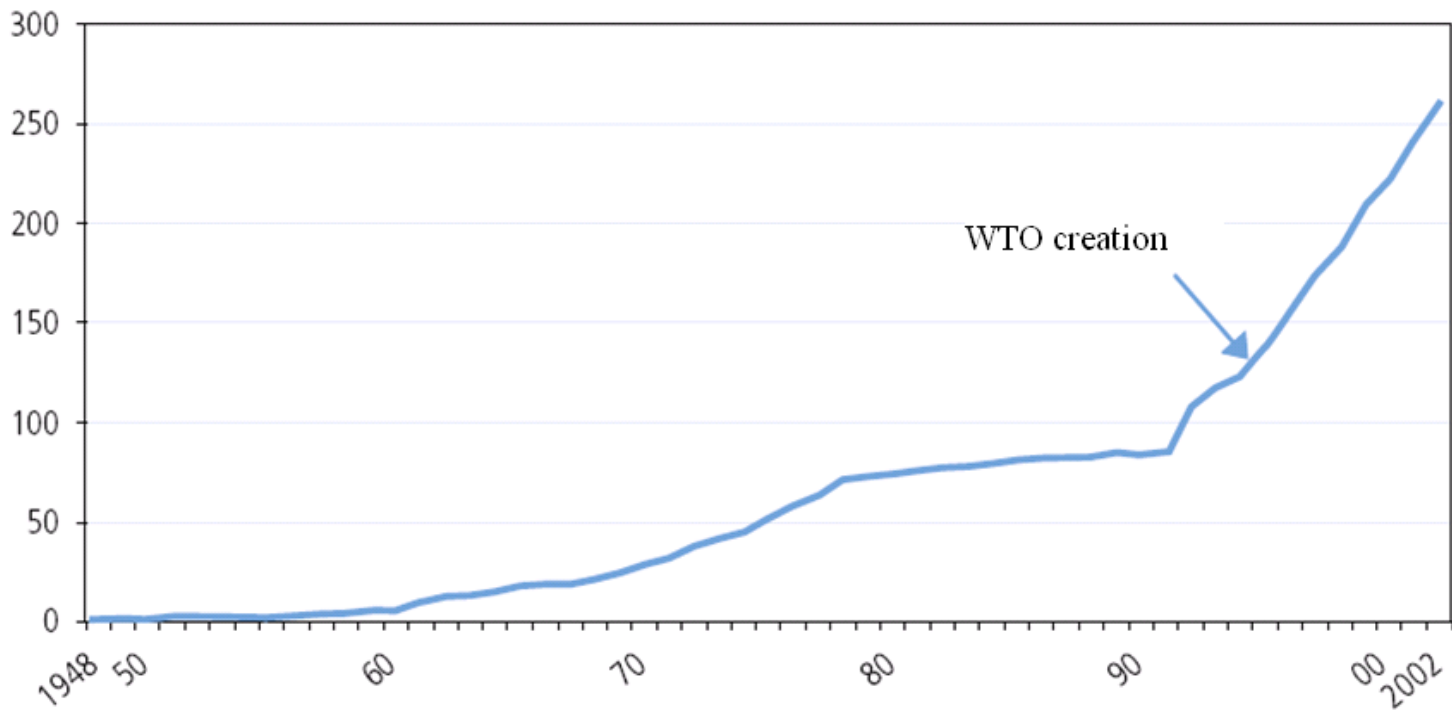
World protection in 2004 by categories of countries and goods

Goods	World	HICs	MICs	LDCs
Agricultural goods	18.9	18.0	20.8	14.1
<i>of which:</i>				
<i>Primary and semi-processed</i>	12.8	12.1	14.2	9.5
<i>Final</i>	22.8	21.7	25.4	16.8
Industrial goods	4.4	2.7	8.9	11.7
<i>of which:</i>				
<i>Primary and semi-processed</i>	2.8	1.2	6.2	10.9
<i>Final</i>	5.0	2.9	9.9	11.9
Extraction and energy products	1.9	0.6	5.6	12.7
<i>of which:</i>				
<i>Primary and semi-processed</i>	1.4	0.3	4.6	14.4
<i>Final</i>	3.3	1.4	7.6	11.2
All products	5.1	3.3	9.6	12.2
<i>of which:</i>				
<i>Primary and semi-processed</i>	3.3	1.8	6.8	11.4
<i>Final</i>	6.0	3.9	11.0	12.4

Source : MacMaps-HS6-v2 database, Boumelassa, Laborde and Mitaritonna (2009).

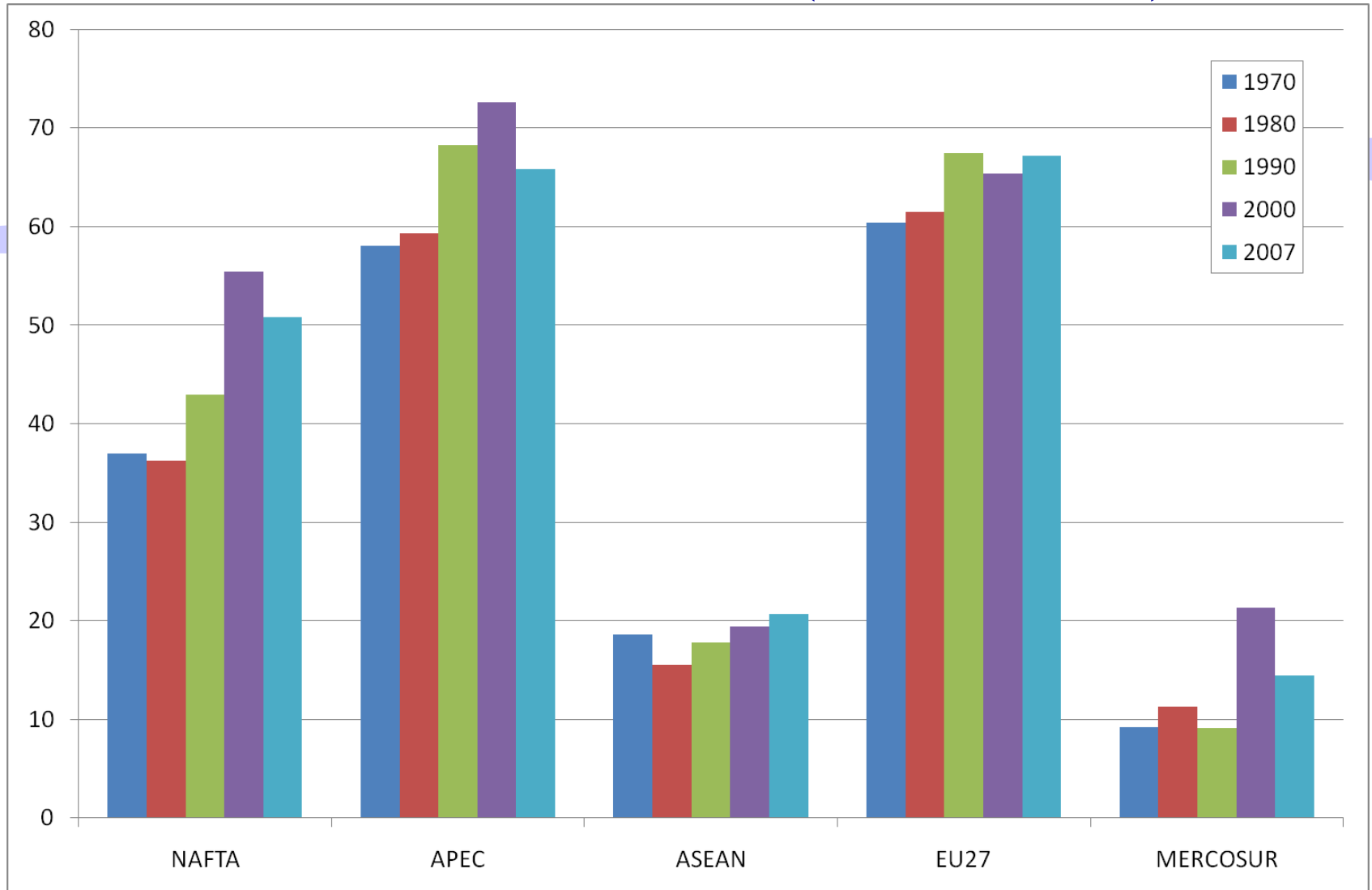
Regionalization

Number of regional trade agreements in the world, 1948-2002



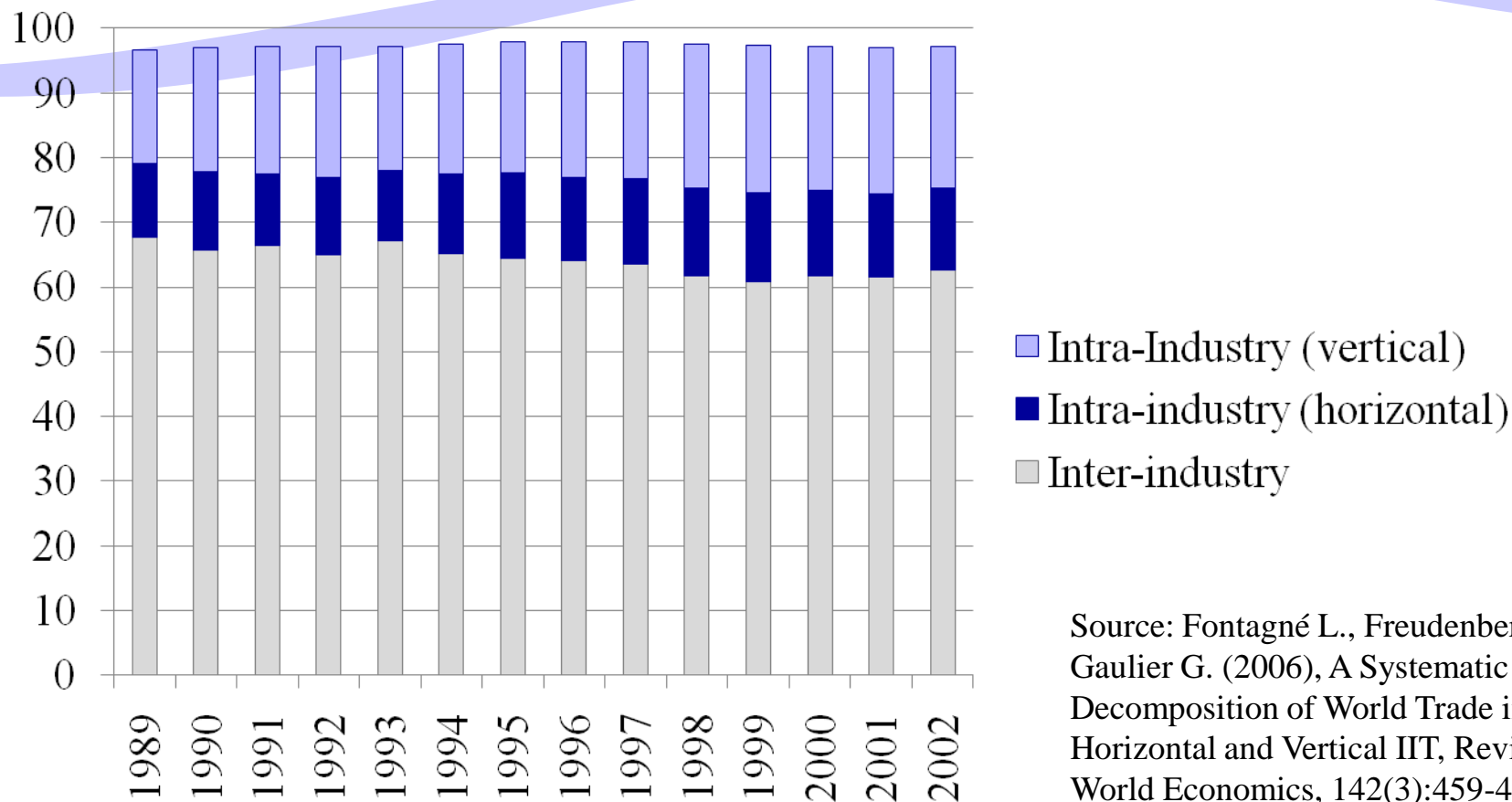
Source: WTO.

Intra-bloc trade (% of total)



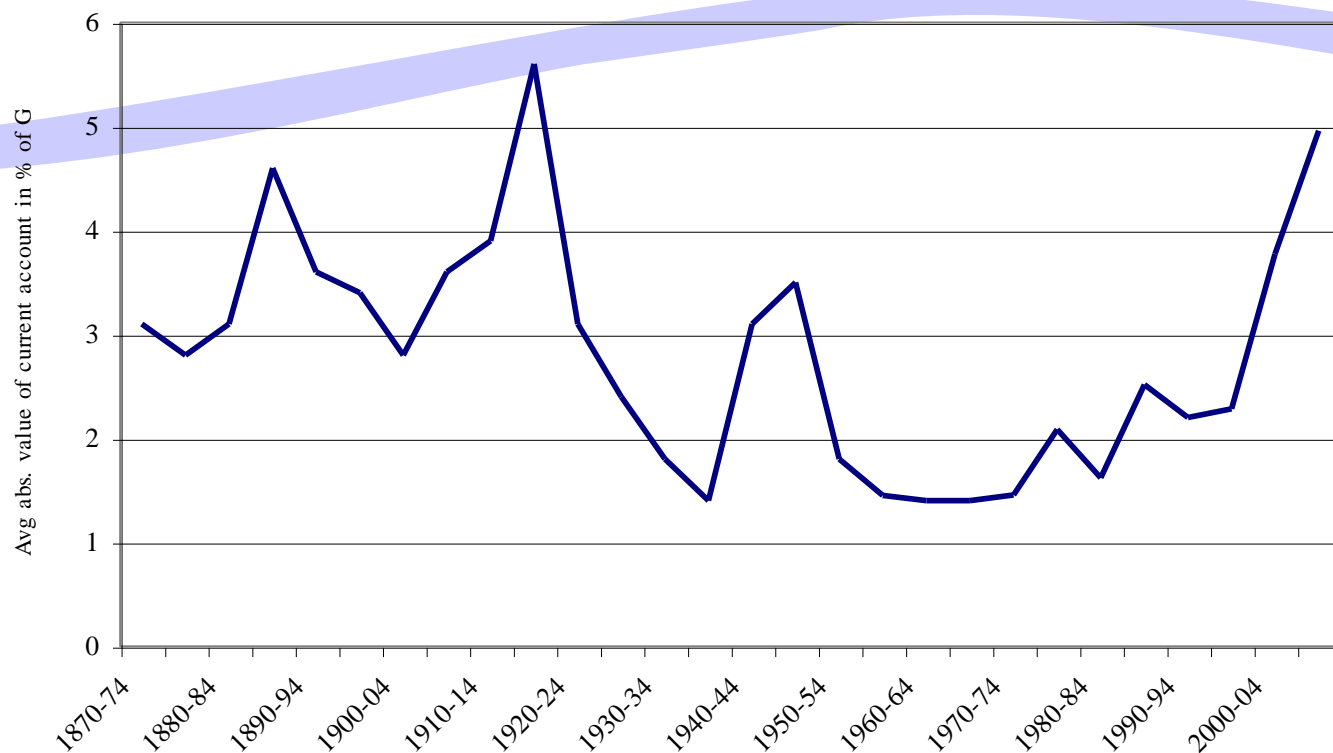
Source: CEPII-CHELEM database.

Intra-industry trade, % of world trade



Source: Fontagné L., Freudenberg M., Gaulier G. (2006), A Systematic Decomposition of World Trade into Horizontal and Vertical IIT, Review of World Economics, 142(3):459-475.

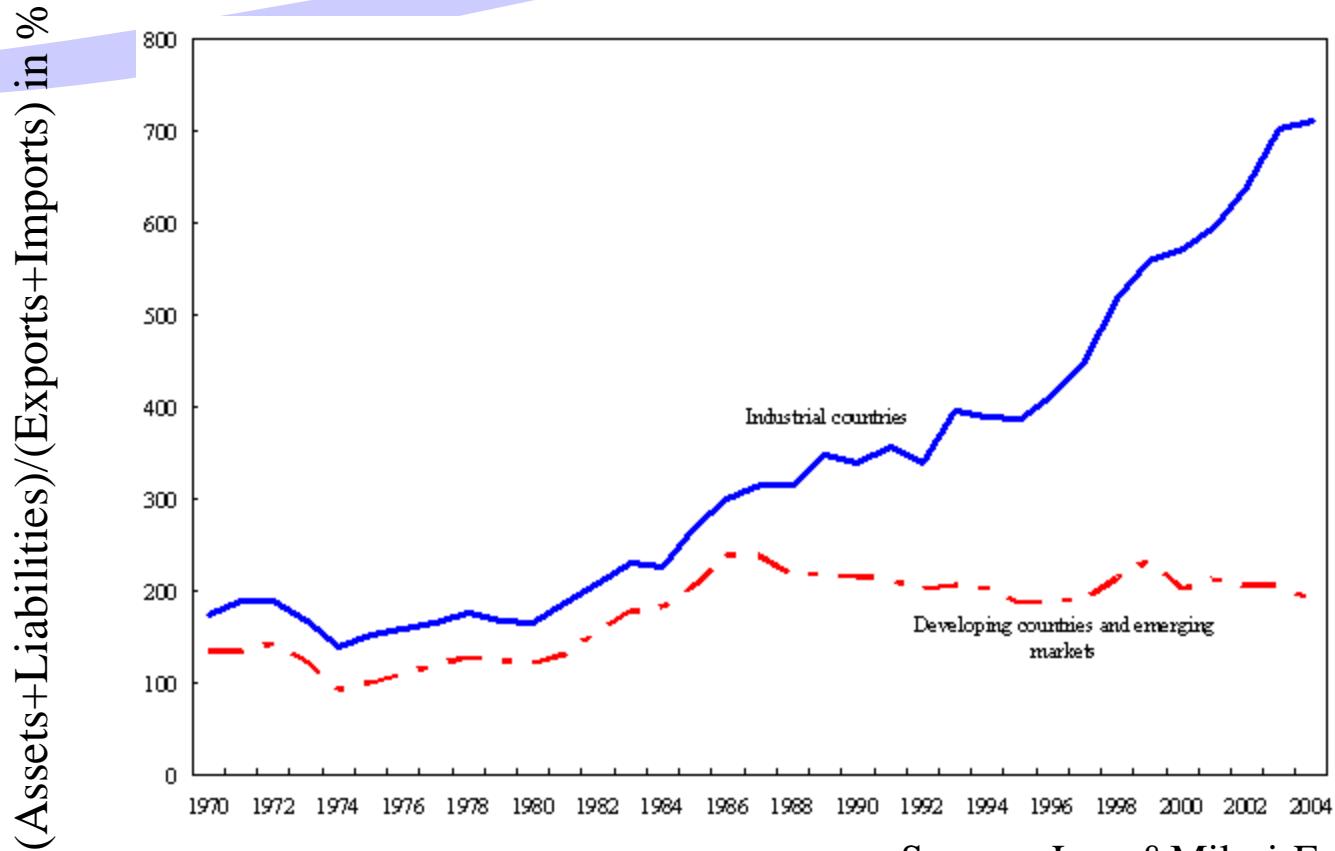
International financial integration



Sources: Taylor (1996), FERI.

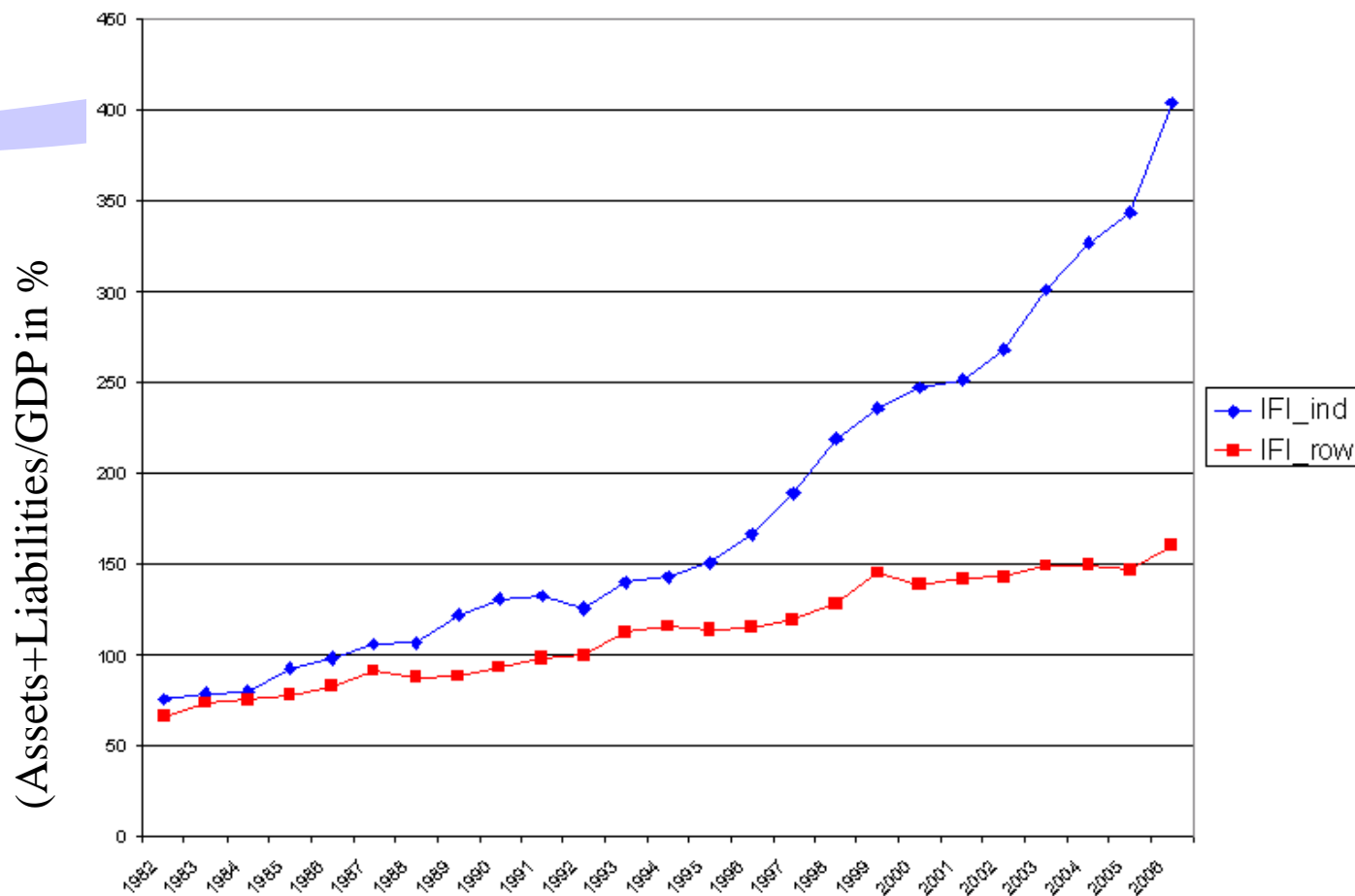
Note: The capital mobility index is defined as the average of the absolute values of current accounts relative to GDP for major capital-importing and capital exporting countries. The countries include Argentina, Australia, Canada, Denmark, France, Germany, Italy, Japan, Norway, Sweden, the United Kingdom, and the United States.

Financial versus trade integration, 1970-2004



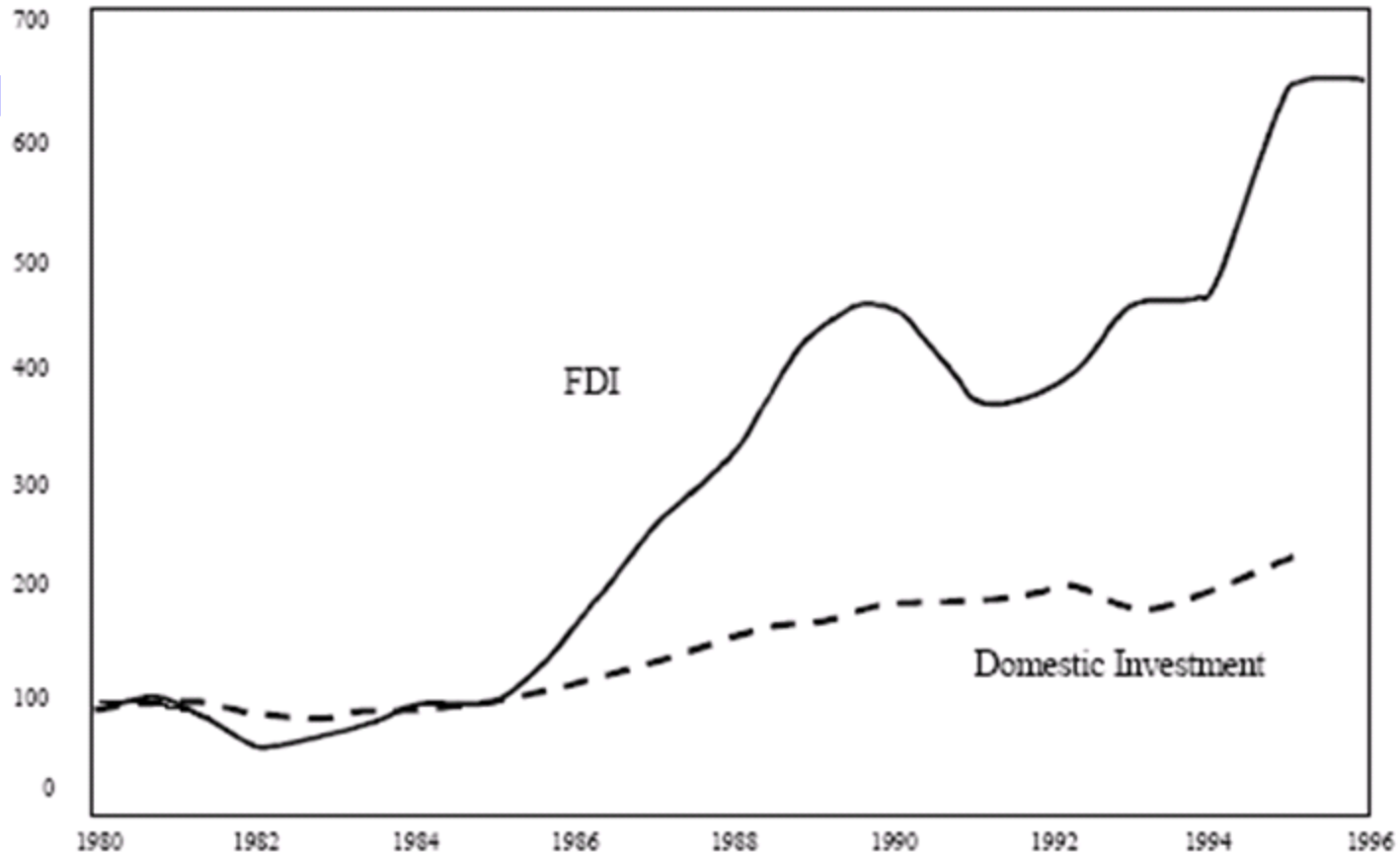
Source : Lane&Milesi-Ferretti (2007).

Financial integration: developed versus developing countries, 1982-2006



Source : Lane&Milesi-Ferretti (2007).

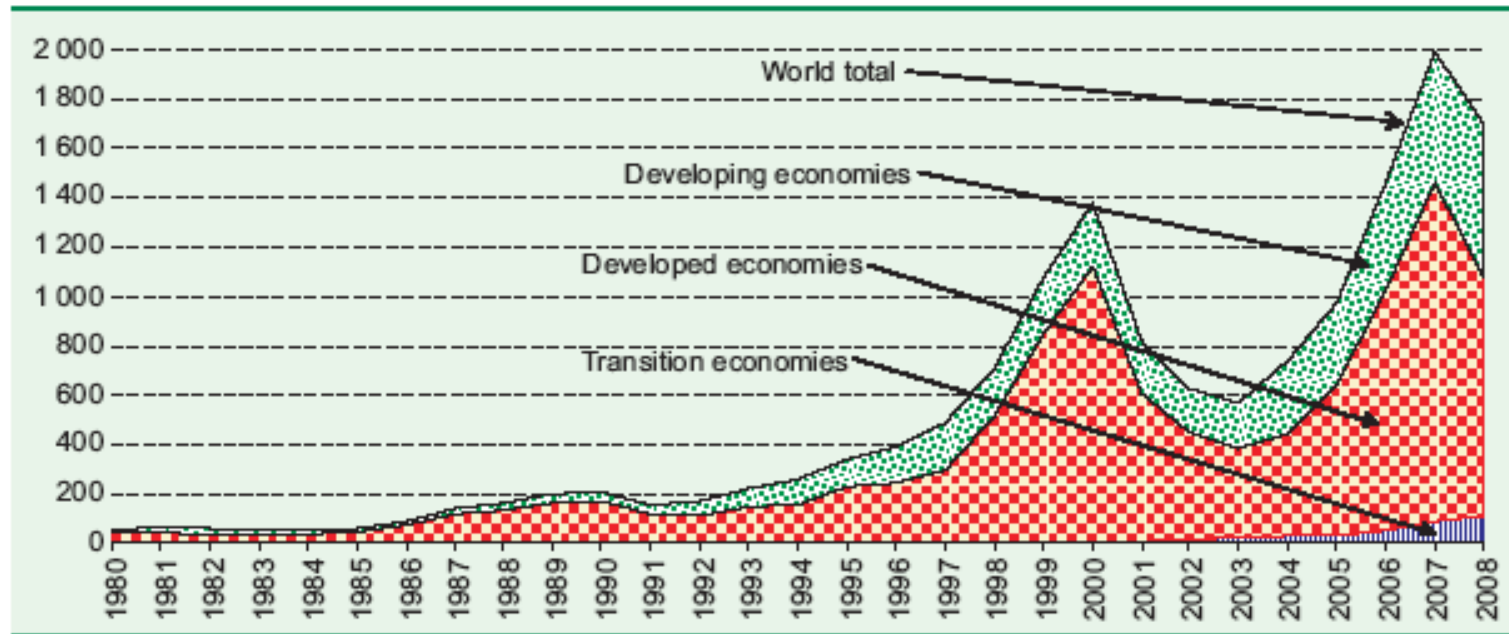
Growth of domestic and foreign direct investment



Source: UNCTAD.

FDI: still mainly North-North

Figure I.1. FDI inflows, global and by groups of economies, 1980–2008
(Billions of dollars)



Source: UNCTAD FDI/TNC database (www.unctad.org/fdistatistics) and UNCTAD Secretariat estimates.

Source: UNCTAD, World Investment Report 2009.

Migrations

Decadal migration, % of initial population, 1880-1910

<i>% of Initial population</i>	<i>1880s</i>	<i>1890s</i>	<i>1900s</i>
Senders:			
UK	-3.05	-5.20	-2.04
Italy	-1.65	-3.37	-4.87
Spain	-1.51	-6.01	-5.18
Sweden	-2.90	-7.20	-3.51
Portugal	-3.52	-4.16	-5.94
Receivers:			
US	5.69	8.94	4.02
Canada	2.27	4.89	3.71
Australia	11.28	16.59	0.77
Argentina	4.50	25.60	9.5
Brazil	1.98	3.82	8.44
N. Zealand	53.52	4.08	4.15

Notes: UK includes Ireland, dates vary slightly according data available. Source: Green and Urqhart (1976), Table 2.

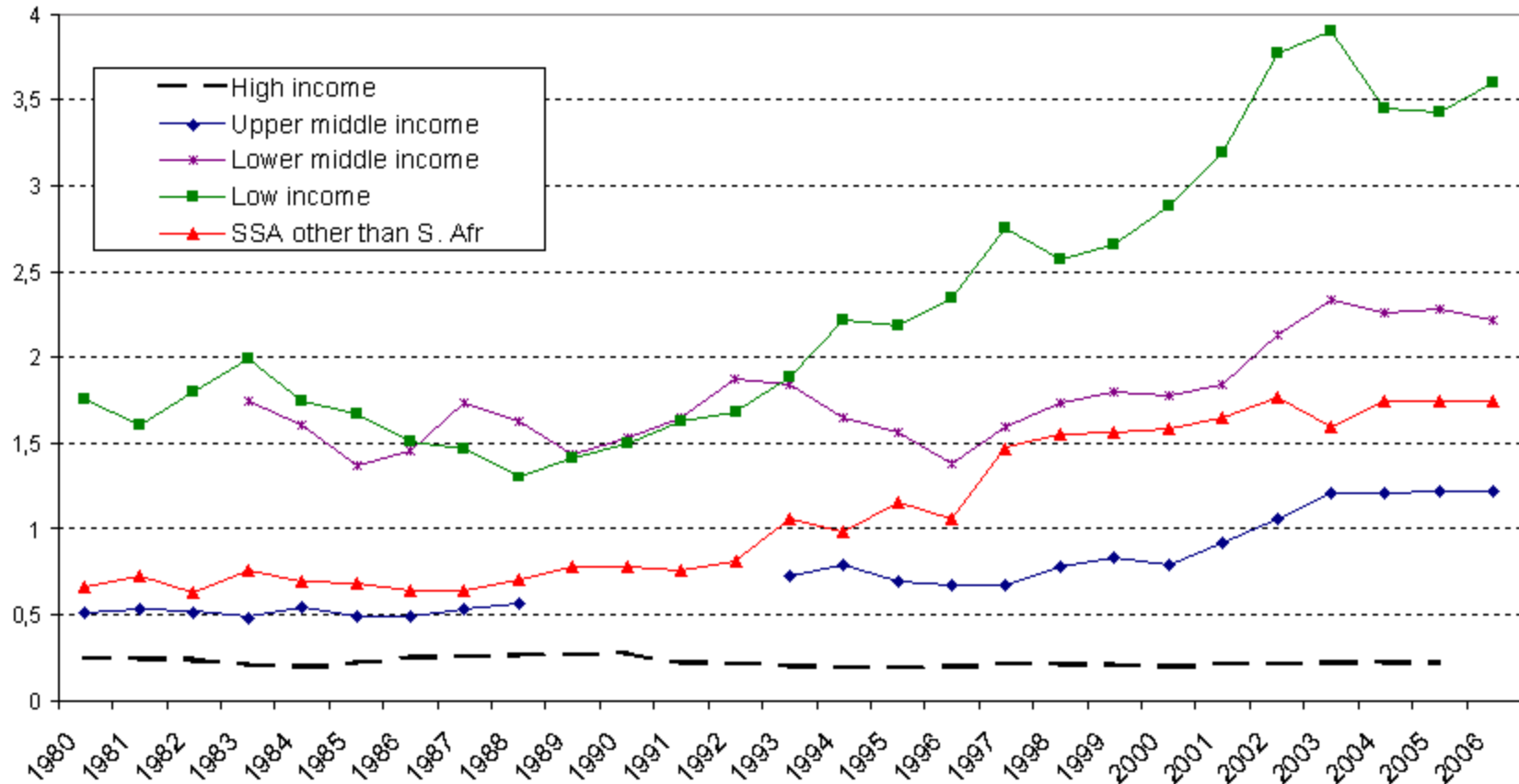
Today:

200 million migrants in the world (3% of world population).

Source: Withol de Wenden (2006).

Migrations: an important source of financing for LDCs ...

Remittance received, % of GDP



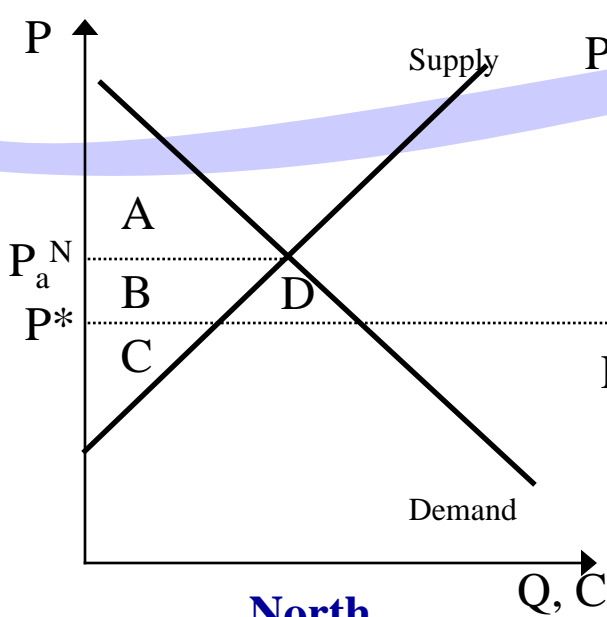
Source: World Bank, WDI.



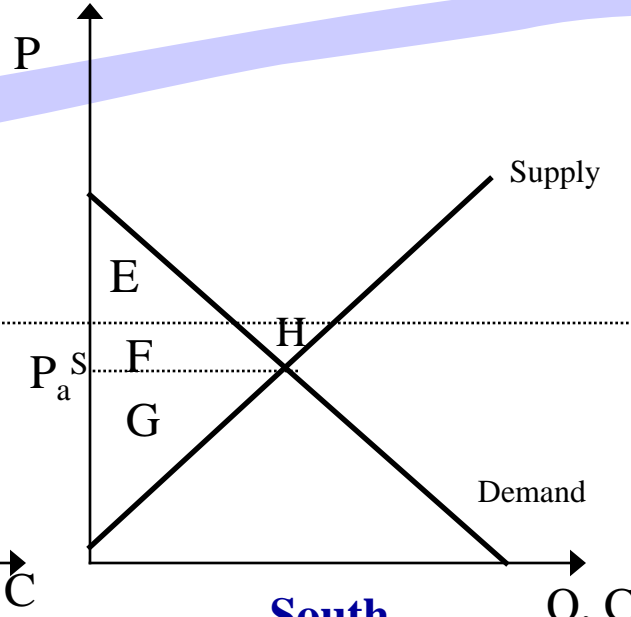
3. Questions raised by globalization

- Gains from trade in goods and services
 - Global gain, distribution across countries and across production factors
 - Compensation of losers?
- Trade policies
 - Multilateral versus regional and bilateral (‘noodle bowl’) agreements
 - Agriculture and services: non-tariff barriers
- Gains from financial integration
 - Efficiency (?) cum instability
- An increasingly integrated world economy
 - Needs for global governance (ex. 2007-2009 global crisis)

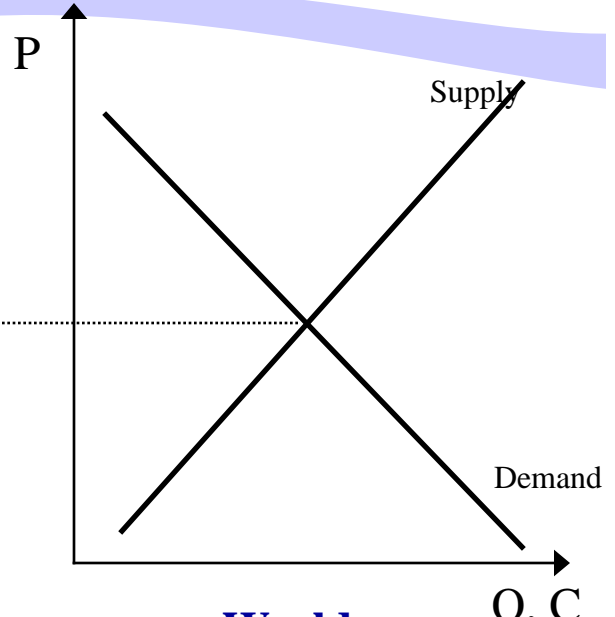
Gain from trade: partial equilibrium



North



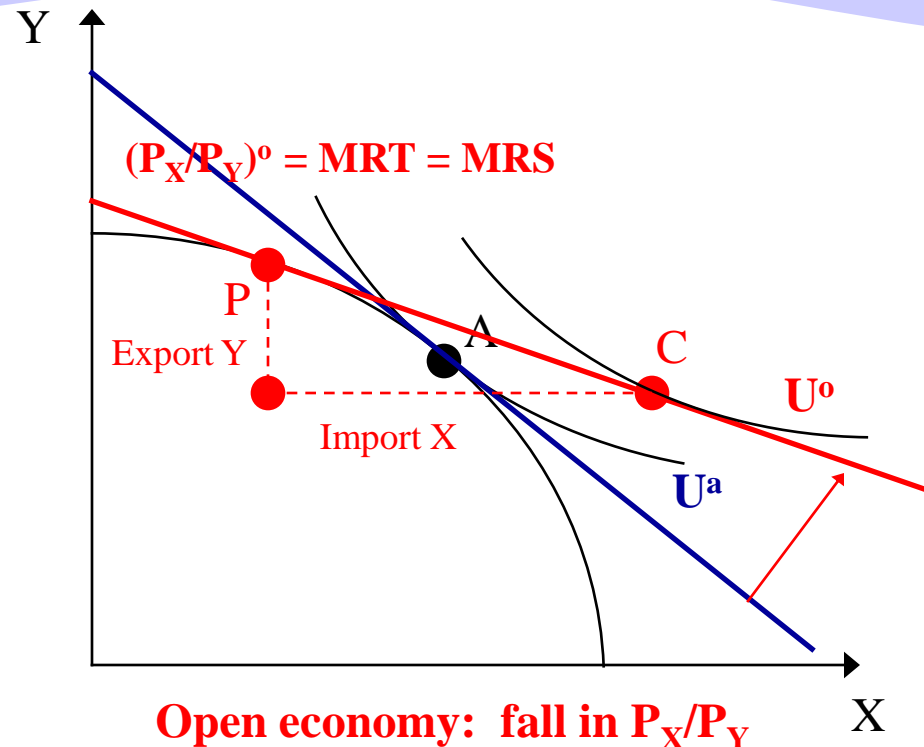
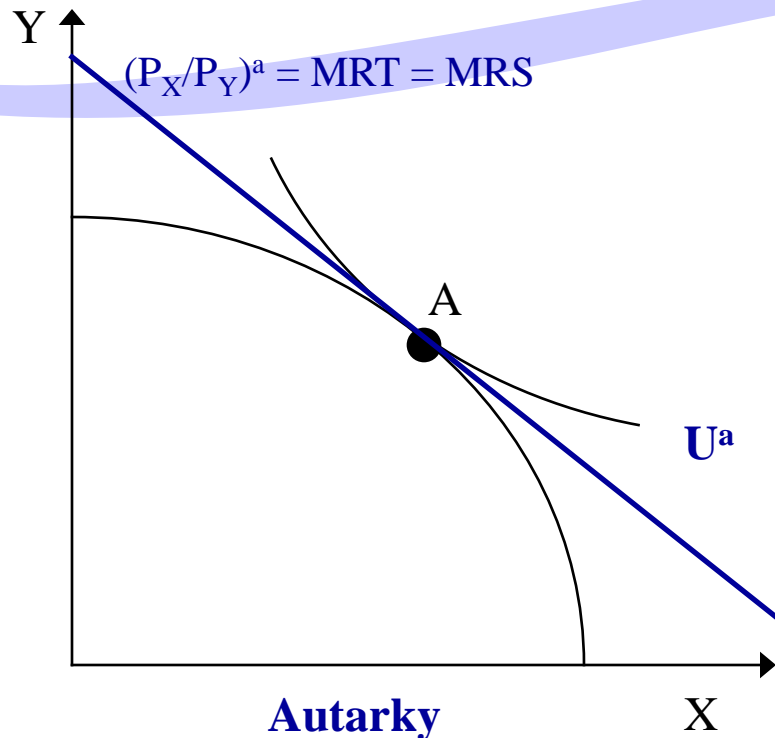
South



World

	North		South	
	Consumers	Firms	Consumers	Firms
Autarky	A	B+C	E+F	G
Open econ	A+B+D	C	E	G+F+H
Gain/loss	Gain B+D	Loss B	Loss F	Gain F+H

Gain from trade: general equilibrium



MRT or *marginal rate of transformation* = number of units of Y which need to be given away to produce one additional unit of X = ratio of production costs of X to Y.

MRS or *marginal rate of substitution* = forgone consumption of Y that compensates, in terms of utility, the consumption of one additional unit of X = ratio of marginal utilities of X to Y.

Distribution of the gains

‘1st globalization’

Old world: rise in wages relative to land yield

New world: rise in land yield relative to wages

Possible explanations:

- international trade
- migrations
- biased technological change

‘2nd globalization’

Rise in wage inequalities in Anglo-Saxon countries

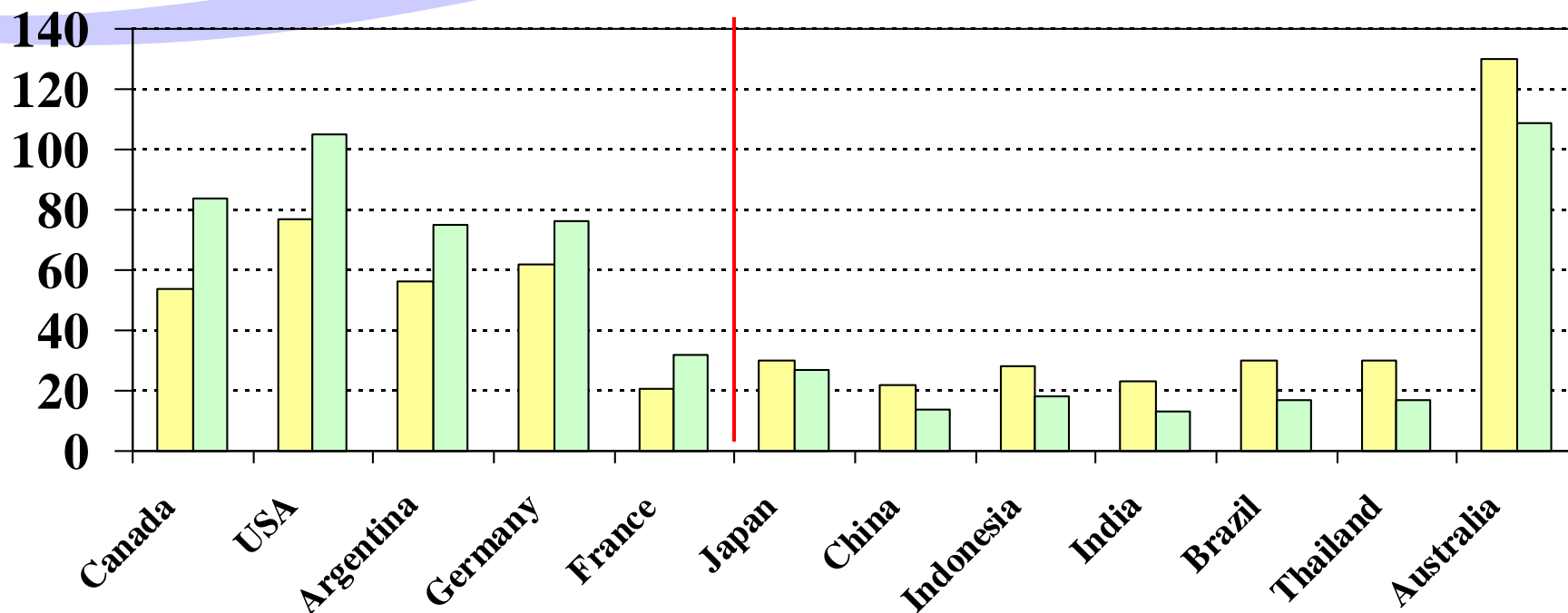
Rise in employment inequalities in Continental Europe

Possible explanations:

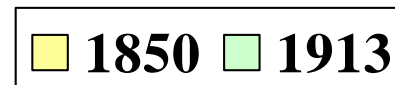
- international trade
- biased technological change
- decline in unionization
- relocations
- migrations (United States)

Distribution across countries in the first wave of globalization

GDP per capita (% of British level)

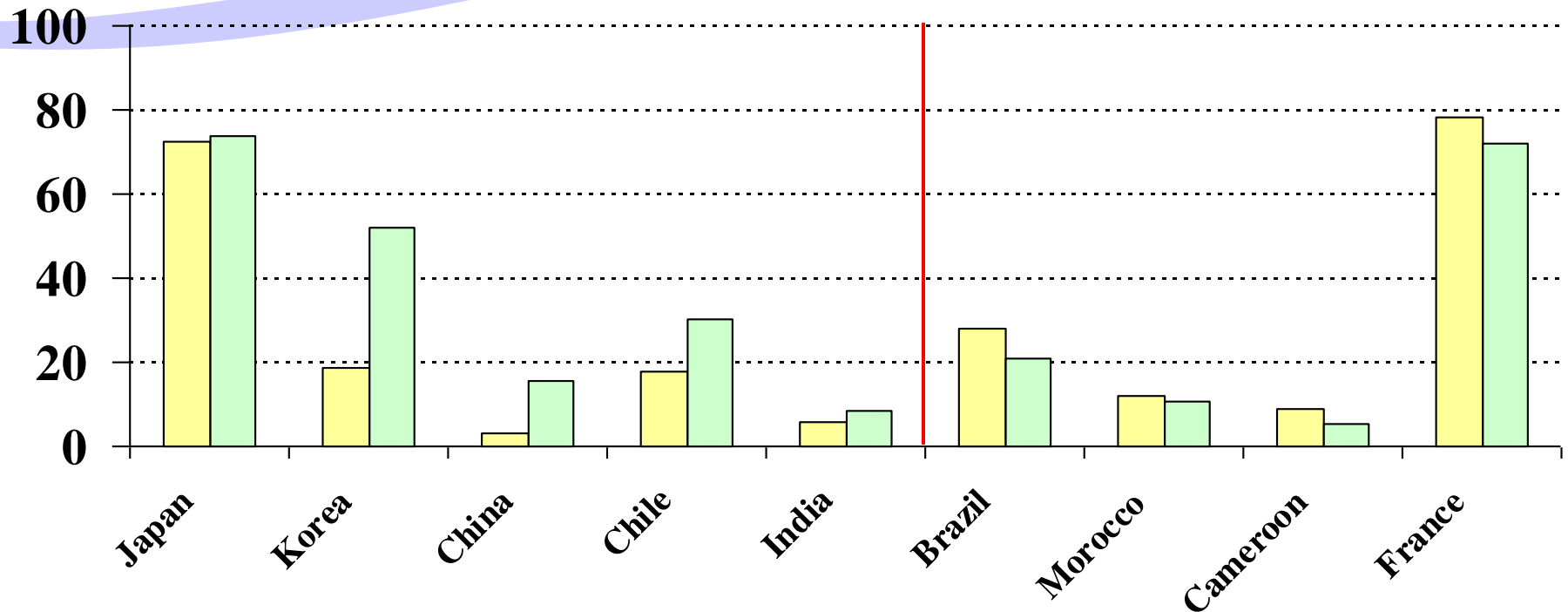


Source: Maddison.



Distribution across countries in the second wave of globalization

GDP per capita (% of USA, PPP 2000)



Source: Maddison.

Theories of international trade

- Trade based on differences:
 - in technologies: Ricardo
 - in factor endowments: Hecksher-Ohlin-Samuelson (HOS)
 - inter-industry trade
- Trade based on economies of scale and product differentiation
 - Krugman and others
 - Intra-industry trade



4. The theory of comparative advantage

Outline



- **Absolute versus comparative advantage**
- **Ricardo's model of international trade**
- **Extensions and limitations**

David Ricardo (1772-1823)

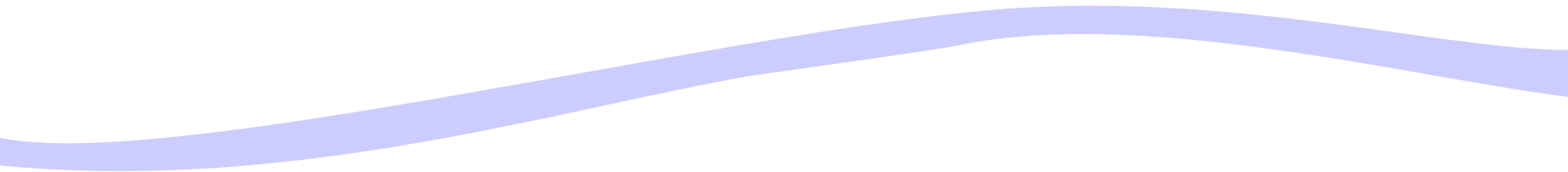


English broker, political economist, member of Parliament

Promotes free trade against Corn Laws

On the Principles of Political Economy and Taxation (1817, 1819, 1821).

- Labor theory of value
- Differential rent (land)
- ‘Ricardian’ equivalence
- Theory of comparative advantage



“The theory of comparative advantage is the only result in social science that is both true and non-trivial”

Attributed to Paul A. Samuelson

Ricardo's simple example

(On the Principles of Political Economy and Taxation , ch. 7, 1817)

- With a given number of hours worked, **Portugal** can produce either 20 meters of cloth or 300 liters of wine, while **England** can produce either 10 meters of cloth or 100 liters of wine. England thus has an *absolute disadvantage* in both productions.
- Still, **England** should specialize in **cloth**, where it has a *comparative advantage*: with 10 meters of cloth, it can obtain 150 liters of wine ($10 \times 300 / 20$) in Portugal, instead of 100 liters at home.
- In turn, **Portugal** should specialize in **wine**: with 300 liters of wine, it can get 30 meters of cloth in England ($300 \times 10 / 100$), instead of only 20 meters at home.
- England has a *comparative advantage* while Portugal has an *absolute advantage* in the production of cloth.

Absolute advantage

Monthly production per worker
(units of goods)

	China	Europe
Shirts	200	50
Cars	5	10

- China has an absolute advantage for shirts and Europe for cars.
- **China** should specialize in shirts and import cars
- **Europe** should specialize in cars and import shirts.
- World output would then increase thanks to a more efficient use of labor.

Comparative advantage

Monthly production per worker
(units of goods)

	China	Europe
Shirts	400	50
Cars	20	10

- China has an absolute advantage in both industries.
- Both countries should nevertheless specialize

Gains from trade

Autarky

Denote by L the total volume of labor per month

- **China** produces and consumes S shirts and C cars, with:

$$L = S/400 + C/20 \text{ hence } C = 20L - S/20$$

Maximum production: 400 L shirts or 20 L cars; $1/20 =$ opportunity cost of producing one additional shirt in terms of forgone cars.*

- **Europe** produces and consumes S shirts and C cars, with:

$$L = S/50 + C/10 \text{ hence } C = 10L - S/5$$

Maximum production: 50 L shirts or 10 L cars; $1/5 =$ opportunity cost of producing one additional shirt in terms of forgone cars.

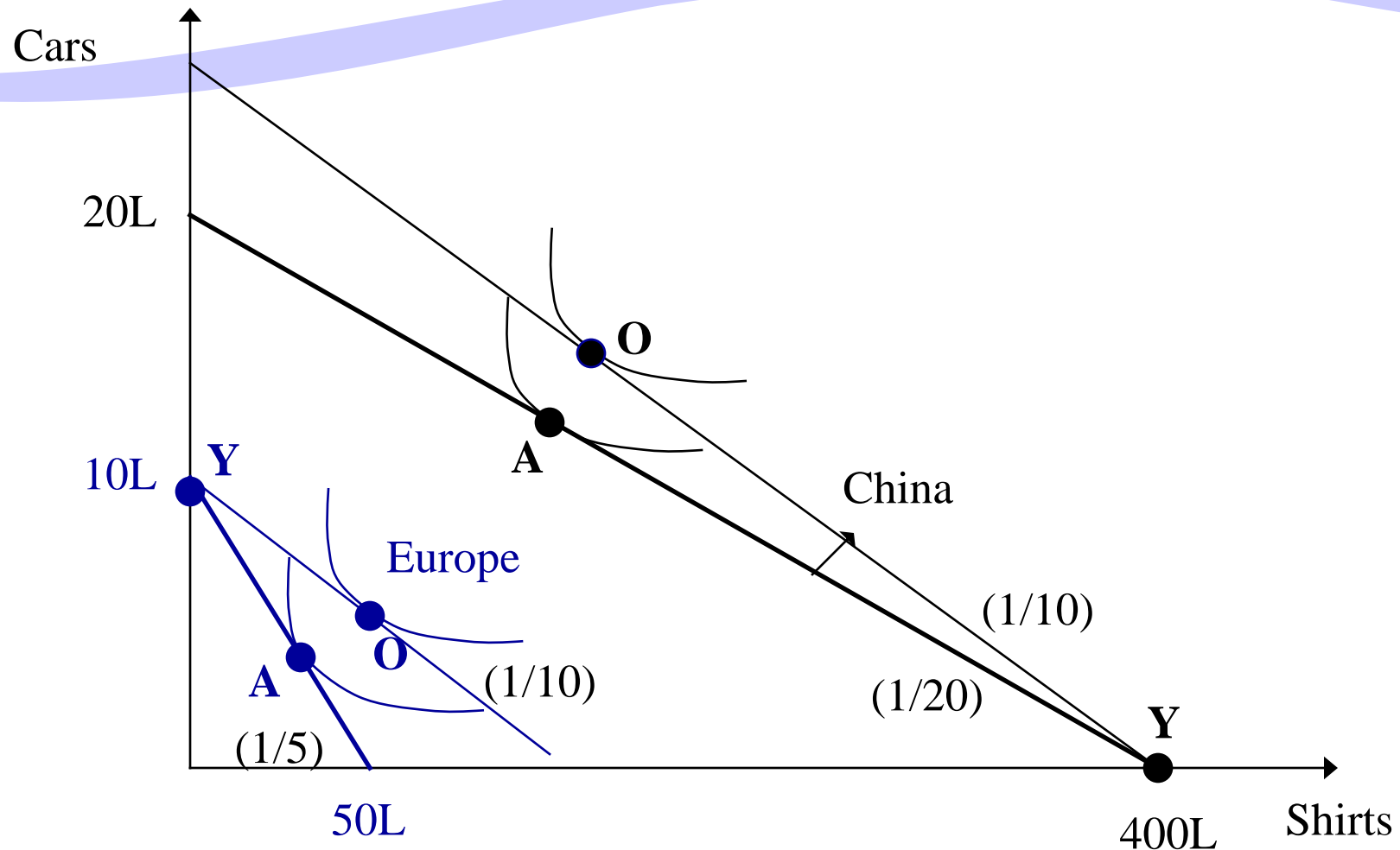
$1/5 > 1/20$: the opportunity cost of shirts is higher in Europe than in China.

Full specialization

- Assume that , on the world market, the relative price of shirts in terms of cars is $1/10$. Each country should specialize in one product and import the other one:
 - **China** should specialize in shirts: produce 400 L shirts, exchange part of the production against cars at the world price $1/10$, i.e. at a higher price than the opportunity cost ($1/20$).
 - **Europe** should specialize in cars: produce 10 L cars and exchange part of the production against shirts at the world price $10/1$, i.e. at a higher price than the opportunity cost ($5/1$).
- Trade allows each country to consume more of at least one good: utility is higher.

* To produce one shirt in China, you need $1/400$ person-months of labor. Each person-month used in the production of shirts implies 20 less cars produced. The opportunity cost of a shirt thus is $20/400=1/20$ car.

Gains from trade



The Ricardian basic model

Assumptions

- 2 countries: home and foreign (*)
- 2 goods X and Y
- 1 production factor L : mobile across industries, constant returns to scale
- Different technologies:
 - Technical coefficients (quantity of labor to produce one unit of good):

$$a_X, a_{X^*}, a_Y, a_{Y^*} \quad \text{with}$$

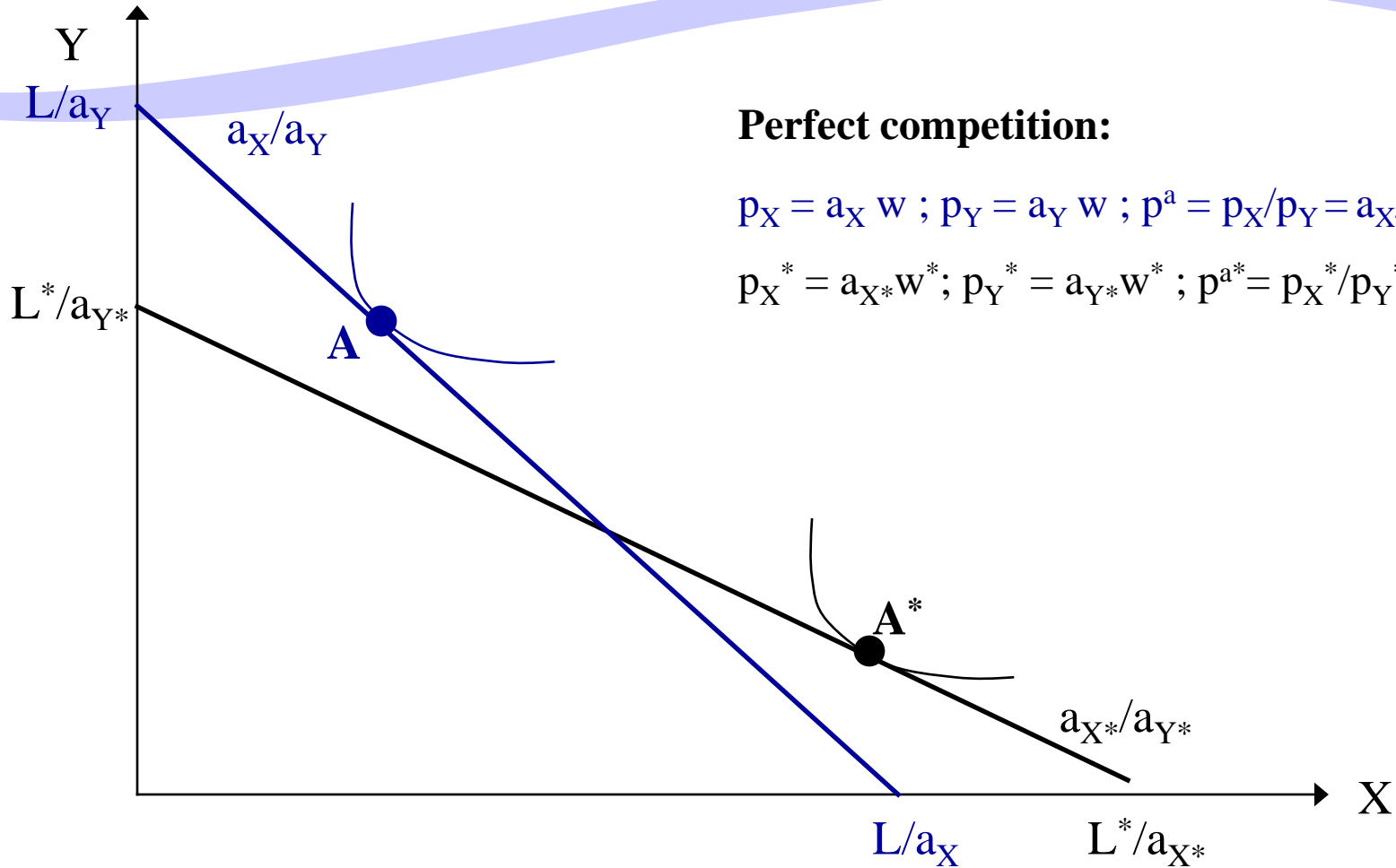
$$a_X/a_Y > a_{X^*}/a_{Y^*}$$
 - The foreign country has a comparative advantage in producing X.

Model

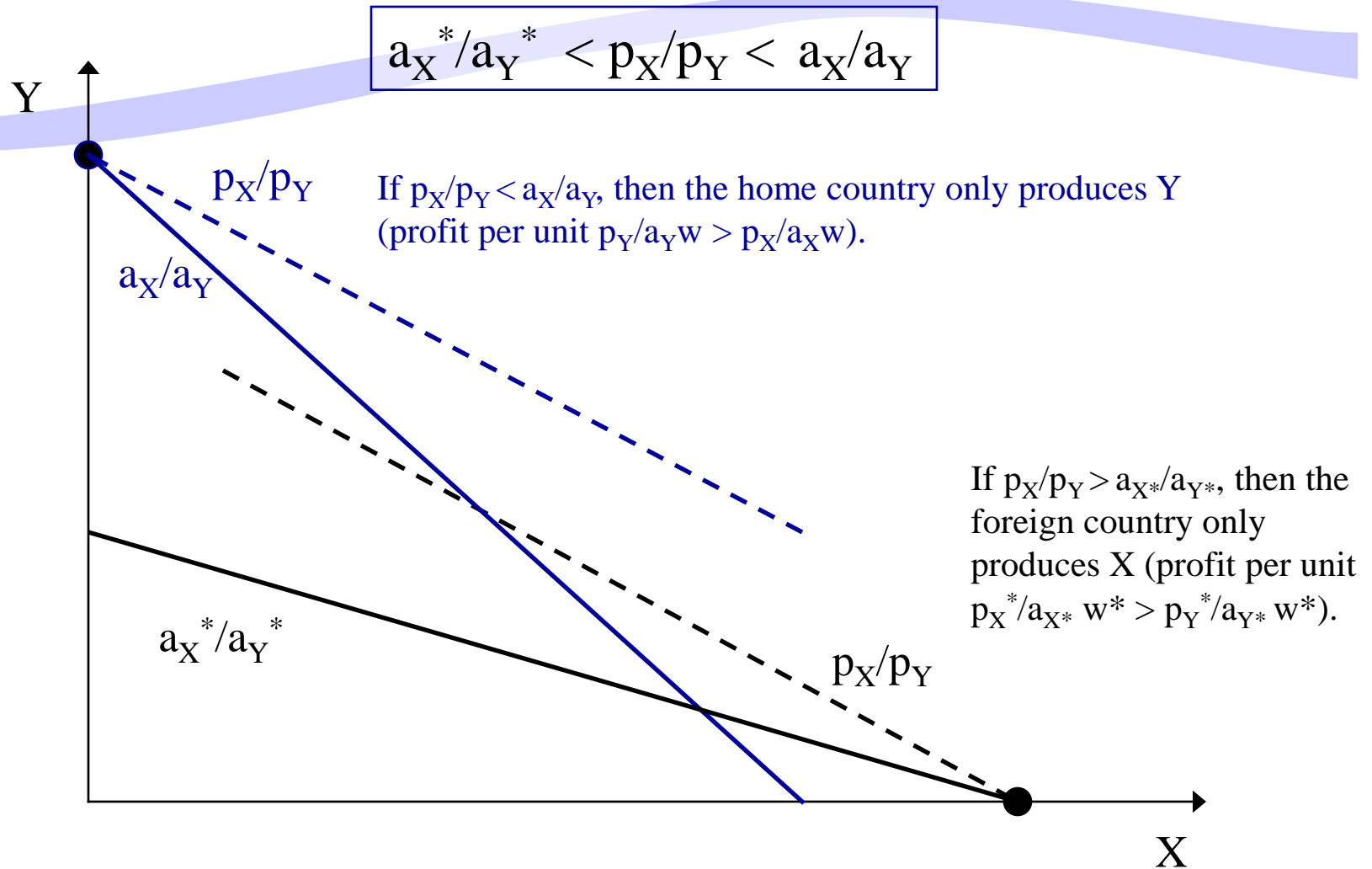
- **Home country** $L = a_X X + a_Y Y$
hence: $Y = L/a_Y - (a_X/a_Y) X$
- **Foreign country** $L^* = a_{X^*} X^* + a_{Y^*} Y^*$
hence: $Y^* = L^*/a_{Y^*} - (a_{X^*}/a_{Y^*}) X^*$
- $a_X/a_Y > a_{X^*}/a_{Y^*}$: the opportunity cost of X in terms of Y is higher in the home than in the foreign country.*
- The home country should specialize in Y and import X if $p_X/p_Y < a_X/a_Y$
- The foreign country should specialize in X and import Y if $p_X/p_Y > a_{X^*}/a_{Y^*}$
- Both interests are consistent since $a_X/a_Y > a_{X^*}/a_{Y^*}$: there is a relative price p_X/p_Y in between the two boundaries.

* In order to produce one additional unit of X, you need a_X units of labor, which implies forgone production of a_X/a_Y units of Y.

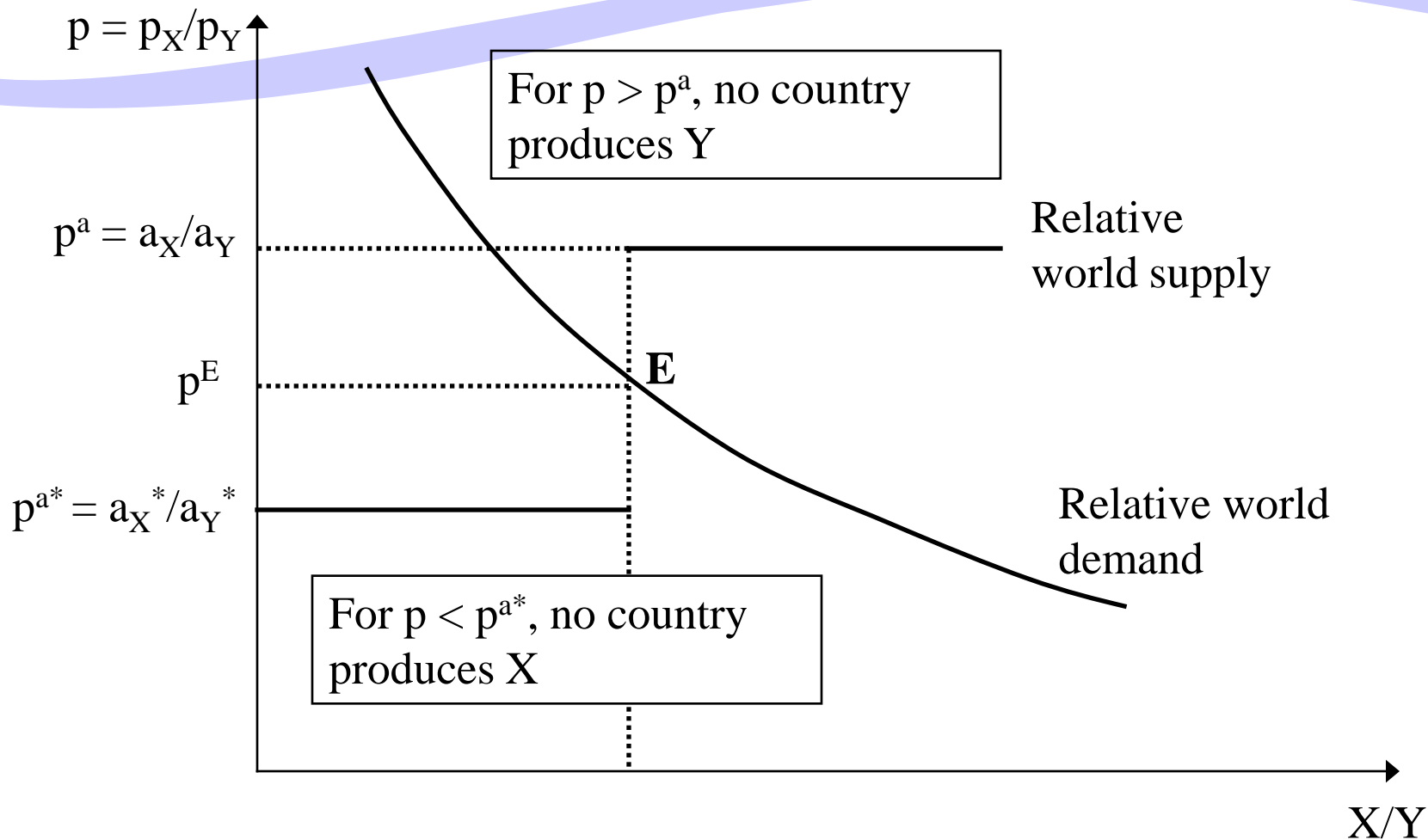
Equilibrium in autarky



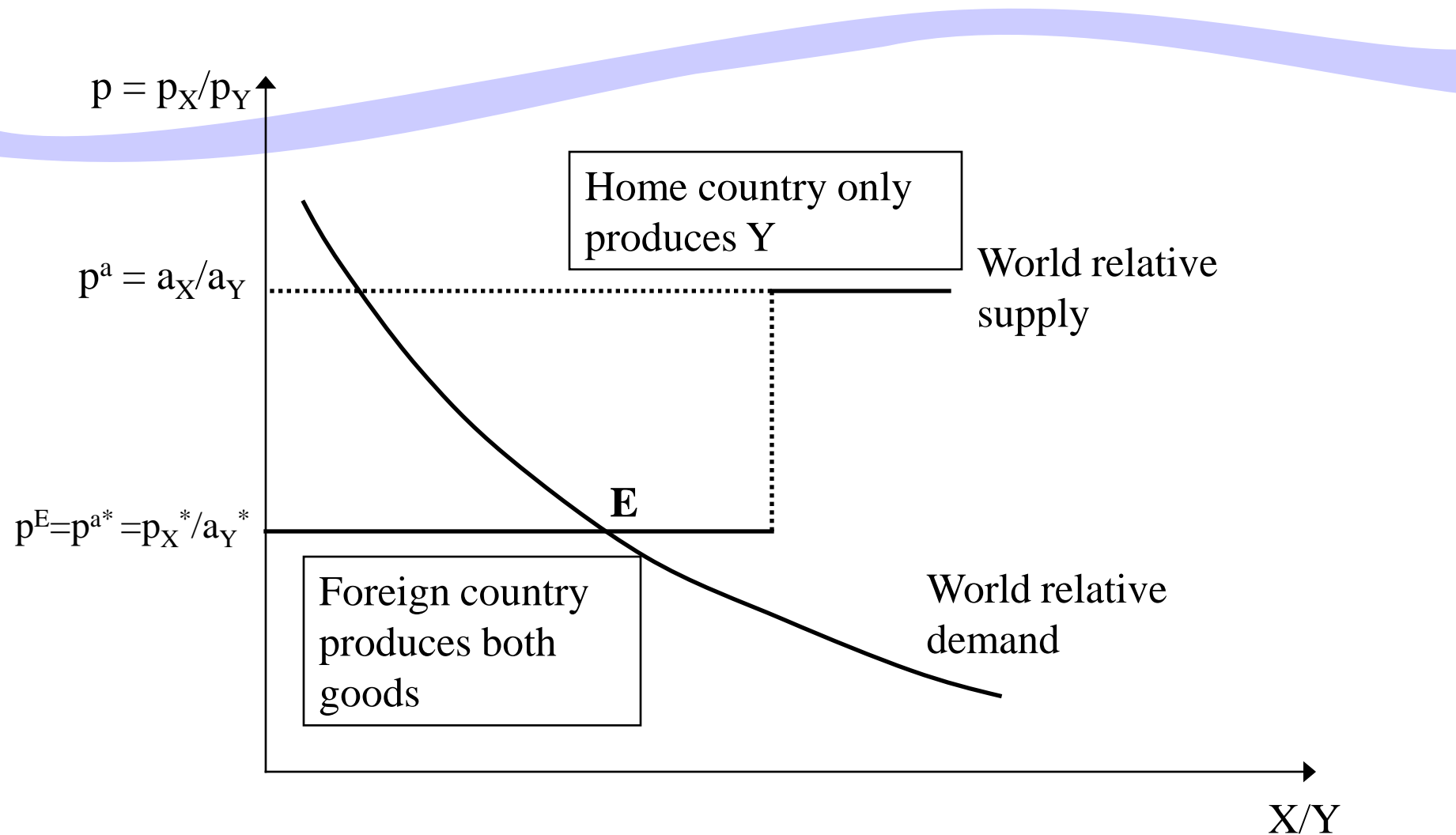
Full specialization



World equilibrium with full specialization



World equilibrium with incomplete specialization

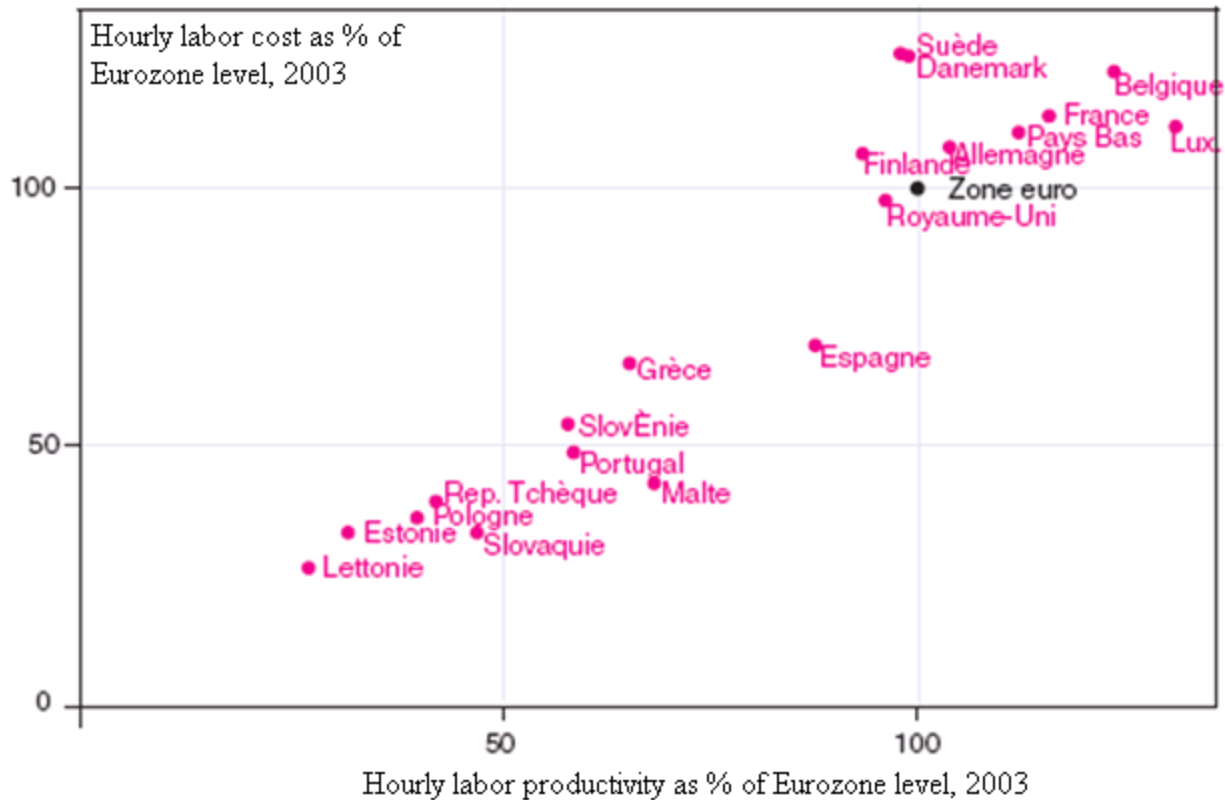


Wages

- **Gains from trade do not depend on wages in both countries**
 - because wages are assumed the same in the two sectors and therefore have no impact on comparative advantages
- **Autarky:** $p_X^a = w a_X$, $p_Y^a = w a_Y$
 $p_{X^*}^a = w^* a_{X^*}$, $p_{Y^*}^a = w^* a_{Y^*}$
- **Full specialization:**
 $w = p_Y/a_Y$, $w^* = p_X/a_{X^*}$
- Since opening up economy raises the price of the product in which the country specializes, wages increase in both countries.
- **Relative wages:** $w/w^* = (p_Y/p_X) (a_{X^*}/a_Y)$
 - Because $a_{X^*}/a_{Y^*} < p_X/p_Y < a_X/a_Y$
 - We have $a_Y/a_X < p_Y/p_X < a_{Y^*}/a_{X^*}$
 - Replace p_Y/p_X by $(w/w^*)(a_Y/a_{X^*})$
 - We get: $a_{X^*}/a_X < w/w^* < a_{Y^*}/a_Y$ *Factorial terms of trade*
- **Relative wage w/w^* depends on absolute advantages**

Wages and productivity

Hourly labor cost in Europe

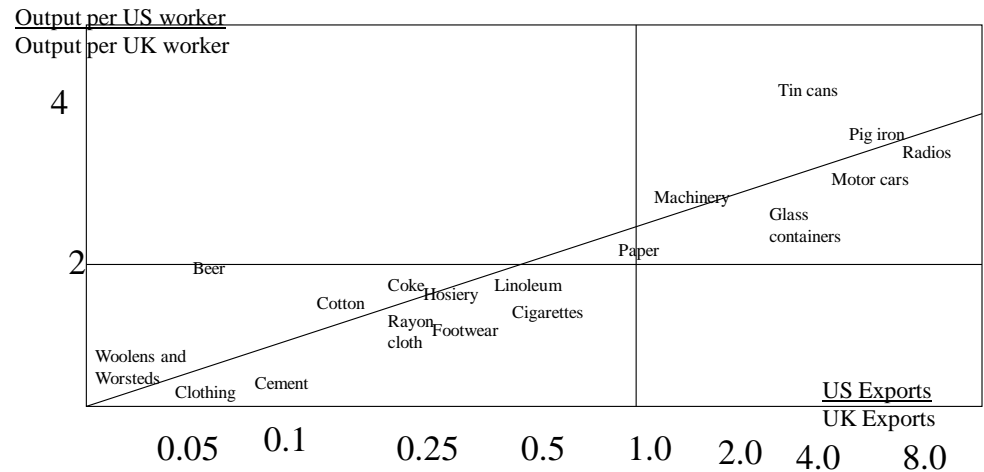


Source Eurostat.

Conclusion

- **Gains from trade** only depend on **comparative advantages**
- **Relative wages** between countries only depend on **absolute advantages**: a low-productive country will pay less

Labor productivity and revealed comparative advantages, USA/UK, Mc Dougall, 1951



Extensions

More than 2 goods

- Rank all goods based on relative productivity:
- $a_1^*/a_1 < a_2^*/a_2 < \dots < a_n^*/a_n$
- Locate w/w^* in this chain
- Those products such as $a_i^*/a_i > w/w^*$ are exported by the home country because the disadvantage in terms of wages is more than compensated by an advantage in terms of productivity

Transport costs

- Assume a proportional transport cost t
- If $wa_i < w^*a_i^* < wa_i(1+t)$, then good i is not traded
- Non-traded goods represent around 50% of GDP in advanced economies.

Limitations of Ricardo's approach



- Where does relative advantage come from?
- Only one production factor
 - Everyone gains from trade
- Constant opportunity cost
 - Full specialization
- Does not explain intra-industry trade
- Does not account for market size
- Does not include for non-price competitiveness