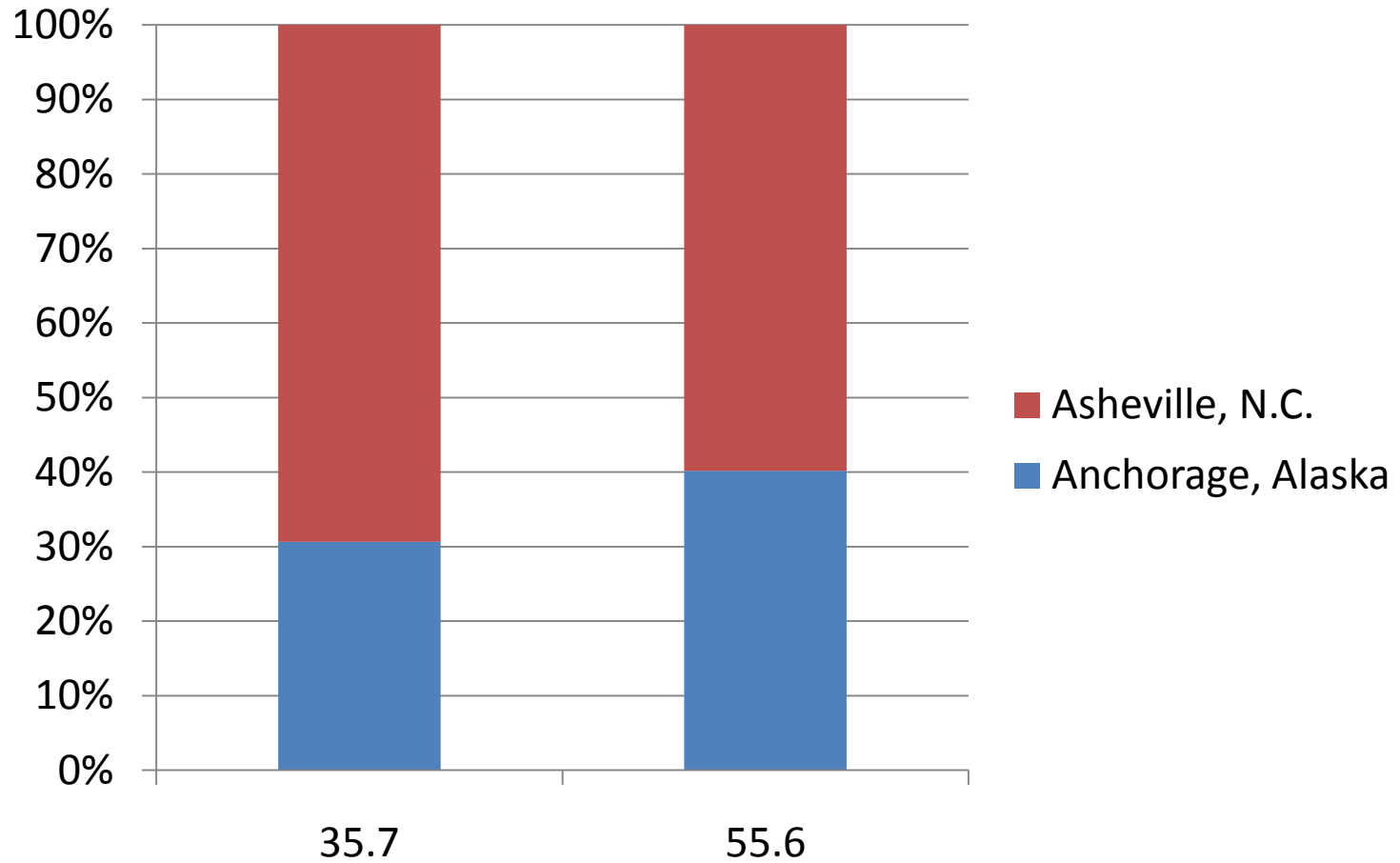


# The rise of intraindustry trade

Paul Krugman

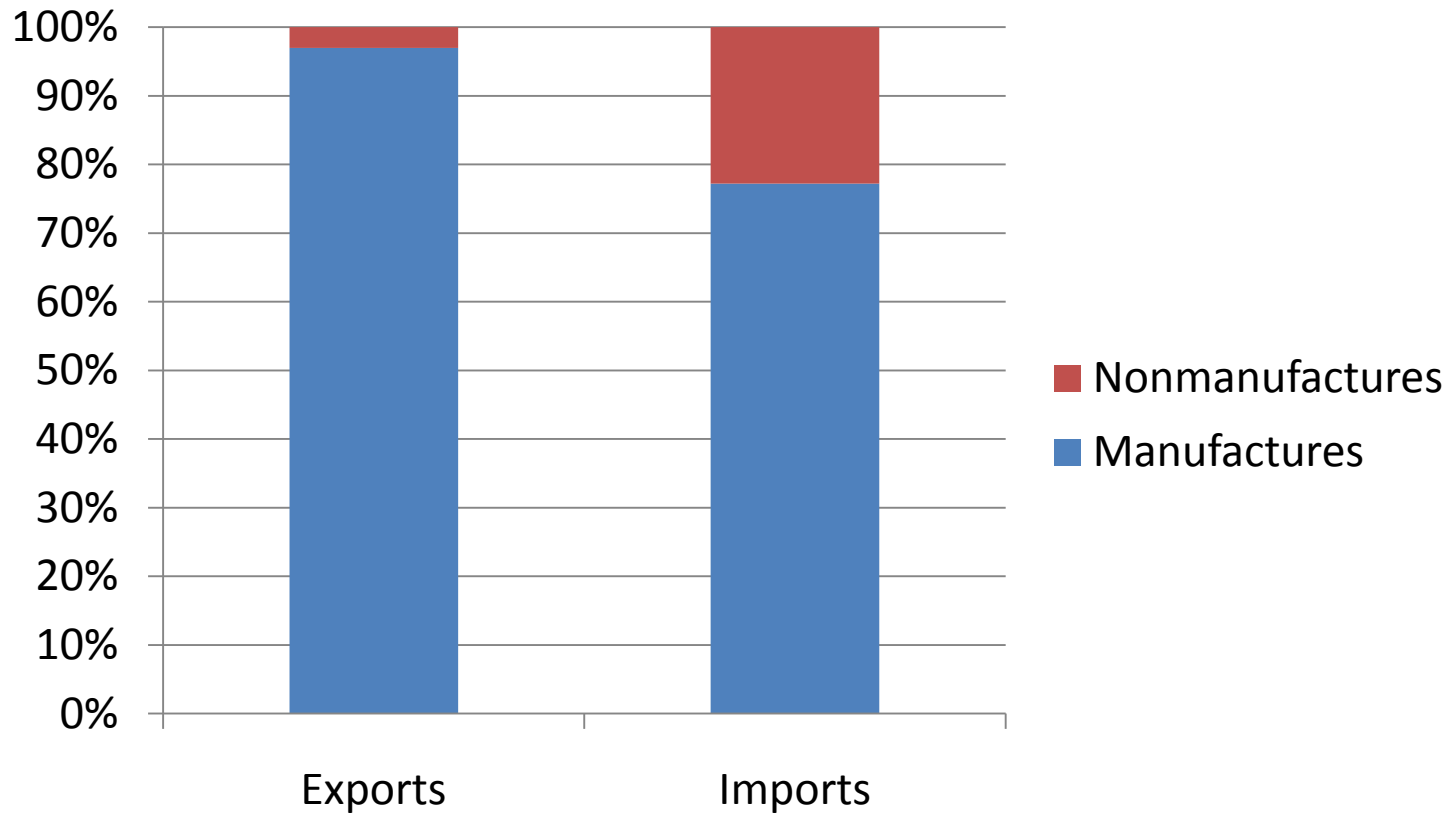
Once upon a time, comparative advantage looked pretty good as a description of trade ...

**Composition of British trade circa 1910**



... but over time it got hard to see much difference between what countries exported and what they imported

**Composition of British trade in the 1990s**



Furthermore, trade increasingly seemed to be between similar countries.



So what was driving this trade?

Treaty of Rome, 1957: established the European Economic Community, which eventually becomes the European Union

Main provisions:

- (1) Customs union: zero tariffs between members, common external tariffs
- (2) Common Agricultural Policy: price supports plus trade policy

# Trade within EEC expands rapidly

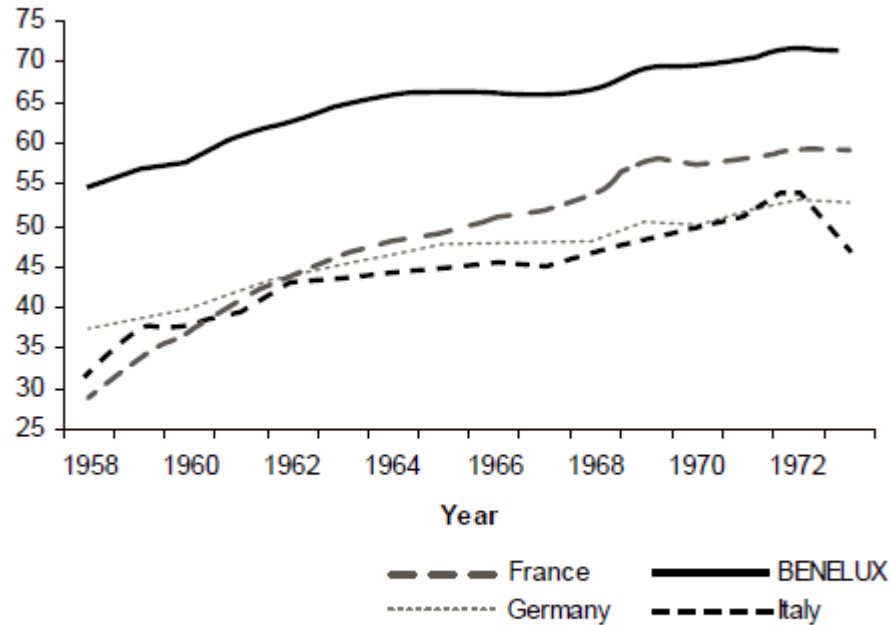


Figure 1: Intra-EC trade 1958-1973 (percent of total trade)

Source: Own estimates on the basis of data provided by Eurostat

But why didn't this cause a protectionist backlash?

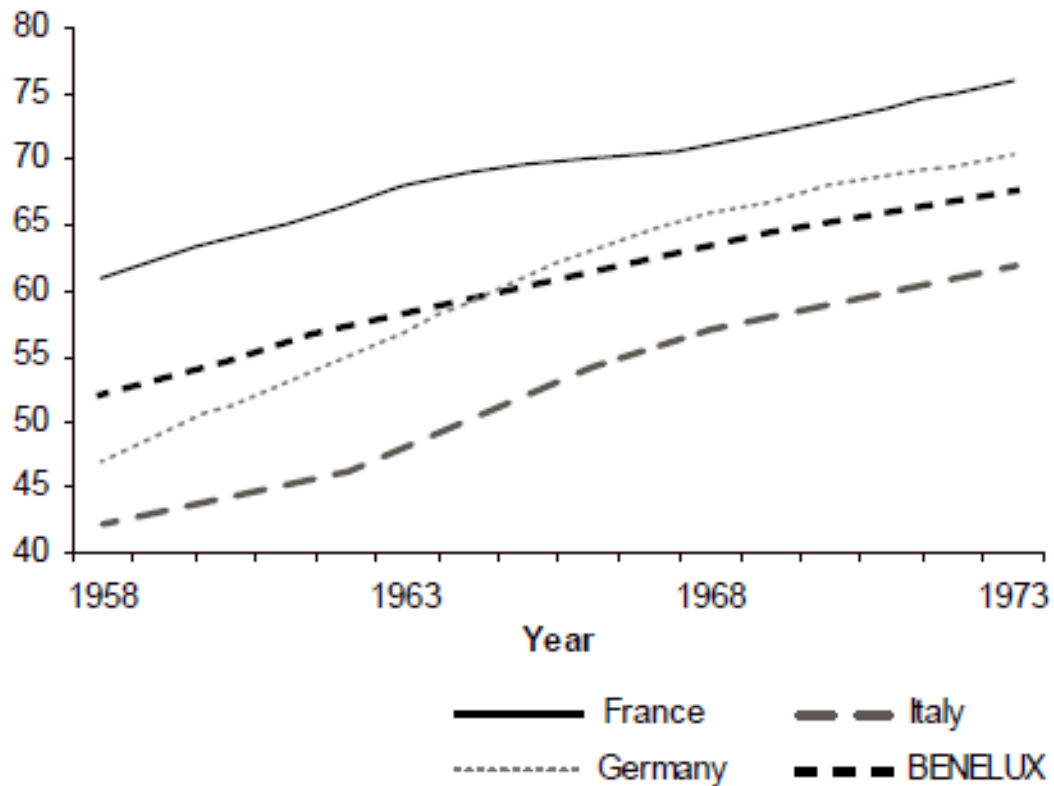


Figure 2: Share of intra-industry trade (1958-1973)  
 Source: Own calculations on the basis of data provided by Eurostat and Balassa (1975)

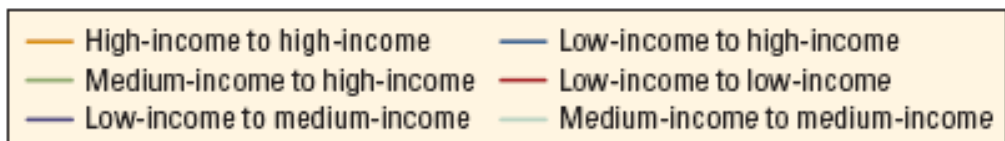
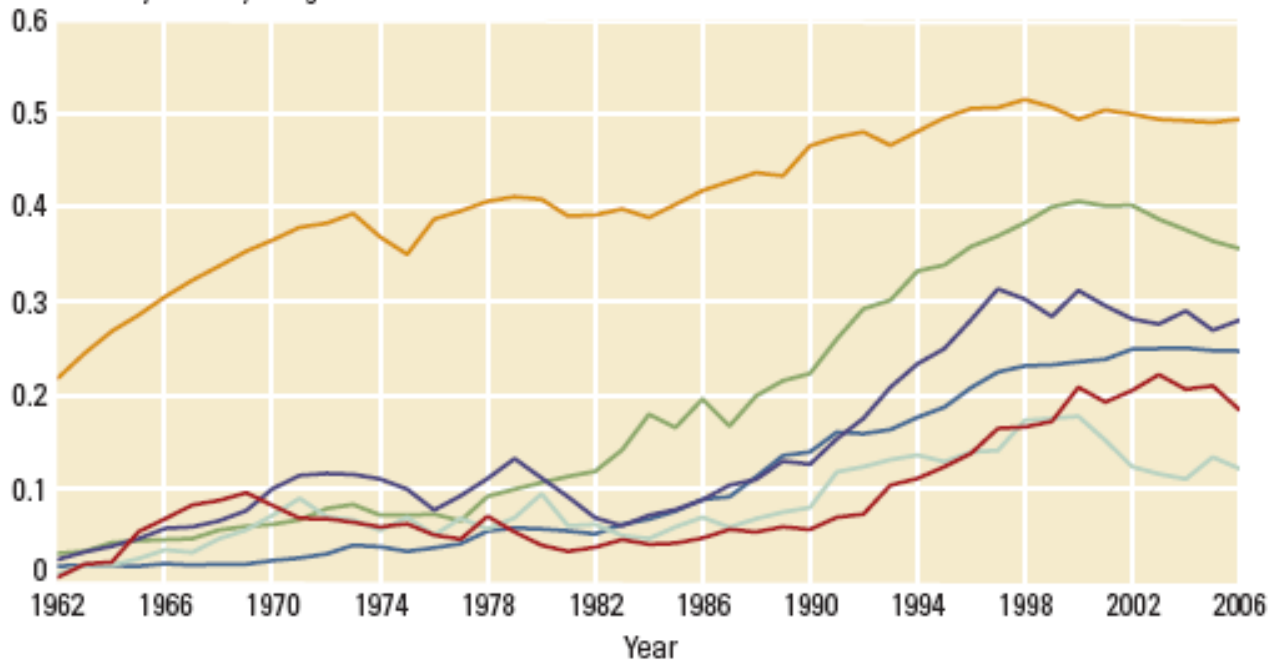
Measuring intra-industry trade: let  $X$  be exports,  $M$  imports,  $i$  be the industry; then

$$Index = 1 - \frac{\sum_i |X_i - M_i|}{\sum_i (X_i + M_i)}$$

If industries are exporters or importers, never both, index = 0. If balanced trade within each industry, index = 1.



Grubel-Lloyd Index, 5-digit



Source: Brülhart 2008 for this Report.

Note: The Grubel-Lloyd index is the fraction of total trade that is accounted for by intraindustry trade.

Why is there intraindustry trade?

One answer: bad classification; an “industry”, as defined by govt statisticians, may contain goods with very different technology or factor content

Alternative answer: economies of scale. Countries produce different, differentiated products because costs are reduced by producing only a limited range

# What product classifications actually look like

75270	STORAGE UNITS, WHETHER OR NOT PRESENTED WITH THE REST OF THE SYSTEM FOR DATA PROCESSING
75280	UNITS OF AUTOMATIC DATA PROCESSING MACHINES, NES
75290	DATA PROCESSING EQUIPMENT, N.E.S.
75910	PARTS AND ACCESSORIES OF PHOTOCOPYING AND THERMOCOPYING APPARATUS
75980	PARTS AND ACCESSORIE EQUALLY SUITABLE FOR USE WITH MACHINES OF TWO OR MROE OF THE SUBGROUPS 751.1, 751.2 751.9 AND GROUP 752
75991	PARTS OF TYPEWRITERS AND WORD PROCESSING MACHINES
75993	PARTS OF OFFICE MACHINES, N.E.S.
75995	PARTS OF CALCULATING MACHINES, ACCOUNTING MACHINES, CASH REGISTERS. POSTAGE-FRANKING MACHINES AND SIMILAR MACHINES INCORPORATING A CALCULATING DEVICE
75997	PARTS OF AUTOMATIC DATA PROCESSING MACHINES AND UNITS THEREOF, MAGNETIC OR OPTICAL READERS, AND MACHINES FOR TRANSCRIBING AND PROCESSING DATA N.E.S.
75999	PARTS AND ACCESSORIES EQUALLY SUITABLE FOR USE WITH TWO OR MORE OF THE MACHINES OF 7511, 7519, 752, OR THE ELECTRONIC CALCULATING MACHINES OF 7512
76110	TELEVISION RECEIVERS, COLOR, INCLUDING MONITORS, PROJECTORS AND RECEIVERS COMBINED WITH RADIOBROADCAST RECEIVERS OR SOUND AND VIDEO RECORDERS, ETC.
76120	TELEVISION RECEIVERS, MONOCHROME, INCLUDING MONITORS, PROJECTORS AND THOSE COMBINED WITH RADIOBROADCAST RECEIVERS OR SOUND AND VIDEO RECORDERS, ETC.
76130	CATHODE-RAY TUBE MONITORS
76140	MONITORS, NOT INCORPORATING TV RECEP APPS
76150	PROJECTORS NOT INCORPORATING TV RECEPTION APPARATUS
76160	RECEPTION APPARATUS FOR TV, WHETHER OR NOT INCORPORATING RADIO-BROADCAST RECEIVERS OR SOUND OR

US-Canada Auto Pact, 1965

Canadian auto industry: same players as US,  
1/10<sup>th</sup> the scale

Inefficiency due to short production runs

Duties eliminated on autos and parts, with  
Canadian industry protected by content  
requirements

## Rationalization moves in Canada

GM cuts the number of models produced in half, but maintains overall output

Chrysler produces Hornet in two plants: Brampton CA for eastern half of continent, Kenosha Wisconsin for western half

And many similar stories

Canadian exports rise from \$82 million in 1964 to \$1.2 billion in 1967

Canadian employment rises

Dixit-Stiglitz to the rescue

$$U = \left[ \int c(z)^{\frac{\varepsilon-1}{\varepsilon}} dz \right]^{\frac{\varepsilon}{\varepsilon-1}}$$

$$\ell(z) = \alpha + \beta x(z)$$

Why was this so hard?

First of all, it required a willingness to shift the locus of silliness ...

Traditional trade theory seemed quite general – no need for specific functional forms of production or utility functions. But it required big unreasonable assumptions up front: constant returns and perfect competition. Through habit these assumptions came to seem natural.

Monopolistic competition trade theory required, instead, that we make unreasonable assumptions much further down the chain of reasoning – symmetrical goods, CES utility. This seemed weird because it was new.

We also had to realize that we were asking the wrong questions.

Traditional trade theory predicted the precise patterns of specialization and trade – e.g., chain of comparative advantage

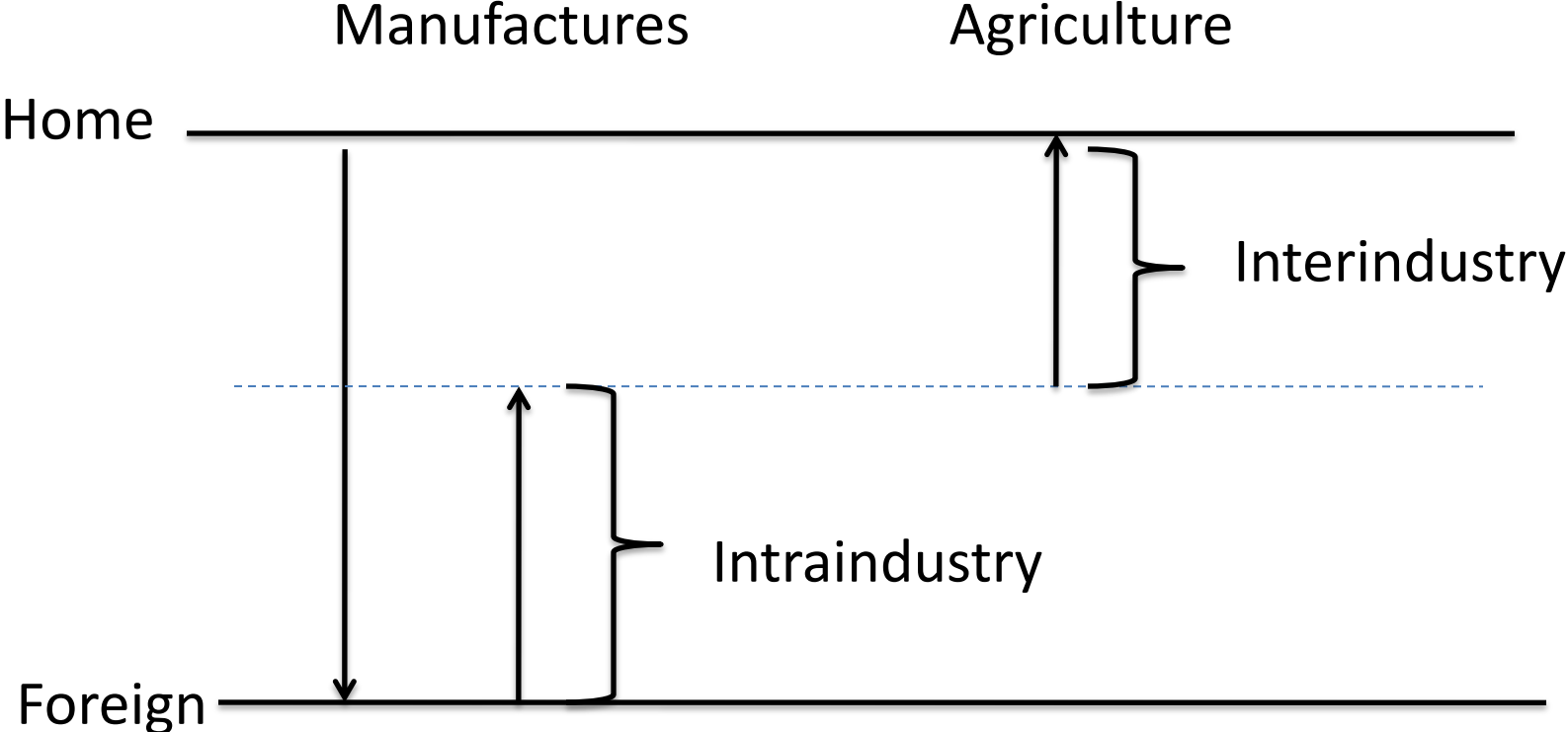
$$\frac{a_1^*}{a_1} > \frac{a_2^*}{a_2} > \dots > \frac{a_n^*}{a_n}$$

To do monopolistic competition trade theory, we had to accept, even embrace indeterminacy, and describe trade in terms of aggregative measures – e.g.,

$$n = L/\alpha\varepsilon \quad n^* = L^*/\alpha\varepsilon$$



At that level, however, the combination of increasing returns and comparative advantage provided a compelling explanation of trade patterns:



Political economy: intraindustry trade tended to be relatively easy to negotiate, because it wasn't very disruptive – many winners, few losers