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**

- Asheville, N.C.: 35.7%
- Anchorage, Alaska: 55.6%
... but over time it got hard to see much difference between what countries exported and what they imported.
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

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

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

If industries are exporters or importers, never both, index = 0. If balanced trade within each industry, index = 1.
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.
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US-Canada Auto Pact, 1965

Canadian auto industry: same players as US, 1/10th 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

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

\[ \ell(z) = \alpha + \beta x(z) \]
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

\[
\frac{a_1^*}{a_1} > \frac{a_2^*}{a_2} > \ldots > \frac{a_n^*}{a_n}
\]

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

\[
n = \frac{L}{\alpha \varepsilon} \quad n^* = \frac{L^*}{\alpha \varepsilon}
\]
At that level, however, the combination of increasing returns and comparative advantage provided a compelling explanation of trade patterns:

**Diagram:**
- **Home** and **Foreign**
- **Manufactures** and **Agriculture**
- **Intraindustry**
- **Interindustry**

The diagram illustrates the trade patterns between Home and Foreign, with industries categorized as manufactures or agriculture, showing both intraindustry and interindustry trade.
Political economy: intraindustry trade tended to be relatively easy to negotiate, because it wasn’t very disruptive – many winners, few losers