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## **International Division of Labour and Intra-Trade**

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1985

Online at <https://mpra.ub.uni-muenchen.de/18042/>  
MPRA Paper No. 18042, posted 26 Oct 2009 09:13 UTC

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INTERNATIONAL DIVISION OF LABOUR  
AND INTRA-TRADE



ESTRATTO DA <ECONOMIA INTERNAZIONALE> Vol. XXXVIII, N. 2

GENOVA - Maggio 1985



# ECONOMIA INTERNAZIONALE

RIVISTA TRIMESTRALE DELL'ISTITUTO DI ECONOMIA INTERNAZIONALE  
PUBBLICATA A CURA DELLA CAMERA DI COMMERCIO, INDUST., ARTIG. E AGRIC. DI GENOVA

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ISTITUTO DI ECONOMIA INTERNAZIONALE - Via Garibaldi, 4 - 16124 GENOVA - ITALIA

## Condizioni di abbonamento alla Rivista

Per l'Italia: Lire 40.000 - Per l'Estero \$ 35.00

Prezzo di un fascicolo: per l'Italia Lire 12.000  
per l'Estero \$ 10.00

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## INTERNATIONAL DIVISION OF LABOUR AND INTRA-TRADE

### 1. - Introduction.

The rise of modern industrialism has significantly reduced the independence of the individual producer, while simultaneously increasing the total product available by cooperative effort. The extension of the division of labour has resulted in increased efficiency in the manufacturing of goods and services. Under the world-wide liberalization of trade policies after 1945 post-war reconstruction of the European economies, the volume of world trade has expanded at an unprecedented rate. The volume of world trade has grown even more rapidly than the growth of the world's social product. Due to this development as measured in import- and export statistics international interdependence has increased significantly.

Diminishing economic independence has its compensation in an increase in economic welfare in an integrated economic community.

Primary products accounted largely for the expansion of the volume of world trade till the end of the 1930s. After World War II, however, the share of primary goods in total exports has steadily declined to a low point of 30 per cent in 1972, recovering somewhat after the oil crisis <sup>(1)</sup>. Many hypotheses have been formulated in attempting to explain this turnaround in the positions of primary and manufactured commodities in the trade statistics.

Table 1 below reveals the striking characteristic that trade in manufactures accounts for a rising share of total world trade.

TABLE 1. — *Trade in manufactures relative to total trade.*

Year	Value (\$ billion)	As % of total trade
1928	12	39
1953	32	45
1973	350	61
1979	943	58

SOURCE: Ethier (1982, p. 38).

(1) See HOOD-YOUNG (1979).



The main share of world trade occurs as trade in similar products between developed countries, rather than between these countries and the less developed. This tendency has been accompanied by an essential qualitative change in the international economic relationships between national economies. Three areas of observation are important in understanding this qualitative change. Most importantly, the relative increase in intra-trade (trade in similar goods) has changed the foundations of an international division of labour. Secondly, the mobility of factors of production has risen. And thirdly, the internationalization of the production process itself has escalated steadily through the entity, multinational enterprise (2).

Restricting our examination here to the important empirical phenomenon 'two-way' trade, as intra-trade is occasionally termed, offers some interesting implications which aid in understanding important perspectives for an international division of labour that are often disregarded by the new proponents of protectionism (3).

## 2. - Intra-Industry Trade.

Traditional international trade theorists consider dissimilarity of preferences, endowments, and technologies as the major reasons for international trade. However, within an international product differentiation framework it is possible to envision circumstances (e.g. given non-convex technologies) in which not all varieties of products are produced in a single country. The availability of product variants world-wide will be insured through intra-trade, whereas intra-firm trade within multinational enterprises secures an efficient factor allocation that strengthens the tendency towards factor price equalization.

The theory of intra-trade arose out of the empirical observation that trade in manufactures is most intense between nations with similar factor endowments and technologies. The intra-trade thesis supplements the overworked Heckscher-Ohlin explanation of trade by including economies of scale, non-competitive market structures, and product differentiation aspects of international trade. Intra-trade may be well explained given advantages due to increasing returns to scale on the supply side of the production sector and the varying preferences of consumers with regard to differentiated products on the demand side of the economy (4).

Furthermore, intra-trade may be explained based upon entrepreneurial strategies which focus on obtaining and securing through product differentiation strong market segments in international markets. Firms

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(2) See HESSE, KEPPLER, PREUßE (1985), HELPMAN (1984).

(3) Compare also ROSSINI (1984).

(4) See SIEBERT (1985).



have also profited from the observed per-capita income increase among consumers which has been accompanied by a stronger diversification of preferences. Firms which are internationally active have an additional chance of reacting (with relatively low costs of adjustment) to this diversification of preferences, since embodied factors, so-called firm specific assets such as management, marketing skills and technological know-how may be used to service production plants in countries other than the country in which these inputs are employed originally <sup>(5)</sup>.

Empirical economic research on intra-trade has discussed implicitly this phenomenon in connection with recorded intra-industry trade at a particular digit of the Standard Industrial Trade Classification (S.I.T.C.), usually at the third digit. The now common measure of intra-trade as developed by GRUBEL and LLOYD is,

$$\text{INTRA}_i = 1 - \frac{|X_i - M_i|}{(X_i + M_i)} \quad i = 1, 2, \dots, s.$$

with  $X_i$  representing exports in sector  $i$  and  $M_i$  representing imports in sector  $i$ . This unadjusted measure suffers various shortcomings. Given a stronger statistical disaggregation the indicator  $\text{INTRA}_i$  decreases; high level aggregation, on the other hand, biases the magnitude of  $\text{INTRA}_i$  to be too high. The usual principal of aggregation is such that goods of one category, which are similar with regard to useage and production structure, are combined statistically.

The crucial point remains however, that countries do both export and import many commodities which are close substitutes either in consumption or production. The most important explanation for such intra-industrial trade is the widespread existence of economies of scale and differentiated products.

The indicator  $\text{INTRA}_i$  upon the basis of the 3-digit S.I.T.C. as calculated in Table 2 below demonstrates the importance of this kind of trade.

TABLE 2. — *Intra trade in a number of european countries for the year 1977; S.I.T.C. sections 0-8.*

France	.60
Germany	.53
Italy	.43
Netherlands	.60
United Kingdom	.56

SOURCE: Greenaway (1983).

(5) See HELPMAN (1984).

### 3. - Implications of Intra-Trade.

Although the simple indice of intra-trade discussed above must be interpreted with caution, empirical evidence on the determinants of intra-industry trade permit the broad conclusion that the intensity of intra-industrial trade between industrialized nations is dependent upon specific characteristics of the trading partners, as well as specific characteristics within industrial sectors.

Recent research <sup>(6)</sup> has indicated that intra-industrial trade increases among economically expanding countries in which domestic markets are also characterized by growth. Domestic markets and the intensity of international trade between such partners simultaneously expand, given that trade barriers are minimal. As Rossini (1984) has elegantly pointed out recently in this journal the new proponents of protectionism (through trade barriers such as tariffs) fail to recognize fully the non-beneficial effects of barriers that elicit new adjustment problems. Trade liberalization however, involves less serious adjustment problems when it simply increases each partner's exports of differentiated goods. Direct investment, like trade, can beneficially flow both in and out at the same time.

What are the theoretical economic conclusions of these views? The intra-trade thesis offers new hope for the international division of labour. Recent theoretical research on intra-trade postulate that within the manufacturing sector some industrial branches vision free trade as a zero-sum game, while other industries perceive free trade or reciprocal tariff cuts as being beneficial for all concerned <sup>(7)</sup>. Figure 1 illustrate this line of thought.

Industry characteristics of product differentiation,  $\beta_1$ , and comparative advantage,  $\mu_1$ , designate the axes of Figure 1.  $\beta_1$  represents an index of product differentiation exemplifying the situation in which the lower  $\beta_1$  is, the higher value level consumers place on diversity and the greater the monopoly power of firms.  $\mu_1$  being an index of comparative advantage has the following connotation: a lower  $\mu_1$  reveals a weaker comparative advantage situation of domestic producers of industry  $i$ . Drawing a line through the relevant region separating industries into two groups, the industries situated to the lower right of Figure 1 possess a strong comparative advantage along with a low level of product differentiation (field B). Industries in the comparatively disadvantaged land most probably will lose from free trade. Those industries however, characterized by a weak comparative advantage and a high level of product differentiation will always gain from free trade (field A).

<sup>(6)</sup> See LOERTSCHER and WOLTER (1980).

<sup>(7)</sup> See KRUGMAN (1982).



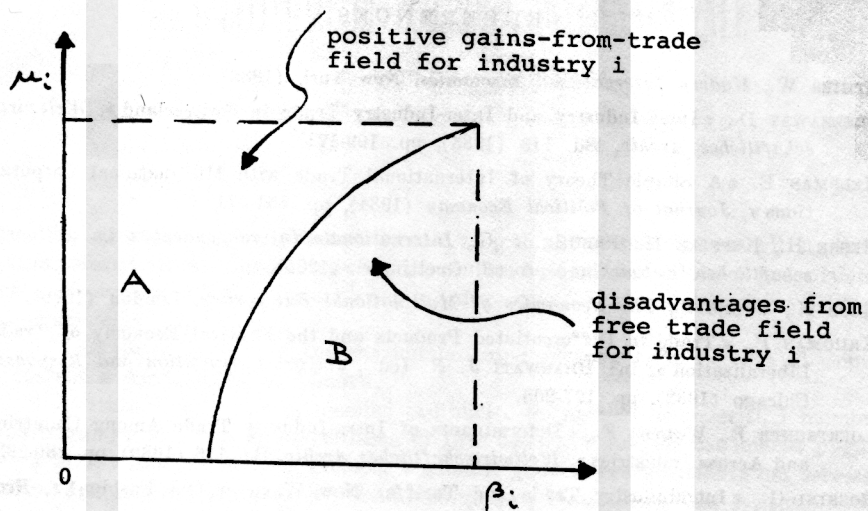


Fig. 1. — Product differentiation, comparative advantage, and the gains from trade.

#### 4. - Conclusion.

This suggests: an increase in the international division of labour according to the intra-trade scenario does not imply that nations have to negatively compete for high export quotas, rather their international interdependence is highly beneficial for both world and domestic economic development. The international division of labour must not thus be a zero-sum game in which one land wins at the expense of another <sup>(8)</sup>. It is much more the case that additional international transactions occur within industrial sector which lead to a more favourable economic development beneficial to all concerned.

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<sup>(8)</sup> See further SIEBERT (1985).

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## RIASSUNTO

*Divisione internazionale del lavoro e commercio intra-industriale*

Il volume del commercio mondiale è aumentato a un ritmo senza precedenti a partire dal 1945. Tra le principali caratteristiche di questo incremento vi è l'enorme intensificarsi delle relazioni intra-industriali tra paesi industrializzati. Inoltre, lo sviluppo del commercio intra-industriale ha mutato i fondamenti della divisione internazionale del lavoro. La divisione internazionale del lavoro non deve essere un gioco a somma zero; il commercio principalmente caratterizzato da relazioni intra-industriali fa sì che una liberalizzazione commerciale possa portare a maggiori vendite da parte dei produttori sia sul mercato nazionale che su quello estero.

(6) See Loertscher and Wolter (1980).

(7) See Krugman (1982).

(8) See further Siebert (1983).



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