

firms in the same industry. This pattern contrasts with homogeneous products. Intra-industry trade can also be classified to be either horizontal or vertical. Horizontal intra-industry trade (HIIT) arises when exports and imports have similar attributes and are at the same stage of processing (e.g. trade of cars for cars of a certain cylinder capacity). Vertical intra-industry trade (VIIT) takes place when exports and imports are at different stages of processing or are differentiated by their quality (e.g. trade of passenger cars for motors).

Why Does Intra-Industry Trade Matter?

Whether trade is inter-industry or intra-industry affects the co-movement of outputs and prices. Inter-industry trade implies across-country specialization which lowers the co-movements of outputs and prices while intra-industry trade leads to more co-movements. Also, exchange rate variations cause different effects on different types of trade. For horizontally differentiated products, small variations in exchange rates have a large impact on trade. On the other hand, when comparative advantages are large enough, variations in exchange rates might not affect the demand dramatically, leaving inter-industry less vulnerable. IIT in products differentiated by their quality - vertical IIT - is an intermediate case between horizontal IIT and inter-industry trade.

The bulk of theoretical and empirical work on IIT has presumed that traded products will be mainly horizontally differentiated. Models of vertical IIT date from Falvey (1981)¹ and Shaked and Sutton (1984)²; vertical differentiation is explicitly modelled as differences in quality between similar products. Recent empirical work (Blanes and Martin (2000)³, Greenaway et al. (1999)⁴ on the nature of IIT has provided evidence challenging the hypothesis of IIT based on horizontally differentiated products (HIIT), since it shows that trade in vertically differentiated products (VIIT) is significant. Moreover, econometric studies on the determinants of IIT often do not support some predictions of monopolistic competition theory. The role of economies of scale as a positive determinant of IIT is a good example. This outcome might stem from mismeasurement of IIT, because the usual IIT index includes both horizontal and vertical IIT. The results might improve if pure vertical or pure horizontal measures are used rather than an amalgam of the two.

Another reason for paying attention to VIIT as a component of IIT concerns the welfare analysis of economic integration. Models of IIT based on horizontally differentiated products predict low adjustment costs in response to regional integration. However, if vertical integration prevails, adjustment costs might be significant. First, as in the case of inter-industry trade, the factor content of exports and imports is different. Second, lower quality varieties might be replaced by the higher-quality varieties. This could lead to firm closures and higher unemployment in areas producing lower quality varieties. The North-American auto industry is a good example.

Yet another benefit of intra-industry trade is that international trade need not cause the dislocations associated with inter-industry trade: there is no redistribution of income from scarce to abundant factors. If trade is not based on scarce and abundant factors of production, it does not result in reduced demand for the scarce factors and in increased demand for the abundant factors⁵; thus, trade expansion need not result in large changes in the distribution of income. For example, Ruffin (1999) has found that 80 per cent of U.S. trade with Mexico is intra-industry, and thus that concerns that trade with Mexico will harm unskilled workers is based on an erroneous view of the nature of that trade.

¹ Falvey, R.E. (1981). Commercial Policy and Intra-Industry Trade. *Journal of International Economics*, 11, 495-511.

² Shaked, A. and J. Sutton (1984). Natural Oligopolies and International Trade. In H. Kierzkowski (ed.), *Monopolistic Competition and International Trade*. Oxford: Oxford University Press.

³ Blanes, J.V. and C. Martin (2000). The Nature and Causes of Intra-Industry Trade: Back to The Comparative Advantage Explanation? The Case of Spain. *Weltwirtschaftliches*, 136, 423-441.

⁴ Greenaway, D., Milner, C. and R. J.R. Elliot (1999). UK Intra-Industry Trade With the EU North and South. *Oxford Bulletin of Economics and Statistics*, 61, 365-384.

⁵ When Canada exports cars, the workers in the auto-industry and the owners of auto-plants benefit; but when Canada imports textiles, the unskilled workers in the textile industry are hurt. Unskilled workers are a scarce factor in Canada.