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Has the Imperfect Competition Approach Led to a Paradigm Shift in International Trade Theory?

Major developments have taken place in the field of international trade theory in recent years. The increasing realization that intra-industry trade, i.e. the simultaneous imports and exports of similar products, accounts for an important part of the international trade in manufactures has contributed partly to this development. This is because the phenomenon of intra-industry trade appeared to pose some problems for the dominant Heckscher-Ohlin paradigm. But some methodological problems and the lack of formal models during the early stage of the study of intra-industry trade inhibited the formulation of a generalized new paradigm based on this important empirical phenomenon.

Another important recent development has been the emergence of strategic trade policy models. Such models claim that "economic rent" and "external economies" exist in certain strategic sectors, and elaborate scenarios in which interventionist policies can lead to international "rent shifting". Such models have attracted some interest among policy makers and in industry circles. But the very specific nature of such models limits the possibility of their general application. Neither the intra-industry trade analysis nor the strategic trade policy models have yet shown a better quantitative precision than the traditional trade models. While their growing importance should not be underestimated, they have not led to a clear paradigm shift in the international trade theory. Nevertheless, they have enriched our stock of knowledge in this area.

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I. Introduction

At the very core of the mainstream of the international trade theory is the Heckscher-Ohlin-Samuelson (H-O-S) paradigm, which holds that the commodity composition of trade between countries will be determined mainly by the concordance of the pattern of the factor endowments of the trading countries with the factor intensities of the production processes of the commodities traded. The emergence of this influential theorem meant a major paradigm shift from the earlier, Ricardian comparative costs theory. At the policy level, the H-O-S theorem provided much of the rationale for the efforts to dismantle impediments to international trade in order to facilitate inter-country, inter-industry specialization from which everyone could gain.

But the discovery that most of the world trade in manufactures is of intra-industry nature in which products with similar factor intensities are exchanged led to a reappraisal of the tenets of the H-O-S theorem. Intra-industry trade is believed to be the result of the interaction between product differentiation and economies of scale. At the policy level this suggests that international industrial specialization cannot be advocated on the basis of the factor endowment – factor intensity considerations alone. The introduction of product differentiation and scale as inherent elements of the production process also modifies the assumption of perfect competition used in the H-O-S theory. And more recently, the strategic trade policy models which use assumptions of direct policy intervention for the purpose of international rent shifting have emerged as the second major component of the imperfect competition approach to international trade theory.

In the present paper an attempt is made to appraise the impact of the two above-mentioned offshoots of the imperfect competition analysis on the mainstream of international trade theory as typified by the H-O-S paradigm. Specifically, the question that is sought to be answered is whether the recent developments have led to a paradigm shift in the international trade theory.

For clarity's sake, the essentials of the notion of paradigm shift as used here are first summed up and qualified (section II). The essential elements of the concept thus delineated are then used in the subsequent sections to examine whether a "revealed" paradigm shift has emerged.

II. Paradigm Shift

Thomas S. Kuhn (1962) in his controversial book *The Structure of Scientific Revolutions*, advanced the view that scientific revolutions occur through paradigm shifts. His initial formulation of the concept of a paradigm contained a number of ambiguities (see Masterman, 1970). But subsequently he clarified the notion as follows:

On the one hand, a paradigm stands for the entire constellation of beliefs, values, techniques, etc. shared by the members of a given scientific community. On the other hand, it denotes one sort of element in that constellation, "the concrete puzzle solutions", which, employed as models or examples, can replace explicit rules as basis for the solution of problems which come up in the normal course of that science (Kuhn, 1970, p. 175).

In Kuhn's view, the notion of a paradigm is intrinsically linked to that of a scientific community, i.e., practitioners of a scientific speciality (Kuhn, 1970, pp. 177-178). A scientific community's paradigms are revealed in its textbooks, publications, lectures, experiments, practices, etc.

Initially, the reigning paradigm is usually felt to account quite successfully for most of the observations. But "anomalies" develop when those who are trained in the prevalent paradigm perceive that anticipated functions are not confirmed. It is with this awareness of anomaly, i.e., the recognition that reality has somehow violated the paradigm-induced expectations, that the process of paradigm shift begins.

But the discovery of an anomaly by itself need not lead to a crisis. A paradigm is not expected to fit all observations, and it rarely does. But if an anomaly clearly calls into question explicit and fundamental generalizations of the prevalent paradigm, if the applications it inhibits have a particular practical importance or a combination of circumstances which makes an anomaly specially pressing, it can usher in a crisis. Although a technical breakdown is the core of the crisis, its emergence requires that the anomaly itself comes to be more generally recognized as such by the scientific community.

The often slow unfolding of a crisis is usually accompanied by considerable resistance to change. The defenders of the prevalent paradigm will derive a number of formulations and *ad hoc* modifications

of their theory to eliminate any apparent conflict (Kuhn, 1970, p. 78). And the process by which a new candidate for paradigm replaces its predecessor is a complicated one. The proponents of the new paradigm usually advance the claim that they can solve the problems that have led the old one to a crisis. Such claims have a greater chance of succeeding if the new paradigm displays "a quantitative precision strikingly better than its older competitor" (Kuhn, 1970, pp. 153-154). But this alone is not enough. In the intricate process of an increasing shift in the distribution of professional allegiances a number of more subjective and aesthetic considerations also play a certain role (Kuhn, 1970, pp. 155-156). According to Kuhn, in the ultimate analysis the transfer of allegiance from paradigm to paradigm is a "conversion experience that cannot be forced" (Kuhn, 1970, p. 151). Such conversions will usually occur a few at a time until the whole profession will again be practicing under a single, but now different, paradigm.

Kuhn's thesis concerning the structure of scientific revolutions drew considerable criticism not so much because of the nature of the process sketched above, but a related and apparently unsustainable view of his which denied that changes of paradigm carry scientists and those who learn from them closer and closer to truth. Shapere (1964), for example, denied this and argued that scientists can and do uncover genuine truths about nature despite the fact that they work in communities defined by shared assumptions and background beliefs.

One does not have to share Kuhn's relativistic view of scientific truth in order to use the process of paradigm shift he describes as a useful device to appraise the extent of the change brought about by imperfect competition approach in international trade theory. For the characteristics of the process which Kuhn sketches are readily delineable and handy for such appraisals:

- the prevalent paradigm "revealed" in the relevant scientific community's textbooks, articles, experiments and practices;
- an anomaly emerging when the paradigm-induced expectations are contradicted by reality;
- the anomaly developing into a crisis through a combination of factors;
- resistance to change and the *ad hoc* modifications of the prevalent paradigm;
- the new paradigm being put to the test of a "strikingly better quantitative precision";
- an increasing shift in the distribution of professional allegiances due to objective and subjective considerations;
- and finally the new paradigm replacing the old one.

III. A Technical Breakdown

The apparent conformity of some of the characteristics of the paradigm shift sketched above with the pattern of the major developments in international trade theory in recent times is clear enough and need not be laboured. At the very centre of the neoclassical factor proportions theory is the Heckscher-Ohlin-Samuelson (H-O-S) paradigm. The normative and positive aspects of this theorem have been at the heart of the pure theory of international trade as it is elaborated in any standard textbook. As is well-known, a major anomaly emerged – at least as far as the positive aspects of the theory are concerned – in 1953 when Leontief published his finding that US exports in 1947 embodied a lower ratio of capital to labour inputs than did US import substitutes. Although Leontief's findings by themselves did not pose any challenge to the normative underpinnings of the H-O-S paradigm, they immediately attracted widespread attention and triggered a considerable amount of theoretical and empirical research. By contrast, Verdoorn's finding in 1960 that specialization and exchange subsequent to the formation of the Benelux customs union took place more *within* rather than *between* different categories of products initially attracted very little, immediate attention. This was surprising, particularly, in view of the fact that Verdoorn's (1960) findings represented in some ways a bigger apparent contradiction of the paradigm-induced expectations than Leontief's (1953) findings. After all, the Leontief paradox could be attributed to protection-induced distortions in international trade flows, while Verdoorn's results showed an increase in intra-industry trade subsequent to the dismantling of trade barriers between the countries concerned.

Root-Bernstein (1988) among others has argued that scientific discovery consists not only of an element of surprise – anomaly – but also implies the capacity of the scientists involved to interpret their observations in such a way as to change the perceptions of other scientists, as well. Professor Verdoorn was eminently competent to put forward such an interpretation. Yet the findings on intra-industry trade were tucked away into seven brief sentences in Verdoorn's (1960) article and did not immediately attract much attention. After Michaely (1962) and Balassa (1963) obtained results suggesting prevalence of intra-industry trade, it was finally Kojima (1964) who, on the basis of his own findings, explicitly stated that "we need to uncover the forces underlying this conspicuous trend and define any new philosophy that may have evolved which is contrary to the traditional comparative costs theory". During the late 1960s and early 1970s the contributions of Grubel and

Lloyd (Grubel, 1967; Grubel, 1970; Grubel and Lloyd, 1971; Grubel and Lloyd, 1975) considerably strengthened the emergence of the anomaly. The anomaly called into question – or at least appeared to do so – a fundamental generalization of the prevalent paradigm, namely the commodity version of the Heckscher-Ohlin theorem. We now know, especially after the developments concerning the “chain of comparative advantage” (Baldwin, 1979; Deardorff, 1979; Krueger, 1977) that in a multi-country, multi-commodity, two-factor, factor price nonequalized world, the existence of multilateral intra-industry trade is not surprising, but at the bilateral level it is. But the fact that a substantial part of the international trade in manufactured products is of an intra-industry nature suggested the possibility of a “technical breakdown” of the prevalent paradigm. This realization, plus the intuitive difficulty which many practical men seem to have with some of the policy implications of the factor proportions theorem, probably contributed to the increased interest in the phenomenon of intra-industry trade.

Resistance to change emerged early (Finger, 1975; Lipsey, 1976). But in all fairness, it should be acknowledged that the sceptics made a very useful contribution. They raised the problem of “categorical aggregation”, i.e., the grouping together under the same classification of “industry” or “commodity”, products which have heterogeneous characteristics particularly in terms of factor intensity. Although a number of practical adjustments have been used by researchers in their empirical studies to get around the problem¹, this difficulty proved to be a major stumbling block in the anomaly of intra-industry trade becoming more generally recognized as such. However, it is surprising that the problem of categorical aggregation which should have an equally distorting influence on the empirical measures of inter-industry, comparative advantage, has not raised any qualms. As far as the empirical analysis of intra-industry trade is concerned, one way to avoid this difficulty might have been to compile case studies on bilateral trade in products which have similar input requirements and close substitutability in consumption. But case studies are time consuming, costly and less glamorous than econometric or theoretical work and have hence remained a relatively underresearched area.

1 For a survey of the adjustments for categorical aggregation, see Greenaway and Milner (1986), pp. 72-78.

IV. New Paradigm Candidates

Another difficulty in accepting the empirical anomaly of intra-industry trade was the lack of formal models cast within the framework of general equilibrium analysis and integrating the essential ingredients of the new phenomenon which the early theorizing had suggested. The breakthrough came when the modelling of scale economies and preference diversity in a general equilibrium framework provided by Dixit and Stiglitz (1977) and Lancaster (1979) triggered the development of a number of models providing formalized explanations of various types of intra-industry trade. The major recent contributions have been comprehensively (Greenaway and Milner, 1986) or selectively (Kierzkowski, 1987b; Krugman, 1983) surveyed. These models are highly specific; they often rely on very special assumptions. But they do display common elements. For example, product differentiation and/or economies of scale are their common ingredients, although the type of differentiation assumed often varies from model to model. They are explicitly cast within an imperfect competition framework. They have welfare implications which are in some respects similar to those of the prevalent paradigm but in other respects bear interesting modifications. Particularly at the level of commercial policy they provide new insights into questions such as unilateral versus multilateral tariff reductions without necessarily contravening the first best solutions contained in the traditional theory.

This characteristic of “change within continuity” displayed by this particular offshoot of imperfect competition theory meant that no dramatic substitution of the H-O-S paradigm was to be expected. The process indicated was one of revision, modification and extension of the existing theory particularly with respect to the commodity (or services) composition of trade, gains from trade, trade-related adjustment policies and commercial policy options.

However, a new paradigm candidate soon struck a more discordant note in the form of the “strategic trade policy models”. Although the development of these new models was induced by the same imperfect competition framework and had some common proponents (e.g., Brander, Krugman), they differed from the intra-industry trade models in some of the crucial assumptions they used such as the existence of potential monopoly rents and external economies associated with certain industries, and the directly interventionist policy conclusions they led to. Although they have been surveyed elsewhere (see, Stegemann, 1989), a brief if (over)simplified reference to the crux of the

argument embodied in these models is necessary here. At the heart of the interventionist argument is the potential for "rent shifting": rent defined here of course as payments to an input higher than what that input could earn in an alternative use, whether it be a higher rate of profit compared to other industries of equivalent risk or higher wages compared to that paid to equally skilled workers in other sectors. External economies in turn refer to a benefit from some activity which accrues to other individuals or firms than those engaging in the activity. In the sectors characterized by such high rents or external economies, imperfect competition tends to prevail. Because of factors such as economies of scale, advantages of experience or innovation, new entry may be difficult and rent may not be easily competed away. The same factors (economies of scale, advantages of experience, innovation, etc.) are increasingly seen as important determinants of international trade flows. To the extent that national policies can increase the share of a country in such industries it can "shift the rent" in its favour and increase its national income at other countries' expense. Stated another way, the foreign promotion of such sectors could deprive one's own country of valuable rent or spillover effects and hence has to be countered.

The models of this type tend to be highly specific in their assumptions concerning the market structure and the reactions generated by the policy intervention. The Brander-Spencer type models (see, for example, Brander and Spencer, 1981, 1985) usually assume two firms located in two different countries making a homogeneous product and serving a common export market in a third country with each firm using output as its action parameter and behaving like Cournot duopolists, i.e. each chooses its rate of deliveries to the common export market on the assumption that the other producer's rate of deliveries is given. In the absence of government intervention each firm knows that an expansion of output by either duopolist cannot be profitable if the other is determined not to retreat. But a subsidy provided by the government to one of the firms will, by lowering its marginal cost, have the effect of shifting outward the subsidized firm's reaction curve and shifting inward the foreign firm's reaction curve. Thus an asymmetrical duopoly solution is reached with an increased level of output for the subsidized firm and a reduced level for its foreign rival. To the extent the increased profits of the subsidized firm cover more than the cost of the subsidy, this "rent shifting" would lead to an increase in national welfare. A necessary condition for this asymmetrical duopoly solution is of course the inward shifting of the foreign firm's reaction curve. This is explained by the argument that the foreign firm, knowing that its

rival is being subsidized, realizes that even if it does not reduce its output, for the subsidized firm the expansion of output would now be privately profitable and hence a credible choice. If on the other hand the foreign firm successfully lobbies its own government to grant a countervailing subsidy in its favour, the asymmetrical duopoly solution vanishes. We then have either a sub-optimal non-cooperative solution or both countries imposing a tax on the exports to the third country to lower the export levels to that of a profit maximizing cartel.

Krugman's (1984) version of the strategic trade policy model also makes the case for a government intervention, which by excluding the foreign producer from the market previously open to it, induces an increase of the output and a decrease of the marginal cost of the domestic producer and opposite effects on the excluded foreign firm. But such effects lead to further changes as both firms are induced by opposite changes in their marginal cost to also adjust sales in unprotected markets, with the domestic firm expanding its output further and the foreign firm retreating some more. This process continues until a new multi-market Cournot equilibrium is reached. Implied here is the argument that to the extent the profits thus shifted are higher than the consumers' loss due to protection, this strategic trade policy leads to welfare gains.

V. A "Strikingly Better Quantitative Precision"?

Can the new paradigm candidates claim a "strikingly better quantitative precision than the prevalent H-O-S paradigm"?

Krugman (1983) for example has argued that the theory of intra-industry trade provides a neat explanation of the empirical puzzles posed by the trade in manufactures. Kreinin (1987) mentions an emerging consensus that inter-industry trade is conducted mainly between countries with different factor endowments and intra-industry trade in differentiated products between industrialized countries with similar endowment patterns. While at the general level such an impression might prevail, the econometric testing of the determinants of the commodity composition of intra-industry trade has not yet provided conclusive evidence that the theoretical postulates can be empirically verified. Particularly disconcerting has been the inconsistent performance of the crucial product differentiation/economies of scale variables in a number of such econometric tests. But econometric analysis in this area still has a long way to go and it could well be that with better measurement of variables, specifications and

methods, the results will improve. In any case, it is very unlikely that empirical evidence will be found which will help to substitute the H-O-S theorem in explaining the trade flows which it really sought to explain, namely that between countries with different factor endowment patterns. A recent case study (see Tharakan, 1989) which examined bilateral intra-industry trade in manufactures between European Community countries and a number of developing countries, found that among the new models of intra-industry trade, only the neo-Heckscher-Ohlin versions (which use vertical product differentiation) of the type developed by Falvey and Kierzkowski (1987) go some way in explaining such trade. Understandably, by narrowing down the conditions under which they can be explanatory, the new models considerably restrict the scope of their predictive capacity.

The strategic trade policy models have even greater difficulties in showing "strikingly better quantitative precision". Because of the very specific nature of the assumptions used, the question of empirical confirmation is largely limited to the search for observations that fit the model rather than attempts to verify its general validity at a cross-sectional level. There have been claims concerning the former. For example, Borrus, d'Andrea Tyson and Zysman (1986) claim that their analysis of the evolution of the semi-conductor industry provides empirical support for the strategic trade policy model. In a recent paper Baldwin and Flam (1989) have argued that the world market for 30-40 seat commuter aircraft is a close real world counterpart to the Brander-Spencer model and that by closing its market to the Brazilian and Swedish competition, Canada can shift profits to its producer with no loss in consumer surplus². Since the parameters of the strategic trade policies are inextricably linked to government policy, the question of "quantitative precision" cannot be separated from the value of the models as guide to industrial and commercial policy. The difficulty in identifying the strategic sectors is clear enough. Rent in an industry may appear to be high because failed firms are not taken into account (Grossman, 1986, p. 57). External economies are, by their nature, difficult to pin down. But more significantly, as Bhagwati (1988) points out, in such models the sensitivity of policy interventions to assumptions about the nature of oligopolistic strategic interaction creates extremely difficult information requirements, particularly of a behavioural nature.

2 For another illustration, see Krugman (1987).

VI. Is There a Revealed Paradigm Shift?

A. Evidence from Publications

It is not of course easy to verify whether there is "an increasing shift in the distribution of professional allegiances" in favour of the new paradigm candidates in the scientific community of international economists, particularly since such a process is likely to be in Kuhn's view an intricate "conversion experience". Yet he also suggests that evidence of such a shift will reveal itself through an increasing number of professional articles, textbooks, etc. incorporating the new paradigm.

An extensive survey of such evidence is beyond the scope of this paper. Yet bits and pieces of such change could be searched for in professional journals, textbooks, etc. A first impression of sorts can be obtained by identifying the articles and books using imperfect competition analysis related to international trade reviewed or listed in the *Journal of Economic Literature* over a period of time, in the sections dealing with International Economics (400) and Industrial Organisation (600)³. This meant first identifying the publications by paging through the various issues of the *Journal of Economic Literature*, avoiding double counting⁴, when in doubt rechecking the contents of the publication, and finally making a judgment as to whether the publication fits into the category of either of the two new paradigm candidates. The results of that exercise are reported in table 1.

Table 1
Number of Articles on Subjects Related to Imperfect Competition and International Trade Listed in the *Journal of Economic Literature*, 1980-1988

Nature of Publications	1980	1981	1982	1983	1984	1985	1986	1987	1988
A	11	12	17	15	14	18	21	21	23
B	1	1	2	0	1	2	3	4	5

A = articles, B = books

Source: *Journal of Economic Literature*, March, June, September and December issues for the years 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987 and 1988.

3 All the books reviewed or mentioned in the "Annotated Listings" pertaining to classifications 400 and 600 and all the articles similarly listed in the "Subject Index" were covered.

4 A number of articles are listed under both classifications (400 and 600).

As far as the number of published articles listed in the *Journal of Economic Literature* for the period 1980-1988 is concerned, there is something of an upward trend. The number of books published has fluctuated more, but still shows some upward movement during the period considered. On the whole the figures underestimate the growing importance of the contributions in this field. There are of course books and articles which appeared on this particular subject during the period covered but which were not listed in the *Journal*. In addition, an examination of the contents of the publications listed shows a generally increasing rigor of analysis and a greater variety of the related questions treated.

Still the question remains whether the increase in the number and the improvement in the quality of such publications simply reflect the general scientific advancement in economics, particularly in the branches of international economics and industrial organization. There is no way to provide a satisfactory answer to that question. Anyway, what is clearly significant is the fact that the creative scientific interest in this field has shown itself to be a sustainable one for at least over a decade.

What about textbooks? Here again a comprehensive analysis could not be undertaken. Only relevant examples are pointed out. Particularly interesting in this context is the question whether the authors of the traditional textbooks have in their revised versions taken into account the new developments. Kindleberger's *International Economics* appeared first in 1953 (the year the Leontief paradox became known) and went through at least 7 editions. Generations of students of international economics have learned the basics of their specialization by following that textbook. It was only in the 6th edition, published in 1978 (Kindleberger and Lindert, 1978, pp. 79-80) – nearly two decades after Verdoorn's findings on intra-industry trade – that Kindleberger raised the question whether there is need for a new theory of trade in manufactures. He found that some adjustments had to be made, but found no need to discard the H-O-S theory.

Krein's textbook *International Economics: A Policy Approach* has gone through at least 5 editions. The first edition, published in 1971, lists in chapter 12, on the commodity composition of trade, in addition to factor proportions, human skills, economies of scale, technological advance, product cycle and similarity of preferences as additional determinants. By the fifth edition, published in 1987, intra-industry trade is specifically mentioned in a small section in chapter 12 and the

author writes about an emerging consensus about the role of the inter- and intra-industry trade.

As could be expected, textbooks written by economists who have themselves contributed to the imperfect competition analysis tend to integrate the new approach more thoroughly, particularly in their revised versions. A thorough revision was carried out in the second edition of Ethier's *Modern International Economics* (Ethier, 1988). The new developments in the imperfect competition analysis were already mentioned in the first edition of the book. But the revised second edition makes it an integral part of most of the chapters of part I ("The Pure Theory of International Trade and its Application") and part II ("Further Applications and Extensions of the Pure Theory of International Trade"). Caves and Jones (1981) devote a chapter to imperfect competition in international trade. Krugman and Obstfeld (1988) have a chapter on economies of scale and international trade with intra-industry trade specifically being taken into account and another one on industrial policy in advanced countries with strategic trade policies explained in some detail. The treatment of the subject in Helpman and Krugman (1989) is even more detailed. Chapters on imperfect competition have now also become a feature of handbooks on international economics (see Jones and Kenen, 1984) or current issues volumes (see Greenaway, 1985). Books that could be used for instructing graduate students or researchers interested in this area have also become available (see for example Helpman and Krugman, 1985; Greenaway and Milner, 1986). Because of the frontier nature of the topic it tends to be either treated as "an item of latest development" in general textbooks on international economics or forms the subject matter of specialized books. Nevertheless, a deeper integration of some elements of the imperfect competition approach both at the theoretical and empirical levels is being attempted by various authors.⁵

B. Evidence at the Level of Policy Interest

Are the policy implications of the new paradigm beginning to attract the attention of those who are in a position to influence international trade policy? An important question at the policy level in this context is whether the consequences of trade liberalization within an imperfect competition framework will be different from those using the perfect competition assumption. Various studies have dealt with this question.

⁵ For an overview of some of these efforts within the framework of intra-industry trade theory, see Greenaway and Milner (1986), chapters 10, 11 and 12.

Though not always specifically cast within the intra-industry trade framework, they take into account variables such as product differentiation, economies of scale, the imperfectly competitive structure of the market, etc. Such studies have been recently surveyed by Richardson (1988). He believes that the results of the empirical studies he surveyed show that the incorporation of imperfectly competitive behaviour can make a significant difference as to the estimated effects due to trade liberalization, on economic welfare, industry structure and adjustment. In general the possible strong positive effects on economic welfare are due mainly to the rationalization of the industrial structure and increased market competitiveness. Earlier it has been argued intuitively (see, e.g. Balassa, 1967) that adjustment costs due to increased intra-industry trade would be low. In fact it has become part of the conventional wisdom that the relatively smooth progress made in the European economic integration has been due to the dominance of intra-industry trade between the European Community partners and the low adjustment costs entailed by regional trade liberalization in Europe. Interestingly, Richardson's (1988) survey shows that the estimated adjustment costs of trade liberalization under imperfect competition are far from negligible with the possible strong pressures for manpower, job and trade pattern readaptation.

The fact that Richardson's (1988) survey of empirical research on trade liberalization with imperfect competition was carried out at the request of an important international organization directly concerned with the economic policies of the industrialized countries, suggests an apparent interest in such circles to be at least kept informed about the policy implications of the new developments. At least one other highly influential international organization concerned with the economic policies of the industrialized and the developing countries showed its interest by recently bringing together a number of economists working in this area to present the results of their ongoing research.

Do the policy options taken by the major trading countries in recent years reflect the influence of any paradigm shift? Since it is impossible to isolate the reasons behind those policy decisions, such an approach cannot yield any reliable results and one can only very briefly note one's impressions. Although protectionist tendencies have always exerted varying degrees of influence on public policy concerning international trade, the post World War II period has seen, in general, a move towards a more open trading system at least among the major market economy countries, qualified of course by the emergence of the

regional trading groups. The prevalent paradigm can probably claim some credit for it. But the more recent trends towards an emphasis on reciprocity, selective protection and arguments in favour of a more active role of the government in the industrial policy all probably suggest some influence of the strategic trade policy models. But such tendencies have surfaced at different times long before the new paradigm candidates made their appearance. Understandably, industry lobbyists have made most of the new arguments which lend support to some form of intervention. But there are signs of second thoughts. Stegemann (1989), for example, notes the emergence of a strong support for the view that strategic trade policy of the Brander-Spencer-Krugman type is fraught with too many problems to be tried in practice, or if tried, is unlikely to enhance a nation's welfare. Bhagwati's (1988) rebuff to the practical usefulness of the strategic trade policy models is even more categorical. In spite of the strong attraction which such models might have for policy makers in counteracting or threatening to counteract what they consider to be "foreign unfair competition", it is not clear whether they will make much use of it.

The intra-industry trade theory with its much less strident claims for a paradigm shift seems to have some impact on policy options. It is doubtful whether the move towards the single European Community market would have generated the support it did, if the policy makers expected that the removal of trade barriers between the member states by 1992 would lead to greater inter-industry rather than intra-industry specialization. The Cecchini report for example estimates the gains from the economies of scale due to the single market as the equivalent of 2.1 per cent to the Community GDP. Whether this implicit belief that the result of 1992 would be an economies of scale exploiting intra-industry specialization will be verified in practice, is of course another question. In any case, as Richardson's (1988) survey shows, the belief that the adjustment cost of intra-industry trade increasing liberalization is low is not likely to be verified in practice.

VII. Concluding Remarks

The emergence of the empirical anomaly of intra-industry trade appeared to call into question a fundamental aspect of the commodity version of the prevalent H-O-S paradigm. The problem of categorical aggregation and the lack of formalization of the early models inhibited the generalization of the anomaly. The progress made in the modelling of scale economies and preference diversity and the use of such models

in explaining intra-industry trade offered suggestions for revisions, modifications and extensions of the prevalent paradigm. Within the framework of the imperfect competition approach, a separate and more strident new paradigm candidate with clearly interventionist policy implications emerged in the form of the strategic trade policy models. Neither offshoot can yet convincingly claim a strikingly better quantitative precision, partly of course because of the specific nature of the models concerned. But they have yielded interesting insights concerning the determinants of the commodity composition of trade and the role of commercial and industrial policy. The number of articles and books dealing with the subject has shown an increase in recent years. There has been some, often minimal, revision of textbooks to incorporate the new developments, although new textbooks treating the subject more fully are now becoming available. The impact of the new paradigm candidates on public policy is more difficult to assess although the policy-making circles have displayed some interest in the new development. On the whole, any massive shift of professional allegiance is clearly not visible. In the case of the intra-industry trade theory this is partly because of the nature of the changes implied by that new paradigm candidate. The alterations to the prevalent paradigm it suggests are more in the nature of revisions, modifications and extensions rather than that of a dramatically different type sometimes put forward by the proponents of strategic trade policy models. But because of the significance of those proposed modifications and the characteristic of "change in continuity" they possess, the intra-industry trade theory might turn out to be the more sustainable of the two new paradigm candidates.

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Samenvatting

Naar een paradigmaverschuiving in de theorie van de internationale handel?

Op het gebied van de theorie van de internationale handel hebben er de laatste jaren grote ontwikkelingen plaatsgevonden. Het groeiende besef dat intra-industriehandel (dit is de gelijktijdige in- en uitvoer van gelijksoortige produkten) een belangrijk deel van de internationale handel in fabrikaten voor zijn rekening neemt, heeft deels bijgedragen tot die ontwikkelingen. Dit is toe te schrijven aan het feit dat het fenomeen van intra-industriehandel enkele problemen bleek te plaatsen bij het dominante Heckscher-Ohlin paradigma. Maar enkele methodologische problemen en het gebrek aan formele modellen in het beginstadium van de studie over intra-industriehandel hinderden de formulering van een veralgemeend nieuw paradigma dat gebaseerd zou zijn op dit belangrijk empirisch fenomeen.

Een andere recente en belangrijke ontwikkeling was de opkomst van vormen van strategische handelspolitiek. Deze modellen beweren dat er "economische rente" en "externe schaalvoordelen" bestaan in bepaalde strategische sectoren en ze werken scenario's uit volgens welke een interventionistisch beleid tot internationale "rent shifting" kan leiden. Zulke modellen hebben vooral de aandacht getrokken van beleidsmensen en in industriekringen. Maar de zeer specifieke kenmerken van dergelijke modellen beperken de mogelijkheid van een algemene toepassing. Noch de analyse van intra-industriehandel, noch de modellen van strategische handelspolitiek hebben reeds een betere kwantitatieve juistheid gegeven dan de traditionele handelsmodellen. Hoewel hun toenemend belang niet mag worden onderschat, hebben zij nog steeds niet geleid tot een duidelijke paradigmaverschuiving in de theorie van de internationale handel. Nochtans hebben ze onze kennis op dit gebied verrijkt.