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**New Trade Theories and
Developing Countries:
Policy and Technological
Implications**

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1. BACKGROUND

In recent years discussions of development strategy in developing countries have emphasised the importance of restructuring the supply side of the economy so that it is more competitive internationally. Such discussions usually stress the necessity to change the price structures associated with import substituting strategies by a return to the market. Critics who may well accept the limitations of import substitution strategies, nevertheless often question whether relative price policies are a sufficient basis for export-orientation. One such line of criticism points to the need for supportive policies - often of an interventionist type - to ensure technological dynamism: for without technological change, the maintenance of international competitiveness is, of course put at risk - or will come to depend on holding down real wages or even reducing them in the face of increasingly efficient foreign competitors. The experience in some export zones has demonstrated this danger. The effectiveness of market forces alone in ensuring that innovations will be forthcoming has been put in question. Researchers working on the south East Asian economies, and especially on South Korea have pointed out that success in export-orientation has depended importantly on technology policies in which state intervention has played an important part.

What all this suggests is that the process of restructuring in the direction of export orientation has been only partially understood. In the context of new technologies and the rapidly changing world market conditions, the process of restructuring towards export orientation is going to pose a challenge especially for the less industrialized among the developing countries. The question which needs to be addressed is what constraints are likely to be encountered and what opportunities could emerge for the less industrialized economies setting out to restructure and develop their industrial sectors towards export orientation in the context of the unfolding new technologies and changing world market conditions.

Considering the well known experience with commodity exports in many developing countries, technologically dynamic exports are more likely to be found among industrial rather than primary export activities. Yet, in this respect, the export performance of industry in developing countries, especially Africa, has shown rather disappointing trends.

First, the performance of Africa's industrial sector in terms of growth and structural change has been poor relative to other regions (Riddell, 1990:10-15). During 1980-86 MVA growth in SSA has averaged 0.3% compared to 5.9% in all developing countries and 7.7% per annum in South East Asia. In terms of structural change, industry in SSA has remained relatively more dominated by traditional and technologically simple consumer goods industries when compared to industry in other regions.

Second, the performance of manufactured exports seems to have been even less impressive. After the 1960s the trend in manufactured exports from Africa shows a decline in its share in world manufactured exports from 0.38% in 1965 to 0.23% in 1986. Even its share in developing country manufactured exports declined from 4.6% to 1.5% over the same period. Manufactured exports have not only been small and declining but they have tended to be dominated by further processed goods destined for the markets outside SSA (Riddell, 1990:35). If major primary processed exports are excluded then the much smaller remainder is mostly destined for neighbouring markets in SSA usually to the less developed neighbours.

These trends raise questions relating to export promotion and attainment of international competitiveness in the context of South-North trade on the one hand and South-South trade on the other. The loss of its share of manufactured exports is most likely suggesting that productivity growth and technological learning and innovations in Africa have been low relative to other regions. The adverse aggregate trends in many respects indicate a retreat away from the international markets towards the domestic market. This could be a reflection of various factors such as the lack of international competitiveness because of the high cost structure maintained by protection, little effort to promote manufactured exports or of the lack of a climate to induce manufacturers to seek, promote and expand markets beyond their borders (Riddell,1990).

The recent concerns about the need for export orientation and the adverse trends in the history of exporting especially in the lesser developing countries of Africa raises the question of the place of trade in the development of these countries and necessity of the realization and maintenance of international competitiveness. Participation in the world market in the more technologically dynamic activities may require more knowledge about the influences of the unfolding new technologies and the changing workings of the world market. This may pose a challenge in terms of identifying the role such countries could play or on the place they could possibly occupy in the world market. Can trade theory offer any guide in this respect? Section 2 examines trade theories with a view to exploring ways in which less industrialized economies can be informed or guided by those theories. The relevance of trade theories to developing countries is examined in rather broad terms in section 3. Section 4 offers a short conclusion for the study.

2. TRADE THEORY AND POLICY OPTIONS

2.1 Introduction

Questions about the role of trade and trade policy in development represent one major influence on generalizations made about macroeconomic policy and about choice of development strategy in developing countries (Colclough,1991). One area in which this influence is manifested is in the debate between import substitution strategy and export oriented industrialization strategy. This debate is in many respects a debate between the structuralist and the neoclassical schools (Weiss,1988). Premised on the view that developing countries are significantly different in their economic structures from developed countries the structural school criticizes the neoclassicals for failure to recognize the untenability of the static equilibrium and the pervasive market failures arising from various structural rigidities. In the structuralist tradition, the importance of various externalities and dynamic considerations is stressed. Among the critics of the structural school, the neoclassical school stresses the neglect of the role of prices and markets in resource allocation while the radical perspective stresses the inability to analyze the role of class formation in these countries and the constraints posed by the external economic environment. As regards state intervention, the neoclassical school alleges that slow growth in some developing countries has been caused by state intervention. The structuralists have been criticized further in that their view of state intervention has been too naive in underrating the obstacles of political economy.

These schools of thought have expressed divergent views on the role of trade in economic development. One reflection of the polarity between these competing schools of thought on development is manifested in the way the underlying assumption that import substitution industrialization (ISI) and export oriented industrialization (EOI) are necessarily competitive alternatives has often been carried very far. In recent years it has increasingly come to light that the assumed rather strict separability between ISI and EOI is questionable on both methodological and empirical grounds. In many respects, some of the propositions which were thought to apply exclusively to ISI or to EOI are increasingly appearing either to be applicable to both approaches or at least not to be confined exclusively to any one of them.

First, the propositions that export orientation is inevitably inimical to the establishment of domestic linkages and that a successful capitalist industrialization is not a viable option for developing countries are questionable as generalizations. After all it is known that not all technically feasible linkages are economic so there is need to stress the question of sequencing, based on the analysis of relative costs, benefits and learning effects associated with such local linkages (Weiss,1988).

Second, the infant industry argument, which was traditionally associated with ISI, is clouded with considerable ambiguity on the time span associated with infant industry

protection as it is increasingly being recognized that the length of the learning period is a function of such factors as technological capability, accumulated experience, transfer of technology, degree of exposure to competitive pressure (traditionally associated with EOI) and coordination and relations between various actors (Pack and Westphal,1986; Jacobsson and Alam,1992).

Third, it has been pointed out that conditions of international competitiveness become less stringent if it is acknowledged that product quality and specifications need not be strictly reproduced in domestic import-competing firms.

Fourth, the efficacy of the market forces associated with these approaches is being subjected to serious reconsideration. EOI can be preceded by and even can build upon the achievements of ISI. For instance, as the experience of Korea suggests, selectivity of potential infants and their early encouragement to export contributed to successful EOI and became instrumental to industrialization with technological dynamism (Westphal,1981;Pack and Westphal,1986; Jacobsson and Alam,1992). That experience casts doubts as to whether market forces are sufficient to effect a shift from ISI to EOI. In addition, some recent experiences in attempting to make this shift predominantly on the basis of market forces have not been very successful. For instance, experiences of market reforms in Chile seem to suggest that while there was ample reason for firms to move out of the previously highly protected firms there was little inducement to shift within manufacturing when the interest rates on domestic credit were so high (40% in real terms) and opportunities of speculative gains from non-productive activities were so attractive. The reforms were costly in lost output and employment, falling real wages and highly divisive and inequalitarian in social terms while largely ineffective in bringing about a sustainable shift from ISI to EOI and overcoming the long-run obstacles to sustained economic growth (Weiss,1988; Cooper,1992).

Fifth, the rather common claim that EOI promotes faster growth in total factor productivity has been questioned on grounds of methodological problems involved in estimating TFP under conditions of restrictive trade environments and on empirical grounds whereby some country studies have suggested that the differences between EOI and ISI are probably more likely to be reflected in the direction of R&D than in its level (Bhagwati and Srinivasan,1975).

The information which is unfolding on the experiences of ISI and EOI in practice suggests that they are not necessarily competing alternatives but could actually converge and reinforce each other. If ISI can be efficient it can form the basis of EOI and EOI can be consistent with further development of efficient linkages and acquisition of technological capabilities among domestic industries. The challenge posed is that of blending ISI and EOI through a mix of policies which aim at maximizing benefits from increased domestic demand and to stimulate both substantial (and efficient) import substitution and increased export orientation on the basis of growing technological capabilities. This raises the question of the role of trade in economic development. Can recent developments in trade theory inform developing countries on this question? This section examines the core of conventional trade theory, its explanatory and predictive power and briefly surveys critics and extensions from within the conventional framework and developments from outside it.

2.2 Conventional Trade Theory: Essence and Relevance

Classical theories of trade, notably the Ricardian type, have stressed international differences in technology and real wage levels. Their focus was on factor productivity differences. Developments of trade theories in the neoclassical framework stresses differences not in factor productivity but in factor endowments. The core of the conventional trade theory is the factor proportions theory of the Heckscher-Ohlin model and its extensions. The theory is based on general equilibrium models and the assumptions associated with it. The key assumptions of this theory are perfect competition, concave (or at least quasi-concave) and constant-returns-to-scale production functions and well-behaved and homothetic preference functions. Other theorems which are associated with the conventional theory are the factor equalization theorem, the Stolper-Samuelson theorem of gains accruing to factors used in protected import-competing sectors and the Rybczynski theorem of the expansion (contraction) of sectors which are intensive users of the abundant (scarce) factor. As part of the general case for free markets, the case for free trade derives from the view that as a production process, international trade is likely to be carried out more efficiently if it is left to the market mechanism.

This conventional trade theory has been questioned on methodological and empirical grounds. Critics who have emphasized the methodological problems of the conventional model are mainly associated with non-neoclassical formulations (e.g. evolutionary theory) while those who have questioned the empirical validity of the model have come both from within and from outside the neoclassical framework.

The first empirical test on the H-O model was administered by Leontief(1953). Using input-output analysis, Leontief found that the US was a net exporter of labour intensive goods and a net importer of capital intensive goods. This outcome of the Leontief test did not amount to nullification or serious questioning of the theory. Instead, the outcome was labelled "the Leontief paradox" reflecting the strong faith economists had on the H-O theory and the reluctance to accept the results of the test. An extensive literature on international trade has been devoted to attempts to explain the Leontief paradox in terms of reasons why the results of the test must mean something else other than the nullification of the H-O model itself. However, more recently it has increasingly been admitted that in several ways the conventional trade theory is inadequate for explaining what is actually happening in the real world (e.g.Helpman and Krugman,1985; Porter,1990).

The explanatory and predictive power of the conventional trade theory has increasingly come under attack both from inside and outside the neoclassical framework of analysis. At least three factors have contributed to influence views on the efficacy of the conventional theory: the changing character of international trade; the changing roles and relative competitive positions of countries in the world economy (e.g.role of the US economy in world trade and competitiveness especially in relation to Japan); and the changing view in the field of economics especially the analysis of industrial structure and competition (e.g. broadening of the kit of tools of economic analysis by borrowing from the field of industrial organization).

The explanatory and predictive power of the conventional theory has been questioned on at least four grounds. **First**, explanation of the volume of trade can at best be partial since about half of trade takes place among industrial countries which are supposed to be relatively similar in their relative factor endowments. The phenomenon which Lin-

der(1961) observed has received more serious attention and extensions have been made in many respects. **Second**, the composition of trade is not adequately explained considering that there is substantial two-way trade in goods of similar factor intensity much as it is largely true that countries' net exports seem to reflect factor content which is consistent with underlying resources. **Third**, the volume and pattern of intrafirm trade and direct foreign investment which are taking place cannot simply be explained in the conventional theoretical framework. It has even been suggested that in any one economy there are striking differences in competitive success across industries such that international advantage is often concentrated in narrowly defined industries and even particular industry segments (Porter,1990). This has partly been brought about by increased trade leading to increased specialization in narrowly defined industries and in segments within industries. In practice, international trade consists of intrafirm transactions rather than arm's length dealings between unrelated parties. That transnational corporations (TNCs) are an important part of the landscape bears testimony to this concern. **Fourth**, conventional trade theory associates trade with resource reallocation that increases aggregate national income but leaves some factors with reduced real income. However, the realities as demonstrated by the EEC and US-Canada pacts suggest that little reallocation takes place and trade can permit increased productivity of existing resources.

2.3 Critics and Extensions within the Conventional Framework

The approach adopted by the critics is basically one of analyzing the outcomes and trade implications of behaviour of firms operating in conditions which fall short of the ideals of perfect competition (monopolistic competition, imperfect competition, presence of increasing returns to scale). Much of the literature in this category represents sympathetic attempts to relax the basic assumptions of the H-O model and test its robustness (Kierzkowski, 1987). In this context, monopolistic competition and other forms of imperfect competition have come to be central to the literature on trade theory largely reflecting the persistence of intra-industry trade in reality. At one extreme there are those who equate countries to single firms and analyze the oligopolistic interactions and attempt to link the instruments and concepts of industrial organization and the general equilibrium model (Caves,1980; Brander,1981; Brander and Krugman,1983). Other approaches have tried to formalize equilibrium trade patterns with endogenous technological change and monopolistic competition in the innovative intermediate inputs (Ethier,1979 and 1982; Markusen,1989; Krugman,1987; Grossman and Helpman,1989 and 1990)).

The link between trade theory and industrial organization was first proposed simultaneously by Dixit and Norman,1980; Krugman,1979; and Lancaster,1980). It has even been suggested that it is the contribution by Dixit and Stiglitz (1977) and Lancaster (1979) that provided the foundations for a theoretical framework for analysing economies of scale and product differentiation in a general equilibrium setting (Greenway,1991). Since then developments in this area have taken two strands: modelling the role of economies of scale; and analyzing market structures taking various forms of imperfect competition as the core of the story and invoking in the analysis possibilities of strategic behaviour and interactions between firms.

2.3.1 Grappling with the presence of economies of scale

Recently the assessment of the importance of economies of scale is being revised upwards (e.g. Scherer, 1980). Various explanations for this trend have been given in the literature (e.g. Helpman and Krugman (1985; Alcorta, 1992)). First, industries produce many products so that there may be many products produced at less than optimal scale. Second, there may be important economies of multi-product operation not captured by plant-based estimates of scale economies. Third, there may be important dynamic scale economies internal to firms.

The existence of economies of scale provides an incentive for international specialization and trade that may supplement the explanatory power of the differences in factor proportions or may even give rise to trade in the absence of such differences (Helpman and Krugman, 1985). Except under special circumstances a world of increasing returns to scale will not be a world of perfectly competitive markets. However, in the absence of a generally accepted theory of imperfect competition the admission of economies of scale would make it difficult to generalize on trade. More specifically, the presence of economies of scale implies that the H-O model can neither guarantee gains from trade nor the existence and uniqueness of a free trade equilibrium. The problem is that if economies of scale persist, they are inherently inconsistent with competitive equilibrium as marginal cost pricing would imply losses calling for an analysis based on a market structure that allows prices above marginal cost. It is in this context that more explicit consideration of alternative market structures in the analysis of international trade has arisen.

Three different approaches to the analysis of increasing returns to scale under alternative market structures (other than perfect competition) can be identified in the literature: the Marshallian approach; the Chamberlinian approach; and the Cournot approach (Krugman, 1987).

(a) The Marshallian Approach

In the Marshallian approach, increasing returns to scale are wholly external to the firm. In this special case the competitive model is still operative at the level of the firm.¹ Economies of scale are then introduced in the general equilibrium models in ways which allow for the existence of a competitive equilibrium (as such economies are manifested at the level of the industry and not at firm level). However, the laissez faire competitive equilibrium is no longer Pareto optimum to the extent the private marginal rate of transformation deviates from the social marginal rate of transformation of any two commodities. It is in response to this rather undesirable outcome (for the advocates of free trade) that considerable literature on trade has grappled with the problem of optimal tariff policies.

It has been shown that working from the allocation of resources to production and trade rather than the other way round improves clarification of the role of economies of scale in determining the pattern of specialization and trade (Ethier, 1979 and 1982). If external economies arise from economies of scale in the production of intermediate goods which are cheaply tradable, it is argued, economies of scale should apply at the international rather than national level. Economies of scale arising from increased specialization (rather than from plant size) depend (at the aggregate level) on the size of the world market rather than on geographical concentration of industry (at national level). Such international increasing returns to scale were shown to be free of the resumption of indeterminacy and

multiple equilibria characteristic of national increasing returns to scale implying a theory of intra-industry trade in intermediate goods in accordance with the basic H-O model. Intra-industry trade in manufactures is viewed as complementary to international factor movements as predicted by the H-O trade theory. However, the basic assumptions that economies of scale arise solely from fixed costs and that intermediate components are symmetric² can be questioned on empirical grounds.

It is also possible that external economies could result from the inability of firms to appropriate knowledge completely. In such cases information may be viewed as an externality. However, innovative industries will ordinarily not be perfectly competitive. An emphasis on the generation of knowledge calls for a dynamic rather than a static model. The question of the applicable unit of analysis arises. If external economies are assumed to result from incomplete appropriability of knowledge the applicable unit for the analysis of externalities will depend on the details of how innovations diffuse (likely to be confined to a local area, nation or international). Recent advances in information and communications technologies are likely to tilt the relevant unit of analysis towards the international arena.

(b) The Chamberlinian Approach

In the Chamberlinian approach, the possibility of product differentiation and product variety are introduced into the analysis. The resulting interaction between demand for product variety and economies of scale leads to intra-industry trade (Helpman,1981; Lancaster,1980). Similar results are demonstrated for differentiated intermediate goods to satisfy the demands of producers who use these diverse intermediate inputs (Ethier,1982). Some approaches have assumed that each consumer has a taste for mainly different varieties of product (e.g. Dixit and Stiglitz,1977 and Dixit and Norman,1980) while other approaches have posited a primary demand for attributes of varieties (e.g. Lancaster,1980). The results of both approaches introduce the possibility that greater product variety can be a response to market expansion. Consequently, gains from trade may occur in the form of greater choice in addition to lower prices. These basic results and their implications are retained even when demand for variety is allowed for at the level of the firm (Dixit and Norman,1980).

(c) The Cournot Approach

The Cournot approach, instead of focusing on returns to scale and treating market structure as supportive, uses economies of scale as an explanation of the existence of oligopoly and treats imperfect competition as the main actor. One extension of the H-O model along these lines has introduced increasing returns to scale thus opening up the possibility that protection of the domestic market can help the local producer to generate a higher level of output resulting in enhanced competitiveness in terms of lower average costs (Krugman,1984). This approach shows the effect of trade in increasing competition and the possibility of inter-penetration of markets because oligopolists perceive a higher elasticity of demand on exports than on domestic sales.

The wisdom of analyzing economies of scale in static models is questionable in a world of economies of scale, learning curves and the dynamics of innovations, all incompatible with the ideals of free trade. In practice, important sources of economies of scale and of imperfect competition are found in the dynamic process by which firms and industries improve their technologies. In such a world the role of technological innovations is upgraded considerably to the extent that the conventional (general equilibrium) view that

all economic activities are equally important (i.e. there are no strategic sectors) is questionable. The possibility of the persistence of rents and quasi-rents in some sectors (more than in others) is opened up lending strong support to possibilities of using trade policy to encourage some activities more than others.

Recent developments in industrial organization have emphasized the role of the learning curve in generating industry concentration. While the more formalized analyses have largely been static it is clear that plausible accounts of external economies involve diffusion of knowledge which is an inherently dynamic phenomenon. Caution should be given to the effect that there are major potential pitfalls in mixing static and dynamic analyses (Helpman and Krugman,1985). If a static model has to be used as a proxy for a dynamic world, it should be viewed as a representation of the whole time path of that world and not a snapshot at a point in time. In particular, the comparison of equilibria involved in comparative statics exercises should be understood as a comparison between alternative histories and not a change that takes place over time. Using static models to think dynamic is even more risky in imperfectly competitive markets where games over time can have many possibilities not seen in one-period games.

2.3.2 Trade theory and various market structures

The analysis of trade issues in the context of a variety of market structures has explored several issues which could not have been addressed adequately in the framework of the perfectly competitive model. The more prominent approaches in the analysis of various market structures include: trade policy and power of domestic firms; the role of price discrimination and dumping; the role of governments in giving domestic firms a competitive advantage; and those raising questions of the implications of this link to new arguments for protectionism. Further extensions along these lines have attempted to capture more complex insights such as intermediate goods (Ethier,1982), non-traded goods (Helpman and Razin,1984; Helpman and Krugman,1985), market size effects (Krugman,1980; Helpman and Krugman,1985) and attempts to demonstrate that economies of scope and/or vertical integration lead to the emergence of multi activity firms such as multinational corporations (Helpman and Krugman,1985).

The literature within this strand has basically examined alternative theories of market structures which deviate from perfect competition (Helpman and Krugman,1985). Such analyses assumed various kinds of imperfectly competitive market structures such as contestable markets³ (Baumol et al,1982), Cournot oligopoly and monopolistic competition.⁴ Two main strands can be identified here: those assuming various forms of Chamberlinian monopolistic competition; and those analyzing various forms of monopoly.

Various models based on Chamberlinian monopolistic competition have been developed mainly analyzing the interaction between economies of scale, product differentiation and various forms of monopolistic competition (Krugman,1987). These models have demonstrated welfare gains from increased product variety and from lower prices. Essentially, however, the insights of the H-O model are shown to hold quite well under conditions of product differentiation and such economies of scale.

The question which the analysts of various forms of oligopoly have asked is whether firms with market power act in a cooperative or non-cooperative manner. To the extent that formal cartel and price-fixing arrangements are not legal much of cooperation

arrangements are tacit. This consideration, probably reinforced by the fact that the theory of cooperative behaviour in oligopolistic industries is not well developed, has influenced most of the contributors on this subject restricting their analysis of markets to the non-cooperative types. The outcome of non-cooperative behaviour by firms has largely depended on the strategic variables with which the game is played and the conditions of entry into and exit from the industry. Most theoretical work on oligopoly has tended to take the strategic variables as outputs (the Cournot assumption) or prices (the Bertrand assumption). In more general terms, various forms of market imperfections permit firms to earn returns exceeding those that are tenable in purely competitive industries suggesting that trade policy can be used to influence the share of international profits accruing to domestic firms (and in that way to the economy). For instance, subsidies can be used to shift profits in favour of domestic firms implying enhancement of their strategic position versus foreign rivals in competition for world markets.

Cournot's equilibrium is tenable when each firm is doing its best in terms of profit maximization by choosing its output level given output levels of its rivals. In equilibrium no aggressive threat by any firm is likely to be believed by its rivals. However, if one firm manages to reduce its costs (or get a subsidy) a new equilibrium would be set at a higher level of output and market share for that firm. Reference has also been made to the strategic use of R&D expenditure (or subsidies) to lower costs and shift the reaction curve outward. These results open up the possibility that government action can alter the outcome of the strategic game played by rival firms. It is in this context that possibilities of strategic trade policy have been proposed. The policy of protection as export promotion is one outcome of the presence of economies of scale and movement down the firm's learning curve leading to higher output (facilitated by protection) and falling marginal cost enhancing the firm's competitive position in world markets (Krugman,1984).

Closely related to the analysis of long-term growth, some studies have focused on the patterns of trade and their linkages with the patterns of innovation across countries, across sectors and over time identifying some robust evidence of the impact of innovation on international trade competitiveness and on growth. This trend also relates to those neo-technology models which have attempted to endogenize technical progress within equilibrium open-economy development models (Krugman,1979; Spencer,1981). Krugman's modelling of the technology gap between the North and the South and Spencer's analysis of the learning curve have contributed to bringing out some dynamic considerations in the discussions of international trade theory. Such approaches have reduced either to the learning curves analysis or to the generation of new intermediate inputs under monopolistic competition. These approaches have been found inadequate in one important respect: that is, they have not allowed technology to play an important role in the problem of coordination and interdependence between agents and in its role in influencing patterns of change and transformation of each economy (Dosi et al,1990). In addition, such approaches have been criticized for assuming equilibrium interactions among symmetric agents. In other words, this class of new theories have largely remained undynamic in terms of the direction of product and process technological change (Stewart,1984,1991).

2.4 Critics Outside the Neoclassical Framework: Introducing the Dynamics of Firm Capabilities and Technological Change

A major problem with analyses undertaken in the equilibrium framework is their assumption of the existence of price and/or quantity-based adjustment mechanisms which ensure clearing of all markets and attainment of equilibrium in that sense. The assumptions based on the presence of maximizing agents become an inadequate representation of general behaviour of agents when fundamental features of technological change (uncertainty, various irreversibilities) are invoked (Nelson and Winter, 1982; Dosi et al, 1990; Cooper, 1992). Attempts to correct this deficiency have followed a strand based on more evolutionary micro foundations whereby firms with different technologies and organizational traits interact under conditions of persistent disequilibrium. The essential aspects of Schumpeterian competition are highlighted, in particular, the diversity of firm characteristics and experience and the cumulative interaction of that diversity.

Contributors in this strand are more heretic, heterogeneous in nature and scope and their models are not always thoroughly formalized. Dosi et al (1990) have attempted to classify them into three broad groups: post-Keynesians (e.g. Posner, Vernon, Kaldor); structuralists in development economics (e.g. the dependency school); and economic historians (e.g. Kuznets, Gerschenkron, Balough). Much of the management literature focusing on firm level capabilities may be included in this approach (e.g. Porter, 1990). Studies following this approach agree on several common grounds: that international differences in technology levels and innovative capabilities are crucial in explaining trade flows and incomes of countries; that general equilibrium mechanisms of international and inter-sectoral adjustment are relatively weak; that technology is not a free good; and that allocative patterns induced by international trade have dynamic implications in the long term. The questions addressed by these contributors have implications on the causes of industrial development and growth; on linkages between these processes and their micro-foundations; and on the understanding of the on-going transformations and restructuring of world industry.

Evolutionary theory of economic change attempts to lay out a formal theory of economic activity, driven by industrial innovation (consistent with the Schumpeterian view) and seeks to understand technical change, its sources and its impacts at micro and macro levels (Nelson and Winter, 1982). Evolutionary theory here consists of heterogeneous modelling efforts which emphasize various aspects of economic change such as responses to market conditions by firms and industries, economic growth and competition through innovation. Many underlying ideas can be traced back to classical political economy (e.g. Smith, Marx, Schumpeter) and adopt contributions from other fields. For instance, from the managerialists, more realistic motives that directly operate on business decisions is adopted. From the behaviouralists, the emphasis on man's bounded rationality is adopted making it unlikely that firms can maximize over the set of all conceivable alternatives. The linkage of firm growth and profitability to its organizational structure, capabilities and behaviour is adopted from industrial organization (e.g. Coase, Williamson). The views that the history of firms matter as their previous experience influences their future capabilities and that firms adapt to changing conditions is largely adopted from evolutionary theorists (e.g. Darwin, Lamarcker, Alchian) and economic historians (e.g. Rosenberg, David).

The version of evolutionary theory presented by Nelson and Winter (1982) questions two pillars of neoclassical theory. First, the maximization model of firm behaviour is questioned in respect to the way it specifies the objective function and the set of things that firms are supposed to know how to do. In addition, it objects to the way firms' actions are viewed as resulting from choice of action that maximizes the degree to which the objective is achieved given the set of known alternatives and constraints. Second, objections are raised on the concept of equilibrium whereby conclusions about economic behaviour are generated within the logic of the model.⁵ The general term that Nelson and Winter use for all regular and predictable behavioural patterns of firms is "routine" which consists of well-defined technical routines for producing things, procedures (e.g. for hiring and firing, ordering new stocks), policies (e.g. for investment, R&D, advertising) and business strategies (e.g. on diversification, overseas investment). These routines are categorized into operating characteristics governing short-run behaviour, those determining investment behaviour (period-to-period augmentation/diminution of the firms capital stock) and those which operate to modify over time certain aspects of the operating characteristics (e.g. market analysis, operations research, R&D). There are also aspects of behavioural patterns of firms which are essentially irregular and unpredictable. These are regarded as stochastic elements in the determination of decisions and decision outcomes. Evolutionary theory attempts to model the firm as having certain capabilities and decision rules and choice sets (over which the main objective is pursued) are not well-defined and exogenously given. The core concern of evolutionary theory is with the dynamic process by which firm behaviour patterns and market outcomes are jointly determined over time.

The emerging theory of dynamic firm capabilities is presented by focusing on three related features of a firm (Nelson,1991): its strategy (a set of broad commitments made by a firm that define and rationalize its objectives and how it intends to pursue them), its structure (how a firm is organized and governed and how decisions are actually made and carried out) and its core capabilities (core organizational capabilities in particular which define how lower-order organizational skills are coordinated and higher-order decision procedures for choosing what is to be done at lower levels, R&D capabilities particularly of innovation and taking economic advantage of innovation again and again). To the extent that the real world is too complicated for the firm to understand in the neoclassical way, firms will choose somewhat different strategies which will lead to firms having different structures and different core capabilities.

When a new and potentially superior technology comes into existence in a relatively mature industry, the evidence suggests that what happens depends on whether the new technology is able to conform to the core capabilities of specific firms (competence enhancing) or requires very different kinds of capabilities (competence destroying). A change in management and presumably a major change in strategy is often necessary if the old firm is to survive in the new environment. There is need to understand organizational change as a handmaiden of technological advance and not a separate force behind economic progress (Tidd,1991; Nelson,1991). Over the long run what has mattered most has been the organizational changes needed to enhance dynamic innovative capabilities. However, there is little tested and proven theory of predicting the best way of organizing a particular activity and there is considerable dispute about what features of a firm's organization are responsible for certain successes and/or failures. These can only be

unveiled in concrete situations through empirical studies seeking to understand firm level strategies, structures and capabilities and the environment in which they are operating.

Attempts to model the way allocative patterns of international trade influence the long term dynamics of an economy have been made incorporating the main ideas from the two-gap models and in addition hypothesizing that world growth is determined by asymmetrical patterns of technological and demand structure changes (e.g. Kaldor, 1970, 1975, 1980; Thirlwall and Vines, 1983; Pasinetti, 1981 and Dosi et al, 1990). The focus of these approaches has largely been on the relationship between trade, levels of activity and growth.

3. RELEVANCE AND POLICY IMPLICATIONS FOR DEVELOPING COUNTRIES

The main contributions of new trade theories are basically in the recognition that economies of scale (and the associated market structures) and differences in technological capabilities matter and are important. In the context of the later, some strands of these theories have contributed to setting (or resetting?) the stage towards endogenizing technological development and innovations in the analysis of trade issues.

Most new trade theories place emphasis on issues which are largely relevant to the developed countries such as issues of intra-industry trade, strategic behaviours of large oligopolies and taking for granted that the North is the innovator and the South is the imitator.

However, there are elements of the new trade theories that are relevant to trade and development issues pertaining to developing countries. These elements relate to the following aspects: the conception of process of narrowing the technology gap between the developed and developing countries; implications on the conception of North-South technology-related negotiations; the role of multinational activities in the developing countries; intra-south trade and investments; industrial dynamics and attainment of competitiveness; and the role of government policy in enhancing competitiveness in the economy.

3.1 Narrowing the Technology Gap

One message which comes out of the new trade theories is that technology differences are a fundamental force in shaping comparative advantages. If technology differences are so important in shaping comparative advantages the implication is that trade policy should be designed with explicit consideration of technological change.

One class of models of North-South trade can be invoked here to highlight the relevance of new trade theories to developing countries although such models have largely been developed from the stand point of the advanced industrial economies. Some of these models focused on some form of technology-trade relationships whereby the North is the innovator and the South is the imitator and non-innovator (Krugman,1979,1982). The Krugman model, for instance, is constructed on the assumption that innovations in the North take the form of new products in new industries which are imitated by the South only with a time lag (e.g. through technology borrowing of various sorts). With the benefit of low wage rates, the South poses a threat to the North forcing the latter to strive to maintain the rents it reaps through higher wage rates. Consequently, the North must maintain constant innovations in new products and that way maintain the monopoly of new technologies.

Even if technology development efforts in developing countries may not be expected to take place in frontier technologies because of the tendency towards greater skill and capital intensity associated with those technologies, it may still be possible to deploy technology efforts to reduce the technology gap between the North and the South in some ways (e.g. by reducing time lag involved in technology borrowing, adaptation and devising efficient ways of application of the frontier technologies). Considering the diversity of demand structures both in the North and in the South it may be possible for developing countries to exploit some windows of opportunities in a dynamic context. In order to exploit and maintain such market opportunities (whether in the markets of the industrialized economies of the North or in the less developed economies of the South) efficiency requirements are likely to continue to be more stringent rather than more relaxed. To that extent continuous efforts to reduce the technology-gap between the developed and developing economies or even alter the nature of such technology gaps are conceivable.

There are economic activities in which the developing countries may continue to have a competitive edge arising from natural conditions supplemented by technological change e.g. natural resources such as minerals and tropical products. This suggests that the centrality of technological change and innovations in the analysis of trade and growth issues can be applicable to enhance comparative advantage based on natural resource endowments. It is in this context that the influence of technological capability on realization of the potentials in natural resource endowments in the South has been suggested (David, 1991). Technological capability and in particular prudent adoption of relevant new technologies applied on exploration, exploitation and processing various natural resources can make a difference in tapping the potentials of natural resource endowments. In the area of primary commodity production increases in productivity are important in influencing the level of returns from factors used in the production of the commodities. In this respect technological capabilities in the production of commodities can have a positive influence on the factorial terms of trade. The experience of Malaysia's diversification efforts into cocoa production has shown that although Malaysia has higher labour costs than West Africa and Brazil, it has been particularly successful in gaining relative competitiveness in cocoa production by achieving very high yields from the new hybrid varieties developed by its crop-breeding programmes (International Trade Centre, 1987).

In the process of industrialization in the less industrialized economies, elevating the role of technological change could contribute to improving the efficiency of the import substitution industries and improving international competitiveness in the export industries in the developing countries. In the field of trade, in particular, lessons from the new trade theories seem to be relevant in highlighting the role of technological development and innovations and the importance of being forward looking in the assessment of trade potentials contrary to the implications of the static comparative advantages. In addition, the new theories demonstrate the centrality of technology in trade and, in particular, in acquiring detailed knowledge of the structures and capabilities of exporting industries and firms as a basis of formulating export promotion policies and policies which would promote industries with dynamic comparative advantages.

Although it is not likely that the less industrialized countries can compete with the industrialized countries in frontier technologies it is apparent that in various industries

competition may come from selective adoption of new technologies which are competitive at very high wages or from less sophisticated semi-automated technologies which are competitive at relatively lower wage levels. For instance, in garments and textiles Mody and Wheeler(1990) found that producers in the NICs are facing competition from export operations of the newly-invigorated economies of Asia (e.g. China, India, Indonesia) based on low wages. Concurrently with this increase in wage-based competition, sophisticated microelectronics-based systems for garment and textile production are emerging in the OECD economies. In garment production, the major microelectronics based technological improvements have occurred in pre-assembly (design, marking, grading and cutting and post-assembly (warehouse, distribution and management). In both garment and textile production, the advanced technologies which were observed are still so costly that they are optimal only in high labour cost environments. However, semi-automated technology is now viable in a number of operations at very low wages. So long as the level of wages in developing countries are relatively lower it would be possible to be competitive in technologies which are not necessarily at the frontier while striving to close the technology gap as productivity and wages rise.

In the case of garments, for instance, the advantages of selectively applying new technologies (e.g. information technology and microelectronics) in developing countries are most likely to be reflected in shortening the production cycle (saving time and working capital) and gaining the ability to respond to customer demand at short notice. Some of the areas which are likely to be relevant for technical progress in garments are: computer design; automatic cutting; flexible sewing and finishing technology incorporating micro-processors; robotic handling; unit production systems; shop-floor controls; logistics; supplier linkage; retail linkage and merchandise control and implementation (Frazier,1985 cited in Mody and Wheeler,1990). The challenge seems to be on how to promote selectivity in adopting new technologies in various processes in a way which is consistent with capabilities in the respective countries at present and over time.

There are indications that market opportunities for the non-frontier technologies will continue to be presented by the changing world market conditions. For instance, the dominance of small firms in the apparel industry is explained by the rapid variation in style and colour requiring the production of small-sized lots and the ability to respond quickly to changing demand (Mody and Wheeler,1990). Even within the framework of intra-industry trade, in the case of US, it has been found that such trade is dominated by intermediate goods which are primarily of the made-to-order type produced by small firms (Ray,1991). The US-Brazil intra-trade was found to be dominated by made-to-order goods produced by small firms using labour intensive production techniques.⁶

In order to cope with the changing patterns of market opportunities it is important that the process of growing competitiveness be continuous and dynamic. For instance, comparing the kinds of products exported by Korea and India it has been found that while in 1966 high-tech products (measured by their R&D intensity) represented a very small share of exports but by 1986 the share of such products in exports had increased considerably in Korea (indicating competition in progressive industries characterized by technological change) while the share was stagnant in the case of India (Keller,1991). The static nature of R&D intensity in India's exports reflects the unwillingness to import modern technology and limited exposure to foreign technology (in pursuit of the policy of self-reliance). The relevant challenge for policy in developing countries seems to be

how to avoid the outcome of the Indian case and how to enhance competition in progressive activities in ways which are closer to the Korean case.

3.2 North-South Negotiations

According to the report of the South Commission (1990), one major problem of the world economy is domination by the North of the decision making processes that govern the international flows of trade, capital and technology. Efforts towards establishing NIEO started with some hope in the 1970s but for many in the South that hope has now faded. Instead there has been an enlargement of North's power relative to the rest of the world and the leading countries of the North are readily using that power in pursuit of their objectives. For instance, one technology-related feature which the South Commission Report(1990) identifies as characterizing the world economic scene recently is the increasing monopolization of technological progress by TNCs in the North. As the technological revolution is under way, the principle of science as the shared heritage of mankind is being eroded systematically. Knowledge is being increasingly privatized and the South is being excluded. Many countries in the South find themselves increasingly unable to predict, let alone to regulate, the technology flows (p.219). The Report has observed that considerable progress towards facilitating the South's access to technology was been made in the 1970s (code of conduct and intellectual property) such that by the early 1980s only two important matters remained to be settled in UNCTAD's code of conduct: the clause governing restrictive practices and the provision concerning applicable law and dispute settlement. The Report proceeds to point out that before mutual concessions by North and South on these two points could be made, further negotiations were blocked by the North while the revision of the Paris Convention being stalled for several years. The North has since used the recent acceleration of technological advances to press for a reversal of earlier negotiations (p.254). In spite of the threats of reversal of earlier achievements in this matter, the Report continues to suggest that what is required is an international framework to regulate the activities of TNCs in developing countries starting with the introduction of a code of conduct for TNCs.

There seems to be a communication gap on this matter between the South and the North on this matter. This gap in the negotiations largely originates from the manner in which technological change and innovations are conceptualized. The South takes a position which in many ways assumes that most of the technological knowledge is coded in some form (e.g. in manuals and blue prints) and that it can be imparted from the North to the South through agreements on appropriate revisions in restrictive practices and laws. In this context, new trade theories shed some light on the conception of technology. They suggest that technology is partly tacit and is available in many uncoded forms. The process of acquiring it is not costless, it requires effort. Recognition of such tacit characteristics of technology and the corresponding conceptualization of technological knowledge with fuller recognition of both tacit and coded characteristics of technological knowledge and their relative importance could enhance understanding of the many aspects of the conflict between the North and the South (e.g. issues of code of conduct and transfer of technology). This recognition would tilt the balance in favour of the design of policies towards transfer of technology through various forms of learning and axis of the negotiations shift towards those practices which inhibit the process of technological learning in developing countries.

3.3 Changing Views on the Role of TNCs?

One aspect of the debate which has a bearing on development of industry by national firms and the developments in the international economy is the role of TNCs.

Based on the more recent experiences of development in the periphery, several radical authors have built on the idea of the collaboration between the state, TNCs and local capital to question the pessimistic conclusions of the dependency school relating to contact with the advanced capitalist economies. They have argued that contact with the advanced countries, through both trade and foreign investment, will greatly expand productive potential in the periphery and hasten the development of an indigenous capitalist class capable of playing a leading role in successfully industrializing these economies (Weiss,1988:152; Warren 1973,1980). There are indications that well-designed government policies, backed by appropriate state involvement, can raise the potential benefits to be obtained from TNCs (Weiss,1988).

Considerable debate has dwelt on the question of the relative strength and independence of the local industrial bourgeoisie. Some studies have shown the emergence of a strong local industrial bourgeoisie in Korea, Taiwan, India and in the larger countries in Latin America. The success of domestic firms in technology exports and foreign investments by those firms from the NICs presents further evidence to that trend. For the less industrialized developing countries the relation between TNCs and the development of domestic firms is still not well explored. However, it has been suggested that there is a tendency for nationally owned firms to become increasingly similar to TNCs in some respects (e.g. in technology, marketing and product designs). For instance, it has been pointed out that local competitors in several branches in Kenya had been forced by competition from TNCs to mechanize and advertise in the same way as TNCs did (Langdon,1979).

What seems to be wanting is a deeper and updated understanding of the characteristics of the TNCs and their changing role in the world economy and in particular in the way their operations are likely to influence the constraints and prospects for manufactured exports from the less industrialized among developing countries. An entry of TNC may infuse new capital, technology and management, as well as change in the behaviour of domestic firms. The technological capability of the host country may have to be developed to enhance absorption and adaptation of new and/or improved technology. In some cases the engagement of numerous and relatively small TNCs with wide international marketing networks may be advisable (Jovanovic,1991). For instance, in spite of their initial lack of capital and technology, Japanese TNCs had two strengths: close business-government cooperation and well-developed trading skills (Panglaykim,1979 as cited by Lecraw, 1981).

One trend which seems to be emerging is that of **globalization**. Increasing globalization has in particular been characterized by the growing role of transnational corporations (TNCs) facilitated by the explosive growth in international private financial flows. This has led to a new ranking of the factors creating interdependencies whereby direct foreign investment (DFI) in manufacturing and services rather than trade is leading internationalization and is influencing locational and trade patterns. During the 1980s the pattern of internationalization and globalization was further facilitated by deregulation and globalization of finance and by the enabling features and pressure from new technologies.

New forms of inter-firm agreements have developed into major means of international technology transfer. In the context of globalization, computer networking extends reach of companies and organizations allowing improvement in coordination of various activities at international level. To the extent such networks may be alternatives to strategic alliances among firms they can present new opportunities which could influence the structure of industrial activities and their location. If, for instance, it turns out that TNCs are now more willing to locate a greater portion of their R&D activities in developing countries than they did in the past, the implications of this and related new trends on transfer of technology are worth exploring.

It would appear that if the potential benefits from TNCs are to be realized domestic policies concerning development of domestic firm technological capabilities, education and vocational training, investment, trade, technology adaptation and R&D can play a crucial role in that process. However, in the context of the emerging world market and new technologies the question of forging new forms of networking with TNC firms and identifying the conditions under which the role of TNCs could be complementary and supportive of efforts towards development of international competitiveness by developing countries remains important and interesting.

3.4 South-South Trade and Investments

Although the focus of new trade theories is primarily on North-North trade, some elements of the role of economies of scale, product diversity and explanations for intra-industry trade can be applicable to issues of the place of South-South trade in the world economy. As regards intra-industry trade, the available evidence suggests that average levels of such trade have been low in developing countries and even lower in non-NICs (Greenway,1991 Havrylyshyn and Civan,1985).⁷ One problem with such evidence is that it is derived from static analysis and does not take into account directions in which such intra-south trade could evolve. Such dynamic conceptualization implies adaptation of considerations on South-South trade by addressing such options as innovations in more appropriate products and processes for the South as a basis for South-South trade (Stewart,1984 and 1991) and by posing the question of the conditions under which South-South trade could be feasible and viable drawing lessons from the emerging patterns of trade as unveiled by the new trade theories. Further implications of policy on the evolution of intra-industry trade can be inferred from the evidence that intra-industry trade tends to be higher among countries (developed or developing) with some kind of integration arrangement (Balassa and Bauwens (1988). This could imply the influence of lowering of trade barriers and/or the influence of the ability to exploit economies of scale which are often associated with integration and cooperation arrangements.

One relevant direction of development could be represented by the analysis and shaping of patterns of trade and investment flows among developing countries (Lecraw,1981; UNESCAP(1990). Lecraw has addressed three issues of TNCs from developing countries: types of technology developed, mechanisms of transfer of technology and impacts on home and host countries. As regards types of technologies, it was found that TNCs from developing countries undertook various modifications in response to the characteristics of raw materials (type, quality and input-mix), size (scaling down), product quality and product mix (degree of diversification), machinery (simplicity and capacity) and factor intensity. It was found that these TNCs tend to produce simpler lower

technology-products, low-cost products which required little marketing ability to sell in world markets, had a higher propensity to form joint ventures with local firms, used more local human resources and raw materials and often they down-scaled imported technologies. It has been pointed out that the case study of Indian joint venture in Thailand showed that being themselves in a learning stage developing country firms transfer not only the know-how but also the know-why (UNESCAP,1990). One reason why this occurs is that developing country TNCs often set up overseas enterprises using machinery imported from the developed countries. This necessitates adaptation of these machinery to local conditions on the site of the host country thus providing it with the opportunity to learn by doing. This would imply that developing country TNCs are more skilled in specific technology adaptations and therefore they transfer those skills. To the extent developing country firms are also associated with the ability to design smaller size plants for small market segments, it seems reasonable to expect such flexible technologies to be more appropriate for small and segmented markets. Through these various forms of learning, adapting and modifying imported technologies the TNCs have acquired unique technological capabilities and can carry out these and related activities quite efficiently (Lecraw,1981).

If developing countries have a competitive edge on selected activities then policy support in such activities would be required in order to maintain and enhance such leads as implied by the way new trade theories put forward dynamic conceptions of the technology development process. Such firms would have to continue to upgrade and adapt further their process and product technologies through R&D activities at home in order to maintain the lead. As Wells(1980 cited by Lecraw,1981) observed, when some of these TNC firms failed to make continuous adaptations and upgrading, their subsidiaries abroad became more and more independent and some even ended their relationship to their parent firms.

3.5 Dynamics of Firm Level Capabilities and Implications on Competitiveness

One important contribution of new trade theories, in particular, those associated with evolutionary theory of economic change is their attention on the dynamics of technological change and innovations within firms or within strategic groups of industries. Having dropped the neoclassical world of perfect foresight and static equilibrium, the presumed world of the followers of the evolutionary theory of economic change is so complicated with uncertainties that firms will tend to chose somewhat different strategies which will lead to firms having different structures and different core capabilities and the way these will evolve over time will reflect their past experiences and histories.

One implication of this theory of dynamic firm (or industry) capabilities is that alternative organizational patterns and forms of support by industry level or national level institutions are likely to be an important subject for consideration. In fact, some emerging evidence from developing countries points to the phenomenon that competitiveness and efficiency are tenable in varied firm organizational patterns. For instance, differences in policy and in size (or structure) of Korean and Taiwanese footwear manufacturing and keyboard and computer assembly establishments reflect divergent, yet equally efficient, responses to varying economic conditions and associated variations in the costs of market transactions at the outset of EOI (Levy,1990; Levy and Kuo,1991). The Taiwanese footwear is

organized via the subdivision among independent firms of the various processes of production such that it is rare to have a firm performing more than two sub-processes in-house. Taiwanese keyboard and personal computer assembly firms not only procured all components from independent vendors but also subcontracted the mounting of electronic components on printed circuit boards and a significant fraction of the keyboard assembly operation itself (Levy and Kuo, 1991). The relative ease with which Taiwanese firms could enter into subcontracting arrangements with one another and the presence of Taiwanese traders willing and able to explore the international market prospects for SMEs imply that the Taiwanese entrepreneurs could initiate production at a relatively small scale with little up-front investment for production facilities or marketing information. The Korean pattern differs considerably from the Taiwanese one in that it is characterized by vertically integrated organization whereby firms were performing various tasks in-house.⁸ The relevant point from these experiences is that it is possible to attain efficiency and presumably dynamic international competitiveness under diverse patterns of firm (or industry) organization and relationships to other institutions in the economy. Questions of firm organization and their relationship to other institutions is therefore subject to variations according to specific circumstances (e.g. history, technological and other institutional capabilities across countries and over time).

3.6 Role of Government Policy

The role of dynamic learning processes and of competitive pressures of the export markets are relevant to the extent such dynamic economies are industry-specific. Contrary to the neoclassical premise that all activities are equally important new trade theories bring to the fore the existence of strategic activities which could be developed through policy. One case is that of protection as export promotion as argued by Krugman (1984). The new trade theories' exposition of the possibility of "import protection as export promotion" introduces an option of using trade policy strategically in spite of the cautions to the effect that a coherent model along these lines has not been developed as yet and that the results are likely to be sensitive to the kind of strategic game or firm behaviour that is assumed.⁹ In addition, the assumption that the intervening policy maker knows the firms' (domestic and foreign) revenue and cost functions is questionable but this problem applies to most optimal models e.g. optimal tax models (Srinivasan, 1989). Caution has also been expressed to the effect that while policy support may make some firms win the race the resources used up by losing firms represents a cost which should be weighed against benefits accruing to the winners.

Dropping the neoclassical assumption of perfect foresight in favour of the more realistic world of uncertainty also introduces the formidable problem of picking industries which deserve support (picking winners). In practice there will be difficulties in identifying industries which satisfy requirements for export promotion because of uncertainties about firm behaviour, industrial structure, impact on consumers, type of strategic game being played and about possibilities of retaliation. Some suggestions of the criteria which could be used to pick target industries have been made in the context of industrialized economies. Some of these criteria are: industries which earn sufficient additional returns to offset the cost of subsidies; industries with large and inflexible investment requirements; industries which use factors which are not so scarce as to result in the increase in the prices of such factors (Spencer, 1986).

Picking winners in the context of developed country industries which are engaging in frontier technologies may differ in substantial ways from what it may mean in the context of developing country industries which may be engaged in local (e.g. South-South trade) rather than global frontier technologies. For instance, the degree of uncertainty and risk associated with adaptations and various forms of transfer of technology may be lower than that associated with frontier technologies. In practice, however, the identification of target industries and the form of their support will have to be determined in an iterative process which will involve revisions and reformulations of the pattern of policy support as new information about conditions in the international market becomes available. The important guiding principle should be to target those industries which have potentials of attaining and/or sustaining international competitiveness in a dynamic context. It may not be possible to be more specific in such a world of uncertainty and rapid technological change. As the experiences of other countries seem to suggest, targeting can be determined only on the basis of such broad guidelines whose concretization is continuously grappled with over time as conditions of markets and state of technological capabilities change over time.

The case for selectively supporting specific high potential industries through government policy has been demonstrated to varying degrees in the experiences of the developed countries and the NICs. In the case of Japan, for instance, MITI is reported to have picked winners after ample consultation and/or participation of experts from diverse sectors (industry, universities, banks, trade unions, mass media) and figured out which development strategy suited the capabilities of Japanese producers after paying close attention to developments in the domestic and international markets (Yamamura,1986; Carliner,1986). In the case of South Korea, the government intervened to create and develop market agents, intervention was selective and favoured industries which were deemed to have dynamic comparative advantage and in selecting industries to be supported the government consulted extensively with knowledgeable agents in the private sector (Pack and Westphal,1986). The government operated a dual policy structure with industries in which Korea had a static comparative advantage operating largely in a neutral incentive structure and the infant industries getting promotional incentives (directly and indirectly) through the influence of the market. In addition, export performance has been the main practical measure of progress towards international competitiveness but detailed strategy in this highly uncertain area was accompanied by reformulations in the light of information gained (market signals, perceptions about industrial operations and potentials) during implementation (Pack and Westphal,1986). Unlike most developing countries, protection in Korea was not confined only to import substitution industries but went beyond and made export an ultimate target.

One question which arises in this context is that for many developing countries especially those in Africa the history of state intervention in the process of industrialization is not new. If anything past experience with such intervention has in many respects been so unsuccessful that conventional wisdom is now advocating reliance on the market mechanism for resource allocation and in particular for the development of export industries. The ability of the state to make sensible selective state intervention is doubted not only by those who have for a long time been arguing against state intervention (e.g.Krueger, Balassa, World Bank) but even by those who have argued convincingly for selective state intervention in other contexts (e.g.Pack and Westphal,1986). The latter have suggested that because of the limited capacity of the state in respect of economic management in

the least developed countries, reliance on the standard neoclassical prescription in those countries probably constitutes the best policy across the board. Suggestions along these lines should be subjected to serious question and further investigation.

Several issues deserve deeper study in this context. **First**, as Pack and Westphal (1986) have rightly pointed out, policy instruments were used promotionally in Korea but the same set of instruments were used restrictively in the less successful industrializing countries. It would be useful to explore the conditions under which the latter countries could shift the pattern of their intervention in the direction of promotion and away from restriction. **Second**, there is the question of differences in the scope of state intervention. In response to the observation of little success in the particular scope and pattern of state intervention there has been a tendency to swing to the other extreme which is more in line with the neoclassical laissez faire. This has often been done without revisiting the role of the state itself in terms of its scope and characteristics and without making reference to any light that past experience can shed. **Third**, if the capabilities associated with state intervention are partly characterized by tacit knowledge, then there is a case for acquiring such capabilities through learning by doing. The challenge would therefore be on how to ensure that such a learning process is undertaken on the basis of the scope and patterns which are consistent with the limited but growing institutional capabilities for effective state intervention. **Fourth**, it appears that many countries among the less industrialized countries are accepting the principle and practice of making greater use of the signals from the domestic and international markets. In this new situation, the challenge lies in how state intervention could be redefined rather than to abandon it altogether. **Finally**, the scope and pattern of state intervention is largely a reflection of the dynamics of sociopolitical factors obtaining in the respective countries. In this context, a wind of change seems to blowing in favour of democracy and multi-partyism. Already there are signs that various social groups are beginning to redefine their positions more openly (e.g. trade unions, business communities, farmers' associations and cooperatives). The resulting balance of power (as suppression of the weight of various groups in society is relaxed) is likely to be so substantial that it could only be consistent with a kind of state intervention which is qualitatively and quantitatively different from what may have been necessary in the past. This suggests that dynamics of socio-political factors obtaining in various countries deserve closer examination as a basis for making prescriptions relating to scope and pattern of state intervention.

4. CONCLUSION

Most new trade theories place emphasis on issues which are largely relevant to the developed countries such as issues of intra-industry trade, strategic behaviours of large oligopolies and taking for granted that the North is the innovator and the South is the imitator. This survey has examined various strands of new trade theories and suggested that there are elements of the new trade theories that are relevant to trade and development issues pertaining to developing countries. These elements relate to: the conception of process of narrowing the technology gap between the developed and developing countries; implications on the conception of North-South technology-related negotiations; the role of multinational activities in the developing countries; intra-south trade and investments; industrial dynamics and attainment of competitiveness; and the role of government policy in enhancing competitiveness in the economy. This implies that the formulation of trade policy, industrial policy and technology in developing countries can benefit from insights gathered from new trade theories.

ENDNOTES

1. The traditional formulation assumed that output of the domestic industry is the source of external economies via the larger demands for intermediate inputs (presumably produced at lower cost).
2. The assumption of symmetry requires that all intermediate goods (components) be producible from capital and labour via identical production functions and that all these components contribute in totally symmetric fashion to the finished manufactured goods implying that all components are produced in equal amounts.
3. The concept of contestable markets combines the Bertrand behaviour of firms and costless unrestricted entry and exit.
4. Monopolistic competition is like contestable markets with the possibility of product differentiation.
5. In mathematical terms, addition of an equation specifying equilibrium conditions is seen as a way of providing for its determination or closing the model.
6. Some of the types of goods in which intra-industry trade took place between the US and developing countries of Latin America and Caribbean countries include electrical goods, medical instruments, plumbing fixture fittings, chewing gums, malt beverages, necked wear, canned fruits and vegetables, bicycles, soaps, motor vehicle parts, electronic resistors, musical instruments, etc.
7. Greenway (1991) evaluated the extent of intra-industry trade in developing countries as a way of identifying how widespread are economies of scale and product differentiation. Two categories of intra-industry studies are invoked: documentary studies recording the incidence of intra-industry trade at a given level of aggregation; and econometric studies identifying the determinants of a given level or change in intra-industry trade.
8. However, even in this case after 1978 firms that began to export footwear tended to be both smaller in size and more dependent on procurement of soles from independent vendors. Apparently, the expansion of the Korean footwear industry laid the foundation for a subsequent proliferation of subcontracting, as more industry participants learned the skills of footwear manufacture and became familiar with the timing and quality requirements of the footwear export business.
9. The enrichment of the analysis by borrowing tools from industrial organization and management also implies borrowing of a proliferation of cases and lack of a general coherent theory or guideline which could be followed easily. Policy becomes a series of special cases reflecting the principle that policy should respond differently to different industrial structures (Brander, 1986).

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