

The competitive advantage of nations: is Porter's Diamond Framework a new theory that explains the international competitiveness of countries?

A.J. Smit

ABSTRACT

The focus of this article is to clarify the meaning of international competitiveness at the country level within in the context of Porter's (1990a) thesis that countries, like companies, compete in international markets for their fair share of the world markets. At a country level, there are two schools of thought on country competitiveness: the economic school, which rejects Porter's notion of country competitiveness, and the management school, which supports the notion of competitiveness at a country level. This article reviews and contrasts the theories pertaining to these two schools of thought with specific reference to trade theories and the 'theory' of the competitive advantage of nations originally advanced by Porter (1990a, 1997a, 1998b, 1998c, 2000). Although Porter's Diamond Framework has been extensively discussed in the management literature, its actual contribution to the body of knowledge in the economic and management literature has never been clarified. The purpose of this article is to explain why Porter's Diamond Framework is not a new theory that explains the competitiveness of countries but rather a framework that enhances our understanding of the international competitiveness of firms.

Key words: Porter, Diamond Framework, international competition, competitiveness of countries, international business, national competitive advantage, country sources of competitive advantage

Prof. A.J. Smit is an Associate Professor of International Business, Graduate School of Business Leadership, University of South Africa. E-mail: ajsmit@sbleads.ac.za

Introduction

“Today [South Africa] is part of a truly global economy. To maintain our standard of living, we must learn to compete in an ever tougher world market place. That’s why higher productivity and product quality have become essential. We need to move the economy into high-value sectors that will generate jobs for the future and the only way we can be competitive is to forge a new partnership between government and business” (Krugmann 1994a: 109). According to Krugman (1994a), this is the kind of statement one sees in academic journals and the popular press. It is also a statement that is popular among business people, journalists and management academics. It is a statement about the international competitiveness of countries. These kinds of statements are also propagated by the World Economic Forum in its Global Competitiveness Report (2008), which ranks countries in terms of their international competitiveness. Krugman (1994a: 7) claims that these kinds of statements and reports are “meaningless when applied to national economies”. According to Krugman (1991b, 1994a, 1994b, 1995a, 1995b, 1998), countries do not compete internationally. They are not like firms, competing with rivals in the global market place. Kohler (2006: 140) supports this belief that countries do not compete, because trade is a positive sum game and thus “a country’s welfare is ... determined by its absolute level of productivity and not by some international competitiveness rankings ... In a trading world, productivity is magnified, in terms of its welfare potential by international exchange ...”

However, international competitiveness of countries is an ever-growing concern for governments, firms as well as academic scholars (Ketels 2006). It is also one of the most misused and misunderstood terms in the popular press and academic literature today. Daniels (1991: 56) calls it “the elusive concept of national competitiveness”. According to him, there is no consensus on how to measure, explain and predict international competitiveness of countries, and “perhaps none is warranted”.

This new interest in country competitiveness has opened up the debate on the true meaning and understanding of international competitiveness of countries. The reason for the debate is based on the implicit assumption underlying the management theories that firm competitiveness can be extended to country competitiveness, as popularised by Porter (1990a) with his Diamond Framework and the world competitiveness reports.

According to Stone and Ranchhod (2006: 284), Porter’s “focus on competition or ‘rivalry’ is a diversion from traditional economic thinking”. This general belief by management academics that countries are somehow in competition with one another probably explains why Porter’s (1990a) Diamond Framework appears in most international business textbooks. Peng (2009: 125) refers to it as the most

recent theory that explains the international competitiveness of countries: “It is the first multilevel theory to realistically connect firms, industries and nations, whereas previous theories only work on one or two dimensions”. Hill (2009: 193) proclaims that “although much of the theory sounds true, it has never been subjected to rigorous testing”. However, thus far the Diamond ‘Theory’ is conspicuously absent from the international economics textbooks.

To understand why so much emphasis is placed on the Diamond Framework in the management literature and so little in the economic literature, a distinction has to be drawn between the meaning of ‘competitiveness’ at a country level and ‘international competitiveness’ at a firm level. At a firm level, international competitiveness does matter. This is well researched and cannot be disregarded (Dunning 1997; Teece 1998; Kogut 1998; Kogut & Zander 1993). International competition at the firm level has changed over the last decade because of the changing patterns of world trade, globalisation of the world economy, rapid dissemination of technology and information, and the rise of the transnational organisation. It is this emphasis on competition among firms in world markets that has renewed intellectual interest in international competitiveness at a country level (Porter 1990a, 2003; Rugman 1990, 1991; Dunning 2000), which has more recently been revisited by Aiginger (2006), Grilo and Koopman (2006), Kohler (2006), Ketels (2006), Siggel (2006) and Ranchhod (2006).

The focus of this article is on the debate as to whether or not countries compete internationally, as proclaimed by Porter (1990a). There are two schools of thought; the economic school, which ignores Porter’s notion of country competitiveness, and the management school, which supports the notion of competitiveness at a country level. This article reviews and contrasts the theories underlying the two schools of thought. Although Porter’s Diamond Framework has been extensively discussed in the management literature, its actual contribution to the body of knowledge in the economic and management literature has never been clarified. The purpose of this article is to explain why Porter’s Diamond Framework is not a new theory that explains the international competitiveness of countries.

The first section of this article gives a short synoptic overview of trade theory in order to provide some background on how economists differ from management specialists on the issue of international competitiveness at a country level. The aim is not to provide a detailed exposition of the different trade theories but to review the theories as background for the discussion of Porter’s (1990a) Diamond Framework, which explains the competitive advantage of nations. The second section examines Porter’s (1990a) Diamond Framework within the context of the trade theories. The Diamond Framework draws heavily on different theories of

economics, but uses a conversational style that is distinctly different from that used by many economists. Porter uses verbal descriptions of the different trade theories based on logical reasoning instead of the mathematical models that dominate the economic profession (Ketels 2006). This is easier for policy-makers to understand and thus creates the impression that the Diamond Framework can be utilised to enhance the international competitiveness of countries. The main risk of this is that competitiveness of countries may be understood as a negative sum game, whereas, according to international trade theory, it is a positive sum game. The last section draws some generalisations about the validity of Porter's Diamond Framework as a theory of the international competitiveness of countries and explains the significant contribution of the framework towards our understanding of the international competitiveness of firms.

Trade theories and the international competitiveness of countries

The first attempt to explain why countries engage freely in international trade has its origin in 1876 with Adam Smith's theory of absolute advantage (Krugman & Obstfeld 2003). According to this theory, a country can enhance its prosperity if it specialises in producing goods and services in which it has an absolute cost advantage over other countries and imports those goods and services in which it has an absolute cost disadvantage. This theory explains why countries, through imports, can increase their welfare by simultaneously selling goods and services in international markets. Adam Smith thus viewed trade as a positive sum game. This was in direct contrast to the viewpoint of the mercantilists of the 16th century that trade is a zero sum game. They believed that if countries wanted to become rich and powerful, they must export more and restrict imports to the minimum. Such a policy would result in an inflow of gold and silver that would make the country wealthy. Because they viewed trade as a zero sum game, they advocated strict government control and preached economic nationalism (Salvatore 2002).

The theory of absolute advantage became a paradox, however, in the sense that a country that had an absolute advantage in all products or services it produces would not import because it could produce more efficiently. According to Krugman (1995b), however, it is imports rather than exports that matter for a country. Exports are important in order to pay for the imports a country needs. According to Adam Smith's hypothesis, some countries will be excluded from importing and thus from the gains from trade. This paradox that absolute cost advantage leads to specialisation, but that

such specialisation may not necessarily lead to gains from trade, gave rise to Ricardo's theory of comparative advantage.

Comparative advantage

According to the law of comparative advantage, a country must specialise in those products that it can produce relatively more efficiently than other countries (Krugman & Obstfeld 2003). This implies that despite absolute cost disadvantages in the production of goods and services, a country can still export those goods and services in which its absolute disadvantages are the smallest and import products with the largest absolute disadvantage. It also implies that a country with absolute cost advantages in all its products will specialise and export those products where the absolute advantage is the largest, and will import products with the smallest absolute advantages. Comparative advantage thus also leads to specialisation, but differs from specialisation based on absolute advantage, in that a country will always import, whether or not it is more or less efficient overall in the production of all goods and services relative to other countries.

The question that frequently arises, and that is sometimes the source of confusion with regard to the law of comparative advantage, is how is it possible for a country that is less efficient in the production of all products to export any of these products to another country that is more efficient in the production of all these products? The answer lies in the self-equilibrating nature of the trade balance between countries (Krugman 1993a). This means that in equilibrium, if the input cost is sufficiently lower in one country than another country, the price of the product will be lower in the low input cost country, even if that country is less efficient in the production of the product (Salvatore 2002). Any deviations from equilibrium will automatically realign the exchange rate between the two countries to ensure new trade equilibrium.

Ricardo's theory of comparative advantage is based on the labour theory of value (Salvatore 2002). This implies that labour is the only production factor and that it is used in fixed proportions in the production of all products. The theory also assumes that labour is homogeneous (Salvatore 2002). These unrealistic assumptions led to the incorporation of opportunity cost into the explanation of the theory of comparative advantage. If the Ricardian theory of comparative advantage is redefined in terms of opportunity cost, then a country will have a comparative advantage in the production of goods and services if such goods and services can be produced at a lower opportunity cost. This implies that a country will have a comparative cost advantage in the production of those goods and services that can be produced at a lower opportunity cost than in other countries (Salvatore 2002).

Although the theory of comparative cost advantage is based on a set of strict assumptions, this does not invalidate the general acceptance of the theory in explaining gains from trade (Krugman 1990; Culbertson 1986; Keasing 1966; Vernon 1979). This is furthermore underscored by the fact that most of the principles of the World Trade Organisation (WTO) are based on the belief in the validity of the law of comparative advantage (Root 2001). Even the relaxation of most of the assumptions does not affect the general validity of the theory in any significant way (Harkness 1983; Sweikausks 1983; Balassa 1965), and enough empirical evidence exists to support the theory of comparative advantage (Bernhofen & Brown 2004; Schott 2004; Uchida & Cook 2005; Krugman & Obstfeld 2003).

The superiority of the theory of comparative advantage lies in the remarkable amount of useful information that it summarises clearly and concisely. According to Salvatore (2002: 91): “It shows the conditions of production, the autarky point of production and consumption, the equilibrium relative commodity prices in the absence of trade, the comparative advantage of each nation ... it also shows the degree of specialisation in production with trade, the volume of trade, the terms of trade, the gains from trade, and the share of these gains to each of the trading nations.” It is this power of the theory that provides a convincing explanation why trade is a positive sum game (Krugman 1992, 1993b, 1994a, 1994b, 1995a, 1998).

The theory of comparative advantage, as discussed thus far, does not explain the location of these advantages. Whereas the Ricardian model of trade conveys the essential idea of comparative advantage, it does not explain the direction of trade. Economists thus needed an alternative model of comparative advantage to explain the direction of trade.

An important theory to explain the reasons, or causes, of comparative advantage differences between countries is the Heckscher-Ohlin (H-O) theory (Salvatore 2002). According to this theory, countries differ with respect to their factor intensities, namely the labour and capital that are used in the production of goods and services. While there are many different resource explanations of comparative advantage, the H-O theory isolates factor abundance or endowments as the basic determinant of comparative advantage. Although the H-O theory is based on a set of simplifying assumptions, relaxing these assumptions modifies but does not invalidate the theory (Salvatore 2002).

A number of empirical studies have been conducted to verify the H-O theory. One of the first such studies was conducted by Leontief (1953), who found that, irrespective of the general belief that the US was expected to be an exporter of capital-intensive products and an importer of labour-intensive products, the results confirmed just the opposite. The paradox was later confirmed by Baldwin (1971).

Similar results were reported in studies based on data for Japan, Germany, India and Canada (Baldwin 1979).

The Leontief paradox has led economists to look for alternative explanations for the H-O theory. The most important of these was the introduction of differences in human capital (Karvis 1956; Kenen 1965; Keesing 1966; Baldwin 1971; Bowen 1985) as an explanation of the paradox. Others were the product cycle theory (Vernon 1966) and the technology gap theories (Gurber, Metha & Vernon 1967; Gold 1981) that incorporate time as a dynamic extension to the basic H-O theory. Most of these theories were mere modifications and extensions of the basic H-O theory and did not reduce the validity of the theory in explaining the direction of trade between countries.

While it is generally accepted that these theories explain inter-industry trade sufficiently, they fail to explain intra-industry trade (Grubel & Lloyd 1975). To explain intra-industry trade, economists put forth a new set of trade theories that relax the assumptions of perfect competition and constant economies of scale. These new trade theories opened up the debate around government intervention as an active policy to advance the international competitiveness of a country.

New trade theory

Up until the 1970s, international trade theory was dominated by the theory of comparative advantage, which can be loosely defined as trade due to differences between countries. Two of the basic underlying assumptions of comparative advantage are perfect competition and constant returns to scale. In terms of these assumptions, monopoly profits are competed away as firms strive to improve their strategic positions in markets.

Since World War II, however, a large and growing part of trade has come from massive two-way trade in similar industries (Grubel & Lloyd 1975; Linder 1961; Vernon 1966; Krugman 1990) that could not be explained by comparative advantage and was principally driven by advantages resulting from economies of scale. This changing pattern of world trade has made the traditional assumption of constant returns to scale unworkable to explain intra-industry trade. A new approach was needed to explain the advantages of trade due to large-scale production, cumulative experience and transitory advantages resulting from innovation. Furthermore, to explain economies of scale (internal and external), a new market structure was needed that was altogether different from perfect competition (Krugman 1986).

The breakthrough came during the late 1970s with the introduction of new models of monopolistic competition by industrial organisational theorists (Spence

1976; Dixit & Stiglitz 1977) that allowed trade theorists (Krugman 1980, 1981, 1983; Lancaster 1980; Helpman 1981; Ethier 1982a, 1982b) to overcome the complexity of modelling oligopolistic rivalry in a general equilibrium framework. The main appeal for using monopolistic competition was to focus on economies of scale as the core in explaining trade rather than on imperfect competition (Krugman 1990).

The difference between the traditional and the new trade theory (based on monopolistic competition) is that at the level of inter-industry trade, comparative advantage continues to be the dominant explanation of trade flows, whereas at the level of intra-industry trade, economies of scale become the dominant explanation of trade flows in differentiated products. The similarity is that in both the traditional and the new thinking about trade, advantage comes through specialisation. However, in the former, specialisation takes place because of country differences, while in the latter, the inherent advantage of specialisation is based on increasing returns.

What the new trade theory does not explain is where the actual location of production will be, as in the case of comparative advantage (H-O model). In the case of comparative advantage, the underlying resource differences between countries determine the location of production, whereas under increasing returns, the answer is more likely to depend on historical accident (Krugman 1988). However, the location implication of increasing returns, when it is present, will keep the industry in a specific location that will be difficult to be competed away by industries of another country (Krugman & Obstfeld 2003), which in effect gives a country a comparative advantage in that industry without any government intervention.

The most important insight of the new trade theory based on monopolistic competition (as far as this article is concerned) is that under free trade there will be gains from trade (Krugman 1987, 1991a, 1992), which implies, as in the case of comparative advantage, that trade is a positive sum game (Krugman 1992).

Monopolistic competition, however, is not a true reflection of the real world. Many of today's global industries are characterised by oligopolistic competition (Yoffie 1995), where economies of scale at the level of the firm are sufficient to limit the number of competitors (Krugman 1992). The focus in the economic trade literature therefore changed from analysing economies of scale as the core in explaining trade to imperfect competition as the core (Krugman 1990). The result was a set of trade models that assumed an oligopoly market structure (Krugman & Obstfeld 2003). The main emphasis of these models is that even in the complete absence of comparative advantage, trade still occurs as two-way trade in identical products, and that such trade can be mutually beneficial in industries where internal economies of scale are important (Krugman & Obstfeld 2003). However, the problem with models of this type is that they allow for the possibility that government protection

can shift specialisation to a protecting country (Krugman 1990). This opened up the argument that government policy (strategic trade policy) can change the terms of oligopolistic rivalry in such a way as to shift excess returns from foreign to domestic firms (Krugman 1987).

The modelling of trade within an oligopolistic market structure framework has resulted in the possibility of industry targeting where government policy can play a significant role. In such cases, government policies may shift profits from a foreign firm to a domestic competitor, which may result in national gain at the expense of a foreign country, provided that the foreign government does not retaliate (Corden 1990; Krugman 1990). Because these models support a mercantilist idea of the world, they made the strategic trade policy argument attractive from a policy perspective. This strengthened the notion that countries, like firms, compete for their fair share of world markets and that governments have a major role to play in this competitive game (Magaziner & Reich 1983; Magaziner & Patinkin 1990; Tyson 1992; Thurow 1992; Luttwak 1993; Dunning 1995; Porter 1998a; Prestowitz 1998; Garelli 2003; Frenkel Koske & Swonke 2003; Budd & Hirmis 2004; Thompson 2004; Giap 2004; Fendel & Frenkel 2005; Ezeala-Harrison 2005). The question, however, is the extent to which these models are a true reflection of the real world of international trade, how they fit the data, and whether they replace the conventional orthodox theory of comparative advantage.

If international markets are to a large degree imperfectly competitive, then this implies that trade between similar countries is driven by economies of scale rather than comparative advantage (Krugman 1980, 1981; Lancaster 1980; Helpman 1981; Ethier 1982a, 1982b). In that case, trade based on oligopolistic behaviour can be viewed as a good approximation of how the real world works. However, the policy implications of these kind of models (Brander & Krugman 1983; Brander & Spencer 1985; Eaton & Grossman 1986) depend on the assumptions of the model, because according to Krugman (1987), these models are all based on special assumptions, whereby small variations in the assumptions can result in different conclusions. All of this introduced considerable distrust and uncertainty into the strategic trade policy argument and questioned the validity of these models (Krugman 1987; Corden 1990).

A further criticism of the strategic trade policy argument is the partial equilibrium nature of the new trade models, and any attempt through government policies to favour some domestic firms over foreign firms may put the foreign firms at a competitive disadvantage (Krugman 1988, 1990). Thus for strategic trade policy to be successful, the assumption should be that governments are smarter than markets; not only about the targeted industries, but also about how targeting will affect all the other industries in the country (Krugman 1987, 1996). Strategic trade policy thus

assumes that governments can spot winners before business or entrepreneurs can, and that foreign governments will not react to counter this, which seems to be an unrealistic assumption.

Although strategic trade policy supports interventionist policies that are desirable for domestic firms, at a country level this may lead to a counter-reaction by other countries and thus ignite a spiral of protectionist policies. Thus intervention may not be in the best interest of a country (Krugman 1992) and thus may imply a movement away from free trade to protectionism.

The empirical evidence in support of strategic trade policy is also not conclusive. Studies by Cox and Harris (1985) and Dixit (1988) have found no explicit welfare gains in favour of strategic trade policy or that any deviation from free trade will result in significant gains from strategic trade policy actions. In general, the conclusions from empirical research have shown that it will be extremely difficult for any government to identify strategic industries, and even if it is remotely possible to identify such industries, the payoffs would be very modest from an overall welfare perspective (Krugman & Smith 1994; Krugman 1996; Bernhofen & Brown 2004; Schott 2004; Uchida & Cook 2005).

As discussed, the limited theoretical and empirical justification in support of strategic trade theory is not sufficiently conclusive to reject the principle of comparative advantage in favour of strategic trade intervention. According to Siggel (2006: 140), “any trade that results in welfare gains needs to be based on comparative advantage, irrespective of the nature of its sources. The sources may be Ricardian productivity differences (or different technologies), or they may be differences in factor endowments that are reflected by factor cost differentials. But they may also include differences in the scale of production, for firms that share the same cost function”. Thus the kind of sophisticated intervention suggested by strategic trade policy may eventually result in political rivalry between countries in which the negative consequences of such political rivalry outweigh the potential gains from free trade (Bhagwati, Krugman, Baldwin, Collins et al. 1993; Krugman & Obstfeld 2003).

Although the new trade theories of monopolistic and oligopolistic competition challenge the orthodoxy of free trade, they do not provide any explanation of where the actual location of production will take place. In contrast, comparative advantage not only explains the direction and gains of trade between countries, but also determines a country’s relative location advantages. Porter (1990a, 1998b), however, questioned the ability of traditional trade theory to explain location advantages and therefore proposed a ‘new theory’ to explain location advantages and thus the competitive advantage of nations. As Stone and Ranchhod (2006: 284) explain, “Porter (1990a) clearly disagrees with what he calls ‘standard economic theory’ ... [he] even dares

to suggest that economists like Adam Smith (1776) and David Ricardo (1817), who advocated this thinking, are ‘plain wrong!’”

Management theory and the international competitiveness of countries

Disillusioned by the economic theories of trade, Porter (1990a) advanced a new theory to explain national competitive advantage. The main question he attempts to answer is why some countries are more successful in particular industries than others. He identifies four classes of country attributes (which he calls the National Diamond) that provide the underlying conditions or platform for the determination the national competitive advantage of a nation. These are factor conditions, demand conditions, related and support industries, and company strategy, structure and rivalry. He also proposes two other factors, namely government policy and chance (exogenous shocks), that support and complement the system of national competitiveness but do not create lasting competitive advantages.

Factor conditions

Whereas the traditional trade theories define factor conditions as land, labour and capital (including human capital), Porter (1990a) distinguishes between the following categories: human resources, physical resources, knowledge resources, capital resources and infrastructure. Factor conditions are further subdivided into basic and advanced factors that can be either general or specialised. Basic factors such as unskilled labour, raw materials, climatic conditions and water resources are inherited and require little or no new investment to be utilised in the production process. Advanced factors are created and upgraded through reinvestment and innovation to specialised factors, which according to Porter form the basis for the sustainable competitive advantage of a country.

The standard trade theories also recognise that there are many different resource explanations of comparative advantage. Even though they are based on a set of simplifying assumptions, relaxing those assumptions modifies, but does not invalidate, the theory (Salvatore 2002). As explained, even the new trade theories of monopolistic and oligopolistic competition that challenge the orthodoxy of comparative advantage and free trade do not invalidate the theory of comparative advantage. In trade theory, the underlying resource differences between countries still determine the direction of trade flows and thus a country’s relative location advantages that lead to gains from trade. The fact that Porter uses a colloquial style based on logical reasoning (which is

easier to understand) rather than mathematical models to explain factor conditions, thus does not invalidate the standard theory of comparative advantage.

Demand conditions

Demand conditions in a country are also perceived by Porter (1990a) as a source of competitive advantage for a country. Demand as a factor explaining trade is not new. Linder (1961) first introduced it to explain intra-industry trade. According to the Linder hypothesis, countries with similar per capita incomes will have similar spending patterns. In terms of the Linder hypothesis, these comparable demand conditions in countries lead to analogous demand structures, which enhance intra-industry trade.

Porter, however, focuses more on demand differences than on similarities to explain the international competitiveness of countries. According to him, it is not only the size of the home demand that matters, but also the sophistication of home country buyers. It is the composition of home demand that shapes how firms perceive, interpret and respond to buyers' needs. This forces home country firms to continually innovate and upgrade their competitive positions to meet the high standards in terms of product quality, features and service demands. More specifically, Porter (1990a, 1998a) regards the essential conditions of demand as: a home demand that anticipates and leads international demand, industry segments with a significant share of home demand, and sophisticated and demanding buyers. However, different demand conditions in countries, leading to different demand structures, can determine location economies of increasing returns, as explained by the new trade theories. Location economies of increasing returns that keep an industry in a specific location, due to a specific set of demand conditions, will be difficult to be competed away by industries in another country (Krugman & Obstfeld 2003). In such cases, comparative advantage is determined by demand conditions rather than differences in factor conditions.

These demand conditions, as explained by Porter, do influence the underlying resource differences between countries and a country's relative location advantages as explained by the new trade theories. The nature of the differences in sources, driven by demand conditions, could be productivity differences, differences in factor endowments or differences in the scale of production (Siggel 2006). The differences in sources, irrespective of the causes, thus ultimately lead to gains from trade. In this respect, Porter's demand conditions enhance our general understanding of location differences rather than invalidate the trade theories as discussed.

Firm strategy, structure and rivalry

A third determinant of national competitive advantage, according to Porter (1990a), is firm strategy, structure and rivalry. The main emphasis here is that the strategies and structures of firms depend heavily on the national environment and that there are systematic differences in the business sectors in different countries that determine the way in which firms compete in each country and ultimately their competitive advantage. Porter (1990a) identifies rivalry as the most critical driver of competitive advantage of a country's firms. He believes that domestic rivalry forces firms to be cost competitive, to improve quality and to be innovative. According to Porter (1990a), it is firms that ultimately compete internationally, but it is the international competitiveness of a country that shapes the international competitive advantage of firms. It is this assumption that a country's competitiveness ultimately determines a firm's international competitive advantage that led to the belief that countries, like firms, compete internationally and thus that the international trade engagement of countries is a negative sum game, as it is in the case of firms. This is in sharp contrast to the general understanding in trade theory that trade is a positive sum game irrespective of the nature of the sources from which such gains from trade are derived.

Related and support industries

Much of the debate around location as a source of competitive advantage has to do with the way in which the modern global economy is viewed. On the one hand, scholars see it as homogenisation of economies (Levitt 1983), and on the other hand as specialisation of economies as explained by the standard economic theory. In the former case, it is believed that almost anything could be moved or sourced around the globe. In the latter case, it is believed to result in an intense specialisation and clustering of competitive advantages in different locations as the world becomes increasingly integrated. Porter (1997a, 1998b, 1998c, 2000) claims that specialisation leads to the sticky (not easily moveable) location advantages that are the true sources of sustainable competitive advantage of countries. There are basically three reasons why specialisation takes place and thus why location matters. Two have already been discussed under comparative advantage, namely, resource-driven specialisation and economies of scale at the firm level. A further explanation is the existence of external economies as a result of local clustering (Krugman 1986), which is the fourth determinant of competitive advantage in Porter's (1990a, 2000) Diamond Framework.

The introduction of related and support industry clusters as a separate determinant of national competitive advantage has been viewed as one of the most important contributions of Porter's Diamond Theory (Teece 1996). According to Porter (1998c, 2000), it is the external economies of related and support industry clusters, such as networks of specialised input providers, institutions and the spill-over effects of local rivalry, that become the true source of competitive advantage (Porter 2000, 2003). The cluster represents an environment in which learning, innovation and operating productivity can flourish. He believes that it is these kinds of localised clusters that are a prominent feature of virtually any advanced economy, but are lacking in developing countries, which limits productivity growth in those economies.

The concept of external economies is not a new idea and was used by Graham in 1923 (as cited in Krugman & Obstfeld 2003) as a valid argument for protecting infant industries. It can even be traced back as far as 1920 to Alfred Marshall (as cited in Krugman & Obstfeld 2003), who was preoccupied with the phenomenon of industrial districts (geographical concentrations of industry) that could not be explained by natural resources. Marshall argued that clusters support specialised suppliers, allow labour market pooling and help knowledge spill-over, all of which are still valid today (as cited in Krugman & Obstfeld 2003). External economies, resulting from local clusters, are thus among the most important influences on learning and eventually the ultimate source of many of the scarcest resources and capabilities of firms (Porter 1997b, 1998b). As a result, it becomes a legitimate international competitive issue from a firm's perspective.

Porter (1998c) claims that the core challenge of economic development is to build clusters in order to realise external economies and that the cutting-edge public policy issues should be focused on removing obstacles to productivity improvement and innovation in cluster development. This view is supported by the strategic trade policy argument, but offers a potential justification for a neo-mercantilist view of trade (Krugman 1992) and thus a movement away from the free trade argument in economics towards a new form of protectionism.

Although there appears to be a theoretical justification in the economic and business management literature for a kind of new-mercantilism to promote external economies, the critique against such intervention by government is basically the same as the critique against strategic trade policy as discussed in the previous section. More specifically, the budget constraint, the potential role of predatory trade policies and the abuse by special interest groups all still apply. Furthermore, the welfare effects of trade intervention based on external economies are far more ambiguous than the effects of comparative advantage and internal economies of scale, and may lead to a distortion of specialisation patterns for a specific country (Krugman & Obstfeld 2003).

Porter (1990a, 1998c) implicitly acknowledges this by not including governments as an attribute of the diamond, but rather sees government as an influencing factor through economic policy.

Finally, Porter (1990a) views all the determinants as constituting an interactive system, and it is this interplay that he believes leads to the competitive advantage of countries. It is his focus on the diamond as a descriptive interactive system that is easy to comprehend that has perhaps led to general acceptance of his framework in the management literature.

The framework as an interactive system

Criticism of the 'Diamond Theory' as an interactive system comes from two perspectives: from within the management school (Rugman 1991; Dunning 1992, 1993; Cartwright 1993; Rugman & Verbeke 1993; Bellak & Weiss 1993; Rugman & D'Cruz 1993) and from the economic school (Waverman 1995; Jegers 1995; Davies & Ellis 2000; Boltho 1996).

Criticism from the management school suggests that the home diamond focus of Porter does not take the attributes of the home country's largest trading partner into account (Rugman 1990), is not applicable to most of the world's smaller nations (Bellak & Weiss 1993; Cartwright 1993) and ignores the role of multinational organisations in influencing the competitive success of nations (Dunning 1992, 1993). Rugman (1990) suggests an extension of Porter's diamond to include the attributes of the largest trading partner of the home country. Within this 'double-diamond approach', Porter demonstrates that competitiveness depends on both domestic and foreign diamonds, and that the management of domestic firms should understand and exploit both diamonds if they wish to become or remain globally competitive (Rugman 1990; Rugman & D'Cruz 1993). The 'double-diamond' concept has led to generalised double-diamond and multiple-diamond approaches (Dunning 1992, 1993; Bellak & Weiss 1993; Cartwright 1993; Moon, Rugman & Verbeke 1995), which can be viewed as extensions of and adjustments to the single-diamond model. These extensions attempt to explain the international competitive advantage of smaller or less industrialised countries and the influence of multinational activities on national diamonds. Criticism from the management school thus advances Porter's central thesis that countries, like firms, are somehow in competition with one another.

Porter's (1990a) view that the traditional and new trade theories are inadequate to explain modern trade patterns has resulted in more severe criticism from the economic school. According to Waverman (1995), the diamond is so general that it tries to explain all aspects of trade and competition, but ends up explaining nothing.

It “does not distinguish between hypotheses, theorems, conjectures and facts and thus cannot proceed to prove causality” (Waverman 1995: 70). The irony is that it is precisely because it is so general that it is so well accepted in the management literature.

According to Grant (1991), the primary contribution of Porter’s work is in explaining the patterns of trade and investment in the new world economy better than the existing theories of international trade and investment. This view is in stark contrast to the views of Waverman (1995), Davies and Ellis (2000) and Boltho (1996). Specifically, their criticism is that Porter’s analysis is unsatisfactory because there is no core theory, it has no *ex ante* prediction power, and it is a typical partial equilibrium analysis that leads to a misinterpretation of the traditional and new trade theories. Furthermore, the relationships between national welfare, productivity, trade, exports and competitiveness are misunderstood and wrongly interpreted. Lastly, whereas the traditional and new trade theories explain trade, they do not explain the factors that determine the international competitiveness of a country’s firms, which is what Porter attempts to explain in his Diamond Model.

It should be noted that in his latest work, Porter (2004) focuses on a more micro approach with regard to his Diamond Framework, calling it ‘the microeconomic foundations of prosperity’. In this regard, Porter (2004) has shifted his focus to productivity at locations that can improve the competitiveness of firms located in those locations. Thus, if firms can, through these location advantages, increase their productivity, it will be good for that country, because higher productivity always leads to higher levels of welfare (assuming fair redistribution). This does not mean, however, that the country then becomes internationally competitive, even if the firms located there are internationally competitive. This is because productivity is purely a domestic matter and has nothing to do with the international competitiveness of a country (Krugman 1998). What Porter does in his latest work (and in his original work) is to provide management with a general framework for analysing country sources of competitive advantage that firms can utilise to evaluate location-specific advantages across different countries. The framework thus provides a link between firm and country sources of competitive advantage, which has nothing to do with the international competitive advantage of countries.

Conclusion

This article reviewed the literature related to trade (economic perspective) and international competition (management perspective) at a country level. Both the traditional and new theories of trade confirm that countries engage in international

activities because of the advantages that result from such activities. There are thus gains from trade that do not come at the expense of other countries; there is therefore no reason to believe that countries, like firms, are in some sort of competitive battle with one another. The gains from trade come through specialisation, which could be due either to comparative advantage or to economies of scale (internal and external). Comparative advantage arises as a result of country differences and explains inter-industry trade, whereas trade between countries in similar industries is explained by internal and external economies of scale (intra-industry trade). It is evident from the literature review that free trade, although not always optimal and fair, is better than any sophisticated protectionist strategic trade policy.

It is also clear from the literature that Porter's (1990a) Diamond Framework and his work on clusters and competition (Porter 1998b, 2000, 2004) is not about trade, patterns of trade, gains from trade, but is rather a general framework for analysing country-specific sources of advantage that enhance the international competitive advantage of firms. Porter's (1990a) Diamond Framework thus provides the link between firm and country-specific sources of competitive advantage that firms leverage to gain international competitive advantage.

Country-specific advantages are not the same as comparative advantage. Country-specific advantages emphasise location as a source of international competitive advantage for firms, whereas comparative advantage emphasises the sectoral composition of trade between countries. For example, if a country exports products of a particular industry, it does not necessarily imply that the country has a competitive advantage in that industry. The reason for exporting is that the country has a comparative advantage in that industry, because the industry is relatively more important in that country than the same industry is in another country. Such an industry it will attract the most productive resources within the country, regardless of the relative productivity or cost of the resources. It is these productive resources that ultimately become country sources of competitive advantage for firms. This is in line with the observation by Kogut (1991: 35) that "if a country has a comparative advantage in exporting a particular product is not an indication of any absolute country advantage".

The Indian software industry (Ghemawat 1999) is an example of such a case if Porter's (1990a) Diamond Framework is applied. Porter (1990a) emphasises that the diamond is a system and that all four conditions identified in the Diamond Framework must hold (be strong) for an industry to be truly internationally competitive. Countries with the strongest diamonds are therefore supposed to end up with the most competitive firms in that industry. However, most of the requirements for an internationally competitive diamond are missing in the Indian software

industry, relative to the US diamond. Local demand is of low quality, related and support industries (i.e. hardware on which to run software) are weak (Kogut 1997), and factor advantages depend heavily on fairly basic factors of production (Kogut 1997). The Indian software industry is thus clearly an example of the weakness of Porter's Diamond Framework to explain the international success of an industry. Apart from factor conditions, all other aspects of the diamond are relatively weak in comparison with the US diamond.

The rise of the Indian software industry can, however, be explained by the theory of comparative advantage. The industry is relatively more important in India than in the USA and thus attracts the best resources in India. In the USA, scarce resources are moving to higher value-added industries where they command higher returns. It is this natural migration of scarce resources into higher value-added industries in the USA that opened up opportunities for the Indian industry. For example, to work as a software engineer in the USA software industry is a relatively lower paid job than the earning potential in the more advanced electronic industry. Thus, even though in dollar terms the pay in the USA software industry is far higher than in India, it is relatively lower than what can be earned elsewhere in US hi-tech industries. In India, it is a highly paid job and thus attracts only the best resources. This is clearly a case where the USA has a strong diamond in this industry but where Indian has a comparative advantage. This demonstrates the difference between the meaning of 'competitive advantage' (strong diamonds) and 'comparative advantage'.

Applying the logic of Porter's Diamond Framework (involving advanced factor conditions, sophisticated demand and strong related and support industries) to establish the preferred location for software development does not point to India. However, based on basic factor conditions, India appears to be the location of choice (Kogut 1997). The caveat, however, is that even though India has a comparative advantage in the software industry, this does not imply that a firm that relocates its software development to India will gain with respect to the international competitiveness in software development.

Most of the resources that a firm needs to implement to gain sustainable competitive advantage must be acquired, at some point in history, from its external business environment (Barney 2002). It is how these resources are utilised within the firm that ultimately determines its competitive advantage. Resources obtained from the environment are for the most part tradable in factor markets, unless a firm has market power over these resources. To differentiate between country- and firm-specific sources of competitive advantage, a distinction has to be drawn between internal and external strategic factor markets (Dierickx & Cool 1994). The external market deals with country-specific resources of competitive advantage, while the internal market

deals with firm-specific sources of competitive advantage. Country-specific sources of competitive advantage are valuable to firms either through monopoly power, or because of differences in the relative scarcity of factors of production between countries (in the example cited, it is basic factor conditions in India).

Thus, from a resource-based perspective, it is the resource bundles of the firm (internal and external) that underlie the international sustainable competitive advantage of firms (Barney 1994). The acquired external resources are homogeneous (within a country) and are not valuable in themselves; they only become valuable (heterogeneous) when internalised through the various value activities of the firm (Porter 1999). Such configuration creates heterogeneity among firms, and it is the preservation of heterogeneity that underlies competitive advantage (Barney 1994). The mere fact that a country has a comparative advantage in an industry does not imply that firms in that industry are internationally competitive; neither does it imply that the country is internationally competitive.

In view of this discussion of the differences between competitive and comparative advantage, one can explain why Porter's (1998c) Diamond Framework of national competitive advantage has led to so much confusion with respect to the international competitiveness of countries. For example, the methodology that Porter (1990a) used to identify industries in his study is based on a crude measure of revealed comparative advantage developed by Balassa (1968). Thus, he identifies industries in which the countries under consideration specialise, either because of their comparative advantages or because of internal or external economies of scale. The fact that these industries exhibit strong diamonds relative to competitor countries is because these industries were identified in the first place through of their comparative advantages. While the traditional and new trade theories explain the sectoral composition of trade, they do not explain country-specific advantages that determine the international competitiveness of firms.

Ultimately Porter's thesis does not hold as a new theory to replace the theory of comparative advantage as implied by textbooks on international business (Peng 2009; Hill 2009). At most, it is a useful framework that provides management with a tool to identify country sources of competitive advantage that firms can leverage to enhance their internationally competitive positions. It can therefore not be used as a framework to devise trade policy with a view to enhancing the international competitiveness of a country. As Krugman (1994a) pointed out over a decade ago, the main risk with respect to the belief that countries compete is the misunderstanding that countries, like companies, are somehow in competition with one another.

From a management perspective, a valuable contribution of Porter's Diamond Framework is that it is useful in analysing locations as a source of international

competitive advantage for firms. Through his framework, Porter extends the analysis of competitive advantage of firms to the international arena. The Diamond Framework thus synthesises our understanding of country sources of competitive advantage, competitive strategy (Porter, 1980), competitive advantage of firms (Porter, 1985), and the resource-based view of the firm (Penrose 1959; Wernerfelt 1984; Ghemawat 1991; Dierickx & Cool 1994; Lockett, Thompson & Morgenstern 2009). These are all elements of management theory that help to explain the international competitive advantage of firms but not that of countries. Similarly, trade theories about gains from trade are of little or no value in explaining the international competitiveness of firms.

The confusion with regard to the relevance of the Diamond Framework arises partly from the way in which it is treated in the international business curriculum and partly because of the title of Porter's (1990a) textbook, *The Competitive Advantage of Nations*. In international business textbooks, Porter's theory is discussed in conjunction with trade theories. This creates the impression that it is a competing trade theory, while in fact it is a management framework. Trade theories enhance our understanding of why there are country benefits from trade, in this respect viewing trade as a positive sum game. This does not imply that the country must have an absolute or competitive advantage over its rivals. However, the benefits that a firm derives from competition (or international competitiveness) do depend on the ability of firms to have a competitive advantage over rivals, in this respect viewing competitive advantage as a zero sum game.

The focus on the Diamond Framework as theory seems to be wrong in terms of the value of its application. It should be taught as a tool for analysing country sources of competitive advantage in order to enhance the ability of managers to make informed decisions on how to configure the value chain, and where to do what in the world. Refocusing the relevance of the Diamond Framework towards the context of the firm would add more value to its application in business than merely discussing it in the context of the competitive advantage of nations.

References

- Aiginger, K. 2006. 'Competitiveness: from a dangerous obsession to a welfare creating ability with positive externalities', *Journal of Industrial Trade and Competition*, 6: 63–66.
- Balassa, B.A. 1965. Trade liberalization and revealed comparative advantage. Manchester School, Working Paper No. 33. May.
- Baldwin, R.E. 1971. 'Determinants of commodity structure of US trade', *American Review*, 61(1): 126–146.

- Baldwin, R.E. 1979. 'Determinants of trade and foreign direct investment: further evidence', *Review of Economics and Statistics*, 61(1): 40–80.
- Barney, J.B. 1994. 'Strategic factor markets: expectations, luck, and business strategy', In Rumelt, R.P., Schendel, D. & Teece, D. (eds), *Fundamental Issues in Strategy: a Research Agenda*. Boston, MA: Harvard Business School Press.
- Barney, J.B. 2002. 'Strategic management: from informed conversation to academic discipline', *Academy of Management Executive*, 16(2): 53–57.
- Bellak, C.J. & Weiss, A. 1993. 'A note on the Austrian "diamond"', *Management International Review*, 33(2): 109.
- Bernhofen, D.M. & Brown, J.C. 2004. 'A direct test of the theory of comparative advantage: the case of Japan', *Journal of Political Economy*, 112(1): 48–67.
- Bhagwati, J., Krugman, P., Baldwin, R., Collins, S. et al. 1993. 'Reject managed trade', *Far Eastern Economic Review*, 156(44): 26.
- Boltho, A. 1996. 'The assessment: international competitiveness', *Oxford Review of Economic Policy*, 12(3): 1–16.
- Bowen, H.P. 1985. 'Changes in the international distribution of resources and their impact on US comparative advantage', *Review of Economics and Statistics*, 65(3): 402.
- Brander, J. & Krugman, P. 1983. 'A reciprocal dumping model of international trade', *Journal of International Economics*, 15(3): 313.
- Brander, J.A. & Spencer, B.J. 1985. 'Export subsidies and international market share rivalry', *Journal of International Economics*, 18(3): 83–100.
- Budd, L. & Hirmis, A.K. 2004. 'Conceptual framework for regional competitiveness', *Regional Studies*, 38(9): 1015–1028.
- Cartwright, W.R. 1993. 'Multiple linked diamonds and the international competitiveness of export-dependent industries: the New Zealand experience', *Management International Review*, Special Issue, 33(2): 55–70.
- Corden, W.M. 1990. Strategic trade policy. How New? How Sensible? Country Economics Department, World Bank, April, WPS: 396.
- Cox, D. & Harris, R. 1985. 'Trade liberalization and industrial organization: some estimates for Canada', *Journal of Political Economy*, 93(1): 114.
- Culberson, J.M. 1986. 'The folly of free trade', *Harvard Business Review*, September/October, 64(5): 122–128.
- Daniels, J.D. 1991. 'The elusive concept of national competitiveness', *Business Horizons*, November–December: 3–6.
- Davies, H. & Ellis P. 2000. 'Porter's competitive advantage of nations: time for the final judgement?', *Journal of Management Studies*, 37(8): 1189–1213.
- Dierickx, I. & Cool, K. 1994. 'Asset stock accumulation and sustainability of competitive advantage', In Rumelt, R.P., Schendel, D. & Teece, D. (eds), *Fundamental Issues in Strategy: a Research Agenda*. Boston, MA: Harvard Business School Press.
- Dixit, A. 1988. 'Anti-dumping and countervailing duties under oligopoly', *European Economic Review*, 32(1): 55.

- Dixit, A.K. & Stiglitz, J.E. 1977. 'Monopolistic competition and optimum product diversity', *American Economic Review*, 67(3): 297.
- Dunning, J.H. 1992. 'The Competitive Advantage of Nations and TNC activities: a review article', *Transnational Corporations*, 1(1): 135–168.
- Dunning, J.H. 1993. 'Internationalizing Porter's Diamond', *Management International Review*, Special Issue, 33(2): 7.
- Dunning, J.H. 1995. 'Commentary/point, Think again Professor Krugman: competitiveness does matter', *International Executive*, 37(4): 315.
- Dunning, J.H. 1997. 'Advent of alliance capitalism', In Dunning, J.H. & Hamdani, K.A. (eds), *The New Globalism and Developing Countries*. New York: United Nations University Press.
- Dunning, J.H. 2000. 'Regions, globalization, and the knowledge economy: the issues stated', In Dunning, J.H. (ed.), *Regions, Globalization, and the Knowledge-Based Economy*. Oxford: Oxford University Press.
- Eaton, J. & Grossman, G.M. 1986. 'Optimal trade and industrial policy under oligopoly', *Quarterly Journal of Economics*, 101(2): 383–406.
- Ethier, W.J. 1982a. 'Dumping', *Journal of Political Economy*, 90(3): 487.
- Ethier, W.J. 1982b. 'National and international returns to scale in the modern theory of international trade', *American Economic Review*, 72(3): 389.
- Ezeala-Harrison, F. 2005. 'On the competing notions of international competitiveness', *Advances in Competitiveness Research*, 13(1): 80.
- Fendel, R. & Frenkel, M. 2005. 'The international competitiveness of Germany and other European economies: the assessment of the *Global Competitiveness Report*', *Intereconomics*, 40(1): 29–35.
- Frenkel, M., Koske, I. & Swonke, C. 2003. 'How competitive are Europe's economies? Findings of the *Global Competitiveness Report 2002–2003*', *Intereconomics*, 38(1): 31.
- Garelli, S. 2003. 'Competitiveness of nations: the fundamentals', *IMD World Competitiveness Yearbook*. Lausanne, Switzerland.
- Ghemawat, P. 1991. *Commitment: the Dynamic of Strategy*. New York: Free Press.
- Ghemawat, P. 1999. 'The Indian software industry in 2002', *Harvard Business School Cases*, September, 1999: 1.
- Giap, T.K. 2004. 'The IPS-NTU ASEAN 9+1 economic competitiveness ranking indices', *ASEAN Economic Bulletin*, 21(2): 234–238.
- Gold, B. 1981. 'Changing perspectives on size, scale, and returns: an interpretive survey', *Journal of Economic Literature*, XIX(1): 5–33.
- Grant, R.M. 1991. 'Porter's Competitive Advantage of Nations: an assessment', *Strategic Management Journal*, 12(7): 535–549.
- Grilo, I. & Koopman, G. 2006. 'Productivity and microeconomic reforms: strengthening EU competitiveness', *Journal of Industrial Trade and Competition*, 6: 63–66.
- Grubel, H.G. & Lloyd, P. 1975. *Intra-industry Trade: the Theory and Measurement of International Trade in Differentiated Products*. London: Macmillan.

- Gurber, W., Metha, D. & Vernon R. 1967. 'The R&D factor in international trade', *Journal of Political Economy*, 75(1): 20–37.
- Harkness, J. 1983. 'The factor-proportions model with many nations, goods and factors: theory and evidence', *Review of Economics and Statistics*, 65(2): 298.
- Helpman, E. 1981. 'International trade in the presence of product differentiation, economies of scale and monopolistic competition: a Chamberlin-Heckscher-Ohlin approach', *Journal of International Economics*, 11(3): 305.
- Hill, C.W.L. 2009. *International Business: Competing in the Global Market Place*. New York: McGraw-Hill Irwin.
- Jegers, M. 1995. 'Are diamonds forever? An industrial economics perspective', In Rugman, A., Van den Broeck, J. & Verbeke, A. (eds), *Research in Global Strategic Management: Volume V. Beyond the Diamond*. Greenwich, CT: JAI Press.
- Karvis, I.B. 1956. 'Wages and foreign trade', *Review of Economics and Statistics*, February: 14–30.
- Keesing, D.B. 1966. 'Labor skills and comparative advantage', *American Economic Review*, May: 249–258.
- Kenen, P.B. 1965. 'Nature, capital, and trade', *Journal of Political Economy*, LXXIII(5): 437–460.
- Ketels, C.H.M. 2006. 'Michael Porter's competitiveness framework: recent learnings and new research priorities', *Journal of Industrial Trade and Competition*, 6: 63–66.
- Kogut, B. 1991. 'Country capabilities and the permeability of borders', *Strategic Management Journal*, 12(1 July): 33–48.
- Kogut, B. 1997. 'Regional networks and markets', In Monisha, D. (ed.), *Proceedings of Academy of Management Symposium on Knowledge Capitalism: Competitiveness Re-evaluated*. Boston, MA.
- Kogut, B. 1998. 'International business: the new bottom line', *Foreign Policy*, 110: 152–165.
- Kogut, B. & Zander, U. 1993. 'Knowledge of the firm and the evolutionary theory of the multinational corporation', *Journal of International Business Studies*, 24(4): 625–645.
- Kohler, W. 2006. 'The "Lisbon Goal" of the EU: rhetoric or substance?', *Journal of Industrial Trade and Competition*, 6: 63–66.
- Krugman, P.R. 1980. 'Scale economies, product differentiation, and the pattern of trade', *American Economic Review*, 70(5): 950.
- Krugman, P.R. 1981. 'Intra-industry specialization and the gains from trade', *Journal of Political Economy*, 89(5): 959.
- Krugman, P.R. 1983. 'New theories of trade among industrial countries', *American Economic Review*, 73(2): 343.
- Krugman, P.R. 1986. *Strategic Trade Policy and the New International Economics*. Cambridge, MA: MIT Press.
- Krugman, P.R. 1987. 'Is free trade passe?', *Journal of Economic Perspectives*, 1(2):131–144.
- Krugman, P.R. 1988. 'Strategic trade policy and the new international economics', Cambridge, MA: MIT Press.
- Krugman, P.R. 1990. *Rethinking International Trade*. Cambridge, MA: MIT Press.

- Krugman, P.R. 1991a. 'Increasing returns and economic geography', *Journal of Political Economy*, 99(3): 483.
- Krugman, P.R. 1991b. 'Myths and realities of US competitiveness', *Science*. 254: 811.
- Krugman, P.R. 1992. 'Does the new trade theory require a new trade policy?', *World Economy*, 5(4): 423.
- Krugman, P.R. 1993a. 'What do undergrads need to know about trade?', *American Economic Review*, 83(2): 23.
- Krugman, P.R. 1993b. 'The current case for industrial policy', In Salvatore, D. (ed.), *Protectionism and World Welfare*, Cambridge: Cambridge University Press.
- Krugman, P.R. 1994a. 'Competitiveness: a dangerous obsession', *Foreign Affairs*, 73(2): 28–44.
- Krugman, P.R. 1994b. 'Competitiveness: Does it matter?', *Fortune*, 129(5): 109–115.
- Krugman, P.R. 1995a. Ricardo's difficult idea. [Online] Available at: <http://www.pkarchive.org/>. Accessed: 18 March 2008.
- Krugman, P.R. 1995b. 'A reply to Professor Dunning', *International Executive*, 37(4): 325–327.
- Krugman, P.R. 1996. 'Making sense of the competitiveness debate', *Oxford Review of Economic Policy*, 12(3): 17–25.
- Krugman, P.R. 1998. *The Accidental Theorist*. New York: W.W. Norton & Company.
- Krugman, P.R. & Obstfeld, M. 2003. *International Economics: Theory and Policy*, 4th edition. New York: HarperCollins.
- Krugman, P.R. & Smith, M.A.M. (eds). 1994. *Empirical Studies of Strategic Trade Policy*. Chicago, IL: University of Chicago Press.
- Lancaster, K. 1980. 'Competition and product variety', *Journal of Business*, 53(3): S79.
- Leontief, W. 1953. 'Domestic production and foreign trade: the American capital position re-examined', *Proceedings of the American Philosophical Society*, 97: 332–49.
- Levitt, T. 1983. 'Globalization of markets', *Harvard Business Review*, May/June, 61(3): 92–102.
- Linder, S.B. 1961. *An Essay on Trade and Transformation*. Stockholm: Almqvist & Wiksell.
- Lockett, A., Thompson, S. & Morgenstern, U. 2009. 'The development of the resource-based view of the firm: a critical appraisal', *International Journal of Management Reviews*, 11(1): 9–28.
- Luttwak, E.N. 1993. *The Endangered American Dream: how to Stop the United States from Becoming a Third World Country and How to Win the Geo-economic Struggle for Industrial Supremacy*. New York: Simon & Schuster.
- Magaziner, I.C. & Patinkin, M. 1990. *The Silent War: Inside the Global Business Battles Shaping Americas Future*. New York: Vintage Books.
- Magaziner, I.C. & Reich, R.B. 1983. *Minding America's Business: the Decline and Rise of the American Economy*. New York: Vintage Books.
- Moon, C., Rugman, A.M. & Verbeke, A. 1995. 'The generalized double diamond approach to international competitiveness', In Rugman, A., Van den Broeck, J. & Verbeke, A. (eds),

- Research in Global Strategic Management: Volume V. Beyond the Diamond*. Greenwich, CT: JAI Press.
- Peng, M.W. 2009. *Global Business*. South-Western Cengage Learning.
- Penrose, E.T. 1959. *The Theory of the Growth of the Firm*. New York: John Wiley.
- Porter, M.E. 1980. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: Free Press.
- Porter, M.E. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press, London: Collier Macmillan.
- Porter, M.E. 1990a. *The Competitive Advantage of Nations*. New York: Free Press, MacMillan.
- Porter, M.E. 1990b. 'Why nations triumph', *Fortune*, 12 March: 94.
- Porter, M.E. 1997a. 'New strategies for inner-city economic development', *Economic Development Quarterly*, 11(1): 11–28.
- Porter, M.E. 1997b. 'Location, knowledge creation and competitiveness', In Monisha, D. (ed.), *Proceedings of Academy of Management Symposium on Knowledge Capitalism: Competitiveness Re-evaluated*. Boston, MA.
- Porter, M.E. 1998a. *Competitive Advantage: Creating and Sustaining Superior Performance*, with a new introduction. New York: Free Press.
- Porter, M.E. 1998b. 'Clusters and the new economics of competition', *Harvard Business Review*, 76(6): 77–90.
- Porter, M.E. 1998c. *The Competitive Advantage of Nations*. New York: Free Press, MacMillan.
- Porter, M.E. 1999. 'Michael Porter on competition', *Antitrust Bulletin*, 44(4): 841–880.
- Porter, M.E. 2000. 'Location, competition, and economic development: local clusters in a global economy', *Economic Development Quarterly*, 14(1): 15–35.
- Porter, M.E. 2003. 'The economic performance of regions', *Regional Studies*, 37: 549–578.
- Porter, M.E. 2004. 'Building the microeconomic foundations of prosperity: findings from the business competitiveness index', In Sala-i-Martin, X. (ed.), *The Global Competitiveness Report 2003–2004*. Oxford University Press: New York.
- Prestowitz, C.V. 1998. *Trading Places: how we Allowed Japan to Take the Lead*. New York: Basic Books.
- Root, F.R. 2001. *Entry Strategies for International Markets*. Lexington, MA: Lexington Books.
- Rugman, A.M. 1990. *Global Corporate Strategy and Trade Policy*. London New York: Routledge.
- Rugman, A.M. 1991. 'Diamond in the rough', *Business Quarterly*, 55(3): 61–64.
- Rugman, A.M. & D'Cruz, J.R. 1993. 'The double diamond model of international competitiveness: the Canadian experience', *Management International Review*, 33(2): 17–32.
- Rugman, A.M. & Verbeke, A. 1993. 'The double diamond model of international competitiveness: the Canadian experience', *Management International Review*, Special Issue, 33: 17–39.
- Salvatore, D. 2002. *International Economics*, 3rd edition. New York: Macmillan.
- Schott, P.K. 2004. 'Across-product versus within-product specialization in international trade', *Quarterly Journal of Economics*, 119(2): 647.

- Siggel, E. 2006. 'International competitiveness and comparative advantage: a survey and a proposal for measurement', *Journal of Industrial Trade and Competition*, 6: 63–66.
- Spence, A. 1976. 'The third world and commodity prices: What next?', *Banker*, 126(608): 1123.
- Stone, H.B.J. & Ranchhod, A. 2006. 'Competitive advantage of a nation in the global arena: a quantitative advancement to Porter's diamond applied to the UK, USA and BRIC nations', *Strategic Change*, 15: 283–294.
- Sweikausks, L. 1983. 'Science and technology in United States foreign trade', *Economic Journal*, 93(September), 542–554.
- Tece, D.J. 1996. 'Firm organization, industrial structure, and technological innovation', *Journal of Economic Behavior and Organization*, 31(2): 193.
- Tece, D.J. 1998. 'Research directions for knowledge management', *California Management Review*, 40(3): 289–292.
- Thompson, E.R. 2004. 'National competitive advantage and the roles of economic and political freedom: evidence from Hong Kong', *Public Choice*, 120: 401–437.
- Thurow, L.C. 1992. *Head to Head: the Coming Economic Battle among Japan, Europe, and America*. New York: Morrow.
- Thurow, L.C. 1994. 'Microchips, not potato chips', *Foreign Affairs*, 73(4): 189.
- Tyson, L.D.A. 1992. *Who's Bashing whom? Trade Conflict in High-technology Industries*. Institute for International Economics, Washington, DC.
- Uchida, Y. & Cook, P. 2005. 'The transformation of competitive advantage in East Asia: an analysis of technological and trade specialization', *World Development*, 33(5): 701–728.
- Vernon, R. 1966. 'International investment and international trade in the product cycle', *Quarterly Journal of Economics*, 80(2): 190–207.
- Vernon, R. 1979. 'The product cycle hypothesis in a new international environment', *Oxford Bulletin of Economics and Statistics*, 41(4).
- Waverman, L. 1995. 'A critical analysis of Porter's framework on the competitive advantage of nations', In Rugman, A., Van den Broeck, J. & Verbeke, A. (eds), *Research in Global Strategic Management: Volume V. Beyond the Diamond*. Greenwich, CT: JAI Press.
- Wernerfelt, B. 1984. 'A resource-based view of the firm', *Strategic Management Journal*, 5: 171–80.
- World Economic Forum. 2008. *Global Competitiveness Report (2006–2007)*. Geneva: Switzerland.
- Yoffie, D.B. 1995. *Beyond Free Trade: Firms, Governments, and Global Competition*. Boston, MA: Harvard Business School Press.