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PORTER'S 'COMPETITIVE ADVANTAGE OF NATIONS': AN ASSESSMENT

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Porter's Competitive Advantage of Nations *is an important book which bridges the gap between strategic management and international economics while contributing substantially to both. Porter's analysis of the impact of national environment on international competitive performance demonstrates the potential for the theory of competitive strategy to rescue international economics from its slide into refined irrelevance, while simultaneously broadening the scope of the theory of competitive strategy to encompass both the international dimension and the dynamic context of competition. Nevertheless, the breadth and relevance of Porter's analysis have been achieved at the expense of precision and determinancy. Concepts are often ill defined, theoretical relationships poorly specified, and empirical data chosen selectively and interpreted subjectively.*

The Competitive Advantage of Nations is an important book. Among Porter's books to date, it is the broadest in scope and the most ambitious in intent. The book addresses a question which lies at the heart of economic and managerial science: 'Why do some social groups, economic institutions, and nations advance and prosper?' (Porter, 1990: xi).This is no new issue: the same question stimulated Adam Smith's *Wealth of Nations* in 1776 and has been a central theme motivating the development of economic science since then. The purpose of this article is to assess the extent to which Porter provides a satisfactory answer to this question, and, in doing so, the contribution which the book makes to international economics and to strategic management.

Before getting to grips with these substantive issues, it is clear from the outset that the book signifies a milestone both in Porter's intellectual odyssey, and in the development of the strategic management field as a whole. The book represents a sharp departure from the objectives and the approach of Porter's two previous monographs, *Competitive Strategy* and *Competitive Advantage*. In addition to shifting the focus of attention from the performance of the firm to the performance of the nation, the orientation of the analysis is positive rather than normative; the primary mission is a predictive and explanatory theory of the international pattern of competitive advantage. In developing this theory, Porter combines inductive and deductive analysis. Beginning with established theories of competitive strategy and international economics, together with ideas conceived during his membership on the President's Commission on Industrial Competitiveness, Porter's analytical framework was developed through studying competitive performance among 10 countries (United States, West Germany, Italy, United Kingdom, Sweden, Switzerland, Denmark, Japan, Korea, and Singapore), each involving between 5 and 19 industry cases. The book attests to the potential for inductive analysis to develop innovative, empirically-relevant theory, and to the insight

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and richness of research which uses multiple, comparative case studies.

The book also represents a partial redress of the imbalance of trade between strategic management and economics. The analytical framework of strategic management has been built upon concepts and theories imported from economics, organization theory, and systems theory, with contributions from psychology, decision theory, and population ecology as well. Porter himself has played a leading role in showing how industrial economics can be adapted and reorientated to offer practical, penetrating insights into the formulation of business and corporate strategy. In the *Competitive Advantage of Nations,* the primary flow of ideas is in the opposite direction: Porter uses the concepts and theories drawn from strategic management to extend and reformulate the theories of international trade, direct investment, and economic development. The ability to contribute to theoretical development in a more mature and well-developed discipline surely marks a coming-of-age for strategic management.

THE THEORY

While the primary objective of the book is to explain why particular countries succeed in particular industries, in Porter's analysis, it is firms rather than nations which are the principal actors. The influence of the nation on the international competitive performance of firms occurs through the ways in which 'a firm's proximate environment shapes its competitive success over time' (p. 29). The primary role of the nation is the 'home base' which it provides for the firm. Since firms typically develop within a domestic context prior to expanding internationally, the home base plays a key role in shaping the identity of the firm, the character of its top management, and its approach to strategy and organization, as well as having a continuing influence in determining the availability and qualities of the resources available to the firm:

> The home base is the nation in which the essential competitive advantages of the enterprise are created and sustained. It is where a firm's strategy is set and core product and process technology (broadly defined) are created and maintained. Usually, though not always, much sophisticated production takes place there. . . The home base will be the location of many of the most productive jobs, the core technologies, and the most advanced skills (p. 19).

This view of the nation as a set of contextual variables which influences the competitive performance of firms and industries has several advantages from an analytic perspective. First, it permits Porter's analysis of industrial performance at the national level to draw upon recent contributions to the theory of competitive advantage at the firm level. Chapter 2 restates the strategic theory of competitive advantage within an international context. Although well-known in the strategic management area, this analysis offers powerful insights into the determinants of national competitive performance. For example, the theory of international trade has been preoccupied with cost differentials as the basis for trade. Recognition that differentiation advantage through quality, technological sophistication, design, and product features is at least as important a determinant of trade and overseas investment, particularly between the industrialized nations, is an essential ingredient of a richer and more predictively-valid theory.

Second, it facilitates a dynamic approach to the analysis of competitive performance at the national level. These dynamic considerations include the role of innovation in creating competitive advantage, the role of imitation in eroding it, and need to upgrade the sources of advantage if it is to be sustained over time.

Finally, Porter's analysis of national competitive performance encompasses both trade and direct investment. Exports and direct investment are closely related both as substitutes and complements, but their flows tend to be highly correlated and are driven by the same national determinants including: 'national economic structures, values, cultures, institutions, and histories' (p. 19). Hence, Porter does not distinguish international competitive advantage based upon direct investment from that based upon exports. International competitive advantage is measured by 'either the presence of substantial and sustained exports to a wide array of other nations and/or significant outbound foreign investment based on skills and assets created in the home country' (p. 25). An empirical benefit of this inclusiveness is that Porter's model can be applied as easily to national competitiveness in services (where competitive success tends to be through multinational expansion by companies rather than through exports) as it can to tangible products.

This view of the importance of national environments in firm success runs counter to most prevailing thinking which emphasizes the increasing dissociation of multinationals from their home bases. The 'globalization' of markets implies the globalization of the strategies and structures of multinational corporations (Levitt, 1983). Even if nations retain a distinctiveness either in customer preferences or in the conditions of resource availability, to adjust to and exploit these differences requires that firms shake off the constraints of their 'home base' and move either towards a global orientation (Ohmae, 1990) or a 'transnational' structure (Bartlett and Ghoshal, 1989). Thus, while multinationality permits access to global scale economies and the resource advantages available in different countries, this is quite consistent with Porter's basic proposition that national environments exercise a powerful influence on the competitive advantage of companies and industries. In the case of multinational corporations, the notion that the home base exercises a dominant national influence upon the company as a whole is more contentious. However, casual observation suggests that, with the possible exception of the Shell Group, Unilever, and Nestlé, all leading multinationals are strongly influenced by their parent company's nationality. Indeed, Shell and Unilever, may be exceptions that prove the rule to the extent that both possess dual nationality.

National influences on competitive advantage: the 'diamond'

Porter's theory of national competitive advantage is based upon an analysis of the characteristics of the national environment which identifies four sets of variables which influence firms' ability to establish and sustain competitive advantage within international markets (Chapter 3). These interacting determinants form what Porter refers to as the 'national diamond.' Since this 'diamond' framework forms the core of the book's theoretical contribution, a brief description is warranted.

Factor conditions

Factor endowments lie at the center of the traditional theory of international comparative advantage. Porter's contribution here is to analyze in much greater detail the characteristics of factors of production, the processes by which they are created, and their relationship to firms' competitiveness. He recognizes 'hierarchies among factors' distinguishing between 'basic factors' (such as natural resources, climate, location, and demographics) and 'advanced factors' (such as communications infrastructure, sophisticated skills, and research facilities). Advanced factors are the most significant for competitive advantage and, unlike factors whose supply depends upon exogenous 'endowment', advanced factors are a product of investment by individuals, companies, and governments. The relationship between basic and advanced factors is complex. Basic factors can provide initial advantages which are subsequently extended and reinforced through more advanced factors, conversely, disadvantages in basic factors can create pressures to invest in advanced factors. An example is the Italian steel industry's pioneering of mini-mill technology as a response to the disadvantages of the high capital costs, energy costs, and lack of raw materials. Similarly, expensive, difficult-to-fire labor provided important incentives for the development and adoption of automated equipment in Germany, Sweden, and Japan. In analyzing the relationship between factor conditions and national competitive advantages, Porter stresses the need to disaggregate factors of production to a fine level. A fundamental flaw of most empirical tests of factor-proportions theories of trade is their propensity to lump factors of production into broad categories such as land, labor, and capital. Porter observes that:

> One of the least aggregated trade studies, Leamer (1984), includes capital, three types of labor, four types of land, coal, minerals, and oil. But even this level of aggregation is far too broad to capture the differences among nations that lead to competitive advantage. (p. 782).

The advanced factors which provide the most enduring basis for competitive advantage tend to be specialized rather than generalized which inevitably implies a close interaction between industry success and the creation of the specialized factors of production necessary to that success.

Demand conditions

Since the creation of advanced factors such as sophisticated skills and new technologies plays such an important role in establishing and sustaining national advantages, it is essential to understand the features of the national environment which are conducive to such investment. Within his 'diamond' framework Porter places particular emphasis on the role of home demand in providing the impetus for 'upgrading' competitive advantage. Firms are typically most sensitive to the needs of their closest customers, hence the characteristics of home demand are particularly important in shaping the differentiation attributes of domestically-made products and in creating pressures for innovation and quality. Porter places particular emphasis on the role of sophisticated and demanding domestic customers, noting the influence of highly-discerning home buyers on the development of the Japanese camera industry, and the German passion for durable, high-perfomrance cars as a factor in German dominance of the world luxury-car market.

Related and supporting industries

An industry's investments in advanced factors of production are likely to have spillover benefits beyond the confines of that industry. One of the most pervasive findings of the study was the tendency for the successful industries within each country to be grouped into 'clusters' of related and supporting industries. One such cluster is centered upon the German textiles and apparel sector which includes high-quality cotton, wool and synthetic fabrics, women's skirts, dyes, synthetic fibers, sewing machine needles, and a wide range of textile machinery. Economies which are external to individual firms and industries are internalized within the industry cluster. Technological leadership by the U.S. semiconductor industry during the period up until the mid-1980s provided the basis for U.S. success in computers and several other technically-advanced electronic products.

Firm strategy, structure and rivalry

Porter identifies systematic differences in the characteristics of the business sectors of different countries which are important determinants of the industry pattern of competitive advantage within each country. These characteristics include strategies, structures, goals, managerial practices, individual attitudes, and intensity of rivalry within the business sector. For example, the large number of small, family-owned companies in Italy has been conducive to the success of design-orientated, craft-based industries where entrepreneurial responsiveness and flexibility in adjusting to fashion changes are important sources of competitive advantage. German management style with its emphasis on strong hierarchical control and methodical product and process improvement has been particularly successful in engineering industries where manufacturing excellence and commitment to reliability and technical product performance are key buyer considerations. Within this broad set of influences, the most interesting relationship which Porter identifies is between domestic rivalry and the creation and persistence of competitive advantage. Rivalry is critically important in pressuring firms to cut costs, improve quality, and innovate. Because competition between domestic firms is more emotive and personal, and because domestic rivals compete from a common national platform, their rivalry tends to be more intense than with foreign competitors. Hence, domestic rivalry is particularly effective in promoting the upgrading of competitive advantage. Porter notes the intense domestic rivalry present in the Japanese automobile, camera, audio equipment, and facsimile industries (p. 412) and contrasts the success of these industries with the failure of most 'national champions' outside of their domestic markets.

Dynamics of the national diamond

These four sets of national influences on competitive advantage operate interdependently rather than individually. For the 'diamond' to positively impact competitive performance usually requires that all four sets of influences are present.[1] The interaction gives rise to some complex dynamics which are explored in Chapter 4. For example, upgrading of competitive advantage through

[1] There are some notable exceptions. For example, Japanese companies dominate the world market for typewriters despite having no significant home demand.

investment in product innovation, sophisticated labor skills, and process improvements is encouraged by a high level of domestic rivalry, at the same time domestic rivalry is stimulated by the availability of factors of production which facilitate new entry, and by a domestic market which is large, growing, and discerning. The intensity of interaction between the four corners of the diamond determines the extent to which the national environment is conducive to international success. The strength of interaction depends upon two primary factors. The first is industry clustering. The creation of 'advanced factors' such as technologies, sophisticated employee skills, design capabilities, and infrastructure is greatly facilitated by vertical and horizontal linkages between successful industries. The demand conditions created by successful downstream industries encourages development and upgrading by supplier industries, and entry by successful firms in related industries contributes to strong rivalry. Tight clustering of successful industries was observed to be a characteristic of all the successful smaller nations, including Switzerland, Sweden, Denmark, and Singapore, as well as Japan and Italy (Chapters 7 and 8). By contrast, the relative decline of Britain as an industrial nation owes much to a failure to maintain and build closely-related clusters: 'Britain's strong cluster of financial services and trade-related industries was highly self-reinforcing. In industrial businesses, however, there has been a gradual unwinding of clusters, in which only pockets of competitive advantage remain.' (p. 502).

The strength of interaction between the determinants of national competitive advantage also depends upon geographical concentration of the industry. A general feature of successful industries within a country was their tendency to be located within particular cities and regions: 'The vast majority of Italy's woollen textile producers, for example, are located in two towns. . . British auctioneers are all within a few blocks in London. . . Basel is the home base for all three Swiss pharmaceutical giants.' (pp. 154–155). Such proximity accelerates diffusion of innovation, facilitates investment in skills, and encourages the development of supporting industries.[2]

[2] Geographical concentration also raises the issue of whether the nation state is too aggregated a unit for studying the influence of industry location on competitive advantage. As Porter observes early on in the book, 'the underlying issues are even broader than the role of nations. . . What I am really exploring is the way in which a firm's proximate environment shapes its competitive success over time' (p. 29). Although a national persepctive obscures the true localization of competitive advantage in particular industries, Porter maintains that the characteristics of nations are sufficiently important that it is the country rather than the city or region which is the relevant unit of analysis.

The economic development of nations

The final stage of Porter's analysis extends his theory of competitive advantage to explain economic development within nations and national differences in prosperity and growth (Chapter 10). National prosperity, in Porter's analysis, is closely linked to the 'upgrading' of competitive advantage. Sustained competitive advantage depends upon firms upgrading their competitive advantages through innovation and investment in 'advanced' factors of production. At the national level, these processes enhance labor productivity and increase real income per head of population. In addition, upgrading involves a changing national composition of industries and activities. Firms lose competitive position in the most price-sensitive industries as they develop more capital and technology-intensive industries. Within industries, firms move towards more differentiated segments, they shift many of their lower-technology activities overseas, and within their home bases concentrate on activities which require the highest levels of skill and expertise. Porter identifies a four-stage development process. The characteristics of each are summarized in Table 1.

THE CONTRIBUTION TO THE THEORY OF INTERNATIONAL TRADE AND INVESTMENT

The main contribution of the *Competitive Advantage of Nations* is in extending the theories of international trade and international direct investment to explain more effectively observed patterns of trade and investment between the developed countries. Porter's ability to dramatically expand the scope of existing theory concerning international trade and investment derives from his integration of the theory of competitive strategy with that of international trade and

Table 1. The stages of national competitive development

Driver of development	Source of competitive advantage	Examples
Factor conditions	Basic factors of production (e.g. natural resources, geographical location, unskilled labor)	Canada, Australia, Singapore, South Korea before 1980
Investment	Investment in capital equipment, and transfer of technology from overseas. Also requires presence of and national consensus in favor of investment over consumption	Japan during 1960s, S. Korea during 1980s large home market, acceptance of risks
Innovation	All four determinants of national advantage interact to drive the creation of new technology	Japan since late 1970s, Italy since early 1970s, Sweden and Germany during most of the post-war period
Wealth	Emphasis on managing existing wealth causes the dynamics of the diamond to reverse: competitive advantage erodes as innovation is stifled, investment in advanced factors slows, rivalry ebbs, and individual motivation wanes.	U.K. during post-war period; U.S.A., Switzerland, Sweden, and Germany since 1980.

investment. By dispensing with the economist's fiction of trade being transactions which occur between countries ('Assume a two-country, two-commodity world. . . '), Porter is able to explore an unprecedentedly broad range of national-level influences upon firms' competitive performance within world markets. As a result, Porter is able to broaden and integrate many recent contributions to the theory of international trade as well as encompass many of the central themes of more established theory. For instance, the diamond framework assigns a prominent role to a country's stock of productive factors in determining competitive advantage in particular industries. Porter' contribution is the detail with which he examines the characteristics of factors of production, and his analysis of the determinants of a country's stock of resources. Porter's detailed analysis of the roles of education, infrastructure, technical knowledge, and the incentives provided by factor disadvantages, represents a considerable advance on the simplistic theortical and empirical analyses associated with traditional Heckscher-Ohlin models.

Similarly, Porter's discussion of the links between domestic demand conditions and national competitive advantage extends prior analysis of the scale advantages associated with a large home market (Grubel, 1967; Krugman, 1980), and of the role of domestic demand in driving trade and the location of production through the product life cycle (Vernon, 1966). Whereas the earlier theories focused upon particular aspects of the domestic market (its size, and the existence of an early market for new products), Porter's theory identifies a broad range of demand variables which influence the international competitive performance (including the rate of growth of domestic demand, its segment composition, the sophistication of home customers, and the early saturation of the home market).

Probably the greatest departure which Porter makes from current theories of international trade and investment is the emphasis which he places on dynamic aspects of competitive advantage. The central characteristic of internationally-successful firms and industries is their commitment to internal investment in the products, processes, and skills needed to continuously upgrade their sources of advantage. Hitherto, technlogy has played a minor role in trade theory and most models which incorporate it are of a 'technology gap' type where techology differences between countries are exogenous (Krugman, 1990: 152–164). Porter's analysis of the competitive advantages of nations directs attention at national and industry-level influences upon innovation within firms. Particularly interesting and insightful are Porter's analyses of domestic rivalry and selective factor disadvantages as drivers of innovation. The analysis of the relationship between rivalry and innovation has long antecedents in the industrial economics literature. It is worth noting that Porter's unambiguous finding that rivalry is conducive to sustained success in international markets contrasts with the inconsistent findings of prior research with regard to the relationship between industry structure and innovative activity (Geer and Rhoades, 1976; Kamien and Schwartz, 1982).

The breadth of Porter's theory is a consequence of the goals of the book. Because Porter's primary objective is to explain important real world phenomena rather than to construct elegantly-logical theory, the book contrasts with much recent work in the international trade area and returns to the tradition represented by Smith and Ricardo. Although the international trade theory has developed rapidly during the past decade due to the application of industrial organization theory to trade issues,[3] little new light has been shed upon the determinants of international competitive performance. Most of the recent research has been concerned with explaining the existence of international trade between countries with similar resource profiles. While this work has had interesting implications for trade policy (Helpman and Krugman, 1989), it has not contributed substantially to explaining and predicting the patterns of trade between nations.

At the same time, the breadth and relevance of Porter's theory do not come costlessly. The ambitious theoretical and empirical sweep of the analysis has been achieved at the expense of precision and determinancy. Lack of precision is apparent in the woolly definitions of some of the key concepts in the book and in the specification of relationships between them. For example, a key contribution which Porter makes to the analysis of national competitive advantage is his view of the creating and sustaining of advantage as a dynamic process. This process involves the 'upgrading' of competitive advantage. But Porter's concept of a 'hierarchy of sources of competitive advantage in terms of sustainability' (p. 49) lacks clarity. 'Upgrading' is not only about greater sustainability of competitive advantage, it also involves greater complexity and sophistication in technology, skills, and customer relationships. Later in the book 'upgrading' is interpreted to mean 'achieving higher-order competitive advantages in existing industries and developing the capability to compete successfully in new high-productivity segements and industries.' (p. 544). But sustainability, factor complexity, and productivity tend not to be perfectly correlated.Saudi Arabia's competitive advantage in the supply of crude oil is based upon the very basic advantage of natural resource endowment, yet seems quite sustainable. Conversely, many recent product innovations in the securities and financial services industries appear to require quite complex skills and systems, yet are quickly imitated by rivals. The links between upgrading of competitive advantages and national economic development are also tenuous. Many of the countries at the first (factor-driven) development stage such as Canada, Nauru, and the United Arab Emirates are among the world's most prosperous. Even in the United States, 15 of the top 25 industries in terms of world export share in 1985 were based upon natural resource endowments (p. 508).

Reliance upon broad, but ill-defined concepts such as the 'upgrading of competitive advantage' reflects a more general failure to perfectly reconcile micro-level analysis of competitive advantage of firms and industries with macro-level analysis of national development and prosperity. There is inconsistency in the definition and measurement of competitive advantage as the analysis moves from the industry to the national level. Competitive advantage at the firm and industry level is measured in terms of exports and outbound foreign investment, while 'the only meaningful concept of competitiveness at the national level is national productivity' (p. 6). Porter presumes the existence of some invisible hand whereby firms' pursuit of competitive advantage translates into increasing national productivity and prosperity. This presumption is unwarranted. Since 1985, a combintion of real wage erosion and dollar depreciation has improved U.S. competitiveness in several industries, however, these developments have not been accompanied by corresponding growth in U.S. productivity and living standards. Part of the

[3] These developments have been closely associated with the work of James Brander and Paul Krugman (see, for example, Brander, 1981, and Krugman, 1990).

problem is Porter's attempt to treat exports and outward direct investment as part of the same phenomenon, and to ignore their complex interrelationships. Thus, the competitive advantage of British companies in publishing, accounting, and certain processed foods is revealed mainly in multinational growth which has made little contribution to the upgrading of competitive advantages in the domestic economy.

Lack of precision is also apparent in the 'national diamond' framework. At its most basic, the diamond is a taxonomy for classifying the various national influences on firm and industry competitiveness. Yet the categories overlap to such a degree that it is not clear that the various influences would not be better represented by a triangle or pentagon rather than a diamond. For example, role of supporting and related industries in promoting competitive advantage appears to be largely through their effects on factor conditions and demand conditions. Successful upstream industries are a resource for domestic firms, successful downstream industries provide stimulating demand conditions, and horizontally-related industries contribute to factor creation through investment in skills and technology. Some corners of the diamond become so all-embracing that the variables included and their relationships to national competitive advantage are widely diverse. In particular, 'structure, strategies and rivalry' is an awkward catch-all category which comprises 'national differences in management and practices and approaches, . . . attitudes towards authority,. . . social norms,. . . the orientation of firms towards competing globally,. . . goals and motivations, . . . national prestige and priority, and domestic rivalry' (pp. 108–117). These variables do not form a coherent group nor are they related in similar ways to national competitive advantage. Domestic rivalry is an industry-level variable which is clearly defined and its relationship to pressure for improvement and innovation is precisely specified. Management training and practices, and employee attitudes and motivations on the other hand appear to be national characteristics which relate to factor conditions.

Indeterminacy of the relationships in the Porter 'diamond'model stems from three sources. First, some variables have an ambiguous impact on competitive performance. An abundant supply of highly productive factors of production is generally conducive to competitive advantage in industries which make intensive use of such factors. However, in certain instances, it is disadvantages in the supply of basic factors which create incentives for upgrading competitive advantage. Porter fails to clearly define the conditions under which advantages in the supply of basic factors of production are an advantage, and the conditions under which they are a disadvantage. Second, the relationship between each corner of the diamond and national competitive performance is complicated by the interactions between the different variables. Chapter 4 analyzes how changes in each of the four corners of the diamond are influenced by each of the other determinants, yet Porter acknowledges, 'In such an environment, cause and effect relationships among the determinants become blurred.' (p. 179). Finally, determinacy is further weakened by two-way relationships between each of four corners of the diamond and national competitive performance. While Porter's model seeks to explain national advantage in terms of the four sets of determining variables, the dynamics of the system are such that competitive performance has important influences on these variables. Thus, successful international performance provides the finance and incentives for upgrading the sources of competitive advantage (it may also engender complacency), promotes the development of related and supporting industries, raises the affluence and expectations of domestic customers, and promotes rivalry by encouraging new entry.

The result is a theory which is gloriously rich but hopelessly intractable. The strength of the theory is its cogency in explaining the international success of particular industries (Chapter 5),[4] the nature and pattern of competitive advantage in the services industry (Chapter 6), and the patterns of national competitive advantage among 8 of the 10 countries included within the study (Chapters 7, 8, and 9). The key weakness of the theory is in its predictive power. Ambiguity over the signs of relationships, the complexity of interactions, and dual causation renders the model unproductive in generating

[4] The case studies included in Chapter 5 are the German printing press industry, the American patient monitoring equipment industry, the Italian ceramic tile industry, and the Japanese robotics industry.

clear predictions. Porter's prescriptions in the form of 'national agendas' (Chapter 13) are symptomatic of this predictive weakness. The chapter establishes imperatives for each country, most of which relate to the removal of impediments to the process of upgrading. But there is little prediction of how each country's industry pattern of competitive advantage is likely to evolve in terms of the industry clusters which will prosper, which will lose out to international competition, and what the implications of structural change and differential rates of upgrading will be for national rates of economic growth.

Policy recommendations

The differences between Porter's theory of national competitive advantage and the existing theory of international trade and investment are highlighted by their respective public policy implications. From an initial premise that government's aim is to maximize the level and growth of the nation's living standard, Porter defines the primary policy goal as:

> to deploy the nation's resources (labor and capital) with high and rising levels of productivity. . . To achieve productivity growth, an economy must be continually upgrading. This requires relentless improvement and innovation in existing industries and the capacity to compete successfully in new industries (p. 617).

The appropriate role for government is to contribute to the conditions which are most conducive to the upgrading of competitive advantage working through each of the four corners of the national diamond and taking actions which improve the interaction between these influences. In some instances, the government can act directly to augment the conditions for upgrading national competitive advantage—for example, through investing in education, training and infrastructure; in fiscal measures which encourage private investment; and in encouraging the creation and dissemination of information. In general, however, government's influence is indirect, partial, and is only observable after a substantial lapse of time. The policy prescriptions which derive from Porter's analysis diverge from conventional ideas about government policies to promote national prosperity. Porter's view of the appropriate role of government is at odds with the role envisaged by most proponents of a more active industrial policy:

> Many see government as a helper or supporter of industry. Yet many of the ways in which government tries to 'help' can actually hurt a nation's firms in the long run. . . Government's role is as a *pusher and challenger*. There is a vital role for pressure and even adversity in the process of creating national competitive advantage (p. 681).

As a result, Porter suggests that policies directed towards enhancing national competitiveness often have effects which are the opposite of those intended. Table 2 contrasts some policy implications arising from Porter's analysis of national competitive advantage with those of conventional wisdom.

CONTRIBUTION TO THE THEORY OF COMPETITIVE STRATEGY

The primary contribution of *The Competitive Advantage of Nations* is to the analysis of international trade and investment, and, by implication, to the economic development of nations. At the same time, the book makes an important contribution to business strategy analysis. This arises from two sources. First, Porter's integration of the theory of competitive strategy with theory of international trade and comparative advantage extends the analysis of strategy formulation to an international environment. Second, Porter's emphasis upon innovation and 'upgrading' as central to the creation and sustaining of competitive advantage represents further steps towards the reformulation of the strategy model within a dynamic context.

Strategy is a quest for superior performance through establishing a competitive advantage over rivals. Competitive advantage is conventionally analyzed in terms of the selection of a strategy which matches a firm's resource strengths to the requirements for success in the market environment ('key success factors'). In a domestic industry, firm's face a common environment and competitive advantage is primarily concerned with exploiting superior resources and capabilities. Internationalization of the strategy model has hitherto assumed that firms are faced with a common global market environment, and the key

Table 2. Government policy and national competitiveness: Examples of differences between Porter and conventional wisdom

Policy measure	Traditional thinking	Porter model
Devaluation	Improves the competitiveness of domestic industries by giving them a cost advantage over overseas competitors	Devaluation is detrimental to the upgrading process: it encourages dependence upon price competition and a concentration upon price sensitive industries and segments. It discourages investment in innovation and automation.
Policy towards R&D	Government investment in R&D stimulates the innovation within the country. Defense-based research offers commercial spin-offs. Cooperative research pools efforts and avoids wasteful duplication.	Importance of *diffusion* of technology means that research within universities is more effective than research within government laboratories. Government should support research into commercially relevant technologies in preference to defense-related research. Government should support research institutions focused upon industry clusters or cross-cutting technologies. Cooperative research is of limited value since it may blunt rivalry.
Government procurement	Provides secure home demand for domestic firms hence encourages investment and economies of learning and scale. Defense procurement, in particular, provides an early market for technically sophisticated products.	While government can act as an early, sophisticated buyer, procurement can easily act to protect weak national champions from international and domestic rivalry, and distort product development from global market needs.
Regulation of product and process standards	Stringent regulations impose costs which hamper competitiveness in home and overseas markets.	Stringent performance, safety and environmental standards can pressure firms to improve quality, upgrade technology and provide superior product features. Particularly beneficial are regulations which anticipate standards which will spread internationally.
Antitrust policy and regulation of competition	The presence of international competition means that domestic monopolies and mergers are ineffective in creating and exercising market power. The interests of global competitiveness may require the relaxation of antitrust constraints in order to encourage strategic alliances and the development of world-class competitors.	Antitrust policy plays an important role in maintaining the strength of domestic rivalry. But must not act as a barrier to vertical collaboration, between suppliers and buyers, that is integral to innovation. Regulation of competition, on the other hand, is likely to be detrimental to rivalry and new enterprise creation: deregulation of competition and privatization of domestic monopolies usually spurs national advantage.

strategic issues are exploitation of global scale economies (Levitt, 1983), international cross-subsidization to squeeze domestically-based competitors (Hamel and Prahalad, 1985), and organizing in order to reconcile the benefits of globalization with those of national differentiation (Bartlett and Ghoshal, 1989). In Porter's view, the globalization of markets does not simply transpose firms from a national to an international environment. Even in the most globally-competitive and homogeneous markets, the national environment—as represented by the four corners of the national diamond—continues to influence a firms' potential for competitive advantage and, hence, its strategy formulation because of the influence of the proximate environment both on resource availability and on key success factors within its market environment. Two of Porter's national-level variables, factor conditions and the presence of successful related and supporting industries, are influential in determining a firm's resource strengths, while the other two, rivalry and home demand conditions, have their primary influence upon conditions for success within the immediate market (see Figure 1).

A consequence of Porter's introduction of the national environment into the strategy framework is increased emphasis on the role of resources and capabilities as determinants of competitive advantage. Porter's prior contributions to strategy analysis concentrated upon the role of the industry environment in determining strategy (*Competitive Strategy*) and the use of the value chain as a vehicle for analyzing opportunities for competitive advantage and for configuring a firm's system of activities (*Competitive Advantage*). By establishing a pivotal role for resources and capabilities as sources of competitive advantage, Porter implicitly endorses the resource-based approach to strategy analysis represented by the work of Barney (1986a) Dierickx and Cool (1989) and Rumelt (1984). Porter's primary contribution to the analysis of the role of resources in the determination of competitive advantage and the formulation of strategy is to recognize that the firm's resource base is not simply a function of its own past investments, but is also determined by the conditions of resource supply and resource creation within its environment. Although this idea is hardly novel (Kogut, 1985), Porter's model is interesting because of the interaction which occurs between firm-level and country-level sources of competitive advantage.

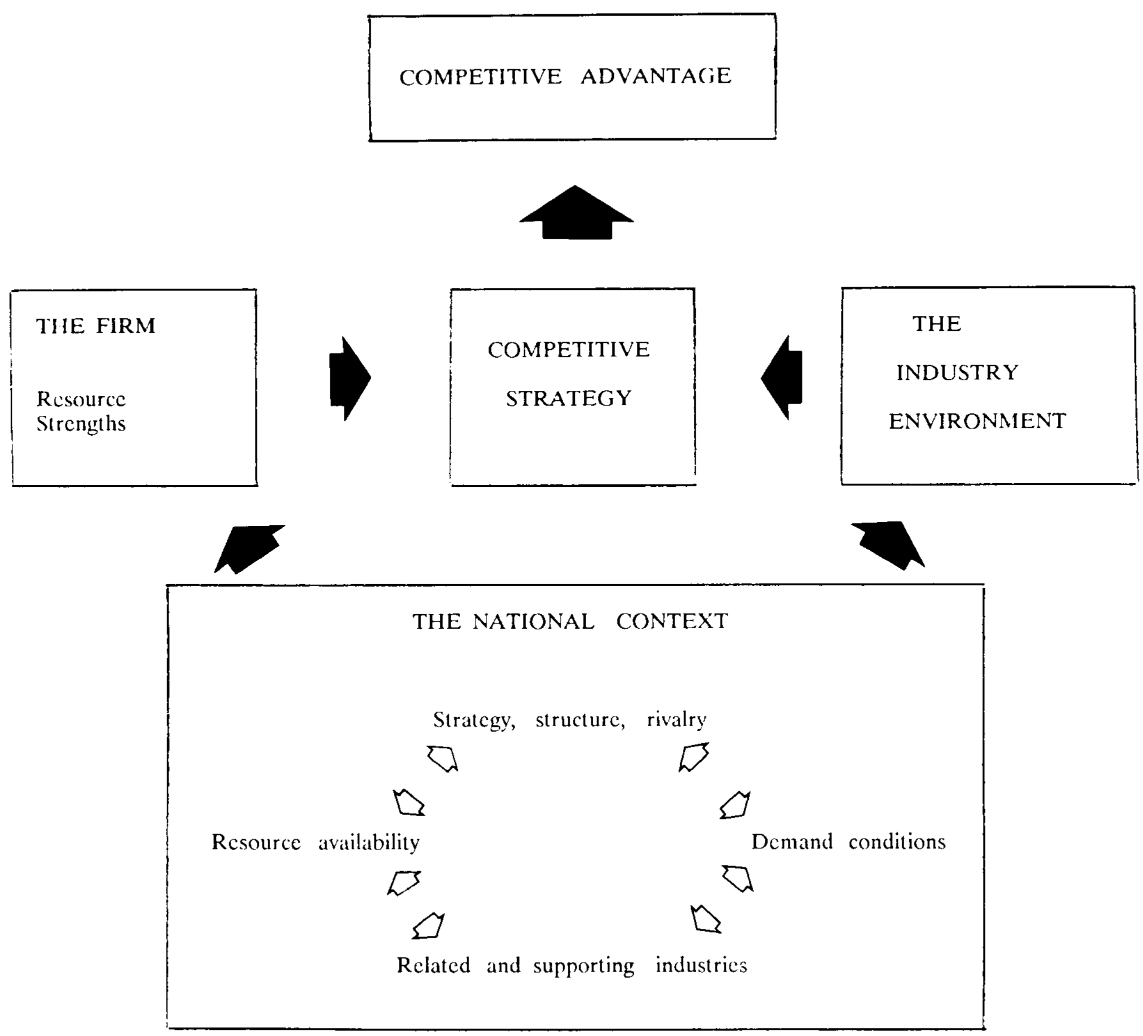

Figure 1. Competitive strategy formulation within an international context

An even more significant departure of the strategy analysis in *The Competitive Advantage of Nations* from that of Porter's prior books is the shift from a static to a dynamic analysis of competitive advantage. The greatest weakness of Porter's prior strategy analysis was the steady-state concept of competitive advantage inherent in his description of positions of cost and differentiation advantage. This static analysis of competitive analysis reflects a static concept of competition derived from the 'structure-conduct-performance' model of IO economics (Barney, 1986b). In *The Competitive Advantage of Nations*, Porter dispenses with this concept of competition as a static variable whose stength depends upon market structure, in favor of a Schumpeterian concept of competition where competition is a process of dynamic change in which innovative and imitative behavior is constantly creating and destroying positions of competitive advantage. The result is an analysis of competitive advantage at the firm level which is dynamic in the sense that competitive advantage is a consequence of change (pp. 45–53). Change may be exogenous through the emergence of new technologies, changing buyer needs, new industry segments, shifting input supply conditions, or changes in government regulations. In such cases, competitive advantage accrues to firms which move early in exploiting the emerging opportunies. Alternatively, change may be endogenous through innovation by firms. Once created, competitive advantage is subject to erosion. A firms's ability to sustain its competitive advantage depends upon the ease with which competitors can duplicate the competitive advantage, the number of distinct sources of advantage the firm possesses, and the firm's ability to continually upgrade its sources of competitive advantage. Porter's analysis of the process of upgrading competitive advantages through innovation and the creation of more advanced factors of production closely parallels Prahalad and Hamel's (1990) analysis of 'core competences'.

Porter's dynamic approach to competitive advantage contains little that is new. Most of these ideas about the creation and sustaining of competitive advantage have been put forward by Dierickx and Cool (1989), Ghemawat (1986), Rumelt (1984; 1987) and others. Porter's contribution to this analysis is primarily in exploring the conditions which are conducive to innovation and the speedy exploitation of environmental changes. In addition to the national factors which promote innovation and upgrading—factors such as domestic demand conditions and strong national rivalry which were discussed earlier—Porter also points to specific managerial actions at the level of the individual firm (pp. 584–606). Most of these recommendations deal with two sets of influences upon dynamic competitive advantage: information and motivation. By maximizing interchange with buyers, suppliers, and firms in related industries, a firm can maximize the information and knowledge available within its national cluster. By targeting customers which are the most sophisticated, demanding, and which have the most difficult needs, a firm can help establish leadership in quality and innovation. By establishing performance norms on the basis of the toughest regulatory standards and the performance levels of the most successful competitors, opportunism and pressure for innovation can be maintained.

A striking feature of these recommendations is that many of them directly contradict prescriptions arising from the static analysis in Porter's *Competitive Advantage*. Within the static industrial organization model, strategy is a quest for monopoly rents which are achieved through locating within industries and segments where competition is weak, and by initiating changes in industry structure which moderate competitive pressures. However, such conditions are also likely to blunt the incentives for dynamic competitive advantage. Porter acknowledges the revisionism of his new doctrine:

> These prescriptions may seem counterintuitive. The ideal would seem to be the stability growing out of obedient customers, captive and dependent suppliers, and sleepy competitors. Such a search for a quiet life, an understandable instinct, has led many companies to buy direct competitors or form alliances with them. In a closed, static world, monopoly would indeed be the most comfortable and profitable solution for companies.
>
> In reality, however, competition is dynamic. Firms will lose to other firms who come from a more dynamic environment. Good managers are always running a little scared. They respect and study competitors. An attitude of meeting challenges is part of organizational norms. An organization that values stability and lacks self-perceived competition, in contrast, breeds inertia and creates vulnerabilities. Some companies

> maintain only the myth that they believe in competition. Success grows out of making the myth a reality. . . The aim in seeking pressure and challenge is to create the conditions in which competitive advantage can be preserved. Short-term pressure leads to long-term sustainability.
>
> In global competition, the pressures of demanding local buyers, capable suppliers, and aggressive domestic rivalry are even more valuable and necessary to long-term profitability. These drive the firm to a faster rate of progress and upgrading than international rivals, and lead to sustained competitive advantage and superior long-term profitability (pp. 586–587).

CONCLUSIONS

Porter's *Competitive Advantage of Nations* addresses the central theme in the development of the world economy during the past quarter-century: internationalization. At the corporate level, growth in the volume of international transactions has transformed the competitive environment of firms: management faces greater risks, opportunities, and pressure for efficiency and flexibility. At the industry level, internationalization has accelerated technical change, compressed product life cycles, and increased the geographical concentration of industries.[5] At the national level, internationalization has greatly increased disparities between nations in their rates of economic development. Among the industrialized nations, Japan, Italy, and Germany have achieved much more rapid progress than the United States, Canada, and Britain, while the economies of Eastern Europe have succumbed to creeping arthritis. Among non-industrialized countries, the disparities in growth rates between, on the one hand, Korea, Taiwan, Singapore, Hong Kong, and Thailand, and, on the other hand, those achieved by countries which appeared during the 1950s to be the most promising candidates for future development (such as Argentina, New Zealand, and Philippines) are even more startling.

Our understanding of these phenomena has been limited by the widening gulf between economic science which has retreated into irrelevant theoretical rigor, and superficiality of most policy prescriptions. The achievement of *The Competitive Advantages of Nations* is not just to enter this gap, but to do so with an analysis of international competitive performance of unprecedented scope. A single analytical framework provides a cogent explanation of competitive advantage within industries which range from chocolate to auctioneering, and among countries as different as Sweden and Singapore. Moreover, a critical strength of Porter's analysis is its ability to span three levels of aggregation: the firm, the industry and the nation.

At all three levels, Porter offers new insights into the determinants of competitive advantage, but, it is at the intermediate level where Porter's analysis offers the most striking advance over prevailing knowledge. Porter's theory of how national factors influence competitive advantage within individual industries extends well beyond current theories of competitive advantage based upon resource endowments and integrates and broadens contributons to trade theory based upon industrial organization and the product life cycle. Most important, however, is Porter's emphasis upon dynamic determinants of competitive advantage particularly through innovation and investment in more complex factors of production.

At the level of the firm, Porter's main contribution is in integrating Schumpeterian approaches to competition and resource-based approaches to strategy within his analysis of competitive advantage. The resulting framework suggests an emerging consensus within the strategic management field. The hostility of some strategic management researchers to Porter's earlier work may be due, not so much to opposition to economic concepts and theories *per se*, as to opposition to an equilibrium framework which is incapable of addressing competition as a process of dynamic rivalry.

Least successful is Porter's analysis of economic development at the national level. The problem here seems to be that the further Porter gets from the micro-foundations of his theory, the more difficulty he experiences in explaining relationships between economic aggregates. Hence, despite the novelty and the appeal of many of Porter's recommendations for govern-

[5] For example, in 1985, Japan accounted for 82 percent of world exports of motorcycles and 81 percent of world exports of VCRs; the U.S. accounted for 82 percent of world exports of photographic film and 79 percent of world exports of commercial aircraft and helicopters. Italy accounted for 57 percent of world exports of ceramic tiles, and South Korea exported 52 percent of the world's black and white TVs.

ment policy, the persuasiveness of his prescriptions is limited by doubts as to whether his analysis is adequate in explaining economic development at the national level.

More generally, the ambitious scope of the book inevitably means shortcomings both in theory, exposition, and empirical analysis. The versatility and richness of Porter's theory is achieved partly through concepts whose definitions are adjusted to suit the needs of different parts of the analysis, and theoretical relationships which are indeterminate and sometimes inconsistent. In terms of exposition, this long book is lengthened by repetition. Porter has a tendency to reinforce his ideas by repeating them in differentiated forms, and in one table is reproduced exactly in different chapters. At the empirical level, the theory is applied selectively and qualitatively and without resort to rigorous testing of its predictive validity.

But these shortcomings are trivial when compared to the book's achievements. The major analytical contribution of the book is in offering new insights into the development of industries and nations within their international contexts and in extending the theory of international trade and investment to address these issues. Yet the book also has great significance for the study of strategic management. This is partly due to reformulation of the competitive strategy framework within an international, nationally-differentiated environment, and the recasting of the analysis of competitive advantage within a dynamic context. Even more important is the book's broadening of the horizons of strategic management by extending its concepts and theories from the level of the firm to the level of the nation. If, as seems likely, Porter's new book encourages a surge of further theoretical and empirical research into the role of national environments in determining international competitive advantage, the result is likely to be a redefinition of the boundaries of strategic management, and a lowering of the barriers which separate strategic management from economics.

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