

*Measures of International Competitiveness: A Critical Survey**†

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An examination of the extant literature on competitiveness reveals a wide variety of notions and extreme difficulties of measurement and application.

Single measures of competitiveness do not capture all the elements of the concept. Useful measures have to specify the level of analysis (national, industry, firm or product) and encompass competitive performance, its sustainability through the generation of competitive potential and the management of the competitive process. The interrelationship between these three key elements are also important in a dynamic context.

The effectiveness of management is essential to this analysis and the concept of industrial effectiveness at the management level enables a link to be established between the concept of competitiveness and an empirical investigation of decision making. A framework is derived which is of general use and specific measures are proposed to fill the "empty boxes" suggested.

1. INTRODUCTION

A review of recent literature on competitiveness yields an array of measures

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which purport to be surrogates of competitiveness. A cursory examination of the measures shows that they vary enormously in scope and in terms of the level of analysis (that is, at country, industry, firm and product levels). Usually single measure proxies of competitiveness have been used to illustrate single issues, e.g. declining export market share as an indicator of loss of "export competitiveness". This review attempts to examine the limitations of current concepts and measures of competitiveness and to propose an approach which will have wider use than in a single project. This paper has been developed in the context of an examination of the impact of British firms' foreign market servicing strategy (the choice between exporting, licensing and foreign direct investment) on competitiveness and reference will be made to this issue as a touchstone of the usefulness of our conceptualisation.

1.1. Definitions

1.1.1. Competitiveness at the level of the firm

Few definitions of competitiveness exist in the literature, but of those that do, the Report from the Select Committee of the House of Lords on Overseas Trade (1985) (The Aldington Report) best summarises those which are tailored to the competitiveness of firms. "A firm is competitive if it can produce products and services of superior quality and lower costs than its domestic and international competitors. Competitiveness is synonymous with a firm's long-run profit performance and its ability to compensate its employees and provide superior returns to its owners".

This suggests that measurement of a company's "competitiveness" should incorporate quantitative measures of costs, prices and profitability, and qualitative indicators of non-price factors, specifically quality, if the definition is to be satisfied. These are not, however, the only measures cited in the literature. A parallel approach is taken by the European Management Forum, which defines competitiveness as "the immediate and future ability of, and opportunities for, entrepreneurs to design, produce and market goods worldwide whose price and non-price qualities form a more attractive package than those of foreign and domestic competitors" (European Management Forum 1984.)

1.1.2. Competitiveness at the national level

The latter definition has an underlying element—the idea of world market share as a measure of a firm's competitiveness. This leads from firm level competitiveness to the idea of national competitiveness. Furthermore, much of the recent research has been conducted at a macro-economic level where the competitiveness of nations is assessed. At this level of analysis, the absence of definitions is more marked, but one obvious example was gleaned from the literature. "The definition of competitiveness for a nation must similarly be tied to its ability to generate the resources required to meet its national needs" (Aldington Report 1985). This definition is equivalent to

that adopted by Scott and Lodge (1985): "national competitiveness refers to a country's ability to create, produce, distribute and/or service products in international trade while earning rising returns on its resources" (p. 3).

Measuring competitiveness in terms of "national needs" is clearly a difficult task as it requires a careful clarification of the national needs of each country separately analysed. Most recent research avoids this issue and concentrates on relative performance measures, cost advantages or qualitative assessments of countries' international business ratings.

The work of Scott and Lodge (1985) is an exception to this rule and concentrates largely on the perceived trade off between national competitiveness and social goals. Countries are placed, in the chapter written by Scott, in a matrix which has "development oriented strategies" on the vertical axis (work, saving, investment) and "distribution oriented strategies" (economic security/entitlements, income redistribution, short term consumer benefits) on the horizontal axis. These competing national strategies, growth/productivity and external competitiveness versus domestic economic security and redistribution of income are deemed to account for differences in the dynamics of changes in rankings of international competitiveness.

1.2. Categories of measures of competitiveness

An immediate problem thus arises: at what level should the analyses of competitiveness take place? Should it be measured at the firm, industry or national level? Any analysis must specify clearly the level at which measurement is taking place and must specify the unavoidable constraints. Our major concern is with competitiveness at the level of the firm but it is essential also to review macro measures of competitiveness. The time horizon of the analysis needs to be spelled out because binding constraints in the short run become flexible in the longer time period. Further, the issue of the inclusion of social goals in the definition of competitiveness is open to question. Many of the "measures" of competitiveness implicitly or explicitly include issues of employment generation, quality of employment, distribution of income or other, wide objectives.

The diversity of the measures of competitiveness used by researchers, suggests that ideas about this complex concept vary greatly. For some, competitiveness is seen as the ability to perform well, for others, it is the generation and maintenance of competitive advantages, and for the rest it is the process of managing decisions and processes in the "right" way. Consequently measures can be categorised into three groups:

COMPETITIVE PERFORMANCE
COMPETITIVE POTENTIAL
MANAGEMENT PROCESS

By categorising the measures in this way it becomes apparent that the "3P's" describe different stages in the competitive process. Potential

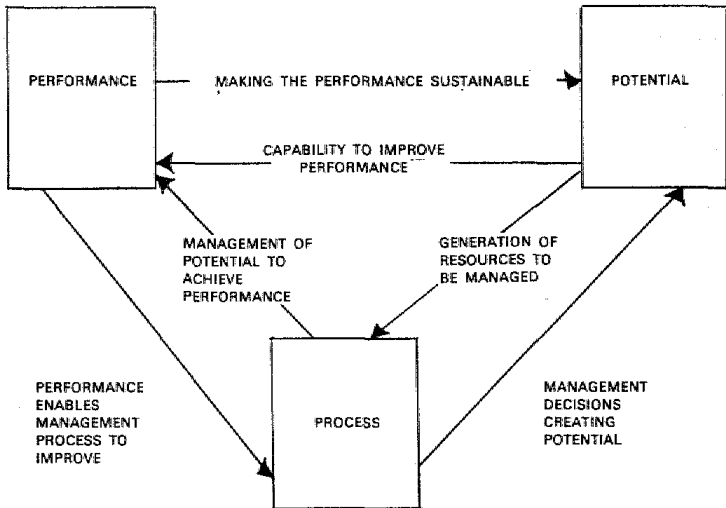


FIGURE 1 The interrelationship between measures of competitiveness

measures describe the inputs into the operation, performance measures the outcome of the operation and process measures the management of the operation. From this perspective, competitiveness cannot be considered as a static concept, but rather as an ongoing process. Figure 1 shows the interrelationships between measures of competitiveness.

The fundamental question which arises from this is "can single measures alone explain the dynamics of competitiveness?". If only performance measures are considered, the question of the sustainability of such performance remains unanswered. Too many uncertainties remain concerning the management of success, and the regeneration and maintenance of competitive potential which is part of the process of planning for future competitiveness. Conversely, where only competitive potential is measured, no indication is given of whether or not this potential is turned into performance. Assumptions based on the idea that advantages necessarily result in success ignore the possibility of unrealised potential and may consequently lead to distorted results. Research on management processes, by the very nature of what is being measured, depends on qualitative indicators as opposed to quantitative measures. Supplanting quantitative measures with qualitative, however, undermines the strength of comparison by ignoring the hard data through which the competitiveness of countries, industries, firms or products can be made. As the concept of competitiveness fundamentally depends on comparison, qualitative assessment of management processes alone may prove unsatisfactory, as it makes no reference to the fruits of management activity in the form of performance measures. It is, however, a critical aspect of research into the process of competitiveness, as it describes how managers turn potential into

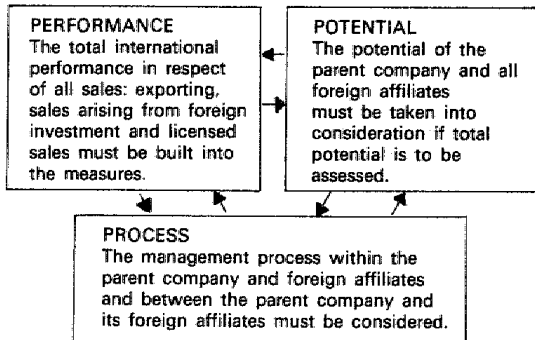


FIGURE 2 International issues in measures of competitiveness

performance. When statistical measures have been used to show, for example, that one firm performs better in the market place than its competitors, and has generated and sustained more competitive potential, the qualitative information derived from researching management processes helps to explain the reasons for success.

It is essential also to classify the measures according to whether they are at national level, or applicable to the firm, the industry or the product. Tables 1 to 3 categorise the most frequently used measures at each level.

From this viewpoint it would seem, therefore, that single measures alone fail to capture the nuances of competitiveness. This, however, is not the only point of contention. Increased internationalisation of trade has meant that the boundaries of business can no longer be limited to single countries, which complicates measurement and analysis. Measures of competitiveness should, therefore, consider the impact of not only exports but also sales arising from foreign direct investment and licensing. Figure 2 summarises the important issues to be addressed at each stage in the competitive process.

Thus measures of competitiveness must be extended beyond parent company boundaries, as well as beyond single measures. Section 2 of this paper highlights the limitations of performance measures of competitiveness and Section 3 the limitations of measures of potential. Section 4 reviews some of the advantages offered by incorporating qualitative research into management processes in an assessment of competitiveness. Section 5 presents some of the important issues raised by the literature in an attempt to outline a clearer understanding of the concept of competitiveness which has important implications for measurement and analysis. The conclusion, Section 6, suggests the key elements which should fill in the "empty boxes" of our approach.

2. MEASURES OF PERFORMANCE

2.1. Export market share

The percentage share of exports relative to a matched comparator is

TABLE 1

Performance measures by level of analysis

<i>Country</i>	Export market share
	% manufacturing in total output
	Balance of trade
	Export growth
	Profitability
<i>Industry</i>	Export market share
	Balance of trade
	Export growth
	Profitability
<i>Firm</i>	Export market share
	Export dependency
	Export growth
	Profitability
<i>Product</i>	Export market share
	Export growth
	Profitability

frequently cited as a measure of competitiveness (Hatsopoulos 1987, Lipsey and Kravis 1987, Kirpalani and Balcome 1987). At a macro-economic level countries' export market shares are measured across all industry groups on the assumption that global export volume is indicative of competitive performance. Such a measure, however, fails to give insights into countries' balance of trade and economic strength through its failure to consider imports (Krugman and Hatsopoulos 1987, Francis 1987). In addition, only exports are considered as elements in competitiveness, thus ignoring sales arising from foreign affiliates and foreign licensed sales. Exports account for only 55% of the total foreign sales of British companies [1983 figure from Buckley and Prescott (1988)]. Therefore a shift in the market servicing policy of firms can radically affect any such measure of competitiveness.

A more sophisticated measure of competitiveness is obtained by examining the export market share by industry. The view here is that a declining market share in high technology industries and an increased share in less sophisticated products is thought to be a reflection of a decline in competitiveness. This view derives from a stance which injects social goals (quality of life, nature of employment) into competitiveness measures, for it is by no means obvious that the technology content of trade is a good proxy for competitiveness.

The measure can be further improved by examining the destination of exports. The argument here is that export market shares maintained through exporting to less developed countries are less indicative of high degrees of competitiveness than are those won in the more advanced

TABLE 2

Measures of potential by level of analysis

<i>Country</i>	Comparative advantage
	Cost competitiveness
	Productivity
	Price competitiveness
	Technology indicators
	Access to resources
	(may vary by industry)
<i>Industry</i>	Cost competitiveness
	Productivity
	Price competitiveness
	Technology indicators
<i>Firm</i>	Cost competitiveness
	Productivity
	Price competitiveness
	Technology indicators
<i>Product</i>	Cost competitiveness
	Productivity
	Price competitiveness
	Quality competitiveness
	Technology indicators

TABLE 3

Management process measures by level of analysis

<i>Country</i>	Commitment to international business
	Government policies
	Education/Training
<i>Industry</i>	Commitment to international business
	(trade associations, etc.)
<i>Firm</i>	Ownership Advantage
	Commitment to international business
	Marketing aptitude
	Management relations
	Closeness to customer
	Economies of scale and scope
<i>Product</i>	Product champion

countries. This may be regarded as a proxy for the time frame of competitiveness—based on the lower growth rates of less developed countries—building into an argument of sustainability but again there is no intrinsic relationship between market share in particular foreign markets (designated “more dynamic” or “highly competitive”) and competitiveness.

Export market share is also frequently used at the level of the firm. However, it fails to account for instances where market share is maintained through drastic price cutting which would consequently have an adverse effect on profitability and possibly on long term performance. The measure also cannot cope with multiproduct firms whose performance varies according to product (Kirpalani and Balcome 1987) and firms operating in market niches.

All market share measures suffer from the defect that they ignore margins. A crucial problem is that market share can (at least in the short run) be bought by underpricing—“dumping” in the international context. Consequently the sustainability of market share measures is constantly open to question.

2.2. Percentage share of world manufacturing output

An alternative to market share measured through exports, is market share measured through the national share of world manufacturing. The basic assumption underlying this measure is that a fall in the percentage share of world manufacturing is an indication of declining competitiveness. It is assumed that a fall in share denotes an erosion of a country's manufacturing base by more competitive countries. However, factors other than competitiveness may affect both the numerator and denominator of the fraction. The numerator, that is, the value of a country's manufacturing, is tied in with demand, and is consequently affected by the economic environment of the domestic market, and overseas markets in which a country's companies operate. A fall in demand in the domestic market obviously has the greatest impact. In terms of international trade, however, the effect may still be marked where demand falls in a particular overseas market on which a country is heavily dependent. As the international trade of many countries is biased towards a small number of world markets, a fall in demand in any one country may have a significant impact on their percentage share of world manufacturing. It does not, however, hold, that if a country maintains its share of world manufacturing in the face of declining demand, it is maintaining its competitive position.

Compensatory price cutting and market dumping may be employed to sustain sales at the expense of generating and maintaining competitiveness. The single measure fails to highlight how far this is so, or whether the position is truly related to competitiveness.

The denominator, that is, the value of world manufacturing, is tied to the manufacturing base of each country. Increased manufacturing resulting from new businesses does not necessarily indicate an increase in

"competitiveness", but may merely be part of the development of previously non-industrialised countries. Added volume of manufacturing in one country will cause a fall in share in other countries purely as a result of the mathematical relationship. If such an increase in volume acts to generate world demand without reducing the volume of manufacturing in other countries, then the fall in share experienced by some countries cannot be explained by declining competitiveness. Consequently, the single measure may be misleading.

In addition, a fall in share of world manufacturing may be caused by a change in the numerator or denominator, the implications for each being very different. As a result, the simple assumption that a fall in share of world manufacturing indicates a decline in competitiveness, cannot be substantiated. Competitiveness is only one factor which may impinge on the movement in share of world manufacturing, and thus, before such an assumption can be made, many other factors need to be tested for.

2.3. Percentage share of domestic manufacturing in total output

This measurement is based on the assumption that to be competitive a country's strength should be in manufacturing as opposed to services (Krugman and Hatsopoulos 1987).

A fall of manufacturing in total output is considered to be a measure of uncompetitiveness. The basic arguments underlying this assumption are twofold. First, services are considered to be less tradeable, and secondly many services are thought to ride on the back of manufacturing industries, and thus a decline in one will effect a decline in the other. The first point fails to account for the continuing increase in trade in services which, despite the fact that there is less tradeable volume, does not consider the long term potential of tradeable value. Second, it is argued by Francis (1987) that declining manufacturing is partly due to this sector buying in more services from outside concerns as opposed to producing them internally.

A further issue which must be considered is the basis of measurement. An apparent decline in manufacturing can result from an increase in services. Consequently, an absolute decline in manufacturing should be ensured before assumptions of declining competitiveness can be made. In the case of the UK Francis (1987) argues, even where an absolute decline in manufacturing as a percentage of gross domestic product is apparent, the decline in manufacturing is due to an increase in "other" activities, namely North Sea Oil. As a result, the measure may be misleading in terms of traditional manufacturing sectors which may continue to be competitive.

2.4. Balance of trade

Some studies suggest that competitiveness can be measured according to the balance of trade between countries. The measure is not, however, without

its limitations: "The most obvious indicator of US competitiveness in manufacturing is the raw trade balance. This indicator by itself, however, can be misleading. A decline in demand for manufactures abroad can lead to a trade deficit by reducing US exports, even if US firms remain competitive" (Krugman and Hatsopoulos 1987).

2.5. Export measures at firm level

Two measures of competitive performance are export sales growth and export dependency (the ratio of exports to domestic sales). In the former case these may be merely compensatory for a decline at home, in the latter, the use of domestic sales as the denominator biases the measure.

2.6. Profitability

Profitability, or relative profitability, is rarely referred to in the literature as a proxy for competitiveness. Partly, this is because of the extreme difficulty of measuring profitability across industries and particularly across countries. However, profitability is arguably the single most important measure of competitive success. Profit objectives may be firm specific and complications arise when companies of different size are compared. Some firms (and some nationalities of firms) may forego short term profits for long term growth and on a short time horizon they may appear to be uncompetitive, despite the fact that they are developing competitive advantages in the markets in which they operate. In many countries, stock exchange valuations and the takeover threat are constraints on this behaviour, leading to accusations of "short-termism" in company planning. At the product level, company profitability may obfuscate the relative performance of different products in the portfolio. Highly competitive products earning high margins may compensate for uncompetitive products in other sectors.

Despite these comments, long run profitability is essential for survival and profitability must be an important element in any assessment of competitiveness. The point of time nature of measurements of profitability mean that it is most useful as an adjunct measure, even a constraint, in more complete encapsulations of the competitiveness concept.

2.7. Competitive performance measures reviewed

The quantitative measures reviewed thus far can be categorised together in that they all measure relative competitive "performance". What is being measured is the *outcome* of the competitive process and past performance. They provide a historical perspective, and are all characterised by their inability to provide insights into the sustainability of such performance. Using only these measures leaves too many questions unanswered.

All of the measures reviewed, except profitability, ignore margins. All the other measures examine shares of world markets or segments of that market

or changes in export performance. This must be tied to measures of the profitability of achieving such shares. The point of time, non dynamic nature of profitability measures also makes such measures suspect as proxies for competitiveness. In terms of *outcome* measures, relative market share with a profit performance criterion represents the best approach, but even such a composite outcome measure leaves open the question of sustainability.

3. MEASURES OF COMPETITIVE POTENTIAL

The above section showed the importance of the dimension of potential in studies of competitiveness. This section reviews such measures.

3.1. Comparative advantage

The fundamental assumptions of the standard Heckscher–Ohlin model of international trade are that factors of production are immobile between countries and that these factors are used in different combinations to produce different goods. A country then possesses a comparative advantage in good *X* if the country is relatively well endowed with factors which are used intensively in the production of *X*.

The concept of “revealed” comparative advantage (RCA) was put forward by Balassa (1965, 1977) because of the view that cost comparisons were an inadequate surrogate for comparative advantage. Balassa used export performance to measure RCA but even the most detailed trade statistics relate to product groups rather than individual products, and consequently countries often appear as importers and exporters of the same product categories. The growth of intra industry trade is well documented (see Greenaway and Milner 1986). As a result, therefore, the generally preferred method of analysing comparative advantage is through net exports (exports minus imports) as opposed to absolute (see Bowen 1983). Criticisms and extension have been made by Scott (1985), Cable (1983), UNIDO (1986), Cantwell (1987) and Webster (1988).

The work of Leamer (1984) shows that empirical content can be given to concepts of comparative advantage (however at a very high level of aggregation—only 10 aggregates were used in the main analysis (p. xv)). Leamer feels that the main currents of international trade can be well understood in terms of the abundance of a remarkably limited list of resources. The key factors are natural resources, work forces and savings rates. Physical capital emerges as an important determinant of comparative advantage in manufactured products.

However, there are three important limitations of research into comparative advantage. Firstly, agglomeration across industries, and across firms, suggests inadequate results, as different factors contribute to the advantages of different products and firms trading those products. Secondly, the macro-economic country perspective ignores overseas trade other than exports. Finally, the choice of factors which are thought to contribute to the

advantage is an arbitrary one, and it is possible that apparent key factors will supplant the real elements which make countries/industries competitive.

3.2. Cost competitiveness

"Cost competitiveness" is often used as a measure of competitiveness at industry and firm levels. The general principle behind this thinking is that the lower the costs a firm/industry incurs, the more competitive they will be.

Costs enable a comparison to be made between the position of firms using different methods of foreign market servicing. Using labour costs, some idea of relative positions of industries across nations may also be made. Cost analysis, however, fails to take account of the performance of industries and firms. It is possible for a firm/industry to be cost competitive but fail to earn satisfactory returns as a result of poor market positioning or product image. In this sense, then, are they truly competitive? "If the performance of the country's industry is good irrespective of, for example, poor cost competitiveness, it means that the industry has chosen the markets, the strategy and other competitive means which have led to successful results" (Artto 1987, p. 48).

3.3. Productivity

The productivity of a firm is sometimes tied in with competitiveness and adds another variation to the theme of cost competitiveness. The cost of labour, and raw materials can provide a company with a productivity advantage over its competitors, but how it uses these advantages in the market place is more critical to understanding competitiveness than merely being aware of their existence.

3.3.1. Labour productivity—macro level

Fagerberg (1988) puts the proposition that "few would probably disagree with the view that (international competitiveness) refers to the ability of a country to realise central economic policy goals, especially growth in income and employment, without running into balance of payments difficulties" (p. 355). He suggests that a theory of international competitiveness must establish a link between the growth and balance of payments position of an open economy and factors influencing this process. The primary quantitative measure of international competitiveness has been "growth in relative unit labour costs".

However, this is at odds with the evidence that the countries with the fastest growth of exports and GDP have at the same time experienced much faster growth in unit labour costs than other countries and *vice versa*: "the Kaldor paradox" (Kaldor 1978, see also Thirlwall 1979).

The problem of these interpretations is that they depend exclusively on price competitiveness and that prices depend exclusively on labour costs. Fagerberg (1988) produces a model which includes not only price

competitiveness but also the ability to compete in technology and the ability to compete in delivery (ability to deliver proxied by capacity). The model suggests that the main factors influencing international competitiveness (identified as growth in GDP at constant prices with the alternatives of growth in market share for exports and imports) are technological competitiveness and ability to compete on delivery. There are, of course, many problems in measuring technological competitiveness. In addition, ability to compete on delivery is proxied by gross fixed investment as a percentage of GDP, which is capable of many other interpretations. Perhaps the best summary of Fagerberg's results is that investment plays the crucial role both in creating production capacity and in evolving new technology. This, rather than cost competitiveness, is supported as a key factor in international competitiveness.

3.3.2. Labour productivity—industry level

An examination of labour productivity at the industry level has been conducted for the UK relative to the US and Germany (Smith, *et al.* 1982). This enables an identification to be made of those sectors where British performance has been comparatively good or bad. In justifying labour productivity as the key measure Smith *et al.* say "At the national level, output per man, and by extension, output per head of the population, is the basic determinant of living standards. At the sectoral level, since labour costs bulk large in many economic activities, differences in labour productivity levels are a major determinant of inter-industry costs and international competitiveness" (p. 13). After allowing for environmental and structural differences the authors point to differential sector performance where Britain performs worst in industries where the British activity is under capitalised relative to the foreign counterpart and where its scale of activity is below that of its competitors (i.e. opportunities for specialisation were not being taken). British productivity tends to be especially poor in industries where plant size is typically large. In addition, the more vertically integrated is British industry compared to its competitors the better is its labour productivity performance.

3.3.3. Labour productivity—firm level

A study by Pratten (1976b) of labour productivity differentials within international companies found that "economic causes" accounted for over half the observed productivity differential. These were: differences in rates of output of products and length of production runs (the key difference UK versus USA), differences in plant and machinery plus other economic causes (differences in product mix, substitution of labour for material or better quality materials, capacity utilisation and availability of labour). Behavioural causes were incidence of strikes and major restrictive practices and differences in manning and efficiency (estimated to be the key difference in the case of Germany). Management attitudes were felt to underlie much of the observed discrepancies in UK productivity.

Pratten's comparative study of Swedish and UK companies also concentrates on labour productivity (1976a): one key element in the relative success of Swedish companies was that foreign investment was more deliberately used as a weapon in controlling overseas markets and securing exports. A higher capital intensity and economies of scale in specialised product areas were also part of a nexus of factors contributing to Sweden's relative success.

Support for the importance of achieving competitive cost positions through economies of scale is provided by Owen (1983). Owen found that, in general, relative plant size was more important than relative firm size—economies of scale resided in manufacturing rather than in the overhead functions performed by the company. Company size is important insofar as it enables managements to rationalise manufacturing operations to achieve common specification and plant specialisation. There are also significant industry differences—in the case of motor car production the company seemed to be the important dimension, in white goods the product line was most important. Owen's work also supports the view that management attitudes to exporting are crucial for competitiveness. Regarding domestic sales as the basic business and exports as a bonus is a disastrous mistake—exporting is necessary to survive in home markets.

3.4. Price competitiveness

Price competitiveness, is clearly related to cost competitiveness, and therefore, this measurement also plays an important part in determining the location of production. Several measures of price competitiveness may be employed. For example:

Relative export prices: The ratio of export prices of UK goods to a weighted average of export prices of the UK's main competitors.

Import price competitiveness: The ratio of UK wholesale prices of goods to the price of imported goods.

Relative wholesale prices: The comparison of prices in the UK domestic market with the prices against which UK exports will be competing in other domestic markets.

Such measures give an indication of an industry/product's potential for competitiveness but give no insight into how they turn such potential into performance. A company may be price competitive, but through poor product quality/brand image/market servicing/product positioning may be unable to turn such potential into sales and profits.

3.5. Quality competitiveness

Measurements of quality at greater than the product level are difficult. Surrogates such as value: weight, value: labour input and value added:

output do not capture the nuances of quality competition (Slater 1988). Measurements of quality could encompass: concern with the technology of ensuring close tolerances in manufacture, consistency and conformity of output, product achievement standards (reliability, longevity, etc.) concern with design or image.

Competing on price is not necessarily the optimum form of competition. Where quality is thought to be a key competitive element, producing down to price may be an inappropriate strategy to follow. Price may also act as an indicator of quality and consequently lower prices may suggest poorer quality, and thus deter sales. Quality achievements are not an end in themselves but are a means to match consumer wants. We therefore consider quality competitiveness to be subsumed in profitable market share.

3.6. Technology as an indicator of competitiveness

Much of the recent research into competitiveness focuses on technological activity and development as the key to competition. Many indicators of technical intensity are postulated as indicators of competitiveness.

These include R&D expenditure (Pavitt 1984, Cantwell 1987) employment of qualified scientists and engineers, number of patents (Patel and Pavitt 1987), royalty income and licensing and value to weight indicators. However, these measures must be supplemented by some notion of the outcome of the technology process.

Added to this, different distributions within R&D may impinge on performance: "A heavily *R* oriented industry may not have an impact for some time. A heavily *D* oriented industry may 'appear' less advanced but may have a more immediate impact" (Sciberras 1986, p. 6).

It is the *outcome* of R&D which is important to the firm and industry, not the level of spending. Firms may spend extensively on research and development, but may fail to produce products which match the needs/wants of the market place.

3.7. Access to resources

Access to a key input may be a wellspring of competitiveness. Resources which may give rise to a competitive advantage could include access to capital, skilled labour including management and natural resources. These resources are often regarded as location specific (i.e. immobile) and in a geographical sense this is, of course, true. However, it is not true where firms are mobile. Multinational firms may go international precisely to gain access to such resources (Dunning 1981, Buckley and Casson 1976). Therefore access to resources may be a consequence of internationalisation, not a constraint on it. However there may well be competitive advantages which arise because of the domicile of firms, or because of constraints on internationalisation and an access from firms of other nationalities.

3.7.1. Access to capital

It has been argued that British firms suffer from a lack of "patient money". The stock exchange is adduced to require rapid returns and the valuation of companies is suggested to be over sensitive to short term performance. This accusation of "short-termism" in the British stock market (similar charges have also been laid in the US) is regarded as a competitive disadvantage as it prevents long term planning and constrains coherent long term plans, e.g. for internationalisation and for research and development.

3.7.2. Access to skilled labour

Shortages of skilled labour are again often seen as a constraint on competitiveness. At the firm level, as with many of the other issues we consider, this is a constraint in the short run. In the long run the firm can train labour, buy in key workers from elsewhere (including other countries) and influence public policy to rectify shortages. In periods of rapid expansion shortages of key workers may constrain response to opportunities.

3.7.3. Access to raw materials

Competitive advantages may arise because a firm has cheaper access to raw materials through its location. Transport costs and trading rigidities will often raise the costs of key inputs to foreign firms. This provides a key motive for foreign direct investment, to take advantage of cheaper inputs.

3.8. Competitive potential measures reviewed

This second set of measurements refer only to the inputs which generate competitive potential, but fail to consider if, and how this potential is turned into performance. They cannot explain why a company which appears cost competitive, price competitive, spends a high proportion of its profits on R&D, has a high percentage of technical personnel, lodges many patent applications and shows high relative income from licenced sales, can still fail to perform well in the market place. In other words the commercialisation process, transforming potential into outcome, is ignored.

It is clear however that two elements of potential are crucial to the sustainability of competitive performance. These are technological development and price/cost effectiveness. Technological development, and technological awareness are vital if a company is not to be overtaken by superior products. In the long run, too, price and cost competitiveness are essential even in high margin markets.

In most of the literature, assessment of competitiveness generally appears to focus *either* on the outcome of the performance *or* the inputs which generate competitive potential. Research which measures both input and performance are much fewer in number.

Even where potential and performance measures are incorporated, there still remains the issue of *how* the most apparently successful and competitive firms translate their potential into performance. What is pertinent here is an

assessment of the competitive process which relates to the effectiveness of corporate and divisional decision making. In terms of analysis this demands a qualitative study of management processes at the level of the firm, and government management of the economy at the national level. As firms operate in different markets, and governments in different countries, they are consequently faced with different opportunities and constraints, a situation specific analysis is necessary. The following section highlights some of the important competitive process issues.

4. MANAGEMENT PROCESS

The task of transforming competitive potential into performance is the task of management. It is the performance of management on which the competitive process rests. Approval of the performance of management is essentially qualitative and particular elements of the management process have been singled out by various writers. Our review attempts to pick out the key elements in this complex picture. In addition, fundamental issues concerning governments' management of the economy are also addressed.

4.1. Ownership advantage

The concept of ownership advantage has been used to explain the ability of firms to secure and retain profitable market share. Ownership advantages form one of the major planks of Dunning's "eclectic theory" of multinational enterprise (the others being internalisation advantages and locational advantages) (Dunning 1981, 1985). Porter's work places a great deal of stress on the generation and retention of competitive advantage (Porter 1985).

A basic problem with ownership advantage as a source of competitiveness is that it ignores the means by which the advantage was built up in the first place. It is a static concept which is of very limited use when analysing a dynamic situation. There is a great danger of regarding ownership advantages as fixed and immutable (Buckley 1983, 1988). It is undeniable that a major driving force of international competition (and foreign market servicing policies) is the generation and protection (prevention of dissipation) of ownership advantages but ownership advantages may well be a consequence and not a cause of foreign expansion—a crucial element may be feedback of knowledge from overseas (Casson 1988). Internalisation theory can explain why this feedback must be internalised within the firm and why foreign direct investment is often preferred to other market routes, e.g. licensing (Buckley and Casson 1976, 1985).

In the present context ownership (or competitive) advantages are exogenous to our explanation, not a separate determining factor of competitiveness.

4.2. Commitment to international business

Much of the literature refers to Western countries' (governments'), industries' and firms' lack of commitment to international trade. A lack of international orientation in the education system, resulting in low levels of proficiency in foreign languages and cultures, and government policies which frequently focus more on domestic issues (Hannay and Steel 1986) and firms' lack of global distribution networks as a method of exploiting technology (Rugman 1987, pp. 94–95) are thought to contribute to uncompetitiveness.

4.3. Marketing aptitude

Several elements contribute to the marketing aptitude of firms. In much of the literature, this is generally referred to as “non-price” competition. This extends the notion of competitiveness to the level of consumers in whose hands the ultimate success, and consequent “competitiveness” of a product—and hence a company lies. “The marketing concept holds that the key to achieving organizational goals consists in determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors” (Kotler 1984, p. 22).

As has been noted earlier a company can be both cost, and price “competitive”, but may fail to be truly competitive in the market place through poor product design, product performance, positioning, servicing and a poor understanding of the market. Arising from this it must be noted that non-price competition does not depend upon offering better specification, higher quality, more effective marketing and/or more service but rather that it depends upon offering the *right mix* of these factors to cater for the needs and wants of consumers in different segments of the market. It is not a matter of customers putting “a price” on the different elements of this mix—what is important is that the mix matches consumer perceptions.

4.4. Management relations

Two elements of management relations can be contributors to improving competitiveness—internal relations and external relations, particularly with foreign intermediaries.

4.4.1. Internal relations

A major part of the task of management in transforming potential into performance is that of motivating and organising the workforce. Industrial relations therefore play a part in the management process. Improving productivity and overall cost performance clearly contributes to competitiveness as do the elimination of labour frictions, disputes and strikes. The development of an harmonious and well motivated workforce is

often stated to be the basis of Japan's competitive success. This has led to a spate of suggestions that management relations should be developed along Japanese lines. This, together with the adaptation of quality circles and just-in-time (Kanban) production philosophies are deemed to provide a key to emulating Japanese success (e.g. Pascale and Athos 1982).

This raises a major question for assessments of competitiveness; how far can successful techniques be transferred across countries in order to improve competitive performance? (Buckley and Mirza 1985). Certainly, management learning and the adoption of new techniques of management can be a key factor in improving performance. Thus, "proximity to market" has been adduced as an independent factor in competitiveness (Shepherd, Silberston and Strange 1987).

4.4.2. External management relations

Where business operations are externalised— in the case of exporting through agents and licensing or where firms are involved in joint ventures— relations with intermediaries or partners is important to the performance and competitiveness of firms.

All parties must agree on a common direction, and be motivated to plan for, market, and distribute a firm's products. Such relationships are not easy to manage, and conflicts will undoubtedly affect performance and competitiveness. Success depends on shared commitment, co-operation and trust, which requires mutual willingness to solve problems, reciprocity and interdependence to sustain the commitment. This all demands time and management resources, careful monitoring and nurturing. How these elements of success are achieved and managed is important to the competitive process.

4.5. Economies of scale and scope

Often, competitiveness is associated with reducing costs and, other things being equal, this cannot be denied. From this, commentators often deduce that scale economies are essential to cost reduction and therefore that increased competitiveness is a concomitant of increased scale. However, it must be noted that success is also a function of strategy and that scale economies differ between industries and products and are subject to revision in the light of rapidly changing technology.

Economies of scope arise in multi product firms where economies of scope in production allow joint costs of two or more products to be less than the sum of stand-alone production costs (Teece 1978). The key to lateral integration of products within a firm is the free internal transfer of resources which enables costs to be reduced in areas other than those for which a resource was specifically developed (Buckley 1983). Similarly learning curve effects can be regarded as a dynamic representation of economies of scale (Abernathy and Wayne 1974).

This brief discussion shows that economies of scale and scope are the

outcome of judicious investment strategies on the part of management rather than as separate elements of competitiveness. Such an investment strategy should be included in overall management processes.

4.6. Product champions

At the product level, product managers are responsible for the strategy and performance of goods. Success at this level is often thought to be related to entrepreneurship of such managers whose innovative product management is thought to play an important role in developing a sustainable competitive advantage. Successful managers of this ilk are frequently referred to as "product champions".

4.7. Management process at the macro level—government management of the economy

The quality, effectiveness and management of government policies are analogous at the macro level to the strategy of the firm at the micro level. Efficacious government policies can help to realise the potential competitive ability of a nation deriving from its natural endowments of resources (its comparative advantage). To do this, macro policies and industrial policies must allocate resources in an efficient manner, or at least help to reduce inefficiency. The methods by which this can be done are of course matters of extreme controversy centering on the appropriate degree of interference with the market. Scott and Lodge (1985), for instance, put growth and productivity on an orthogonal axis to redistribution of income in an implied, but unproven, absolute trade-off.

Particular importance is attached to improvements in the natural resource endowment by upgrading the labour force by education and training. Particular attention has been paid to management education in this regard.

4.8. Management process indicators assessed

The summary of management process indicators shows that when one looks beyond the broad-brush measures of competitiveness, there exists a complex array of factors which explain some of the finer details of the ability of firms to compete. The experience which a firm has gained over time and which may enable it to make "better" strategic decisions and consequently win a stronger competitive position; a clear market focus which may enable a firm to adapt quickly to changes in the needs of their customers, or market products in a way which serve the same needs in a better way; a definite commitment to international business which is built into the firm's long-run strategic plan; efforts to overcome the problems of "foreigners" when doing business abroad; and close liaison with host and foreign governments may all indicate greater competitive ability, and in some instances may be the key to competitive success.

The problem which arises however is that of comparison and quantification. In multi-faceted, dynamic business situations, it is difficult to assess and compare management processes. Hence the emphasis in the literature on easy-to-measure proxies, largely outcome related. Figures one to three summarise the relationship between potential, process, and performance. In order to understand the competitiveness of firms all three "P's" should be considered.

The three different elements are not independent—changes in potential should lead to changes in the management process and consequent performance. In turn, performance feeds back into the firm's future potential. Therefore, the relationship between the three "P's" is important in understanding the dynamics of the competitive process.

5. ISSUES RAISED BY THE LITERATURE

Several key points are raised by this critical review of the literature on competitiveness.

First, is there a concept of competitiveness over and above that of efficiency? Efficiency can be described as the optimal allocation of resources to achieve desired ends. Consequently, on this reading competitiveness research involves the search for inefficiency and the policy recommendations are directed to the eradication of such inefficiency. In fact, there is an element in competitiveness which is not present in efficiency and that element is the choice of the most appropriate objectives. In other words, competitiveness includes both efficiency (reaching goals at the least possible cost) *and* effectiveness (having the right goals). It is this choice of industrial goals which is crucial. Competitiveness includes both the ends and the means towards those ends.

Second, competitiveness is a relative concept. It must be defined relative to some other state of the world. The possibilities are (1) relative to the situation of a different historical point of time (thus raising issues of *loss* of competitiveness) (2) relative to an existing comparator (at the firm level, perhaps paired groups of firms, either of different nationalities or pursuing different policies or two divisions of the same firm having made different choices) or (3) relative to a well defined counter-factual position (the alternative position). Each of these possibilities has methodological implications for the empirical measurement of competitiveness. The key factor is that as many factors as possible must be held constant in order to ensure that it is competitiveness which is being measured and not the constraints of the environment. To achieve an endogenous performance measure all the elements of the constraints of the environment must be controlled.

Third, what is the role of trade performance in competitiveness measurement and conceptualisation? It is clear that the use of trade performance has an element of mercantilist philosophy as its underpinning.

However it is possible to argue that trade performance is an inefficient proxy for industrial effectiveness. Crude trade balance measures can account only for certain elements of competitiveness. Specifically, they are point of time measures at a given exchange rate and are the outcome of a complex set of factors, many of which have little to do with competitiveness. Capital movements, which are often the *cause* of shifts in relative national industrial effectiveness are treated as balancing flows by this analysis. Rather more sophisticated are measures which take into account the (changing) composition of exports and imports, more specifically the concern that market share in "sophisticated" products is declining and unsophisticated ones is increasing. The argument then is that sophisticated products are technologically intensive and that the loss of technology intensive market share has detrimental social implications including declining employment and increasingly unskilled job provision.

Fourth, the efficiency and effectiveness of resource use has to be defined with regard to the particular resource. Is it use of labour (or types of labour), capital or management which is inefficient? Perhaps the best response to this issue is to concentrate on inefficiencies in management for it is management which is the key change factor. This raises the issue that, under the perspective of industrial effectiveness, it may be necessary to specify incorrect objectives as a crucial problem of a loss of competitiveness. Consequently issues such as the time discount rate of managers leading to excessive "short-termism", a lack of an accurate cultural perception of the international environment, the excessive depletion of non renewable resources, etc., may inhibit effectiveness. This leads to the issue of how far industrial effectiveness is actually under management control. In the short run, management is heavily constrained, in the long run it is much less so. For instance in the short run the poor quality of technical and/or managerial education is unalterable. In the long run training programmes can be instituted to relieve this constraint. However, it is also the role of government to play a part in providing the institutional and environmental conditions for the exercise of effective management.

This raises the fifth issue which is that of the level of the analysis. Should competitiveness be measured at the firm, industry or national level? What is essential here is to specify clearly which level is implied and to set out the unavoidable constraints. The time horizon of the analysis also needs to be carefully specified because the unavoidable constraints in the short run become flexible in a longer time period.

This perspective of industrial effectiveness considered at the management level enables us to link the concept of competitiveness to a model of market servicing with a view to empirical investigation of the key issues.

6. CONCLUSION

This review of the extant literature on competitiveness has led to the view that single measures of competitiveness do not capture all the elements of

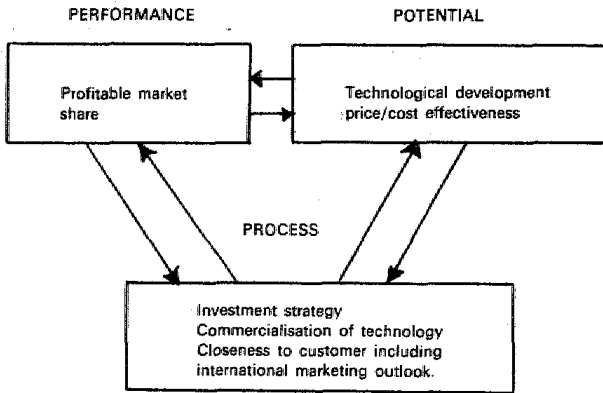


FIGURE 3 Key measures of competitiveness at the firm level

the research issue. It is necessary to examine performance, potential and management process in order to evaluate critically changes in competitiveness. This must be done relative to a comparator which must be chosen in order to hold as many extraneous factors constant as possible. Comparators may be parallel bodies, relative to a historical situation or relative to a well defined "alternative position".

The level chosen for our study of the impact of foreign market servicing strategy on competitiveness is that of the firm. This does not mean that other levels are unimportant. Indeed, a study of patterns of performance by industry may well shed a great deal of light on an individual firm's performance.

In terms of specifying measures of competitiveness, it is clear that measurement of *performance* must be wider than a single measure. It is proposed that *profitable market share* should be the key quantitative outcome measure. This means market share whilst sustaining at least the industry norm of profitability. Together with this outcome measure should go some notion of maintaining or improving *potential*. Although measurement is difficult, attention should be paid to the generation of new products and processes through investment in technology and to long run price and cost control. Finally the management *process* in commercialising this technology should be part of an investigation into management attitudes to internationalisation, closeness to the customer and development of the business through an appropriate investment strategy. Our focus is thus upon effective management. Figure 3 provides a classification of the key elements of competitiveness.

It might be argued that the choice of key measures by outside observers does not accord with the stated objectives of managers. It is possible to allow for this by assessing the outcome against, first the manager's own

goals and then, second against the proposed measures in Figure 3. It is not intended to go beyond this to examine social goals in a kind of wide ranging social cost-benefit analysis.

Finally, the task of measurement and estimation of outcome is simplified by the need only to specify the *direction of change* of our indicators when specific market servicing decisions were taken. An estimate of the extent of change would be a bonus.

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