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Globalisation and Competitiveness: Relevant Indicators

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GLOBALISATION AND COMPETITIVENESS: RELEVANT INDICATORS

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Globalisation and Competitiveness: Relevant Indicators

by Thomas Hatzichronoglou*

The economy's entry into its globalisation phase has radically altered the nature of competition. Now, numerous new actors from every market in the world (see section 1 and summary table) are simultaneously in competition on every market. This new competition has accentuated the interdependence of the different levels of globalisation (trade in goods and services, direct investment, technology transfers, capital movements), with direct investment becoming a central factor in the process of industrial restructuring and the development of genuine world industries.

To contend with the challenges of globalisation, firms have altered their strategies, strengthening the activities in which they were in a dominant position (refocusing), seeking to achieve critical size and attaching priority to external growth (mergers and acquisitions). At the same time, they have multiplied the number of co-operation agreements and alliances and changed their internal organisation. Globalisation has obliged all countries to raise their standards of economic efficiency, whence the growing interest in and concern about competitiveness. Analysis of globalisation has also revealed the change in the context in which most traditional indicators of competitiveness are interpreted, and demonstrated the urgent need to develop a new generation of indicators based on new information, so as to be able to throw new light on the more traditional indicators (section 1.4).

One of the main difficulties in defining and measuring competitiveness is that the two main reference levels -- the firm and the nation -- have differing objectives. While for a nation the aim is to maintain and improve its citizens' living standards, for a firm the object is to deal successfully with international competition by making profits and increasing its market shares (section 2).

In the same way, the problem of employment is a priority matter for a country, but is not an essential objective for a firm. That said, firms have more latitude to encourage employment without jeopardizing their competitiveness than is generally realized.

Analysis of the relevance and limitations of the indicators most frequently used to measure competitiveness shows that the results produced by the traditional measurements (relating, for example, to the trade balance, market shares or the rate of import penetration) do not, by themselves, give a clear idea of whether competitiveness has improved or deteriorated (sections 3.2 and 3.3), and other criteria need to be taken into account at the same time. Assessing them can sometimes involve long and complex investigations, however.

Some of the effects of globalisation were taken into account via trade balance calculations carried out on the basis of the nationality of the firms (purchases and sales by their affiliates abroad), and also by measuring the rate of import penetration, which was extended to include local production by foreign affiliates (section 3.3.2). It was not possible, however, to make these calculations the general rule since there was a problem of non-availability of data in the majority of countries. On the other hand, the impact of foreign direct investment on trade has not so far been taken into account (see also conclusions).

The fact that the proposed indicator of the rate of exposure to international competition concerns only trade (section 3.4) shows that there are few links between the degree of exposure and the employment situation. The latter depends more on the specific problems facing each sector and, probably, on the nature of competition peculiar to each industry. It is apparent, however, that the sectors least exposed to foreign competition adopt the same attitude towards productivity gains as do exposed sectors.

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Globalisation and Compétitivé : Indicateurs Pertinents

par Thomas Hatzichronoglou*

L'entrée de l'économie dans sa phase de globalisation a radicalement modifié la nature de la concurrence. Désormais sur chaque marché sont en compétition simultanée de nombreux et nouveaux acteurs en provenance de tous les marchés du monde (voir section 1 et tableau récapitulatif). Cette nouvelle concurrence a accentué l'interdépendance des différents niveaux de mondialisation (commerce de produits et des services, investissements directs, transferts technologiques, mouvements de capitaux) où l'investissement direct est devenu un facteur central dans le processus de restructuration industrielle et au développement d'industries véritablement mondiales.

Face aux défis de la globalisation, les firmes ont modifié leur stratégie en renforçant les activités sur lesquelles elles étaient en position dominante (recentrage), en cherchant la taille critique et en donnant la priorité à la croissance externe (fusions - acquisitions). Parallèlement elles ont multiplié les accords de coopération et les alliances et ont modifié leur organisation interne. La globalisation a imposé à tous les pays une élévation des normes d'efficacité économique d'où l'intérêt croissant et les préoccupations pour la compétitivité. L'analyse de la globalisation a également mis en évidence la modification du cadre d'interprétation de la plupart des indicateurs classiques de compétitivité et la nécessité urgente de développer une nouvelle génération d'indicateurs fondés sur de nouvelles informations permettant de donner des éclairages nouveaux aux indicateurs plus traditionnels (section 1.4).

Une des difficultés majeures pour définir et mesurer la compétitivité est l'existence des objectifs différents concernant les deux principaux niveaux de référence : la firme et la nation. Tandis que l'objectif d'une nation est de maintenir et d'améliorer le niveau de vie de ses citoyens, pour une firme l'objectif est de réussir sa confrontation avec la concurrence internationale à travers la réalisation des bénéfices et l'accroissement des ses parts de marché (section 2).

Dans ce contexte le problème de l'emploi qui constitue une préoccupation prioritaire pour les nations, n'est pas un objectif essentiel pour les firmes. Cependant les firmes disposent de plus de marge de manoeuvre qu'on le pense généralement pour favoriser l'emploi sans mettre en danger leur compétitivité.

L'examen de la pertinence et des limites des indicateurs les plus fréquemment utilisés pour mesurer la compétitivité a montré que les simples résultats des mesures traditionnelles (concernant par exemple la balance commerciale, les parts de marché, ou le taux de pénétration des importations) ne permettent pas à eux seuls de se prononcer sur l'éventuelle amélioration ou détérioration de la compétitivité (sections 3.2 et 3.3) et d'autres critères doivent être pris en compte simultanément. Mais leur évaluation nécessite parfois des investigations longues et complexes.

Certains effets de la globalisation ont été pris en compte à travers les calculs des balances commerciales effectués selon la nationalité des firmes (achats et ventes de leurs filiales à l'étranger) et à travers la mesure du taux de pénétration des importations qui a été étendu pour inclure la production locale des filiales étrangères (section 3.3.2). Toutefois ces calculs n'ont pas pu se généraliser dans la mesure où ils se heurtent à la non disponibilité de données de la plupart des pays. En revanche, l'influence des investissements directs sur les échanges, qui affecte tous les indicateurs de compétitivité n'a pas encore été prise en compte (voir également conclusions).

L'indicateur proposé sur le taux d'exposition à la concurrence internationale concernant exclusivement les échanges (section 3.4) montre qu'il y a peu de liens entre le degré de cette exposition et la situation de l'emploi. Celle-ci dépend davantage des problèmes spécifiques de chaque secteur et probablement de la nature de la concurrence propre à chaque idustrie. On peut observer cependant que les secteurs faiblement exposés à la concurrence adoptent la même attitude en matière d'emploi et de gains de productivité que les secteurs fortement exposés.

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Introduction

It is generally recognized that, with the globalisation of the economy, competitiveness has become one of the prime concerns of governments and firms. In almost all the OECD countries, there have been an increasing number of studies and reports on competitiveness over the last ten years, but as yet relatively few of them have looked at competitiveness from the standpoint of globalisation. The challenges that globalisation implies in a great many areas, and especially those of employment, trade and competition -- to mention but those -- deserve more in-depth analysis involving all the new dimensions of these problems.

It is not the purpose of this paper to develop the theoretical side of these issues, nor to analyse the policies pursued by governments in these areas. The aim is to provide a critical description of some of the indicators most frequently used in analysing competitiveness. That said, a few theoretical considerations have been included at the start, solely with the object of providing a better understanding of the context in which empirical measurements are developed. The paper is in three parts.

Part 1 contains a brief, stylised presentation of the phenomenon of globalisation. Part 2 goes over the main difficulties involved in defining and measuring competitiveness while Part 3, which is the longest, describes the limitations of the most traditional indicators of competitiveness and suggests some new lines of investigation.

1. The concept of globalisation

The term "globalisation" is usually used in connection with markets, the financial system, competition and corporate strategies. As the Technology/Economy Programme (TEP)[1] noted, although still fuzzy and ill-defined the term denotes a new and more complex stage in the process of internationalisation. Whereas internationalisation was a phenomenon of the 1950s-1960s and a large part of the 1970s, globalisation refers to the changes that took place during the 1980s[2].

During the 1980s, the internationalisation of the economy entered a phase of globalisation as a result of two major changes: *deregulation* policies and the new role in economic activity played by *information and communications technologies.* In reality, globalisation is seen more as a microeconomic phenomenon, driven by the strategies and behaviour of firms. It is thus the forces behind competitiveness and competition at world level -- between firms, and also between regions and countries -- which are central to the discussion.

Deregulation was applied primarily to the financial sector, competition policy, and service sectors such as air transport and telecommunications. Financial deregulation freed capital movements, which expanded on an exceptional scale in consequence, while the easing of competition laws made possible horizontal mergers which previously had not been authorised.

The wide-scale dissemination of new commmunications technologies liberalised and accelerated international transactions (cross-border movements of information and capital, data transmission, etc.). It also made possible, by permitting direct and ongoing access, automated worldwide management of the banking and financial system, transport, commercial transactions and personal communications. The acceleration of the flow of information also allowed firms to adopt more decentralised and more autonomous modes of organisation, but also made possible greater centralisation of certain strategic services.

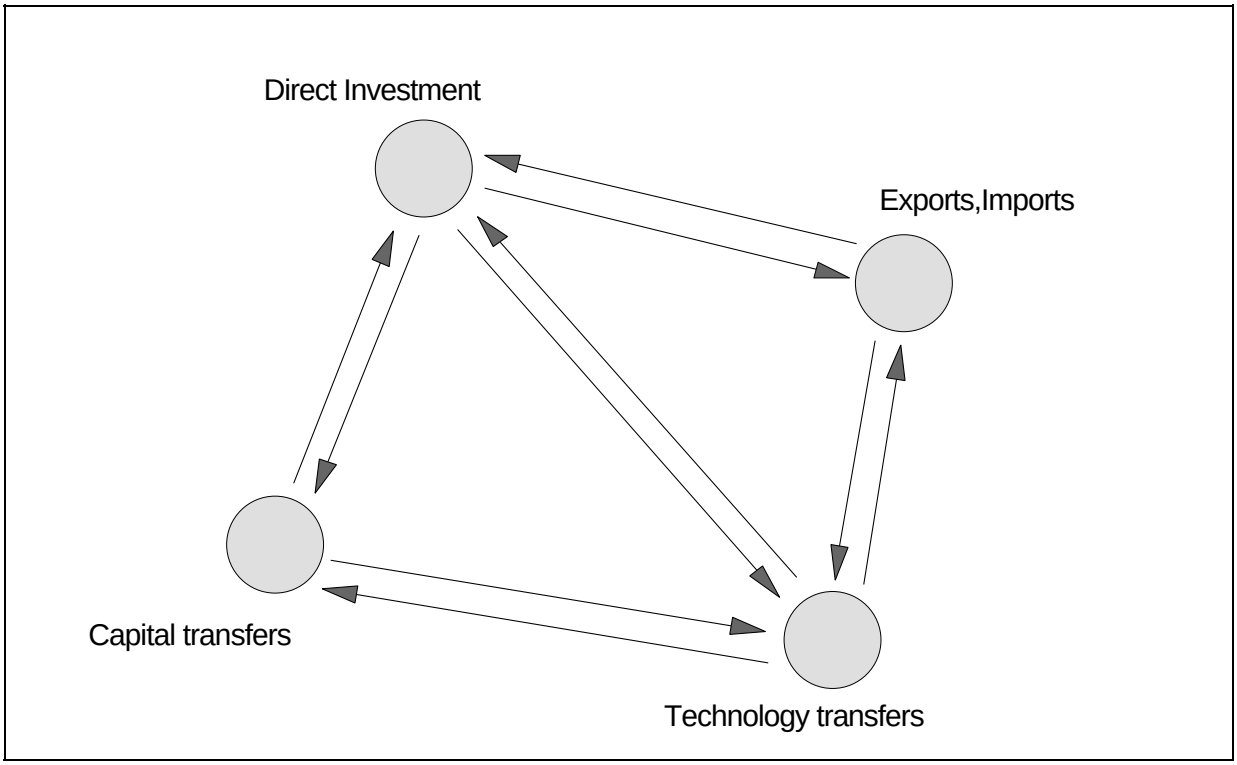
The immediate consequence of deregulation and the advances in communications technology was an unprecedented strengthening of world competition and the emergence of "**global competitiveness**". By this is meant the need for firms to be able to mobilise a range of skills simultaneously. In this new environment, competitiveness depends increasingly on the synergy generated by a broad range of specialised industrial, financial, technological, commercial, administrative and cultural skills located in different regions or even continents. Global competitiveness has become all the more important in that the development gaps between the countries of the Triad (United States, Europe and Japan) have virtually disappeared. There is no longer a one-way flow of tangible and intangible investment and advanced products from the most developed countries to the least developed ones; within the Triad, the flow is now two-way. Likewise, it is starting to be the case that most of the firms with a dominant position in the main industries no longer belong to just one leading country. The same is also true of most national markets, which have ceased to be protected markets for domestic firms. Each firm now has to compete in its own market with other firms and new players from all over the world; this is the main feature of globalisation.

A second feature of global competitiveness is the *internationalisation of production.* The various elements that enter into the manufacture of a product (capital, labour, technology, raw materials, intermediate goods, distribution) may come from many sources; countries and firms are now so interdependent, and the links between them so complex, that it is sometimes quite difficult to determine exactly where the various elements come from[3].

A third feature has to do with the pattern of international trade. The main, though not the sole consequence of the growth in trade has been increased *intra-industrial* specialisation -- itself the result of the greater integration of the world economy, which goes hand in hand with growing demand for differentiated products with a higher and higher technology content.

. A fourth feature of the new type of competition is the growing *interdependence* of the various *levels of globalisation* (see Diagram 1). Direct investment flows generate exports from the countries making the investment; these exports are accompanied by transfers of technology and know-how, and capital movements (equity investments, international loans, repatriated profits, interest, royalties, etc.). Similar linkages could be identified in areas other than that of direct investment.

Diagram 1. **Interdependence of the various levels of globalisation**



Two other developments can also be identified: First, trade is no longer virtually the sole vehicle of globalisation, since *direct investment*, although quantitatively smaller, now has a major role. Second, the emergence of an intangible component, especially *services*, in international transactions is one of the salient developments over the past ten years[4].

1.1 The global firm

Worldwide competition has led to the emergence of a new type of corporate organisation that may be called "global". An industrial group may be considered to be "global" if it meets the following three criteria:

a) Its products must be *global*. Either its products are recognised and sought after by consumers worldwide[5], or the *basic production techniques remain the same*;

b) Its competitiveness depends on its *global performance*; in other words, its local competitive edge stems from its performance worldwide[6].

c) To these two criteria may be added a third: resources are treated on an equal footing, *i.e. there is no preference for the country of origin*[7].

At the present time, the number of firms that can satisfy these three conditions *at the same time* is extremely limited. While over the past decade many firms started to develop in a manner such as to satisfy these criteria, only in the final stage of the globalisation phenomenon will they characterize the firms' strategy.

Until recently, at the microeconomic level the strategy of most firms was to proceed in stages: first, traditional exports of their products; second, setting up a subsidiary to distribute them; third, setting up a subsidiary to manufacture them. In the corporate structure, foreign subsidiaries were managed by a specialised department -- the International Division -- which existed alongside other departments with domestic responsibilities. During the 1960s and 1970s, foreign subsidiaries usually produced for the local market. Porter calls this the "multidomestic" model[8].

Globalisation marks a break with this model, the essence of which was an international view of corporate strategy. A firm with a *global strategy* is able to get an immediate picture of the world market, and has a vertical division of production of finished and intermediate goods[9]. It cannot be absent from any significant segment of the world market because it knows that if it is, its competitors will move into it and will often use the advantage gained in that particular segment to challenge it later in its home market. To be a "leader" thus means that a firm has the largest share of the world market for a product or service; quite often, a firm must attain the *"critical size"* commensurate with that aim. But as such aims are often difficult to achieve with a highly diversified structure, firms have to switch to a narrower range of products in which they have a *niche* in the world market.

This means, however, that they cannot set up progressively in one country after another. On the contrary, they must identify their niche fairly rapidly before it is filled by other firms. They must then reinforce their world position by a strategy of *external expansion* (via mergers and acquisitions) with a view to attaining a critical size as quickly as possible[10]. They must also concentrate on growth markets, *i.e.* markets with rapidly growing effective demand.

Cost reduction will be all the more important in that competitiveness is linked to price differentiation. Costs will be cut by exploiting the advantages of location offered by the various countries on the basis of a breakdown of the production process. Productivity gains will be *internalised* if the various production units are highly specialised and interconnected[11]. The international division in the corporate structure is replaced by a multidivision model based on regional and product departments which are controlled directly by the general management. However, corporate cultures may vary. Some are highly centralised around the parent company, some are much more decentralised in areas that are not considered to be strategic.

In contrast with a multinational strategy, in a global strategy the comparative advantages of each nation state are no longer considered separately. Comparative advantages are determined, in the final analysis, by a firm's objectives: low production costs (*i.e.* wage costs, raw materials, economies of scale, etc.), new markets for standardised or differentiated products, access to new technologies or know-how, etc. Considered from this angle, comparative advantages become advantages of location which will vary according to the firm's global strategy. The benefits of specialisation accrue to a firm via its own "internal market" consisting of the internal network of relations between the parent company and its subsidiaries.

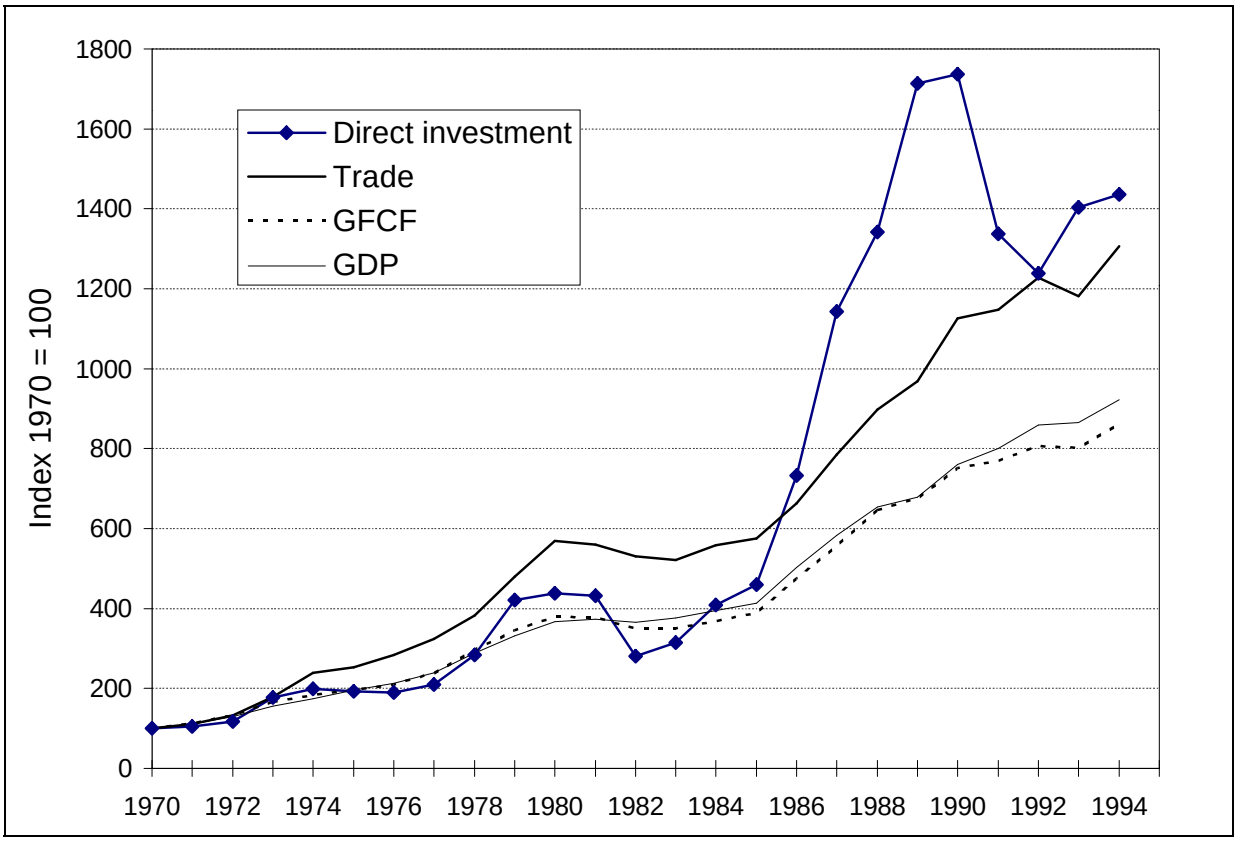
Globalisation does not break with the principle of multinational specialisation but pushes it to the limit by reducing still further the function of national markets. Multinational firms try everywhere to introduce the same production techniques, the same products, the same consumer habits, the same work organisation, etc., as result of which markets become increasingly alike. However, they come up against national differences: differences in wage rates, inflation rates, exchange rates, interest rates and, more generally, in levels of industrial and technological development, institutional rules, language, culture, etc. Internalisation makes it possible to exploit national differences (advantages of location) while at the same time minimising them (via the firm's internal market).

When intervention by governments is very limited, the global regulation of the world economy will be effected to a large degree by inter-firm relations, *i.e.* essentially by competition. When this is so, the multinational model will usually tend to function as a global model based solely on *competitiveness*. At the microeconomic level, globalisation will result in a sharp increase in competition between major firms, which may explain the key importance that the concept of competitiveness has acquired in recent years in industrial economics. The new type of competition requires firms to challenge their competitors in their home markets; if they do not, in a world that is increasingly deregulated and open, they will be unable to resist competition in their own home markets. Viewed in this light, the main reason for the surge in foreign direct investment, which is now becoming one of the main vectors of world competition, is probably the desire to establish a global presence.

1.2 The role of direct investment

Since the second half of the 1980s, foreign direct investment has been the most dynamic factor in the industrial restructuring that has taken place on on a worldwide scale. Between 1985 and 1990, direct investment by OECD countries increased two times as fast as trade in goods and services, and more than two times as fast as production (see Diagram 2). The fall in direct investment as of 1990 coincided with the beginning of the recession in most OECD countries, but 1993 saw the start of an upturn -- principally in the United States, the United Kingdom and Canada -- which in 1994 extended to most other OECD countries. A key feature of this recovery is a significant increase in mergers and acquisitions.

Diagram 2. **Trend of foreign direct investment (1,3), trade (2,3), GDP and gross fixed capital formation (GFCF) in the OECD area at current prices**



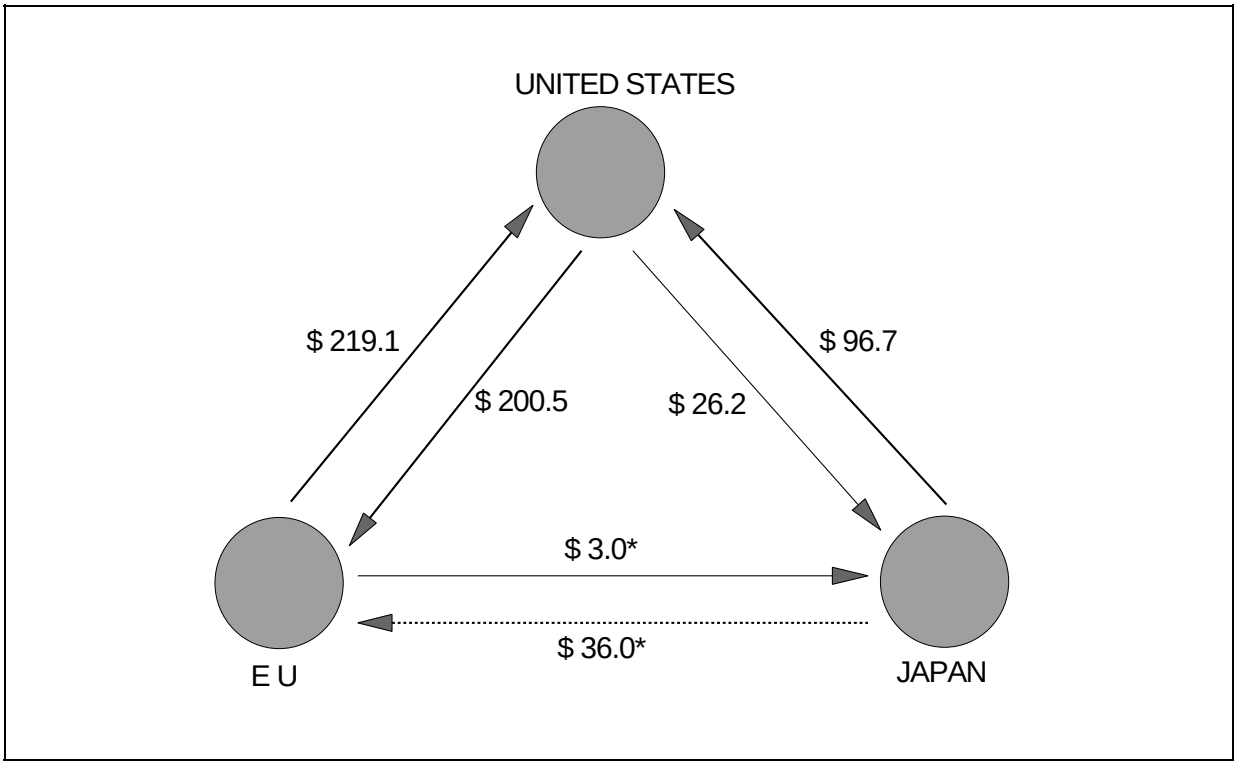
1. Average values of domestic and foreign investment
2. Average values of exports and imports
3. Including intra-OECD flows.

Source: OECD, STI/EAS.

These developments were accompanied by a polarisation of industrial and banking investments in the **Triad**, *i.e.* the United States, the European Union and Japan (see Diagram 3), while direct investment flows to most developing countries contracted sharply, at least up until 1990 (see Diagram 4), with the notable exception of the "newly industrialising countries", particularly the South-East Asian countries and China.

In contrast, north-north direct investment increased, most of it directed to the *United States*. During the 1980s, for the first time in its history, the United States was simultaneously the largest outward investor and the leading host country for direct inward investment, although over the same period its relative share of total direct investment fell.

Diagram 3. **Origin of stocks of foreign direct investment in 1992 in US$\billion**



* 1990.

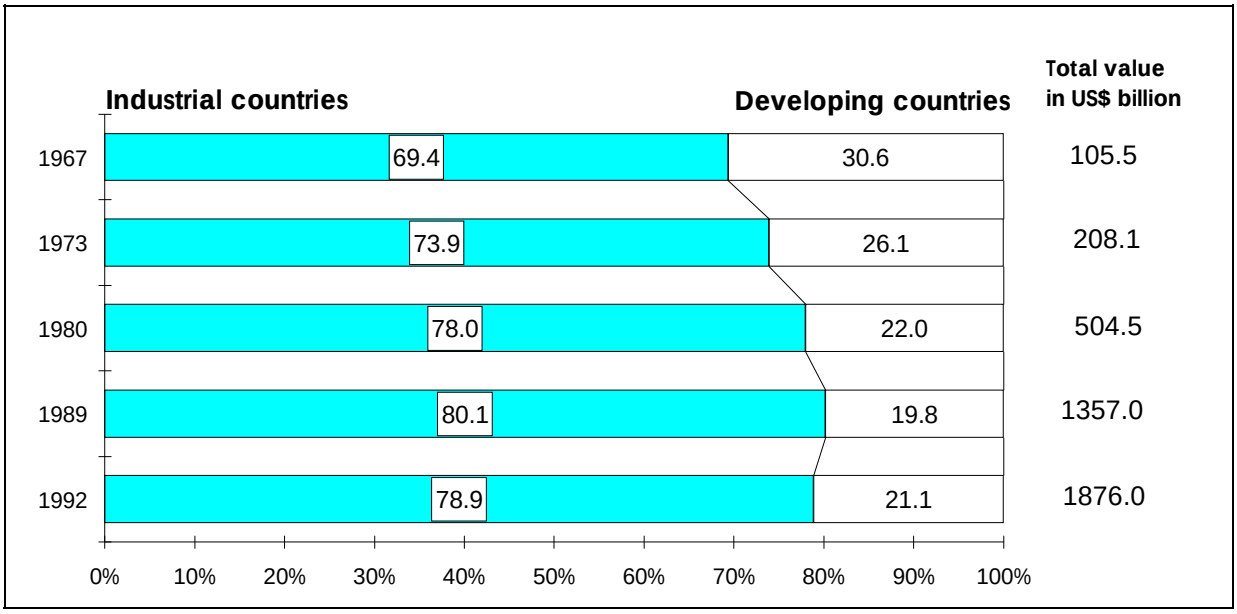
Source: Survey of Current Business.

At a more general level, a twofold trend may be observed. On the one hand, multinationalisation is growing since there now are more multinationals from a wider range of countries; on the other, multinationals are concentrating their activities in a smaller and smaller geographical area consisting of the Triad plus the Asian NICs. This is a relatively homogeneous market in which national economic, social and cultural disparities are tending to narrow[12].

Another important feature of foreign direct investment in the 1980s was the *method* of investment employed. Major groups expanded abroad via mergers and acquisitions, seeking either to buy market shares or to rationalise their activities by acquiring niches in Triad markets. To a large extent, the direct investment during this period involved changes in ownership rather than greenfield projects. This behaviour was appropriate to a period of modest growth and fierce competition. The most important objective for

firms was to establish, as rapidly as possible, a position based on comparative advantages narrowly defined in terms of products or processes.

Diagram 4. **Host countries for stocks of foreign direct investment**



Source: US Department of Commerce, Bureau of Economic Analysis and UNCTD.

Banks[13] also played an extremely important role during that period. They prepared to participate in vast and no doubt lucrative financing programmes for mergers and acquisitions. At the same time, numerous financial innovations allowed non-financial enterprises to tap institutional saving directly and to participate in major industrial restructurings. Paradoxically, the stockmarket crisis in October 1987 reinforced the surge in direct investment. By reducing steeply the value of some shares for a time, it directly prompted a wave of takeover bids and mergers and acquisitions.

Another salient feature of this period was that the behaviour of the treasury departments of major groups and that of banks increasingly converged. The difference in the return on financial investments and that on industrial investments, which had widened sharply several times, had showed that finance was to a certain extent autonomous with respect to industry. But the two activites are now so enmeshed and complementary that it is increasingly difficult to distinguish, in the huge market in industrial assets, transactions carried out for the purpose of *industrial restructuring* from those that are purely financial.

Main features of globalisation (Summary)

General aspects

-- Simultaneous competition in each market between numerous new competitors from all countries. This new competition necessitates in numerous areas extremely rapid structural adjustments.

-- Internationalisation of production: multinational origin of components, products, services and capital.

-- Growing interdependence of the various levels of globalisation (trade, direct investment flows, technology transfers, capital movements, etc.). High degree of interpenetration of national economies.

-- The structure of international trade is becoming increasingly intra-industry of intra-product in nature.

-- Diminished importance of trade, which is no longer virtually the sole vector of globalisation.

-- Foreign direct investment has become a crucial factor in the worldwide process of industrial restructuring and the development of genuinely global industries.

-- "Absolute advantages" are once again a factor in trade[14].

-- National comparative advantages increasingly correspond to advantages of location which vary according to corporate strategies.

-- Financial sector tightly entwined with the industrial sector.

-- Emergence of specific regional and cultural factors in response to globalisation. Multiplication of regional free trade agreements.

Microeconomic aspects

-- Global strategies adopted by firms:

- Global conception of markets
- Refocussing on core activities
- Priority given to external expansion
- Striving for critical mass
- Rapid increase in agreements and alliances
- Firms' networks
- Changes in internal organisation (*e.g.*, the transition from fordism to toyotism[15])

1.3 Responses to globalisation

The main beneficiaries of globalisation have probably been consumers. They now enjoy a wider choice of goods and services which they can obtain more rapidly and at lower cost and which, thanks to new technologies and methods of organisation, can be increasingly personalised.

Corporate responses to globalisation

In response to the new context, most firms, including many SMEs, have adjusted quite rapidly to the new types of competition. The largest firms have adopted strategies that are increasingly global, with two main objectives in mind:

-- *to improve profitability* by reducing costs[16] and

-- *to strengthen their technological capability*.

To attain the first objective, they have farmed out certain activities[17]. The rationale usually put forward for doing this is that these activities are not sunk costs and that the gains derived from keeping these activities inside the firm are outweighed by those generated by outsourcing. Corporate profitability is therefore improved by spreading fixed costs between the parent company and its new partners. However, the relationship between the parent company and an outside company cannot be reduced to the traditional *subcontracting arrangement*. The element of subordination which the latter entails is replaced by medium-term co-operation by agreement. *Decentralised procedures* make it possible to harness know-how at all levels of the network. The spread of robotics and flexible manufacturing systems, and the supplanting of economies of scale by economies of scope, have also been conducive to the growth of "*firm networks*". These developments reflect both the improved ability of firms to adjust to demand, and a growing integration with the local environment via the use of many local partners.

To strengthen their technological capability, firms can either continue to *internalise* activities via mergers or *acquisitions* of other innovative firms, or adopt an *external* approach and conclude co-operation agreements or *alliances* based on co-operation between independent firms around a common programme.

Research and development is the area par excellence of such alliances. There are several reasons for concluding alliances: the excessively high costs of development, complementary technologies, definition of technical standards, etc. Traditionally, R&D activities were centralised and under the tight control of headquarters. With the growth of alliances, the R&D centres of major firms have opened up to a certain degree and knowledge has started to flow between them, although the technology transfers involved relate to pre-competitive programmes and are tightly controlled and reserved to members of the network.

Networks and alliances are not incompatible. A firm can externalise some of its activities in sectors that have attained a certain degree of maturity, and simultaneously enter into technological alliances to develop new products or processes.

If this two-fold trend continues, it could reshape the world economy. However, it can be interpreted in two ways.

Some consider that the worldwide growth of networks and inter-firm alliances reflects a more or less explicit resolve to regulate, at the microeconomic level, the sometimes devastating effects of competition. Under such a system, capital movements, direct investment flows and the control of capital could play a less important role than at present. What will be crucial will be the production and dissemination of *scientific and technical knowledge*. Networks will be built on the partners' technological know-how in the broad sense and not essentially on financial links. In any case, such links will play a less

important role than at present. Public actors could also participate, so that the new system would not consist almost entirely of private partners.

Others, in contrast, see the strategy of building networks and concluding alliances as a continuation of efforts to establish dominant positions which become weapons that are sometimes defensive (import barriers, cartel arrangements, etc.), sometimes offensive (strengthening of technological advantages by all possible means, including takeovers of innovative small firms), in the competition for world market share.

These two conceptions are not as far apart as they might seem. In practice, in some areas networks and alliances are a co-operative positive-sum game, while in other areas the same actors compete in a zero-sum game. *Co-operative and competitive* games are in fact two sides of the same coin. While inter-firm co-operation usually involves activities that are upstream of the production process, competition involves activities that are closer to the market. But the dividing line between the two is neither fixed nor predetermined. Some co-operative arrangements can become competitive games when the strategic objectives change.

Government responses

Government authorities have been slower to respond to globalisation. Their response has taken three forms:

-- adjustment measures

-- policies to promote international co-operation and, lastly,

-- a reluctance to accept certain consequences of globalisation.

First, they have realised that, in many areas, the degree of interdependence is now such that solutions are needed which go beyond national boundaries. The number of international agreements on the environment, health, research and technical standards has thus increased in recent years.

Science and technology progammes such as RACE, ESPRIT and EUREKA in Europe, the SDI in the United States (now dropped), and the "Human Frontiers" programme in Japan, are also part of a policy of encouraging private actors to co-operate.

The creation of more homogeneous *geographical regions* via the European Union, the North American Free Trade Agreement (NAFTA), or those envisaged in South East Asia by the ASEAN countries and in Latin America (MERCOSUR), may be seen as attempts to create more stable and less uncertain areas. The countries belonging to these groupings hope to derive the same benefits in terms of efficiency and growth as multinationals derive from their strategies of internalisation[18].

Second, the authorities have sought to correct certain ill-controlled instances of globalisation. For example, on several occasions they have intervened in the financial sector either to bail out private banks and avert bankruptcies that would have had a very damaging impact on the banking system as a whole, or to inject liquidity into the international financial system, especially in the aftermath of the 1987 stockmarket crisis. The latter prompted the authorities to control more closely the activities of operators in the financial markets and to strengthen the powers of the bodies whose main task is to secure compliance with stockmarket regulations. The rules for takeover bids were made more transparent and the activities of raiders were brought under tighter control[19].

Also, the authorities have become increasingly aware that, because of growing interdependence, national polices are less effective when they are out of line with one another. This is an aspect of

globalisation that may often be perceived as a constraint on national independence and a loss of sovereignty.

On several occasions, the authorities have not hesitated to help domestic firms to adapt to the new forms of competition and to become more competitive. Policies of aid for basic research, jobs or regional development have been accepted without too much objection by competitor countries.

In contrast, other types of intervention -- customs duties, import quotas and bans; so-called voluntary export restraint agreements; excessive use of anti-dumping measures; barriers to imports in the form of technical standards; discriminatory practices in respect of public procurement; export subsidies; preferences awarded under bilateral trade agreements and managed trade; bans on foreign firms participating in government-financed R&D programmes or acquiring national firms, and a whole range of subsidies and aids designed to boost exports, to mention only the most common -- may be in direct conflict with objectives that governments are trying to achieve by means of other structural policies, to the detriment of international co-operation which alone can secure lasting prosperity.

However, it should be stressed that there has been no real revolution in the traditional world economic system. The developments referred to are, for the time being, only trends in a broader pattern of change that seems irreversible. The previous system still exhibits a large force of inertia. Alongside the few global firms, others continue to implement multinational strategies, while most small firms still do virtually all their business in their domestic markets. Analysis of flows does indeed show that major changes are taking place, but structural analysis may also mask other changes that are under way. To ascertain correctly the direction in which the system is changing, it is therefore necessary to combine both approaches.

1.4 Shortcomings of the tools of analysis

If traditional indicators are now less effective than they used to be, it is not because the data on which they are based are less accurate but because the framework within which they are interpreted has changed. The indicators currently available were devised on a purely national basis that takes relatively little account of the various forms of globalisation and its consequences.

For example, most analyses of competitiveness see international trade as the sole instrument of globalisation and winning markets. Not only do they ignore the importance, as complementary or alternative strategies, of the other forms of globalisation referred to earlier, but they do not assess their impact on international trade. When a firm decides to expand abroad, either by internal means (*i.e.* by setting up subsidiaries) or external means (via acquisitions of existing firms), its production in its home country will be affected in various ways. It may fall if the foreign subsidiaries are acting as sub-contractors and are producing the same products at lower cost, or increase if its subsidiaries' products are complementary to its home-manufactured products. In the latter case, the parent company's additional production will be exported essentially to its subsidiaries, while part of the subsidiaries' production will be imported by the parent company (*intra-firm trade*).

The meaning of *trade balance* and *export market shares* has thus changed. In certain sectors which are dominated by large groups, trade surpluses or deficits between two countries may consist almost entirely of trade between subsidiaries which belong to the same group, and reflect the group's procurement policy rather than a problem of competitiveness on the part of the countries concerned. Likewise, traditional indicators of export market shares may be misleading if the main national producers of certain products reduce their exports, preferring instead to manufacture them locally. According to the traditional indicators, they would have become less competitive, when in fact their commercial strength has actually increased. Similar situations can occur in the field of technology. Measurements of what is called the "*national research effort*" may be affected when research centres, not production facilities, are shifted abroad. The recent reductions in R&D expenditure in some countries have been attributed to the fact that

some major companies have moved R&D laboratories abroad. These companies have also acquired foreign R&D laboratories through mergers and acquisitions. To these developments may be added R&D co-operation agreements and cross-border alliances; it is thus difficult to get a precise idea of "national R&D efforts" solely from total domestic R&D spending.

The foregoing examples show the extent to which globalisation has modified the interpretative framework of most traditional international indicators, and that a new generation of indicators based on new data and adapted to the new interpretative framework is urgently required.

2. Rethinking competitiveness

Rarely has an economic concept been as central to decision-makers' concerns as competitiveness has over the last ten years. This growing interest may perhaps be partly attributable to their awareness of the fact that all countries are having to contend with raised standards of economic efficiency as a result of the globalisation of goods and factor markets. It is also evidence, however, of the increasing number of questions being asked about the consequences of the changes in competitive approaches that may be observed in many areas, and to which it is difficult to find answers using traditional methods of analysis of international economic relations[20].

Since the early 1980s, there have been an impressive number of articles and studies on competitiveness -- often of very high quality -- and the latter has in many cases been the main thread running through a great many government action programmes. The area that these cover is vast, encompassing both the promotion of technological adjustment in firms (aid to R&D and to technological diffusion and incentives to co-operate in the field of precompetitive R&D), the consolidation of regional economic development bases, the strengthening of the network of small and medium-sized enterprises and the development of activities considered to be of "strategic" importance for domestic economic growth.

Just how diverse national approaches are depends on what different countries see as the risks to be averted and the opportunities to be grasped, and on the nature of their "chronic problems" and of their "trump cards". Also, their opinions as to whether their economic results are commensurate with their scientific and technological potential becomes crucially important.

While, in many countries, government action continues to be based on the theory of comparative advantage, countries are somewhat bereft of any alternative conceptual frame of reference which might enable them, in a context of accelerating globalisation of the economy, to envisage links between corporate competitiveness and national economic performance[21]. It is rather surprising, moreover, to note that "there has to date been little coherent discussion of the meaning of the word competitiveness"[22].

It is not the purpose of this paper to go back again over all the theoretical and conceptual problems posed by competitiveness, but rather to suggest some lines of approach which will make it easier to grasp the meaning of the indicators used to measure it. These lines of approach are an extension of the Industry Committee's recent project entitled "Framework Conditions for Industrial Competitiveness", a project which will be discussed in more detail below.

2.1 Difficulties pertaining to definition

One of the difficulties with which those seeking to analyse international competitiveness are confronted right from the start is that there is no agreement on how to define it. The term competitiveness may be used with contradictory meanings in various passages of the same article or report. This view, expressed by the US Office of Technology Assessment, is broadly shared by all the experts. There are a number of possible reasons for this situation, some of which are outlined here.

The level referred to can differ

The term competitiveness is used with reference to *firms*, industrial *sectors*, *target regions*, *nations* and also *supranational* entities.

Only at the microeconomic level however, i.e. that of the firm in a competitive situation on a market, is the concept well defined. Yet at the political level, it is its significance for a territorial entity -- a country, region or target industry -- that arouses interest. Using the same concepts and ways of measuring competitiveness for both countries and firms can pose problems since it over-simplifies the nature of the phenomena. The fact that the concept of competitiveness is not the same for a country as it is for a firm -- just to take these two cases -- is because their objectives differ, as does the nature of the competition in each case[23].

Differing objectives

Before discussing competitiveness, it is as well to remember that the basic objectives differ depending on whether the standpoint is that of a firm or of a country. While for a firm the main aim is to survive and gain a firm hold in the arena of international competition, for a country -- which does not have to concern itself with survival -- the object is to improve living standards and welfare. Thereafter, other objectives may be set, the main aim of which will in principle be to help to realise the most important objectives. However, different players will not rank these other objectives in the same order. One firm may, for example, prefer to increase its market shares rather than maximize its profits, depending on its strategic options. To target a particular objective means, implicitly, formulating a normative judgement about the superiority of a given strategy. In the case of a country, other specific objectives might consist of stimulating investment or restoring trade balance equilibrium. This raises two important questions: first, on what should competitiveness be based? If it is to be based just as much on the achievement of non-fundamental objectives, can competitiveness be considered without the performances of the different players being ranked in some way or another? The second question has to do with the consistency of the different objectives, the point being to establish to what extent a strategy aimed at achieving a non-fundamental objective may accelerate or delay the accomplishment of fundamental objectives.

The significance of the results obtained

A strategy's cogency can only be assessed on the basis of the results achieved. However, three questions need to be asked in connection with the way results are evaluated.

First, in the case of many phenomena, but especially in that of competitiveness, a result is not relevant in itself, but depends on the means employed and on the context in which it was achieved. As will be seen later, a reduced trade deficit does not necessarily imply improved competitiveness if it is attributable to a decline in imports stemming from weaker domestic consumption.

Second, an evaluation of competitiveness based solely on the results obtained provides only *ex post* information and does not give any indication of, for example, a firm's or a country's potential capacity to achieve its objectives (*ex ante* evaluation).

A third important aspect to be taken into account is how quickly the various results are obtained. That said, interpreting the "speed of reaction" factor can be delicate, even when the objectives are similar, because the competitors do not always have the same starting point and the route to be covered may be different.

Consequently, it is hard to understand the nature of the problems involved if international competitiveness is seen as a measurable macroeconomic variable whose causal role is well defined.

Establishing the appropriate time horizon

Curiously enough, the time factor is only rarely discussed in analyses of competitiveness, even though it determines the success of any action. Although the way the time factor is looked at can sometimes be subjective, it is agreed that some actions have short-term effects and others long-term effects. In economic theory, however, these concepts remain somewhat imprecise and need to be more strictly defined. In the case of a firm which is restructuring, for example, it is important to be able to calculate the time it will take for the first positive results to come through. Similarly, a country needs to know at what point a structural adjustment policy may be considered to have achieved its objectives. In view of the fact that the period of time required for each action (or adjustment) plan differs for each competitor (firms, countries, etc.), any performance comparisons could well be distorted if this factor were not taken into account.

The need for measurement

Another difficulty concerning the definition of competitiveness relates to the problems of measuring it. It is recognized that for an economic concept to be operative it has to be quantifiable. Generally speaking, however, quantification comes up against the difficulties involved in taking account of certain qualitative aspects relating, in particular, to policy action (*e.g.* institutional changes), but also to the unavailability of statistical data. The need for empirical analysis leads in most cases to concepts having to be simplified to the point of diminishing them. This problem is not peculiar to competitiveness, but the complexity of the concept does magnify the difficulties.

2.2 Main approaches adopted by studies on competitiveness

Under the heading of the project on "Framework Conditions for Industrial Competitiveness", the Secretariat has produced an inventory of the literature on competitiveness in which[24] the studies devoted to this subject are divided into four groups, depending on their objectives and the methods used:

i) The "engineering" approach, in which competitiveness depends on firms *adopting the best practice*;

ii) The "environmental/systemic" approach, in which competitiveness is seen as a matter of *optimising the environment* for industry;

iii) The "capital development" approach which sees competitiveness as depending on the economy's *capacity to accumulate human and physical capital*;

iv) The "eclectic/academic" approach which sees competitiveness as an area in which *new research is needed*, using various analytical tools.

These approaches adopted by the available literature are neither theories nor mutually exclusive schools of thought. Each approach focusses on different aspects of competitiveness and results in different types of policy recommendation.

The studies which make up the *first approach* ("engineering")[25] see the competitiveness of a country (or region) as being based on the ability of the firms in that economy to adopt, or shape, the technical and organisational "best practices" in their activities. A country's competitiveness is the sum of the competitive strengths of its enterprises. The latter's competitiveness is not as a rule defined or measured explicitly, but is understood as their capacity to maximise productivity and factor incomes (wages and profits) on a sustained basis. Foreign trade indicators are sometimes used to monitor trends in the income maximisation performance of firms located within national frontiers.

In the *second approach* ("environmental/systemic")[26] as well, firms' competitive strength -- meaning their ability to maximise factor incomes (wages and profits) on a sustained basis -- is always seen as central to national or regional competitiveness. However, firm-level competitiveness is not perceived as deriving from subjective internal efficiency. It is the firms' environment (*e.g.* the incentives of a competitive market, the resources provided by capital and labour markets, the quality of inputs, infrastructure, etc.) which is deemed to matter most. Consequently, competitiveness depends on whether or not local labour forces are able to to maximise their incomes by joining with the mobile capital resources to which they need in order to secure the highest returns on capital. This approach incorporates the characteristics of globalisation to a greater degree, notably the mobility of industrial capital and firms' new flexibility in selecting and switching locations for their activities, with the result that locations compete to attract and keep mobile investment resources.

The *third approach* ("capital development")*27* identifies national industries' ability to accumulate technological, human and physical capital as their key skill, shaping their long-term competitiveness and performance. In this approach, competitiveness is seen, more implicitly than explicitly, as the ability of firms to earn differentiated ("monopolistic") factor incomes on international markets. Competitive nations are those able to provide national investors and their employees with the consequent incomes. The capital-building approach is a mix of of the "best practices" and "optimised environment" approaches in the area of basic capital formation (capital development).

The studies which constitute the *fourth approach* ("eclectic/academic")*28* address various aspects of competitiveness in a very selective, eclectic and inquiring manner. They illustrate the complexity of the subject and the difficulty of reaching clear analytical conclusions, especially if the intention is to proffer advice.

It is true to say that the majority of these studies do not provide a very precise definition of competitiveness as it corresponds to each reference level (firm, sector, location, region, nation, supranational area). Nor do they offer a global view, making a clearcut distinction between main and secondary objectives and between explanatory factors and factors requiring explanation. Despite their quality, these studies do not place much emphasis on questions of measurement and on the relevance of the indicators used.

2.3 Working definition proposed by the Secretariat

In the OECD project on "Framework Conditions for Industrial Competitiveness", the Secretariat suggested that competitiveness be understood as:

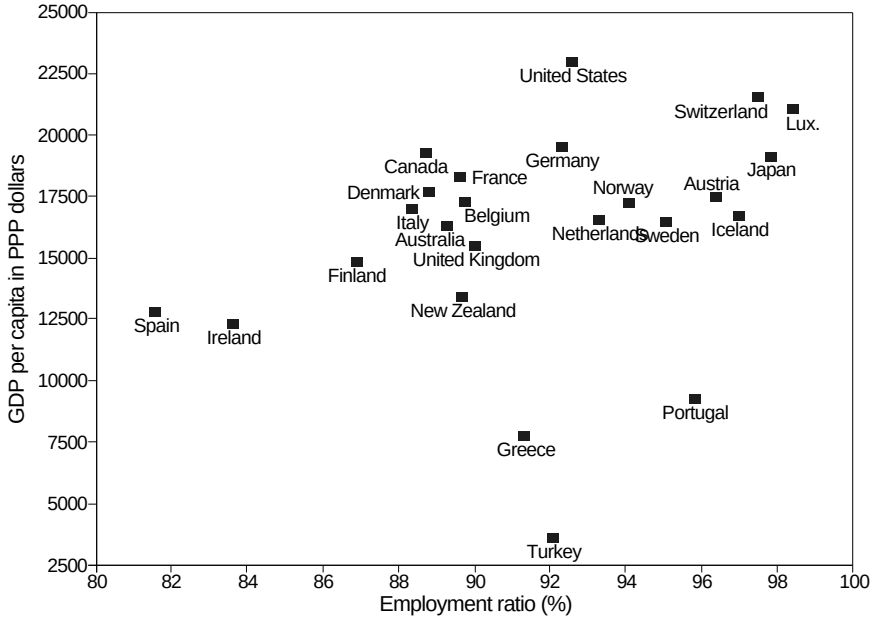
> "... the ability of companies, industries, regions, nations or supranational regions to generate, while being and remaining exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis".

This definition, which is based mainly on the first two approaches (the engineering and the environmental), emphasizes the capacity to generate high income and employment levels on a sustainable basis. It is better suited to nations, regions and supranational areas in the sense that it relates directly to their main objective, namely maintaining and raising living standards. The best way to do this is to improve employed labour and capital productivity[29] (Porter, 1990), while remaining exposed to competition. The proposed definition suggests implicitly that a country or firm would be competitive if, for example, its labour productivity were to improve as a result of a rapid increase in incomes rather than because of a decline in employed labour.

Diagram 5 gives a first approximation of this approach at national level. For want of indicators of social welfare, it compares per capita GDP and labour force employment ratios. Per capita GDP gives only a very partial idea of the average incomes generated by each inhabitant. Furthermore, it provides no

information about wealth distribution (for example, the percentage of the population living below the poverty line, as defined by the national authorities) and, as in the case of most indicators, the way it evolves could be distorted by the choice of reference year. As to the employment ratio, it provides no information about the quality of the jobs available, nor about the very different situations in which the unemployed find themselves (differing systems of compensation, long-term unemployment, youth unemployment, compulsory part-time working, undeclared work, etc.). Despite these limitations, Diagram 5 does indicate the very steep increase in unemployment which took place between 1980 and 1992 in the majority of OECD countries, and especially Ireland, Spain, Finland and New Zealand. Where per capita incomes are concerned, the United States was still in first place in 1992, with Luxembourg and Switzerland close behind, the interesting point being that the catch-up in these two countries took place against a background of virtually full employment. In the case of the less wealthy countries, it is important to stress the decline in unemployment and improvement in per capita incomes in both Portugal and Turkey. In terms of trends, note should also be taken of the sharp rise in per capita incomes in Japan and Ireland, the improvement in Ireland having been achieved despite a marked deterioration in the employment situation (see Diagram 6). These crude results demand a much more detailed analysis of the factors which contributed, directly or indirectly, to the trends observed, and also of the economic and social context in which they were obtained.

Diagram 5. **GDP per capita and employment ratio[1], 1992**

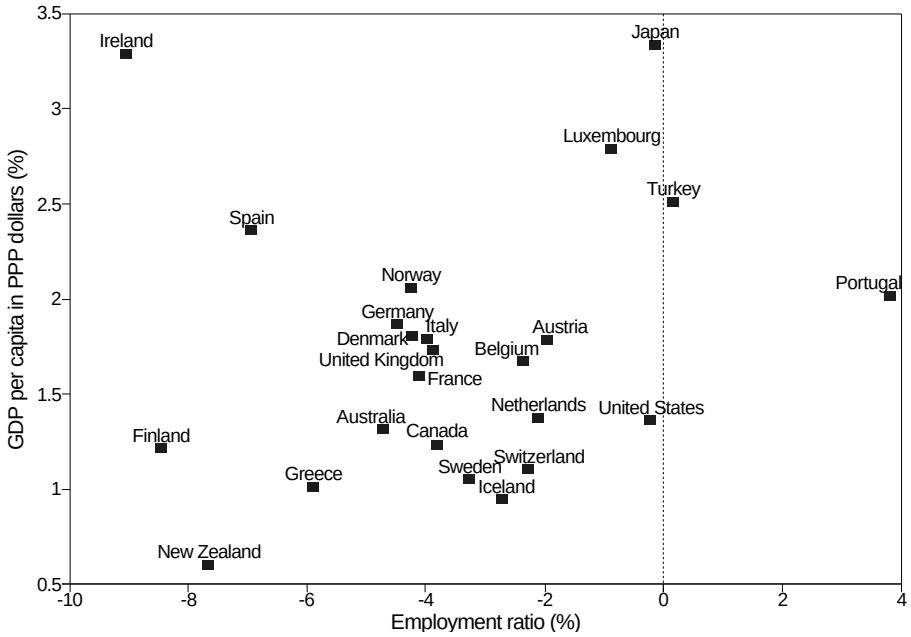


1. 100 - unemployment rate.

Source : OECD, Economics Department.

Where firms are concerned, the general definition proposed above requires some further clarification. If the main objective for firms is to meet the challenge of international competition, keeping employment at a high level cannot be a priority objective. For firms to prosper, they need to arrive at a trade-off between two objectives: *expanding* and *making profits*; it is these two criteria which need to be given *priority* in any analysis of competitiveness. That said, it is the way human resources are managed that could serve as a criterion for distinguishing between two firms which achieve similar results as regards their priority objectives -- and it is here that the proposed definition comes into play. The most dynamic firm could be the one which, over the long term, contrives not to have to lay off any staff and, at the same time, provides them with high-quality training and pays them well. This means that staff must be highly motivated and mobile within the firm, while the latter has constantly to adapt both to the requirements of the market and to technological change (see the microeconomic aspects, Annex 1).

Diagram 6. **Growth of GDP per capita[1] and of employment ratio[2] between 1980 and 1992**



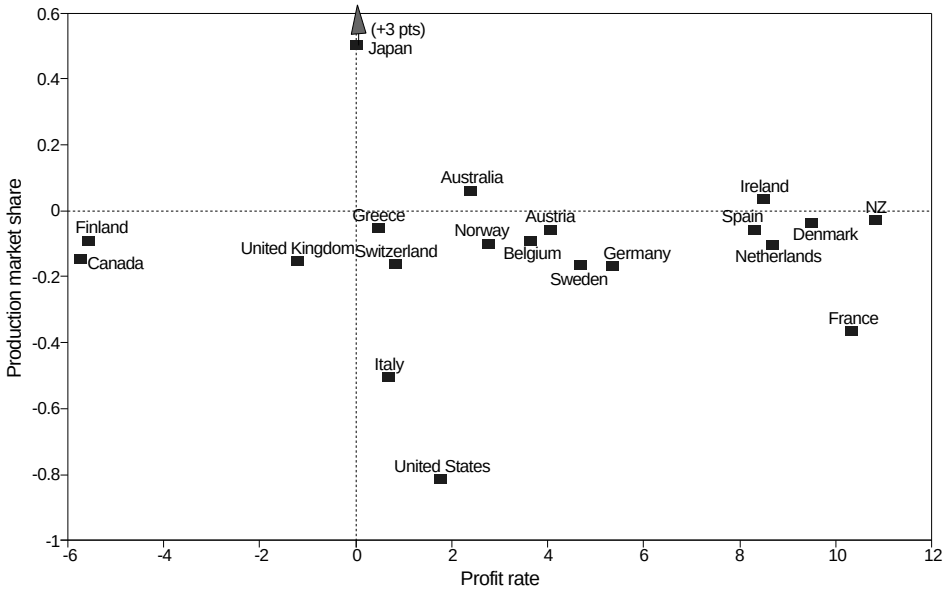
1. Average annual growth rate.
2. 100 - unemployment rate.

Source: OECD, Economics Department.

Diagram 7 shows that, between 1980 and 1992, competitive sector firms favoured the strategy of maximising profits to the detriment of increasing market shares. The notable exception to this rule was Japan, which was practically the only country looking determinedly to win market shares. At the other end of the scale was France, whose industrial market shares declined slightly during the said period, but whose profit margins picked up in spectacular fashion.

There may be another reason why firms attached priority to improving their margins, except during the period 1990-1993 which, in most countries, saw a recession that penalized both strategies at once (see Diagram 8). The robust competition which is a feature of globalisation provided increased investment opportunities for shareholders who became much more demanding with respect to firms' financial results.

Diagram 7. **Production market shares[1] and profit rates[2]**
Variation 1980-92



1. Share of business enterprises value added in OECD total (except Iceland, Luxembourg, Portugal and Turkey), at constant prices (dollars 1991).
2. Share of operating surplus in value added.

Source :OECD, Economics Department.

As has already been stressed, however, it is difficult to pass judgement on the effectiveness of the strategies of winning market shares and maximising profit margins. One possible criterion might be success in maintaining employment and improving real wages. Although this criterion is more relevant at the macroeconomic level, Annex 1 of this paper will provide some findings on the microeconomic side.

3. Limitations of existing measurements and possible new approaches

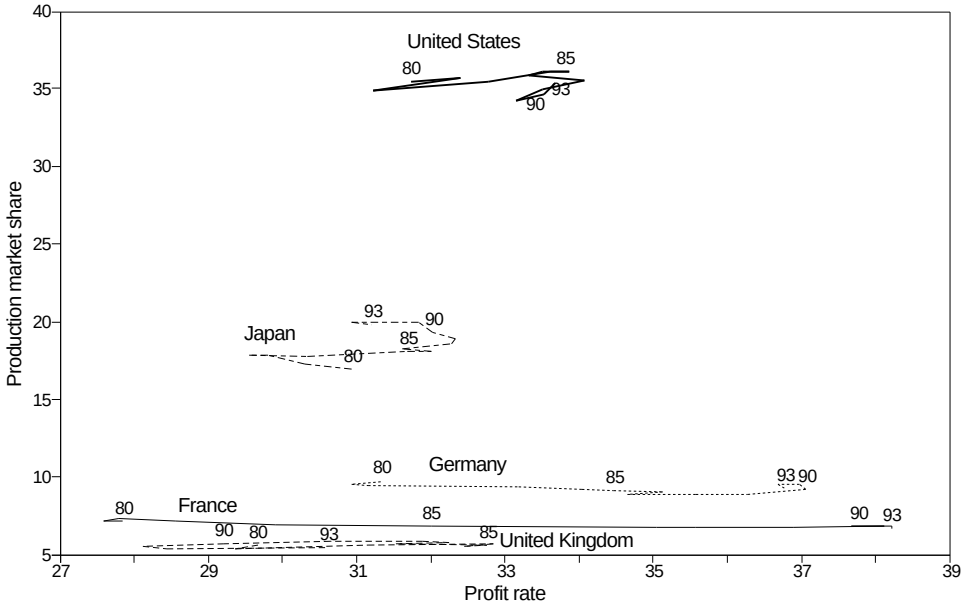
The focus in this section will be on some of the indicators most frequently used in analysing industrial competitiveness at the macroeconomic and sectoral levels, and partly also at the microeconomic level (that of the firm). The indicators in question relate to:

-- relative prices and unit labour costs;
-- market shares (in the broad sense);

  -- export market shares (foreign markets),
  -- rates of import penetration (domestic markets);

-- trade balances and the export/import ratio;
-- the rate of exposure to foreign competition.

Diagram 8. **Growth in production market shares[1] and in profit rates[2] of the five big countries between 1980 and 1993[3]**



1. Share of business enterprises value added in total OECD (except Iceland, Luxembourg, Portugal and Turkey), at constant prices (1991 dollars).
2. Share of operating surplus in value added.
3. Estimates for 1993.

Source :OECD, Economics Department.

Other indicators could be examined at a later stage, as a back-up to the work already in hand under the heading of the project on "Framework Conditions for Industrial Competitiveness".

3.1 Relative prices and unit labour costs

Analysis of competitiveness often rests on the distinction between price competitiveness and structural competitiveness. Structural competitiveness is usually defined as those factors which do not come down to prices. They encompass, in particular, specialisation in the economy, technological innovation, the quality of distribution networks and a host of factors which together constitute the state of supply. The two aspects of competitiveness are in fact closely linked. An improvement in competitiveness may be attributable to a price advantage, but it may also derive from judicious specialisation arising from investment decisions or a major technological innovation.

Price competitiveness can be evaluated by measuring price differentials (production, export and import prices) between different producers and exporters. *Export prices* are in reality indices of export unit values recorded by customs. This is advantage in that this method ensures that goods in real competition on export markets are representative. However, these prices do not take into account losses in competitiveness of potentially exportable goods that are not exported because of their high prices. *Cost indicators* could therefore be a better measure of competitiveness than export prices if it is thought that the latter also reflect changes in *profit margins*.

The cost indicators used nowadays generally relate to labour costs (in particular wages). A better comparison concerning costs would instead involve reasoning in terms of *net hourly costs* (*i.e.* after tax). This is because differences between countries in terms of working hours and taxation (payroll taxes, social charges, etc.) can lead to distortions in international comparisons. At the same time, for changes in costs to be a more meaningful indicator, changes in *labour productivity* ought to be taken into account.

Cost comparability can also be affected by imbalances resulting from the geographic location of production. In the case of industrial restructuring, for example, the closure of a production unit in a region with low labour costs can have a negative impact on the structure of costs for the whole of an industry's output. Also, the majority of these costs are calculated in respect of products sold on the domestic market, whereas more and more firms subcontract out a growing share of their production to firms in countries with low labour costs.

The transition in international comparisons from *global wage costs* to *unit wage costs* raises other difficulties because of the absence of specific exchange rates reflecting *purchasing power parities* that correspond to *each* industrial product.

The major drawback to using costs as a measure of competitiveness stems, however, from the fact that they refer only to *labour costs*. It is not an easy matter correctly to calculate the *cost of capital* and to obtain internationally comparable data[30], the problem being that it is necessary to take account of interest rates and the tax system in each country. Assuming that these factors, once correctly measured, were found not to differ substantially in any two given countries, a difference in costs attributed to capital might derive from a difference in the lifespan of capital equipment. Unfortunately, other important categories of costs are also not taken into accout, neither in the cost of labour not in that of capital. These include R&D costs, costs of distribution (intermediation costs), negotiation costs (purchasing group costs), and various other categories of financial charges. All these gaps limit the relevance of cost indicators to a significant degree.

As for *producer prices*, they have the drawback of involving a whole range of products and services that are not subject to international competition. To the extent that international comparisons between prices or costs are based on a common currency, competitiveness as represented by price differentials will be a *real effective exchange rate*[31]. The advantage of the latter compared to a *nominal effective exchange rate* is that it takes into account of changes in real prices in different markets. Experience in fact shows that exporters often prefer to lower their prices in certain markets in order to maintain their price-competitiveness. To sum up, therefore, for any given country, price-competitiveness is the difference between its own price and a weighted average of competing prices.

3.2 Market shares

Traditionally, firms establish a direct link between the trend in their market shares and their competitiveness. For them this corresponds to a priority objective, namely growth. For a nation, too, this link reflects its firms' capacity to win new markets.

The question which needs to be looked at here is under what circumstances does an improvement in market shares really correspond to improved competitiveness. Where a country is concerned, the concept of market shares is in two parts: shares of foreign markets (export market shares) and shares of the domestic market (rate of import penetration). Export market shares (MS_{ij}) for a country i and a product j concern the share of exports (X_{ij}) of product j by firms in country i in relation to world exports of the product or by a reference area (usually the 25 OECD countries).

$$MS_{ij} = 100\ X_{ij} \Big/ \sum_{i}^{25} X_{ij}$$

The rate of import penetration (MP_{ij}) for a country i and a product j corresponds to the share of domestic demand (D_{ij}) in country i for product j, which is met by imports (M_{ij})

$$MP_{ij} = 100\ M_{ij} / D_{ij}$$

In the case of a firm, the distinction between domestic and foreign markets is less apposite since it will be located in different countries and will calculate its shares on the world market. A distinction can however be made as regards the share of turnover recorded inside a given country or region and the share recorded outside.

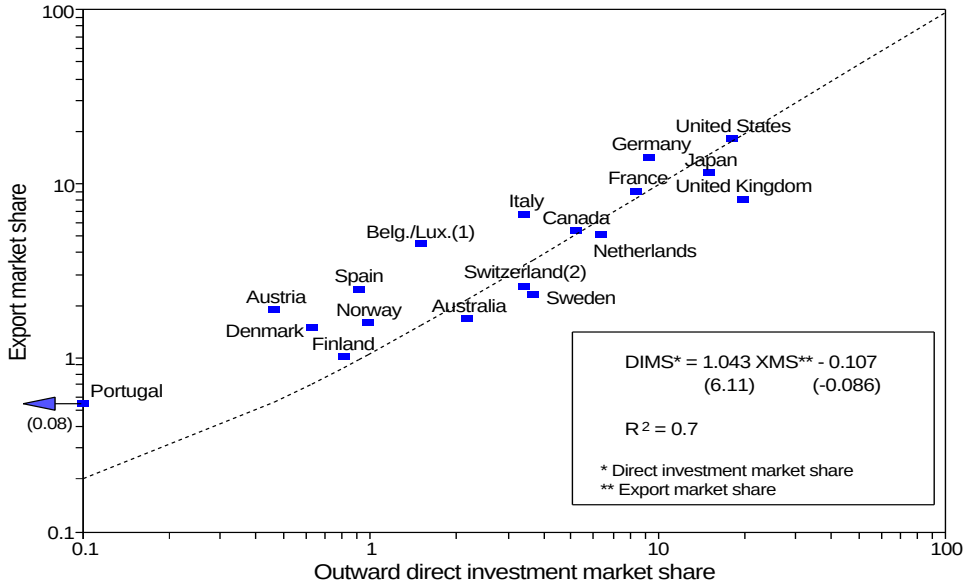
3.2.1 The impact of globalisation

Traditionally, markets are won via international trade, i.e. exports. As was seen in the first part of this paper, however, there are other, increasingly important ways in which this can happen: foreign direct investment flows, technology transfers and capital movements. Not only do these different forms of globalisation coexist, they are also interdependent (complementary or substitutable).

Direct investment can thus either reduce flows of exports if it takes their place, or increase them if it is complementary. It can also generate new flows of imports to the country of origin if what is involved is subcontracting relocated to lower-cost regions, with the possibility of some of these imports being re-exported in another form (finished products). International investment also generates numerous technology transfers (patents, licences, know-how, etc.), the vast majority of which go through foreign affiliates. Capital movements also have a direct or indirect influence on international trade, foreign investment and technology transfers, notably by virtue of their impact on the exchange rate and on interest rate policy.

It would seem obvious, under these circumstances, that analysis of competitiveness cannot be confined to international trade. Expanding the market share concept to encompass direct investment and technology -- to mention just these two forms of market penetration -- shows that there is a positive correlation between investment abroad and exports (see Diagram 9), while technology receipts (patents, licences, know-how) are quite closely linked to outward direct investment, although the correlation is not statistically significant (see Diagram 10).

Diagram 9. **Shares in export markets and outward direct investment**
Average of annual shares 1980-92



1. 1980-91.
2. 1983-92.

Source : OECD, EAS.

The fact that a firm invests abroad does not necessarily mean that it is competitive. In some cases it could even be a sign of weakness if, for example, the investment was prompted by the fact that the firm's costs were increasing faster than those of its competitors, obliging it to relocate part of its production in countries with lower labour costs. Similarly, if it is unable to adapt to stricter rules concerning the environment, it may have to relocate some of its activities. In every case, however, the object of direct investment is to improve competitiveness.

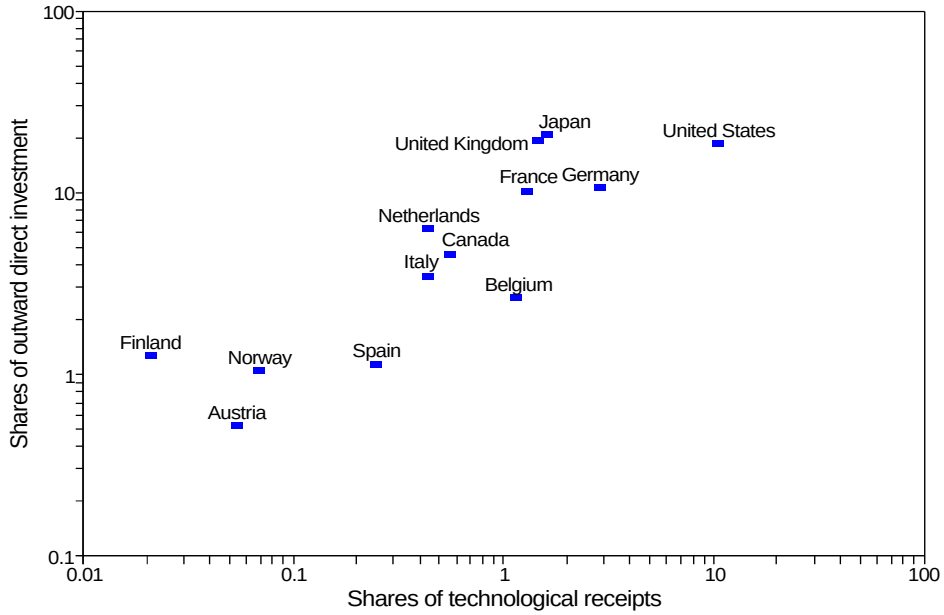
On the other hand, in order to consolidate their competitive positions, very competitive firms invest abroad so as to benefit from a competitive advantage (product, technology, competence and know-how in different areas) or from other positive externalities (eg. highly skilled manpower, the quality of the infrastructure, etc.). Experience shows, however, that few firms whose competitiveness is declining will invest in foreign countries. A study[32] by the French Industry Ministry showed that the most dynamic firms were those that were the most international.

For direct investment to be taken into account as an indicator of market gains, various other indicators can be used:

-- the sums invested abroad (flows and/or stocks);
-- the turnover (or production) of foreign affiliates, weighted by the percentage of equity participation in the case of a minority interest;
-- realized profits (repatriated or ploughed back).

Diagram 10. **Shares of outward direct investments and of technological receipts in the OECD total**[1]

Average shares 1981-91



1. Share in total of available countries.

Source : OECD, EAS.

There are advantages and disadvantages attaching to each of these indicators. What indicator, for example, could be equivalent conceptually to exports? From this point of view, realized profits (repatriated or otherwise) could be comparable to exports inasmuch as firms can, in principle, repatriate their profits in the same way as their export earnings. However, the role of direct investment could be underestimated if, at the same time, account were not taken of the additional exports it generates. As far as the role of technology transfers as a means of winning markets is concerned, it is still more difficult to measure their real impact. This should, in principle, apply more to unaffiliated firms, bearing in mind that the case of affiliates is covered by direct investment itself.

What is more difficult to gauge quantitavely is the nature of the control that a firm can exercise over a market by selling its technology. On the one hand, its earnings may not compare at all with the possible export losses. On the other hand, the dependency of the firms using its technology may in time lead to their absorption. These questions need no doubt to be investigated more thoroughly, from both the theoretical and the empirical points of view.

Carrying out a simultaneous comparison of exports, the realized or repatriated profits from direct investment, and technology earnings poses numerous technical problems relating, in the first place, to time lags. However, it also raises another difficulty; whereas goods and services exports and technology exports are conceptually of the same kind, the same seems not to be true of the profits deriving from direct investment, whether or not they are repatriated. The only way in which these three types of indicator could be made strictly comparable would be to have access to data concerning profits from exports of goods and services and from technology sales. However, such data are difficult to obtain because of the methodological problems they raise and their confidential nature.

3.2.2 International trade: a zero sum game?

The method used to measure market shares (see the formula in paragraph 89) suggests that, for a given product or set of products, each country's share is calculated as a percentage of the total exports of that product or set of products by all the OECD countries. This measurement indicates each country's share of a total which is systematically equal to 100. Using this approach, no country can win new market shares without another country suffering a corresponding loss. This would be realistic if the growth of world trade was systematically equal to zero but, bearing in mind that world exports grow faster every year in real terms than production, it would be interesting to consider these same measurements in the context of a non zero-sum game in which *all countries* could in principle benefit from the growth of world trade.

Table 1 shows the traditional figures for total manufacturing industry's export market shares in volume terms. Table 2 supplements that information with each country's contribution to export growth in the OECD area, by comparison with the preceding year. The figures in Table 2 relate to amounts that are smaller than the market shares in Table 1, and the larger the country and the slower the overall growth of exports, the higher these figures are.

3.2.3 Other factors which directly affect export market shares

It has already been observed that relocating production by means of direct investment over a certain period of time can generate new exports and supplement existing trade flows. Above a critical threshold, however, offshore production can take the place of exports and even turn into import flows back to the country of origin. In such circumstances, export market shares could shrink in relation to earnings from direct investment. Other factors, too, can also directly influence export market shares.

i) Firms' strategic choices

Targeting market share growth rather than profit maximisation, or vice versa, is a strategic choice for firms; however, the two strategies can be pursued at the same time, provided no attempt is made to optimise each separately.

Implementing these strategies obviously depends on shareholders' behaviour, and also on the firm's initial situation as regards production costs. If the latter are relatively low and are increasing more slowly than those of its competitors, the firm will be able to choose between raising its relative prices by a moderate amount and increasing its profit margins without expanding its market shares (this will also depend on the elasticity of exports in relation to demand for goods and services), or further reducing prices and increasing its market shares. If, on the other hand, prices which are already high continue to rise, it will be in firms' interests to accept some narrowing of their margins so as to prevent relative prices worsening and avert market share losses.

Clearly, therefore, these choices are not as unconstrained as might be thought.

Table 1. **Export market shares of manufacturing industry, in volume**

1991 prices

Countries	1981	1983	1985	1987	1989	1991	1992
Australia	0.9	0.9	0.8	0.8	0.7	0.7	0.9
Austria	1.4	1.5	1.6	1.5	1.6	1.8	1.8
Belgium-Luxembourg	4.8	5.0	4.7	4.9	4.9	4.8	4.7
Canada	3.9	4.2	4.6	4.7	4.4	4.2	4.5
Denmark	1.5	1.6	1.5	1.4	1.3	1.4	1.4
Finland	1.5	1.4	1.4	1.3	1.2	1.0	1.1
France	9.1	9.0	8.5	8.1	8.5	8.7	8.8
Germany	17.5	17.8	18.0	17.9	17.9	17.1	16.9
Greece	0.3	0.3	0.3	0.4	0.3	0.3	0.4
Island	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ireland	0.6	0.7	0.8	0.9	0.9	1.0	1.1
Italy	7.9	8.2	7.9	7.9	7.7	7.2	6.7
Japan	14.0	14.6	15.4	14.8	14.0	13.7	13.4
Netherlands	5.1	5.3	5.5	5.0	5.1	5.2	5.1
New Zealand	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Norway	0.8	0.9	0.9	0.9	0.7	0.8	0.8
Portugal	0.4	0.5	0.5	0.6	0.7	0.7	0.7
Spain	2.3	2.5	2.6	2.2	2.3	2.4	2.4
Sweden	2.6	3.0	2.9	2.9	2.7	2.4	2.3
Switzerland	3.2	3.0	3.0	2.9	2.9	2.7	2.7
Turkey	0.2	0.4	0.7	0.6	0.5	0.5	0.6
United Kingdom	7.0	7.1	7.1	7.5	7.3	7.4	7.4
United States	14.3	11.7	10.8	12.2	13.9	15.6	16.2
Total OECD	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source : OECD, Economics Department.

Table 2. **Contribution to the increase in OECD area manufacturing exports**

Volume figures, 1991 prices

Countries	1981	1983	1985	1987	1989	1991	1992
Australia	1.2	-1.2	0.9	1.5	0.7	1.9	4.3
Austria	1.9	2.0	3.2	0.5	3.3	3.1	2.0
Belgium-Luxembourg	2.5	4.9	3.8	5.3	5.2	4.9	-0.5
Canada	4.1	12.9	5.5	1.8	1.3	-0.6	13.4
Denmark	4.4	2.9	0.7	0.0	0.8	1.9	2.9
Finland	0.8	2.1	-0.4	1.2	0.5	-3.7	2.8
France	9.6	8.0	2.6	6.9	11.2	13.9	12.9
Germany	34.6	-1.9	20.7	10.9	18.4	22.7	8.7
Greece	-0.4	1.5	0.1	0.6	1.2	0.7	1.8
Island	0.2	0.3	0.1	0.2	0.0	0.1	0.0
Ireland	0.6	2.5	0.9	4.1	1.4	1.5	3.9
Italy	9.3	13.9	10.4	7.3	4.8	1.4	-10.8
Japan	40.0	42.6	15.9	1.1	8.2	8.5	4.4
Netherlands	8.0	10.0	8.7	-5.2	6.9	5.6	3.0
New Zealand	0.1	-0.1	1.0	0.3	0.1	0.8	0.7
Norway	1.1	1.9	1.9	1.1	0.7	0.9	1.0
Portugal	-0.2	2.5	0.9	1.7	1.8	-0.1	1.5
Spain	4.9	13.0	0.4	3.2	3.2	1.7	2.7
Sweden	1.0	10.5	0.5	2.3	0.9	-1.9	0.2
Switzerland	-2.2	-1.7	5.6	0.7	2.3	-3.4	3.0
Turkey	4.4	1.3	3.7	2.9	-0.1	1.2	1.5
United Kingdom	-14.9	-0.1	9.7	14.0	9.2	6.4	7.0
United States	-11.2	-27.9	3.3	37.3	18.1	32.6	33.6
OECD Growth	**3.6**	**2.8**	**4.5**	**4.2**	**7.4**	**3.8**	**3.1**

Source : OECD, Economics Department.

ii) Changes in specialisation

Changes in a country's specialisation can have a direct impact on the market shares of the sectors concerned. Gradual withdrawal, for example, from a low-technology sector in favour of other, more technology-intensive sectors will reduce the low-technology sector's market shares and increase those of sectors with a greater degree of specialisation.

iii) Slower growth of export markets

A country's market shares can be directly affected if its traditional export markets are going through a recession. In principle, this has nothing to do with the competitiveness of the exporting country -- at least in the short term -- but it is in every country's interests to export products for which there is strong demand to regions experiencing growth.

The "constant market shares" method[33] attributes the discrepancy between the growth of world exports of manufactures and a given country's exports to different effects, the most important of which have to do with the geographical composition of the export market and the nature of the products exported. In fact, a poor geographical breakdown of export markets which persisted for a relatively long period of time would be indicative of the industry in question not being dynamic enough to win shares in expanding markets, with the result that doubts about its competitive capacity to penetrate these markets could become legitimate.

iv) Differing growth of domestic demand and foreign demand

If domestic and foreign demand are growing at differing rates, the interpretation of market shares could be distorted. When in a given country, for example, domestic demand is growing faster than export markets, a share of production which ought to be exported may go to satisfy excess domestic demand first of all. This phenomenon makes interpreting indicators all the more difficult in that the ensuing decline in export market shares may be accompanied by a rise in the rate of penetration of imports.

It has been observed in almost all countries that any increase in domestic demand is very often matched by an increase, of varying magnitude, in import flows of different products. If the impact on competitiveness of differing rates of growth of domestic and foreign demand is to be measured accurately, the difference has to be calculated between the gains made by national producers on the domestic market as a result of the extra demand, and the gains that would have been available if their capacity utilisation rates had enabled them to satisfy foreign demand in the normal manner.

Similarly, it could be said that if, in a given country, domestic demand is growing more slowly than foreign demand, the rate of import penetration will be down, whereas export market shares could be up without the country's real competitiveness necessarily being altered.

Similar phenomena could also have an effect on third country indicators. If, for example, European exports were to fall for various reasons, US and Japanese market shares would automatically increase, without these countries' competitiveness necessarily being any greater. In order to avoid these errors of interpretation, it is important to stress the existence of a degree of asymmetry as to firms' competitive capacity, on the one hand with regard to a slump in demand and, on the other, vis-à-vis an increase in demand which is difficult to predict. In the first case, it could be concluded that firms' competitiveness ought not to be challenged, whereas in the second case the reaction would be more qualified. The absence of any capacity slack with which to respond to a sudden spurt in demand could be attributable to insufficient investment or to poor management. A firm can be said to be the more

competitive the better able it is to adjust its capacity utilisation in such a way as to win a new market.

v) Exchange rate fluctuations

Exchange rate movements can influence the way market shares are interpreted in the sense that they alter the structure of relative prices. That said, a change in relative prices does not necessarily indicate that the exchange rate has fluctuated.

Assuming that profit margins remain invariable, parity changes will have an impact on relative prices which is proportional to the elasticity of supply and demand for imports and exports (see Annex 1).

3.2.4 The rate of import penetration

Competitiveness on the domestic market, as measured by the rate of import penetration (see the definition in paragraph 90), is based on the notion that a national industry endeavours to win, or at least keep its shares in its own market. Bearing in mind that trade is not the only way of penetrating a market, a more comprehensive evaluation needs to take account both of imports and of output by foreign affiliates in response to domestic demand.

By comparing the two types of foreign penetration (apparent and effective) (see Box 1), it is possible to measure the impact of multinationalisation on the penetration of the domestic market, over and above traditional trade relations.

Foreign production for the domestic market can be calculated by subtracting from it the proportion that is exported. Where imports are concerned, it is as well to make sure that foreign affiliates do not use imports for the bulk of their output, otherwise the measurement of effective penetration will be overestimated as a result of these imports being counted twice (once in total imports and a second time in foreign affiliates' production). Despite foreign affiliates' strong propensity to import, the danger of this happening is relatively slight in that local content accounts for an increasingly large share of these firms' output.

Box 1

Apparent Penetration and Effective Penetration

If Y, X and M stand, respectively, for a country's manufacturing output, exports and imports, its domestic demand D will be equal to:

$$\textit{Domestic demand } D = Y - X + M$$

And if P_A is apparent penetration, the customary concept of rate of penetration, measured by the ratio M/D.

Then, *import penetration* or *apparent penetration* P_A will be:

$$P_A = M/D = M\ (Y - X + M)$$

If, in a given country, Y_n and Y_f stand respectively for the output of domestic and foreign enterprises and X_n and X_f for domestic and foreign exports, *effective penetration* P_E of the domestic market by foreign industries may be measured as the sum of imports M and foreign output destined for the domestic market ($Y_f - X_f$), or $Y_f - X_f + M$, the whole related to domestic demand:

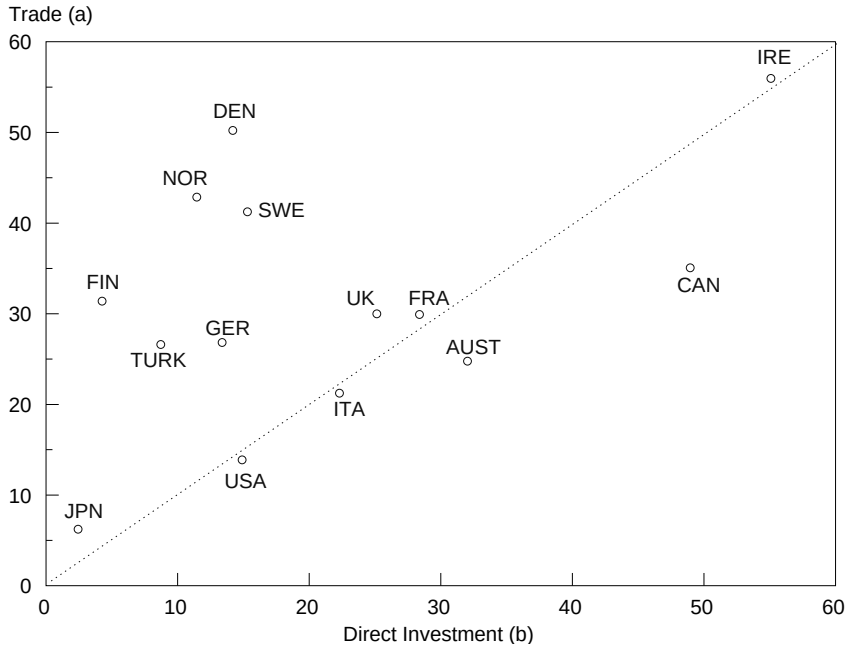
$$P_E = (Y_f - X_f + M)/D$$

The proposed measure of effective penetration could be overestimated if a large part of the foreign affiliates' production is realised from imports, which are already included in total imports.

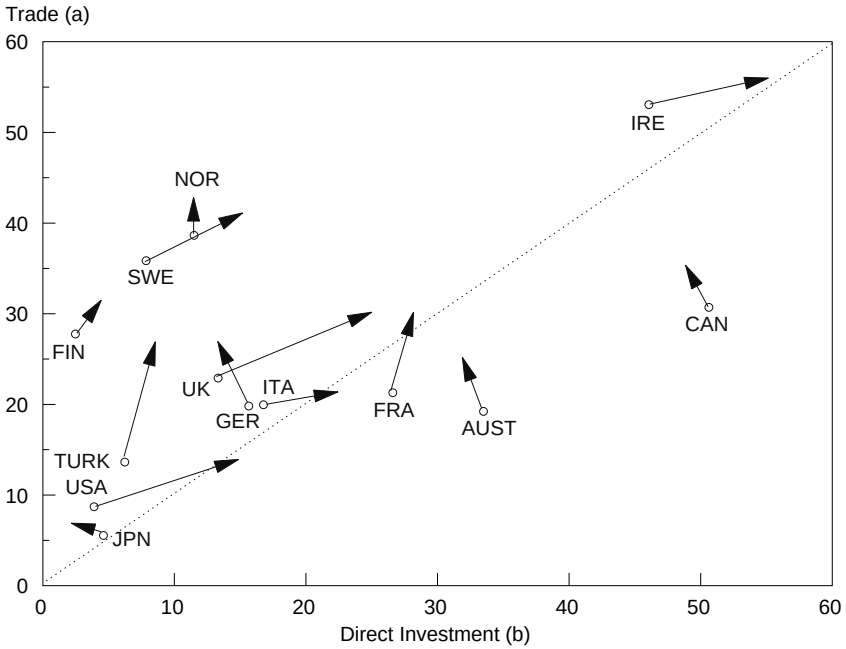
In a more subtle evaluation, the foreign affiliates imports, could be subtracted if they are available, and possibly also the content of imports of the foreign affilates exports.

Changes in apparent and effective penetration have, however, to be interpreted with some care. Even when it does not concern individual sectors, a low level of import penetration does not necessarily mean that there are barriers to entry; it can be indicative of higher productivity or of lower domestic price levels. A high level of import penetration, on the other hand, may be the result of the country being more fully integrated in the world economy, which, at the same time, will be reflected in proportional gains on foreign markets. Also, it can stem from particularly rapid growth of domestic demand, or from a substantial depreciation of supplier countries' currencies.

Diagram 11. **Exposure of domestic markets to manufactures 1990***



Trends, 1980-1990



* or nearest year.
a : Imports / Domestic demand.
b : Turnover (or Production) of foreign subsidiaries / Total national Turnover.
Turnover was used instead of production for the following countries : United States, Germany, France, Italy, Canada and Australia.

Source : OECD, EAS, Industrial Activity of Foreign Affiliates data bank.

The size of the countries involved is also very important. The level of import penetration is usually greater in small countries because they are more open to the world economy and because of the way they specialise (see also Diagram 12). Not being able to specialise in many sectors, they become more dependent on imports. Over the longer term, however, if the level of import penetration rises faster than domestic demand and is not accompanied by equivalent gains on export markets, it is possible that there may be certain competitiveness problems.

It is more difficult to interpret the significance of a strong foreign presence at the production stage since it can be attributable to declining competitiveness among domestic producers who, because they cannot manufacture certain products, make way for foreign firms, while it can also be indicative of domestic firms having made the strategic choice to relinquish certain types of production on their home ground in order to acquire firms with a big innovative capacity abroad or, again, it may be the outcome of a deliberate policy (subsidies, tax exemptions, etc.) on the part of the authorities aimed at attracting foreign firms' capital. Limited foreign presence, or possibly even a decline in foreign firms' turnover and manpower (which is apparent in some countries), raises other problems which are more specific to the markets in question.

Annex 1 contains measurements by the United States, Japan, France, Sweden and Finland of apparent and effective penetration in the main manufacturing sectors in 1980 and 1989. In the absence of data on foreign affiliates' exported output, it may suffice to take a larger number of countries and compare the combination of import penetration (apparent penetration) and these affiliates' share in production. These two indicators reflect the real degree of exposure of the domestic market in each country *vis-à-vis* imports and investment in manufacturing industry. The two Diagrams 11 show that the majority of countries are more open to imports than to foreign investment.

3.3 Trade balances and export-import ratios

The trade balance (exports less imports) is probably the macroeconomic indicator that is most frequently used to gauge the competitiveness of a country, or of a sector or product at national level. The export-import ratio is also used, but the two methods of measurement are not alternatives; rather they are complementary, given that one can improve and the other deteriorate at the same time, and vice versa.

3.3.1 Factors which directly influence trade balances and export-import ratios

In principle, the factors which come into play in the case of trade balances are the same as those that affect export market shares and rates of import penetration. These three indicators are, moreover, directly linked (see Box 2).

Box 2

Market shares, import penetration and export/import ratio

Export market shares by volume of country i for product j ($\mathbf{MS}_{ij}^{v}$) are equal to:

$$MS_{ij}^{v} = \frac{X_{ij} \ / \ P_{ij}^{x}}{D_{w,j}}$$

where:

$\boldsymbol{X_{ij}}$: exports of product j by country i
$\boldsymbol{P_{ij}^{x}}$: export prices of product j by country i
$\boldsymbol{D_{w,j}}$: world import demand by volume for product j

Also, import penetration rate ($\boldsymbol{MP_{ij}^{v}}$) of product j by country i is equal to:

$$MP_{ij}^{v} = \frac{M_{ij} \ / \ P_{ij}^{m}}{D_{ij}}$$

where:

$\boldsymbol{M_{ij}}$: imports of product j by country i
$\boldsymbol{P_{ij}^{m}}$: import prices of product j by country i
$\boldsymbol{D_{ij}}$: domestic demand by volume of product j by country i

Then, export/import ratio $\boldsymbol{TC_{ij}}$ will be equal to:

$$TC_{ij} = \frac{X_{ij}}{M_{ij}} = \frac{MS_{ij}^{v}}{MP_{ij}^{v}} \cdot \frac{P_{ij}^{x}}{P_{ij}^{m}} \cdot \frac{D_{w,j}}{D_{ij}}$$

i) Improvement of price-competitiveness and structural competitiveness

The main question here is to what extent an improvement in the trade balance or the export-import ratio may be attributable to improved competitiveness or other factors. An improvement in relative prices can contribute to trade surpluses, but this will also depend on the factors responsible. If, for example, the improvement is the outcome of more efficient control of production costs or an improvement in non-price factors (structural competitiveness) such as innovation, product quality, etc., then this result does reflect improved competitiveness. However, while the factors mentioned below can help to improve the trade balance, they are unconnected with competitiveness.

ii) Cyclical lag

When export market demand grows more rapidly than a country's domestic demand, the trade balance will tend to improve as long as there are no other obstacles preventing export growth (*e.g.* a lack of spare capacity). In the same way, if domestic demand grows faster than export markets, other things being equal, the trade balance will tend to deteriorate.

iii) Terms of trade

If the prices of imported goods were to rise more slowly than those of exported goods, or if the import prices of certain primary commodities were to decline even (oil, raw materials, food, etc.), the trade balance would improve without the country's competitiveness being in any way responsible for the improvement.

iv) Other factors

The introduction of structural adjustment policies made necessary as a result of excessive government borrowing, for example, may be intended to increase exports and massively cut imports. Obviously these results do not reflect improved competitiveness. Another factor has to do with measurement difficulties and only concerns the countries of the European Union. According to the customs authorities, the abolition of frontiers within the Union may mean that imports are being underestimated. The factors mentioned above are not exhaustive, but are amongst those that should be given prime consideration when analysing the influence of competitiveness on the trade balance.

3.3.2 A different method of calculating trade balances[*]

While exports and imports are the basic variables used in macroeconomic analysis of a country's production and employment, it is being recognised increasingly that, to have a complete picture of firms' global activities sales by their foreign affiliates need to be taken into account. In the case of the United States, for example, the overwhelming majority (85 per cent) of sales by American multinationals to unaffiliated foreign firms in 1991 were in the form of local sales by their subsidies and only 15 per cent were the result of direct exports by parent companies. Clearly, therefore, sales via affiliates is a factor that needs to be taken into consideration during trade negotiations and, of course, when analysing the global activities of multinational firms.

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[*] This section is taken from the publication *The Performances of Foreign Affiliates in OECD Countries* (1994).

In the traditional balance-of-payments approach, foreign affiliates' purchases and sales are not recorded in the accounts of host countries, except indirectly if these transactions affect revenue from direct investment and can indirectly influence exports and imports. In balance-of-payments accounts the activities of foreign affiliates are classified in the host country "residents" category, rather than in that of the country which owns the capital. Thus, direct investment income (retained earnings, interest and dividends) is recorded by the investor country as revenue from abroad and by the host country as a payment to abroad. In contrast, foreign affiliates' local sales are not recorded, being regarded as transactions between residents of the same country. It follows that foreign affiliates' profits are included in the GNP of the investor country, but excluded from its GDP, while their output is included in the GDP of the host country and excluded from the GDP of the investor country. Similarly, goods and services for export are included in both the GNP and GDP of the exporting country, irrespective of the country of destination and the links between the firms involved in the transactions (affiliate with parent company, for example). Likewise, imported goods and services are excluded from the GDP and GNP of the importing country.

On the basis of this information, various alternative methods have recently been developed which incorporate both cross-border sales, as defined in the balance-of-payments framework (based on the notion of "residence"), and foreign affiliates' sales in their country of location (notion of "ownership"). The major principle of these methods is that they exclude sales between entities belonging to the same owner country. Borders are no longer geographical, but are determined by the origin of the capital's ownership.

These new methods of calculation are confined to goods and services transactions and those involving direct investment. Transactions concerning portfolio investment and other capital transfers are not taken into account. Analysis of a country's trade transactions based on the ownership of its productive assets throughout the world may be presented in Annex 1.

These global trade transactions based on the ownership of the firms show a positive trade balance for the United States and an increase in the Japanese surplus. However, these calculations still have an experimental side as certain methodological difficulties have not yet been satisfactorily resolved.

Amongst the problems still awaiting a satisfactory methodological solution are the following:

a) Inclusion of the sales of minority foreign-controlled firms (between 10 and 50 per cent) can pose problems of double counting in calculating overall totals. One solution might be to calculate all transactions proportionately to the percentage of control, or else to confine the calculations to majority-owned firms.

b) Identifying the investor country. Double counting can also occur when the country of ultimate ownership is not the country of the parent company. This difficulty could be eliminated by taking account only of ultimate ownership and not of the origin of the parent company.

c) Transactions between affiliates controlled by the same foreign country, but whose parent companies are not the same. In order to determine whether or not to include these transactions when calculating the affiliates' net sales, it is necessary to know the country of origin of each firm with which the affiliates have done business, and this information is not always easy to obtain.

That said, these calculations give a fuller picture of the globalisation of multinational firms' activities and provide an idea of the capacity of a country's firms to be competitive on world markets. Also, they throw light on the nature of certain transactions (deficits or surpluses involving affiliates, the importance of intra-firm trade[34] etc.).

Similar studies have recently been carried out in the United States by the National Academy of Sciences (NAS)[35] (1993), and also by De Anne Julius[36] (1990). These studies indicate, for 1991, a net

United States balance on global sales and purchases of goods and services of $24 billion (the Julius proposal) or $164 billion (the NAS proposal), compared with a $28 billion deficit on traditional balance-of-payments definitions (see Table 22). A recent US Department of Commerce study reviewed these proposals and, in addition, suggested a set of supplemental accounts that, while providing additional information on ownership, retained residency as their basis of organisation[37].

Table 3. **US International Economic Performances, 1991**

(Billions of dollars)

	Residency-based frameworks		**Ownership-based frameworks**	
	Cross-border trade in goods and services	Alternative residency-based approach, including cross-border trade and not sales through affiliates	National Academy of Sciences proposal	Julius proposal
US sales to foreigners	581	632	816	2 523
US purchases from foreigners	609	608	652	2 499
Balance	-28	24	164	24

Source : *Survey of Current Business* (December 1993).

These calculations, like the preceding ones, regard foreign affiliates located in host countries as foreign firms, and affiliates of domestic firms abroad as domestic firms insofar as they are controlled by domestic capital. In the National Academy of Sciences framework, global net sales (foreign sales less foreign purchases) are defined as the sum of the following three components: *a)* net cross-border sales by US-controlled domestic firms *b)* net foreign sales by US foreign affiliates; and *c)* net sales by US firms to foreign affiliates in the United States.

The main differences between the National Academy of Sciences (NAS) method and that proposed by Julius concern the calculation of affiliates' net sales, *i.e.* their sales less their purchases. Whereas in the NAS method purchases include payments to foreign capital and labour, in the Julius method these are excluded. The NAS measure, by not regarding foreign supplied labour and capital as a "purchase" of the investor country, includes in the investor country's "net sales" to foreigners the returns to foreign-supplied factors of production. This may be appropriate from the standpoint of analysis of the affiliates's productive activity in the host country, but it may give misleading signals if used as a general country-level macroeconomic indicator, since it commingles returns to factors of production supplied by the host country with those supplied by the investor country. The Julius method (as well as the alternative residency-based approach, see Table 22) avoids the problem of commingling of returns to factors of production supplied by different countries and thus could be said to be more consistent with traditional macroeconomic indicators, though it could be argued that it may be less useful for some other purpose (for example, as an indicator of company performance).

Another difference between the two approaches concerns the way information is recorded. In the NAS approach, net sales and net purchases are registered separately for inward and outward investment. Julius, on the other hand, proposes that local purchases of goods and services by foreign affiliates be seen as a component of sales by foreigners to the United States (instead of subtracting them from American affiliates' total sales), using ratios based on estimates of the supposed local content (the *Survey of Current Business* article provides real information, not estimates of local content.) This also explains why sales are higher in the Julius approach than in the NAS method.

Also presented in Table 22 are the results of another alternative approach which is closer to conventional calculations of direct investment income. The trade surplus is identical to that in the Julius approach, even though the latter starts with much higher flows. Compared with the NAS approach, the surplus is much smaller because of differences in the way net sales of foreign affiliates are calculated, and also owing to the fact that American firms' foreign affiliates obtain more factors of production outside the United States than do foreign affiliates inside.

3.4 The rate of exposure to international competition

The notions of market openness and of competition[38] are too complex to be encompassed by just one indicator. And yet these two concepts are central to analysis of globalisation and competitiveness. This section will confine itself to presenting a simple, easy-to-construct indicator which relates solely to foreign trade. The indicator of exposure to international trade rests on the idea that the exported share of production is 100 per cent exposed and that the share sold on the domestic market is exposed in the same proportion as the penetration of the market (see Box 3).

Box 3

The rate of exposure to international competition

The resources-uses balance for a given product may be written as:

$$\mathbf{Y + M = D + X}$$

where **Y** is production, **M** imports, **D** domestic demand and **X** exports.

The indicators used are:

* The export ratio (ER) which is equal to:

$$\mathbf{ER = X/Y}$$

* The rate of exposure to international competition (E) is equal to:

$$\mathbf{E = ER + (1 - ER)MP} \text{ or}$$
$$\mathbf{E = X/Y + (1 - X/Y)\ M/D}$$

where **MP** is the rate of import penetration

The construction of this indicator rests on the idea that the exported share of production is 100 per cent exposed and that the share sold on the domestic market is exposed in the same proportion as the penetration of the market.

It is easy to show that the export-import ratio **C**

C = X/M may be written:

$$C = \frac{\frac{1}{MP} - 1}{\frac{1}{ER} - 1}$$

and the trade balance B:

$$B = X - M = \left(\frac{1}{MP} - \frac{1}{ER}\right)$$

Diagram 12 shows the positions of the OECD countries in 1980 and 1992 on the basis of the two elements which make up this indicator, namely the export ratio and the rate of import penetration. Three main conclusions may be drawn from the diagram. First, in the space of 12 years, all the countries concerned became more exposed to competition, either on foreign markets or on the domestic market, or on both at once. In 1980, there were four countries with a rate of exposure of less than 10 per cent (Japan, United States, Spain and Turkey), while in 1992 there was only Japan.

The second conclusion is that small countries are indeed more exposed than big ones. That said, countries of the same size can have fairly different degrees of exposure. Usually, there is some symmetry between exposure on foreign markets and on the domestic market, which is why all the countries are more or less grouped around the bisecting line. This symmetry applies mainly in the case of exports rather than imports, insofar as it is relatively difficult to increase exports without at the same, though to a lesser degree, increasing imports. Imports, on the other hand, can grow without influencing exports.

The third observation concerns certain country-specific details. Some countries were more exposed on foreign markets than on the domestic market (*e.g.* Ireland, Sweden, etc.), yet if this information is compared with that contained in Diagram 11, it can be seen that these countries' domestic market exposure increased as much, but as a result of direct investment rather than imports.

In other countries, on the other hand, it was mainly on the domestic market that exposure to competition increased, this being the case in the United States and Spain in particular. This result is all the more important in that, in these two countries, output by foreign affiliates aimed at the domestic market increased considerably during the reference period.

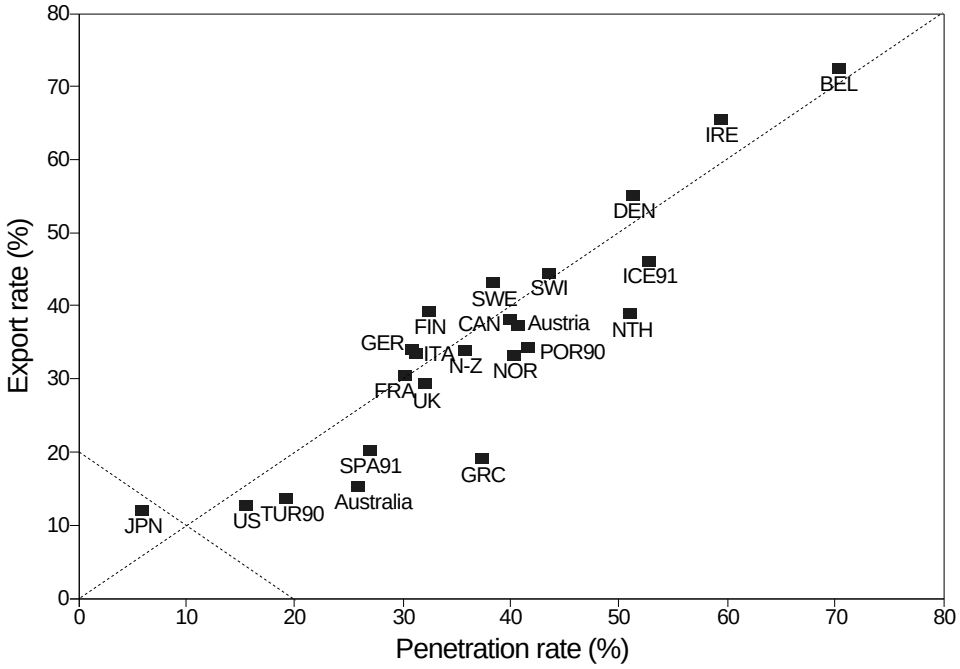
Earlier studies[39] have shown that more than 25 per cent of American domestic demand for manufactures is satisfied either by imports or by the local output of foreign affiliates, while 85 per cent of sales by American multinationals to non-affiliated firms take the form of local sales by affiliates and only 15 per cent are the subject of direct exports by parent companies. Can it be said, on the basis of these results, that in a country like the United States, the determinants of competitiveness are almost solely domestic? The only way to confirm such a postulate, at national level at least, would be to measure the direct and indirect impact of the internal and external factors on the average American real income.

3.4.1 Links with employment

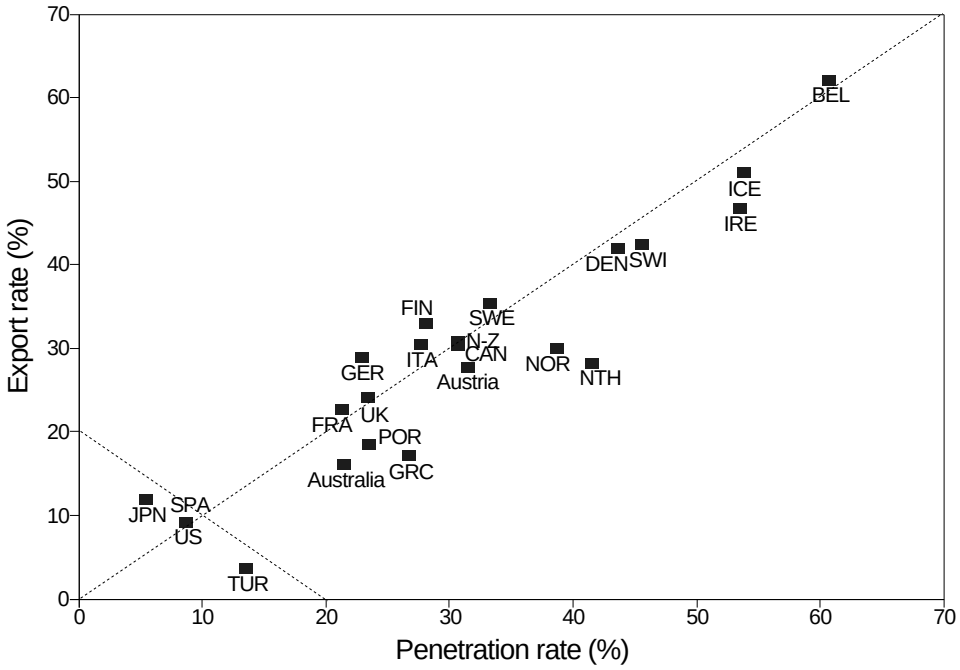
Diagram 13 compares the trends in the rate of exposure to competition and in employment over the period 1980-92.

Diagram 12. **Export rate and import penetration rate in the manufacturing industry**

1992



1980

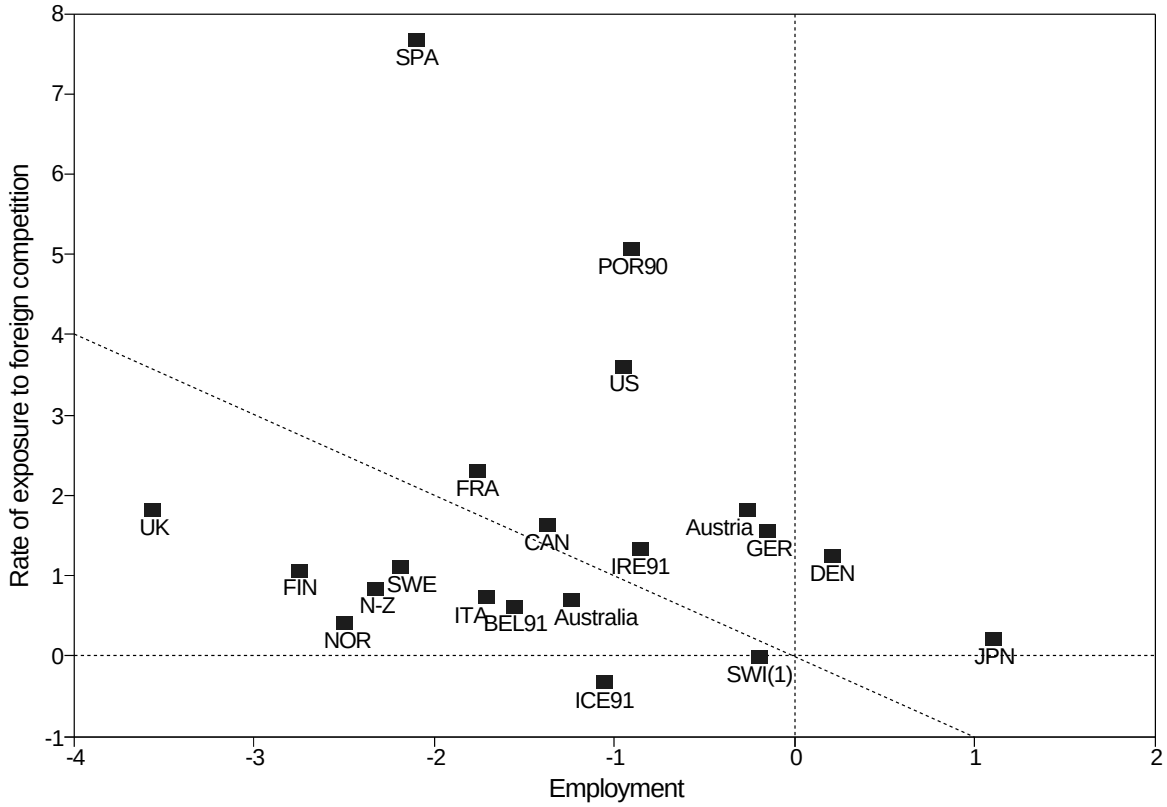


Notes : Export rate = exports / production.
Penetration rate = imports / demand.

Source : OECD, EASD, STAN database.

Diagram 13. **Variation of the rate of exposure to foreign competition and of employment in the manufacturing industry**

Average annual growth rate 1980-92

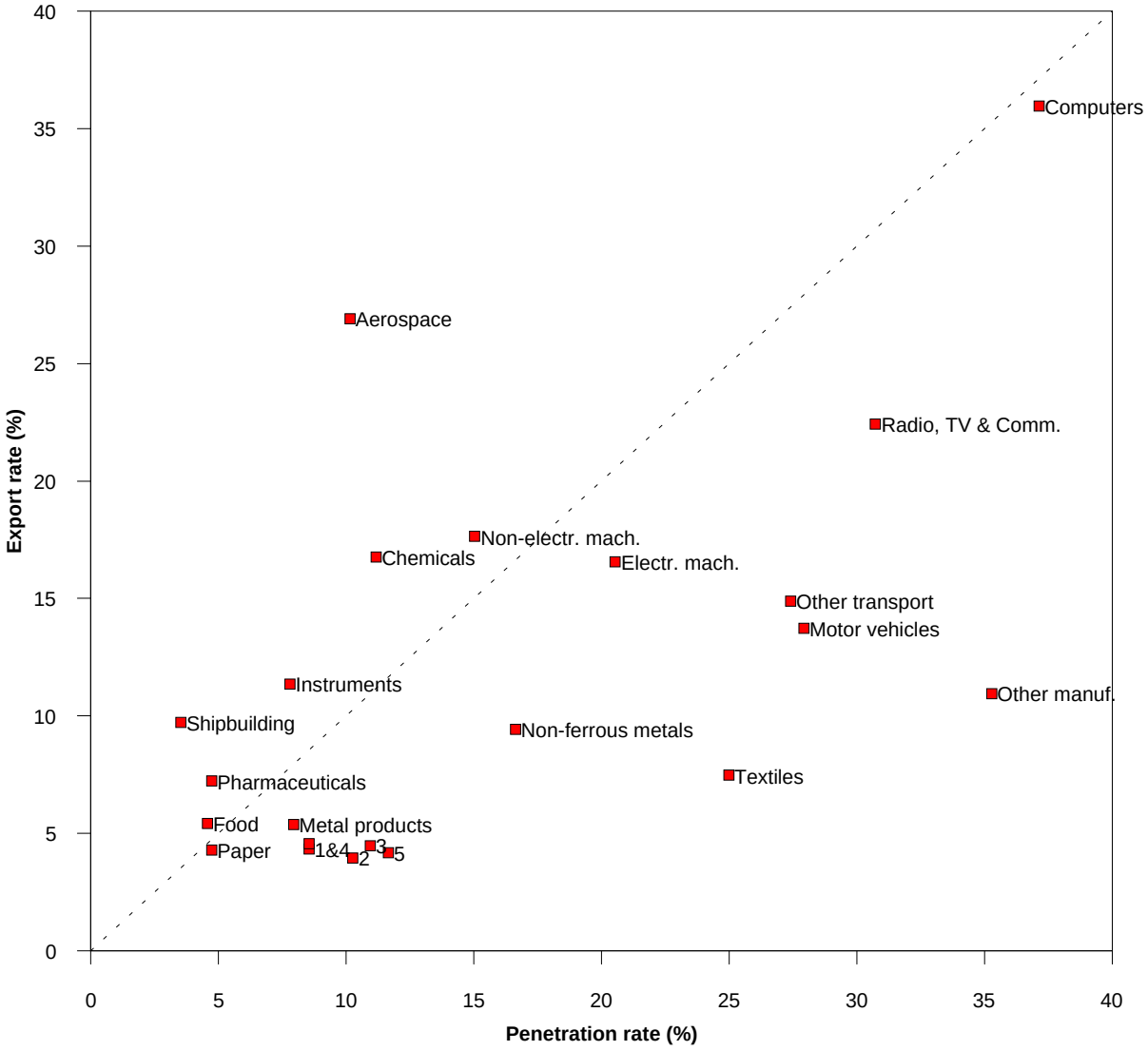


1. ISIC 2+3+4+5 for employment.

Source : OECD, Economics Department and LFS.

It might be supposed that the more an industry is exposed to international competition, the greater will be the downward pressure on costs so as achieve productivity gains, which ought to have an unfavourable impact on employment. However, the empirical findings -- incomplete and flawed though they may be -- do not confirm that this is generally the case. In reality, similar rates of change in exposure to competition can be matched by quite different employment situations (*e.g.* Germany and the United Kingdom). Conversely, similar employment trends can be accompanied by quite different exposure to competition, in terms of both levels and growth. Experience shows in fact that, increasingly, the sectors least exposed to competition are adopting the same attitude with regard to productivity gains as exposed sectors. This explains why, in certain services which are not very exposed to competition, there is a high level of capital-labour substitution. These findings do, however, prompt two further comments.

Diagram 14. **United States: Export and penetration rates by sector in 1990**

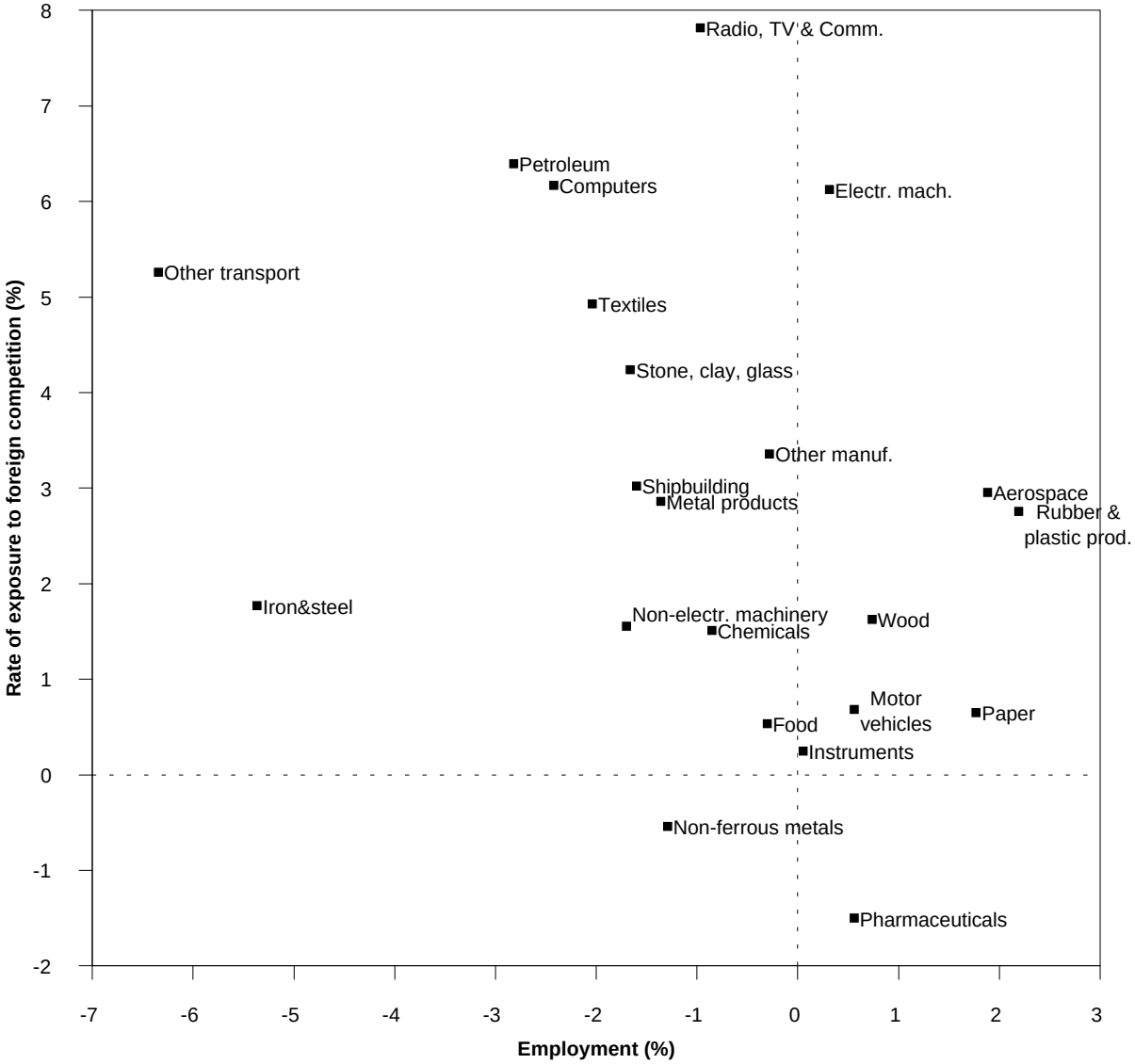


1. Wood. 2. Petroleum. 3. Rubber & plastic products. 4. Stone, clay, glass. 5. Iron & steel.

Source : OECD, EASD, STAN database.

It needs first of all to be stressed that employment data are very sensitive to the reference period. Also, it must not be forgotten that these results only concern manufacturing industry, so that any comparison with unemployment figures, which in principle relate to every sector of the economy, would be invalid. What is more, these figures do not include the most recent period, when the biggest changes took place.

Diagram 15. **United States: variations of exposure to foreign competition and of employment in the manufacturing industry between 1980 and 1990**



Source : OECD, EASD, STAN database.

Second, it cannot be concluded from these findings that there is no link between competition and trends in employment. As defined here, the rate of exposure to competition does not in any way specify what the nature of that competition is. The latter depends on a great many factors and is often very fierce -- even on the domestic market between national firms belonging to the same sector, which is a situation not covered in the preceding calculations.

3.4.2 Sectoral trends

Applying the preceding results at sectoral level suggests that other factors peculiar to each industry have a more decisive impact on the employment situation than does the trend in the rate of exposure to competition. The example given here is that of the United States. Diagram 14 shows the market (domestic

or foreign) on which the different industries tend to be more exposed. The aircraft industry, for example, is exposed on foreign markets above all, while the textile, automobile or electronics industries are exposed more on the domestic market.

This distinction does not seem to be very significant when a comparison is made with trends in employment (Diagram 15). The fact that employment held up well in the aircraft industry, for example, is attributable not so much to the industry's low level of exposure on the domestic market as to the trend in demand and the nature of competition in that sector (oligopolistic). The decline in employment in the ferrous metals industry could, on the other hand, be partly ascribable to foreign competition, but is above all the result of the fall in world demand, including on the United States domestic market. It follows that a proper analysis of employment trends needs to take account of all the structural aspects specific to each sector.

Conclusions

After a brief introduction to the concepts of globalisation and competitiveness, this report has focused on the limitations of the traditional ways of measuring competitiveness. These are of two sorts: first, the results are not independent of the economic context at the time in question, which means that further, sometimes long and complex investigations are necessary. Second, they only take account of the role of international trade, whereas studies on globalisation have demonstrated the importance of other means of winning markets -- notably direct investment -- and also the fact that these other means are interdependent. On the basis of these findings, future work could be directed in three main directions.

a) Links between trade and direct investment

   The links between direct investment and trade (complementarity or substitution) are complex and have direct effects on the measurement and significance of most of the indicators of competitiveness. The work would involve developing indicators of inward and outward direct investment at sectoral level, both for flows and also for production and employment. These investigations could subsequently be broadened to cover analysis of the influence of relocation on employment and industrial competitiveness in the investing country.

b) Technological links between investing and host countries

   The aim here would be to begin by analysing the extent to which the relocation of production is followed by the relocation of R&D centres, in what countries and in what sectors. The next stage would be to measure the share of R&D carried out inside a given country, and outside via its affiliates, and to consider the nature of the technology transfers between parent companies and their affiliates. This work could be extended to include an investigation of the technological influence of foreign affiliates on the industrial activities of host countries (spillovers).

c) Data on individual firms

   Work already done so far indicates the need to supplement macroeconomic and sectoral information with results for individual firms. What this does is to attach to firms the importance that they deserve as major players in globalisation. When the firms are well chosen, they can throw new light on the way the main sectoral and macroeconomc trends are going. The data usually come from government sources or from firms' own annual reports. Co-operation with private institutes which possess this sort of information could also be rewarding.

Annex 1

Table A1.1. **United States -- Foreign penetration**
(in percentage)

	ISIC classification Rev. 2	Apparent penetration rate (M/D)		Effective penetration rate $(Y_f - X_f + M)/D$	
Industrial Sectors		**1980**	**1989**	**1980**	**1989**
Food, Beverages, Tobacco	31	4.7	4.4	8.8	14.4
Textiles, Leather, Footwear	32	12.0	23.7	13.3	26.6
Wood, Cork, Furniture	33	7.2	8.7	8.0	9.8
Paper, Printing	34	4.2	4.8	8.6	12.4
Chemicals, Petroleum	35	6.6	9.9	13.3	27.7
of which Drugs and Medicines	3 522	4.4	4.3	16.3	38.8
Stone, Clay, Glass	36	4.9	8.4	13.7	31.7
Basic Metals	37	12.2	14.0	18.9	28.9
Machinery, Equipment	38	11.3	19.5	15.6	26.8
of which Computers	3 825	9.3	34.9	--	43.9
Electrical Machinery	383	11.7	25.8	--	38.7
Electronic Components	3 832	14.0	30.7	--	43.5
Motor Vehicles	3 843	23.6	27.5	--	31.7
Other Manufacturing Industries	39	20.9	36.1	25.3	--
TOTAL Manufacturing Industries	3	8.7	13.9	13.5	24.5

Source: OECD EAS, Industrial Activity of Foreign Affiliates data bank.

Table A1.2 . **Japan -- Foreign penetration**
(in percentage)

	ISIC classification Rev. 2	Apparent penetration rate (M/D)		Effective penetration rate (Y_f - X_f + M)/D	
Industrial Sectors		**1980**	**1989**	**1980**	**1989**
Food, Beverages, Tobacco	31	7.3	7.8	7.9	8.3
Textiles, Leather, Footwear	32	9.6	14.9	9.8	15.0
Wood, Cork, Furniture	33	6.7	10.7	6.8	10.7
Paper, Printing	34	2.8	2.7	3.3	3.3
Chemicals, Petroleum	35	8.2	8.4	26.6	18.9
of which Drugs and Medicines	3 522	7.3	6.0	--	--
Stone, Clay, Glass	36	0.9	2.6	2.7	3.2
Basic Metals	37	3.5	6.0	4.8	6.8
Machinery, Equipment	38	3.8	4.1	6.6	6.4
of which Computers	3 825	8.2	7.0	--	--
Electrical Machinery	383	2.8	3.5	6.0	--
Electronic Components	3 832	3.5	4.0	--	--
Motor Vehicles	3 843	0.9	2.3	4.8	--
Other Manufacturing Industries	39	11.9	15.8	14.5	18.7
TOTAL Manufacturing Industries	3	5.5	6.3	10.5	9.1

Source: OECD EAS, Industrial Activity of Foreign Affiliates data bank.

Table A1.3. **Apparent penetration and effective penetration**

	FRANCE				SWEDEN				FINLAND			
	Apparent penetration		Effective penetration		Apparent penetration		Effective penetration		Apparent penetration		Effective penetration	
Industrial Sectors	**1980**	**1989**	**1980**	**1989**	**1980**	**1989**	**1980**	**1989**	**1980**	**1989**	**1980**	**1989**
Food, Beverages, Tobacco	12.5	16.8	--	--	13.8	13.1	23.5	23.8	8.2	6.5	10.7	8.3
Textiles, Leather, Footwear	25.5	39.4	33.1	48.5	65.3	76.1	67.9	78.7	40.4	54.4	43.0	55.8
Wood, Cork, Furniture	17.8	22.5	22.5	27.5	12.9	15.1	13.6	17.3	5.5	8.8	--	9.9
Paper, Printing	15.1	17.8	28.8	36.0	7.3	10.6	10.5	17.9	3.8	6.4	4.7	9.5
Chemicals, Petroleum	22.1	31.7	38.6	57.9	48.6	51.1	55.5	65.9	35.8	42.0	39.6	48.1
of which Drugs and Medicines	11.5	18.5	--	--	--	--	--	--	--	--	--	--
Stone, Clay, Glass	13.3	18.5	28.2	39.1	22.4	26.7	27.5	53.6	15.6	14.2	16.9	16.5
Basic Metals	25.6	31.8	44.2	50.4	42.0	42.5	43.5	47.5	31.8	33.1	33.0	34.7
Machinery, Equipment	25.3	35.7	39.5	51.6	46.2	57.2	52.2	69.7	47.5	53.6	50.4	57.6
of which Computers	69.5	--	--	--	--	--	--	--	80.6	79.3	--	--
Electrical Machinery	22.1	--	--	--	49.9	67.6	--	--	50.9	59.3	--	--
Electronic Components	21.4	--	45.5	--	52.3	88.3	--	--	65.4	73.3	--	75.8
Motor Vehicles	26.8	35.6	41.4	56.1	48.6	54.0	--	--	74.0	83.3	--	86.1
Other Manufacturing Industries	34.5	36.3	41.4	47.4	51.7	50.5	55.1	55.2	53.4	56.9	57.6	58.8
TOTAL Manufacturing Industries	21.3	29.7	41.4	47.3	35.9	41.2	41.5	51.9	27.7	32.2	30.3	35.4

Source: OECD EAS, Industrial Activity of Foreign Affiliates data bank.

1. THE IMPACT OF EXCHANGE RATE FLUCTUATIONS ON RELATIVE PRICES

In a general equilibrium model involving two countries, the change in export prices in relation to the change in the exchange rate would be:

$$\frac{\delta P_X}{\delta R} = \frac{\eta_{X,d}}{\eta_{X,s} + \eta_{X,d}}$$

where:

$\mathbf{P}_x$ = export prices in local currency
$\mathbf{R}$ = the exchange rate
$\eta_{x,j}$ = foreign demand elasticity of exports
$\eta_{x,s}$ = domestic supply elasticity of exports
δ = corresponds to a proportional rate of change.

If exports are perfectly elastic in realtion to domestic supply, export prices (in local currency) will not be affected by exchange rate fluctuations (since $\eta_{x,s} \rightarrow +\infty$ so $\delta P_x / \delta R \rightarrow 0$).

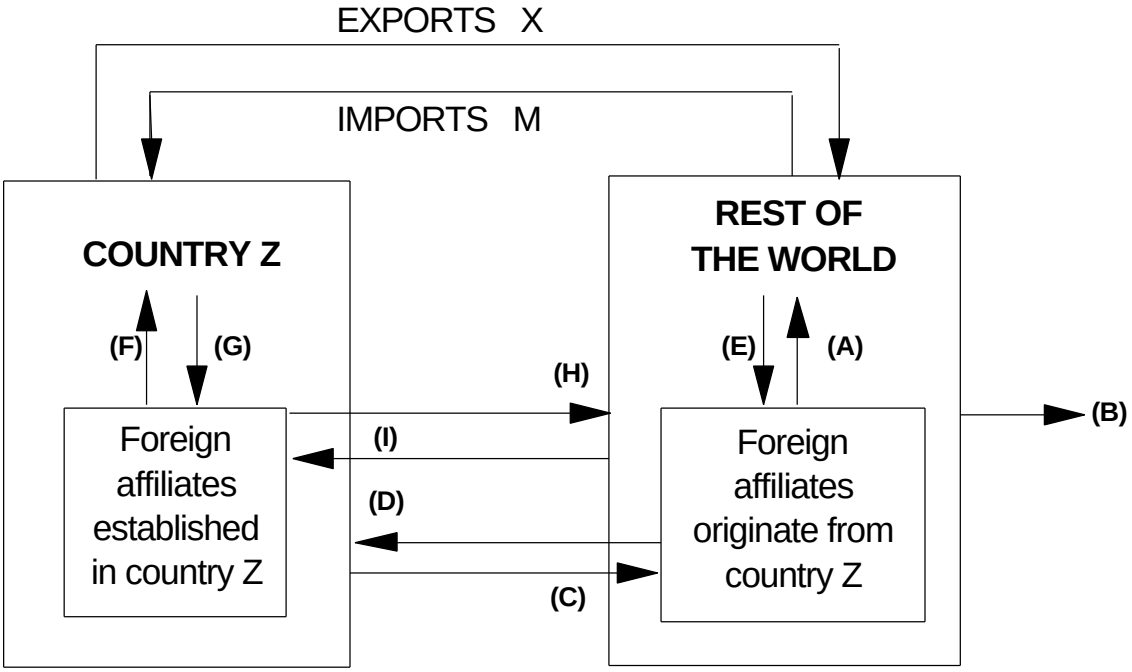
On the other hand, if exports are very elastic in relation to foreign demand, as for example when a country is too small to influence world prices, price changes in local currency will be proportional to the change in the exchange rate, while remaining constant in foreign currency terms (since $\eta_{x,d} \rightarrow +\infty$ so $\delta P_x / \delta R \rightarrow 1$).

The same reasoning could be applied in the case of imports.

The above arguments only concern the mechanical adjustment effects and are valid only over the short term. In the longer term, everything will depend on the links established between prices, wages and profit margins.

2. TRADE BALANCE OF A COUNTRY ON THE BASIS OF THE OWNERSHIP OF ITS PRODUCTIVE ASSETS THROUGHOUT THE WORLD

Diagram A 1.1. **Calculation of the trade balance for a country Z according to the nationality of its firms**



Exports X' of country Z, according to the nationality of its firms:

$$X' = X + A + B - C - H - E$$

where:

X = Exports of country Z goods services, residence basis.

A = Sales by foreign affiliates from country Z to unaffiliated foreigners

B = Exports of country Z's affiliates to their foreign affiliates

C = Exports of country Z's firms to their own affiliates abroad

H = Exports of foreign affiliates established in country Z to the rest of the world

E = Local (non Z's) purchases of goods and nonfactor services by foreign affiliates of Z's companies.

Imports M' of country Z, according to the nationality of its firms:

$$M' = M - D - I + F - G$$

where:

M = Imports of country Z goods and services, residence basis

D = Imports from foreign affiliates of country Z companies

I = Imports by country Z affiliates of foreign companies to the rest of the world, less imports of country Z's affiliates from their foreign affiliates

F = Sales of country Z affiliates of foreign companies less their exports

G = Local purchases of goods and non factor services by country Z affiliates of foreign companies

The trade balance according to firms' nationality will thus be:

$$B' = X' - M' = (X + A + B - C - H - E) - (M - D - I + F - G)$$

In the case of the United States and Japan, these calculations would give the following results:

United States: 1991

Traditional trade balance of goods and services:

$$B = X - M$$

$$B = US\$ (581.2 - 609.1) \text{ billion}$$

$$B = -US\$28 \text{ billion}$$

Trade balance based on firms' nationality:

$$B' = X' - M' = (X + A + B - C - H - E) - (M - D - I + F - G)$$

$$B' = US\$ [(581.1 + 1\ 188.4 + 8.4 - 139.9 - 108.4 - 713.4) -- (609.1 - 108.7 - 182.2 + 1065.6 - 731.5)] \text{ billion}$$

$$B' = US\$ (816.2 - 6\ 523) \text{billion} = US\$ 164.1 \text{ billion}$$

In these calculations affiliates' purchases of goods and services from foreigners are deducted from their sales, but their payments to foreign capital and labour are not. (see also National Academy of Sciences study panel ,Table 3).

Japan: 1991

Traditional trade balance of goods only:

$$B = X - M$$

$$B = US\$(314.5 - 236.7) \text{ billion} = US\$ 77.8 \text{ billion}$$

Trade balance based on firms' nationality:

$B' = B' = X' - M'$ US$ (503.9 - 368.4) billion = US$ 135.5

In this approach, with respect to local sales and purchase, only purchased goods and non factor services are included.

Notes and references

1. "Technology and the Economy: The Key Relationships", Chapter 10, Technology and Globalisation", OECD, 1992.

2. For a more general picture, see also:

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3. See WYCKOFF, A. "The Extension of Networks of Production across Borders", OECD, STI Review No. 13, 1993.

4. THOMSEN, S. Nocolaïdes, P. "The Evolution of Japanese Direct Investment in Europe. Death of a Transfer Salesman", Harvester Wheatsheaf, Hemel Hempstead, 1991.

5. Examples being Coca Cola or certain financial products. However, bringing out global products which satisfy demand in a great many countries is complicated and means handling the design stage in such a way as to incorporate what is common to all the different markets. A global product is not necessary one which is exactly the same the world over.

6. Thus, a bank's reputation and credibility are not determined by its solvency or performance in a specific market or country but by its consolidated worldwide balance sheet.

7. Comparative costs and returns alone determine to which country financial and human resources are allocated with respect to management and strategic choices; conflicts can thus arise if a country's national interest does not coincide with the interests of its firms.

8. PORTER M., "Competition in Global Industries", Harvard Business School Press. 1986.

9. During this initial phase of the globalisation process, most foreign subsidiaries continue to produce mainly for the home market but also, increasingly, for other regional markets.

10. "Critical size" is more important in some sectors than in others. It is of capital importance in some industries (motor vehicles, aerospace, etc.), but in others (for example, software) a global strategy is possible with a much smaller size, and firms are not necessarily obliged to expand externally.

11. Many authors consider that direct investment takes place only if three conditions are met:

a) the firm must have a specific advantage that can be expected to generate future gains;

b) the decision to produce abroad must be justified by the advantage of location that it will procure;

c) transactions between the parent company and its production units abroad must be internalised.

Specific advantages are the advantages acquired by some firms, irrespective of their nationality, and which constitute competitive barriers. A firm may be attracted to a particular location by the market. Decisions to internalise transactions will be based on an evaluation of transaction costs.

12. It might at first sight be thought that, since the globalisation of firms and markets mainly involves the Triad, where production and consumption are more homogeneous than elsewhere, any risks and uncertainties would tend to diminish. Paradoxically, the opposite is true, firms facing a situation of growing unpredictability because of the accelerating pace of technological innovation, the increased number of competitors, the greater volatility of financial markets and the lags in the dissemination of business cycles between the main regions of the world.

13. Like industrial firms, *banks* also redirected their activities to the most industrialised countries. On the one hand, they began to sell off (in the grey market) part of their riskiest claims on developing countries, and on the other, securitisation allowed them to off-load their least promising claims (negotiated-rate mortgages, consumer credit) onto non-banking investors. At the other extreme, there was a huge pool of institutional savings (in 1988, over $2 000 billion for US and Japanese pension funds alone) ready to be pumped into the world financial system. (see BOURGUINAT H. "Investissement direct et globalisation financière", Revue d'Economie Financière, Winter 1990).

14. Ricardo's comparative advantage theory compares the advantages in the production of two commodities in a given country. The latter will maximize its gains if it exports the product in which it has the greatest advantage and imports the other, even if it also has an absolute advantage over its trading partner for this product too. In the new global economy context, in which winning market shares is becoming a priority objective, trade theory based on absolute advantages (Adam Smith) is again becoming relevant. Its capacity to explain certain phenomena is enhanced by the rejection of some of the restrictive assumptions of international trade theory, in particular those concerning the immobility of factors of production, and the introduction of other factors such as economies of scale and innovation. The emergence of multinational enterprises as productive entities which can operate quite independently of the factor endowment deriving from their own national environment, underlines the cogency of analysing competitiveness as a structural characteristic of national economies, encompassing all the relations between firms and their national environment.

15. For an analysis of these concepts, see DURANT, J.P. and BOYER, R. "L'Après fordisme", Paris Syros, 1993.

16. Cost reduction becomes essential when the currency in which a firm trades has depreciated steeply against the currency in which its competitors trade. For example, the fall in the dollar obliged

some European firms to set up production facilities in the United States, or in the dollar area, in order to limit the risks of their currencies appreciating against the dollar. Similarly, in response to the rise in the yen, Japanese firms moved part of their production, especially that which was subcontracted, to Asian countries with low labour costs.

17. Usually service activities (distribution, catering, etc.) but also manufacturing (spare parts, components, etc.).

18. This phenomenon is not necessarily an obstacle to globalisation, as long as the blocs thus formed help to strengthen competition and are open to the rest of the world.

19. During the 1980s, the increase in the number of raiders, and the fear of hostile takeover bids, including for large companies, prompted firms, and sometimes the authorities, to put in place mechanisms to deter such bids, and also measures whereby a firm's capital could be locked in.

20. "Technology and the Economy - The Key Relationships", Chapter 11, "Technology and Competitiveness", OECD, 1992.

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-- France: BAILLY M., VACHER P., Centre d'Observation et de la Prévision du Ministère de l'Industrie, "L'Attractivité de l'Espace Français", 1992;

-- Sweden: SOLVELL O., ZANDER I., PORTER M., "Advantage Sweden", 1991.

27. Reference works for the "capital building" approach:

-- HALBERSTAM D., "The Reckoning" (Global Competition in the World Car Industry), 1987;

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38. The aim is primarily to study and attempt to measure the problems relating to market access, barriers to entry, the different examples of a dominant position, concentration, the relevant market concept, the role of alliances between firms, the problem of cartel agreements, unfair competition, anti-dumping measures, etc. See, in this connection, "Round Table on the New Dimensions of Market Access in the Context of Economic Globalisation", OECD Trade Committee, Paris 30 June - 1 July 1994.

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41. Food, chemicals, automobile, electrical equipment, mecahnical engineering, scientific materials, computers and aerospace.

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