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David Parker/Science Photo Library

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Some of the results of investment in new technologies may be hard to quantify. Different sectors and companies have responded to the challenges of technical change with a variety of strategies, sometimes showing marked success in regaining lost competitiveness.



Gérard Bell

How can one explain the paradox that accelerating technical change is accompanied by what appears to be a decline in the efficiency of productive systems? The OECD organised an international seminar to try to clarify matters.¹

Technical Change and the Productivity Paradox

Economic analysis today recognises that technical progress is one of the main factors in growth. Improved productivity, the creation of new technologies, and the emergence of new products and new industries, i.e., the very expression of technical progress, all form the basis for economic growth.

Science plays a vital part in this process. The mass production system which, for some sixty years, has characterised the industrialised economies would be inconceivable without the penetration of the scientific approach throughout industry. That is what makes it possible to guarantee uniform quality and compliance with standards, and hence mass production itself. Science enables the use of exploitable resources to be constantly extended. For example, 50 kg of glass fibre can transmit as many telephone calls as a tonne of copper wire and can be produced with only 5% of the energy required for one tonne of copper. The development of science and technology is closely interlinked, and it is accepted that scientific development is a necessary, if not sufficient, condition for technical progress and economic growth.

Why, in these circumstances, should the OECD organise an international seminar on 'Science, Technology and Economic Growth'? Why seek to clarify what already seems well established, that there are close relations between science, technology and economic and social development?

The question does deserve to be raised. The optimism manifested in the period of vigorous growth during the quarter-century which followed the Second World War was not borne out in the 1970s and 1980s. The overall performances of the OECD economies do not appear to reflect

Gérard Bell analyses the contribution of science and technology to economic growth in the OECD Directorate for Science, Technology and Industry.

the scientific and technological potential accumulated since the 1960s. And this even though governments and enterprises alike have invested massively in R&D: between 1975 and 1985 growth in R&D expenditures was 5% per year, against little more than 2% for the economy as a whole.

THE TECHNOLOGY/ECONOMY PROGRAMME

The Technology/Economy Programme (TEP) of the OECD originated from the perception by member countries of the role now played by technology—a key to sustained economic growth and improved quality of life. But making the most of this potential depends largely on understanding of the ever-closer interactions between technological change, the economy and society. This approach has produced a multidisciplinary programme of work which combines the different possible approaches to this problem area. This article reviews the work and conclusions of the first of eleven seminars which have been or will be, organised as part of the TEP.

Since 1983, admittedly, the OECD area has experienced an economic recovery characterised by faster growth, marked disinflation and an upturn in employment. Innovation is increasing—particularly in information technologies, new materials and, to a lesser extent, biotechnology—and is spreading at a spectacular rate through most branches of industry as well as into services. The scientific and technical potential of the OECD countries, indeed, has never been higher.

Yet in many ways the situation is far from satisfactory: unemployment is still too high in many countries, foreign trade is in disequilibrium, inflationary pressures are re-appearing, exchange rates are unstable and the least developed countries remain too heavily indebted.

Above all, in most OECD countries this situation is accompanied by a disturbing trend, namely a long-term fall in indicators intended to reflect technical progress seen as the outcome of the improved use of factors of production (Figure).

In the words of Robert Solow, winner of the 1987 Nobel Memorial Prize for Economics, 'we see computers everywhere, except in productivity statistics'. This 'paradox' has, of course, been analysed and interpreted in a number of ways, of which the following are typical.

- The first interpretation is that of the sceptics who query the real intensity of present technical change. If such change is so obvious it must be identifiable, unless the statistics (particularly those showing trends in productivity) contain serious errors.
- The second interpretation refers to the hypothesis of the acceleration (or of the radical nature) of technical change. If the hypothesis is considered plausible, its macro-economic manifestations are believed to be held back by the inadequate adaptation of production structures or of forms of organisation and management of enterprises.
- The third and most ambitious interpretation advances the hypothesis of the emergence of a new techno-economic system. The production system is thought

1. International Seminar on Science, Technology and Economic Growth organised in Paris by the OECD, 5-8 June 1989, on four main themes: 'Accounting Illusion?' (workshop chaired by Z. Griliches, Harvard/University, United States); 'A New Techno-economic System?' (J. Lesourne, Conservatoire National des Arts et Métiers, Paris); 'Organisational Problems' (B. Lamborghini, Director of Strategy, Olivetti, Italy); 'Macroeconomic Models' (K. Arrow, Nobel Memorial Prize Winner for Economics, Stanford University, United States). The plenary sessions were chaired by A. Lindbeck, Stockholm University. Participants included academics, industrialists, bankers and senior civil servants from OECD countries. The proceedings of the Seminar will be published in the **STI Review**, Nos. 7 and 8 (OECD Publications, Paris, forthcoming 1990).

to be undergoing a far-reaching transformation.

The experts invited to the OECD Seminar were asked to test the validity of these various interpretations, to review as exhaustively as possible the studies undertaken so far, to survey what is already known and make policy suggestions, and to identify activities where analysis is inadequate and where studies are urgently required.

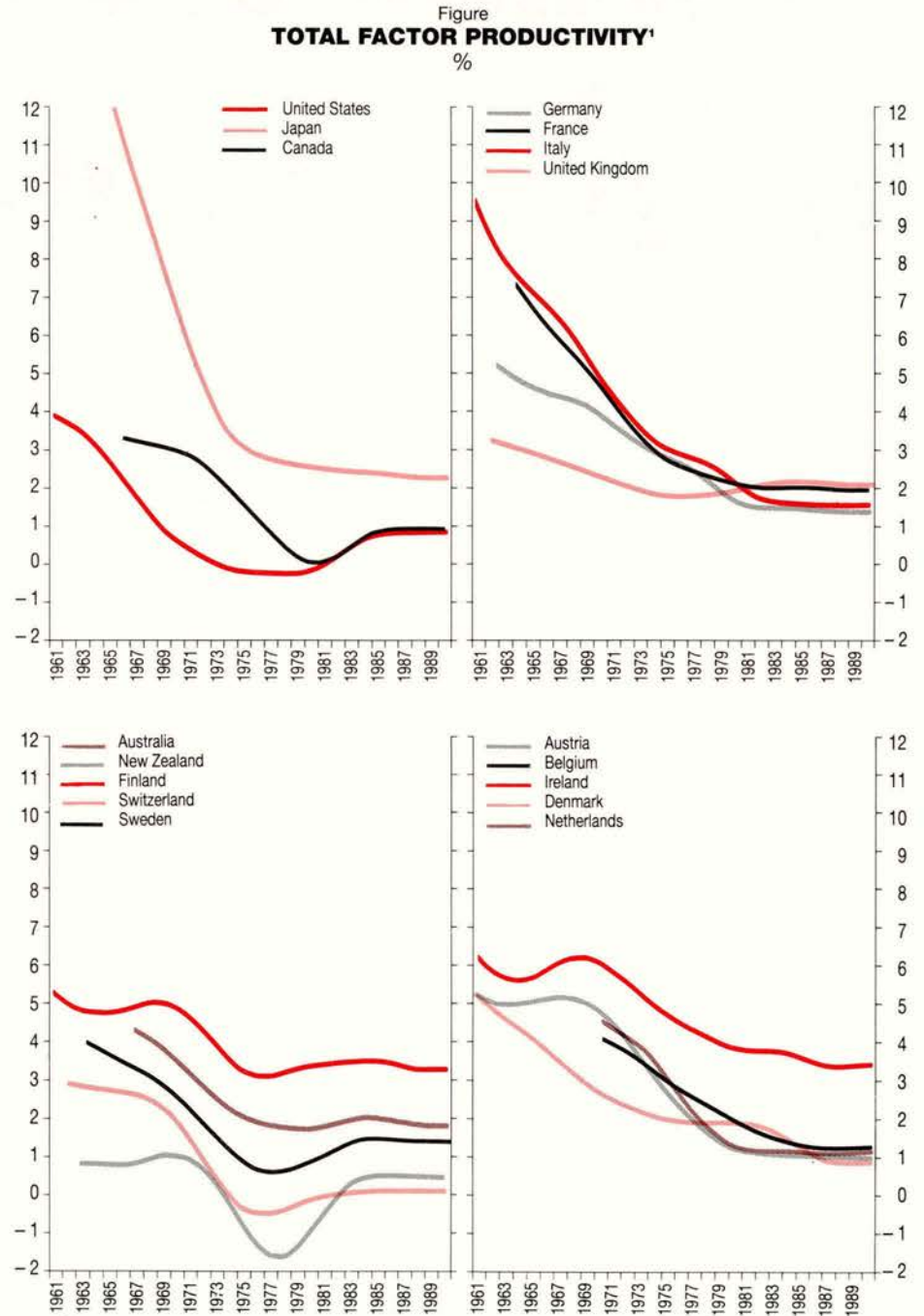
An Accounting Illusion?

Although the vast majority of the papers on methodology of measuring productivity arrive at the conclusion that errors are possible, such errors cannot explain productivity trends in the 1970s and '80s. Accounting and econometric methods show that errors of measurement might explain at the most 10 or 20% of the observed slowdown in total factor productivity. That slowdown is thus basically not some statistical illusion; it does reflect reality.

So far as the measurement of technical change is concerned, answers are more difficult to find. In estimating the trend of technical progress, there is no question of measuring directly the variation in each component of technology. One can get round the difficulty by measuring the effects of technology. But it would be unreasonable to rely on productivity data to measure the pace of technical change. Productivity figures show no more than an average, the stage reached in the spread of a technological change which originates further back in the production process.

Another approach is to look at research expenditure. But the interpretation of such data varies. Some experts, judging by the growth of R&D expenditure, consider that technical progress is speeding up, while others maintain that it has slowed down after a fall in the yield of R&D itself.

Data used to measure technological change and technology potential are thus inappropriate and far from complete, and at present do not allow economists to agree on how fast technology is changing. But there is agreement that governments have to make a major effort to improve



1. The weighted average of the growth in labour and capital productivity.

Source: OECD.

the statistics to which they are the first to look for guidance about what action to take: specific indicators have to be developed.

What Acceleration?

Should anyone be surprised if the productivity slowdown turned out not an illusion but real? Is it really a paradox? Some commentators regard the 1950s and '60s,

in the light of the slowdown in growth of the 1970s and '80s, as the exceptional period. The high performances of that time can be explained by a massive transfer of technology from the United States to Europe and Japan after the Second World War; and this period of catching-up is believed now to be coming to an end.

For other analysts, a whole series of factors, independent of technology, have combined to worsen the productivity figures: the macro-economic shocks of the



1970s (through oil prices, interest rates, exchange rates), social rigidities inherited from the previous period of vigorous growth, disturbances resulting from the

growing financial integration of the world economy. It remains an open question whether the restrictive policies of the early 1980s played any part by depressing firms' expectations and their propensity to adopt the most advanced technologies or invest in innovation.

Alongside these explanations, two main arguments are put forward to explain why recent and current technological changes are not yet reflected in productivity statistics. The first involves the temporal aspect of the spread of technology. For a variety of reasons there will always be a gap between the adoption of an innovation and the time when its diffusion comes to have a measurable effect on productivity. The importance of this process and the range of explanations for what might prevent it or slow it down were one of the main themes of discussion. The second argument refers to the nature of specific or-



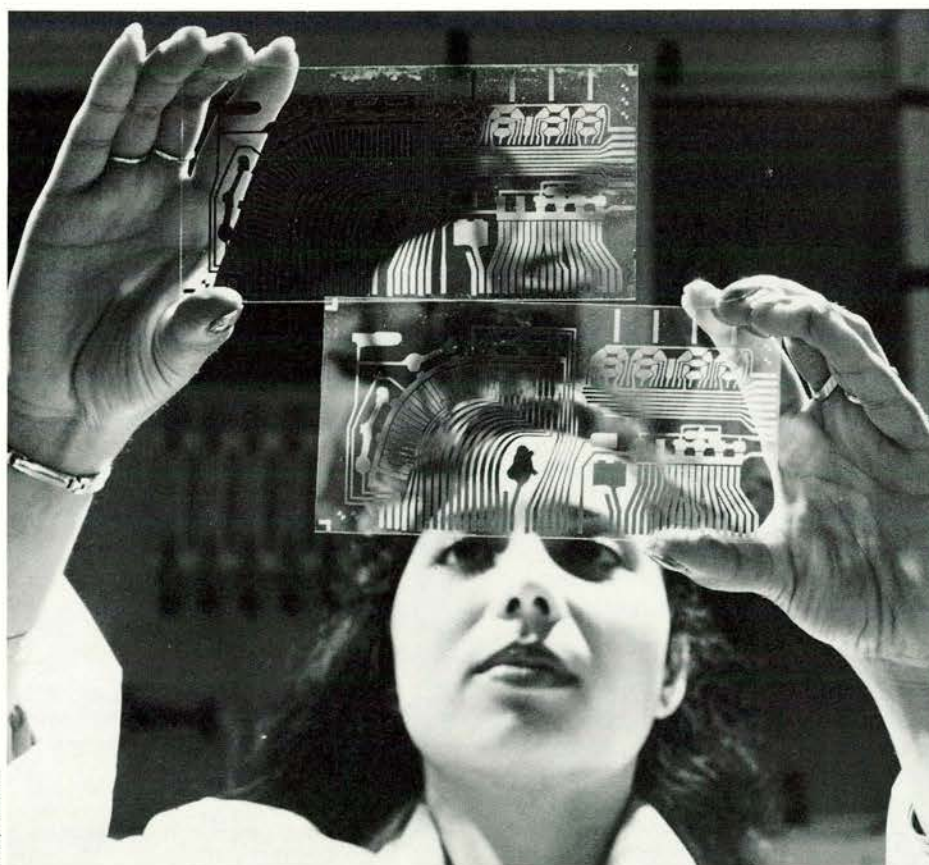
organisational changes which, for both enterprises and social institutions, determine whether technologies are used to good effect.

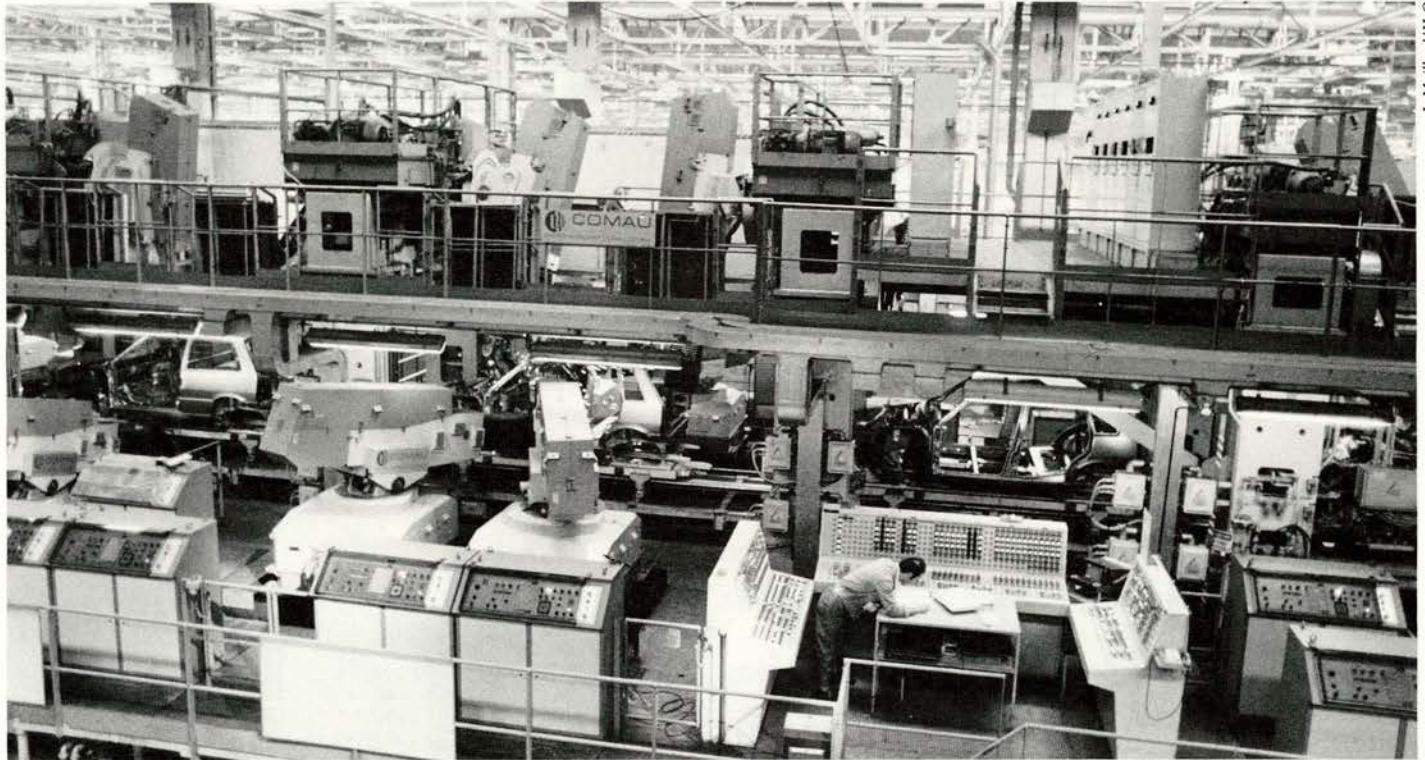
A New Techno-economic System?

Organisational changes are themselves also subject to a process of diffusion and adaptation, but of a special kind with its own qualitative characteristics. The arguments put forward here flow from two main lines of thinking.

The first is linked to the concept of 'revolutionary' technological change, i.e., change which brings about the emergence of a new 'technology paradigm': the characteristics of these 'generic' technologies and the activities throughout which they can spread are such that they influence the entire economic system.

The new technologies are said to make possible a new form of organisation and production. The system of mass production and mass consumption of standardised products is believed to be giving way to new forms of production. They are more flexible and better adapted to the





J. Mailford/ILCO

new requirements of customers seeking variety, and fit in better with new attitudes of workers who are increasingly less willing to accept 'the scientific organisation of work', 'Taylorism', and the like; hence a radical change of technological styles and the emergence of a new 'techno-economic system'. But by no means all experts agree on this analysis.

The second line of thought concerns constant or predictable changes in the management and even the organisation of firms, and in relations between them on co-operation, competition, subcontracting arrangements, and so on.

Examples can already be given of the diversity and scope of the transformations to the production system and of changes in the strategies and organisation of firms. The success or failure of strategic changes, obviously, can have a beneficial or adverse effect on the productivity:

- introduction of information technologies or the use of new types of materials to increase flexibility and/or diversity of production
- the importance (or otherwise) attached

to the 'human capital' of the labour force and the search for new, more appropriate methods of manpower management on the shop-floor

- the search for new 'technology combinations' (made possible by generic technologies), and 'technology fusions' (or failure to recognise their potential)
- the emergence (or absence) of new types of relationships with the economic environment (alliances between firms, contracts with non-market institutions, such as universities and research centres).

□ □

The seminar showed the importance of adapting institutions to the transformations of all kinds which technology is bringing about, and which today are radically affecting the fabric of the economy and society. The ability of society to adapt itself to change depends largely on being able to transform institutions or create new ones so as to allow the delicate mechanisms of society to operate pro-

perly. What explains that certain institutional forms (financial markets, public services, etc.) are better at it than others? And what should be said about education and training systems which, through their inability to adapt to new demands, may constitute major obstacles to the transformation, at the least possible cost, of the economic and social system? ■



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The Economic Stakes in Computer Standardisation

After a gradual build-up since the 19th century, the international system of standards is now in the throes of sweeping change linked to the development of (I&C) technology. There are three reasons.

First, there is a growing convergence between computer electronics and telecommunications. For the past hundred years, there has been a steady movement towards standardisation in telecommunications, under the influence of the postal authorities. The industry involved is therefore familiar with these issues.

But since the Second World War information technology has spread and grown in a highly competitive and rather unruly fashion. Manufacturers of equipment or providers of services have tried to find a slot on the market for their own techniques (and standards) without paying much heed to what competitors were doing. But this heterogeneity is becoming less and less easy to tolerate as the sector reaches maturity. The I&C industry has outgrown the revolutionary invention stage. It lives on a huge base of equipment already in place, and must answer to more stringent demands from equipment users. Moreover, the coalescence of computer electronics and telecommunications means that development in each activity increasingly depends on the ability to switch freely between rival systems (and so on their compatibility). The press-

Georges Ferné

The standardisation of information and communication technology raises issues of vital concern to the world's economies. A study currently underway at the OECD¹ attempts to explain why.

ure for standards is now forcing people from very different industrial cultures to work together.

Second, industrial dissemination of I&C technologies cuts across old sectoral boundaries. Manufacturers are not the only people concerned by the conditions governing the exchange of data between computers. All sorts of users have a stake in it: car manufacturers, shippers, banks, doctors. Standards are crucial to their future, and everyone would like to have a hand in defining them.

Third, the economic stakes of standardisation are vast. On the user side, I&C technology calls for heavy investment by business and government. With technology changing so fast, they require equipment that can be integrated with what they already have. As for hardware and software manufacturers, compatibility requirements for other equipment dictate

the size and type of their market, and so lie at the very heart of their business strategy.

Standardisation is also a central element of national technology strategy. It is better understood today how standardisation can ensure victory for a particular technology over its rivals and put it in a dominant market position—even though it may not perform especially well, or even promisingly. In short, compatibility standards are a prerequisite for a world market in goods and services based on a well-integrated I&C computer network.

What's in a Standard?

To the layman, standardisation can appear like an impenetrable jungle, a tangle of national and international governmental and non-governmental institutions, behind which lie countless technical study groups, workshops and committees busy working out and updating standards.

Since its inception in 1947, the International Standards Organisation (ISO), for instance, has published over 6,000 standards. Its work is spread among 2,400 technical groups in which 90 national standards organisations (governmental or non-governmental) are represented. Its scope extends to every field except elec-

Georges Ferné is a specialist in information technology in the OECD Directorate for Science, Technology and Industry.

1. A publication based on this study will be published in 1991.



tricity and electronics, which are handled by the International Electrotechnical Commission (IEC).² There are also national and regional bodies which prepare or supplement the work of the ISO and IEC. (The two charts on p. 11 show the world organisation structure and how it applies to Europe.)

Standard-making is essentially a non-profit activity performed by agencies, firms, sometimes users' associations, that are willing to devote time, money and labour on a national or international scale. This makes it difficult to measure exactly how big a process it is.³ Cross-checking of information from several sources suggests that each year at least 150,000 experts throughout the world contribute to the effort. A medium-sized country like France probably spends (government and

private spending combined) over \$150 million annually.

What does a standard look like? It can be anything from a two-page note to a 600-page tome complete with twice its weight in technical appendices. It can consist of a verbal description or a set of diagrams. It may be final, or it may allow for additions and modifications. It may describe an apparatus in exhaustive detail (a chain-saw and its safety features, for example), or it may specify the tasks that a certain range of equipment must be able to perform (as with Open Systems Interconnection, or OSI, for the efficient networking of computer systems).

The legal status of standards varies considerably. A standard may be compulsory, especially in such areas as health or safety. At the other extreme, it may merely

express an agreement between two parties. In practice, most standards stem from negotiations between firms manufacturing or using the same kind of product. The resulting standard may then be accepted by a national or international standards organisation—in which case it is 'registered'—although there is no obligation to apply it. Then again, many examples exist of *de facto* standards set by leading brands—the MS-DOS operating system of the IBM microcomputer is a case in point.

A standard may be public (and applied without charge) or private—and thus requiring a licence, although its owners may decide to allow it to be used free. The owners' choice is governed, as will be seen, by strategy considerations that may change with time.

The purposes of standards are just as varied. They can define units of measurement (the metre), quality or safety minima and maxima (acceptable degrees of pollution), volumes (package size), product compatibility (electrical plugs and sockets). Indeed, these distinctions are not rigid. Compatibility norms, in particular, may refer to qualitative (e.g., resistance to stress) or quantitative requirements (e.g., railway gauges).

The Impact of Information Technology

The shake-up of standardisation arises from the pressure produced by information technologies to go more quickly than before. The process of preparing and publishing a standard in the old way—by the ISO, say—is inevitably somewhat lengthy because of all the rules and negotiations and consultations with governments that are involved. I&C technology circles have tried to hasten the procedure so as to stay abreast of extremely fast-moving technical developments. ►

2. Largely in response to the proliferation and spread of I&C technologies, agreement was recently reached between the ISO and the IEC on harmonisation of procedures and avoidance of overlapping and duplication.

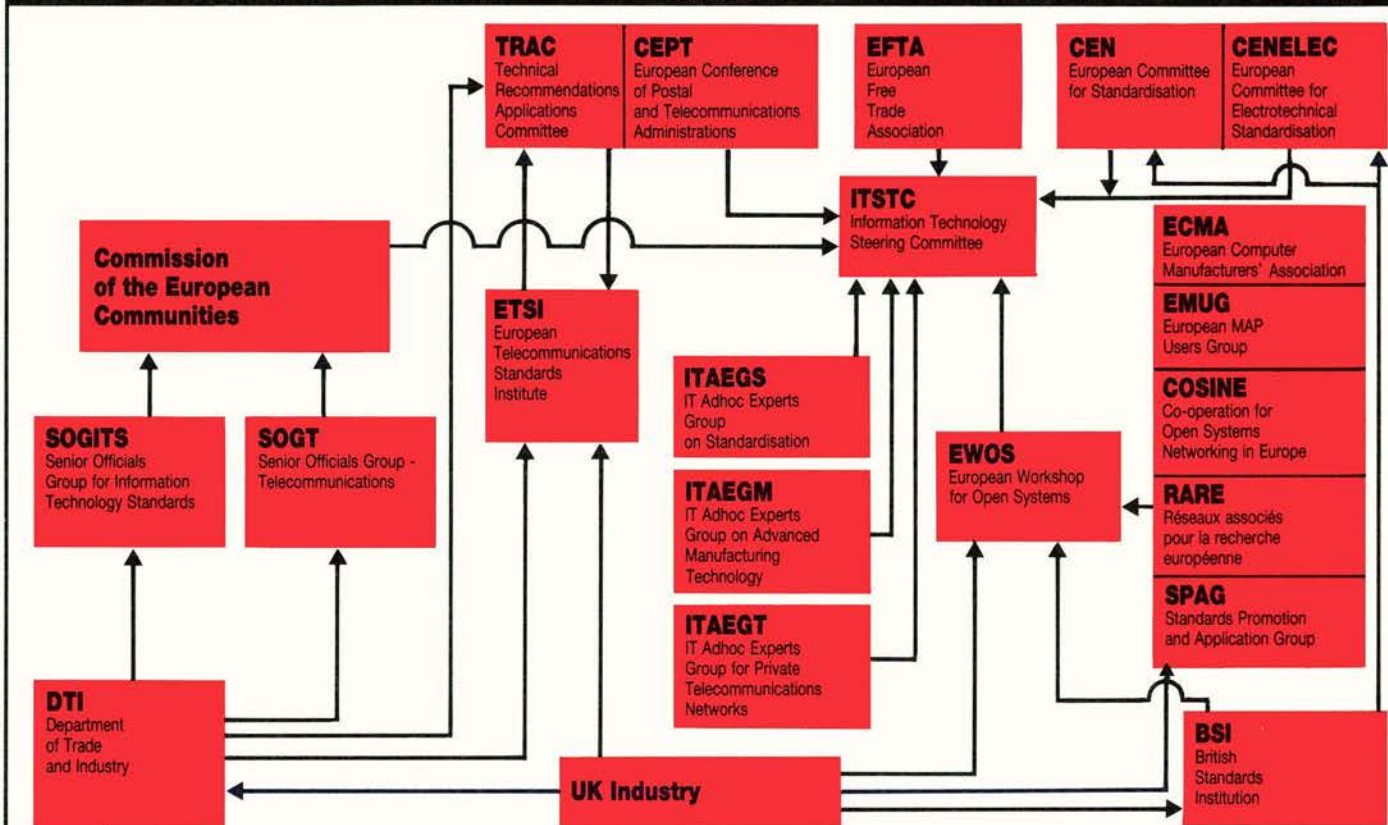
3. With a view to remedying this situation, the OECD Committee for Information, Computer and Communications Policy (ICCP) sponsored a survey, which was launched in 1989. The conclusions will be available in late 1990.

STANDARDISATION MAPS

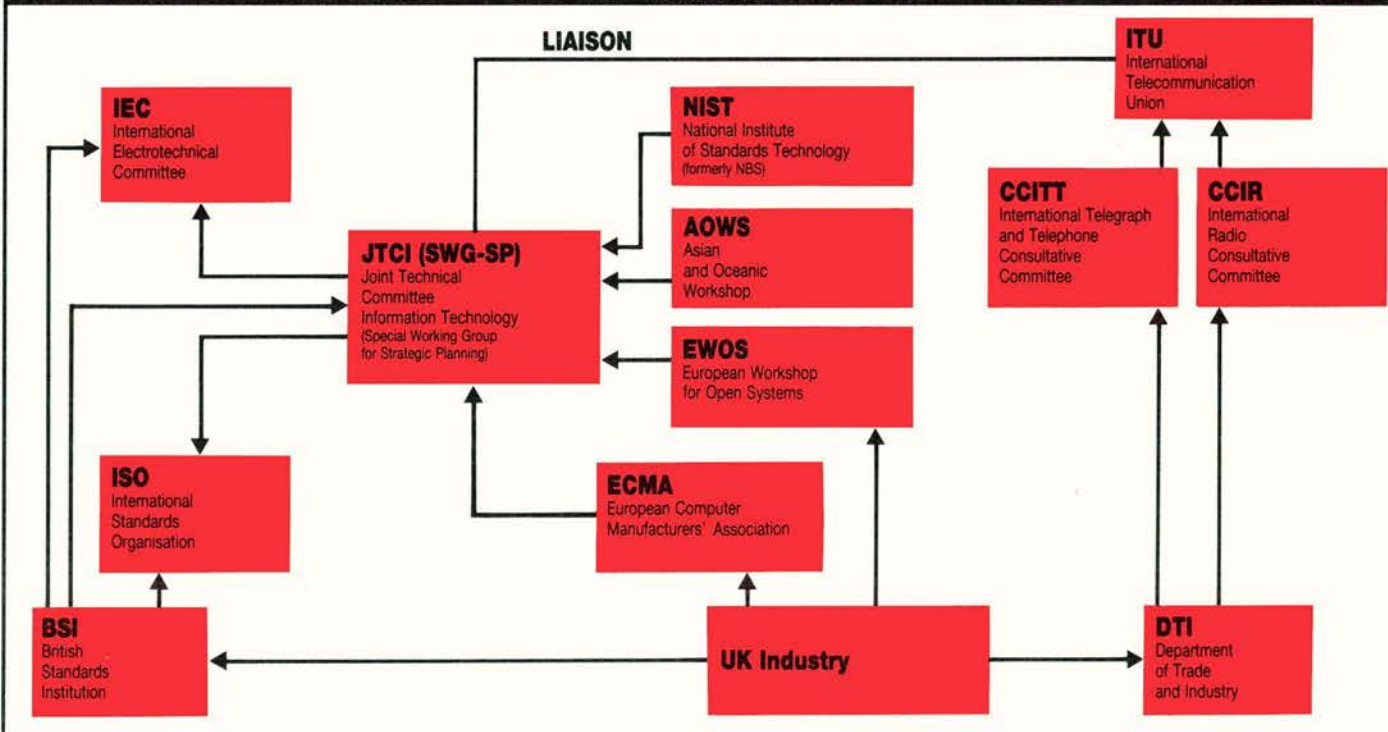
The following diagrams represent the organisations in the United Kingdom, in Europe, and internationally that are directly involved in IT standardisation.

In these maps, the arrowed lines in general indicate lines of representation (e.g., Trade Association representation on BSI committees and DTI representation in ITUSA). In a few instances they indicate an advisory link (e.g., FOCUS to DTI). It would be impractical to try to represent all the information links between organisations because, particularly at the national level, the formal and informal links are legion and there are few barriers to communication.

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This has had a double impact. On one side, informal meetings⁴ of industry or other interested parties attempt to work out 'pre-standards', involving agreement by all concerned on a standard without waiting for it be officially recognised. On the other, some official agencies are relaxing their traditional insistence on unanimous decisions (majority votes are taken to avoid stalemate⁵) and are easing various other requirements.⁶

This speeding-up of the standards process reflects growing convergence between government intentions and management strategy where the diffusion and economic importance of I&C technologies



Roger-Viollet

Will the standards being established in information technology last as long as those of two hundred years ago?



Harlingue-Viollet

are concerned. Standards of compatibility⁷ have never before had such an important role on the world stage. They cover applications of network technology which are of little use unless they can communicate easily with one another in industry and services, both nationally and internationally. Either the market now taking shape will be a world system based on interconnection (every terminal able to communicate with the rest) and 'interoperability' (functions performable on every workstation)—or it will be a Tower of Babel.

If these requirements are not met, the global reach of the new communications systems and the extension of their functions will obviously be restricted. The development of services, especially those relying on telecommunications, could well be compromised. There is enormous pressure from service suppliers and users alike to improve compatibility as it affects the stock of equipment—microcomputers, modems, mainframes, printers or software—that has accumulated without ap-

parent order. The stakes are immense, since the pattern of compatibility standards will determine the market position of every manufacturer of computer hardware and software, telecommunications gear, peripherals and applications.

The Drive to Standardise

Because I&C technologies achieve their full potential only by forming networks, they show two particular characteristics: the 'increasing returns of adoption' of these technologies and the 'network externalities' generated by them. These concepts illustrate the ways in which standards compete and the pitfalls of adopting, almost irrevocably, inferior but dominant standards.

Increasing Returns of Adoption

The increasing returns of adoption are an outcome of cost structure (heavy investment, moderate operating costs) and the nature of networks themselves. Once a

base system is installed, it is usually fairly cheap to connect a new subscriber into the network. But the more subscribers there are, the more attractive the network becomes. This is what happened with telephones and it is now happening again with fax machines. Technical improvements have enabled these to be connected with existing telephone networks. As a network expands, the cost of connecting new customers diminishes. Increasing returns are further due to familiarisation—the more a network is used, the more experience with it gives rise to improvements and more versatile services.

Network Externalities

Increasing returns can be equated with another notion in economics, that of externalities, or side-effects. When someone plugs into a network, it is not only to his own advantage; his action also creates further external benefits for other users

4. Such as the European Workshop for Open Systems (EWOS) and its American and Japanese counterparts, the Consortium for Open Systems (COS), and the Promoting Conference for OSI (POSI).

5. As in the European Telecommunications Standards Institute (ETSI).

6. This is the aim of the 'new approach' to standardisation adopted by the European Communities.

7. Compatibility may be of two kinds: replaceability, where different products can perform the same tasks in a technical system (e.g., a new TV broadcast standard enabling programmes to be received by existing sets); complementarity, where two different products can perform the same tasks in a technical system provided a third component is added (if, in this example, the TV programmes could be received by using an unscrambling device).

through the simple fact that the network is being expanded. And while these 'externalities' are helpful to both firms and individuals (each new subscriber increases the general usefulness of the telephone system), they also benefit the equipment and what it can do (adding fax facilities, for example, makes communication by telephone more useful to subscribers).

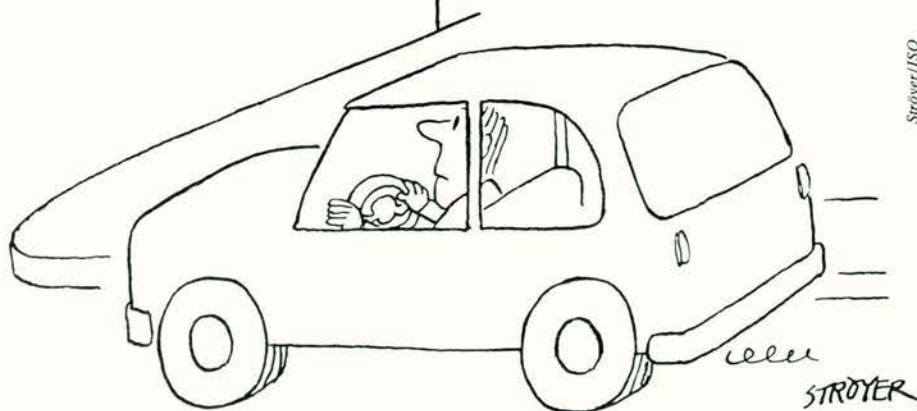
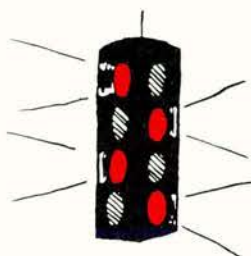
From both the supply and demand side, these varied factors exert strong pressure in favour of standardisation. Standards guarantee that succeeding generations of equipment will be compatible with one another and so ensure a satisfactory return on heavy initial outlay. They mean that networks can be interconnected (so profiting from even higher increasing returns) and give users an assurance that their network will continue to improve and grow.

But what type of standards should be applied? The manufacturer has the choice between absolute control (private standards) and freedom (public standards for unconditional use). At first glance, a firm which has succeeded in imposing its private standards on part of the market has every reason to maintain tight control over them. In this way, it can enjoy its monopoly status, allow its standards to be used only under licence and prohibit unwelcome imitations.

In practice, public standards have much to offer. Their major drawback, that they allow competitors to turn out copies (or 'clones') more cheaply, may be a strategic advantage. Each clone pushes up the number of users of the standard in question and so provides increasing returns and network externalities. This is true not only of basic hardware but also of accessories, peripherals and applications. A firm working off public standards can make do constructing ordinary equipment, and leave the production of more advanced goods to other companies. But a firm holding exclusive rights to its own private standards must manufacture everything itself in order to satisfy the increasingly varied demands of customers.

Take the example of a company producing microcomputers. If it wants to retain exclusive control over its standards yet remain competitive, it must offer com-

patible software, and a whole range of printers, tracers, modems, scanners, memory supports. Otherwise, users are likely sooner or later to discard its products and choose some other brand offering wider variety under another standard. But where the standard is public and the base unit (here the microcomputer) finds a niche on the market, other firms will lose no time producing options, thus strengthening the position of the standard among users on the market. So what is lost in market control is gained in network externalities.



The contrast between the two approaches is not merely theoretical. It very aptly describes the strategies of Apple (private standard), for example, and IBM using MS-DOS (public standard). These strategies may change with time. Apple is now trying to make interconnections with the MS-DOS system (to benefit from net-

work externalities), whereas IBM, faced with what it sees as too much copying of its MS-DOS models, has been attempting to establish a private standard with its new range of PS microcomputers.

But in the medium run, preserving a private standard—given customer demand for compatibility and the growing diversity of I&C products—looks more and more like a losing proposition.

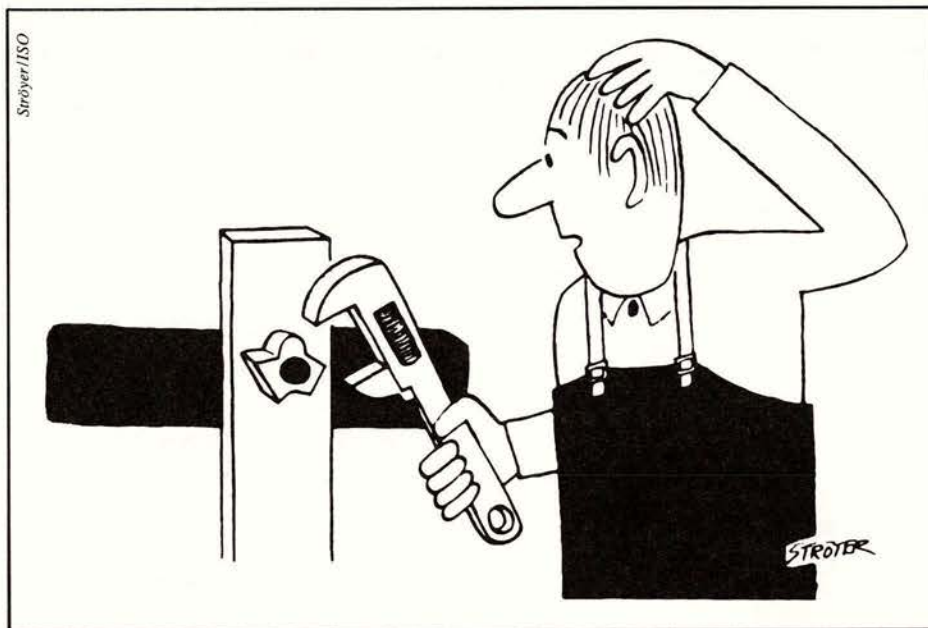
The Dangers of Lock-ins

Technologies (and standards) can achieve market supremacy not only because they perform best or hold out the most promise. It can be a question of chance; or a firm may have climbed to the top on the strength of some other technology—IBM supplied office equipment before it went into computers. If this is so, increasing returns of adoption and network externalities work in favour of reigning standards and can stifle competition.

In other words, a standard does not necessarily become dominant because it is the best; it becomes the best because it is already dominant. This is what is called 'lock-in': certain tech-

nologies get locked in the market and make it impossible for competitors to dislodge them.

It is easy to recall examples of technologies that have occupied the high ground at the expense of rival systems which might have provided better results in the long run—the QWERTY typewriter



keyboard, for instance, or the petrol engine for cars. True, it is hard at any given time to prophesy the future merits of competing technologies. For one thing, criteria keep changing; who cared about ecology when the motor-car was invented? For another, no one can tell in advance what the spin-offs, good and bad, of a technology will be. I&C technology has already produced all sorts of services and applications, but there are surely many more to come.

Today, for example, the establishment of computer networks is paving the way for Electronic Data Interchange (EDI) systems that will revolutionise the way firms, public and private services exchange messages and data (orders, invoices, customs entries and records). But no one can say for certain what second-generation applications will arise out of EDI, and what sort of performance will be required of future hardware and software.

The Role of Government

This situation presents government with several knotty problems. What criteria should be used for selecting the standards most likely to favour future technological development? How should one

go about choosing international standards of compatibility that will simultaneously decide the place of domestic firms and services on the world market, enable foreign firms to penetrate the domestic market, and settle the future of the nation's 'star' I&C materials, equipment and applications manufacturers?

The problems underlying these questions are still poorly understood, and the world-standards-making system is ill-prepared—precisely because of its emphasis on 'consensus'—to explore them. When corporate representatives meet to discuss setting a standard in a particular field, they have in mind both technical factors (ensuring, say, that a modular telephone will operate on a network) and sales strategy considerations (the more a modular telephone is compatible with different networks, the bigger will be its potential market). But reaching a consensus means that the major economic issues, which underlie the strategy of every participant, must never be openly mentioned.

Government is nevertheless more and more being urged to take the initiative or step in and decide on matters touching I&C technology standards.

It is an area where any sort of decision is fraught with peril. Non-interference itself is risky. It does not ensure that the best

technological solution will win in the end, and it can wed the national economy to a technology that may not be capable of resisting fresh challenges from competitors. Yet deliberate intervention is a difficult, and even dangerous, exercise.

Government authorities want to know more about the consequences of the options open to them. New approaches to I&C technology standardisation are being investigated and better safeguards are being sought. Among these are operating standards that meet technical specifications while not compromising the future; an organised search for two-way flows between different kinds of technology; a more general exploration of the technical, economic and social implications of technology choices; wider participation by all the interested parties (hardware and software manufacturers, suppliers of services, users) in the standardisation process.

Through government procurement, national authorities often play a preponderant role where increasing returns and network externalities are concerned. They can thus unwittingly accelerate the process of lock-in. They have to show more awareness of this kind of risk than they currently do when making up their minds, and not let themselves be deluded by considerations of short-term savings.

□ □

In this age of new technologies, the future is unclear. No one can say for sure which of the competing technologies will best meet future social and economic requirements.

There is no doubt a moment in technological development when it is possible to act 'before the concrete sets' and a dominant solution emerges. But it is extremely difficult today to spot this window of opportunity and move fast enough to take advantage of it. And once the window closes, the opportunity is lost—for a very long time. ■



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Value for Money in Telecommunications

Tim Kelly

*Are users getting value for money from their telecommunications services?
The answer depends, not surprisingly, on where they live.*

If your local supplier of soft drinks raises its price or lowers its quality, you have the choice of choosing a different supplier or drinking water instead. Eventually, the soft-drinks supplier may go out of business.

For telecommunications services, the story is somewhat different. For a start, there are usually no alternative suppliers in most OECD countries. Second, there is no real substitute for the telephone, other than, perhaps, the postal service. Finally, an inefficient service provider is unlikely to go out of business, though his customers might not be so fortunate.

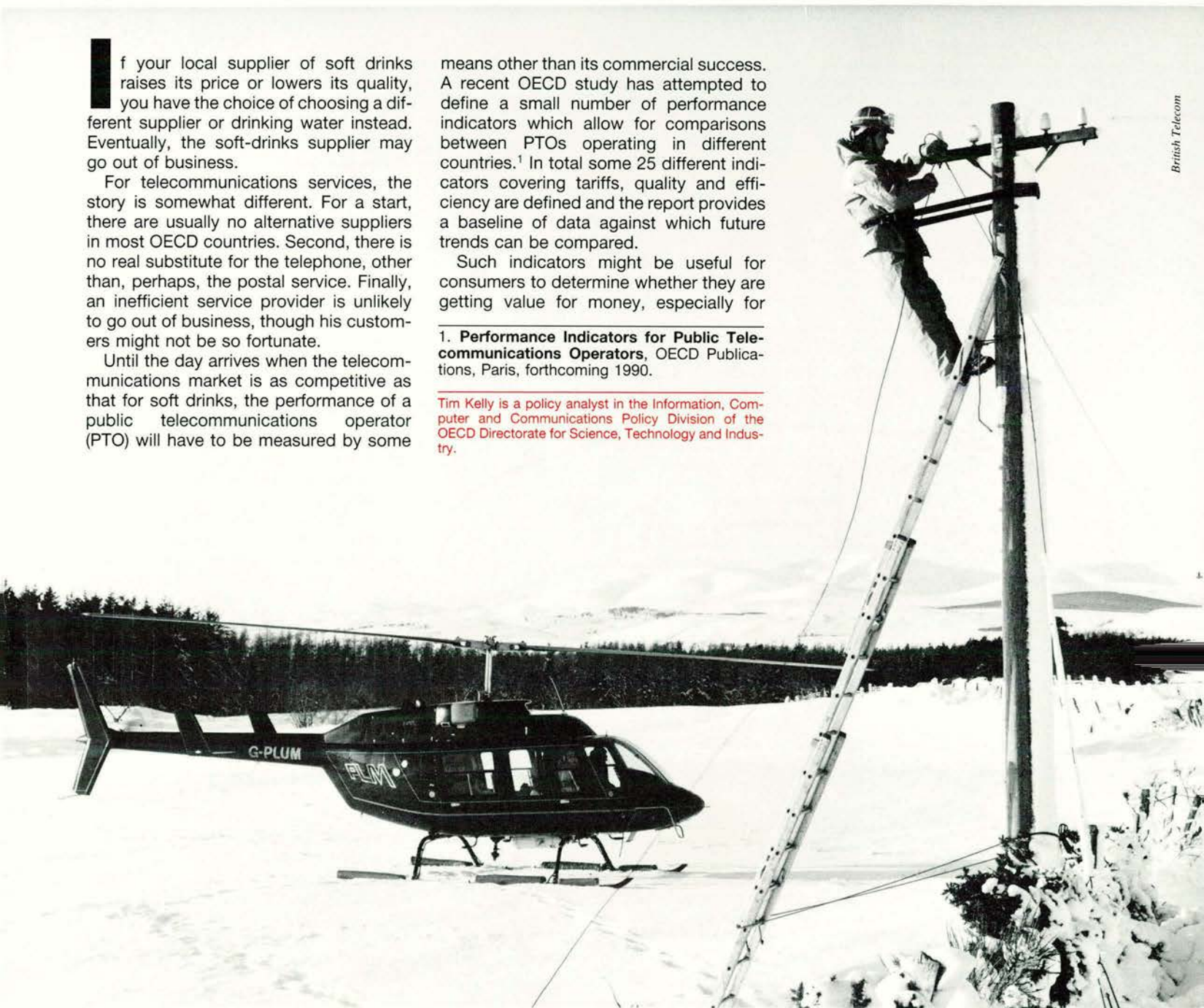
Until the day arrives when the telecommunications market is as competitive as that for soft drinks, the performance of a public telecommunications operator (PTO) will have to be measured by some

means other than its commercial success. A recent OECD study has attempted to define a small number of performance indicators which allow for comparisons between PTOs operating in different countries.¹ In total some 25 different indicators covering tariffs, quality and efficiency are defined and the report provides a baseline of data against which future trends can be compared.

Such indicators might be useful for consumers to determine whether they are getting value for money, especially for

1. Performance Indicators for Public Telecommunications Operators, OECD Publications, Paris, forthcoming 1990.

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British Telecom

'footloose' multinationals operating from several different locations. They might also be used by regulators to decide whether existing operators are fulfilling their mandate or whether the introduction of new licensees or additional competition is desirable. It is likely that the monitoring and reporting of such indicators will become a regular part of the work of the OECD as policy-makers in member countries come to review the effects of the changes in telecommunications policy that took place during the 1980s.

Comparing Apples and Oranges

It is not intellectually respectable to compare the merits of apples and oranges, and neither is it worth comparing PTO performance unless it is possible to

establish certain ground rules of homogeneity. PTOs have tariff structures which differ according to their treatment of fixed charges and usage charges; business and residential subscribers; distance, duration and time of call. Equally, PTOs are put under differing public-service obligations to provide universal service to all regions and all social groups.

To eliminate these disparities a methodology which is, as far as possible, representative and unbiased has to be developed. The approach taken has been to compare actual telephone bills for a basket of charges against an 'OECD average bill'.

The hypothetical residential consumer pays around 40% of his telephone bill in fixed charges (subscription, plus installation charge depreciated over five years) and the rest in user charges and tax. To

define the user charges it is necessary to specify a basket of calls distributed by distance (13 different zones), duration (five call-lengths) and time of call (six different periods), based on international research on call patterns.

For business users a similar model has been developed, differing only in that the fixed charges account for 20% of the bill, the call basket is more weighted to business-hour calls, and tax is excluded.

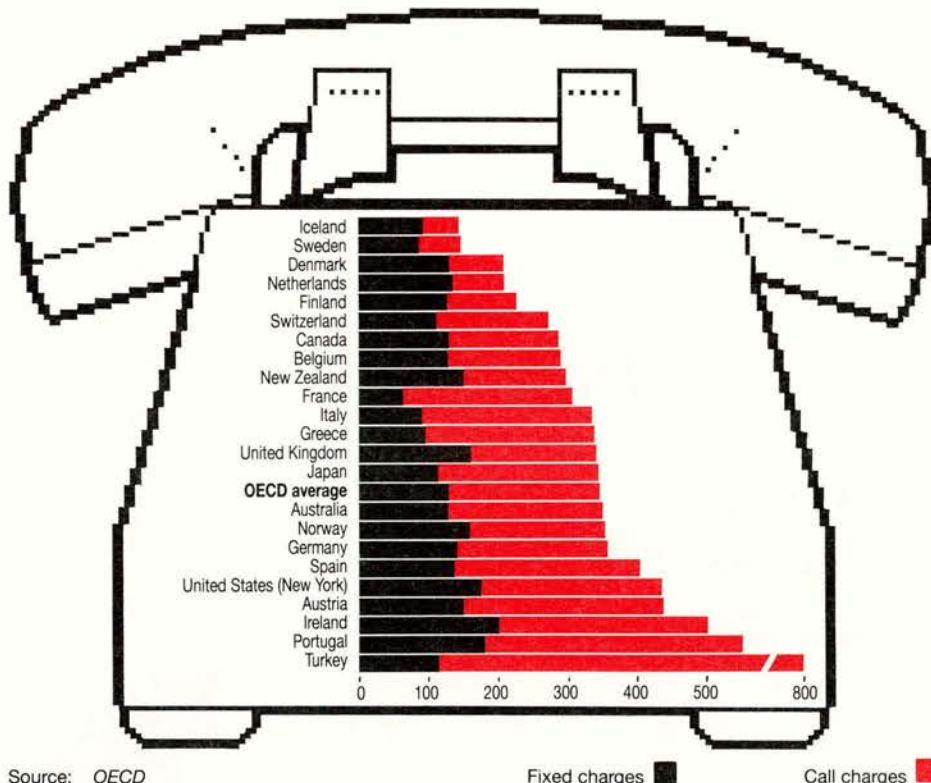
The basket for residential telephone charges, in Purchasing Power Parities, is shown in Figure 1. The OECD average is some \$346, but the range between the cheapest country, Iceland (\$147) and the most expensive country, Turkey (\$797) is more than five times. The cheaper countries include most of Scandinavia and Benelux, while Portugal, Ireland and Austria appear among the more expensive.

For international call charges, a slightly different model was developed, based on call pairs—the cost of making the same call in different directions weighted by the likelihood of calling a particular country. This gives results which can be expressed as an index with the OECD average set at 100. The results are not dissimilar to those for national call charges, though the range between the cheapest country, Australia (72% of the OECD average) and the most expensive, Turkey (160%) is not so wide. For international calls, non-European OECD countries generally have cheaper tariffs, and the countries of Southern Europe are the most expensive.

For business subscribers, the methodology was extended to cover mobile communications services, leased lines and packet-switched data communications services, using variations on the methodology outlined above. By combining all the different services together in a ratio which is approximately that found in a typical customer telecommunications bill, it is possible to develop a composite business basket (Figure 2).

Perhaps the most intriguing aspect of this comparison is the discovery that the cheapest countries are among the smallest in the OECD in terms of population size. This would suggest there is little advantage to be gained from scale of operations in the provision of telecommunications services. More research is required

Figure 1
RESIDENTIAL TELEPHONE CHARGES
November 1989; US\$ Purchasing Power Parities

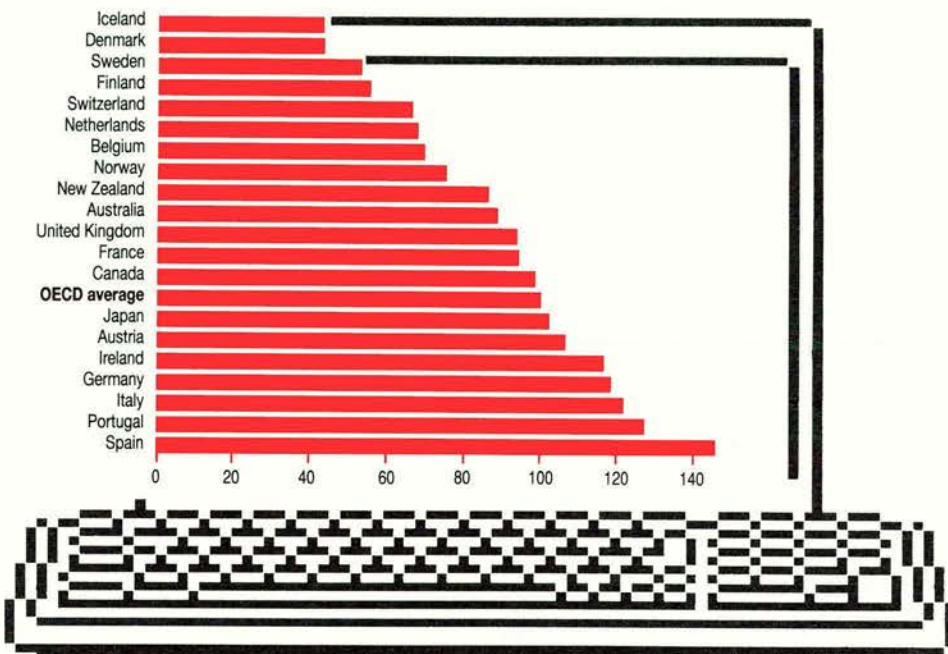


Source: OECD

Fixed charges ■

Call charges ■

Figure 2
**BUSINESS TELEPHONE CHARGES, LEASED LINES,
 MOBILE COMMUNICATIONS
 AND PACKED-SWITCHED DATA COMMUNICATION¹**
 OECD average=100



Source: OECD

1. Calculation based on US\$ Purchasing Power Parities.

ices to local call charges, for instance, is often ingrained in the tariff structure. Tariff rebalancing to reflect costs may therefore be a prerequisite for the introduction of free and fair competition.

In the OECD study, a number of different indicators of tariff structures have been developed. These include:

- the ratio of fixed charges to user charges which is highest in Scandinavia and the Netherlands and in those countries which have free or unmetered local calls, such as Canada and New Zealand
- the ratio of local-call charges to long-distance charges; digital switching technology has reduced the importance of distance and this is reflected in countries which have adopted cost-oriented tariff principles such as Denmark and the UK
- the cost of national calls relative to international calls; the gap is narrower in Japan and Austria than in Iceland or the Netherlands
- the cost of mobile phone calls relative

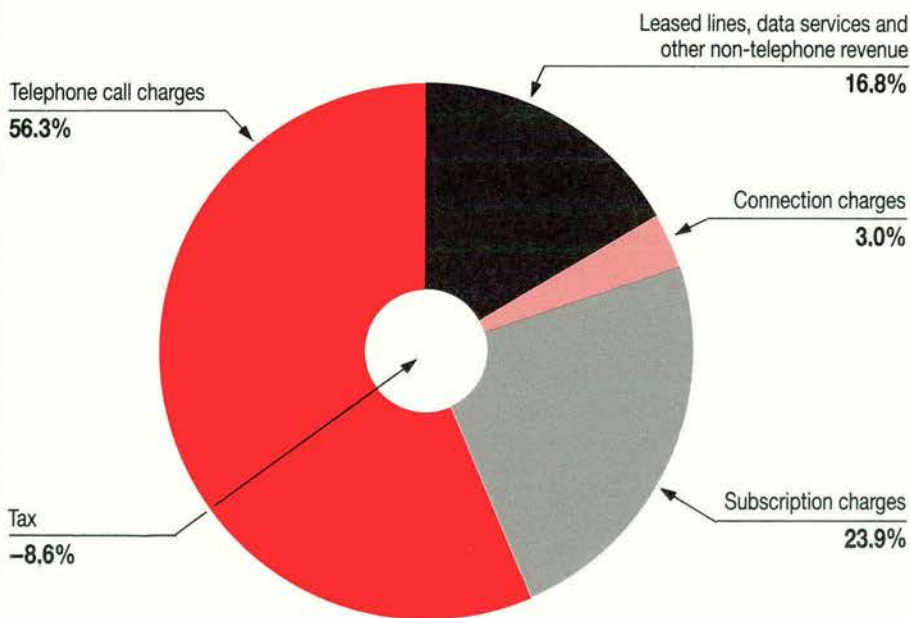
to investigate whether there is a 'minimum viable scale' for telecommunications and whether small is, indeed, beautiful for service efficiency.

What Structural Indicators?

Comparisons of the bills of individual subscribers provide a micro-economic tool for the analysis of PTO performance. To gain a fuller macro-economic picture, it helps to look at the revenue structure of the PTO and its evolution over time. Figure 3 shows that OECD PTOs still gain the majority of their revenue from the telephone service, though other telecommunications services have almost doubled in importance over the last decade. Some two-thirds of telephone service revenues come from call charges and the rest from fixed charges.

Historically, tariff structures have reflected the social value of telephone services rather than the direct cost of providing them. For instance, most countries operate some degree of 'universal service' by charging the same connection fee for all users, irrespective of location. The practice of cross-subsidisation, from profitable long distance and international ser-

Figure 3
PTO¹ REVENUE STRUCTURE
 OECD average, 1987



1. Public telecommunications operator.

Source: International Telecommunication Union.



to conventional telephone calls; the gap is narrower in Switzerland and the UK than it is in France or Germany

- the break-even point in minutes of use for leased lines against dial-up services which is lower for Ireland and the UK than it is for Germany, Spain or Italy.

International comparisons of tariff structures can help to highlight historical anomalies in the charging patterns of individual countries and reinforce pressures for change.

Quality of Service

In a competitive environment, the user requires more information about the quality of the service offered, as well as its price, in order to choose between rival suppliers. For a business user, there is a close link between competitiveness and service quality in terms of reliability, accessibility, security and response time. Few PTOs at present publish statistics on the quality of their services in a systematic manner and there is little regulatory pres-

sure to do so. Where quality-of-state service statistics are reported, they are often intended to support claims made in advertising literature. Selective reporting may actually be misleading to users.

CHECKLIST FOR QUALITY IN TELEPHONE SERVICES

- Waiting time/delivery precision
- Payphone density
- Call failure rate
- Fault reports per line
- Fault clearance by next working day
- Response time for operator services

Working in conjunction with other international fora, the OECD has defined a small number of indicators which can be collected and published on a regular basis and which would allow for international comparisons (box). More transparency is required here—and perhaps also more honesty in the reporting of quality indicators; so too, are more formal mechanisms for handling customer's queries about their accounts. It is increasingly common for PTOs to establish for-


mal contracts on service quality with their leading customers, specifying penalties for failure to deliver. But few residential or small-business consumers enjoy the same guarantees, even regarding basic services.

□ □

Substantial disparities exist in the PTO performance of OECD countries, and the gap appears to be growing rather than diminishing, especially for advanced telecommunications services. This is shown, for instance, by the fact that the countries which already have a sophisticated telephone network continue to be the highest investors in terms of expenditure per line. Given that telecommunications expenditure accounts for around 2% of GDP in OECD countries, the performance of each PTO has important ramifications for the functioning of the national economy.

PTOs should disclose more information about the cost structures, patterns of use and quality ratings of different services. The unimpeded flow of information is a precursor to free and fair competition: secrecy is the preserve of quasi-monopolists. That several PTOs now operate in a privatised, commercial environment does not reduce the necessity of transparency.

Performance indicators are useful to the extent that they attempt to substitute for, or measure deviation from, market mechanisms, such as competition, consumer choice and market access. But performance indicators are destined to remain an academic exercise unless they are taken up and used in the setting of targets by PTO management and regulators. Only then will customers benefit. ■



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Competitiveness through Technology

Wilhelm Kurth

Companies are constantly, and with growing speed, bringing onto the market new or modified products and product lines whose advantages are essentially technical rather than in price and cost. Simultaneously, as a means of supporting their position on the market, they are harnessing the rapid pace in the development of manufacturing technology, often in combination with new organisational forms of production and distribution. Some two to three decades ago genuinely economic factors, such as differences in labour and capital costs, were much more important in determining industrial competitiveness than they are today; now they have often ceded ground to technological factors.

Technological innovation is of increasing importance for the national and international competitiveness of industry.

This gives rise to an interesting question: just as economic factors, and labour costs in particular, lay behind sizable shifts of labour-intensive industrial activities—textiles, clothing and others—from OECD countries to those where labour

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costs were low (thus entailing severe downward adjustments in production and employment) some two to three decades ago, will the rapid advances in process and product innovation now being made in the OECD countries be able to help stem such further shifts? Moreover, will it help entice back to the OECD countries activities that had previously been lost? New developments in production technology, especially in micro-electronics, are expected to afford grounds for hope.

What are the technological and economic preconditions for the recovery of lost competitiveness? While economic theory can suggest answers to this question, experience can help assess their significance for different kinds of industries



and explain the variable success which some industries have had in preserving or regaining competitiveness, in particular through process innovation.

Watches: A Success Story

Watches are not among the products that come most readily to mind when one thinks of labour-intensive industrial activities that have moved on a large scale to areas where wage-costs are relatively low. And yet, unnoticed by the public, significant shifts did occur in this industry during the 1970s and '80s: in 1975 OECD countries (mainly Switzerland, Japan, the Federal Republic of Germany, the United States and France) accounted for some 80% of the world production of watches; their share had fallen to 55% ten years later. Other producers, especially Hong Kong, had come onto the market, the latter pushing its share to as much as 21% in 1985 (from 3% in 1975).

This shift from high-wage to low-wage countries affected the production of low-priced watches in particular. And although it was wage-rate differentials that initially provoked the shift, it was a change in watch technology that ultimately sustained it: the new quartz technology, developed in Switzerland in the 1970s, meant a sizable increase in the share of simple assembly in total costs of watch manufacturing and thus impaired the competitive position of high-wage areas, especially for low-priced watches. As a result, the watch industry in most OECD countries scaled down production substantially, in some cases even closing it down.

The competitive pendulum, accompanied by a comeback of production activity, especially of low-priced watches, began to swing back from low-wage to high-wage countries, with the emergence of the Swatch watch in Switzerland in the early 1980s. This type of watch has since established itself as an enormous commercial success through unprecedented innovativeness in product and process technology, as well as in design and marketing, each of which constituted a complete break with traditional practices. Indeed, the Swatch watch represents the

most striking example of successful recovery of competitiveness in low-priced mass-produced industrial products where the edge had been lost to low-wage countries.

This reversal can be ascribed to three decisive elements, each of which complemented the others. One is product innovation—in this case, the Swatch watch—which meant a completely new product both technically (in the number of parts and the way they are assembled) and in design; and it was design which made the Swatch an item of fashion more than a mere device for telling the time.

The second is process innovation: a new type of highly automated assembly line, conceived by the company for the new watch, allowed production costs (especially labour) to be compressed to hitherto unattained lows. The third element is organisational innovation: new commercial channels and new sales and advertising methods, hitherto unheard of in the industry, were decisive in the creation of new outlets.

The success story of the Swatch is known throughout the world, re-establishing competitiveness in a particularly difficult market—as is demonstrated by the high sales not only on the domestic market but also (which is probably the real proof) on the international market.

Textiles: On the Right Track

The shift in textile manufacturing towards low-wage countries has a long and well-known history. Imports from there to OECD countries have surged rapidly. Imports of textile products, for example, such as yarn and woven fabrics, saw their share increase three and six times respectively between 1965 and 1985, thanks to the abundance of low-skilled, low-paid labour, which makes production of low value-added goods highly advantageous.

The response of the textile industries in OECD countries has traditionally been to invest in production equipment that offers increased performance, substituting automated production for operations that were originally manual. Over the years OECD manufacturers of equipment for textile production have been very successful in

developing machines that offer unprecedented performance, thus presenting the textile industries with process innovations that substantially reduce the share of labour costs.

Yet these process innovations are available worldwide—they are not restricted to the high-wage countries. Indeed, developing countries are also investing heavily in them, and are catching up very fast; the rate of modernisation of production equipment there is nowadays as high as in OECD countries. So in textile production it is not process innovation in itself, and the heavy investments that are being made in it, that have allowed OECD countries to preserve, let alone regain, their competitiveness and avert adjustments to capacity.

As a result, textile companies in OECD countries have laid more and more weight on product innovation, parallel to process innovation, by moving up-market towards higher value-added textile items, such as fine fabrics, home furnishings and sophisticated industrial textiles. In some countries—the Federal Republic of Germany and Switzerland, for example—the industry has almost entirely withdrawn from production of low value-added goods, thus deploying process innovation with increasing success for the higher-value products. This re-orientation of production has led to a kind of 'division of labour' between high- and low-wage countries. In other words, it is the emphasis on product innovation that has been decisive where process innovation on its own—because of the worldwide availability of the technology concerned—did not permit the breakthroughs necessary to preserve competitiveness.

Clothing: Organising for Sales

Clothing manufacture provides a third kind of example, that of an industry where technological innovations in production process (particularly in assembly, which is the core operation in clothing manufacture) have not occurred on any real scale, thus leaving the industry fully exposed to the cost advantages of low-wage countries. As a result, production has been shifting from OECD countries for a long



time now; and today, in all of the major categories of clothing, developing countries have a share of more than 50% in the imports of OECD countries, reaching some 80% for the least sophisticated ones. Because of the higher labour input in clothing manufacture, the impact of international cost differentials is more pronounced in clothing than in textile manufacture.

In view of the absence of major process innovations, the remedies open to the clothing industry have mainly been product innovations, which are even more important in this industry than in textiles. But past experience tells that product innovation, too, does not guarantee long-term survival for many clothing producers: the structure of the trade (from the producer of materials via the clothing manufacturer to wholesale and retail outlets), coupled with the virtual non-existence of design and model protection, is such that innovations in products can usually be imitated and appropriated fairly easily by other producers, who thus expropriate the original innovator from his benefits. Only when an innovating company can 'control' several, or all, stages of the clothing trade will it be in a position to appropriate the benefits of its innovative activity and thus maintain its position. But such control is basically a matter of organisation and organisational innovation—which is the decisive complement to product innovation and any existing process innovation.

The Benetton company is probably the outstanding example of such thorough organisational innovation. Its success has three strategic elements: first, concentration of the product line on a small number of items; second, almost entire disengagement from the physical production of the goods it sells; and third, a comprehensive information network which links to-

gether the entire structure, from retailing via warehousing to production. This network—which is the real organisational innovation—creates instant information about the market and permits quick response of production to market changes. The success story of the Benetton company is well-known, and provides evidence that substantial competitive advantages can be created through organisational innovation when other kinds of innovation are not available or fail.

What Lessons?

These examples demonstrate the conditions for the success of different kinds of innovation and the importance of production technology alone as a factor in competitiveness. And they show the conditions in descending order of opportunities and success: the biggest success results when innovations in process, product and organisation are all present, and when none of them is open to successful imitation by competitors—as the example of the Swatch watch confirms.

The second-best situation—as in textiles—is when new production technology does exist but is widely available; in this case, complementary innovations, in particular of products, are necessary to create a competitive edge and to exploit fully the advantages inherent in process innovation.

And in the third situation, when process innovation is not available and product innovation can spread throughout the industry (clothing, in this example), it is organisational innovation that has proved itself the most effective means, at least for individual companies, of improving competitiveness.

The conditions of success thus vary

considerably between different types of industries, depending mainly on their individual structures. Moreover, the examples demonstrate the existence of limitations of technology in the form of process innovation as a means to secure or regain competitiveness and underline the necessity that process innovation be complemented by other types of innovation, in particular of products.

□ □

Can governments assist industry in adopting and using technology to regain competitiveness? The examples suggest both limitations and opportunities. In none of the examples, whether entire industries or individual companies, was the outcome ascribable to sector-specific government measures.

Yet companies may have benefitted from the policies that national governments had already put into effect. Until some ten years ago, such policies emphasised assistance to investment as a tool to improve competitiveness. They thus focussed mainly on process innovation which, though indispensable, was not always sufficient on its own to guarantee competitiveness—depending mainly on the structure of the industry.

Today, and in line with the increasing economic importance of product development, policies give more weight to innovation in the broadest sense. They attempt to foster activities such as research and development, the diffusion of technology, consulting services, and the like ('intangible' investment). They also aim to eliminate obstacles to innovativeness and to enhance the play of market forces, thus forming part of an overall policy stance which encourages creativity and rewards success. ■



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David, Goliath and the Biotechnology Business

Margaret Sharp

The development of biotechnology has been pioneered by small, specialist firms, with the help of R&D contracts and equity funding from the large established companies.¹

Developments in genetic engineering in the 1970s broke new ground for the manufacture of chemicals and pharmaceuticals and in the invention of new plants. Once these techniques became more generally available, it was inevitable that companies developing new drugs, herbicides, pesticides and plant species would seek to exploit them. To do that, they had to acquire and assimilate a new range of scientific skills.

The opportunities presented by the demand for these new, and often scarce, skills encouraged the creation of specialist biotechnology firms. New ventures have crowded into the business, jostling for position and fuelling the development of the new technology. Being a process rather than a product technology—that is, it is concerned with new ways of making existing products rather than with completely new products—no 'biotechnology industry' has emerged; instead, the new technology has been applied in existing industries. Hence, although many new small biotechnology firms have emerged, they have not disturbed the established hegemony of the big groups in the chemical and pharmaceutical industry, whose hold over 'downstream' production capacity, distribution networks, and above all the regulatory system, puts them in a very strong position over the new biotechnology entrants.

The impact of biotechnology has been felt in three main activities—human and animal health care, agriculture, and diagnostics.

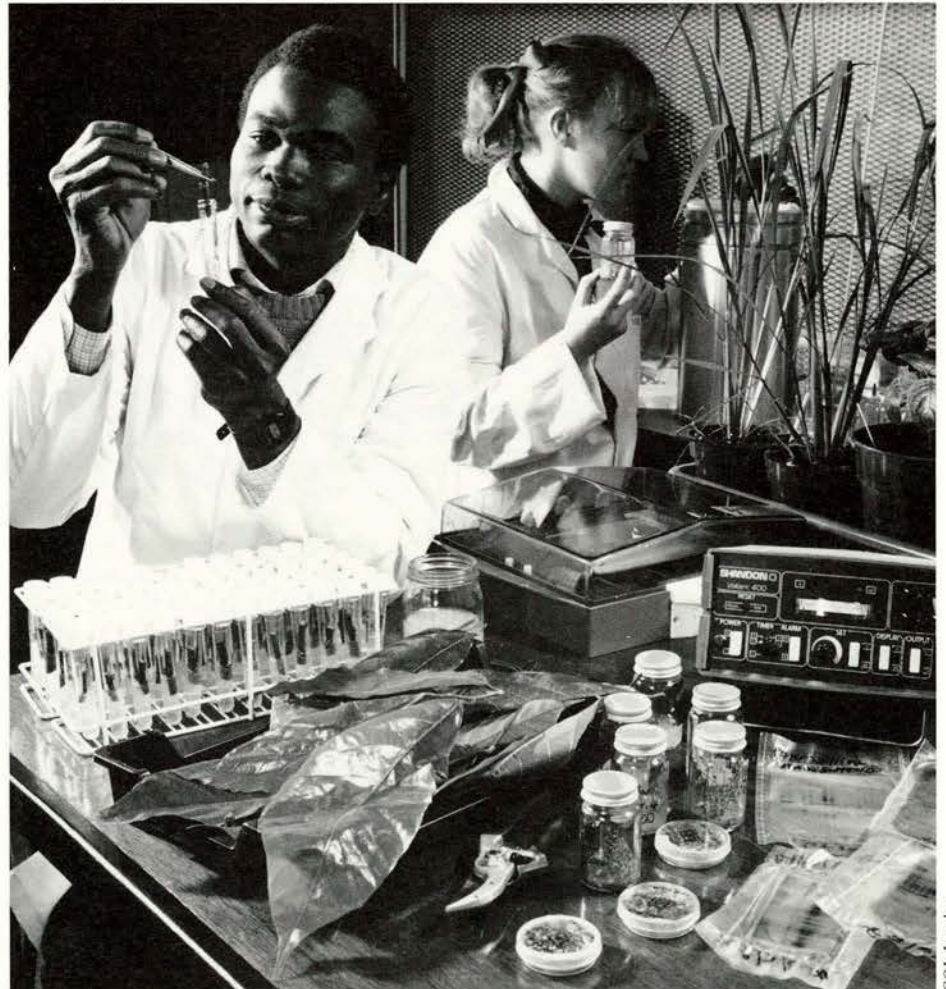
- The pharmaceutical industry, predictably, has invested most in biotechnology. As a high value-added sector whose golden era of post-war drug discoveries was beginning to fade by the early 1980s, it saw the potential for developing a whole

series of new protein-based drugs, derived from the therapeutic role played by these agents in the body's immune system.

- In agriculture, after early experiments to engineer micro-organisms and fungi for use as biopesticides and herbicides, a major development took place in the early

1980s when new techniques for gene-splicing in plants created the new science of plant biotechnology. That has given rise to new varieties of hybrid plants, which incorporate qualities such as immunity to disease and pests, early ripening and the resistance to weedkillers. The big agro-chemical companies have all acquired

The advent of small, dynamic firms, stimulated by buoyant demand, has fuelled the development of biotechnology.



COI, London

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seed companies, with a view to cashing in on the development of these hybrid species.

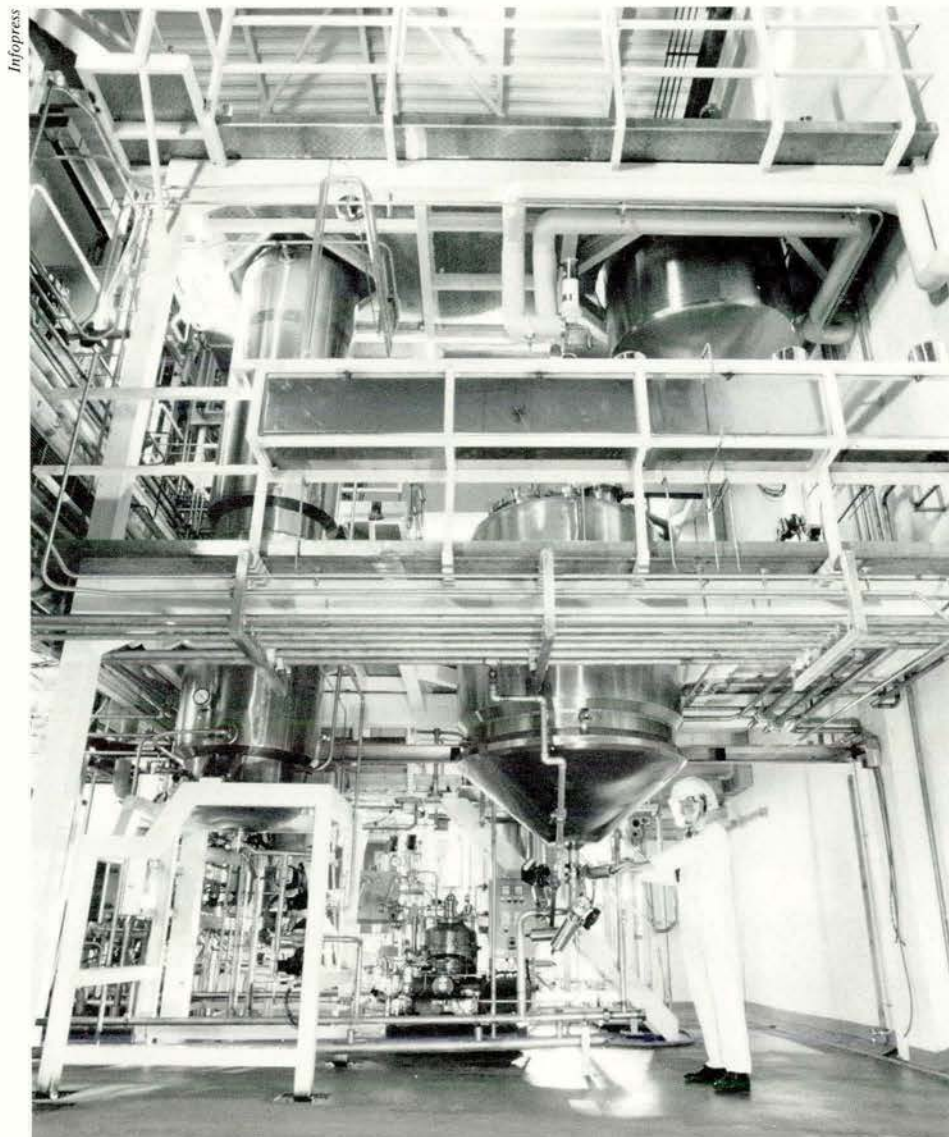
- Applications in diagnostics started when monoclonal antibodies became available. Monoclonal antibodies were derived from the search for a means of cloning individual antibody cells; they are obtained by fusing an antibody with a myeloma (or cancer) cell, combining the specificity of one with the growth characteristics of the other. They are now used extensively for diagnostic tests in such things as blood groups and pregnancy and, increasingly, to diagnose more complex diseases such as cancer. They are being used as delivery systems for drugs since they can be targeted to a specific site in the body. They are also being used as therapeutic agents in their own right.

What Corporate Strategies?

Both large and small firms have jumped onto the band-wagon of biotechnology. The most dramatic advances have been made by the so-called 'new biotechnology firms' (NBFs), a large proportion of them based in the United States. But as well as having to face competition from the big established groups, the NBFs have often been fostered and financed by them, too. Indeed, the large companies have not only proved to be a ready market for the research of the NBFs; they have also awarded them contracts for research in new biotechnological techniques rather than undertake it in-house, and have often taken equity stakes in the NBFs.

The relationship is not wholly benign. Now that some of the early uncertainties are over, the large firms are moving in to capture the dynamism and creativity of the small firms. Many large chemical and pharmaceutical companies had awarded contracts to Genentech, the leading US biotechnology firm, early on in

1. 'Technological Trajectories and Corporate Strategies in the Diffusion of Biotechnology', presented at 'Technology and Investment: Crucial Issues for the 90s', a conference organised in Stockholm earlier this year by the Royal Swedish Academy of Engineering Sciences (IVA) and the Swedish Ministry of Industry, in co-operation with the OECD.



The British firm Celltech is the leading European biotechnology company.

its development, and in February 1990 one of them, the Swiss pharmaceutical giant Hoffmann-La Roche, pounced, spending \$2.1 billion to acquire a 60% stake in Genentech—the biggest equity investment made to date by a large group. Indeed, Roche Holding also took an option to purchase the other 40% within five years.

The move is symbolic. Genentech was the largest and strongest of the US biotechnology firms, with a superb record in creative 'state-of-the-art' research. Now that it has been gobbled up, everyone is looking round to see who will be next. Many firms are vulnerable, including Celltech, in the UK—Europe's leading firm—whose major shareholding was in any case already on the market.

The emergence of the small biotechnology firm with a major stake in contract research reflects both the particular type and variety of skills required in biotechnological research and initial uncertainty over the usefulness, practical

applicability and social acceptability of these techniques. The specialist firms have often acted as the 'upstream' research arms of the big groups, developing products and supplying services under contract. In only one field of research—monoclonal antibodies—have small firms developed a new product that they have been able to market directly for cash.

Most of the established firms waited until the research had proved itself before investing heavily in the new techniques. In the early 1980s, investments in commercial biotechnology by large companies in the United States were fairly static, at about \$200 million a year, before rising to \$300 million in 1984 and jumping to \$1.2 billion in 1985. Today many major firms are spending upwards of \$200m a year on biotechnology-related R&D. Interestingly, in-house investment in biotechnology has not led to much reduction in funding by large companies of their NBF partners, as many observers had expected; instead, it has been accompanied by a



Many biotechnology firms are now traded on the market.

continued increase. This reflects the continuing fast pace of scientific development to which these small firms are better attuned. They continue to be a useful intermediary between the big firms and the academic science base.

This development suggests that the complementarities which existed in the early phase of development still have some validity. For one thing, the NBFs still possess a large pool of scarce skills. For another, they are closer to the academic world, forming a bridgehead between university laboratories and industry. For their part, the large companies are still vital to the NBFs—as sources of revenue and equity capital, as partners in the marketing and distribution of new products, and in the negotiation of the lengthy testing and certification procedures.

International Divergencies

Developments in Europe have not followed the same pattern as in the United States. While the large European multinationals are now beginning to invest heavily in biotechnology, they did not encourage the spawning of a vanguard of small specialist firms. It is not clear why this is so. In part it reflects the lack of a

mature venture capital market, and perhaps also the predominance of public research establishments in Europe and the reluctance of European researchers to seek personal profit from their academic work. But it also reflects the pre-eminence of American researchers—it is undeniable that in many activities US academics dominate the intellectual scene.

To compensate for these shortcomings, many European companies have bought their way into American R&D developments with research contracts with both the small biotechnology companies and US academic research institutes. In addition, as multinationals, they can locate their R&D activities where they wish: the West German giant BASF, for example, recently decided to move its biotechnological R&D activity to the United States to forestall any possible opposition from environmentalists at home. Bayer already have major research laboratories in the USA, as do Roche, CibaGeigy, Glaxo and ICI.

European companies have not lost too much by entering the business at a later stage, since much of the early work was basic, non-commercial research which rapidly entered the public domain. Patents in biotechnology have proved a major headache for firms seeking to protect their

intellectual property.

In many cases, the emergence of a radical new technology enables new firms to break the oligopolistic hold of large, established companies. But this has not happened in biotechnology, mainly because the regulatory barriers favour existing firms with cash resources and know-how.

The newcomers are not always start-ups. In some cases they are existing firms diversifying into a new activity. In the micro-electronics sector in Japan, for example, established electrical goods companies took advantage of new opportunities by successfully predicting the technological trajectory of semi-conductors and planning their entry into the market at an advanced stage along it. As a result, they now control the market. Exactly the same could happen in biotechnology. Japanese chemical and pharmaceutical companies are investing heavily and are rapidly catching up with American prowess.

□ □

While developments in science are making the future a little more certain—the emergence of protein engineering as the mainstream technique for the second generation products of the new biotechnology has opened up exciting avenues for designing new drugs and chemicals—there is still all to play for on the strategic front. The next few years are likely to bring intense competition between the major companies, players with both mergers and strategic alliances playing an important part as firms reposition themselves to compete in the global market-place. ■



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Tourism in Mediterranean Cities

Sergio Arzeni

The expansion of Mediterranean tourism has essentially concerned the coastline. Much of the expansion has been uncontrolled, although it has helped regions such as the Balearic Islands to climb in 20 years from the bottom to the top of national per capita income rankings. Yet the accepted tourism model has not always managed to achieve balanced development in the less favoured regions of southern Europe.

The lack of any genuine policy for tourism—taking simultaneous account of environmental protection, physical planning, transport and communications infrastructure, and the development of human resources—has often caused damage and provoked fresh problems.¹ These have been exacerbated by devolution, under

A massive industry transports, houses, feeds, entertains, edifies and relaxes around 400 million tourists every year, one in five of whom chooses to visit the Mediterranean countries of the OECD—and especially their beaches. Yet in the belt running from Lisbon to Istanbul, through Barcelona, Marseilles, Naples, Palermo and Athens, urban tourism is still marginal.

which local authorities have assumed responsibility for planning and supervising tourism and physical development, largely reducing the role of central or nationwide agencies to promotion.

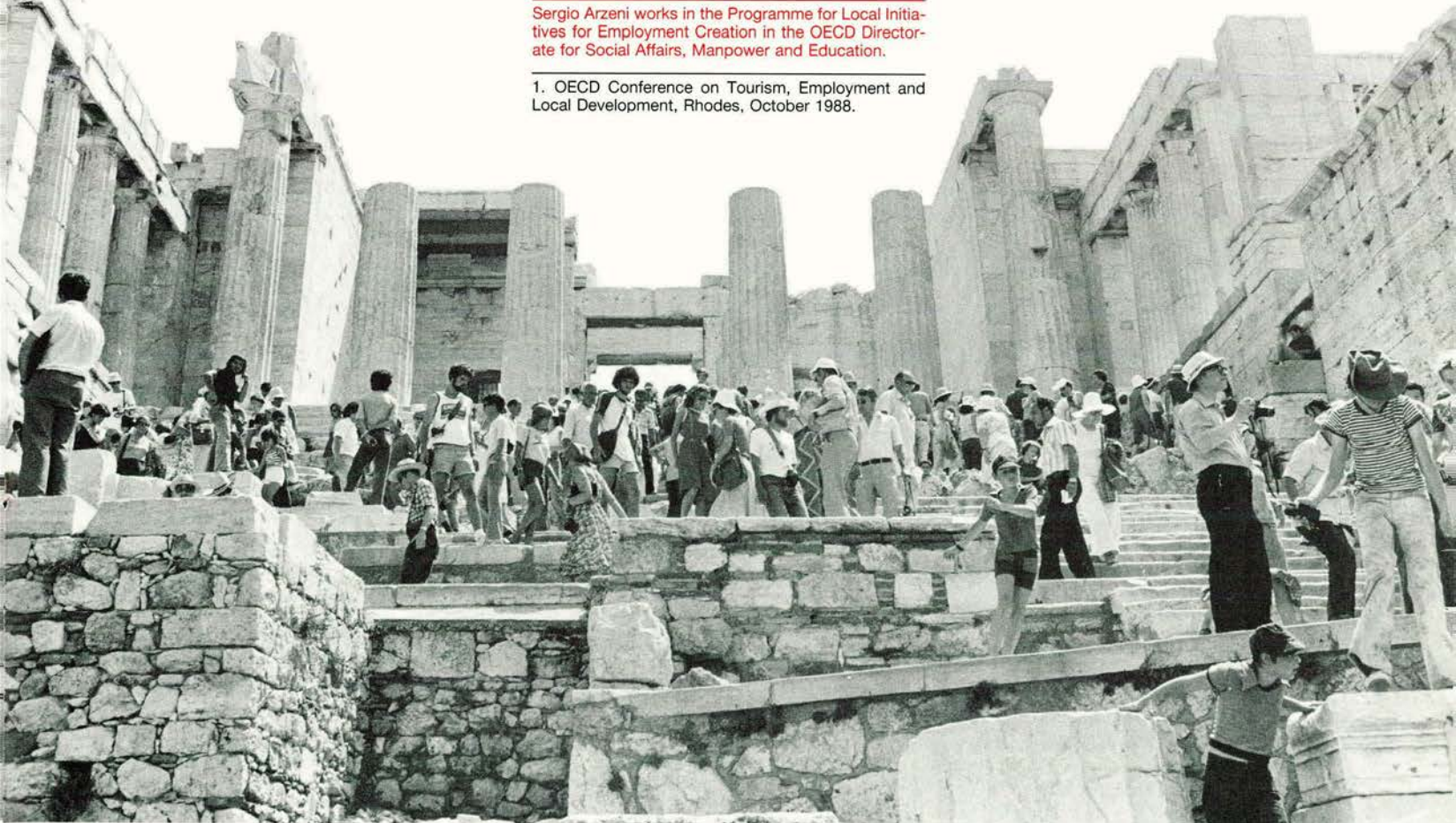
But experience shows that the distinction between policy-making and executive responsibility is not clear-cut in local government, and the political dimension usually prevails. By and large, that means priority is given to short-term projects, and there is little resistance to local pressure groups, among whom property developers often wield considerable weight.

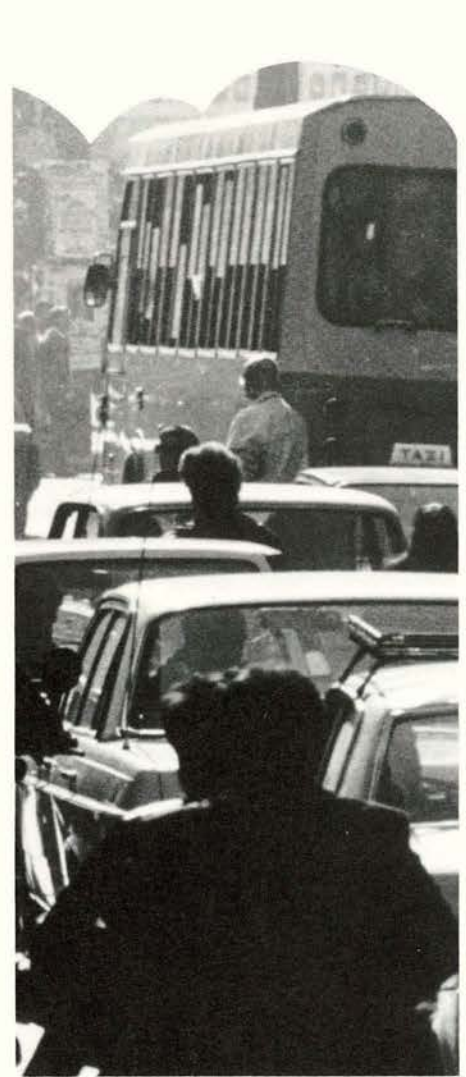
Under threat from pollution of all kinds, distressing deterioration of the landscape and barely tolerable over-population in the peak season, Mediterranean beach tourism is also having to compete with other,

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1. OECD Conference on Tourism, Employment and Local Development, Rhodes, October 1988.

Main/Perret/Sygma





Sygnia

further-flung destinations which, through innovations in air transport, are now within more people's reach. The flows of tourists from northern Europe to Australia and the Indian Ocean have more than doubled during the 1980s, for instance, while flows to southern Europe have simply held steady.

The outcome of these trends is that Mediterranean beach tourism is beginning to show some signs of strain, which here and there have become acute. Even on the most optimistic assumptions, future growth is expected to be far more modest. The local implications for jobs and development are worrying, and

government, especially the tier to which responsibility had been devolved, is trying to find ways of rectifying the situation.

Visual Pollution in Urban Centres

One possible course is to diversify Mediterranean tourism into urban areas.² If tourism in city centres is to develop, combatting the numerous sources of 'visual pollution' must be given absolute priority.

Since attractive sights are a vital factor in tourism, cities with a wealth of historical and cultural attractions cannot afford any

form of visual pollution:

- blue skies masked by a haze of air pollution
- litter in the streets, largely because garbage is not efficiently collected, but sometimes caused by tourists themselves
- traffic congestion, making movement very slow and exacerbating air and noise pollution and damaging historic monuments.

2. The OECD Conference on the Future of Mediterranean Cities, held in Palermo in November 1989, considered the potential for local initiatives and tourism in revitalising historic urban centres. The proceedings of the Conference are summarised in **Urban Tourism and Job Creation**, ILO Notebook, OECD, Paris, 1990, available from the OECD Directorate for Social Affairs, Manpower and Education.

Visual pollution tends, moreover, to bring street crime and violence in its wake. Obviously, any threat to personal safety is a powerful disincentive to anyone thinking about tourism, travel and leisure. This is well shown by the heavy cancellations whenever a mishap is reported in a tourist area.

Does the lesser degree of visual pollution go some way at least to explaining why further north, from Rome to Stockholm, city centres are the tourists' first choice? Urban tourism accounts for almost half the total flows there; in the southern belt of Europe matters are quite different. The Uffizi Gallery in Florence receives as many visitors in a single day as the equally fine Capodimonte Museum in Naples receives in a year.

Restoring the City/Suburb Balance

For the revitalisation of Mediterranean cities, restoring the balance between the centre and the suburbs is as essential as combatting pollution. Unless an outside business centre is planned, almost any re-

development programme will end up by converting the historic heart of the city into a dwelling-free area, occupied only by banks and insurance companies. That will hardly encourage urban tourism; separating economic life and social life destroys the community fabric of the urban core. With some Mediterranean cities, unfortunately, this is what has happened: in the centre of Rome, for example, apartments have been converted into office space and small food shops have been supplanted by fashion boutiques.

Unless the quality of life in urban communities is improved, any attempt to raise the standard of tourism services will be fruitless. But the two things can perfectly well go hand in hand, and tourism can prove an economic lever for revitalising a city. Baltimore, in the United States, is one example. Ten years ago the old part of the city was in steep decline, and tourism was non-existent. Now, after a local development programme focusing on tourism, 7 million visitors come in every year, and the city is once again prosperous.

The revitalisation of city centres and

attraction of tourists requires more than the reduction of pollution and street crime and restoration of the balance of urban communities. It also calls for investment in building hotels and infrastructure—from

CHANCE AND NECESSITY

The cities of Mediterranean Europe are undergoing far-reaching change. For one reason or another, many cities—from Lisbon to Seville, from Barcelona to Marseilles, from Palermo to Athens—are currently making substantial investments to revitalise their historic centres. Four examples:

- The redevelopment of the Golden Horn in Istanbul, between 1984 and 1988, was overseen by a new and particularly energetic mayor. The gigantic operation to clean up and revitalise this central area involved demolishing 5,000 buildings (none of which was of historic or architectural value) and 2,500 factories that had no drainage and were thus a source of pollution. The land thereby released has been turned into gardens. The local population was rehoused in new suburbs, and the industries re-established on economic development estates.
- In Naples, after the 1980 earthquake, the city centre became the focus of a renewal and rehabilitation programme costing nearly \$1 billion. The programme is still under way, but has already changed the face of a number of squares and city streets.
- In Lisbon the enormous fire in summer 1988—18 buildings were gutted in Chiado (the centre)—triggered off a rehabilitation project. The area, which had almost entirely been taken over by business, had few people still living there (which accounts for the lapse of time before the fire brigades were called in). The rehabilitation programme sets a proportion of dwellings in the historic centre, with limits on the number of shops and offices.
- In Seville and Barcelona, the World's Fair and the Olympic Games respectively are providing a massive injection of capital to improve infrastructure and the quality of life in the city centres.

The trend is a new one either by sheer size or by the volume of funds committed. Yet renovation is not free from risk, aesthetic and others, as can be seen from the number of windows in old buildings where the wooden frames have been replaced with aluminium. Sometimes it can be more sensible to do nothing. At all events, culture must be an integral part of any programme for urban rehabilitation and local development.



Jean Potier/REA

THE TOURISM INDUSTRY

Jean Guichard/Sygma



The annual turnover of the worldwide tourism, travel and leisure (TTL) industry is of the order of \$2 million billion, according to a recent study—more, in other words, than the GNP of the Federal Republic of Germany and the United Kingdom combined. The TTL industry is estimated to employ over 100 million people throughout the world.¹ Jobs are created at a higher rate than in any other sector. Over the last ten years, in virtually every OECD country, the number of people employed in tourism-related industries has risen more quickly than in all service industries, and far faster than the employed labour force as a whole.

The scale of the industry can be gauged by the fact that in most of the industrialised countries it employs more people than agriculture, the motor industry, electronics, iron and steel and textiles put together. Still more spectacularly, 3.2 million tourism-related jobs have been created in the United States since 1976—15% of all employment growth. In Europe around 10% of total employment is ascribed to the TTL sector. In France, Germany and the United Kingdom it is by far the leading employer.

The growth of inclusive tour charter (ITC) holidays contributed considerably to the development of Mediterranean tourism in the 1970s and early '80s. Between 1970 and 1980 the number of ITC tourists from the

rest of Europe more than doubled, from 5.4 million to 12.8 million. In 1985 London's airports handled over 50% of the 12.4 million charter flight passengers going to the eight major Mediterranean destinations (Spain, Greece, Italy, Portugal, Yugoslavia, Malta, Tunisia and Morocco).

Air charter traffic between Europe and the Mediterranean is dominated by two major markets (the United Kingdom and Germany) and one destination (Spain). No wonder, then, that 90% of all air traffic between the United Kingdom and Spain is made up of charter flights. In 1988, visits to Spain represented 85% of all foreign trips by United Kingdom citizens.

The TTL industry is being restructured, both in Europe and worldwide. There is a very marked trend towards vertical integration, which will probably continue until the economies of scale required to make urban tourism profitable have been achieved. Given the multinational character of tourism operators, the industry will have to focus more on particular local characteristics, because a growing proportion of the international market is made up of slots with a very definite local character.

1. Wharton Econometric Forecasting Associates, *The Contribution of the World Travel and Tourism Industry to the Global Economy*, American Express Travel-Related Services Inc., New York, 1989.

adjustments, especially in the Mediterranean regions of the OECD where at present reception facilities are not always equal to the demands made on them. The main factor is staff skills. Training for staff, managers and entrepreneurs is of prime importance if tourism is to be safeguarded as a source of job creation and a mechanism for promoting entrepreneurship. An increase in urban tourism will have the advantage, in this highly labour-intensive sector, of lessening the impact of seasonal fluctuations.

The advent of the Single Market in 1993 should lead to an increase in intra-European tourism, with a middle-income clientele. That in turn should produce an incentive to improve two- and three-star hotels in historic centres. These hotels, generally family businesses, are well placed to meet the new demand for urban tourism and, at the same time, to develop this form of local entrepreneurship.

□ □

The international tourism, travel and leisure industry is now being radically restructured, and the trend towards vertical integration, already well advanced, will continue. The international market is increasingly made up of slots with specific local characteristics, and the Mediterranean tourism industry should place more emphasis on its particular assets. The historic riches of city centres in these countries have an enormous amount to offer—and should be exploited. ■



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conference centres to airports and including landscaping—and, above all, for higher-quality services. As tourists become more demanding on this score, the

quality of tourism will depend on the standard of services available far more than on the facilities themselves.

That will probably call for substantial

A Flexible Labour Market in the 1990s

Anders Reuterswärd

Labour markets will have some difficult adjustments to make in the decade ahead. Many current jobs will disappear, and new ones will often be different. To forestall and reduce unemployment, policy-makers will have to ensure that the many opportunities in sight can successfully be realised. Without a change in labour markets there is a risk that the very process of growth will be impeded by shortages of labour and appropriate skills. Three tendencies accentuate this danger.

First, demographic trends will reduce the number of young workers—who are

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There is good reason to hope that the 1990s will bring lower unemployment. Several factors combine to promise both economic growth and jobs: trade liberalisation, economic deregulation, reforms in formerly planned economies, the rapid spread of new technologies.¹

often the most mobile and adaptable. Second, the average job is becoming more skill-intensive. The high pace of change will in itself also require more ver-

satile workers who are capable of improving their skills throughout their working lives. Third, the very nature of the labour market is becoming more complex and harder for individuals to grasp. Working conditions and requirements will be more varied, as will the long-term career prospects in different jobs. As a result, both job search and recruitment become more important and more difficult.

This challenge requires a new policy approach, strongly geared towards improving labour-market efficiency and relieving obstacles to growth. Policies that only remedy loss of income and other social consequences of unemployment

1. *Labour Market Policies for the 1990s*, OECD Publications, Paris, 1990.



Caroline Penn/REA

are not sufficient—more emphasis has to be placed on measures that encourage job search, training and work motivation.

Learning from Experience

'Active' policies that promote labour-market efficiency may include, first and foremost, placement, counselling, training, and vocational rehabilitation. Unfortunately, the achievements of such measures have been very mixed, and sometimes clearly less than satisfactory. Improvements are required in the design of policy instruments, in how they are implemented, and in the balance and interaction of different types of measures.

Such improvements are best pursued as a gradual process, based on learning from experience. Evaluation research is potentially important; yet for several reasons it has hitherto played a fairly modest role in most OECD countries. For more systematic feedback, policy objectives have to be clarified and stock taken of the many alternative policy approaches in OECD countries.

Institutional Change

Although laws and traditions can vary considerably, the differences between countries have been reduced in recent years. Some deregulation has also taken place. For example, where governments have a tradition of intervening directly in wage setting, as with 'incomes policies' or minimum-wage laws, there has often been a tendency towards relaxing such measures. Similarly, countries where collective bargaining used to be centralised have often decentralised it (though here, too, there are exceptions).

Rules on job security have tended to converge. In Japan and the United States, where laws place few explicit obstacles to the dismissal of workers, there has been a movement, in the courts and elsewhere, to establish practices which *de facto* protect many workers from losing their jobs. In Europe, conversely, previously rigid laws against dismissals have been relaxed, though seldom abolished. In

Table 1
PUBLIC SPENDING ON LABOUR MARKET PROGRAMMES¹
% of GDP

	Employment Services and Administration	Targeted Programmes Aimed at Ordinary Jobs ²	Non-targeted Programmes Aimed at Ordinary Jobs	Work Schemes outside the Ordinary Labour Market ⁴	Income Support for the Jobless ⁵	Total
Australia	0.10	0.10	0.06	0.05	0.99	1.29
Austria	0.10	0.13	—	0.05	0.96	1.24
Belgium	0.18	0.29	0.01	0.70	3.05	4.23
Canada	0.21	0.24	0.05	0.02	1.58	2.09
Denmark	0.09	0.73	0.28	0.10	4.51	5.71
Finland	0.10	0.39	0.01	0.53	1.22	2.26
France	0.12	0.39	0.23	0.06	2.08	2.87
Germany	0.23	0.48	0.07	0.21	1.33	2.32
Greece	0.07	0.21	0.23	0.03	0.39	0.93
Ireland	0.15	0.78	0.28	0.25	3.42	4.88
Italy	0.08	0.30	0.43	—	0.72	1.52
Japan	..	0.11	0.03	0.01	0.36	0.52
Luxembourg	0.05	0.17	0.02	0.26	1.06	1.57
Netherlands	0.09	0.26	0.05	0.72	2.64	3.77
New Zealand	0.07	0.54	0.01	0.03	1.06	1.71
Norway	0.15	0.48	—	0.28	1.05	1.96
Portugal	0.12	0.15	0.28	0.06	0.31	0.91
Spain	0.09	0.54	0.03	0.12	2.36	3.14
Sweden	0.20	1.01	0.02	0.47	0.69	2.38
Switzerland	0.07	0.06	—	0.04	0.19	0.36
Turkey	0.01	0.09	0.06	—	—	0.16
United Kingdom	0.14	0.27	0.25	0.02	0.94	1.62
United States	0.06	0.17	—	0.01	0.38	0.62

.. Not available.

— Nil or less than 0.005.

1. The most recent year available—generally 1989 or 1988.

2. Training for unemployed and disadvantaged adults and youth, subsidies to jobs in the regular labour market, and vocational rehabilitation for the disabled.

3. Non-targeted support of apprenticeship-type training and training for employed adults.

4. Direct job creation and sheltered work.

5. Unemployment benefits, early retirement, and certain other benefits.

Source: OECD.

most countries, such rules now appear so embedded in social consensus that any further changes will be marginal or slow.

Internal and External Labour Markets

The principal efficiency goal of labour-market policy is to improve the allocation of labour. This is as important within as between enterprises. But for practical policy purposes, the role of government is much less evident within enterprises, which is why public interventions often

appear less prevalent in countries with well-developed internal markets, notably Japan. Indeed, when internal labour markets are important, it often appears that governments can and should do little more than provide a stable institutional framework and reasonable incentives—for training, for instance.

Good personnel management is becoming more and more important for enterprises around the world—a result of pervasive trends in business practice and technology. Employers increasingly see workforce skills as crucial, a fact which, a

priori, might seem to weaken the case for subsidising job training. Still, many governments are concerned that businesses may lose international competitiveness because they are not sufficiently active in training their workers. Culture and traditions make employers less inclined to provide training in some countries than in others. Can governments remedy such shortcomings?

On balance, public-policy measures provide no substitute for appropriate training by employers. But they can often serve as catalysts, for example, by promoting co-operation in training within industries and by setting standards, and perhaps also by providing some good examples. Considerations of efficiency point to the desirability of skills being transferable between enterprises. But policy efforts to achieve this goal can be successful only to the extent that the labour market accepts these skills.

In any event, external, not internal, labour markets will remain the prime concern of public policy. In particular, governments cannot avoid assuming responsibility for the unemployed. People without jobs do not benefit from internal labour markets. The government, moreover, has

a direct stake in reducing their dependence on income support.

The largest part of labour-market policy, measured in terms of spending, consists of income transfers to the unemployed, such as unemployment benefits and early retirement pensions. These transfers alone account for more than 2% of GDP in several countries (Belgium, Denmark, France, Ireland, Netherlands and Spain) and over 1% in many others (Table 1).

Various 'active' measures to improve the labour market also require relatively large resources, though less so than unemployment benefits. Only a few countries, such as Sweden, spend more on active labour-market policies than on income support.

Another striking manifestation of how 'passive' income support is predominant over 'active' policies can be seen in the staffing numbers of public employment services and other administrative resources. The office networks involved are often quite large. But very often the bulk of these bureaucracies do little more than administer unemployment benefits, not leaving enough staff time to help the unemployed effectively and find solutions to their problems. In countries where un-

employment benefits are administered separately from employment services, the benefit administration typically has more staff.

Improving Policy Co-ordination

Should unemployment benefits be withheld when workers decline to join labour-market programmes, such as training? This is a contentious issue in many countries. But a more urgent question is often whether existing administrations can enforce even the most basic job-search requirements. In theory, job search is a condition for unemployment benefits in all countries—yet enforcement may be quite perfunctory if the people in charge of paying income support have too little contact with placement and counselling, let alone with training and other options.

One current strand of reform is therefore to strengthen co-ordination between income support and other functions, especially job placement. Employment offices are also being modernised and use increasingly sophisticated information systems. Markets for private placement agencies are being given more scope in several countries; but with few exceptions government offices have retained their functions.

The central objective is to help unemployed and disadvantaged persons find jobs. When placement and counselling alone proves insufficient, a battery of other measures can be used: training, recruitment subsidies, support of unemployed persons who are starting enterprises,² vocational rehabilitation. All these measures are targeted on unemployed and disadvantaged persons; some of them target sub-groups such as the long-term unemployed or the disabled. Moreover, since the objective is to improve the performance of the labour market, they must aim at employment in ordinary jobs, as distinct from special 'make-work' projects. (Expenditures on all such measures are shown in the second column of Table 1.)

Although training is the main option in

2. See Paul Barker, 'From Unemployed to Self-employed', *The OECD Observer*, No. 158, June/July 1989.



J. Maillard/ILCO

most countries, it is especially useful to consider all these measures as a 'package'. In principle, each jobless worker should have the support that suits best for his or her labour-market situation, maximising the chances that many different people will benefit.

In all OECD countries together, close to 8 million people enter these targeted programmes during a year (Table 2), a fig-



ILO

the 1980s, although they are still large in Belgium, Finland, the Netherlands and Sweden, the last two focusing on sheltered work for disabled people.

□ □

Government intervention in the labour market thus takes many different forms. That governments should take a coherent approach to all of them is not always so obvious; many interventions are quite moderate in size, for example, and devoted to 'special' problems.

Yet, after almost two decades of high unemployment, the scope of labour-market policies has become so wide that their larger impact must also be considered. What are the macro-economic effects? How do such policies, as a whole, affect incentives to work? What role do they have in relation to general education and training policy?

It is especially important to consider the response that individual workers receive from the government when they register themselves as unemployed. What incentives do these people face, and what support can they expect in seeking employment?

The entire policy package in many countries has to be streamlined to make incentives consistent. It may not be necessary to limit the present wide variety of policy measures—but a re-orientation is called for in many cases. Moreover, the measures that are taken have to be monitored and results analysed so that their effectiveness can be evaluated and constantly improved. ■

Table 2
PARTICIPATION IN TARGETED PROGRAMMES, 1988/89

	Participants entering Programmes ¹ (thousands per year)	Total Unemployed (thousands)	Ratio of Participants to Unemployed %
Australia	103	544	19
Austria	53	122	44
Belgium	71	424	16
Canada	240	1,046	23
Denmark ²	130	172	75
Finland	72	116	62
France	1,000	2,443	41
Germany ²	780	2,242	35
Greece	55	302	18
Ireland	56	220	26
Italy ³	200	2,885	5-10
Japan ³	100	1 550	5-10
Netherlands ⁴	170	558	31
New Zealand ⁵	92	96	96
Norway ⁴	79	69	114
Portugal	32	258	12
Spain ⁶	520	2,850	18
Sweden ⁵	154	72	214
Switzerland	8	22	38
Turkey	65	3,037	2
United Kingdom ⁷	500	2,340	29
United States	3,550	6,700	53
Total ⁸	8,000	28,000	-
Average	-	-	28

- Not applicable.
 1. All programmes which target unemployed and disadvantaged people and aim at ordinary jobs: training, recruitment subsidies and vocational rehabilitation. Work schemes outside the ordinary labour market are not included.
 2. 1987 and 1988.
 3. Estimate.
 4. 1989.
 5. 1987/88.
 6. 1987.
 7. 1989/90.
 8. Figures rounded to nearest million.
 Source: OECD.

ure which may be compared with the total stock of unemployment existing in any point of time, amounting to 28 million in 1988 and 1989. In 10 countries, including three of the largest—the United States, France and Germany—the annual programme intake corresponds to more than one-third of the total stock of unemployment.

A different type of policy measures is not targeted on people with employment problems (the third column of Table 1): youth training schemes of the apprenticeship type, for example, often run by labour-market authorities. Such training is not confined to unemployed or disadvantaged persons, so it can also be compared with vocational courses in upper-secondary education. In a few countries—Denmark is one example—the non-targeted measures consist mainly of training for employed adults.

Special work projects, created outside the ordinary labour market, are nowadays less important than they used to be. Several countries drastically reduced them during



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The Path to Sustainable Development

Jean-Philippe Barde

There has been growing awareness in recent months in international political circles of the urgency of steering the world economy, and particularly that of the OECD countries, towards 'sustainable development'.¹ What does this mean in concrete terms? And how can it be achieved?

Georg Gerster/Rapho

'Sustainable development'—the concept, if not the expression—springs from the very roots of modern economics. Malthus and Ricardo had already foreseen 'natural' limits to economic growth. The work of the Club of Rome,² nearly twenty years ago, sparked off an acute awareness of these problems.

This way of thinking has become more common since then and the expression 'sustainable development' has recently come to be used again internationally following the report by the World Conference on Environment and Development (WCED), known as the Brundtland Commission,

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which defines it as 'a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations'.³

1. In the Communiqué adopted by the Council of the OECD Meeting at Ministerial Level (1 June 1989) Ministers asked that attention be paid to 'elaborating in economic terms the sustainable development concept'. The 'Summit of the Arch' Declaration (14–16 July 1989) states: 'In order to achieve sustainable development, we shall ensure the compatibility of economic growth and development with the protection of the environment'.

2. D. Meadows *et al.*, *Limits to Growth*, Earth Island, London, 1972.

3. *Our Common Future*, Oxford University Press, London, 1987, p. 46.

In truth, economic literature of the last ten years abounds with definitions of sustainable growth or development; the WCED Report itself contains several.

The Global Economic Approach

This plethora of definitions results from the fact that the concept of sustainable development can refer to many aspects of economic reality. The picture might become more clearer if one distinguishes between two types of approach to sustainable development: a global economic approach and an 'environmental' or 'ecological' approach.

Some authors define sustainable devel-

opment very generally, meaning the entire combination of conditions and factors contributing to the maintenance or growth of income, improved standards of living and well-being. The promotion of such development consequently involves many aspects of economic activity, and in particular:

- control of population growth
- encouragement of technical change
- the optimal increase in the stock of factors contributing to the production of well-being
- pricing of resources reflecting their relative scarcity
- a change in the pattern of production and consumption in order to maintain the stock of scarce resources.

Many authors emphasise that the 'sustainability' of development implies the transmission or handing-down of growth potential to future generations, and in particular the maintenance of a stock of capital, a resource base necessary for the 'production' of well-being.

Others underline the importance, not of conserving this base as such, but of maintaining its productivity. The exhaustion of resources will therefore have to be offset by the accumulation of capital and by technical progress. Yet, in view of the many forms of interdependence between the economy and ecology, the maintenance of a fund of resources would be inconceivable on a limited national scale. This is why many authors stress the international, or worldwide, dimension of sustainable development. The WCED, the World Bank and the United Nations Environment Programme (UNEP), in particular, lay weight on their interdependence and solidarity with the Third World countries.

The 'Ecological' Approach

The stock of capital with which it should be possible to maintain the potential for growth of well-being and which must be transmitted to future generations comprises two different elements: the stock of 'artificial' capital, or all the goods and factors of production created by man; and 'natural' capital, or natural, renewable or non-renewable, resources. According to the 'ecological' approach to sustainable



Baldevi/Sygnma

Population is one of the factors that sustainable development has to contend with.

development, the maintenance and transmission of a potential for growth and well-being require the application of management principles specific to each of these components of the overall capital, each of which makes its own contribution to well-being. Thus 'artificial' capital has a special function; 'natural' capital (water, soil, fauna, flora, mineral resources, and so on) has another indispensable and, indeed, irreplaceable function. The production of 'artificial' goods by economic activity would not be sufficient in itself to ensure at least a constant flow of income unless those goods could fulfil the same functions as natural resources, or be substitutes for them (for example, wood might be replaced by plastics, natural substances by synthetic chemical products), always supposing that there were no technical limits to such substitutability.

Several authors emphasise that for many natural resources there is in truth no 'artificial' substitute⁴ (for example, essential ecosystems such as tropical forests, marshland, oceans, animal and plant species, many of which become extinct each year). Sustainable development should therefore ensure that this natural capital is safeguarded and transmitted to future generations, and for several reasons:

- Certain resources are not renewable, and are exhausted or lost immediately, as, for example, when an animal or plant species or a natural site disappears. We are faced, therefore, with the irreversibility of certain actions, or an extreme form of non-substitutability.
- Natural capital constitutes the very substratum of economic growth to which it contributes directly.
- Natural resources are themselves a source of well-being by virtue of the amenities they provide: the beauty of a site, leisure, factors for health, etc.
- The existence of many uncertainties, and in particular: the possibilities for substitution; irreversibility; the risks and thresholds of deterioration or exhaustion of resources; technical progress which would make it possible to compensate for the disappearance of certain natural resources; the tastes and preferences of future generations.

To sum up, if one adopts the ecological or environmental approach there can be



Shepard Sherbell/Picture Group-REA

Balloons being released as part of a project to examine the hole in the ozone layer above the Arctic.

no sustainable development without conservation of the world stock of natural capital. This approach places the emphasis on conservation of natural capital as a factor of production for which there is still no substitute.

Common Ground

Indeed, the supporters of the global economic approach and those of the environmental approach are agreed on the final objective of sustainable development, namely, the preservation of a growth potential for well-being.

In this case it is hardly worthwhile trying at all costs to work out a definition on which there could be general consensus, probably introducing a good dose of ambiguity and lack of clarity. It seems more realistic and more profitable to look at the practical consequences of certain aspects of sustainable development on which agreement exists, i.e.:

- Sustainable development means improving the well-being of present generations as well as preserving the patrimony of future ones, including man-made capital in the form of productive assets; the stock of scientific and technological knowledge; natural capital constituted by natural resources, ecosystems, and so on.
- Because of the specificity of certain features of natural capital (non-substitutability, irreversibility, uncertainty, etc.), it should be made the subject of particular attention.
- Sustainable development must be seen

against a background of international interdependence, particularly with the Third World countries.

To determine strategies to launch a process of sustainable development, it is essential to forge measurement instruments, devise valuation methods and perfect policy instruments.

Forging Instruments of Measurement

As the conservation of the stock of national capital constitutes a vital factor for sustainable development, one has to be able to measure its composition and any changes in it. Several complementary approaches may be envisaged.

The most immediate method is to use environmental indicators: 'flow indicators'—the quantity of pollutants released into the atmosphere, water or soil; 'quality indicators'—the concentration of pollutant substances in the atmosphere, water and soil; 'resource indicators'—wooded areas, fresh water resources, inventory of certain animal species, land use, and so on.

The OECD prepares such indicators more particularly by the publication every two years of an *OECD Environmental Data: Compendium* and about every five years a report on *The State of the Environment*.⁵ But a large quantity of data is difficult to consolidate. This is why it is necessary to develop, urgently, composite indicators which would provide an overall view of changes in the quality of the environment.

A second line of study at present being followed by the OECD is the development

of 'sectoral' indicators (transport, agriculture, energy, etc.) to assess the impact of these sectors on the environment and determining the policies to be introduced in order to reduce this impact.

To take the example of transport, three categories of sectoral indicators could be developed: indicators of sectoral trends significant for the environment (the motor vehicle stock, average number kilometres per vehicle, road network, etc.); indicators of impact on the environment (emission of pollutants, noise, etc.); sectoral indicators of structural and economic change which can serve as a lever to improve integration with environment policy (pricing, taxation, subsidies, etc.). The essential objective of this approach is to establish a relationship between the main characteristics of a sector of activity and the environment to ensure effective integration between the policies applicable in the sector involved (here, transport policies) and environmental policy. Such integration constitutes a central element in sustainable development.

Another approach consists of establishing a genuine system of resource accounting, since the conservation of natural capital calls for knowledge of the available stock and changes in it, an activity in which France and Norway in particular make substantial efforts.⁶ There are, for example, 'forest accounts' or 'water accounts' showing available stocks, according to their type (for instance, volumes of standing coniferous or hardwood forest, surface and ground water), and annual flows (for example, any increase in stock of standing wood, or reductions because of natural losses and exploitation, withdrawal and replacement of water). Unfortunately, as there is no monetary valuation of the magnitudes measured, different cases are difficult to compare in the national accounts system.

Finally, a study is currently being made of the construction of 'satellite accounts'

4. David Pearce, Anil Markandya and Edward Barbier, *Blueprint for a Green Economy*, Earthscan Publications, London, 1989.

5. *OECD Environmental Data: Compendium*, 1989, OECD Publications, Paris, 1989; *The State of the Environment*, 1985, OECD Publications, Paris, 1985 and forthcoming 1991.

6. *Information and Natural Resources*, OECD Publications, Paris, 1986.

in national accounts which would make it possible to quantify consumption, deterioration or exhaustion of natural resources in the calculation of economic aggregates. This has been tried out in Indonesia for forest, oil and land resources. The inclusion of a debit item for the exhaustion of these resources has made possible the calculation of an adjusted GDP, a 'net domestic product', which in 1984 was 4% lower than the 'traditional' GDP if one takes into account forest and land.⁷

Other satellite accounts should make it possible to identify expenditure by households and by government to combat pollution and other forms of damage to the environment ('defensive expenditure'). Treating this expenditure in the accounts, not as final consumption but as intermediate consumption, would lead to a downward adjustment in GDP.

The value of this approach lies, perhaps, less in the actual adjustment of GDP than in the explicit identification and entry in the accounts of 'defensive' expenditure, damage and consumption of natural capital. If GDP is shown to be reduced by a few percentage points, what is most useful is to be able to determine why and how this has happened. It is for that reason that the establishment of satellite accounts would seem particularly promising.

Devising Valuation Methods

Sustainable development is possible only if all the projects and operations that constitute economic development (industrial investment, construction of transport and tourism infrastructures, agricultural development, etc.) are themselves planned and carried out in accordance with the criteria of sustainability.

To that end a consistent set of methods has to be developed to make it possible, for each product, to set a monetary value on damage to the environment, and the

7. R. Repetto, W. Magrath, M. Wells, C. Beer and F. Rossini, *Wasting Assets: Natural Resources in the National Income Account*, World Resources Institute, Washington DC, 1989.

8. *Environmental Policy Benefits: Monetary Valuation*, OECD Publications, Paris, 1989.



Many natural resources—tropical rainforests, for example—have no artificial substitute.

consumption or destruction of natural resources, and to take into account irreversible effects and the well-being of future generations. Certain methods already exist, in particular for damage (monetary valuation of morbidity and mortality due to air pollution, losses to fisheries and agriculture due to pollution of water and air);⁸ but these methods must be refined and grouped together coherently, for example, in the form of a manual on project evaluation.

The problem of assessing of all the consequences of a project is all the more complex in that sustainable development has a marked international dimension: through direct or indirect physical links between ecosystems (acid rain, climatic change, and so on); and also through economic links. Massive imports by the industrialised countries of rough timber, for example, lead to excessive felling of forests in the developing countries; low taxes on rough timber combined with high duties on wood manufactures, will lead to similar effects; agricultural policies in the industrialised countries have obvious repercussions in the developing countries.

Can the accumulation of environmental

policies, conducted separately in different states, ensure sustainable development throughout the world? The international dimension raises the question of whether assessment of the impact of the policies of a particular country must take account of the overall impact on the rest of the world, assuming that it is possible. Some analysts point out that this question is all the more complex in that there may be substitution between different forms of capital: for example, a country which exports 'natural capital' (raw materials, timber) could, in theory, re-invest its in-



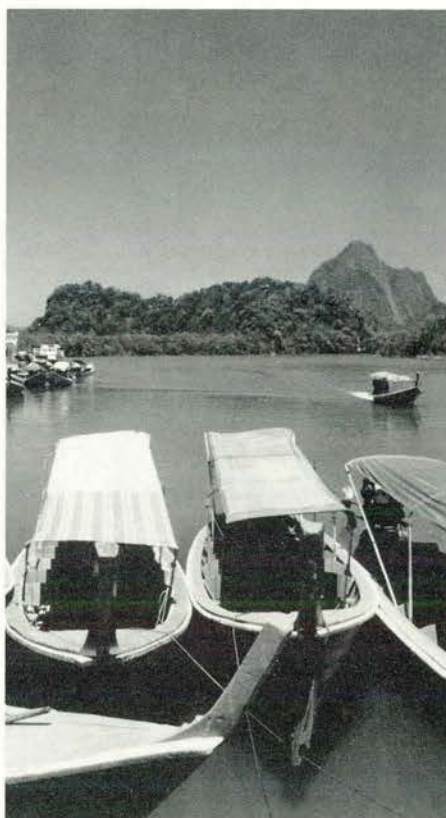
come in order to ensure a certain long-term sustainability for its development. But is this really possible?

Perfecting Policy Instruments

Instruments of measurement and methods of valuation must lead the way to the establishment of policy instruments for economic and environmental management that are capable of ensuring sustainable development. Three types of instruments are essential.

The first instrument is the pricing of environmental resources. It is not surprising that the emphasis should be placed on this management instrument—a basic principle in environmental economics—as one of the major ways of securing sustainable development. This is pricing resources in the strict sense, to ensure that their price reflects both utility and scarcity. Thus the price of a natural resource (forest, for example) should include three elements: the marginal cost of extraction or working; the marginal cost of damage caused thereby (for example, deterioration of the ecological or climatic functions of the forest); the marginal cost of the loss of non-renewable resources for future generations (the user cost). It is also important to include in the price of goods and services the social cost related to their production and use (in particular, the cost of damage caused by pollution).

Indeed, this was the origin of the Polluter-Pays Principle in 1972, the most recent principle of pricing resources, and the 'economic instruments' approach studied and advocated by the OECD.⁹ But al-



Etienne Poupinet/Explorer

A site of outstanding beauty is also a natural resource.

though the conceptual foundations and certain practical aspects of pricing resources and economic instruments are now well established, the practice is still far from being consistent and widely applied. Nonetheless, this recourse to market mechanisms to protect and manage environmental resources is at present arousing very considerable interest in most countries.

The second instrument is the integration of economic policies with policies for the management of the environment and natural resources. A process of sustainable development can be maintained only by making good *a posteriori* the damage and deterioration resulting from economic activity. Thus practices and policies applied in the different sectors of activity (transport, agriculture, energy, and so on) have to take environmental constraints into account at the planning stage. For example, transport pricing and taxation should be planned in such a way as to avoid expansion and structural changes harmful to the environment. The same applies to agricultural policies (taxation and

subsidies, for example), forestry, energy policies, etc. There is enormous scope here for investigation and innovation, and considerable potential for adjustment, that have barely been explored.

The third instrument requires the working out, internationally, of principles for action and machinery that can take into account these global aspects of sustainable development. These might include arrangements for financial transfers between industrialised and developing countries, allowing the developing countries to take measures which not only ensure the protection of their own natural and environmental capital, but also contribute to the solution of such world problems as climatic change or the disappearance of natural resources.

□ □

Alongside economic interdependence there is now ecological interdependence. And as well international solidarity there is now solidarity between the generations. This calls not only for new analytical and management tools but also, and more basically, a new look at the process of development, and wider responsibilities—in short, stronger political will. Some say that in the long run it is a question of survival. It is certainly a matter of common sense. ■



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9. **Economic Instruments for Environmental Protection**, OECD Publications, Paris, 1989. See also Jean-Philippe Barde, 'The Economic Approach to the Environment', **The OECD Observer**, No. 158, June/July 1989.





Spotlight on...

France

The performance of the French economy has improved significantly over the past two years. Although strong growth has led to a deterioration in the balance of trade, inflation and interest-rate differentials between France and its principal trading partners have narrowed and unemployment has fallen a little. The government has demonstrated its commitment to a strong currency by maintaining a tight monetary policy, and its decision to terminate all remaining foreign exchange controls has further enhanced the credibility of that commitment.

Nonetheless, social-security outlays have continued to increase rapidly, which could call for increased taxes and social insurance contributions in the coming years. Even if the economy keeps growing and measures are taken to curb the rise in social expenditure, further reform of the tax and social-security systems would help to improve labour-market flexibility and overall economic efficiency. The advent of the single European market is an additional pressure for reform, since many companies will re-assess their location within the EEC in terms of the tax and social-security regime of each country.

The total 'take' of tax and social security in France is one of the highest in the

OECD area, having surged from 35% of GDP in 1970 to 44.5% in the mid-1980s. Although it has levelled off in recent years, it still stood at 44.3% in 1988. Social-security contributions account for an exceptionally high proportion of the total, and revenue from value-added tax (VAT) is higher than in other major OECD countries; direct taxes on households contribute a very small part of government receipts.

Where Taxes Take Effect

The French income-tax system is remarkable for the high proportion of households that pay nothing at all—46.5% fell below the tax threshold in 1988—and the steep progressiveness of rates for those who are taxable. Social-security contributions, however, by virtue of their amount and the way they are levied, reduce the effective progressiveness of the personal tax system as a whole. Direct taxes and quasi-taxes absorb a smaller share of the gross earnings of the average production worker in France than in other OECD countries, but social-security contributions account for over two-thirds of the total charge.

Taxes on savings are now relatively low in France, and many popular savings vehicles are exempt from tax altogether. A new wealth tax took effect in 1989 to replace the original tax introduced in 1982 and abolished in 1987; the new tax affects 125,000 households with taxable assets of over FF 4.1 million. Corporate tax rates have been lowered recently to offset the progressive abolition of investment-related tax incentives.

The main source of tax revenue for the central government is an indirect tax, VAT. The government has already started to rationalise VAT by cutting the number of rates from five to three, and has also reduced the top rate from 33.3% to 25% and the bottom rate from 7% to 5.5%. Local government derives 80% of its revenue from direct taxes; more than half its tax receipts come from the business tax levied on firms. Households are taxed as occupants of their homes and also pay property taxes on buildings and land. Rates of tax are set by local authorities on the basis of their revenue requirements and vary considerably from one area to another.

Changes are necessary in the existing tax system to ensure more consistency in the treatment of savings and to bring

French tax rates more into line with other EEC countries. The 1990 Finance Act embodies some important measures aimed at introducing such changes. The risk of capital flight to avoid taxes should be reduced by the lowering of tax rates, especially on savings, as well as by the requirement for French investors to declare capital transfers out of the country. Yet more steps may be necessary to simplify the existing system. Tax avoidance might be further discouraged if tax regulations were streamlined to make them more rational and clear-cut.

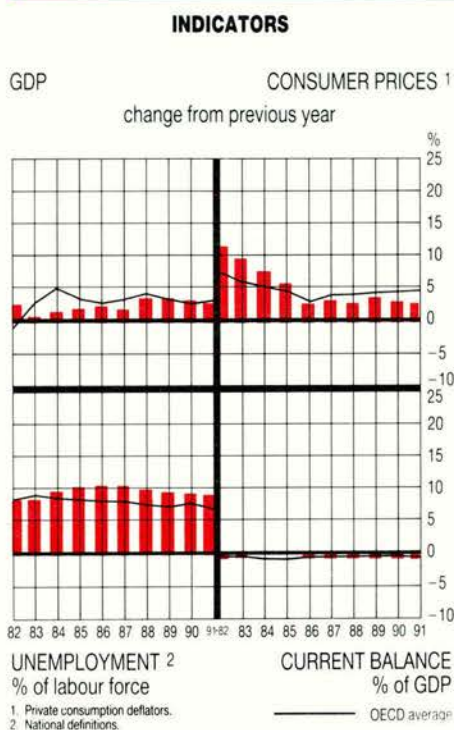
The government is expected to make further changes to the VAT system along the recommendations of the EEC Commission for a standard rate of between 14% and 20% and a lower rate of 4–9% for essential consumer goods. The higher French rate will probably be phased out eventually, although that would obviously mean a drop in receipts.

A particular concern for France is to eliminate aspects of its tax system that put firms resident in the country at a competitive disadvantage with those located in other EEC countries. Specifically, rules on VAT deductibility should be broadened to cover items such as motor cars, oil products (other than diesel fuel for road hauliers) and travel expenses, which cannot be offset against tax at present.

The Cost of Social Security

The French social security system is comprehensive but highly fragmented, consisting of over 500 schemes, some of which are administered directly by the state, others by employers, unions, and the like, and yet others are private. Social insurance contributions, which are based on income and give an entitlement to benefits, account for 80% of total resources, with employers accounting for 65% of that, employees for 28% and the self-employed for 6% in 1988. The state contributes 17%, while the remaining 3% is provided by 'solidarity' taxes on car insurance, tobacco and alcohol.

The level of public social expenditure is high in France, with transfer payments to households having risen by seven percent-



age points of GDP between 1973 and 1988. Social benefits represented 27.7% of GDP and 40.5% of households' gross disposable income in 1988. The main items were old age and health, which absorbed 44.7% and 33.9% respectively of total benefits and services. A substantial increase in retirement pensions and the aging of the population resulted in a sharp rise in old-age benefits between 1960 and the mid-1980s, and in 1988 they amounted to over 12% of GDP.

France is also one of the OECD's biggest spenders on health care, with public-sector outlays amounting to 6.4% of GDP in 1987 and users' expenditure to 2.1%. Unemployment compensation has levelled off during the 1980s, after soaring by a staggering 27% per annum in real terms between 1973 and 1981. Today, despite the relatively high jobless rate, total unemployment compensation as a proportion of GDP is about average for OECD countries (1.3%). More than twice as much is spent on family and maternity allowances (3% of GDP), which absorbed 12% of total welfare payments in 1988.

During the 1970s, rising social expenditure against a background of slower growth of GDP made it necessary to raise contributions, but since 1983 an increased effort has been made to contain the increase in spending. As a result, the burden of social spending has levelled off at 23.4% of GDP after rising from 16.6% in 1973. The growth in health spending has been checked by improved controls and limits on the types of drugs and treatments eligible for reimbursement. The rising cost of pension schemes has been curtailed by modifying the indexation system and cutting back on early retirement schemes.

The aging of the population, because of the fall in the birth rate and increased life expectancy, is already making the payment of retirement pensions a growing burden on the active population, and projections for the next 50 years point to a sharp jump in the proportion of retired people. Substantial increases in retirement pensions in the past two decades have brought the standard of living of the retired up to the equivalent of working people, and one possibility for funding the future growth in retirement pensions would be to share the burden between working people and the retired. Another possibility might be to raise the retiring age, or encourage people to carry on working, possibly by promoting part-time employment as a transitional stage between full-time employment and retirement.

As regards health spending, reforms are required to limit the rise in expenditure on drugs and out-patient care. The growth in the total cost of health care has not slowed in any enduring fashion, and the supply of medical care (as measured by the number of doctors in practice) is projected to continue increasing until well into the next century.

There is also room for more cost-effectiveness in social expenditure in general, by concentrating resources on those who need it most instead of, for instance, making family allowances available to everyone irrespective of their means. ■

Source: OECD Economic Surveys: France, OECD Publications, Paris, 1990.



Denmark

Denmark is gradually recovering from the recession it entered towards the end of 1986. While successful in other respects, the adoption of a medium-term adjustment programme in 1982 has failed to correct two underlying weaknesses in the Danish economy: its slow rate of income growth and the co-existence of a high rate of unemployment with a balance-of-payments deficit.

The medium-term strategy relied on two main policies. One was to boost the national savings ratio in order to eliminate the external deficit (and eventually reduce Denmark's large foreign debt), and the other was to engineer a re-allocation of resources to the exposed sector in order to improve the growth of output and income.

The Growth Conundrum

In a country with high per capita income, relatively low productivity growth is to be expected, but in Denmark the rapidly expanding labour force should have led to a higher rate of economic growth than has been achieved in recent times. This phenomenon is true in many sectors, suggesting that there are general distortions in factor allocation.

One cause may be government or EC subsidies and regulations, which are a major factor in sectors such as housing, agriculture, transport, energy and health. All of these have the benefit of tax concessions and direct or indirect subsidies, which result in the distortion of investment decisions. But the Danish tax system also

tends to increase the pressure for wage rises, as well as reducing incentives to work and acquire skills and discouraging private saving. Marginal tax rates may have reached a point where the extra revenue collected represents a small gain compared to the losses resulting from the associated distortions.

Another factor contributing to slow growth is the limited internationalisation of the Danish economy. In view of Denmark's geographical location, its external link-

ages are weaker than other OECD economies of similar size, both in trade and factor mobility. Denmark has failed to increase its participation in the international division of labour at the same rate as other countries and as a result has benefitted less from the associated efficiency gains.

Weak terms of trade and rising interest payments on Denmark's heavy external debt have also depressed the growth of national income. A quarter of a century of uninterrupted current-account deficits have resulted in foreign debt repayments that are now running at the equivalent of 4% of GDP. The deterioration in the terms of trade reflects not only Denmark's endowment of available land in conjunction with declining relative prices for agricultural products but also the absence of Danish industry from fast-growing markets in general, and the high-price, high-value-added end of the goods spectrum in particular.

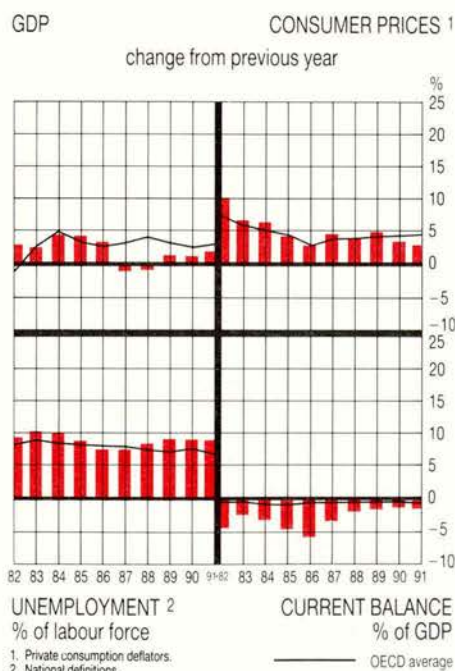
Recent developments have confirmed the soundness of the diagnosis behind the government's medium-term strategy. Although the weakness of demand since 1987 can be ascribed to lower investment rather than higher saving, it has demonstrated that containing domestic demand can improve the external balance and create the conditions required to shift resources into the open sector of the economy.

High Structural Unemployment

Increased saving is a prerequisite for improved economic performance. To transfer labour set free as a result of the savings strategy into the exposed sector it is necessary to improve competitiveness through wage moderation. If labour-market flexibility were increased, such moderation would not require unemployment in excess of its present high structural level. It is thus important to reduce structural unemployment which, defined as the minimum unemployment rate associated with non-accelerating inflation, is relatively high in Denmark (possibly around 8% of the labour force).

High structural unemployment is a re-

INDICATORS



sult of rigidities in the labour market, which is characterised by a high participation rate but also a high turnover rate. Although there is a large core of long-term jobless, about one-quarter of the labour force experiences a spell of unemployment in any given year. Many of these short periods of inactivity are caused by firms laying off workers when production schedules are slack, and taking them on again when the order book is fuller. These workers are effectively unavailable for alternative employment, and they have come to accept this practice since the unemployment benefit regime is particularly generous and the periods of inactivity are very short.

This type of 'unemployment by mutual consent' is widespread, affecting not only seasonal industries like construction and fishing but also parts of the public sector. But it may not be easy to eliminate: attempts to restrict entitlement to unemployment compensation may lead to demands for tighter conditions over lay-offs and redundancies, which could raise the structural unemployment rate.

The main long-term unemployment problem is the relatively large number of low-skilled workers in the labour force, possibly due to the combination of a highly compressed wage structure, a high negotiated minimum wage, and a progressive scale of unemployment benefit. Increases in the minimum wage have been seen in the past to put workers at the bottom of the pay scale out of work. Abuse of the generous unemployment benefit system, despite a recent tightening of eligibility rules, may also account for part of the high degree of joblessness.

Denmark has tried to boost employment by direct measures and spends a far higher proportion of GDP on labour-market programmes (including unemployment benefits) than any other OECD country. The government runs a 'job-offer' scheme providing temporary employment for the long-term unemployed to help them maintain contact with the labour market—but most of these jobs are provided by local government, since relatively few private firms participate in the scheme.

In the past year or two, the job-offer programme has started to put increasing

emphasis on education and training, enabling the unemployed to follow training courses while receiving their normal benefit. Another scheme, the 'Labour Market Education Programme' provides short periods of work-related training for unskilled workers who are in employment, during which they are paid more than normal unemployment compensation. This has led to allegations that employers 'park' surplus labour in the scheme during periods of slack production.

More Reforms Required

Anything that curbed the size of wage increases would help reduce the unemployment rate, insofar as it is bound, in the longer term, to remain close to the rate that ensures adequate competitiveness. Since high marginal income-tax rates appear to fuel wage inflation, there would seem to be reason to reduce them. Incomes policy, on the other hand, does not seem to be a viable option, given the importance of decentralised wage-bargaining.

An improvement in productivity growth might help to bring down structural unemployment by curbing price inflation, so that the labour market, too, would benefit from a more efficient allocation of resources. Until Denmark succeeds in dealing with these structural problems, it is likely to be adversely affected by the process of integration on which the European Community has embarked. Although this process should stimulate economic growth, it could weaken fiscal policy to the extent that tax harmonisation and free border trade might lead to a loss of revenue.

The government has already taken some steps to adapt the Danish tax system to the changing environment, but alternative sources of revenue might have to be found. In addition, the authorities should try to reduce public expenditure. Tax reform could also make a major contribution to raising the savings rate. ■

Source: **OECD Economic Surveys: Denmark**, OECD Publications, Paris, 1990.

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Italy

In terms of growth, balance of payments and the reduction of inflation, Italy's general economic situation has evolved favourably in the last few years. Nonetheless, apart from the persistent problem of the massive public-sector deficit, the biggest blot on Italy's economic landscape is the unacceptably high rate of unemployment. Not only is the national average rate of 12% high by OECD standards, but it conceals enormous disparities between the two halves of the country. The North tends to more or less full employment, while in the South over 21% of the workforce is without a job, and youth unemployment in particular is approaching 50%.

Correcting regional imbalances in economic performance is one of the major challenges facing Italian policy-makers. Regional disparities in both income per head and unemployment rates are larger in Italy than in the other major European countries. The problem is not a result of declining smokestack industries leaving the regions that once depended on them economically adrift; rather, it is a matter of a country being split in two, between the advanced and prosperous North and the poor and under-industrialised South, the 'Mezzogiorno'.

Productivity is weaker in the Mezzogiorno than the northern half of the country, and on almost any measure of economic performance the results compare unfavourably with those of the North. Not only is the unemployment rate three times higher, but output per head in the South is only about 55% of that of the North. And whereas purchasing power in

the North is higher than the average in the more affluent European countries, in the South it is on a par with Spain and not much higher than in Greece or Portugal.

Shifting Emphasis in Policy

In the eyes of many observers it was the unification of Italy in 1860 that began to aggravate the disparities between the North, already partly industrialised, and the poor and agricultural South, which proved incapable of competing with the North. Indeed, there was much debate about the *questione meridionale* (the 'southern issue') in the 19th century and the early part of the 20th. But it was only after World War II that fostering the economic development of the Mezzogiorno became a specific policy goal of central government. The first major step was taken in 1950 when a *Cassa per il Mezzogiorno* (Southern Development Fund) was set up to reduce the economic and social gap between North and South and to promote industrialisation in a bid to set in motion a self-sustaining process of growth.

In its early years, the Cassa focused its action on financing infrastructure development and supporting land reform. Between 1951 and 1960 its project funding accounted for an estimated 20% of total fixed investment in the region (although part of it was public investment that would have taken place anyway). But that policy did not produce the results that the Cassa had hoped for, and in the late 1950s it changed its approach and started

instead to subsidise industrialisation projects, with the result that its contribution to regional capital formation rose to nearly 30% in the 1960s.

During that period, support from the Cassa directly or indirectly generated nearly two-thirds of total industrial investment, compared to less than one-quarter in the 1950s. This approach was reinforced by increases in the resources of the Cassa in 1965 and again in 1971, when the government also decided to raise from 60% to 80% the proportion of net investment by public enterprises that had to be located in the South. In the early 1970s, investment financed or induced by the Cassa was equivalent to 40% of total capital formation in the region.

As a complement to these subsidies to capital investment in the Mezzogiorno, the government introduced a subsidy on labour in 1968 in the form of a 20% reduction in social-security contributions for newly hired employees in the region. That concession was extended in 1976 to full exemption for all workers hired by manufacturing companies.

In the second half of the 1970s, as part of a strategy of administrative decentralisation, further decision-making power was devolved to regional authorities and the role of the Cassa was substantially curtailed. Its expenditure fell by 45% in real terms between 1977-78 and 1987-88, and its contribution to regional GDP was more than halved from nearly 4% to less than 1.7%. The new policy shift culminated in the creation of a Ministry for the Mezzogiorno in 1986, which was given the task of promoting 'strategic projects'.

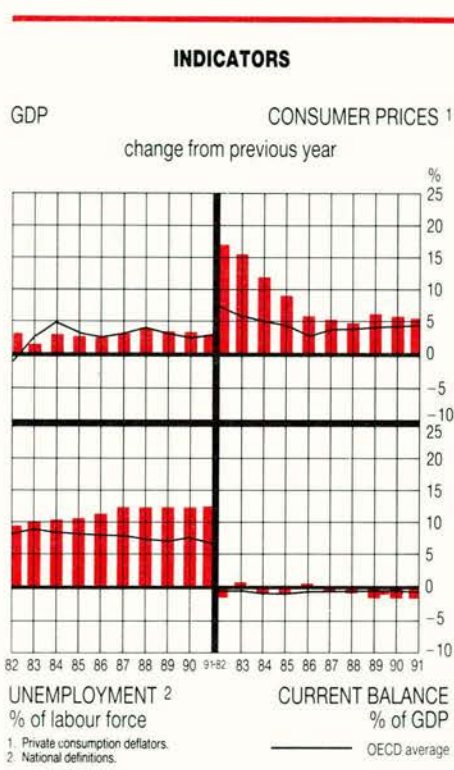
Its vocation was not to provide direct funding but to play a co-ordinating and supervisory role. Moreover, the reduction in direct investment support was exacerbated by the failure of the public sector to meet its targets for investment in the South.

In some instances, the government has also caused unintentional hardship to the South through the unanticipated side-effects of its macro-economic policy. Efforts to contain the budget deficit and the depreciation of the lira have unduly penalised the South. And the Common Agricultural Policy of the EEC may have increased the inequalities to the extent that proportionately more help has gone to northern farmers. But above all, it was the decision in the late 1960s to abolish regional differentials in wage rates—irrespective of differences in productivity—that had the most directly adverse impact on output and employment in the South. It led to a progressive narrowing of labour-cost differentials between North and South to the extent that, because of the productivity gap, unit wage costs are now higher in the South.

Evaluating Past Policies

On the whole, central government support for regional development has been substantial ever since the Second World War and, although considerable regional disparities persist, economic conditions in the South have improved dramatically over the past three or four decades. The North-South gap in total available resources had narrowed to 29% by the late 1980s from 39% in 1951 while, most significantly of all, GDP per employed person rose from 54% of the northern figure in 1951 to 75% in 1987.

Industrial development in the South was first concentrated on large manufacturing units in sectors such as basic metals, transport equipment and chemicals. In the North, on the other hand, small and medium-sized firms, often in traditional industries like textiles, clothing, leather and ceramics, have been the economic trailblazers in recent decades. But although the average size of southern plants, which used to be smaller, is now approaching



that of the rest of the country, these large facilities have not produced the expected spin-offs for small firms, since they tend to import their raw materials from abroad and obtain specialist services from the North.

The present disparities might be much smaller if the change of policy emphasis in the 1970s away from investment promotion and towards income maintenance had not reversed the trend in relative output per head. After narrowing by five percentage points between 1950 and 1973, the gap between North and South has since widened by two points.

The establishment of wage parity resulted in a particularly sharp deterioration in the employment situation in the South. Up to the 1970s, relative wages and productivity there had risen in tandem, but from the early 1970s wages continued to increase more rapidly than in the North while relative productivity stagnated. The resulting rise in unit labour costs wiped out the principal asset of the South—its abundant supply of relatively cheap

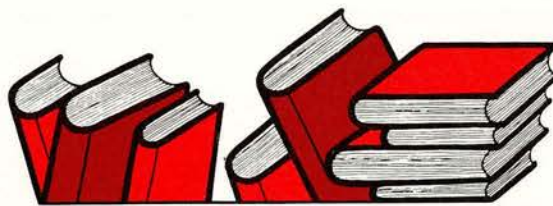
labour. The southern unemployment rate, which had been about the same as other regions in the early 1950s, rose sharply during the 70s, reaching 20% by 1980. In particular, despite efforts to foster industrial activity in the South, the region's share of total industrial employment remained quite static at 16% throughout the period.

That wages are above the market rate has not only created unemployment but has also boosted labour productivity, since it has priced low-productivity workers out of work. The narrowing wage differential also slowed the migration of labour to the north.

In the future, policy will have to focus on raising productive employment in the South, which will thus contribute to achieving the three major regional policy objectives: narrowing the gaps in income and output per head and reducing unemployment. In that light, regional wage parity is inappropriate; making local wages sensitive to regional market conditions would help restore the comparative advantage of the Mezzogiorno in unit labour costs, which should attract productive investment. On the other hand, there is a danger that re-opening the wage gap might trigger another large-scale migration.

To forestall such an eventuality, the optimal policy mix would probably be to subsidise both labour and capital to the extent that the marginal subsidy to either factor has an identical effect on moderating regional migration. But there is a drawback. Subsidies come out of public funds, and given the constraints on the public finances in Italy, subsidies may have to be provided at the expense of income transfers to southern inhabitants. Insofar as subsidies that promote investment are more effective at generating income over the longer term than income support, they should take precedence over transfers to households, which should be designed only to prevent 'absolute' poverty rather than to bring southern incomes generally up to the scale of those in the more productive North. ■

Source: OECD Economic Surveys: Italy, OECD Publications, Paris, 1990.



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